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## AVC Codec Advancements: Panasonic's AG-AC160 Hits A Sweet Spot for Shooters

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Dec 01, 2011

URL:<http://www.dv.com/article/114000>

The [Panasonic AG-AC160](#) represents Panasonic's latest entry into the field of 1/3" CMOS sensor-based AVC codec cameras, and what an entry! Panasonic has managed to find the sweet spot for cameras in this price range. Based on my testing, I strongly recommend it for photojournalists, documentary shooters and generally anyone who is looking for the maximum bang for the buck.

Here's why I offer this glowing recommendation.

While all of the other qualities of a camera play a greater role in image quality and output, form factor is the first characteristic I look at. The AC160 may seem at first to have a bulky build, but pick it up and you will see how ergonomically pleasing this camera is: its curved sides allow for easy hand-cradling, and it is amazingly lightweight. Its magnesium alloy body and high-impact plastic exterior lighten the load while making the camera durable. Furthermore, the hand grip adjusts to your comfort position of choice. Also note that Panasonic provides three mounting points in different diameters on the camera bottom to accommodate any mounting plate.



Its superb ergonomics extend to controls. Most notable here are the menu button and associated multi-position switch with center selection button, located toward the rear left of the camera. This makes changing menu options a snap, and you can often do it without moving your eyes from either the viewfinder or LCD screen. The Scene File rotary selection switch is located on the bottom of the handle, just to the left of the viewfinder. Again, easy to select.

I've saved the best control feature for last. On the bottom left of the camera is a mode switch that allows you to toggle between shutter speed/angle, frame rate, and lock. Without taking your eye off the image, you can change shutter—but more important for most users is the ability to dial in variable frame rates between 2 and 60 fps. It's not possible to ramp speeds while recording, of course.

Notice another multi-position switch in the control area. Using that function cursor key, you can change the camera's area for focus or iris. This is particularly important for auto-focus/auto-iris functions. In my testing, both of these worked without a glitch.



### Feature-Rich

Let's look at some of the other features that Panasonic has managed to pack into this camera. In addition to normal gain options, there is a "super gain" mode that allows gain of +24db and +30db. Don't assume that "super gain" will produce a noiseless image, though. That much gain will definitely introduce noise into the equation, but there are extreme-low-light shots that demand it and where, in fact, the noise enhances the feeling of near darkness. Speaking of noise, the camera does incorporate

noise reduction circuitry, but not to the extent of its larger sibling, the AVCCAM/AVC-Intra AG-HPX250.

Yet another impressive feature is the DRS (Dynamic Range Stretch) option. DRS applies a knee and gamma curve to extend the dynamic range to reduce blown highlights and enhance shadow detail. I was unable to measure in terms of f-stops how much the range was extended, but I estimate at least a full stop. This is significant when shooting scenes with wide highlight-to-shadow gradations.

Of course, there are both fully automatic and fully manual options. Unlike earlier Panasonic cameras in this price range, which I've both reviewed and owned, the AC160 has a real iris ring rather than a dial on the camera control area. However, common to most cameras in this price range, neither focus nor iris rings have stops, so they turn infinitely. All the focus/iris information you would ever need can be seen through the viewfinder or LCD screen. Note that the lens is a full 22x optical zoom for added versatility.

I have always loved the "Panny look." The AC160 retains the Scene File structure found on the AC and HPX series, with its Cine-Like Gammas and various matrix settings. I have always been partial to the look of the Cine D gamma, with its maximum dynamic range. Scene Files can be altered, saved, recalled—no change from previous Panasonic releases.



The AC160 records to dual SDHC/SDXC cards but with a great twist: record to the cards sequentially or simultaneously for backup, multiple distribution or whatever you like. Panasonic refers to its variant on the AVC codec as AVCCAM and includes the same bit rate options as prior releases: 6, 8, 17 and 24 Mb/s. It is switchable between 59.94 and 50 Hz to support all world standards. There is also a DV 720 x 480 resolution option.

Outputs include HD-SDI, HDMI, IEEE 1394 (DV only) and USB 2.0. Note that the HD-SDI output is 8-bit only. This should be more than adequate even for broadcast work, although 10-bit is preferable for extensive grading and compositing operations. But 8-bit rather than 10-bit is not at all a deal-breaker for me. And even if recording in HD resolutions, there is a built-in SD downconverter. In short, Panasonic has thought of every possible shooting combination.

The LCD screen is sharp. It's a bit small for my taste, but it's more than useable. And with those multiple outputs I've noted, it is always possible to add a larger LCD display.

Panasonic includes options for both vectorscope and waveform monitor scopes. I don't find a vectorscope that useful in shooting, but it's an option if you do. If you like it, use it; if not, then



turn off that option. The WFM, however, is important to my style of shooting, where I like to judge exposure not just by eye but by zebras and WFM.

#### **Who's It For?**

Who would be best served by this camera? As I said in my introduction, this is a great photojournalist camera. Its quality far exceeds what one would expect at this price point. The AVCCAM codec reads natively in Adobe Premiere CS5.5, Apple Final Cut Pro X and via AMA in Avid Media Composer. Panasonic has just released

a free AVCCAM import plug-in for FCP 7, which imports and transcodes to whatever flavor of ProRes the user selects. The codec is strong and compact, allowing long record times to SDHC/SDXC cards. But be sure to use Class 10 cards!

Documentary filmmakers will appreciate its lightweight and ergonomic form factor. Again, long record times make certain you won't miss the shot.

Because it has that "Panny look," the camera should intercut well as a B-cam in shoots where larger Panasonic cameras are employed.

The AG-AC160 combines quality, function and build in a remarkably affordable package. I heartily recommend it for shooters with a budget in the sub-\$5,000 range.

## **Panasonic AG-AC160**

### **General Specifications**

Weight: Approx. 5.3 lb., excluding battery and accessories

Dimensions (W x H x D): 7" x 7-11/16" x 17-1/4", excluding protruding parts

### **Camera Section**

Pickup Devices: 1/3-type progressive, 2.2-megapixel, 3MOS sensors

Effective Pixels: 1920 (H)°—1080 (V)

Lens: Optical image stabilizer lens, 22x motorized zoom,

F1.6 – 3.2 (f=3.9 mm – 86 mm)

35 mm conversion: 28 mm — 616 mm (16:9)

Filter Diameter: 72 mm

Optical System: Prism color separation

ND Filter: OFF, 1/4, 1/16, 1/64

Minimum Shooting Distance: Approx. 1 m

Gain Settings: 0/+3/+6/+9/+12/+15/+18/+24\*/+30\* dB

\*Assigned to the USER button (S.GAIN)

Digital Zoom: 2x/5x/10x, assigned to the USER button

Minimum Illumination: 0.4 lx (F1.6, gain +30 dB, shutter speed 1/30 seconds)



#### Panasonic AG-AC160

SCORE: 

**PROS:** Solid ergonomics, superior image quality, DRS option, sequential or simultaneous recording, VFR/shutter dial, 22x zoom.

**CONS:** Smallish LCD screen, 8-bit HD-SDI output, infinite turning focus/iris rings.

**BOTTOM LINE:** An excellent choice for video journalists, doc makers or indies. Easy to handle, with automatic or fully manual control. An all-around winner in this price range.

**MSRP:** \$4,795

**ONLINE:** [www.panasonic.com/business-solutions](http://www.panasonic.com/business-solutions)

# Scores: What Our Ratings Mean



Congrats! A score of 4.5 or better earns the DV Excellence Award



Very good



Solid choice



Almost



Don't bother



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