



The Professional Video SourceBook



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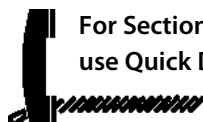
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SD (STANDARD DEFINITION)

STANDARD DEFINITION FORMATS

Mini DV

The Mini DV format uses 5:1 data compression to store one hour of digital video in the component (Y, R-Y, B-Y) format on a cassette slightly larger than a matchbox. Mini DV offers high image quality—comparable to Betacam SP, digital (PCM) audio, freedom from analog tape artifacts and dropouts, and most importantly, lack of generation loss. Mini DV cassettes are one-tenth the size, one-fifth the weight, a third of the cost, and twice the capacity of Betacam SP cassettes. Mini DV camcorders also have composite and S-Video outputs for compatibility with analog equipment.

- ◆ DV uses a type of intraframe MPEG-2 compression. It is DCT-based YUV 4:1:1 with 13.5 MHz luminance sampling. The data rate is 3 MB/sec (5:1) compression, out of an overall 20 MB/sec data rate. DV contains a sophisticated error correction code to eliminate the video “dropouts” of small format tapes. DV camcorders also digitize the analog video signal. This results in the DV system being unaffected by tape noise, inconsistent record levels and tape inconsistencies.
- ◆ The DV format features 500 lines of resolution, component recording, and 54 dB S/N ratio — better than Betacam SP.
- ◆ DV supports time code, separate video and audio insert editing and direct digital input and output, based on the IEEE1394 standard for multiple video stream transfers and editing with no generation loss. DV-compatible cards are available for Mac and Windows, to support non-linear editing, video servers and LAN videoconferencing.
- ◆ DV allows either 2 digital audio channels (usually stereo) at 16-bit resolution and 48 kHz sampling rate, or 4 digital audio channels at 12-bit resolution and 32 kHz sampling rate. For professional or broadcast applications, 48 kHz is used almost exclusively.

DVCAM

Sony's DVCAM is a professional version of the Mini DV format. The basic video encoding algorithm is the same, but there are a few very important differences. The consumer-oriented DV uses 10 micron tracks in SP recording mode. Sony's DVCAM professional format increases the track pitch to 15 microns (at the loss of recording time) to improve tape interchange and increase the robustness and reliability of insert editing. The DVCAM format also provides robustness and operability required for professional use while maintaining compatibility with the Mini DV format. In addition to its tape and cassette mechanics, the recorded data also provides full compatibility with Mini DV recordings. This means that full upward/downward tape playback is guaranteed and that signal transfers are accomplished without manipulation to the originally recorded data by use of i.LINK or SDTI (QS DI) interfaces. These features have proven the DVCAM as the most suitable format for integrated use with the widely popular DV transports and DV-based NLE's.

- ◆ The 15-micron track pitch assures frame accurate and stable editing at the tape edit point. The use of this track pitch also realizes full lip-sync audio and pre-read capabilities.
- ◆ DVCAM recorders and cameras can play back DV material. In addition the DSR-1600, DSR-1800 and DSR-2000 can playback DVCPRO 25 Mbps recordings, and automatically accommodate all standardized cassette sizes without the need for an adapter or changing menu settings.
- ◆ While the DV standard allows four recording modes, DVCAM machines will record in two of them: 2-channel mode (48kHz, 16-bit) and 4-channel mode (32 kHz, 12-bit). Because professionals demand absolute synchronization between audio and video, DVCAM machines record in the Audio Lock mode. Using Audio Lock, you can conduct insert edits, secure in the knowledge that audio will follow video with absolute precision.

DVCPRO 25/50

Panasonic created the DVCPRO family for electronic news gathering (ENG) use, with better linear editing capabilities and robustness. It has an even greater track width of 18 micrometers and uses another tape type (Metal Particle instead of Metal Evaporated). Additionally, the tape has a longitudinal analog audio cue track. Audio is only available in the 16-bit/48 kHz variant, there is no EP mode, and DVCPRO always uses 4:1:1 color subsampling (even in PAL). Apart from that, standard DVCPRO (also known as DVCPRO25) is otherwise identical to DV at a bitstream level.

DVCPRO50 is basically two DV-codecs in parallel. The DVCPRO50 standard doubles the coded video bitrate from 25 Mbit/s to 50 Mbit/s, and uses 4:2:2 chroma subsampling instead of 4:1:1. DVCPRO50 was created for high-value ENG compatibility. The higher data rate cuts recording time in half (compared to DVCPRO25), but the resulting picture quality rivals Digital Betacam.

GL-2

3-CCD DV Camcorder

The standard for prosumer-type camcorders, the GL-2 offers unmatched optical technology for superior image quality and shooting versatility. Using Canon's expertise in 35mm photographic and broadcast TV lenses, the GL-2 is equipped with Canon's exclusive L-Series Fluorite 20x optical zoom lens for outstanding imaging power in a lightweight, portable design.

Combining the L-Series Fluorite Lens with 3 CCD imaging sensors and Pixel Shift technology, the GL-2 achieves outstanding picture detail, sharper stills, reduced vertical smear, accurate color reproduction and wide dynamic range. In addition, the GL-2 features a 100x digital zoom, 2.5" LCD color monitor, digital effects, digital photo mode, SD/MMC memory card capability, DV (IEEE1394) and USB interface and a host of other features that give it the functionality of a professional camcorder. Functions such as SMPTE color bars, Zebra Pattern, Clear Scan and picture adjustments—make it ideal for newscasters and independent film makers. By combining advanced technologies in lenses and signal processing with manual controls and features, the GL-2 achieves a perfect balance of amazing picture quality and performance versatility.



FEATURES

3-CCD Image Sensor

- ◆ The GL2 maximizes the capability of the DV format using a 3-CCD image sensor (410,000 pixels each) and Pixel Shift technology to produce picture quality rivaling camcorders using CCDs with 680,000 pixels. In addition to outstanding clarity and natural color, Pixel Shift provides wider dynamic range, reduced vertical smear from bright light sources and sharper still images.

Optical Image Stabilizer

- ◆ Canon's superb optical stabilization system eliminates image shake due to a wide range of movement and/or high wind conditions. It corrects camera shake instantly so even hand-held shots at full telephoto, and shots taken from a moving car, are smooth and steady. Since it is optical, there is no loss of image quality as with electronic systems.
- ◆ A perfect complement to the high picture quality of DV, the stabilizer employs a unique Vari-Angle Prism within the lens to optically compensate for camera shake before light reaches the image sensor, resulting in smooth, steady video without degradation.

L-Series Fluorite 20x Optical Zoom Lens

- ◆ Canon has satisfied the demands of experienced image makers for years through the power, design and quality of their 35mm and broadcast TV lenses. The professional L-Series lenses incorporate Fluorite, a material which provides outstanding resolution, contrast and color reproduction, especially in lightweight, high magnification lenses. The Fluorite element inside of the lens defeats color aberration. It also precisely controls components of light providing an excellent balance of sharpness, contrast and color—critical ingredients of picture quality. This is unobtainable with conventional optical glass.
- ◆ With a 35mm focal length equivalent of 39.5 to 790mm, the 20x optical zoom transforms distant subjects into crisp, dramatic close-ups. There is also a digital zoom extending between 40x- 100x. At full telephoto it offers a telescopic 35mm equivalent of 79,000mm.
- ◆ An optional wide converter is also available. Using the WD-58 wide converter, the field of view will increase by 0.7x (28mm in 35mm focal equivalent) for indoor shots or

panoramic views.

Three Shooting Modes

- ◆ **Normal Movie Mode**— for recording video which appears smooth and natural during playback on a TV or video editing computer. The GL-2 also includes a 16:9 recording mode, which applies an electronic anamorphic stretch allowing you to fill the frame of a 16:9 wide screen TV.
- ◆ **Digital Photo Mode (1.7 MP)**— capture up to 1250 stunning 1.7 megapixel (1488 x 1128) images onto a 1GB SD Memory Card. Images may be also captured at VGA (640 x 480) in standard or fine compression. For added flexibility, take up to 700 still pictures on a Mini DV single tape (in SP mode). The camera records the still pictures for 6 seconds, as well as recording the sound for verbal notes or narration. You can search through the recorded tape for your photos using the supplied remote control.
- ◆ **Frame Movie Mode**— captures 30 frames per second of non-interlaced video. Similar to a motor drive on a 35mm camera, Frame Movie Mode lets you capture every gesture and expression of your subject with spectacular clarity. Ideal for grabbing grab high quality still images from video for

GL-2

Exposure Controls

- ◆ The GL2 offers both the versatility to meet all exposure challenges. Programmed AE (Auto Exposure) modes provide automated advanced recording techniques ensuring professional results in almost any shooting conditions. There are six AE programs available including Shutter and Aperture Priority, Spotlight, Sand & Snow, Full Auto, and Auto Mode. They give you creative freedom while allowing the recording control desired.
- ◆ For the times you want total control of all aspects of the exposure system, there is a manual mode. You control the aperture and shutter speed together - 27 shutter speeds from 1/8 sec to 1/15,000 of a second, and 23 aperture values with half-stop adjustments from f/1.6 to closed for precise brightness and depth of field control.

Picture Adjustments

To attain the best picture possible, the GL-2 automates and also allows manual control of the essential ingredients that go into capturing great images.

- ◆ Features automatic white balance as well as standard presets for indoors (3200° K) and outdoors (5600° K) or you can manually set the white balance.
- ◆ Adjust the black level of the video signal in 13 (±6) steps for the best shadow detail.
- ◆ The GL-2 will let you shift the color in 13 (±6) steps towards red or green. This is particularly useful when shooting under fluorescent lights when skin tones tend towards green.
- ◆ Adjust the saturation of the color in 13 (±6) steps, from off to oversaturated. This adjustment allows you to shoot in black and white.
- ◆ There are times when you are in dark locations but cannot add lighting to the scene. Gain Control increases the brightness of a recorded scene (although at the expense of some image noise). Available gain values are 0 dB, +3 dB, +6 dB, +9 dB, +12 dB.
- ◆ You can adjust the range of picture sharpness from softer to sharper depending on how you want to portray your subject. For example, for bridal scenes you may want to adjust the sharpness towards a slightly blurred image for a softer focus effect.

Shooting Enhancements

The GL-2 offers on-camera enhancements that help avoid common shooting errors and make capturing high-quality footage trouble-free. The shooting enhancements also include conventional features that are commonly found on broadcast camcorders.

- ◆ Clear Scan function allows you to record a computer screen or similar equipment without displaying a black band or flicker on the screen. The GL-2 can adjust shutter speeds from 61.9 Hz to 201.5 Hz in 117 steps.
- ◆ You may want to slightly adjust the image brightness to compensate for backlighting or for scenes that are being rendered slightly overexposed. When in Auto, Aperture or Shutter Priority Modes, you can engage AE Shift in the camera menu, then turn the menu dial to add or subtract (13 steps) a bit of exposure.
- ◆ Generates SMPTE color bars on tape, or used during shooting to let you check the adjustment of reference monitors.
- ◆ Character Record lets you superimpose data— month, day, hour, minute and second. Ideal for surveillance and law enforcement, data is permanently burned on to the video.
- ◆ With Index Record you can “tag” a shot that is good — or that deserves post-production attention. The notation is placed in the

sub-code section of the data code.

- ◆ Zebra levels can be set in the viewfinder and monitor to show areas of overexposure in the scene. Adjust either the shutter speed or aperture to eliminate the overexposure.
- ◆ Gives you the option of seeing camera data and settings in the viewfinder. The amount of information shown in the viewfinder can be set for: Full, Partial or No Display.
- ◆ Advanced Accessory Shoe lets you attach the optional VL-3 video light or the DM-50 Directional Stereo mic with the GL-2 exchanging data with them and supplying power directly to them. Simply slide them into the accessory shoe; no external power or cables are required.
- ◆ Tally lamp can be left on or turned off via



Digital Effects and Fades

The GL-2 offers you a variety of scene transition effects, producing smooth, professional-looking dissolve and wipe transitions between scenes as you record. Effects include:

- ◆ Black & White, which removes color from the video images; Sepia, Art, Mirror, Trail and Strobe, for a stop-and-go motion effect.
- ◆ Use the fader to start or end scenes with a fade to/from black such as the Fade Trigger, Wipe and Overlap.



Top Grip Record Control

In addition to a side hand grip with readily accessible controls, the GL-2 also offers a carrying handle with a duplicate set of recording and zoom controls. This makes mid- to low-angle shooting easier and more comfortable, and to accommodate your individual shooting style. Controls on both the side and top grips let you start and stop recording, take digital still photos, and zoom in and out. The top controls can be locked to prevent accidental operation.

Variable Zoom Speed

The side grip and top grip offer separate controls to adjust the rate of zoom. When using the side grip, a gentle press on the zoom control will give you a slow zoom. Press harder and the zoom speed picks up. The farther you press the zoom control, the faster the zoom speed. If you need a steady, fixed-speed zoom, you can choose one of three zoom speeds in the menu. The top grip zoom control can be set for one of three zoom speeds — low, medium or fast via the menu.

GL-2

High Performance

- ◆ Records time code signal (hour, minute, second and frame) along with the video signal. This will prove immensely beneficial if you are editing your footage on a PC or professional video editing system.
- ◆ Records date, time, shutter speed, exposure settings and other key data on the tape as you shoot. The data isn't permanently superimposed over your video. It remains hidden until you select it for display during playback or editing. Turn the display on or off and decide which data you want to display.
- ◆ Frequently used functions can be assigned a custom key to customize the camera to your shooting preferences or environment.
- ◆ LANC terminal allows you to connect the camera to the optional ZR-1000 Remote Control to operate the zoom speed, focus, recording, data display and other features. The remote attaches to most tripod handles.
- ◆ Add a Canon 420EX or 550EX Speedlite flash to the camcorder's Advanced Accessory Shoe. In Photo mode, the flash will function exactly as it would when attached to a 35mm camera, adding light to still images. The camera sets the flash duration, sending out a pre-exposure flash to ensure correct exposure before the main flash is sent out.
- ◆ With the interval timer, you can record for a selected time with selected interval. This function is convenient for nature observation such as flowers, sunsets, etc. You can select the interval time from 30 sec., 1 min., 5 min. and 10 minutes; and the recording time from 0.5 sec., 1 sec., 1.5 sec. and 2 sec.
- ◆ Store digital still images captured by the GL-2 using an SD memory card. Store 2000 fine quality still pictures or 4000 standard quality images on 1GB SD memory card.
- ◆ Equipped with a DV (IEEE1394) terminal for easy transfer of video to a Mac or PC for easy editing. It also has a USB connection for transferring still images to a computer.
- ◆ Whether you want a "streaming" background when panning, or brighter recording in low light, you can choose from three slow shutter settings - 1/30, 1/15 and 1/8 of a second.
- ◆ Supplied full-function wireless remote control can start and stop recordings, zoom the lens, handle all playback functions, control audio and video dubbing functions, and more from up to 16' away.

High-Resolution Color Viewfinder & LCD Monitor

Designed for both shooting and playback functions, the GL-2's 2.5" color (200,000 pixels) LCD screen will rotate 270° so you can adjust it to virtually any viewing angle. Your subject can even watch his or her performance as the video is being recorded. The screen folds neatly against the camera body when not in use. The screen can be used to display essential camera and tape function menus and indicators. Also has a high resolution (180,000 pixels) 0.44" color viewfinder.



Professional Audio

- ◆ The built-in microphone incorporates two pairs of pick-up elements each for left and right. This arrangement realizes a superior directional ability and fuller, richer stereo sound. In addition, you can change the microphone frequency characteristics to match the recording condition:
 - Normal: Use this mode for most recording situations.
 - Voice: Use this mode when shooting dialogue and low-level ambient noise (like air conditioning) doesn't let you record high quality sound.
 - Wind Screen: This mode prevents wind noise from interfering with the audio. Can be turned off if you want the mic to be as sensitive as possible.
- ◆ Automatic level control analyzes sound and adjusts the levels automatically to provide the best possible sound. However, for complete control, the GL-2 offers 2 channel manual audio adjustment. The audio level can be monitored by an external illuminated VU meter or in the viewfinder/LCD view screen.
- ◆ The GL-2's omnidirectional microphone delivers realistic, life-like, stereo sound. Additionally, using the GL-2's Advanced Accessory Shoe you can use the optional DM-50 microphone and MA-300 Microphone Adapter, both of which are powered by the shoe — no cables required. The MA-300 is equipped with 2 XLR connectors for use with professional audio

Audio and Video Outputs

- ◆ Audio output is accomplished via the same ports used for input. Video outputs include composite and S-Video. There is also a headphone jack with a 15-level volume adjustment for monitoring sound with headphones during shooting, during playback or performing sound checks
- ◆ A/D converter lets you input analog signal from your TV, VCR, or camcorder and record it onto DV. Great for making copies or preserving precious originals. You can then store the video and/or audio on your computer, a CD, or a DVD with a properly equipped computer.



GL-2 3-CCD Mini DV Camcorder

(Mfr # 7920A001 • B&H # CAGL2)

Includes CA-920 AC power/charger, DC-920 DC coupler, BP-915 battery pack, wireless remote control, A/V, S-video and USB cables, 8MB SD memory card, lens hood, large eyecup, and an SS-650 shoulder strap

XL-2

3-CCD DV Camcorder with Interchangeable Lenses

The ultimate DV camcorder, the XL-2 starts with a highly intelligent “open architecture” design, which allows you to customize it with the widest variety of optional accessories available. Plus you have extensive control over picture and sound adjustments to tailor the “look and feel” of each recording to your preference or even your clients’. Whether you define yourself as an imaging enthusiast, professional videographer or digital filmmaker there is an XL-2 digital camcorder configuration that’s just right.

The XL-2 combines Canon’s exclusive interchangeable XL Lens Mount System and superior optical technology to offer video producers and semi-pro videographers unmatched image quality and shooting versatility. Combine this with the unprecedented amount of manual control it offers, and you have the widest array of adjustments for a great variety of imaging possibilities. Additionally, the XL-2 was designed to overcome operational limitations and to complement most users’ preferences. Whether your subject is near or far, in a studio, in daylight or low light, the XL-2 delivers outstanding magnification, resolution, color reproduction, and high S/N ratio.



FEATURES

- ◆ Incorporates a 3-CCD system with a separate 680,000-pixel progressive scan CCD for each primary color (red, green and blue). Together they deliver outstanding image quality, highly accurate color reproduction and a wide dynamic range.
- ◆ The XL-2 can shoot in 4:3 and 16:9 aspect ratios. It shoots in a true 16:9 ratio without artificial letter-boxing or vertically squeezing a 4:3 image. In 4:3 mode the chip crops the left and right sides resulting in the conventional ratio with 350,000 used pixels per CCD. In 16:9 mode the chip is used at full width resulting in a true 16:9 image utilizing some 460,000 pixels per chip.
- ◆ The XL-2 features three frame rates to provide solutions under a multitude of different scenarios:
 - **60i Frame Rate:** 60 fields per second, interlaced, the standard video frame rate for NTSC video
 - **30p Frame Rate:** Produces video at the rate of 30 full non-interlaced frames per second, delivering spectacular clarity per frame.
 - **24p Frame Rate:** 24 fps progressive (both 2:3 and 2:3:3:2 pull down), produces video with the look and motion of film. Also has 1/48th shutter speed in this frame rate which exactly matches a film camera.

Creative Vision

The XL-2 is designed to bring out your professional side. Outstanding image quality, remarkable image control, interchangeable lenses, selectable aspect ratio and selectable frame rates. On-camera XLR and BNC connectors, 4-channel independent audio control, SMPTE time code, the list goes on. But to help deliver the cine look to video, the XL-2 offers you the ability to customize your video recordings using a number of variables, each one can be adjusted independently, giving precise control over the “film-like” appearance of your video. Create a cine look, with control of all the nuances, from gamma and knee to coring and hue. Adjust the setup level, skin detail and gain. The XL2 is designed to deliver creative image control when you want it, how you want it.

- ◆ Noise reduction removes video noise—non-picture artifacts such as those commonly found in low-light images—without hurting image detail or creating motion artifacts.
- ◆ Color Gain lets you adjust the saturation of the color in 13 steps from OFF to oversaturated. This adjustment will let you shoot in black and white, for example.
- ◆ There are two settings for vertical detail. “Normal” for vertical detail optimized for playback on an interlaced monitor, “Low” for a progressive scan monitor like a PC.
- ◆ Control the depth of black in the dark areas of an image. You can emphasize contrast in the video’s dark areas (by selecting “Stretch”) or deepen or enhance the dark area (by selecting “Press”).
- ◆ Change the degree of sharpness in the image. Images that do not require a lot of detail can be softened, such as imperfections during close-ups.
- ◆ The gamma curve of the image can be adjusted independently for a “video look” (Normal) or a “film look” (Cine).
- ◆ The highlight area level is adjustable (High, Middle, or Low) using the XL2’s knee circuit.
- ◆ Color Matrix lets you can change from a video (Normal) look to a film (Cine) look.
- ◆ Coring helps decrease image “noise” by reducing fine detail information that is not a major contributor to the picture detail.
- ◆ Adjust the Color Phase of the image towards red or green for exact control

XL-2

Exposure Control

- ◆ Programmed auto exposure modes provide automated, advanced recording settings for professional results in various shooting conditions. There are a variety of AE programs available: Auto, Shutter-Priority, Aperture- Priority, Full Manual, Spotlight, Low Light and Easy Recording.
- ◆ Using AE Shift, you can add or subtract a bit of exposure, making slight adjustments to the image brightness to compensate for backlighting or for scenes that are being rendered slightly overexposed. With AE Lock, you can hold the exposure at a particular setting, preventing unplanned exposure changes with a moving subject, for instance.
- ◆ In 60i and 30p modes there are 30 shutter speeds as well as clear scan. In 24p there are 29 shutter speeds including 1/48th second and clear scan shutter speeds.
- ◆ There are 23 aperture settings available with the 20x lens. This setting can be adjusted in 1/4 steps.
- ◆ The XL2 offers Automatic White Balance (including a fully automated mode, an indoor mode and an outdoor mode), and manual white balancing. The camera also gives you the option of setting and saving up to three white balance presets that can be reused for non-sequential shooting.

Total Image Control

- ◆ The Master RGB control offers 13 steps of adjustment to each of the red, green and blue components of the video signal.
- ◆ For professional fine tuning of the image, the XL-2's IRE setup level can be adjusted in 13 steps (± 6) for the best shadow detail.
- ◆ The Master Pedestal, which is the starting point of the gamma curve, can be adjusted in 13 steps.
- ◆ You can adjust hue, chroma, area, and Y level to determine the skin area and soften detail to reduce the appearance of skin imperfections. A zebra pattern identifying the skin area appears, which alternates with the normal picture.
- ◆ Control the amount of gain to balance between quality and getting the shot. Gain settings can be selected from: -3, 0, +3, +6, +12, and +18 dB, as well as automatic adjustment.

20x Professional L-Series Fluorite Optical Zoom Lens

The 20x lens features the finest optics with fluorite, achieving the famous "L-series" designation plus Super Range Optical Image Stabilization, zoom and focus presets and built-in neutral density filters. Fluorite provides outstanding resolution, contrast, and color reproduction, especially in lightweight, high-magnification lenses. The fluorite element inside the lens defeats color aberration an effect that causes a reduction in sharpness, contrast and color. It precisely controls components of light providing an excellent balance of these three critical ingredients of picture quality. The unsurpassed image quality is unobtainable with conventional optical glass.

The lens is the equivalent of a 42.3mm - 846mm lens on a 35mm still camera, when recording in 16:9 widescreen format. When recording in the 4:3 aspect ratio, it is the equivalent of a 51.8mm-1036mm lens on a 35mm still camera.

Canon's superb Super Range Optical Image Stabilization (OIS) system corrects camera shake instantly so that even hand held shots at full telephoto and shots taken from a moving car are smooth and steady—and maintain the integrity of the image.

By incorporating a gyro sensor to detect camcorder vibration and control a vari-angle prism, it continuously corrects the path of incoming light to the CCD image sensor to ensure smooth, steady video even at telephoto. Uses feedback from the camera to accelerate and refine the movement of the prism for advanced image stabilization.

- ◆ It features a fast f/1.6 aperture, variable to f/3.5 at full telephoto. The fast maximum aperture aids in capturing quality video in low light conditions.
- ◆ With a 72mm filter thread, the 20x lens offers the availability of a wide variety of filters from Canon and other suppliers.
- ◆ A six-blade circular iris is used for professional exposure control. This helps to deliver stunning video and still photos.
- ◆ The lens has two neutral density filters to help control light – for example under bright, sunlit conditions, or when less depth of field is desired. The filters, 1/6 ND and 1/32 ND, can be used independently.
- ◆ The focus ring and the zoom ring are independent controls on the 20x lens. They are servo controlled and the speed can be changed by the speed of the rotation of the ring. There is also a zoom control on the handgrip and one on the top handle.
- ◆ Zoom preset allows memorization of a zoom point, so that the lens can return to that framing by a push of the button. Zoom speed can easily be controlled.
- ◆ Focus preset function allows memorization of a focus point, so that the lens can return to that focus by a push of the button. A 'pull focus' can easily be accomplished. The speed of the focus can easily be controlled.



Custom Presets

Three custom presets allow you to store several camera adjustments, then retrieve them with the touch of a button for faster and easier camera operation. Among the adjustments are: color gain, color phase, sharpness, setup level, V detail, color matrix, gamma, knee, black stretch, skin detail (hue, gain, area, Y level). This feature lets you save the settings of a particular look that you've established for your video so that you can duplicate it even after another set up.

Using the IEEE1394 connection, these custom presets can be transferred to or stored on another XL-2 or a computer (with the appropriate third party software). They can then be reloaded to the original XL-2 when needed.

XL-2

Recording Options

- ◆ The XL-2's Clear Scan feature is designed to record a computer CRT screen or similar equipment without displaying a black band or flicker on the screen. The camera can adjust shutter speeds, allowing you to perfectly match the CRT's scan rate.
- ◆ Interval Timer function can be programmed to record at various intervals for varying amounts of time. This is time lapse motion videography. Set intervals include: 30 seconds; 1, 5 and 10 minutes. Set recording times include: 0.5, 1.0, 1.5 and 2.0 seconds.
- ◆ The XL-2 can generate SMPTE color bars, and a 1KHz reference tone. It can also record a SMPTE time code on the tape (drop, non-drop, rec run, free run, user bit). For specialized applications the date and time can be burned onto the video.

Color EVF/LCD Monitor

- ◆ The XL-2 has an electronic viewfinder (EVF) that is convertible between a standard eyepiece and a 2" high resolution LCD. The image is shown in 4:3 or 16:9 letterbox, depending on the shooting aspect ratio.
- ◆ For comfort, the EVF can be mechanically adjusted left/right and forwards/backwards.
- ◆ Unlike other EVF systems, viewfinder brightness, color, sharpness and contrast can be adjusted to suit individual shooting taste.
- ◆ The viewfinder has three indicators which light up to alert you of vital camcorder settings and operations (Shutter, Rec, Gain).
- ◆ If desired, the overlay information that normally disrupts clear viewing of the subject can be completely turned off, and a center crosshair can be turned on to help with framing.
- ◆ Displayed, but not recorded, Zebra stripes can be made to appear over any area that is overexposed. This helps guide aperture and shutter speed adjustment. Settings are 80, 85, 90, 95, and 100 IRE.



Optional Interchangeable Lenses

The only MiniDV camcorder with interchangeable lenses, the XL-2 offers you the ability to change lenses from the XL series of lenses or Canon's extensive range of photographic lenses. For wide angle imaging, Canon offers a 3x Wide Angle Lens with resolution in excess of 600 TV lines, while the 16x Mechanical Servo Zoom Lens gives you the flexibility of calibrated focus and zooms. For added optical lens

magnification, apply Canon's 1.6x Extender between the camcorder and the zoom lens. There is also a 16x Automatic Lens with Super Range Optical Image Stabilization.

Using the optional EF Adapter opens the XL-2 to a wealth of Canon EOS EF photographic lenses, a tremendous super telephoto boon to those producing wildlife, astronomy or surveillance videos. Other companies also offer a variety of specialty cine lenses that can be used on the XL2.

**16x IS II Zoom Lens:**

16x zoom lens (5.5-88mm f/1.6-2.6) resolves 600 lines of resolution exceeding the DV standard of 500 lines for extraordinary sharpness. Also has Super Range Optical Image Stabilization, built-in ND filter, manual focus and zoom rings, and a Push AF button. (B&H# CAV16XXL1S) **1399.95**

3x Wide-Angle Zoom Lens:

The 3x (10.2mm f/1.8-2.2) zoom gives the XL-2 a 70° field of view, making it ideal for shooting interiors as well as landscapes. Incorporates 18 of the highest quality, precision crafted optical elements to deliver extraordinarily sharp images as compared to wide angle converters. Six-blade iris for minimal light flare. Manual zoom and focus ring. Built-in 1.5x ND filter. 72mm filter size. (B&H# CA3XXL1) **1199.95**

1.6x Extender XL:

Increases the focal length of Canon XL lenses by 1.6x. (Not compatible with the 3x Zoom). (B&H# CA1.6XXL1) **389.95**

FU-1000 Professional Quality B&W Viewfinder:

A 1.5" B&W CRT viewfinder, the FU-1000 provides very high image quality. It has a horizontal resolution of 500 lines, while the large image facilitates focusing in tough shooting situations. (B&H # CAFU1000) **1479.95**

16x Manual Servo Zoom Lens:

16x (5.4-86.4mm f/1.6) manual servo zoom lens gives you the flexibility of calibrated power zoom, power iris (has auto iris capability), two built-in ND filters and calibrated manual focus. Has a macro and flangeback adjustment mechanism. Includes soft case. 72mm filter size. (B&H# CAM16XXL1S) **1399.95**

EF Adapter XL:

Allows the attachment of over 50 high-quality Canon photographic EF lenses—ranging from Fisheye to Super Telephoto to a choice of versatile zoom models—to the XL-2. Potential focal range in 35mm equivalent is 24mm to 17,280mm. (Not compatible with Canon EF-S lenses.) (B&H# CAEFAXL1) **449.95**

RC-72 Ratio Converter:

When shooting in 4:3 mode, this 0.8x converter provides the same angle of view as 16:9 mode. For the Canon 20x with 72mm filter threads. (Not compatible with the Canon 3x zoom lens.) (B&H# CARCXL2) **299.95**



XL-2

Conveniences

- ◆ The XL-2 has zoom controls on both the side grip as well as the carrying handle. On the side grip, choose from variable zoom (pressure controlled) or one of 16 constant zoom speeds.
- ◆ Built-in shoulder pad makes it easy to handle and less physically demanding over an extended period of time.
- ◆ When specific accessories compatible with the Advanced Accessory Shoe are attached, the XL-2 can exchange data with them and supply power directly to them. These include the DM-50 Directional Mic as well as the MA-300 Mic Adapter, which lets you connect two additional XLR microphones.
- ◆ Two custom keys are available, allowing you to save your own custom settings so common shooting modes can be readily duplicated. Select options from either the camera menu (Index Write, Zebra, VCR stop, TV screen, Audio 1/2 in, zoom grip and handle speed) or the VCR Menu (TV screen, Data code, Audio 1/2 in) and create up to two customized settings for each.
- ◆ Designed for extensive field use, the XL-2 has a chassis mounted on a single durable magnesium alloy frame, providing protection from external shock. A dust gasket on the tape door offers added protection.
- ◆ Has BNC, RCA, and S-Video terminals. There is a headphone jack with level controls, as well as Control-L terminal.
- ◆ Supplied wireless controller can operate the camera from up to 16' away. Remote sensors are located at both the front and the back of the camera.) The tally lamps light up to indicate the camera is in range and responding to remote control commands.
- ◆ Other than standard on-camera functions, there are four functions that can only be operated using the wireless remote: Special playback, Data Code on/off, Self-timer.
- ◆ Designed to consume as little power as possible, it comes with power saving features such as auto off (activated after 5 minutes of inactivity) to further extend battery power.
- ◆ Not only can you capture high quality video, you can stream it over the web. With streaming video, the content is compressed and encoded to make the file size smaller and more quickly transmitted. This lets the video be played as it is being received.

Professional Audio Functions

Using a high quality stereo electric condenser microphone, the XL-2 provides the highest standards in audio capture with a 16-bit, 2-channel recording option. It also has two additional 12-bit recording channels. This allows simultaneous recording on four channels. The XL-2 permits both automatic and manual control of audio levels.

Two built-in XLR connectors with phantom power (+48v) are designed for use with professional condenser microphones. This balanced connection allows for the use of very long cables without the introduction of outside noise.

The XL-2 has individual gain controls for each of the 4 audio channels. Along with these controls, there are various switches to automatic or manual level recording, select different inputs and attenuation. The audio level can be monitored in the viewfinder and the side of the camcorder by the built-in VU meters. There is a headphone terminal with level control for monitoring the audio when recording or playback.

For more creative control, the optional MA-300 microphone adapter connects easily to the XL-2's Advanced Accessory Shoe and powers without wires. The MA-300 lets you connect two professional XLR connector microphones in addition to the two connections on the camera body.



	GL2	XL2
CCD	1/4" 3CCD, 410,000 Gross Pixels, 380,000 Effective Pixels, using Pixel Shift Technology	1/3" 3-CCD, 16:9 and 4:3 switchable
Zoom	20x Optical 40/100x Digital	20x Optical / No Digital
Lens	4.2-84mm, f/1.6-2.9 (L-Series Fluorite Lens)	5.4 to 108mm, f/1.6-3.5
Filter Size	58mm	72mm
Image Stabilization	Yes, Optical Image Stabilization (OIS)	
Lux	6 Lux, 0.37 Lux (Slow Shutter at 1/8)	5.5 lux with f/1.6 in 60i mode, 4:3 aspect, 1/60 second shutter
Inputs and Outputs		
Composite Video	RCA (x1 Input, x1 Output)	RCA and BNC (x1 Input, x1 Output)
S-Video	—	4-pin mini-DIN
Analog Audio L/R	RCA (x1 Input, x1 Output)	RCA (x1 Input, x1 Output)
FireWire	IEEE-1394 4-Pin	IEEE-1394 4-Pin
Headphones	1/8" Stereo	1/8" Stereo
Microphone	1/8" Stereo	XLR in (x2), 1/8" Stereo
Card Slot	SD (Secure Digital)/MM (MultiMedia)	—
Weight	2.5 lbs	5.3 lbs

XL-2 Basic Kit:

Includes XL-mount 20x zoom lens, CA-920 charger/power adapter, BP-930 battery pack, color LCD viewfinder, DC-920 DC coupler, WL-D4000 remote, S-video cable, STV-150 stereo video cable, SS-1000 shoulder strap and stereo microphone.

(Mfr # 9549A001 • B&H # CAXL2).....CALL



GL-2/XL-2 ACCESSORIES

Lithium Ion Battery Packs and Charger



BP-930 and BP-945

CA-920

BP-930/BP-945
Lithium Ion Battery Packs

High capacity lithium ion batteries for the GL-2/XL-2, the BP-930 (3000mAh) provides approx. 4-hours of running time, the BP-945 (4500 mAh) provides 7-hours of run time.

BP-930 (B&H # CABP930)**74.95**

BP-945 (B&H # CABP945)**114.95**

CH-910 Dual Battery
Charger/Holder

Holds two battery packs and can charge them consecutively. Once charged, the CH-910 with batteries in place, can be clipped to a belt and connected to the GL-2, which will give you twice as long recording time. It charges any two BP-900 series batteries (B&H # CACH910)**139.95**

CA-920 AC Adapter/Charger

Charges BP-900 series batteries as well as supplies AC power to the GL-2/XL-2 (B&H # CACA920)**119.95**

DC-920 DC Coupler

Connects to the CA-920 AC Adapter/Charger to provide power to the GL-2/XL-2. (B&H # CADC920)**24.95**

CB-920 Car Battery Charger

Charges BP-900 series batteries from your car's cigarette lighter socket. With the DC-920, can also power the GL-2/XL-2. (B&H # CACB920)**119.95**

Video Lights

Optional light sources provide extra illumination when shooting either video or still images.

VFL-1 Light and Flash: Attaches to the GL-2's Advanced Accessory Shoe for cable-free operation. Powered directly by the camcorder's battery. It can turn on and off automatically. As a flash, it can fire automatically or act as a pre-flash to reduce the red-eye effect. (B&H # CAVFL1)**94.95**



VL-10Li II Battery Video Light: The VL-10Li II is a 10-watt video light that improves lighting and image quality whether you are shooting indoors or out. Powered by the BP-950G or BP-970G Lithium Ion battery and attaches to the GL-2/XL-2 accessory shoe. (B&H # CAVL10LI2)**79.95**

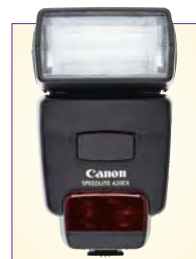
VL-3 Video Light: A 3-watt light, the VL-3 attaches to the GL-2's Advanced Accessory Shoe for cable-free operation. Powered directly by the camcorder's battery. Ideal for "filling" in shadows on bright days. (B&H # CAVL3)**39.99**

Speedlite Flashes (For SLR-style Photography)

The Canon Speedlite 430EX and the more powerful 580EXII feature E-TTL II metering, full swiveling bounce head zooms, custom functions, fast recycling time, and wide coverage. They can be used for adding light to images shot in Photo Mode. These electronic flash units attach to the GL-2's Advanced Accessory Shoe to provide SLR-type flash photos.

Speedlite 430EX E-TTL II Flash (B&H # CA430EX)**240.00**

Speedlite 580EXII E-TTL II Flash (B&H # CA580EX2)**409.95**



Hard System Cases

HC-3200 System Case for the XL-2: A solid, lockable system case that protects the XL-2 and accessories. A shoulder strap and carry handle are used to transport the case. 15.4 x 24.8 x 11.6", weight 13 lbs. (B&H # CAHC3200)**419.95**

HC-4100 System Case for the GL-2: A solid, lockable aluminum case for the GL-2 with a lens hood and a battery pack. There is room to store additional battery packs, MiniDV cassettes and a wide-converter, etc. This case conforms to most airline specifications for holding in overhead bins. A shoulder strap and carry handle are used to transport the case. (Mfr # 8031A001 • B&H # CAHC4100)**244.99**

GL-2/XL-2 ACCESSORIES

Microphone Accessories

MA-300 Dual XLR Microphone Adapter & Holder: Enhance the sound captured using your GL2. The MA-300 lets you use a microphone that has XLR connectors with the GL-2 and XL-2.

(Mfr # 8032A002 • B&H # CAMA300) **164.99**



DM-50 Directional Stereo Microphone:

A directional stereo microphone which connects to the GL2's Advanced Accessory Shoe. Since the Advanced Accessory Shoe provides all the necessary connections, no cables are required.

(Mfr # 3176A002 • B&H # CADM50) **149.95**

EQ-GL Wind Equalizer: Provides excellent dialog recording in all ENG (Electronic News Gathering) and EFP (Electronic Film Production) applications, with no dB loss (dialog) in the mid-range with a fully balanced frequency response curve, and with wind protection up to 40 mph. The EQ-GL1 excels in video/television and motion picture situations where space is tight and the wind is roaring.

(Mfr # EQGL • B&H # LIEQGL) **120.00**



EQ-XL Equalizer for the XL-2: A high-performance fabric/mesh slip-on windscreen, the EQ-XL Equalizer offers far higher wind protection than the common foam sock, along with a sweetened mid-range (to pull in clear, crisp dialogue). Constructed of unbreakable polyethylene, epoxy and nylon, the tough outer acoustical fur is the softest and finest in the world. The the EQ-XL attenuates wind noise 30dB for up to 40 MPH of wind protection. (Mfr # EQ102 • B&H # LIEQ102) **120.00**

ZR-1000 Zoom Remote Control

The ZR-1000 plugs into the GL-2 and XL-2 via their Control L (LANC) terminal, giving you wired remote control of such functions as record start/stop, zoom and focus. Ideal for using while the camcorders are mounted on a tripod.

(Mfr # 3089A002 • B&H # CAZR1000) **175.99**



Firestore DTE Recorder: A digital video recorder designed for the XL-2. It connects via a FireWire connection and allows you to record video directly to it, facilitating a tapeless workflow. The recorder supports the DV and HDV video formats, allowing you to record up to 4.5 hours of 1080i HD or DV25 footage.

60GB Firestore (Mfr # 0884V781 • B&H # CAFSCHD60) **1199.99**

100GB Firestore (Mfr # 0884V782 • B&H # CAFSCHD100) **1644.99**

Lenses and Filters

WD-58H

58mm 0.7x WA Adapter

The WD-58H screws into the front of the GL-2's zoom lens to provide an even wider angle of coverage (0.7x). This is great for those times when you are shooting in a confined space or shooting scenics. It is useful indoors as well, since you'll be able to fit more of your subject into the picture frame.

(B&H # CAWD58H) **169.99**



RC-72 Aspect Ratio Converter

A lens attachment for the standard lens of the XL-2 with 72mm filter threads. It provides the same angle of view as in 16:9 ratio while shooting in the 4:3 aspect ratio. This is a 0.8x adapter. (B&H # CARCXL2) **299.99**

FS-72U Filter Set for the XL-2

Three 72mm filters (UV, Neutral Density & Circular Polarizer) for better image quality under difficult lighting conditions. (B&H # CAFS72U) **119.99**

TA-100 Tripod Adapter

Allows you to quickly mount and dismount the XL-2 on or off a tripod. (B&H # CATA100) **139.99**

GY-DV5100

3-CCD Professional DV Camcorder

The GY-DV5100 offers superb image quality, operability and convenience. In addition to accepting Standard or Mini DV tapes, it features a 12-bit A/D converter and a 24-bit camera DSP with user selectable detail frequency positions for optimized video performance. Also offers 800 lines of horizontal resolution, sensitivity of F13 at 2000 lux, Anton Bauer Gold Mount and LOLUX mode. Shoots in either 16:9 or 4:3 format at the touch of a button. 4:3 pictures are converted electronically to 16:9, eliminating the need for an anamorphic lens. To reduce the block noise which is caused by dust adhering to the heads the camcorder incorporates an advanced drum assembly with specially designed "sweeper" heads. These dummy heads sweep off any magnetic material dropped by the tape or any dust that may have entered from outside the unit.



FEATURES

Highest Quality

- ◆ The GY-DV5100 uses three 1/2" 410,000 pixel CCDs, each equipped with highly advanced circuitry that virtually eliminates vertical smear when shooting bright lights against a dark background. Lag and image burn are also reduced to indiscernible levels.
- ◆ The ultra-sensitive camera (f13 at 2000 lx) assures effortless shooting in extreme low light situations, which increases creative flexibility & simplifies lighting requirements. The camera head has extra-high effective resolution of 800 horizontal lines.
- ◆ Signals converted by the 12-bit A/D converter go straight to the 24-bit DSP, eliminating any signal degradation that might otherwise be generated by analog circuits. This highly integrated "system on chip" includes edge enhancement technology to achieve detail reproduction of the highest precision. The enhancement level can be adjusted to suit the user's preference.
- ◆ Super-fast multi-stream parallel processing DSP creates an ultra-smooth gamma curve. The result is a dynamic range of over 400% that accurately reproduces fine details and colors in both shadowed and highlighted areas. The DSP also increases S/N ratio to 64dB, enhancing picture quality by having significantly improved clarity and even more accurate color reproduction.

High Performance

- ◆ Full Auto Shooting mode for point-and-shoot ease. Simply zoom, focus, and press the record button. Full Auto White lets you shoot continuously from dark to bright, from indoors to outdoors, without changing gain, iris, white balance or ND filter.
- ◆ Six-axis color matrix circuit ensures more natural, true-to-life tones. Five color matrix presets (Standard, Warm, Extra1, Extra2, Extra3) are provided to give you more creative control over the look and feel of your images.
- ◆ LOLUX (0.2 lux) mode increases sensitivity with almost no increase in noise. LOLUX increases gain by +36dB for high-quality video with excellent color balance, enhanced gradations, and minimal color smear even in low-light conditions.
- ◆ Functions for creative flexibility include soft detail correction, Skin Tone Detection, fully adjustable gamma, Iris over/under Black Stretch/Compress, Frame Mode, etc.
- ◆ In scan mode it is possible to select between video or "Hi Res Frame Mode" for a more cinematographic effect
- ◆ Two XLR connectors on the rear panel, as well one on the front, enable flexible audio input from multiple sources such as a shotgun mic plus wireless microphone.
- ◆ 1/2" bayonet lens mount makes it compatible with a wide selection of lenses.
- ◆ Select the detail frequency from 3 pre-set positions (Low, Mid and High), according to the application and requirements to optimize the image sharpness.
- ◆ Tri-mode 200,000-pixel 2.5" color LCD monitor provides a high-resolution image during shooting or playback. Its peaking adjust function allows quick, effortless focusing. Can display video only, video with text information overlay or data information.
- ◆ When color bars are output, audio reference level (test tone) is also output. The audio reference level can be set to -12dB or -20dB as required. In addition, a "wind cut" function is provided to minimize extraneous noise picked up by the microphone.
- ◆ Equipped with Anton Bauer Gold Mount, the camera is compatible with Dionic, HyTRON, ProPac and Trimpac Gold Mount batteries. With the VTR trigger button, the camera mounted light turns on or off automatically. In addition, using the battery and the optional QR-JVC-Digi bracket makes possible an interactive viewfinder fuel gauge that shows the exact battery remaining capacity as a % and camera usable time as minutes.

GY-DV5100

DR-DV5000 Firestore

Incorporating DTE (Direct-to-Edit) technology, the DR-DV5000 docks directly to the GY-DV5100 (sitting between the rear of the camcorder and the battery). One battery powers the camcorder, DR-DV5000 and FireWire disk drive. Interfacing the GY-DV5100 with the DR-DV5000 allows the internal transfer of video, audio, timecode and control information. The DR-DV5000 uses removable drives making it possible to simply swap out drives so the editor can get to work sooner while the camera operator continues to shoot. Internal buffer memory and shock proofing ensures worry-free operation. Additionally virtually any external FireWire disk drive can be connected to DR-DV5000 via the standard 6-pin FireWire port.

- ◆ DTE technology means DR-DV5000 files are recorded in your DV NLE's native file format. This means no file transfer, no capturing, no rendering. Use DR-DV5000 recorded files instantly with applications from Adobe, Apple, Avid, Matrox, etc.
- ◆ LCD displays timecode and disk space remaining. Preview clips from the DR-DV5000 in the GY-DV5100's viewfinder/LCD panel or on an external monitor.

- ◆ The GY-DV5100 can control record and record pause of DR-DV5000.
- ◆ An 80GB FireWire drive provides over 6 hours of DV video. It is also possible to daisy chain up to four external FireWire drives enabling long durations of uninterrupted recording.
- ◆ Retro disk/cache feature allows recording to begin up to ten seconds before the record button is pushed ensuring no action is missed. It is also possible to set timelapse recording for any user specified time.



GY-DV5100U DV Camcorder (Mfr # GYDV5100U; B&H # JVGYDV5100U)
With Anton Bauer Gold Mount battery plate, tripod plate and external microphone**4499.95**

DR-DV5000U4 Firestore (Mfr # DRDV500040; B&H # JVDREV500040)
With 40GB hard drive**1699.95**

1.5" B/W Viewfinder (Mfr # VFP116U; B&H # JVVFP116U)**1099.95**

BR-DV3000 Professional Compact DV Recorder (Mfr # BR-DV3000U; B&H # JVBREV3000U); With wireless remote control, AC adapter, AC cable, and vertical position stand**1399.95**

4" Monochrome Studio Viewfinder (Mfr # VF-P400U; B&H # JVVFP400U)
Requires optional SA-K400 mounting bracket**729.95**

Studio Viewfinder Mounting Bracket (Mfr # SAK400; B&H # JVS4K400)
For 4" monochrome studio viewfinder**44.95**

BR-DV3000 Professional Compact DV Recorder

The perfect complement to the GY-DV5100, the compact and stylish BR-DV3000 is ideal for archiving and basic non-linear editing. Easy-to-use, the BR-DV3000U is a simple, no-frills compact player/recorder that can be installed vertically or horizontally on the desktop. It can record and playback Standard DV or Mini DV tapes in NTSC and PAL. Equipped with composite, S-Video and DV I/O, the built-in RS-422 port makes it perfectly suited as a player/feeder transferring DV source material to a variety of formats for editing. For even more versatility, DVCAM recordings can also be played back directly on the BR-DV3000, making it easy to use DVCAM recordings as source material for editing.



- ◆ Built-in auto error correction system operates on a frame-by-frame basis to ensure accurate error compensation under any conditions, enabling consistent suppression of block noise and reliable, professional standard performance at all times.
- ◆ Closed caption signal can be recorded and played back through analog interface.
- ◆ When a camcorder is connected to the BR-DV3000 via the DV connector, the VCR will start recording 5 minutes before the tape in the camcorder ends. This enables continuous shooting for extended periods with no breaks in the recording.
- ◆ When the video signal ends or tape ends, playback starts again from the beginning of the recorded video or tape (video end repeat/tape end repeat).
- ◆ Built-in time code generator provides preset (rec run) and regen time codes. In combination with the 20x search function (100x max. in the FF or REW mode), this provides super-fast access to any target point on the tape with visible pictures.
- ◆ Easy-to-use on-screen menu simplifies setting and operation procedures. Menu setting can be done using either the buttons on the front panel or the wireless remote control.
- ◆ Indicator lights up whenever audio signals are input. Also provides a convenient way to check for the presence of the audio signals during tape playback.
- ◆ Tape mechanism is compatible with either vertical or horizontal operation, making it easy to install the compact BR-DV3000 in a narrow space or close to a non-linear system.
- ◆ Optional RM-G30 controller enables control of BR-DV3000 from a distance. The supplied wireless remote provides control over field/frame advance, menu display, audio reference level selection, color bar display and blank search, as well as basic operations.

AG-DVC20



3-CCD Professional DV Camcorder

The AG-DVC20 is a shoulder-mounted 3-CCD mini-DV camcorder with an enriched feature set that makes it ideal for educators and entry-level shooters, such as students, sports coaches, event videographers, and wedding videographers. It provides the stability, security and "on the job" respect of shoulder-style shooting, yet weighs just 4.4 pounds in full operating condition. The AG-DVC20 is equipped with three 460,000-pixel CCDs and has an optical 10x zoom with Electric Image Stabilizer to compensate for jitter and vibration. Other key features include an IEEE 1394 DV interface for PC-based non-linear editing systems, "Color Night View" that permits viewing at a minimum illumination of 0 lux, Cinema (Letter box), tele-macro, and soft skin shooting modes; five program AE settings, 14 shutter speeds, 2.5" color LCD monitor and 1/3" color electronic viewfinder; composite and

S-video and audio outs. The camcorder's One-Touch Navigation facilitates the control of all basic operations with one hand, allowing the shooter to handle a number of tasks quickly and easily without taking his eye off the subject.

FEATURES

- ◆ It features a convenient shoulder-held design, extra-large handle grip, fingertip zoom control, and LCD panel and viewfinder for easy framing and viewing. A shoulder mount camera yields more stable images with minimal hand shaking, and earns "on the job respect" Larger body size also acts as a deterrent against theft.
- ◆ An absolute prerequisite for a professional-level camera, the AG-DVC20 combines a 3-CCD optical system with Panasonic's digital processing Advanced Color Pure Engine to capture consistently sharp, vivid images.
- ◆ The AG-DVC20 is equipped with a powerful 10x optical zoom lens (filter size is 43mm). Add the digital zoom function, and you have ultra-telephoto zooming all the way to 500x. Large multi-speed zoom rocker is conveniently positioned on the handle grip for easy, responsive zoom operation.
- ◆ The cursor key and linked LCD icon display offer one-touch navigation, making it easy to set the recording mode and play back the results. This smart, easy operation switches the display to match the mode for Auto, Manual or Play.
- ◆ Color Night View mode produces bright, vivid colors even in dimly lit locations. The 2.5" side LCD can also be used as a light source for shooting in total darkness in the Zero Lux Night View mode.

- ◆ The AG-DVC20 features a bright 2.5" color LCD monitor. When shooting under strong sunlight, just press the Power LCD switch to increase the LCD brightness for a clearer, crisper view. The monitor is positionable to almost any angle including self-portrait

position.

- ◆ Choose AUTO for easy recording, or MANUAL to manually focus with the focus ring and get full control over the aperture and shutter speed. Switching from Auto to manual focus is done by pushing down a spring loaded

A Full Range of Easy-to-Use Functions

- ◆ Trigger and zoom lever on top handle grip
- ◆ IEEE 1394 DV In/Out terminal
- ◆ Composite and S-Video Out
- ◆ IEEE 1394 DV input/output terminal
- ◆ Built-in stereo mic with zoom function
- ◆ External stereo mic input; audio output (RCA x 2)
- ◆ Built-in speaker
- ◆ Digital EIS (Electronic Image Stabilizer)
- ◆ "Joystick" menu for easy VCR playback.
- ◆ Digital Electronic Image Stabilizer (EIS)
- ◆ Energy efficient and lightweight (4.48 lbs.)
- ◆ Includes two 1350 mA batteries for up to 4 hours of shooting.

**AG-DVC20 Camcorder** (Mfr # AG-DVC20; B&H # PAAGDVC20)

Includes an AC adapter, two CGR-D16A 1.6Ah batteries, shoulder strap, wireless remote control, cleaning tape, AC and DC cable, AG-YUSC60H soft carrying case.....**1249.95**

7.2v, 1600mAh Lithium-Ion Battery Pack

(Mfr # CGRD16A1B; B&H # PACGRD16)**59.95**

7.2v, 2800mAh Lithium-Ion Battery

(Mfr # CGPD28A; B&H # PACGPD28).....**99.95**

AG-DVX100B

3-CCD DV Camcorder with 24P Cinema Capability

The AG-DVX100 shattered conventional notions of what a DV camcorder could do, delivering image quality, functions and operating ease suitable for professional applications. As the first model in its class to offer the 24p/30p Cinema mode, the AG-DVX100 was particularly well received by filmmakers and image creators.

With many design and feature enhancements such as higher image quality, greater power efficiency, more delicate zoom control, higher resolution viewfinder, and over 20 new features like scene files and timecode transfer via IEEE1394 cable, the AG-DVX100B takes the DV camera a big step forward. Inherited features include Leica Dicomar wide angle lens, XLR audio, large LCD monitor and viewfinder, RGB Gamma Processor, timecode functions, automatic and customized shooting, and scene files. Lightweight, mobile, versatile and easy to use, the Diamond Graphite AG-DVX100B has everything you need for creative content production and active image gathering.



FEATURES

Lightweight Design

- ◆ AG-DVX100B's design combines a compact, lightweight body (4.2 lbs.) and a stable, secure hold. The center of balance is located precisely at the handgrip. Short body means easy maneuverability, and with no need for a wide-angle conversion lens, weight balance is ideal for comfortable shooting. Low-center-of-gravity design and skeleton lens hood greatly improve forward vision.

3-CCD Image System

- ◆ Delivers the highest sensitivity and picture quality in its class. At its heart is a 3-CCD RGB system comprising three 1/3", 410,000-pixel progressive CCDs developed especially for broadcast and professional applications.
- ◆ On-chip lens design achieves sensitivity of f/11, allowing the AG-DVX100B to record in low light down to 3 lux. Picture quality is outstanding, with a high S/N ratio that means less noise in darker parts of the image and low smear that allows shooting in sunlight or under bright spotlights.
- ◆ 12-bit A/D converter (same processing as broadcast camcorders) precisely digitizes the gradation and colors captured by the progressive CCD. The converter supports gamma switching and other image adjustments to achieve rich image expression.

Automatic and Customized Shooting

- ◆ Just press the Auto button and you are ready to shoot (turns on Auto Iris, Gain, Auto Tracking WB and autofocus). The Auto button can also be customized by removing functions and setting the gain to any value desired. With the Auto function you have the best of both worlds — the speed and ease of automatic operation, and the precision of manual control
- ◆ Provides three user buttons for customized operation, each of which can be assigned any one of 11 functions. The assigned functions can then be accessed at the touch of a button. This lets you customize the AG-DVX100B for quicker, easier, more versatile operation. Assignable functions include: Display/hide SMPTE color bars; auto iris spotlight and/or backlight correction ON/OFF; fade out to a black or white screen (linked with audio); display camera settings in viewfinder/monitor; auto tracking white balance ON/OFF; lock/unlock white balance in ATW operation; slow shutter mode ON/OFF.
- ◆ One press of the AWB button is all it takes to adjust the white and black balance. There are three white balance values to select from: one that's preset, and two (A, B) that you can set and save in memory. The auto tracking white balance (ATW) function can also be assigned to any of the three positions. The ATW mode supports fast, active shooting by adjusting the white balance in real-time as lighting conditions change.

Scene Files

- ◆ Scene file dial for quick, easy setup. Set this dial for any particular shooting conditions, and later you can retrieve the settings instantly. Six preset files are provided; you can change any of the six file names and their settings as desired. A rib protects the scene file dial to prevent unintentional file changes.

F1:	—	Standard settings
F2:	FLUO.	Indoor shooting under fluorescent lights
F3:	SPARK	Highlighting subjects at receptions, dinners, and other gatherings
F4:	B-STR	Enhanced gradations of luminance in low light scenes
F5:	24P	24p mode + Cine-Like-V gamma
F6:	ADVANC	Advanced 24p mode + Cine-Like-D gamma

AG-DVX100B

High-Quality, Native Progressive 24p/30p Mode

Offers three shooting modes: 24p (24 fps, progressive) for film look, 30p (30 fps, progressive), or standard 60i (60 fps, interlace). Thanks to its progressive CCD, the AG-DVX100A creates native progressive images with outstanding vertical resolution. With its high mobility and low costs, the AG-DVX100B is the ideal tool for producing indies, shorts, or



30p image
(30 progressive fps)

60i image
(60 interlace fps)

24p Advance Mode —

In 24p mode, images from the CCD can be 2:3 pulldown converted (24p Mode) or 2:3:3:2 pulldown-converted (24p Advance Mode) and recorded onto tape (60i). The tape can be played back or edited on a DV system. True 24p editing can be achieved by uploading 2:3:3:2 pulldown-converted images via an IEEE1394 DV interface to a compatible non-linear editing system. The 24p Advance Mode allows 60i/24p conversion with minimal image degradation and on the fly 24 frame extraction.

Three 16:9 Wide Modes

Has three modes for shooting 16:9 wide images. Use the optional 16:9 conversion lens (AG-LA7200G) to take full advantage of the higher image quality made possible by using all of the CCD pixels. With the standard lens, you can record in letterbox mode or squeeze mode. Activating the aspect ratio function on the LCD allows for a letterbox display for easier framing when shooting in Squeeze Mode or when using the anamorphic lens.

RGB Gamma Processor for Rich Cine-Like Tones

Unique gamma functions like Cine-Like gamma curves produce images strikingly similar in tone to film images—greatly expanding the expressive capability of the camera. For each of the RGB signals, the gamma curve settings are processed immediately upstream from the digital signal processing circuit. This helps achieve outstanding image quality.

Leica Dicomar Wide Angle Zoom Lens

- ◆ The AG-DVX100B incorporates a Leica Dicomar with low-dispersion glass to reduce color aberration and increases resolution, while a multi-coating process minimizes flare and ghosts. The result is sharp, crisp, beautifully rendered images with delicate nuances and exceptional shading. The lens features 15 lens elements in 11 groups, including three aspherical lenses. Panasonic's advanced OIS (Optical Image Stabilizer) drastically cuts the blurring caused by hand shake. Optical processing with an automatic correction function helps assure consistently clear, sharp images.
- ◆ The zoom lens extends to 4.5mm (equivalent to 32.5mm on a 35mm camera), covering the full wide-angle range needed in most broadcast and professional shooting. It gives you ample range for close-ups, recording in small rooms, and self-recorded interviews. There's no need to carry around a bulky wide-angle conversion lens. And with a minimum object distance (MOD) of approximately 1.9' in telephoto mode, it has the maneuverability of a handheld camera.
- ◆ The cam-driven (mechanical) manual zoom ring provides the same smooth, easy zooming as cameras with interchangeable lenses. Its direct operation gives you fast, precise zooming control. You'll also notice the AG-DVX100B's improved operating feel. When you turn the zoom ring, you experience the similar steady resistance as with 35mm lenses. The AG-DVX100B is also equipped with a servo-driven zoom that allows slow zooming to a dramatic 30 seconds.
- ◆ Enjoy quick, sharp manual or auto focus. In manual mode, the focus ring provides the same feel and responsive control as cameras with interchangeable lenses. In auto mode, you get the quick, sharp focusing needed in news gathering or when shooting at a high or low angle. When set to infinity, the focal distance is immediately prepared for the next manual focus. When in manual mode, pressing the Push Auto button temporarily activates auto focus. Macro Focus can be achieved either manually or automatically when the zoom lens is in the wide angle



Professional Audio

- ◆ In addition to built-in stereo microphones, the AG-DVX100B is equipped with 2 XLR audio input terminals with a 48v phantom power supply for broadcast use. The terminals are positioned low on the camera to minimize the possibility of the cables being snagged when a hand mic is in use. Both input 1 and input 2 can be switched between line and mic, and Audio is locked to the Video unlike consumer DV camcorders.
- ◆ The AG-DVX100B has large level-adjustment dials as DVCPRO camcorders. This practical design incorporates professional operating features that have been refined over years of use on location. A switch lets you select built-in mic, input 1, or input 2 for the audio input of both left and right channels. Auto gain level control can be turned on and off, and the input mic level (-50 dB/-60 dB) can be selected from the menu.

3.5" Color LCD Monitor and Large Electronic Viewfinder

- ◆ Large 3.5" color LCD monitor rotates 270° for extreme shooting flexibility. The display is bright, too, for easy viewing when monitoring images or selecting the menu settings. A detail (PEAKING) function helps assure a sharp, easy-to-see display.
- ◆ The large viewfinder is easy to see through, even with your eye at a slight distance, and it tilts upward 100° for easy low-angle shots. The AG-DVX100B also adds a B/W display mode (with the same high resolution as the color display), detail (PEAKING) function, and image adjustment menu.



AG-DVX100B

Gain, Iris, Shutter Speed, ND Filter

- ◆ Up to 18 dB Gain: The selector has three positions: L is fixed at 0 dB; M and H can be set to 0, +3, +6, +9, or +12 dB. +18dB is accessed via the USER 1, 2 or 3 switch.
- ◆ Allows smooth, gradual manual or auto iris adjustment. The iris dial allows adjustment even when in Auto mode. Either backlight compensation or spotlight compensation can be added to the auto iris adjustment.
- ◆ Maximum shutter speed is 1/2,000 sec. When shooting a computer display, synchro scan function matches the shutter speed to the monitor eliminating the moving bar.
- ◆ Two ND filters (1/8 ND, 1/64 ND) are built-in and easily accessible.

Conveniences

- ◆ The AG-DVX100B comes equipped with a DV (IEEE 1394) 4-pin terminal that makes it easy to upload data to a PC or DV VCR.
- ◆ End search: Automatically searches for the last recorded portion of the tape. Convenient when preparing to start the next recording.
- ◆ Mode check: Displays a list of the camera settings on the viewfinder and monitor. Makes it easy to check settings before recording.
- ◆ 2-Pattern zebra: Displays an overexposure warning on the viewfinder and monitor. Select any two levels from among 80%, 85%, 90%, 95%, 100% and 105%.
- ◆ Rec check: Plays back the last portion of a recorded passage for easy checking.
- ◆ Index: Enables marking while recording. Convenient for searching after recording.
- ◆ Tally lamps provided on the unit's front and rear menu switchable.
- ◆ Audio dubbing allows voice-over recording on a recorded tape via an external mic.
- ◆ Line recording lets you record a video signal input from an external source.
- ◆ Unlike consumer DV camcorders, the audio is locked to the video with a PLY circuit.
- ◆ Reversible eye cup for left and right eyed shooters.
- ◆ Built-in SMPTE color bars useful for setup.

Synchro Lock

- ◆ With Synchro Lock function, the AG-DVX100B can remotely start and stop an external DV device connected to it via a DV cable. Three recording modes protect against mistakes: record only onto the external recorder, record onto both the AG-DVX100B and the external recorder, begin external recording when the AG-DVX100B tape ends.

Interval Recording

- ◆ The AG-DVX100B's interval recording offers exceptionally high quality. Use it to observe the growth of a plant, monitor progress at a construction site, or for a frame-by-frame recording effect. Recording times can be set from 0.5 to 2 seconds, at intervals from 15 sec. to 10 minutes. One-Shot mode for animation records for a set number of seconds each time the Start/Stop button is pressed.

Time Code Functions

- ◆ Connecting two AG-DVX100B's together with a DV cable allows synchronous time-code setting, which then enables time-code-locked editing of clips recorded with multiple cameras for "TC synchro editing". The built-in SMPTE timecode generator/reader lets you select, preset and regenerate the DF/Non-DF and Free Run/Rec Run modes. User Bits let you record your choice of date, time, frame rate or user data.

Dual Record Buttons

- ◆ In addition to the lens grip, the upper part of the handle grip contains both the Rec Start/Stop button and a lens zoom control. This design assures easy shooting even at low angles or when using a tripod. The zoom speed can be set to any of three levels or off.

Built to Last

- ◆ The AG-DVX100B features the same magnesium alloy diecast chassis as the DVCPRO broadcast models. This tough, rigid unit protects the high-precision mechanism, giving the AG-DVX100B outstanding reliability and durability. Built for professionals, the AG-DVX100B stands up to the bumps and jolts that occur in the field. To minimize dropout and head clogging, it incorporates a cleaning head and automatic head cleaning function.

AG-DVX100B: Includes Battery Pack, AC Adapter/Battery Charger, AC and DC cables, Wireless Remote Control, Viewfinder Eye Cup, Microphone Holder, Shoulder Strap and 63-Minute Master Series Cassette. AG-DVX100B is also bundled with full versions of Magic Bullet's Magic Bullet Looks \$399 and Instant HD \$99 (list price value) plug-ins.

(Mfr # AGDVX100B • B&H # PAAGDVX100B) **Call**



LCD Monitor Hood (Mfr # HOOD100 • B&H # PAHOOD100)

Blocks sun or ambient lighting glare **24.95**

16x9 Anamorphic Lens Adapter (Mfr # AG-LA7200G • B&H # PAAGLA7200G): The highest quality solution for widescreen recording with the AG-DVX100, the AG-LA7200 converter optically squeezes a 16x9 image onto the entire surface of the 4:3 chipset. This method provides superior vertical resolution to the Letterbox or Squeeze mode **749.95**

0.8x Wide Angle Converter (Mfr # AG-LW7208G • B&H # PAAGLW7208G)

A cost-effective lens attachment that adds a 20% wider angle of view. Yields the 35mm equivalent of a 26mm lens **399.95**

DVX-FI Focus/Iris Controller (Mfr # DVX-FI • B&H # PAVC): Varizoom's precision focus and iris control, the DVX-FI includes the ability to switch between manual and auto, along with the ability to connect to virtually any tripod handle **184.95**

AG-DV2500

Studio/Portable DV and Mini-DV VCR

Designed for demanding IEEE1394-based non-linear editing applications, the AG-DV2500 offers exceptional compatibility with 1/4" tape based DV compression video formats, and is switchable between NTSC and PAL. Highly affordable and weighing only 5.1 pounds, the AG-DV2500 records on Mini-DV cassettes (as used by Panasonic's AG-DV7, DVC30, DVC80 and AG-DVX100A) or full-sized DV cassettes (as used by Panasonic's AG-DVC200 camcorder), without the need for an adapter. In full-size DV, the maximum record time is an amazing 276 minutes (4.6 hours) on a single cassette, making this format ideal for high-quality digital news, documentary archiving, and event recording. DVCAM format recordings can also be played back on the AG-DV2500. Excelling in the IEEE-1394 based non-linear environment as a high-performance feeder, the AG-DV2500 offers digital component video quality and lossless dubbing of DV video and audio signals with both Mac and PC editing applications.



FEATURES

Multi-format Compatible

The AG-DV2500 records and plays standard DV and Mini-DV cassettes in SP mode, and plays both large and small DVCAM tape cassettes. It can record for up to 276 minutes on a standard DV cassette (AY-DV276MQ).

DV (IEEE1394) Digital I/O

A 4-pin IEEE1394 DV terminal makes a host of operations possible, including synchronized recording with a DV camera-recorder, digital dubbing with a DV recorder, uploading to the PC in a nonlinear editing system, and downloading after editing.

RS-422A Interface

The AG-DV2500 is equipped with a 9-pin RS-422A interface allowing it to be operated using an AJ-A95 or AG-A850 editing controller. (The AG-DV2500 is not an editor, it is to be used strictly as a source machine).

High-Quality PCM Audio

Two audio modes are provided: 2-channel (16-bit, 48-kHz sampling) and 4-channel (12-bit, 32-kHz sampling). In 4-channel mode, open channels can be used later to dub in narration or other audio.

AG-DV2500 Professional DV Editing VTR
(Mfr # AG-DV2500; B&H # PAAGDV2500).....Call

NTSC and PAL Compatible

The AG-DV2500 automatically detects and plays DV footage recorded in NTSC or PAL, making it easy to upload footage to a nonlinear editing system. The AG-DV2500 can also record in either NTSC or PAL mode; simply set the switch on the rear panel to the mode desired. Recording onto standard DV and Mini-DV cassettes is possible in both formats. (Can't be used as an NTSC/PAL format converter; and NTSC and PAL signals cannot both be input at the same time.)

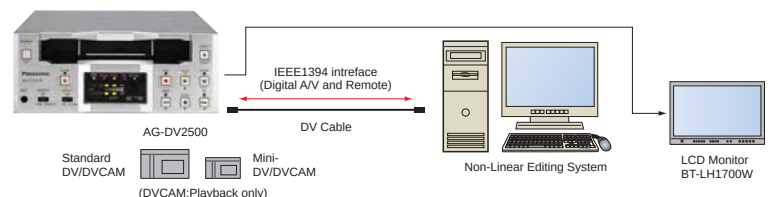
Search, Jog & Shuttle

The AG-DV2500 can search at up to 9x normal speed for quick time-code cueing. Jog & shuttle searches are also possible using the optional 9-pin AJ-A95 Remote Controller.

Additional Features

- ◆ The AG-DV2500 comes equipped with a time code reader and generator. And it can quickly locate index signals recorded onto the tape and blank sections of tape.
- ◆ Just 6 7/8 x 2 1/16 x 10 1/4" (WHD), the space-saving AG-DV2500 can be mounted horizontally or vertically. A vertical stand is included.
- ◆ Supplied wireless remote control lets you control basic operations, as well as display menus, show the color bar, select audio output, and search for blank sections of tape.
- ◆ Composite and S-Video input/output.
- ◆ Mic input jack for dubbing in narration.
- ◆ Internal settings and adjustments can be made via on-screen menu.

**DV NON-LINEAR
EDIT FEEDER**



Upload AV data to the non-linear editing system, then download it after editing. The ability to send and receive VTR control signals enables batch processing when capturing footage by simply registering the time code IN/OUT points.

AJ-SD255

Half-Rack Size DVCPRO/DV Recorder

Compact and easy to carry, the versatile AJ-SD255 handles a host of applications in areas from broadcasting to desktop video production. This half-rack size VCR records and plays back in both DVCPRO (25) and DV, and also plays back DVCAM tapes. It comes equipped with an analog interface and offers an IEEE-1394 digital interface as an option. Its slanted panel design and improved joystick makes operation easy. The AJ-SD255 is compatible with voltages anywhere in the world. Conveniently sized and full of features, this DVCPRO/DV recorder is ideal for viewing, dubbing and as a feeder for nonlinear editing.



FEATURES

DV Playback/Recording

The AJ-SD255 is a DVCPRO VCR that also offers DV-format recording and playback in most modes (standard and Mini DV cassettes) for cost-effective, extended-time applications. It can also play back DVCAM tapes. In both recording and playback, a cassette detection function automatically selects the proper mode for the type of cassette loaded.

Outstanding Quality

The AJ-SD255's digital component recording assures superb pictures, with a video Y bandwidth of 5.5 MHz and video S/N ratio of 58 dB in digital domain. For audio that surpasses CD quality, it features two 16-bit digital audio channels with 48-kHz sampling. Using the optional digital interface, both picture and audio quality remain high even after editing and repeated dubbing.

2-Hour DVCPRO Recording



The AJ-SD255 can use AJ-P126L DVCPRO tape to provide up to 126 minutes of continuous recording and playback. This permits the recording of extended programming onto a single tape cassette for added convenience in production and transmission. Using the 276 minute AY-DV276MQ Large DV Advanced Master Quality Cassette, you can record up to 4 hours of DV. Thus if you have a program that is longer than the 2 hours you can still cover it with the DV mode.

IEEE 1394 Digital Interface

Adding the optional AJ-YAD255G (IEEE1394) interface board allows the AJ-SD255 to input and output digital AV data with a DVCPRO or DV VCR, or personal computer. Used this way, the AJ-SD255 can send and receive data in both DVCPRO and DV and also convert between the two formats. It also has a function that converts the DV format's "unlocked audio" to "locked audio." These features make the AJ-SD255 well suited for a wide range of duties in a non-linear system.

Analog In/Out Terminal

The AJ-SD255 features video input/output (BNC x 3) for composite, component, or S-Video signals, and 2-channel audio input/output (XLR x 2) as standard equipment. A separate monitor output (BNC, L/R Phono) is also provided.

SDI Option

Adding the optional AJ-YA94G (SDI) board provides serial digital interface (video/audio, SMPTE259M-C/272M) input and output capabilities. This makes the AJ-SD255 suitable for use in digital systems at broadcast studios and production houses.

Joystick Design

A joystick has been added to the front panel for easier, more accurate slow and shuttle search operation. For added convenience, the joystick can also be used to select from the menu and set the time code.

Portable

Measuring only 8½" wide, the AJ-SD255 is virtually the same size as a 3RU-tall waveform monitor, making it a space-saver in any tight places. Its light 15.9 pound weight and convenient handle make it easy to carry.

Programmable Function Buttons

Customize AJ-SD255 operation by assigning functions from the setup menu to each of the three programmable function buttons provided. This gives you instant, direct access to the operations you use most often.

Worldwide Voltage

Compatible with power supplies from 100 to 240v AC, the AJ-SD255 can be used almost anywhere in the world.

UMID Data Recording/Playback

It records and plays data that conforms to the UMID (Unique Material) standard and contains a variety of supplementary information. This allows it to read GPS data (latitude, longitude and altitude) recorded by the DVCPRO Camera-Recorder. The AJ-SD255 can also handle VANC data for Teletext.

AJ-SD255 DVCPRO/DV Recorder

(Mfr # AJ-SD255; B&H # PAAJSD255).....Call

FireWire Board

(Mfr # AJ-YAD255G; B&H # PAAJYAD255G) 649.95

SDI Input/Output Board

(Mfr # AJ-YA94G; B&H # PAAJYA94G) 1874.95

AJ-SD755

High-Performance DV Player/Recorder and DVCPRO Studio Editing VCR

The AJ-SD755 is a high-performing DVCPRO editing VCR that offers precise jog/shuttle control, DV/DVCAM/DVCPRO playback and an optional IEEE1394 interface to maximize acquisition and editing solutions. Ideal for non-linear and machine-to-machine editing, and line record/satellite feed operations, the AJ-SD755 records for 184 minutes in DVCPRO and DV format, and features auto-format playback detection for seamless playback of DVCPRO and DVCAM, as well as DV cassettes (with optional adapter). With the optional IEEE1394 interface board installed, the AJ-SD755

offers lossless dubbing of native video and audio signals to Mac and Windows-based editing applications.

A compact 4RU-size VCR with an extremely fast tape-handling mechanism, it includes extensive front-panel editing controls and an illuminated jog/shuttle search dial. It performs frame-accurate, tape-to-tape editing, and its extensive editing capabilities include assemble, insert and manual editing, as well as preview, review and trim capabilities. Superb audio functionality includes independent two-channel audio control, audio volume control, digital audio monitoring during jog operation (including DV and DVCAM cassettes), and audio cue. It offers variable slow motion playback for clean, noiseless images in DVCPRO.

In addition to IEEE1394, SDI and SDTI input/output are available with optional boards, permitting the AJ-SD755 to connect with other digital broadcast equipment. Analog video and audio inputs, and AES/EBU digital audio inputs/outputs are standard, as are RS-422A and RS-232C remote terminals. Remote maintenance is possible via an external PC.



FEATURES

DV Format Recording/Playback

The AJ-SD755 offers DV format recording and plays back mini DV tapes using the supplied AJ-CS455 cassette adapter. Recording and playback are possible on standard and mini-DV cassettes for extended time applications. In both record and playback, a cassette detection function automatically selects the proper mode for the type of cassette loaded.

Outstanding Video and Audio

Digital component recording assures superb pictures, with a video Y bandwidth of 5.5 MHz and video S/N ratio of 60 dB in digital domain. For audio that surpasses CD quality, it features two 16-bit digital audio channels with 48-kHz sampling. There's also one analog cue track. Using the optional digital interface, both picture and audio quality remain high even after editing and repeated dubbing.

184 Minutes Recording/Playback

The AJ-SD755 can use the AJ-5P92LP DVCPRO tape to provide up to 184 minutes of continuous recording and playback, permitting the recording of extended programming onto a single tape cassette for added convenience in production and transmission. For field recording, 66-minute M cassettes can also be utilized without the need for an adaptor.

Illuminated Jog and Shuttle Dial

The ring of the Jog & Shuttle dial lights up in search mode. This, plus the large LCD metering window, gives you easy, precise operation. In shuttle mode, you can search in color at $\pm 32\times$ normal speed. Slow-motion playback is provided at -0.43 to $+0.43$, $+0.5$, $+0.75\times$ normal speed in DVCPRO. Digital audio monitoring is possible in jog mode.

Complete Editing Functions

The AJ-SD755 features an edit control panel and provides functions such as assemble editing, insert editing, preview, review, and trim. Single-event editing and audio split are also possible, using the RS-422A control interface and a standard editing controller.

Digital In/Out Signal Adjustment

Users can adjust audio recording levels for both analog and digital inputs (AES/EBU, SDI). For convenience, a user can adjust each channel while watching the level meter display. Adjusting the output images from a third party remote signal controller is done the same way for digital output (SDI) as for analog signals. The AJ-SD755 greatly improves ease of use with digital interfaces.

AJ-SD755

UMID Data Record/Playback

The AJ-SD755 records and plays data that conforms to the UMID standard and contains a variety of supplementary information. This allows it to read GPS data (latitude, longitude and altitude) recorded by the AJ-SDX900 Camcorder. The AJ-SD755 can also handle VANC data for broadcast such as Teletext.

Outstanding System Versatility

- ◆ Component, composite, S-Video and two-channels of XLR audio output allow direct connection to existing analog systems. A monitor out (BNC) is also provided.
- ◆ RS-422A (9-pin) port for interfacing with a system that includes an editing controller.
- ◆ RS-232C (25-pin) port for PC applications.
- ◆ Encoder (15-pin) port for remote adjustment of the video signal.
- ◆ Parallel (25-pin) port for general-purpose remote control.
- ◆ On-screen menu display permits a user to easily change many initial settings
- ◆ World-wide (100-240v AC, 50 to 60Hz)



Full Digital Interfaces

- ◆ IEEE1394 I/O is possible with the optional AJ-YAD755G board. Automatic DVCPRO/DV conversion function allows IEEE1394 interfacing while recording or playing back DVCPRO to or from a DV machine. Ideal for making inexpensive copies for clients or for uploading/downloading of digital video with a Windows or Macintosh PC.
- ◆ SDI input/output capability with the optional AJ-YA755G board.
- ◆ Equipped with AES/EBU digital audio in/out (BNC connector)
- ◆ SDTI is available by adding the optional AJ-YAC930G board, which then allows uncompressed SDTI input and output.

Light Weight, Low Power Consumption

With a compact 4U rack height and a weight of only about 33.1 lbs, the AJ-SD755 mounts easily in a 19" rack using the optional AJ-MA75P (slide rail not included) rack mount adapter. Its low power consumption (110w) is an advantage in both the studio and an OB van.

SDI (Component Serial Interface) Card (Mfr # AJ-YA755G; B&H # PAAJYA755G)**1799.95**

IEEE 1394 DV/DVCPRO Terminal Interface Board (Mfr # AJ-YAD755G; B&H # PAAJYAD755G)**699.95**

DVCPRO Studio VTR Rack System, Ears and Rails (Mfr # RAK-750; B&H # PARAK750)**CALL**

DVCPRO Studio VTR Rack Ears (Mfr # AJ-MA75; B&H # PAAJMA75)**CALL**

Rack Slides (Mfr # RSK-DVC; B&H # PARSKDVC)**CALL**

Specifications	AJ-SD255	AJ-SD755
Video Input		
Analog Component	BNC x 3 (Y,PB,PR)	BNC x 3 (Y,PB,PR)
Analog Composite	BNC x 1	BNC x 2, loop-through
Reference:	Analog Composite BNC x 2, loop-through	
SDI (option)	BNC x 1	BNC x 2, Active-through
SDTI (option)	—	BNC x 2, Active-through
Video Output		
Analog Component	BNC x 3 (Y,PB,PR)	BNC x 3 (Y,PB,PR)
Analog Composite:	BNC x 2	BNC x 3
S-Video	BNC x 2 (Y,C)	
SDI (option)	BNC x 1	BNC x 3
SDTI (option)	—	BNC x 1
Monitor	BNC x 1, analog composite	—
Audio Input		
Analog (CH1/CH2)	XLR x 2	XLR x 2
Digital (CH1/CH2)	—	BNC x 1, AES/EBU
SDI (option)	BNC x 1	BNC
Audio Output		
Analog (CH1/CH2)	XLR x 2	XLR x 2
Digital (CH1/CH2)		BNC x 1 AES/EBU
SDI (option)		BNC
Monitor	1/4" x 2	XLR x 2
Headphone	M3, variable level control	M3, variable level control
Processor Adjustment Range (Video Out)		
Video Gain/Chroma Gain	±3 dB	±3 dB
HUE	±30 °	±30 °
Set Up	±14 IRE	±14 IRE
Sync phase	±15 µ sec.	±15 µ sec.
SC phase	±180 °	±180 °
General		
Dimensions (WHD), Weight	8.5 x 5.1 x 14.1", 15.9 lbs.	16 ¹¹ / ₁₆ x 6 ⁷ / ₈ x 16 ¹⁵ / ₁₆ ", 33.1 lbs.

AJ-SD93

Compact DVCPRO 50/25 and DV Production VCR with DVCAM Playback

A compact, low-cost DVCPRO50/DVCPRO desktop recorder, the AJ-SD93 is ideal for production tasks that employ several different types of digital video cameras. Equipped with an IEEE1394 digital interface, the AJ-SD93 is ready for use with a non-linear editor or network server. Because it plays back DV and DVCAM sources as well as DVCPRO (25Mbps) and DVCPRO50 (50Mbps), the AJ-SD93 allows editing with a variety of sources. It also offers a Monitor Out terminal and a joystick that provides easy, comfortable operation of functions like Shuttle Search and Slow. With a budget-friendly price and the availability of optional analog and SDI interface boards, the versatile AJ-SD93 fits a range of production tasks and environments.



FEATURES

- ◆ The AJ-SD93's 4:2:2 digital component video recording and 48-kHz, 16-bit, 4-channel digital audio deliver the high image and sound quality needed in TV program production. When extended recording time is desired, you can switch the AJ-SD93 to DVCPRO(25).
- ◆ For added versatility, the AJ-SD93 can play back DV and DVCAM tapes. Standard DV tapes can be played without an adapter, while Mini DV tapes can be played using the optional AJ-CS455P adapter.
- ◆ 6-pin IEEE1394 terminal makes it easy to transfer data to and from DV equipment or Mac or PC-based nonlinear editing systems. Supporting a 50-Mbps bit rate and allowing transfer of DVCPRO50 as well as DVCPRO(25) and DV(DVCAM) data, the AJ-SD93 is perfect for a low-cost editing system that needs 4:2:2 image quality.



- ◆ The AJ-SD93 comes equipped with a video monitor output (BNC) with Superimpose On/Off capability and two audio out terminals (Phono). These let you connect the AJ-SD93 to an ordinary monitor for viewing.

Standard (Non-Option)



- ◆ Joystick offers easy Slow and Shuttle Search operation. The stick can also be used to select menu items and set the time code.
- ◆ Assign functions from the setup menu to each of three PF (Programmable Function) buttons. This customizing feature gives you quick, direct access to the operational functions you use most.
- ◆ The AJ-SD93 records and plays data that conforms to the UMID standard and contains a variety of supplementary information. It can also handle VANC data for Teletext.
- ◆ Measuring only 8½" wide, the AJ-SD93 is virtually the same size as a 3RU-tall waveform monitor, making it a space-saver in OB vans and other tight places. Weighing only 15 lbs., built-in handle makes it easy to carry.
- ◆ Low cost optional interfaces provide an affordable way to configure a system that meets your production needs. The optional AJ-YA93P analog interface gives you analog input/output, RS-422 remote and TC terminals. The optional AJ-YA94G SDI board adds serial digital input/output terminals.

AJ-SD93 DVCPRO50 VCR (Mfr # AJ-SD93; B&H # PAAJSD93).....	CALL
AJ-YA93P Analog Interface Board (Mfr # AJ-YA93; B&H # PAAJYA93)	1394.95
AJ-YA94G SDI Interface Board (Mfr # AJ-YA94G; B&H # PAAJYA94G)	1874.95
AJ-CS455P Mini-DV Cassette Adapter (Mfr # AJ-CS455; B&H # PAAJCS455)	43.95

AJ-SD930B • AJ-SD965

DVCPRO 50/25 Editing and Production VCRs with DVCAM and DV Playback

AJ-SD930B

The AJ-SD930B and AJ-SD965 are versatile, cost-effective studio VCRs designed for high-end digital video production. Use of the popular DVCPRO50 50Mbps format makes each suitable for creating high-end programming. With 4:2:2 digital component recording and four channels of digital audio, each delivers the superior picture and audio quality professionals need. Each comes standard with SDI input and output, RS-422A

remote and jog & shuttle dial. The AJ-SD965 adds an edit control panel that allows easy, automatic editing with two VCRs. Both decks are switchable between DVCPRO50 (50Mbps) and DVCPRO (25Mbps) for recording and playback, and both can playback DV and DVCAM tapes. They can also record and play UMID data. These and other features make them an ideal solution to a wide range of production and broadcast uses.



FEATURES

High-End DVCPRO50 Quality

- ◆ The DVCPRO50 format's 4:2:2 component video recording and playback is designed for high-end video production. The low 3.3:1 compression ratio minimizes picture degradation during compression, so the 4:2:2 images retain their superior quality.
- ◆ The AJ-SD930B & AJ-SD965 are switchable and can record and play back in both DVCPRO50 and DVCPRO (25) formats.
- In DVCPRO50 mode, the AJ-SD930B can record up to 92 minutes on a AJ-5P92LP compact 1/4" cassette tape. The AJ-SD965 records up to 2 hours of stunning DVCPRO50 images on XL cassettes. (Of course the AJ-SD965 accepts M- and L-size cassettes).
- In DVCPRO mode, recording time is doubled to 184 minutes on the AJ-SD930B, and up to 4 full hours on the AJ-SD965. This makes them ideal for event recording, program production, and on-air transmission.
- ◆ For added versatility, they can play back DVCAM and Standard DV tapes. Mini DV tapes can also be played back using the optional AJ-CS455P adaptor.
- ◆ In playback, they automatically detect the recording format used (DV, DVCAM, DVCPRO or DVCPRO50) and play back accordingly.

Editing Functions



The AJ-SD965 features an edit control panel and provides functions such as assemble editing, insert editing, preview, review, and trim. Single-event editing and audio split are also possible, using the RS-422A control interface and a standard editing controller. The AJ-SD930B has virtually the same performance, interface, and features as the AJ-SD955B, but without the edit control panel and 625 switchable function. This cost-effective AJ-SD930B can serve as the heart of a low-cost system for dubbing or on-air transmission, or as a player in an editing system.

- ◆ Illuminated Jog & Shuttle Dial lights up in search mode. This, plus the large fluorescent character display, gives you easy-to-read, precise operation status.
- ◆ The 525/625 selectable function in the AJ-SD965 lets you play and use PAL footage in program production. Use the SDI or optional AJ-YA932G (625) analog input board for 625 input, and the SDI and analog out for output
- ◆ In shuttle mode, you can search in color at $\pm 32\times$ normal speed. Slow-motion playback is provided at -0.43 to $+0.43$, $+0.5$, $+0.75$ times normal speed in DVCPRO50 and DVCPRO. Digital audio monitoring is possible in jog mode.
- ◆ On-screen display makes it easy to change initial settings. This display is also available on one of the SDI outputs in addition to the composite monitor output, thus eliminating the need for analog inputs on the Video Monitor.
- ◆ With a second VCR as a source, you can do 1-event assemble, insert, and audio-split editing using the AJ-SD965's preview, review, preroll, and trim keys. Intraframe compression in both DVCPRO50 and DVCPRO modes allows high-precision (± 0 frame), high-quality, frame-by-frame tape editing. Metal particle tapes with an 18-micron track width provide professional-level accuracy and durability.

AJ-SD930B • AJ-SD965

Versatile Interfaces

- ◆ The AJ-SD930B and AJ-SD965 come standard with built-in SDI interface, allowing input/output of digital component signals. They also come standard with AES/EBU digital audio in/out (4 channels). This versatility makes them ideal for high-end post-production applications.
- ◆ They are also equipped with analog composite and component video output, and come standard with four channels of analog audio input/output as well.



- ◆ Analog video input is available by adding the optional AJ-YA931G boards. Connecting the AJ-YAD955G IEEE1394 interface board provides degradation-free transfer of compressed data, which provides a full 4:2:2 compressed signal for use in PC and Mac-based editing systems. This efficient design provides all the versatility needed in today's video production environment.
- ◆ The AJ-SD965 (only) has a 525/625 selectable function that lets you play and use PAL footage in program production. Use the SDI or optional AJ-YA932G (625) analog input board for 625 input, and the standard-equipped SDI and analog out for output.
- ◆ Versatile remote interface include: RS-422A (9-pin), RS-232C (25-pin) for PC applications, Encoder (15-pin) for remote adjustment of the video signal and parallel (25-pin) for general-purpose remote control.
- ◆ The AJ-SD930B and AJ-SD965 record and play data that conform to the UMID standard and contain a variety of supplementary information. This allows them to read GPS data (latitude, longitude and altitude) recorded by the AJ-SDX900 DVCPRO50 Camcorder. They can also handle VANC data for broadcast such as Teletext.
- ◆ World-wide voltage support (AC100 to 240V ±10%, 50 to 60Hz).

AJ-SD965 Only

The front panel on the AJ-SD965 contains a high-resolution LCD monitor and Programmable Function (PF) buttons. The LCD monitor makes it easy to check output or input images, and to set functions using the on-screen menu. The tiltable panel lets you adjust the angle of the monitor for optimal viewing and operation.

You can assign functions from the setup menu to each of the four Programmable Function (PF) buttons provided. This customizing feature gives you quick, direct access to the operational functions you use most.



AJ-SD930B DVCPRO 50/25 Editing and Production VCR (Mfr # AJ-SD930; B&H # PAAJSD930) CALL

AJ-SD965 DVCPRO 50/25 Editing and Production VCR (Mfr # AJ-SD965; B&H # PAAJSD965) CALL

AJ-YA931G Analog Video (NTSC) Input Board (Mfr # AJ-YA931G; B&H # PAA931G) CALL

AJ-YA932G Analog Video (PAL) Input Board (Mfr # AJ-YA932G; B&H # PAA932G)

For AJ-SD965 only CALL

AJ-YAD955G IEEE1394 Interface Board (Mfr # AJ-YAD955G; B&H # PAAJYAD955G) CALL

AJ-CS455P Mini DV Cassette Adapter (Mfr # AJ-YCS455P; B&H # PAAJYCS455P) CALL

AJ-MA75P Rack Mount Adapter (Mfr # AJ-YCS455P; B&H # PAAJYCS455P): Slide rail not included CALL

	AJ-SD965	AJ-SD930B	AJ-SD93
Standard	NTSC/PAL switchable	NTSC	NTSC
Variable Speed Playback	+43 to -43	+43 to -43	Yes
Analog Video			
Analog Component	Output (standard), Input (optional)	Output (standard), Input (optional)	Input and Output (optional)
Analog Composite	Output (standard), Input (optional)	Output (standard), Input (optional)	Output (standard), Input (optional)
Digital Video			
SDI	Standard	Standard	Optional
SDTi	N/A	Optional	N/A
IEEE 1394 Interface	Optional	Optional	Standard
Audio Input			
Analog	XLR (x4)	XLR (x4)	XLR (x4) (Optional)
Digital (AES/EBU)	BNC x 2 (4-Channel)	BNC x 2 (4-Channel)	—
Digital (SDI)	BNC	BNC	Optional
Audio Output			
Analog	XLR (x4)	XLR (x4)	XLR (x4) (Optional)
Monitor	XLR (x2)	XLR (x2)	RCA (x2)
Digital (AES/EBU)	BNC x 2 (4-Channel)	BNC x 2 (4-Channel)	—
Digital (SDI)	BNC	BNC	Optional
Time Code and Remote			
Remote Control Interface	RS-422, RS-232, Parallel, Encoder Remote	RS-422, RS-232, Parallel, Encoder Remote	IEEE 1394 (standard), RS-422 (optional)
Timecode	SMPTE, Input/Output, XLR	SMPTE, Input/Output, BNCs	1 Input, 1 Output
Metadata	N/A	N/A	3
General			
LCD Screen	Built in on front panel	—	—
Jog/Shuttle Knob	Yes	Yes	Joystick design
Dimensions (WHD)	16 3/4 x 6 15/16 x 16 7/16", 38.6 lbs	16 3/4 x 6 15/16 x 16 7/16", 32.8 lbs	8 1/2 x 5 3/16 x 17 1/8", 15 lbs

AJ-SPC700 • AJ-SPX800

2/3" 3-CCD 16:9/4:3 DVCPRO 50/25 and DV P2 Camcorders

Tailor-made for a wide range of newsgathering assignments, the cost-efficient, low-power AJ-SPC700 combines a high-performance 2/3" 520,000-pixel, IT 3-CCD camera with 60 fields interlace recording in 25Mbps DVCPRO/DV and 50Mbps 4:2:2 DVCPRO50 format on a P2 card. Switchable between 4:3 and 16:9 aspect ratios, the shoulder-mounted camcorder deliver broadcast-level performance, with low smear, 750-line resolution, S/N ratio of 64dB, a high sensitivity of f11 at 2000 lux, and minimum illumination of 0.5 lux (at +36dB). Digital Super Gain provides up to an additional 20dB at 6 fps.



Stepping up from the AJ-SPC700, the AJ-SPX800 combines a high-performance 2/3" 3-CCD camera with 24fps and 30fps progressive and 60 fields interlace recording in 25Mbps DVCPRO and 50Mbps DVCPRO50 format on a P2 card. Switchable between 16:9 wide and 4:3 aspect ratios, the AJ-SDX800 has three 2/3" 520,000-pixel, IT CCDs that deliver 750 lines of resolution, higher S/N ratio of 65dB, higher sensitivity of f13 at 2000 lux, and minimum illumination of 0.09 lux (at +48dB), or 0.01 lux (at +48dB plus with +20dB Digital Super Gain). They have very low power consumption of only 17- and 24-watts (respectively), which minimizes the number of batteries needed for field work. They are both equipped with an advanced 12-axis matrix color correction system, and a news gamma curve



P2 Card

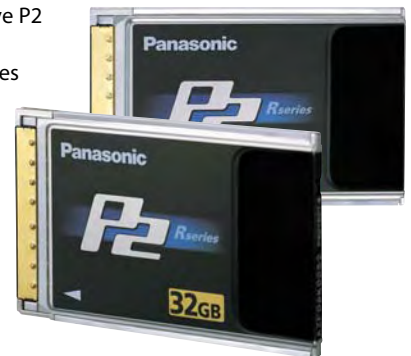
The AJ-SPC700 and AJ-SPX800 offer unique functions only possible with the P2 memory card. They have five P2 card slots allowing seamless, continuous recording over all five— providing up to 10 hours of recording at DVCPRO resolution and 5 hours in DVCPRO50 resolution with 32GB P2 cards. Their hot swap function assures non-stop recording, because it allows users to replace any P2 card (except the one being recorded on) on the fly. A sixth PC card slot is provided to accept a range of IT communications options, such as wireless LAN card or MPEG-4 Proxy Video Encoder. Proxy video and audio may be recorded to P2 card and SD Memory card, and subsequently viewed on a journalist's PDA. With IEEE 802.11 wireless protocols, the AJ-SPX800 (only) provides a path for GSM cellular phone or other wireless internet media delivery.

The solid-state P2 card records and plays back without requiring any kind of mechanism like that found in conventional tape or disc systems. This gives the P2 cam exceptional impact and vibration resistance, and makes it them the ideal choice for reliable recording in harsh conditions.

Because the P2 cam does not have a drive mechanism, and due to its newly developed digital signal processor, power consumption is only 17- or 24-watts during recording. This also helps boost mobility and reliability.

Thanks to the solid-state memory, recording response is much faster than with tape or disc recorders. They start recording from the moment they are switched on, so users can feel confident that they won't miss an important shot or unexpected events that other systems miss.

By inserting pre-recorded P2 cards directly into a PC card slot of a laptop, the cameras can be freed for additional image acquisition, while the P2 card mounts into a desktop laptop or additional drive. Because of its seamless integration with the IT domain, no digitization steps are required prior to editing, duplication or other image processing operations.



AJ-SPC700 • AJ-SPX800

2/3" IT 3CCD Imaging System

- ◆ Use of the reliable, cost-effective 2/3" IT 3CCD imaging system gives the AJ-SPC700 full broadcast-level performance, with low smear, 750-line resolution, and a S/N ratio of 64 dB. Easily switches from 4:3 to 16:9 for wide-screen recording.
- ◆ The AJ-SPX800 features a 2/3" 520,000-pixel 3-CCD imaging system, plus progressive scanning capability and an f13 lens with high sensitivity. You can shoot in light as low as 0.01 lux (using digital super gain 6P mode plus 20 dB with the +48-dB gain setting) with minimal smear. With 750 lines of resolution and a 65dB S/N ratio, the AJ-SPX800 meets virtually any recording need. Easily switches from 4:3 to 16:9 for wide-screen recording.
- ◆ The AJ-SPX800 also has a Digital Super Gain function (in cumulative mode) that allows extra gain of +12dB (at 15 fps) and +20 dB (at 6 fps). Unlike conventional gain adjustment, digital super gain is virtually noise-free, so picture quality remains intact. With high gain and digital super gain, the AJ-SPX800 allows ultra-high-sensitive shooting at up to +68 dB.

Versatile Recording

- ◆ Easily switchable, they can both record in high-quality 4:2:2 digital component DVCPRO50 as well as DVCPRO (25) and DV. A single 32GB P2 card holds up to 2 hours of DVCPRO/DV data or one hour of DVCPRO50 data. Using the camera's five slots and hot-swapping function, you get virtually unlimited continuous recording.
- ◆ Ideal for documentaries, commercials, and music video clips to up-converting for HD, the AJ-SPX800's frame rate can be switched between the normal 60i (60 fields/sec), 24p (24 frames/sec) and 30p (30 frames/sec). In 24p and 30p modes, a complete progressive scan image is produced for each frame.
- ◆ The AJ-SPC700 records full 48-kHz/16-bit digital audio on two channels in all formats—DVCPRO50, DVCPRO, and DV.
- ◆ The AJ-SPX800's top audio performance can support full 48-kHz/16-bit digital audio on each of the four channels in all formats. On each camera, you can freely select the audio source for each channel, choosing from mic, line, wireless receiver, and other sources.

P2 Recording Functions

- ◆ The AJ-SPC700 and AJ-SPX800 have slots for five P2 cards and let you record continuously onto all five in sequence. They also provide several other recording functions that are possible only with memory cards.
- **Data protection:** The P2 card records only onto blank spaces, so there is no danger of accidentally writing over data.
- **Hot-swap recording:** You can replace a full memory card with a blank one while the P2 cam is recording onto a second card. Successively swapping cards this way gives you virtually unlimited recording capability.
- **Loop recording:** By loop recording onto a specified recording area, you can continue to record over a fixed area.
- **Pre-rec:** While in standby mode, you can continuously store, and subsequently record, up to 15 seconds of video and audio (in DVCPRO). In effect, this lets you record footage of events that occur even before you press the rec start button, giving you a way to "go back" and capture moments you otherwise would have missed.



Clip Thumbnail and Voice Memo Functions

- ◆ They can automatically generate a thumbnail image for each clip, which can then be used for nonlinear editing or by the camcorder itself. You can view up to 12 thumbnails at once on their 3.5" color LCD monitor. Any of the corresponding clips can be accessed instantly. Using the thumbnails, you can specify a number of clips for seamless playback or on-air broadcasting.
- ◆ A built-in memo microphone permits the addition of metadata audio description to clip metadata with specified time code link. Meaning you can add a voice memo with an audio comment linked to the time code. You can also add a shot marker indication on video clips. both can be done either during or after recording to support post-recording processing.

Proxy Data Recording

- ◆ Mount an AJ-YAX800G Proxy Encode Card into the option card slot or 5th slot of the P2 card slots, and the cameras can record MPEG4 proxy (low-resolution video and audio containing time code, metadata, and other control information) data — useful for news flash or other studio news system use — onto the card along with the full-resolution data. You can select either of 1.5Mbps quality, 768kbps quality, or 196kbps quality. Proxy data can also be recorded onto an SD Memory Card mounted in the slot provided, for easy viewing on a laptop PC. The encode card, available as an option, lets you upgrade as future image encode systems evolve.

AJ-SPX800 (Only) Features

- ◆ The AJ-SPX800 incorporates Panasonic's exclusive CineSwitch Technology allowing you to "switch" among different image capture modes and/or frame rates — so you can achieve different creative looks. CineSwitch provides 60i, 30P, and 24P capabilities, and variable frame rate capability (4-60P) for overcranking and undercranking. In addition, it also features exclusive CineGamma Software, which lets you closely replicate the look and feel of film. CineGamma provides natural shading and rich coloration to produce images strikingly similar in tone to film images.
- ◆ With the AJ-SPX800, you can digitally enlarge the viewfinder to twice the normal lens magnification, producing images 4x the normal size. Progressive images retain their superior resolution even with zooming, and—unlike when a lens extender is used—brightness isn't reduced. Ideal as both a shooting technique and focusing support.

AJ-SPC700 • AJ-SPX800

High Performance

- ◆ Three recording modes: Continuous, pre-record or loop-record ensure news crews have less of a chance of missing an important event, and eliminate waiting for optical media to spin-up prior to recording.
- ◆ Their large 3.5" high-resolution color LCD display makes operation significantly easier when shooting from low- or high-angles.
- ◆ Store specific camera settings in built-in memory, then retrieve them when needed for quick, easy setup. Four scene files with settings can be stored in their memory. Files can also be copied onto an SD Memory Card, allowing storage of up to 8 more files.
- ◆ News gamma offered in addition to conventional video gamma, helps to preserve important image data by suppressing over-saturation in highlight areas during sudden changes in contrast.
- ◆ Three customized user buttons are provided. Assign a function to each, and then you can select those functions with pushbutton ease. You can also customize the on-screen menu with the items you use most often, then display them by simply pressing a button.
- ◆ With Auto Tracking White Balance, WB is automatically adjusted, in real time, as the lighting changes. This makes it easy to get natural color even when shooting scenes under difficult lighting conditions.
- ◆ In addition to USB 2.0 interface, they offer an optional IEEE1394 (AJ-YAD800G) interface for connection to laptop computers—ideal for non-linear editing in the field or transmitting data. This also allows extended recording to backup videotape or hard disk recorders to complement P2 card recording.
- ◆ They feature an electronic shutter with speeds of 1/100, 1/120, 1/250, 1/500, 1/1000, and 1/2000 sec, plus synchro-scan capability (1/60.3 to 1/249.7 sec)
- ◆ 4-position optical filter
- ◆ Select from a variety of finder markers, or make your own.
- ◆ A zebra pattern can be displayed for contrast adjustment, Auto White Balance setting, and onto color bar output.
- ◆ One-touch mode check button displays camera settings for easy confirmation.
- ◆ Built-in SMPTE time code generator/reader, with time code In/Out terminal.

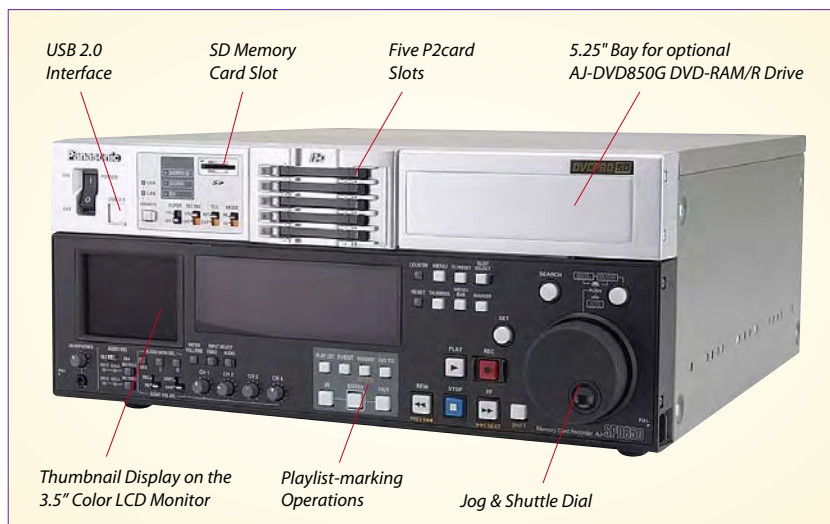
	AJ-SPX800	AJ-SPC700
Recording Format	DVCPRO 50/DVCPRO/DV	DVCPRO 50/DVCPRO/DV
Power Consumption	24 W	17 W
CCD	2/3" x 3CCD, 16 x 9	2/3" x 3CCD, 16 x 9
Sensitivity	F13	F11
S/N	65dB	64dB
Shooting Mode	60i/30p/24p	60i
Optical Filters	4-position (ND+CC)	4-position (ND+CC)
A/D Process	14-bit	14-bit
Color Correction	12-axis matrix	12-axis matrix
Gamma	Video/News/Cine-like	Video/News
Digital Super Gain	√	—
X2 Digital Zoom	√	—
P2 card Slot	5 Slots	5 Slots
Option Slot	1 Slot	1 Slot
Proxy Video (option)	√	√
Shot Marker	√	√
Voice Memo	√	√
Pre Recording	√	√
Loop Recording	√	√
One-Shot Recording	√	—
GPS Function (option)	√	—
Color LCD Monitor	√	√
Clip Thumbnail	√	√
Digital Audio	4CH	2CH
Slot-in Wireless Mic	√	√
Analog Composite Output	√	√
Analog Composite Input Recording	√	√
Audio Output	2CH (XLR-5P)	1CH (XLR-3P)
SDI Output (option)	√	—
IEEE 1394 Input and Output (option)	√	√
Genlock Input	√	√
TC Input and Output	√	√
USB 2.0	√	√
ECU	√	√
DC Input	√	√
DC Output	√	√

AJ-SPC700 Body (Mfr # AJ-SPC700; B&H # PAAJSPC700).....**CALL**
AJ-SPX800 Body (Mfr # AJ-SPX800; B&H # PAAJSPX800).....**CALL**
AJ-VF20WBP 2" EVF 16:9/4:3 Switchable (Mfr # AJ-VF20WBP; B&H # PAAJVF20WBP).....**CALL**
AJ-VF15BP 1.5" EVF for 4:3 (Mfr # AJ-VF15B; B&H # PAAJVF15B)**1799.95**
SHAN-TM700 Tripod Adapter (Mfr # SHAN-TM700; B&H # PASHANTM700)**429.95**

AJ-SPD850

DVCPRO 50/25 and DV P2 Studio Recorder

Providing a high-performance bridge between the IT world of non-real time file transfers and the traditional world of real-time baseband video and audio recording and editing, the AJ-SPD850 features extensive editing features including a VCR-like front panel with Jog/Shuttle, plus IT connectivity via USB 2.0 and Ethernet ports and offers IEEE-1394 and SDI with embedded audio as system options. The AJ-SPD850 is equipped with five P2 card slots to provide up to 320 minutes of recording in 25Mbps DVCPRO and 160 minutes in 50Mbps DVCPRO50 on five 32GB P2 cards. The deck also features Video Encoder adjustment control, a front-panel Graphic User Interface (GUI) and Play-list making and playback capabilities. For convenience, a built-in 3.5" color LCD simplifies browsing and selection of clips, and reduces the need for an external field monitor.



FEATURES

Five P2 Card Slots

With its five PC card slots, the AJ-SPD850 lets you mount five P2 cards and play a continuous, extended clip recorded in sequence onto multiple cards. Using line input, you can also record a continuous, extended clip onto five P2 cards in sequence.

DVCPRO/DVCPRO50/DV Switchable

Can record high-quality DVCPRO50 (4:2:2, 50Mbps); or DVCPRO and DV (25Mbps). One 32GB P2 card holds up 64 minutes of DVCPRO or DV data or 32 minutes of DVCPRO50 data. Using all five slots, get up to 160 minutes of continuous record/play in DVCPRO50, enough for on-air broadcasting or line recording.

Four-Channel Digital Audio

The AJ-SPD850 can record full 48-kHz/16-bit digital audio on each of the four channels in all formats—DVCPRO50, DVCPRO, and DV. Each channel also offers both analog and digital (AES/EBU) input and output, making the AJ-SPD850 ideal for multilingual production and broadcasting.

VCR-Like Operation

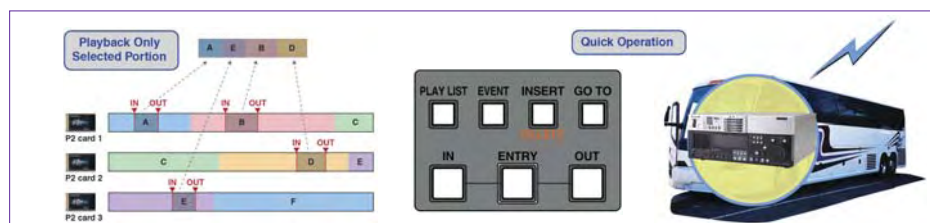
Has many of the same familiar buttons and jog & shuttle dial of a broadcast VCR. VAR mode provides noiseless slow and fast playback at speeds from -1x (reverse) to 1x normal speed. Shuttle search moves at 100x normal speed in both forward and reverse. The output video signal can be adjusted by encoder remote.

Color LCD Monitor

Large 3.5" color LCD monitor on the front panel lets you monitor recording and playback and view thumbnails. Using the thumbnails and jog dial, you can select clips for instant access and playback.

Playlist Function

- ◆ The P2 memory card makes an attractive playlist function possible, allowing VCR-like non-linear editing. You can register up to 100 events, using In and Out points, and play them in any order you like. Thanks to the memory card's unique high-speed random access, you get seamless, continuous, on-the-spot playback with no time lags or other disruptions between cuts.
- ◆ This feature makes it possible to perform simple nonlinear editing, like with a VCR, using just the P2 deck (i.e., with no PC). Use the edited results just as they are in on-air broadcasts, and you have a quick, easy solution for news flash reporting and similar needs. If you add an optional DVD-RAM/-R drive, the playlist makes it easy to back up your P2 data.



AJ-SPD850

SD Memory Card Slot

The AJ-SPD850 can read from and write to an SD Memory card mounted in the slot provided. You can use an SD Memory card for purposes such as backing up the playlist data.

Voice Memo Playback

Use this function to play back voice memos added to clips recorded with a P2 cam, such as comments from the news gathering crew. The thumbnail display shows whether there are any voice memos or shot markers.

Versatile Interfaces

- ◆ The AJ-SPD850 comes equipped with many of the same interfaces found on DVCPRO VCRs — RS-422A, analog component/composite video, analog audio/digital audio, reference video, digital audio (AES/EBU CH. 1-4), analog audio (XLR, CH. 1-4), monitor out, and time code input/output. Options include video SDI and IEEE 1394. Remote control is accomplished via RS-422A, RS-232C and an Encoder remote.



- USB 2.0 lets you use one of the P2 deck card slots as an external drive for your PC
- RS-232C allows remote control from a PC
- Ethernet lets you connect to a network to send data
- ◆ Use the AJ-SPD850 as a player in a linear editing system. These interfaces also let you evolve step-by-step from tape to card. For example, you can use a P2 cam for recording while using your existing equipment for production and broadcasting.
- ◆ For economical video archiving and international "air courier" field-to-studio data transfer, the AJ-SPD850 offers optical disc back-up by means of an optional DVD-R/DVD-RAM drive. Each 4.7 GB recordable DVD provides DVCPRO or DVCPRO50 native video archiving for a few cents per DVD-R disk. The deck will support a SD Memory card slot for reading and writing playlists, including updating software modules.

AJ-PCS060G

60GB Portable Hard Drive Storage Device for P2 Card Contents



The AJ-PCS060G is a rugged, shock-resistant portable hard disk unit with a P2 card slot that quickly transfers the content of P2 cards to an internal hard disk drive. Made of a magnesium alloy body and equipped with special impact-absorbing materials to cushion the hard disk against shock and vibration, the 2.5" drive can hold the contents of almost four 16GB P2 cards, and one 16GB card can be transferred to the internal disk drive in about 15 minutes. To help safeguard data, the volumes are read-only and cannot be accidentally overwritten.

After content has been transferred, the drive can connect to a non-linear editing system or server via USB 2.0 interface and appear as an external disk drive. In the field, the 1.5 lb. AJ-PCS060G serves as an aggregation and transport device, storing the contents of P2 cards and minimizing the number of P2 cards needed. Back at the studio, it serves as a high-speed drive for transferring video into a station's local area network (LAN) or non-linear editing system to speed access to the recorded content.

For easy operation, the AJ-PCS060G includes LED indicators for copy status, drive capacity, and battery power. Can be powered by a CGR-D54 7.2v DC battery or AC adaptor.

AJ-PCS060G (Mfr # AJ-PCS060G; B&H # PAAJPCS060G)**1529.95**

Porta Brace C-P2STOR: Belt pack carrying case for AJ-PCS060G (B&H # POCP2STOR)**79.95**

AJ-PCD35

5-Slot P2 Card Drive with IEEE 1394b/USB 2.0 Interface

The AJ-PCD35 P2 solid-state memory drive answers the need of today's video professional for faster, easier file transfers on the desktop or in the field. This allows users to mount five 64GB P2 cards simultaneously for instant access and continuous editing of all recorded content in sequence.



In addition to USB 2.0, the P2 drive offers an IEEE1394b interface for high-speed transfers of DVCPRO, DVCPRO50, or DVCPRO HD content into nonlinear editing systems and servers. Compatible with Windows 2000, XP and Mac OS X, the AJ-PCD35 can be installed directly into a standard PC 5.25" bay drive enclosure or connected to a computer and local area network (LAN) via its USB 2.0 or IEEE1394b interfaces. The flexible AJ-PCD35 also serves as a stand-alone external drive when connected with laptops for in-the-field use.

- ◆ Five P2 card slots let you mount up to five P2 cards at the same time. This is especially convenient for editing a continuous clip recorded by a P2 camcorder in sequence onto multiple cards
- ◆ High speed data transfer via IEEE1394b and USB 2.0 interfaces
- ◆ Internal or external PC operation - installs in a standard 5.25" bay or connects using a USB 2.0 or IEEE1394b cable
- ◆ Non-linear editor software allows the AV data (MXF files) on a P2 card to be directly loaded as clips. Supports Windows 2000/XP and Mac OS X.

AJ-PCD35 P2 Drive (Mfr # AJ-PCD35 • B&H # PAAJPCD35)**CALL**

DCR-VX2100

3-CCD DV Camcorder

A successor to the best-selling DCR-VX2000, the DCR-VX2100 incorporates many of the fundamental features that made its predecessor the most popular camcorders in its class, while adding a host of optical and audio enhancements. With its new Advanced HAD progressive scan CCD technology, the camera improves the minimum illumination, delivering the ultimate in low-light performance without the use of infrared technology. And by increasing the sensitivity to light of its three, state-of-the-art Progressive Scan HAD CCDs, the DCR-VX2100 produces clearer, brighter video with more lifelike color reproduction, even when it has been recorded in dimly lit environments. Additional features include 12x optical zoom, Super SteadyShot, color bar generator, zebra pattern indicator, interval recording, 2-position ND filter, Intelligent Accessory Shoe, high-quality 2.5" LCD screen enabling instant playback, and the ability to capture 640 x 480 (VGA) still images directly to a Memory Stick.



FEATURES

High Quality Digital Video

- ◆ Equipped with a 3-CCD imaging system (380,000 pixels each), the VX-2100 records up to 530 lines of horizontal resolution and outstanding digital video quality.
- ◆ In addition, Super HAD progressive scan CCD technology delivers sharp picture and natural, lifelike color reproduction – even flesh tones.
- ◆ Progressive Scan CCDs capture a complete frame of video rather than interlacing two separate fields to produce a video frame. This high performance system eliminates the stair stepping effect that can be seen in standard interlaced systems when capturing still images. Images are sharp and clear with excellent definition.
- ◆ Advanced HAD CCD sensor reduces noise in the video signal to improve the S/N ratio by up to 6dB —twice conventional CCD sensors. The result is exceptional performance when shooting dark objects, or while shooting in dark situations.
- ◆ Large 58mm diameter allows more light to strike the Advanced HAD CCD for greater detail and clarity, while the aspherical lens minimizes the distortions that usually occur around the edges of video shot by a standard spherical lens and provides better corner to corner focus.

High Performance

- ◆ 12x (43.2-518.4mm in 35mm equivalent) 58-millimeter aspherical glass zoom lens provides exceptional detail and clarity with none of the geometric distortion associated with large spherical lenses. Square lens hood reduces external light flare effect.
- ◆ 16:9 widescreen recording mode lets you record in a true 'widescreen' or anamorphic aspect ratio
- ◆ Provides automatic or manual control for all aspects of exposure, shutter speed (1/4 to 1/10,000 of a second) and depth of field, so the budding hobbyist as well as the seasoned videographer can control as much or as little as they want to achieve professional results. A manual focus ring and a manual zoom ring further control and flexibility.
- ◆ Equipped with digital and picture effects for enhanced creativity. They include: Slim, Stretch, Solarization, B&W, Sepia, Negative Art, Old Movie, Luminance Key, Flash Motion, Still, and Trail. The DCR-VX2100 also offers fade in/out to black, and overlap, wipe and dot fades.
- ◆ Built-in color bar generator assists you in properly adjusting your monitor while a "guide frame" allows you to make the picture be on a horizontal line.
- ◆ Interval recording mode allows you to record video in preset intervals (30 sec, 1, 5, or 10 minutes) for selectable lengths of .5, 1, 1.5 or 2 seconds.
- ◆ Frame recording modes allows recording of any individual frame of the 30 frames that make up one second of video.
- ◆ 2-position ND filter cuts down the amount of light, letting you work in the middle of the camcorder's f-stop range, even under studio lights or direct sunlight. (ND#1 corresponds to 1/4 of the quantity of light, ND#2 corresponds to 1/32).
- ◆ In addition to a backlight function, a spotlight function prevents people's faces, for example, from appearing white when shooting subjects lit by strong light.
- ◆ Zebra pattern indicator with two settings, places black and white lines in the viewfinder where portions of the picture exceed certain brightness levels—just like professional cameras. Zebra pattern is an excellent guide for adjusting shutter speed and exposure.
- ◆ The Intelligent Accessory Shoe provides synchronized operation with Sony accessories like video lights and microphones, without the need for additional batteries or cables.

DCR-VX2100

Digital Audio

- ◆ Records PCM digital stereo audio in two modes: 16-bit modes offers CD-quality stereo sound on one track, while the 12-bit mode records stereo on two tracks so you can add background music or voice-overs later without disturbing the original soundtracks.
- ◆ Manual mic level control allows you to achieve optimum sound quality. Monitor the audio with headphones, or from the LCD panel.
- ◆ Built-in external mic jack and headphone jack for monitoring audio.

Editing Functions

- ◆ Digital Program Editing lets you select a sequence of up to 20 scenes and then have the camcorder control dubbing (assemble editing) via i.LINK or to another DV camcorder or VCR, or via infra-red remote to an analog VCR.
- ◆ IEEE1394 DV (i.LINK) input/output terminal for fast, lossless digital transfer of video and audio to another DV camcorder or VCR, or DV-equipped PC.

Digital Still Memory Mode

- ◆ Capture high quality 640 x 480 VGA digital still images and store them on a Memory Stick for easy transfer to your computer—no need for capture cards or conversions.
- ◆ Images can also be captured from video tape onto a Memory Stick, or vice versa (images from a Memory Stick can be copied to tape in the camcorder).
- ◆ Mechanical shutter system that provides Progressive Scan performance while utilizing an interlace scanning system. Digital still images will be sharp and clear with excellent definition.
- ◆ Memory Mix function allows images stored on Memory Stick to be mixed with live video from the camcorder to create interesting and exciting effects. Choose from four Memory Mix modes: Memory Chroma Key, Memory Luminance Key, Camera Chroma Key, Memory Overlap.
- ◆ Photo Mode uses Sony's unique Adaptive Frame Interpolation for better image quality. Store up to 700 still photos on a 60 minute cassette in the LP Mode.

Super SteadyShot Optical Stabilization System

- ◆ Using a proprietary motion sensing system, Sony's optical Super SteadyShot reduces high frequency camera shake without compromising image quality. SteadyShot uses horizontal and vertical motion sensors that allow it to work accurately while zooming, moving (even shooting from a car), and shooting in low light conditions.
- ◆ And because Super SteadyShot uses an active prism and precision CCD imagers, your pictures remain superb – with no loss of detail or reduction in size. In fact, the effect from Super SteadyShot is so subtle, yet so critical to the quality of your video, you will never want to shut it off.

2.5" LCD Monitor and Color Viewfinder

- ◆ 2.5" precision SwivelScreen (200,000-pixel) color LCD monitor provides excellent viewing clarity with improved resolution, making images sharp and detailed during playback or recording. Also has a precision 180,000-pixel color viewfinder.

Battery Power

- ◆ Incorporating Sony's Stamina Power Management System, the DCR-VX2100 can record for up to 13 hours with the optional NP-F960 InfoLithium battery.
- ◆ InfoLithium battery with AccuPower meter continuously displays the battery time remaining in minutes, in the viewfinder or LCD screen.

Conveniences

- ◆ Analog composite and S-Video inputs let you convert or record any NTSC analog video source to DV for archiving.
- ◆ The viewfinder, eyecup and window size of the magnifier are enlarged for a more comfortable viewing experience.
- ◆ To protect the optics, the DCR-VX2100 integrates a built-in lens cap and includes a lens hood as well. By using the lever on the side of the hood, the lens cap can be easily opened or closed by the filmmaker rushing to the next location.
- ◆ Record up to 90 minutes on a 60-minute Mini DV cassette in LP mode.
- ◆ You can preset color intensity, sharpness, White Balance (bluish reddish), brightness and AGC limit (6dB/12dB/Off) with a desired picture quality.
- ◆ Offers an over-sized handle lined with zoom and record start/stop buttons, ergonomically designed for the one-handed operation of a filmmaker who needs mobility and control when recording at challenging angles.
- ◆ By adding zoom and record/stop buttons directly to the handle (identical to the ones on the body) the DCR-VX2100 is effective for capturing low-angled shots and is easy to work with in tight shooting spaces.

DCR-VX2100 3-CCD Camcorder: (Mfr # DCRVX2100 • B&H # SODCRVX2100): Includes AC-L15 AC adapter/in-camera charger, NP-F330 InfoLithium battery, RMT-811 wireless remote, 8MB memory stick, stereo A/V cable, lens hood and shoulder strap.....**2,198.00**

LCH-VXA: Silver hard carrying case with compartments for batteries, tapes and assorted accessories. The case is carried by a sturdy built-in handle or a detachable shoulder strap. (Mfr # LCHFAX • B&H # SOLCHFAX).....**269.95**

58mm High Grade 0.7x Wide Angle Lens (Mfr # VCLHG0758 • B&H # SOVCLHG0758).....**249.95**

Sony NP-F970: (Repl.) Info-Lithium L-Series Battery Pack (7.2v, 6600mAh) (Mfr # NPF970 • B&H # SONNPF970)**99.95**

Impact NP-F970: (Repl.) Info-Lithium L-Series Battery Pack (7.2v, 7600mAh) (Mfr # NPF975 • B&H # IMNPF975)**99.95**

BCV-500: Portable Dual AC Charger for NP-F970 (Mfr # BCV500 • B&H # SOBCV500).....**89.95**

DSR-PD170

3-CCD DVCAM Camcorder

The DSR-PD170 is a 3-CCD camcorder that although physically identical to the DCR-VX2100 (previous page), utilizes the DVCAM format and adds several key features, making it the ideal camcorder for event videography, news acquisition, corporate video, independent filmmakers and production. Like the DCR-VX2100, the DSR-PD170 incorporates state-of-the-art Progressive Scan HAD CCDs to deliver 530 lines of horizontal resolution, offers a high-quality 2.5" LCD screen enabling instant playback, and can capture still images directly to a Memory Stick. It also features the same high-quality 12x optical zoom, Super SteadyShot, color bar generator, zebra pattern indicator, interval recording and a 2-position ND filter. The main differences though are the recording format, DVCAM is much more robust format, better suited to the rigors of editing. The DSR-PD170 also offers more durable magnesium alloy die-cast construction, XLR audio inputs and independent 2-channel audio control, time code preset, Digital Program Editing via i.LINK (not infra-red), and a Title Date Stamp for legal video applications.



FEATURES

Professional Features

- ◆ The DVCAM format offers excellent video and audio quality for broadcast and professional use. Accepts mini size DVCAM cassettes for a maximum of 40 minutes recording time. Also capable of recording and playing back Mini DV tapes (SP mode only) allowing a maximum of 60 minutes of recording time.
- ◆ Two XLR audio input connectors allow you to connect professional microphones. Input level can be selected from Mic/Line/ Mic Attenuator positions. +48v phantom power can also be supplied. Audio level of each channel can be manually, independently adjusted. The camcorder includes one monaural electret condenser mic.
- ◆ In DVCAM mode, timecode can be preset by using any number in H/M/S/F (Hours/ Minutes/Seconds/Frames), which can be selected from Rec run or Free run. Drop Frame /Non-Drop Frame can be selected. User bits can also be preset, or the actual time can be used as user bits.
- ◆ Connect the PD-170 to a Sony VCR via an i.LINK cable and set IN and OUT points for up to 20 programs. The camcorder and VCR will automatically edit the selected portions. The camera controls the VCR through the i.LINK interface for editing accuracy of five frames.

DVCAM vs. Mini DV

Thanks to their common roots and Sony's choice of 15 micron-wide track pitch, DVCAM and DV equipment are broadly compatible. This is a real advantage for those who wish to play back DVCAM recorded tapes in consumer DV machines and DV recorded tapes in Sony's DVCAM machines. (However, while possible to record professional DVCAM programming onto consumer DV tape, Sony advises against it.) DVCAM tape uses an optimized Diamond Like Carbon (DLC) protective layer and surface roughness pattern, tightly controlled for long-term use. As a result, DVCAM tape is better prepared for the rigors of editing and archiving, with half the dropouts of consumer DV tape. Better edge slitting for DVCAM tape also makes for more reliable machine-to-machine tape interchange and reduced off-tracking. Finally, DVCAM tape has four times the cassette memory of Sony DV tape.

Audio Lock and DV Dubbing

Like DV, DVCAM allows you to record in 2-channel mode (48kHz, 16-bit) and 4-channel mode (32 kHz, 12-bit). Because professionals demand absolute synchronization between audio and video, DVCAM records in the Audio Lock mode. Using Audio Lock, you can perform insert edits, secure in the knowledge that audio will follow video with absolute precision.

The locked versus unlocked distinction may seem slight, but it has an important side effect. You cannot make digital dubs from consumer DV equipment to professional DVCAM VCRs. Even when both machines have the same interface, the structure of the audio bits is incompatible. For the same reason, you cannot "work around" the limitation by inserting the DV tape into a DVCAM player and then digitally dubbing onto another DVCAM VCR.

The Audio Lock mode specifies a precise number of audio samples to be associated with each video frame. Consumer DV machines use the less precise audio unlock mode, which allows the sample number to vary slightly, according to the precision of the recorder's internal oscillator.

DSR-PD170

High-Quality Digital Video

- ◆ Equipped with a new 3-CCD imaging system (380,000 pixels each), the DSR-PD150 records up to 530 lines of horizontal resolution and outstanding digital video quality.
- ◆ Advanced HAD CCD image sensor reduces noise in the video signal to improve the S/N ratio by up to 6dB – twice as high as a conventional CCD sensor. The result is exceptional performance when shooting in dark situations.
- ◆ Optical Super SteadyShot stabilization system uses motion sensors and optical lenses to eliminate high frequency shake and vibration—without compromising picture quality.

Digital Still Function

- ◆ Capture 640 x 480 VGA digital still images and store them on a Memory Stick for easy transfer into a variety of applications —no need for capture cards or conversions. Images can be captured from tape onto a Memory Stick, or vice versa (images from a Memory Stick can be copied to tape in the camcorder).
- ◆ You can record four separate still images continuously to Memory Stick, or shoot nine consecutive still images on one photo (multi-screen mode).
- ◆ Memory Mix function allows images stored on Memory Stick to be mixed with live video from the camcorder to create interesting and exciting effects. Choose from four Memory Mix modes.

Conveniences

- ◆ 2.5" precision SwivelScreen color LCD (200,000 pixels) provides excellent viewing clarity. Also has a precision color viewfinder with 180,000 pixels.
- ◆ Incorporating Sony's Stamina Power Management System, the DSR-PD170 can record for up to 9 hours with the optional NP-F960 InfoLithium battery.
- ◆ Analog composite and S-Video inputs let you convert or record any NTSC analog video source to DV for archiving
- ◆ You can preset the camcorder to record with a desired picture quality. You can preset color intensity, sharpness.

High Performance Features (Same as the DCR-VX2100)

- ◆ 12x (6-72mm) 58mm aspherical glass zoom lens with square lens hood.
- ◆ 16:9 widescreen recording mode
- ◆ Full automatic and manual control of exposure, shutter and depth of field.
- ◆ Offers a "guide frame" allowing you to make the picture be on a horizontal line.
- ◆ Interval and frame recording modes
- ◆ Built-in 2-position ND filter, color bar generator and Zebra pattern indicator
- ◆ Digital effects (no picture effects) for enhanced creativity. They include: Still, Flash Motion, Luminance Key, Trail, Old Movie. Also offers five fade modes.

DSR-PD170 DVCAM Camcorder: (Mfr # DSRPD170 • B&H # SODSRPD170): Includes AC adapter, NP-F330 InfoLithium battery, wireless remote, stereo AV cable, 4MB memory stick, MSAC-US1 Memory Stick USB reader/writer and PictureGear 4.1 Lite software.....**2,499.00**

Optional Accessories: The DSR-PD170 uses the same accessories as the DCR-VX2100 except it takes different tapes. You must use DVCAM tapes:

PDVM-32N 32 minute tape (Mfr # PDVM32N • B&H # SOPDVM32N)**11.59**

PDVM-40N 40 minute tape (Mfr # PDVM40N • B&H # SOPDVM40N)**13.39**

PDVM-32ME 32 minute tape with memory chip (Mfr # PDVM32ME • B&H # SOPDVM32ME)**14.99**

PDVM-40ME 40 minute tape with memory chip (Mfr # PDVM40ME • B&H # SOPDVM40ME)**16.49**

DSR-PD170 vs. DCR-VX2100

	DSR-PD170P	DCR-VX2100
Recording Format	DVCAM/DV (SP only)	DV (SP/LP)
Body and Color	Gun metal gray (Magnesium Alloy Die Cast Durable Body)	Silver
Manual Exposure	Iris, Gain, Shutter speed, AE shift button, Spotlight button, Backlight correction button (Setting will be held after removing the battery)	"Brightness" Button/dial (Iris/Gain) Program AE, Shutter speed, AE shift (custom preset), Spotlight button Backlight correction button (Setting will be reset in 5 minutes after removing the battery)
Viewfinder	180,000 dot black/white precision LCD viewfinder	180,000 dot precision color viewfinder
Microphone	1 detachable mono microphone, included	One-point stereo internal viewfinder
Audio Input	XLR connector x2 (+48V power supply with mike attenuator)	Mike input (stereo mini, plug-in power) (with mike/line switch) pin jack x2 (L,R)
Audio Control	2 channels adjustable independently	Simultaneous control of both stereo channels
Accessory Shoe	Yes	Yes (intelligent accessory shoe)
Time Code Preset	Yes	No
DATE REC	Yes	No
Picture Effect	No	Yes
After 5 min of Standby	Auto Drum stop	Auto power off
Digital Program Edit	Yes (i.Link only)	No (infrared controller ready)
Continuous Filming	8 his. (NP-F960)	9 his. 35 min. (NP-F960)

DSR-250



3-CCD DVCAM Camcorder

Equipped with a wide range of features and functions, the DSR-250 enables you to capture the professional images you require. 3-CCD lightweight, shoulder-mount design, 12x zoom, 1.5" B/W viewfinder and familiar control placement make operating the DSR-250 a pleasure. A variety of additional features, including a swing-out 2.5" LCD monitor, Super SteadyShot motion compensation function, an i.LINK interface and Memory Stick support add to the camcorder's versatility. The DSR-250 supports both standard and mini-size cassettes, as well as both DVCAM and DV recording and playback, providing even more flexibility to meet your individual shooting requirements.

FEATURES

High Quality Images

- ◆ Three 1/3" CCDs with 380,000 pixels provides high sensitivity and high S/N ratio. The CCDs are capable of both interlace scan, for moving images, and progressive scan, for still images or shooting a moving subject (picture is read/output every 1/15 second) and exporting a frame of the image as a still picture to a PC.
- ◆ 12x variable speed (1.2-22 second) zoom lens allows the DSR-250 to achieve the highest picture quality. Also offers a digital zoom of 24x or 48x via the menu.
- ◆ In addition to the stability offered by the shoulder mount, the DSR-250 also employs Sony's optical Super SteadyShot system. Horizontal and vertical movements are detected independently by sensors. The system then adjusts and optically compensates for unsteadiness, while maintaining high image quality.
- ◆ For added convenience, the DSR-250 incorporates the DXF-801 1.5" B&W viewfinder featuring 600 lines of resolution. Durable, yet lightweight, the viewfinder enables easy manual focusing with its high resolution. It also has a lens light to illuminate the rear of the lens when shooting in low light situations.
- ◆ Has five fade modes: Black Fade (In/out), Monotone Fade (fade from B&W to color), Overlap (last image becomes a still image and overlaps into the new scene), Wipe (from left to right or right to left), and Dot (picture breaks into dots and dissipates).

DVCAM Format

- ◆ Uses the DVCAM format to offer professional video and audio quality as well as high reliability. For editing, an audio lock mode is used to synchronize the audio and video. It is also capable of recording and playing back DV format tapes (SP mode only).
- ◆ The VCR portion of the DSR-250 can accommodate both DVCAM and DV format standard and mini-size cassette tapes. This allows you to record up to 184 minutes with a standard-size DVCAM cassette and the freedom to record on any size DV cassette.

High Performance

- ◆ High-resolution (200,000 pixel) color LCD monitor for viewing images or checking playback on location. The large LCD helps for setting the menu or audio recording level, as well as monitoring the camera and audio status while mounted on a tripod.
- ◆ When using a tape with Cassette Memory, titles can be set and recorded in cassette memory. This information is not superimposed on the video signal, but is displayed during playback, and can be used as an index later. The DSR-250 also has a Tape Title function that displays a title on the tape during the first five seconds of recording.
- ◆ i.LINK (IEEE1394) interface allows it to serve as an edit player or recorder, if necessary. With i.LINK, the DSR-250 can control a connected VCR for synchronized recording

(REC, REC PAUSE and STOP).

Audio

- ◆ In addition to the supplied directional microphone, the DSR-250 has two XLR audio inputs for connecting professional mics. The input can be selected from LINE/MIC/MIC with +48v power supply.
- ◆ The DSR-250 records two channels of audio with the 48 kHz/16-bit or 32 kHz/12-bit mode. On a pre-recorded tape with two channels recorded in the 32 kHz/12-bit mode, it can dub an additional two channels through the external mic input (XLR connectors or RCA pin jacks, DVCAM recorded tape only).

Conveniences

- ◆ An Index can be marked while recording with the camera or recording from an external video source.
- ◆ No longer do you have to wear a heavy battery belt to power an on-camera light. A special 2-pin DC PowerTap output (12v DC up to 30w) specifically for powering camera-mounted lights. Has another external DC 12v out for a variety of optional accessories as well.
- ◆ Power consumption of the DSR-250 is only 10.5W (with viewfinder). Recording time can be extended to a maximum of nine hours with an optional BP-GL95 battery.
- ◆ Lens accepts 58mm screw on filters and

DSR-250

Time Code & Date Stamp

- ◆ Time code can be preset in H/M/S/F (hours, minutes, seconds and frames). Time code mode can be selected between "rec-run" or "free run", DF (drop frame) or NDF (non-drop frame). User bits can also be set for storage of time and alphanumeric data.
- ◆ Ideal for legal deposition videographers, the DSR-250 has time/date stamp (selected by menu). This gives you the ability to insert (superimpose) time and date onto the lower third of the frame.

Manual Functions

In addition to fully automatic operation, the DSR-250 has various functions that can be manually adjusted.

- Zoom
- Focus (switchable to full-auto)
- Iris (w/ring)
- Shutter speed
- Gain
- AE (Auto Exposure) Shift
- White Balance
- Custom Preset (Color Level, Sharpness, White Balance Shift, AGC Limit)
- ND Filters (1/4 and 1/32)
- Spotlight button
- Backlight button
- Digital Effects (Still, Flash Motion, Luminance Key, Trail, Old Movie)
- Audio Recording Level
- Zebra Patterns (100% or 70%)
- Guide Frame (vertical and horizontal alignment of the subject to guide frame)

Other Functions

- ◆ AV to DV Out (Convert analog input signals to DV signals)
- ◆ Auto Drum Stop (Release tape from drum after five minutes of inactivity)
- ◆ 16:9 Recording Mode (Electronically processed)
- ◆ DC Input (XLR 4-pin type)

Digital Still Camera Functions

A Memory Stick can be directly inserted into the DSR-250, for a wide range of added functions including Memory Photo for taking still photos and Memory Mix for combining still images with video images. (Up to 16,000 still images can be stored on an optional 1GB Memory Stick.)

DSR-250 1/3" DVCAM Camcorder (Mfr # DSR250; B&H # SODSR250): Includes DXF-801 viewfinder, ECM-NV1 directional mic, RMT-811 remote commander, lens hood.....**3299.95**

DSR-250P PAL Camcorder (Mfr # DSR250P; B&H # SODSR250P): Same as above in "PAL"**CALL**

DSR-250 KITS

(Each includes DSR-250 camcorder with DXF-801 Viewfinder, ECM-NV1 Directional Mic, RMT-811 Remote Commander and Lens Hood)

With VCT-U14 tripod plate. (Mfr # DSR250PAC; B&H # SODSR250KQ)**3449.95**

Same as above in "PAL". (Mfr # DSR250PPAC; B&H # SODSR250PK)**4149.95**

With two Sony BP-GL65 li-ion batteries, BC-L70 charger, VCT-U14 tripod plate, and an LC-400BP soft carry case. (Mfr # DSR250ENGN3; B&H # SODSR250K3)**4899.95**

With Anton Bauer plate, QR-DSR Gold Mount battery plate, two Dionic-90 lithium-ion batteries, Titan Twin 2-position quick charger, UL-2 on-camera light and a VCT-U14 tripod plate. (Mfr # DSR250DS1; B&H # SODSR250DS1)**4999.95**

With QR-DSR Gold Mount battery plate, two TrimPac 14 Nicad batteries, Titan Twin 2-position quick charger, UL-2 on-camera light, Sony LC-400BP soft carry case and a VCT-U14 tripod plate. (Mfr # DSR250DS2; B&H # SODSR250DS2)**5099.95**

With QR-DSR Gold Mount battery plate, two HyTron 50 NiMH batteries, Titan 2 2-position charger/AC adapter, UL-2 on-camera light, 10' 4-pin XLR power cable, Sony LC-400BP soft carry case and a VCT-U14 tripod plate. (Mfr # DSR250DS3; B&H # SODSR250DS3)**5499.95**

65WH Li-Ion V-Mount Battery with Info Function (Mfr # BPGL65; B&H # SOBPGL65)**274.95**

95WH Li-Ion V-Mount Battery with Info Function (Mfr # BPGL95; B&H # SOBPGL95)**549.95**

AC Adaptor/Charger (Mfr # ACDN2B; B&H # SOACDN2B): Compact and lightweight, with a V-mount mechanism for direct attachment to compatible camcorders. It also has a 4-pin XLR for power output.....**1199.95**

4-Channel Battery Charger (Mfr # BCM150; B&H # SOBCM150): Quickly charges up to four V-mount Sony Li-Ion and NiMH batteries**1099.95**

Tripod Adapter Plate (Mfr # VCTU14; B&H # SOVCTU14): Allows the DSR-400/450 to be attached to a tripod's wedge-plate. A quick-release mechanism allows rapid mounting and dismounting.....**189.95**

Microphone Holder (Mfr # CAC12; B&H # SOCAC12): An external mic holder that provides two-axis adjustment of microphone arm.....**176.95**

Hard Carry Case (Mfr # LC424TH; B&H # SOLC424TH): Rugged ATA certified case with custom foam interior for complete protection**CALL**



DSR-400 • DSR-450WS

2/3" 3-CCD Camcorders

Packing three CCDs and digital-processing technology into a heavy-duty chassis, the DSR-400 and DSR-450WS feature a rugged design for use in ENG, event videography, government/corporate production, and electronic cinematography. They offer superb image quality, an extensive set of performance and ergonomic enhancements, and a host of convenient functions and operational comfort. Both are engineered around three 2/3" PowerHAD EX CCDs, to offer high dynamic range, high sensitivity and a 65 dB S/N ratio with a -140 dB of vertical smear—characteristics usually found in much higher-end products.

They feature a swing-out 2.5" color LCD monitor, Memory Stick slot, user assignable function buttons, an adjustable shoulder pad, and battery-remaining display function for added operational convenience and creative versatility. The cost-effective DSR-400 features a 4:3 aspect ratio, the DSR-450WS is a wide-screen model that can shoot in both 16:9 and 4:3 aspect ratios. In addition, the DSR-450WS further offers 24P (23.976P) progressive mode with 2-3 pull-down, selectable gamma with a film-like gamma setting, and a slow shutter feature – unique functions that enable even greater shooting creativity. The DSR-450WS also supports an 8-pin remote-control feature as standard and SDI output and analog composite input capabilities with the use of two optional boards.



FEATURES

Camera Section

- ◆ The DSR-400 and DSR-450WS are equipped with proven three-chip 2/3" type Sony Power HAD EX CCDs. This CCD imager achieves a high sensitivity of f11, an excellent signal-to-noise ratio of 65 dB and a remarkably low smear level of -140 dB (typical), allowing the DSR-400 and DSR-450WS to produce pictures of stunning quality.
- ◆ They incorporate a high-integrity 12-bit A/D conversion circuit so that images captured by the Power HAD EX CCDs are processed with great precision. This high-resolution A/D conversion allows the image to be reproduced faithfully in both mid-to-dark tone and bright areas of the picture.
- ◆ A key to quality in DSP cameras is how many bits are used in their video process, such as gamma correction. The ADSP of the DSR-400 and DSR-450WS uses more than 30-bits in its non-linear process, minimizing round-off errors to maintain the high quality of the Power HAD EX CCDs. The ADSP also enables highly sophisticated image controls, such as the multi-matrix function, triple skin tone detail control, and adaptive highlight control.
- ◆ With a Sony Professional Info Battery, the remaining capacity is automatically detected and transmitted to the DSR-400 and DSR-450WS. The remaining capacity is indicated in the camcorder viewfinder and LCD monitor in 10% steps.

Recorder Section

- ◆ The DSR-400 and DSR-450WS can use both mini-size (PDVM Series) and standard-size (PDV Series) cassettes. If you need a longer recording time, they can also record and playback DV format signals (SP mode only), providing a maximum recording time of 276 minutes when using the PDV-184 ME standard-size cassette.
- ◆ They are equipped with a 6-pin i.LINK interface (DV output only). This enables recording to compatible DV and DVCAM VCRs using just one i.LINK cable, which simultaneously carries digital video/audio and control signals. Connect the DSR-400/450WS to the Sony DSR-2000A for instance, and simple cut editing can be performed without signal deterioration. Or for backup recording connect to a Sony DSR-50 portable DVCAM recorder, and control its REC On/Off function remotely with the REC On/Off button of the DSR-400 or DSR-450WS.
- ◆ They can FF/REW PDVM-40ME mini-size cassettes in 40 seconds, and PDV-184 ME standard-size cassettes in 2 minutes and 30 seconds.
- ◆ Functions frequently used in the field, such as markers, ATW, recording review, record start/stop, and turbo gain functions, can be assigned to four Assign Buttons (push buttons), allowing the operator to make rapid changes when working in the field.

DSR-400 • DSR-450WS

High Performance

- ◆ An optional portable light (maximum 50w) can be attached, using a standard lighting connector and specially designed short cable for operation from the camcorder battery. The light can be switched on and off manually, or automatically synchronized with the camcorder's REC start function.
- ◆ Optimum light and color control is achieved using an optical ND filter wheel and electronic Color Correction. The use of electronic Color Correction allows all filters in the filter wheel to be of the ND type, providing the operator with greater flexibility in depth-of-field and exposure control.
- ◆ Turbo Gain function boosts the gain level up to +36 dB at the touch of an Assign Button. This makes it possible to shoot in extremely low-light conditions. The gain level of the Turbo Gain function is selectable.
- ◆ Optional CA-WR855 adapter (holds a Sony WRR-855 wireless mic receiver) attaches directly to the DSR-400/450WS via V-shoe attachment, providing a direct connection interface for audio/power. A lithium-ion battery can also be attached to the CA-WR855 for easy battery replacement even when the WRR-855 is mounted. The DSR-400/450WS can also accommodate the WRR-861 wireless mic receiver (needs the 8278-057-A mounting bracket).

LCD Monitor/Viewfinder

- ◆ The DSR-400 and DSR-450WS include a swing-out 214,000-pixel color LCD monitor which allows for viewing of the input source during recording, or checking the playback picture on location. Status indications such as time code, two-channel audio level meters, and tape - and battery-remaining capacity can also be displayed. In addition, camera set-up menus can be displayed.
- ◆ Supplied DXF-801 B&W 1.5" viewfinder includes the following features:
 - LED lights up the iris ring area of the lens for operation in dark conditions (high/low/off)
 - Display switch turns off character superimposition on the viewfinder
 - Two red REC tally lamps
 - Vertical and horizontal detail level control via peaking potentiometer
 - Wide range of diopter adjustment

Creative Versatility

- ◆ Sony TruEye processor virtually eliminates hue distortion, particularly obvious in high light conditions that result from conventional RGB analog or digital processing. By processing the video signal data at three levels – brightness, hue, and saturation – similar to how the human eye works, the TruEye feature assists in the reproduction of natural skin tones.
- ◆ The DSR-400 and DSR-450WS provide multiple knee-points/slopes for superb overexposure control. They analyze the highlight areas of a scene and automatically set and optimize multiple knee points/slopes accordingly. This allows for the reproduction of extremely difficult images (such as an interior scene that includes a brightly sunlit window) with much more overexposure latitude. This function applies only to input video levels in excess of the knee point; the middle- and low-luminance parts of the video signal are unaffected by this control.
- ◆ Triple Skin Tone Detail Control function allows for independent detail control over three specified colors. This enhances the capability of Skin Tone Detail correction - enabling one color selection to be used for reducing the detail level of skin color, and two other selections to be used for either increasing or decreasing the detail level of two other objects.
- ◆ They offer Electronic Soft Focus an effect similar to using an optical soft-focus filter – but in a much more convenient way. Electronic Soft Focus uses the detail signal to reduce, rather than increase, the sharpness of the picture. By subtracting the detail signal from the original signal (as opposed to adding it as in conventional image enhancement), Electronic Soft Focus is able to provide a picture that is "softer" than that achieved when detail is switched off completely. Electronic Soft Focus can be used in conjunction with Skin Tone Detail to change only the sharpness within a specific color or hue range.

Advanced Functions

- ◆ Variable Black Gamma Range (LOW, low MID, High MID, HIGH), function allows for fine adjustment of tonal reproduction in the shadow area. This helps bring out details from the dark parts of the picture without affecting midtones while maintaining the absolute black level.
- ◆ Auto Tracing White Balance function automatically adjusts the camera's color temperature in real time with a change of the lighting. This is especially useful when a shoot is performed across different environments, such as from indoors to outdoors.
- ◆ Multi-matrix function enables color adjustments to be applied over a color and/or hue range as specified by the operator. The color spectrum is divided into 16 areas of adjustment, where the hue and/or saturation of each area can be adjusted. This provides interesting in-camera color effects – similar to secondary color correction.
- ◆ Dial in the required color temperature of the camera. The overall color balance of the picture can be changed to make it warmer or colder. This can be used very creatively, particularly in scenes with mixed color lighting.
- ◆ Ideal for recording over long periods, interval recording function intermittently records signals at pre-determined intervals.

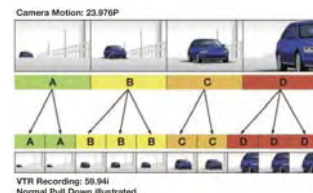
DSR-400 • DSR-450WS

Conveniences

- ◆ Based on years of Sony experience in camera ergonomics, their design provides high mobility, balance, and physical robustness. All switches and indicators, viewfinder, and swing-out LCD monitor are positioned for optimum functionality and ease of use. Rear-panel connectors are well away from the battery pack, making it easy to connect cables.
- ◆ Compact and lightweight for a high level of mobility, they weigh just over 14 lbs. including viewfinder, microphone, BP-GL65 battery, mini-size DVCAM cassette and lens.
- ◆ Easy-to-use menu system to facilitate detailed camera settings. Setup parameters are organized in a two-layer menu system: a user menu and a sub menu.
 - The user menu allows access only to the standard setup functions needed by the camera operator, and can be customized for fast access to the menus they use frequently.
 - The sub menu makes all menus accessible, each of which is categorized into groups such as operation, paint, maintenance, file, and diagnosis. Menu pages can be displayed in the camcorder viewfinder and LCD monitor as well as on an external monitor screen via the monitor output, and the menu control system can be operated easily using a rotary switch on the camcorder.
- ◆ The DSR-400 and DSR-450WS incorporate the Sony Memory Stick system for storage and recall of setup parameters. This is an easy, effective system for storing and recalling camera parameters for individual scenes, plus individual operators' camera setup preferences including assignable button settings
- ◆ The position of the shoulder pad can be adjusted— either forwards or backwards without using a screwdriver – to provide operators with a comfortable and well-balanced camera.
- ◆ Programmable gain (-3, 0, 3, 6, 9, 12, 18, 24, 30 and 36db)
- ◆ Dual Zebra (70 IRE to 90 IRE or more than 100 IRE)
- ◆ Marker (center, safety zone, 4:3/13:9/14:9 aspect (DSR-450WS only)
- ◆ Edit search for easy access to edit points
- ◆ Stereo audio output

DSR-450WS Step-up Features

- ◆ Wide-aspect CCDs and digital signal processing allow the DSR-450WS to operate in both widescreen (16:9) and standard (4:3) aspect ratio modes. When shooting in 16:9 mode, it is also possible to display both 16:9 and 4:3 safety zones in the supplied DXF-801 viewfinder.
- ◆ The DSR-450WS generates 24P (23.97P) and 30PsF (29.97) progressive images delivering outstanding clarity as well as cinematic look and motion. For 24P output the DSR-450WS allows selection of pull-down modes: Standard (2-3, 2-3) or Advanced (2-3, 3-2).
- ◆ A selectable gamma table is provided to easily give a specific look to a picture by selecting from multiple fixed gamma patterns including so called film-like gamma. Five patterns of film-like gamma and six patterns of standard gamma can be selected.
- ◆ In addition to Turbo Gain, the DSR-450WS features Slow Shutter for shooting in low-light conditions. Slow Shutter allows use of shutter speeds longer than the frame rate: 1/30, 1/15, 1/10, 1/7.5, 1/6, 1/4.3, 1/3.8, and 1/1.9 seconds (1 to 8 and 16 frame accumulation). The Slow Shutter can be used either alone or together with the electric gain-up function depending on the shooting situation or the operator's preferences.
- ◆ Has an analog composite output as standard, with an SDI output board (CBK-SD01) available as a plug-in option. An optional composite input board (CBK-SC01) is also available for pool feed applications. The optional boards install within the camcorder chassis to eliminate the need for an external camera adaptor unit, maintaining the compactness and balance of the camcorder.
- ◆ Camera settings and basic VCR functions can be remotely controlled using an optional



	DSR-PD170	DSR-250	DSR-400	DSR-450WS
Image Device	3-CCD, 1/3"	3-CCD, 1/3"	3-CCD, 2/3"	3-CCD, 2/3"
Lens	6mm to 72mm, f/1.6-2.4		N/A	N/A
Optical / Digital Zoom	12x / 48x	12x / 48x	N/A	N/A
Filter Diameter	58mm	58mm	N/A	N/A
Horizontal Resolution	530 Lines	530 Lines	920 Lines	800 Lines (16:9)
Minimum Illumination	1 Lux	2 Lux w/18 dB Gain	0.5 Lux with f/1.4	0.5 Lux with f/1.4
Scan Matching	No	No	Yes	Yes
Shutter Speed Range	1/4 to 1/10k sec.	1/4 to 1/10k sec.	1/100 to 1/2k sec.	1/100 to 1/2k sec.
Gain Selection	up to 18 dB	up to 18 dB	up to 36 dB	up to 36 dB
Composite Video Input / Output	RCA / RCA	RCA / RCA	–	–
Composite Video Output (BNC)	–	Yes	Yes	Yes
S-Video- 4-Pin	Yes	Yes	–	–
Firewire	4-Pin	6-Pin	6-Pin	6-Pin
Mic Audio	XLR x 2	XLR x 2	XLR x 2	XLR x 2
Line Input / Output	RCA / RCA	RCA / RCA	RCA / RCA	RCA / RCA
Headphones-	Mini Stereo	Mini Stereo	Mini Stereo	Mini Stereo
Remote Control	Control L	Mini Stereo	–	–
Timecode	–	–	BNC I/O	BNC I/O
Genlock	–	–	BNC Input	BNC Input
Sync	–	–	BNC Output	BNC Output
DC Power	Coaxial	4-Pin XLR	4-Pin XLR	4-Pin XLR
DC Power	–	2-Pin PowerTap	2-Pin PowerTap	2-Pin PowerTap
DC Power (for wireless audio receiver)	–	4-Pin Lemo	7-Pin	7-Pin

DSR-400 & DSR-450WS PRICING

DSR-400K 2/3" 3-CCD DVCAM Camcorder

With DXF-801 B&W viewfinder, short shotgun mic and VCT-U14 tripod plate. (Mfr # DSR400K; B&H # SODSR400K) Call

DSR-400L 2/3" 3-CCD DVCAM Camcorder

With Fujinon 17x IF Lens, DXF-801 B&W viewfinder, short shotgun mic and VCT-U14 tripod plate. (Mfr # DSR400L; B&H # SODSR400L) Call

DSR-450WSL Widescreen 2/3" 3-CCD DVCAM Camcorder

With DXF-801 B&W viewfinder, short shotgun mic and VCT-U14 tripod plate. (Mfr # DSR450WSL; B&H # SODSR450WSL) Call

HVR-DR60 Hard Disk Recording Unit



Lightweight and portable hard disk drive (HDD) recording unit, the HVR-DR60 provides approximately 4.5 hours of continuous DVCAM or DV stream recording.

It is easily connected to the DSR-PD170, DSR-250 DSR-400 or

DSR-450WS via its i.LINK interface, and offers videographers the ability to record onto both tape and the hard disk drive simultaneously – an ideal hybrid recording solution for users.

- ◆ The HVR-DR60 is equipped with buttons that provide VCR-like control for functions such as record, play, stop, next, previous, FF/REW (3x normal speed). Using these buttons, the unit can output HDV/DVCAM/DV streams with time code via the i.LINK connector.
- ◆ Utilizing a 14 second cache recording function, the HVR-DR60 can prevent the loss of important scenes or events that occur 14 seconds before the camera's REC start button is pressed.
- ◆ Using the control buttons of the HVR-DR60, stored footage can be instantly accessed and previewed on the LCD monitor of the connected camcorder for a quick review of recordings.
- ◆ Rubber shock absorbers hold the HDD unit in place, preventing external shock being transmitted when the HVR-DR60 chassis is subject to impact.
- ◆ Weighing a mere 8 oz. (without battery), the HVR-DR60 adds little weight while adding considerable functionality to their complement of high quality, Sony HDV acquisition tools.

HVR-DR60 (Mfr # HVRDR60; B&H # SOHVRDR60) CALL



Rear Connector Panel for the DSR-400



Rear Connector Panel for the DSR-450WS

DSR-400 • DSR-450WS

Optional Accessories

AC Power Supply and Battery Charger (Mfr # ACDN2B • B&H # SOACDN2B): A small and lightweight AC power supply that connects to any V-mount equipped camera, monitor or VCR. It can also supply power to your equipment with a 4-pin XLR connection.....**1199.95**

AC Adaptor/Charger (Mfr # ACDN10 • B&H # SOACDN10): An AC power supply and V-mount lithium-ion battery charger; it can mount directly to Sony camcorders featuring V-mount technology**609.95**

65WH Li-Ion V-Mount Battery with Info Function
(Mfr # BPGL65 • B&H # SOBPG65)**274.95**

95WH Li-Ion V-Mount Battery with Info Function
(Mfr # BPGL95 • B&H # SOBPG95)**549.95**

4-Position V-Mount Battery Charger (Mfr # BCM150 • B&H # SOBCM150): For Sony's Li-Ion and NiMH battery packs. This compact unit quickly charges up to 4 batteries sequentially**1099.95**

Analog Composite Input Board (Mfr # CBKSC01 • B&H # SOCBKSC01): Provides a single BNC connector that will accept composite video directly to the VCR section of the DSR-450WS (only).....**1248.95**

SDI Output Board (Mfr # CBKSD01 • B&H # SOCBKSD01): Provides a single BNC connector for SDI digital video output on the DSR-450WS**1169.95**

5" Monochrome Studio Viewfinder (Mfr # DXF51 • B&H # SODXF51): With 650 lines of resolution. It automatically switches from 4:3 to 16:9 aspect ratio when connected to a 16:9 aspect camera**Call**

Handheld Remote Control Unit (Mfr # RMB150 • B&H # SORMB150): Connects to the DSR-450WS and sets functions like gain, shutter, pedestal, knee and iris, via its 8-pin remote connector**2099.95**

Remote Control Unit with LCD Touch Screen (Mfr # RMB750 • B&H # SORMB750): Mobile, fully controllable system for the DSR-450WS. It integrates control capability equivalent to a Master Set-up Unit into a compact unit powered from the camera. Accepts Memory Stick cards so that set-up parameters can be stored for future recall**4514.95**

Tripod Adapter Plate (Mfr # VCTU14 • B&H # SOVCTU14): Allows the DSR-450/450 to be attached to a tripod's wedge-plate. A quick-release mechanism allows rapid mounting and dismounting**189.95**

ECM-674Shotgun Mic (Mfr # ECM674 • B&H # SOECM674): Professional level signal reproduction while cost effective. Features a super-cardioid polar pattern for excellent directivity and minimal noise off-axis. Powered by an internal AA-size battery or 48-volt phantom power.....**344.95**

Microphone Holder (Mfr # CAC12 • B&H # SOCAC12): An external mic holder that provides two-axis adjustment of microphone arm**176.95**

Soft Carrying Case (Mfr # LC400BP • B&H # SOLC400BP): Covered in water-resistant Cordura, this bag has an ultra-wide U-opening for quick removal and insertion of the camcorder. It has two accessory pockets, an ergonomic interlock handle, a dual padded strap, and three removable dividers for custom configuration**299.95**

Hard Carry/Shipping Case (Mfr # LC424TH • B&H # SOLC424TH): Rugged ATA certified carrying and shipping case with custom foam interior for complete protection.....**CALL**

DSR-45A

Compact DVCAM VCR with 2.5" LCD Monitor

Equipped with a host of comprehensive and intelligent features, the half-rack size (2RU high) DSR-45A is a versatile DVCAM digital video recorder that is perfect for both linear and non-linear editing environments. Ideal for small to medium-sized production houses, the DSR-45A features component, composite and S-Video inputs/outputs, i.LINK (DV) interface, and four channel independent audio in/out with XLR audio output. There is also advanced time code capability, as well as a full range of remote control interfaces including RS-232, RS-422, Control-L (LANC) and Control-S. Conveniences include a built-in LCD monitor for menu set-up and video/audio confidence and a one-touch duplication button. This front-loading VCR accepts both standard and mini size cassettes, and its half-rack design allows it to be easily integrated into existing linear and non-linear editing systems.



FEATURES

- ◆ DVCAM format offers superior video and audio quality (up to 40 minutes with mini or 184 minutes with standard size cassette). Can also play and record DV format tapes (SP mode only) for up to 1-hour (mini-size) or 270 minutes with standard-size cassette.
- ◆ Has four independently selectable audio channels for simultaneous recording. Audio input consists of four RCA connectors, output consists of four XLR connectors.
- ◆ Front panel digital tape counter display convenient for performing relative time code data editing and monitoring the operation of the unit.
- ◆ RS-422A (9-pin) interface allows the DSR-45A to be controlled as a player or feeder into linear and non-linear editing systems. Also equipped with RS-232 control interface.
- ◆ Built-in (non-SMPTE) color bar generators accessible through the user menu.
- ◆ Space-saving half-rack size width and two unit (2U) height.
- ◆ While editing, images are displayed on the large built-in 2.5" LCD monitor. You may choose to layer the audio level meters on the video, and system status can be shown to simplify the editing process. When setting up for operation, displays the menu options.

DSR-45A NTSC (B&H # SODSR45A)**CALL**
DSR-45A 'PAL' (B&H # SODSR45AP)**3799.95**

Time Code

- ◆ The DSR-45A is equipped with time code In/Out capabilities, enabling synchronization with external equipment. It can output the time code read from the tape as an analog signal when played back at normal speed, and can also receive an analog time code signal from external sources.
- ◆ The initial time code can be preset (for DVCAM Mode only) using the internal time code generator. User bits can be preset to store alphanumeric data such as date, time, scene number, and other user information.
- ◆ When recording through i.LINK, the time code of the original source can be recorded on to the tape, making it suitable for downloading non-linear edited sources with its original time code.

i.LINK (DV In/Out) and Control-S Input

- ◆ The 4-pin i.LINK (IEEE1394) DV input/output allows digital dubbing and editing with virtually no quality loss. Enables connection to compatible third party video cameras, camcorders, VCRs, computers and video capture boards that support the interface for desktop editing.
- ◆ Control-S input allows control via the optional DSRM-10. A wired remote control unit, the DSRM-10 incorporates a jog/shuttle dial with a rubber construction for a better "Touch Response," and speed mode indicator lines for shuttle reference.

Easy Duplication Modes

- ◆ The DSR-45A has three duplication modes which can be set from the menu to copy cassettes:
 - Auto Tape Copy with Cassette Memory Copy creates exact duplication of the original tape without the blank segments, and duplicates the memory on the IC chip.
 - Auto Tape Copy duplicates the original tape without the blank segments without copying the IC chip information.
 - Manual Tape Copy is used to copy the original tape from any position on the tape. The IC chip data is not copied.
- ◆ Dubbing is also easy with the convenient front panel dub key. When connected to another VCR or camcorder with i.LINK (IEEE1394) connection, a single button allows dubbing of the original tape and its time code.

DSR-1500A • DSR-1800A • DSR-2000A**DVCAM Master Series Recorders**

The DSR-1500A, DSR-1800A and DSR-2000A are DVCAM Master Series VCRs that bring professional features and interface versatility to production environments ranging from industrial to broadcast, and for both SD and HD programming applications. They are fully compatible with all DV family formats and provide professional features such as excellent editing performance and high-quality jog audio. Each is equipped with i.LINK (IEEE1394) DV interface as standard. In addition, they provide SDI, SDTI, and AES/EBU input/output, as well as HD-SDI up-conversion output capabilities via optional boards.

DSR-1500A

The DSR-1500A is a compact, half-rack size DVCAM recorder that is ideal for installation in OB vehicles, desktop editing systems or in locations where space is at a premium. With its wide range of interfaces from analog to digital, the DSR-1500A can be configured to meet a broad range of applications—from simple source playback for viewing purposes to high quality source feeding and recording for linear or non-linear editing.

It features DV (SP mode only) recording and playback, as well as playback capability of DVCPRO 25 Mbps recordings, and automatically accommodate all standardized cassette sizes without the need for an adapter or changing menu settings. It comes equipped with 6-pin i.LINK (IEEE1394) DV I/O connection allowing it to be immediately integrated into non-linear systems, and outputs component, composite, S-Video and two channels of XLR audio as well. It can input the same using the optional DSBK-1505 analog input interface board. To ensure a migration path to and from Digital Betacam, MPEG IMX, Betacam SX and other digital video systems, the optional DSBK-1501 Digital I/O board provides the DSR-1500A with SDI, SDTI (QSDI) and AES/EBU digital audio interfacing. By configuring the DSR-1500A from either or both of its optional interface boards, it can be equipped to meet a broad range of professional user requirements.

**DSR-1800A**

The DSR-1800A is a recorder/editor featuring innovative technologies to optimize editing efficiency. It features a built-in jog/search dial, jog audio, and slow motion. Multiple format playback capability to DV (SP only) and DVCPRO 25 tapes automatically accommodates all 25 Mbps cassette sizes without a cassette adapter or menu re-sets necessary for playback. The DSR-1800A's i.LINK (IEEE1394) DV interface also includes audio unlock/lock function. When an unlocked audio signal in a DV recording (10 micron) is input via the i.LINK connector, or played back in a DV recording, the DSR-1800A will automatically transform it to a locked audio signal to ensure frame-accurate editing. The optional SDI/AES/EBU interface board (DSBK-1801) provides a migration path to Digital Betacam, Betacam SX and SDI-based systems.

The HD optional up-converter board (DSBK-1820) allows for the transfer of DV assets to HD with a low investment.

DSR-2000A

The DSR-2000A is a recorder/editor featuring playback compatibility with consumer DV (SP and LP recorded tapes), DVCPRO (25 Mbps) and DVCAM media. Pre-read editing capability allows for transitions with effects between two VCRs as well as audio mixing/audio channel swapping with frame accuracy. In addition, the Double-Scan Playback function helps restore both video and audio of misaligned tape information. The DSR-2000A includes a wider digital slow play range ($\pm 1x$), excellent jog audio, built-in video control (TBC), RS-422 interface, and a built-in timecode generator. Analog interfaces (component, composite, S-Video, and four balanced audio channels), SDI, SDTI (QSDI), i.LINK (IEEE1394) DV and AES/EBU interfaces are standard. An optional HD up-converter board (DSBK-2020) with HD-SDI output is also available.



DSR-1500A • DSR-1800A • DSR-2000A

- ◆ The DSR-1500A and DSR-1800A provide a variable speed playback function with a range of $\pm 0.5\times$ normal play speed. The DSR-2000A has a $\pm 1\times$ range. Within these ranges, they play back noiseless, digital slow-motion pictures as well as clear jog audio, making it easy to locate editing points quickly and accurately. This is particularly important for ENG applications that usually require audio-based editing. Moreover, this feature is available even when using DV or DVCPRO tapes.
- ◆ Audio levels can be adjusted with the control knobs on the front panel. In recording mode, the input level of analog, SDI, AES/EBU, SDTI (QSDI) and i.LINK signals can be adjusted. While in the playback mode, the analog, SDI and AES/EBU output levels can be controlled.



Rear view of the DSR-1500A

- ◆ They provide a quick mechanical response through the use of a highly reliable direct reel and drum motor mechanism. The result is a tape drive with rapid response to jog and shuttle commands when searching for edit points, and a rapid start in Play mode. FF/REW speeds are an impressive $85\times$ play speed, with a maximum search speed of $60\times$ during color playback.
- ◆ Triple-size cassette compartment allow use of standard- and mini-size consumer DV (SP mode) and DVCAM cassettes as well as DVCPRO medium-size cassettes without a mechanical adaptor. There is also no need to set the playback format before use.
- ◆ In addition to SMPTE time code they support VITC time code which is recorded on the video tracks and inserted in the vertical blanking interval. The time code can also be read at low speeds and during still playback.
- ◆ Equipped with a built-in signal generator, they can generate color bars or black burst for video, and 1 kHz tone or silent signal for audio. Use to pre-stripe tapes before editing.

DSR-1800A and DSR-2000A Step-up Features

- ◆ They have a three-color channel condition indicator, with each color representing a particular error rate threshold level. This function enables operators to quickly recognize the condition of the VCR and tape.
- ◆ Equipped with the DMC function, the DSR-1800A allows the playback speed of a specific section of tape to be varied over the range of $\pm 0.5\times$ normal speed. The speed variations and the start and end points of the tape section are stored for later playback. This can be used with other DV (25 Mb/s) format recorded tapes like consumer DV (SP mode) and DVCPRO.
- ◆ By receiving a wide aspect ID signal, the DSR-1800A and the DSR-2000A record and play back 16:9 aspect ratio pictures captured with the Sony DSR-450WS DVCAM camcorder.
- ◆ For greater flexibility during input selection, they allow various combinations of video and audio signals to be input. It is possible to select the digital interface for video and the analog interface for audio.
- ◆ Thanks to digital processing, the DSR-1800A/2000A offer 4-channel audio editing. An audio cross-fade function is available for clean audio transitions at editing points. Audio mix/swap and over dubbing are provided without any delay between the video and audio signals. In addition, the 4 audio channels can be edited independently, which makes them ideal for creating or editing video material with multi languages or a variety of audio sources.

DSR-2000A Only

- ◆ Equipped with Sony's innovative DMC (Dynamic Motion Control), the DSR-2000A provides noiseless slow-motion playback from -1 to $+1$ times normal speed. For a 2-machine editing system, the DSR-2000A can memorize the variable speed range of a designated portion on the player side and execute editing with slow-motion images. Additionally, DMC makes it possible to control VTRs equipped with Dynamic Tracking (DT) from the DSR-2000A.
- ◆ Thanks to digital processing, the DSR-2000A offers preread editing capability never before offered on a $1/4"$ (6.35mm) VTR. Since preread heads are positioned ahead of record heads on the drum, they scan previously recorded video and audio signals that are then recorded back onto the same track. This feature provides many advantages such as A/B roll editing (MIX and WIPE only) using two VTRs and a sound-on-sound capability as well as audio cross-fade function for clean audio transitions at editing points. In addition, audio mix/swap and over-dubbing of audio are available without the delay between video and audio.
- ◆ The DSR-2000A incorporates an initial set-up menu that provides easy accessibility and simplified operation. This set-up menu can be scrolled and modified with the search dial while monitoring composite video or SDI video output 3 or the time counter display.
- ◆ A built-in jog/shuttle dial provides convenient two-machine editing without external controllers. By connecting the DSR-2000A to a VCR with RS-422 or DV IEEE1394 interface, an editing system with a ± 0 frame precision can be achieved.
- ◆ Provides easy servicing and maintenance by incorporating a self-diagnostics function, error log and hours meter. Also thanks to a highly durable drum, the DSR-2000A has an extend-
- ◆ They are equipped with a Video Process Control function, enabling greater control of both analog and digital outputs. This feature helps provide them with highly stable video signals.
- ◆ With a built-in closed caption function, the decks can record character data on the video area as video auxiliary data and add it into the vertical blanking area in playback mode. The closed caption data is input and output through the composite and SDI interfaces.
- ◆ They employ a universal powering system to handle 100v or 240v AC, 50 or 60 Hz. The built-in regulator switches the units to appropriate voltage automatically. This allows them to be used worldwide without the need for a transformer.

DSR-45A • DSR-1500A • DSR-1800A • DSR-2000A

	DSR-45A	DSR-1500A	DSR-1800A	DSR-2000A
Analog Video				
Component	3-BNC (x1) Input, (x1) Output	BNCx3 (x1) Input, Output Optional	BNCx3 (x1) Input, Output Optional	BNCx3 (x1) Input, Output Optional
S-Video	4-Pin (x1) Input, (x1) Output	BNC (x2) Output, Input Optional	Optional 4-Pin (x1) Input, (x1) Output	Optional 4-Pin (x1) Input, (x1) Output
Composite Video	BNC (x 1 input, 1 output)	BNC (x1) Output)	—	—
Monitor Video	RCA (x 1 output)	—	—	—
Reference Video	—	BNC (x2)	BNC (x2)	BNC (x2)
Digital Video				
Firewire (i.LINK (DV))	4-Pin (x1) Input, (x1) Output	6-Pin (x1) Input, (x1) Output	6-Pin (x1) Input, (x1) Output	6-Pin (x1) Input, (x1) Output
SDI	—	Optional BNC (x1) Input, (x2) Output	Optional BNC (x1) Input, (x2) Output	Optional BNC (x1) Input, (x3) Output
SDTI	—	Optional BNC Input, Output	Optional BNC Input, Output	Optional BNC Input, Output
HD SDTI	—	—	BNC (x2) Optional	BNC (x2) Optional
Audio				
Audio Input	RCA (x 4)	XLR (x2) Optional	XLR (x4)	XLR (x4)
Audio Output	XLR (x 4)	XLR (x2)	XLR (x4)	XLR (x4)
AES/EBU	—	BNC (x2) Optional	BNC (x2) Optional)	BNC (x2) (Optional)
Monitor Audio	RCA (x1)	RCA (x1)	RCA (x1)	RCA (x1)
Headphone	Mini Stereo (x 1)	1/4-inch (x1)	1/4-inch (x1)	1/4-inch (x1)
Time Code Input/Output				
Timecode Input	BNC (x1)	BNC (x1)	BNC (x1)	BNC (x1)
Timecode Output	BNC (x1)	BNC (x1)	BNC (x1)	BNC (x1)
Remote	RS-422 9-Pin, RS-232 9-Pin, Control L Mini, Control S Mini	RS-422 9-Pin, Control S 1/8-inch Stereo	RS-422 9-Pin, Video Control 15-png, Control S 1/8-inch Stereo	RS-422 9-Pin, Video Control 15-png, Control Panel 15-pin
General				
Dimensions (WHD)	8 3/8 x 3 3/8 x 15 1/2"	8 3/8 x 5 1/8 x 16 1/8"	16 1/8 x 6 3/8 x 15 3/4"	16 7/8 x 7 x 19 5/8 inches
Weight	10.1 lbs.	13 lbs. 3 oz.	28 lbs. 10 oz.	39 lbs 10 oz

DVCAM VCR Accessories

DSBK-1501 Digital SDI Input/Output Board (Mfr # DSBK1501 • B&H # SODSBK1501): For the DSR-1500A**1099.95**

DSBK-1505 Analog Input Board (Mfr # DSBK1505 • B&H # SODSBK1505): For the DSR-1500A**869.95**

DSBK-1801 SDI/AES/EBU Input/Output Board (Mfr # DSBK1801 • B&H # SODSBK1801): For the DSR-1500A.....**1129.95**

DSBK-1820 HD Up-converter Board (Mfr # DSBK1820 • B&H # SODSBK1820): For the DSR-1800A**3599.95**

DSKB-2020 HD Up-converter Board (Mfr # DSBK2020 • B&H # SODSBK2020): For the DSR-2000A**3599.95**

DSRM-10 Remote Control Unit (Mfr # DSRM10 • B&H # SODSRM10)
For the DSR-45A, DSR-1500A and DSR-1800A**CALL**

RMM-130US Rackmount Kit (Mfr # RMM130US • B&H # SORMM130US): For the DSR-1800A/2000A**234.95**

RCC-5G: 16' 9-pin to 9-pin control cable (Mfr # RCC5G/US • B&H # SORCC5GUS)**CALL**

RCC-10G: 30' 9-pin to 9-pin control cable (Mfr # RCC10G/US • B&H # SORCC10GUS)**CALL**

RCC-30G: 100' 9-pin to 9-pin control cable (Mfr # RCC30G/US • B&H # SORCC30GUS)**CALL**

PDV-12CL: Large Size DVCAM Cleaning Cassette (Mfr # PDV12CL • B&H # SOPDV12CL)**44.95**

PDVM-12CL: Mini Size DVCAM Cleaning Cassette (Mfr # PDVM12CL • B&H # SOPDVM12CL)**29.95**



DSR-DR1000

DVCAM Master Series Hard Disk Recorder

Designed for edit feeding and recording applications, the DSR-DR1000A can record up to 12 hours of 25 Mb/s DVCAM/DV video and audio, which are then stored together on its large hard drive as clips. Taking advantage of disk-based recording while maintaining the operational feel of a VCR, it can simultaneously record and playback, allowing a recording to be available immediately for play out and other feeding purposes without interruption. An i.LINK connector supports both the SBP2 protocol for DV file transfer and the conventional i.LINK (DV) protocol (AVC protocol). The SBP2 protocol allows DV files to be transferred to other compatible equipment at high speed. The DSR-DR1000A also offers the convenience of high-quality digital jog sound, and slow motion playback over a wide speed range. Compact and lightweight with a half-rack width (3RU high) design, the DSR-DR1000A is ideal for desktop non-linear editing systems or for installation in space-constrained environments such as OB vehicles.



Hard-Disk Features

Simultaneous Recording and Playback

A key advantage of the DSR-DR1000A over a VCR is its ability to record video and audio while at the same time playing back video and audio. This is especially useful for live and sport events, as it allows you to replay program highlights while the program continues to be recorded. What's more, the playback speed can be altered even during recording — allowing replays to be shown in slow motion.

Random Access to Files

With the DSR-DR1000A, a clip is created for each recording that is made between Record Start and Record Stop. These clips are stored on the DSR-DR1000A as files, allowing users to quickly locate the desired materials. The DSR-DR1000A allows cue points to be marked on desired clips within the recording for immediate cue up and replay of desired scenes — a huge benefit when using the unit for live events or sports programming. Cue points can be marked during recording using the DSR-DR1000A control panel, the supplied remote controller (RM-LG2), or the optional RM-280 Editing Controller. What's more, the DSR-DR1000A can be controlled by external devices supporting Sony Virtual File List (VFL) disk protocol via an RS-422A interface.

Slow Motion with RM-280 Controller

Using the optional RM-280 Editing Controller via an RS-422A interface, a compact and cost-effective slow-motion replay system is available. Since remote control buttons are simply arranged on the RM-280 control panel, operators can easily set cue points during recording, and then clips can be quickly and easily replayed from these cue points. The speed of the slow-motion replay (0.2x, 0.5x, 0.8x, 1x, 2x) and the pre-roll time (3, 5, and 7 seconds) can also be easily set. This is very useful for sports applications such as "instant replay" judgments and immediate large-screen projection of highlighted scenes.

Seamless Clip Segment Playback

Clip segment playback allows continuous playback of designated video segments. By marking the In/Out points of these segments, the DSR-DR1000A will automatically create and store a playlist, which it can then play back from one segment to the next without breaks between segments. Up to four lists can be stored on the hard drive, and they can be displayed on a video monitor. This function is available using the control panel or external control devices supporting Sony VFL disk protocol via an RS-422A interface.

Seamless Repeat Playback

Seamless repeat playback allows a selected single clip, all clips, or a selected single clip segment to be seamlessly repeated. A seamless repeat playback of multiple clips or multiple clip segments is also possible using external control devices that support the Sony VFL disk protocol via an RS-422A interface.

Continuous Loop and Interval Recording

The DSR-DR1000A can continue to record until it is stopped. This is achieved by overwriting earlier recordings in the order they were made. Interval recording function enables recordings over extended periods. The record duration can be selected from 0.5, 1, 1.5 or 2 seconds and the standby time can be selected from 0.5, 1, 5 or 10 minutes. Ideal for scientific applications such as botanical observation.

Pre-alarm Recording

Automatically trigger the DSR-DR1000A to start recording when an external alarm signal is detected. There is also a continual 30-second buffer period of recording prior to the alarm. This is a useful feature for observing events in which it is critical to know what happened before the event occurred.

DSR-DR1000

Versatile Interfaces

The DSR-DR1000A is equipped with a host of connections and interfaces to provide easy integration into various system layouts:

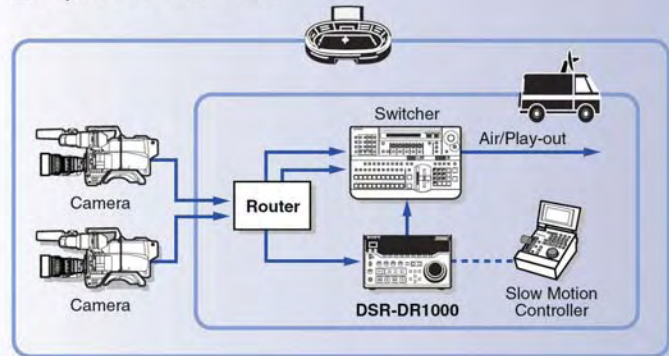
- ◆ The DSR-DR1000A's i.LINK connector supports two protocols - AV/C and SBP2. The AV/C protocol is used for A/V transfer of DVCAM/DV streams, as used in conventional VCR-to-VCR dubbing. This protocol allows the DSR-DR1000A to be connected to VCRs and non-linear editors with an i.LINK (DV) interface. Similarly, the SBP2 protocol allows file transfer of DVCAM/DV streams to non-linear systems that are SBP2 compatible.
- ◆ With the SBP2 protocol, clips stored on the DSR-DR1000A can be selected on a file basis from the GUI of the non-linear editor and then transferred to the editor's hard drive at a high speed. This effectively reduces the time required for material transfer.
- ◆ Another time consuming process common to non-linear editing is logging. The DSR-DR1000A streamlines the process by storing the time-code values generated during recording and transferring them to the nonlinear editor together with the material files.



- ◆ Inputs and outputs include component, composite, S-Video (BNC), i.LINK (6-pin), standard definition SDI, timecode (BNC), analog audio (2-channels, XLR x2) and AES/EBU (4-channels, BNC x2). There is also a reference video input, audio monitor output (RCA), headphone jack, two RS-422 ports (in/out) and a Control port.
- ◆ The DSR-DR1000A is also equipped with a standard 10Base-T/100Base-TX Ethernet connector. This enables file transfer across a network using the File Transfer Protocol. Moreover, it allows easy and quick selection of the segment to be transferred, thus optimizing transfer efficiency.

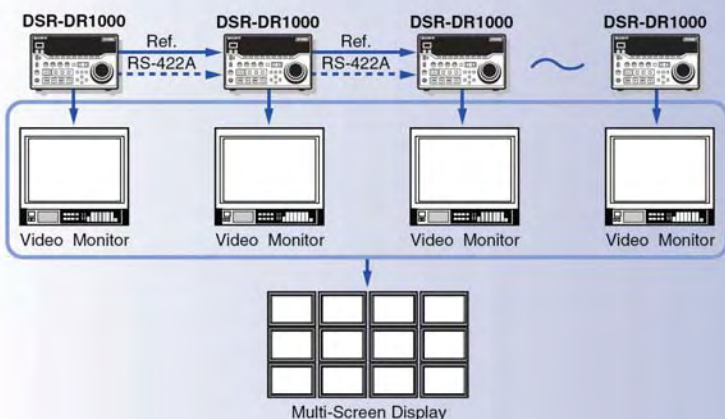
Sports/Small OB-van Application

- Variable speed playback over the range of ± 2 times normal speed
- Simultaneous recording and playback
- Compact half-rack size



Multi-screen Display Application

- Synchronous playback



Familiar Functionality and Operability

- ◆ The DSR-DR1000A offers variable-speed playback within a wide range of ± 2 x normal speed. This wide slow-motion range helps you to create unique and sophisticated content. The playback speed can be controlled in 1% increments from an appropriate editor or external remote controller. The DSR-DR1000A also provides noiseless digital slow images with smooth jog sound, making it easy to designate editing points.
- ◆ To maintain a familiar VTR-like feel, the DSR-DR1000A provides front-panel controls for functions such as Play, Stop, Next, Previous and Record. The Next and Previous buttons allow you to locate the top of the following and previous clips respectively, and the Jog/Shuttle dial provides convenient search operability.
- ◆ The DSR-DR1000A is equipped with two RS-422A terminals, making it possible to cascade multiple units for simultaneous playout. This is particularly effective in multi-screen display applications where the playback signal needs to be synchronized.

DSR-DR1000A DVCAM Hard Disk Recorder (Mfr # DSRDR1000A • B&H # SODSRDR1000A)**CALL**
RM-280 Remote Editing Controller (Mfr # RM280 • B&H # SORM280)**2357.50**

DVW-970**2/3" 3-CCD DigiBeta Camcorder**

For years the highest quality standard-definition (SDTV) video system available, DigiBeta (Digital Betacam) has been the mainstream workhorse for numerous top-quality SD video productions – from documentaries and dramas to TV commercials. Using 10-bit DCT compression and 4:2:2 sampling, Digital Betacam L (Long) cassettes hold 124 minutes of video and four channels of 16-bit audio.

Combines field-proven Power HAD EX CCDs combined with precise 14-bit A/D conversion to deliver excellent sensitivity, reduced noise and smear characteristics, as well as progressive scanning mode, which includes 24P for film-like shooting. For enhanced reliability and operability, a variety of unique features such as slow shutter, interval recording, and picture cache recording are also incorporated.

**FEATURES****Highest Quality Audio & Video**

- ◆ Three 2/3" Power HAD EX CCDs achieve high sensitivity of f/11 at 2000 lux, S/N ratio of 65dB and low smear level of -145 dB, allowing the camera to produce stunning quality. The CCDs also allow progressive scanning, including 24P for film-like effects (requires the optional CBK-FC01 pull-down board).
- ◆ High resolution 14-bit A/D conversion circuit ensures images captured by the Power HAD EX CCDs are processed with great precision.
- ◆ Advanced Digital Signal Processing (ADSP) maintains the quality of the CCDs and enables sophisticated image controls, like multi-matrix function, triple skin-tone detail control, and adaptive highlight control.
- ◆ Records 4:2:2 component digital video signal for superb picture quality, multi-generation capabilities, and excellent editing performance. The use of very mild 2:1 intra-field compression produces picture quality that is equivalent to base-band signals.
- ◆ Provides 4-channels of 20-bit/48 kHz digital audio. Select the audio input signal for each channel, choosing from front mic and additional wired or wireless microphones.
- ◆ Sony's TruEye processor virtually eliminates hue distortion caused by conventional RGB analog or digital processing. By processing the video data at three levels – brightness, hue, and saturation – similar to how the human eye works, TruEye assists in the

Film-like Images

- ◆ The DVW-970 can generate progressive images of 29.97P and 25P respectively, delivering outstanding clarity as well as a cinematic look. In addition, with the optional CBK-FC01 pull-down board installed, it can produce 24P images offering film-like motion effects. Images captured in 24P mode in the camera head are 2-3 pull-downed and recorded on tape at 59.94i field rate.
- ◆ A selectable gamma table is provided to easily give a specific look to a picture by selecting from multiple fixed gamma patterns including so-called film-like gamma. Five patterns of film-like gamma and six patterns of standard gamma can be selected.

Advanced Shooting Capabilities

- ◆ The DVW-970 offers two convenient functions for capturing clear images in low-light – a slow shutter mode and Turbo Gain function. The slow shutter mode allows the charge-accumulation period of the CCD to be extended to 16 frames, thereby not only increasing the sensitivity but also producing a blurring effect. The Turbo Gain function boosts the gain level up to +48 dB at the touch of a button. This makes it possible to shoot in extremely low-light conditions. Both the slow shutter and the electronic gain-up can be used either alone or together depending on the shooting situation or the operator's preferences.
- ◆ Using the optional CBK-MB01 Picture Cache Board, the camera can buffer up to eight seconds of video into memory. This means that everything that happened eight seconds before the REC button is pressed will be recorded to tape – preventing the loss of unexpected but important events occurring before the operator even has the chance to press the REC button.
- ◆ Optional CBK-MB01 Picture Cache Board allows interval recording. In manual mode, a specified number of frames is recorded every time the REC button is pressed or the DVW-970 repeatedly records at a specified interval after the REC button is pressed. In auto mode, the camera records frames at pre-determined intervals over a pre-determined total shooting time. Interval Recording function allows recordings to be made over long periods of time on a single tape.
- ◆ Includes dual optical filters for Color Correction (CC) and Neutral Density (ND) for flexible color and exposure control. In addition an electronic Color Correction function gives operators the choice of correcting color temperature optically or electronically, according to their needs.
- ◆ Auto-tracing White Balance (ATW) function automatically adjusts the camera's color temperature in real time with a change of lighting. This is especially useful when a shoot is performed across different environments, such as from indoors to outdoors.

DVW-970

High Performance

- ◆ With a Sony Professional Info Battery, the remaining capacity is automatically detected and transmitted to the camcorder. The remaining capacity is indicated in the camcorder viewfinder in 10% steps.
- ◆ An optional portable light (up to 50w) can be attached to the camcorder, using a standard lighting connector and specially designed short cable for operation from the camcorder battery. The light can be switched on and off manually, or automatically synchronized with the camcorder's REC start function.
- ◆ Sony's optional WRR-855A/855B wireless microphone receiver slots directly into the camcorder body without requiring a cable connection. This maintains camcorder balance and keeps the body compact, avoiding any loss of mobility.



WRR-855 Wireless Microphone Receiver on DVW-970

- ◆ Frequently used functions can be assigned to a push button and a simple slide switch, allowing the operator make rapid changes when working in the field. Functions that can be assigned include:
VF marker on/off, re-take, ATW on/off, return video, lens return, recording start/stop, turbo gain on/off, zebra on/off, picture cache on/off, zebra on/off, D5600 on/off.
- ◆ The DVW-970 provides an analog composite output as standard. An optional SDI output board (CBK-SD01) can also be installed.
- ◆ A stereo audio line output is available from the 5-pin XLR connector on the rear of the DVW-970. This provides two analog audio output channels, which are selectable between either Channel-1/2 or Channel-3/4.
- ◆ Camera settings and basic VCR functions can be remotely controlled using an optional RM-B150 or RM-B750 Remote Control Unit via the 8-pin remote connector.
- ◆ Color temperature control allows the overall color balance of the picture to be changed to make it warmer or cooler. This feature can be used very creatively, particularly in scenes with mixed color lighting.

Flexible Metadata Recording

The DVW-970 is capable of recording a variety of metadata, delivering a dramatic increase in productivity when searching for data in subsequent production processes

- Essence Marks can be set automatically or manually during the shoot. Each time the 'return' button on the lens is pressed, an Essence Mark is set. When the tape is played on a DVW-2000 series VCR, Essence Mark positions are automatically detected and a list of all marks is generated for display on a monitor. This allows operators to quickly select and cue-up to the scenes of interest.
- Records a UMID (Unique Material Identifier) which consists of a globally unique number or a material number. It is automatically generated and recorded on tape at every scene change, proving invaluable when searching for required scenes in subsequent reviewing and editing processes. Sony supports UMID as well as Extended UMID2 for further operational convenience.

Creative Versatility

- ◆ To record difficult images, the DVW-970 provides multiple knee-points/slopes for superior overexposure control. It analyzes the highlight areas of a scene and automatically sets and optimizes multiple knee points/slopes accordingly. Applies only to video levels in excess of the knee point; the middle- and low-luminance parts of the video signal are unaffected.
- ◆ Triple Skin Tone Detail control allows for independent detail control over three specified colors. This enhances the capability of Skin Tone Detail correction - enabling one color selection to be used for reducing the detail level of skin color, and two other selections to be used for either increasing or decreasing the detail level of two other objects.
- ◆ Variable (LOW, Low MID, High MID, and HIGH) Black Gamma Range function allows for fine adjustment of tonal reproduction in the shadow area. This helps bring out details from the dark parts of the picture without affecting mid-tones while maintaining the absolute black level.
- ◆ Multi-matrix function enables color adjustments to be applied over a color and/or hue range as specified by the operator. The color spectrum is divided into 16 areas of adjustment, where the hue and/or saturation of each area can be adjusted. This provides interesting in-camera color effects - similar to secondary color correction.
- ◆ Electronic Soft Focus applies an effect similar to using an optical soft-focus filter - but in a much more convenient way. Provides a picture that is "softer" than when the detail is switched off completely. Electronic Soft Focus can be used in conjunction with Skin-tone Detail to change only the sharpness within a specific color or hue range.

Conveniences

- ◆ Uses Sony Memory Stick for easy storage and recall of setup parameters for individual scenes, plus individual operators' camera-setup preferences including assignable button settings.
- ◆ Compact and lightweight for a high level of mobility, the camera weighs just under 12 lbs. including viewfinder, mic, tape, and battery pack. Power consumption is a low 29 watts.
- ◆ All switches, meters, and indicators are in the most logical places and are positioned for optimum functionality and ease of use.

DVW-970 2/3" 3-CCD Digital Betacam Camcorder (Mfr # DVW970; B&H # SODVW970)

With BVF-V20W 2" B&W viewfinder, shotgun mic and shoulder strap CALL

Quick-Release Tripod Adapter (Mfr # VCTU14; B&H # SOVCTU14) **189.95**

SDI Output Board (Mfr # CBKSD01; B&H # SOCBKSD01) **1169.95**

Pull-Down 24P Shooting Board (Mfr # CBKFC01; B&H # SOCBKFC01) **2079.95**

Picture Cache Board (Mfr # CBKMB01; B&H # SOCBKMB01) **2418.95**

RMB-150A Handheld Basic Camera Set-Up Remote Control (B&H # SORMB150) **2099.95**

DVW-2000 • DVW-M2000

Digital Betacam Recorders

A Digital Betacam player/recorder, the DVW-2000 can be equipped with the optional BKMW-104 HD Upconverter board allowing it to up-convert standard definition Digital Betacam content to either 1080i or 720p high-definition formats. Stepping up, the DVW-M2000 provides powerful playback capability for all Sony 1/2" standard-definition format tapes, allowing for continuous use of important archive materials and acquisition tools. Both decks are equipped with a wide array of inputs and outputs—analogue and digital. They come standard with composite video, analogue component, SDI, and analogue and digital audio connectors. Controller interfaces include RS-422, RS-232, TBC-type video controllers, and even a remotely located front control panel is possible. Other advanced features such as metadata handling capability, flexible audio operation, and a compact body design increase their operational convenience.



FEATURES

- ◆ They have a compact 4RU high design (16⁷/₈ x 6⁷/₈ x 21¹/₂") and weigh only 50 lbs.
- ◆ They record up to 124 minutes on a large cassette and 40 minutes on a small cassette.
- ◆ Equipped with SDI, analogue component and composite video I/O, digital and analogue audio I/O, and time code I/O. A 50-pin parallel remote interface is also included.
- ◆ DVW-2000 Series VCRs provide a high-speed picture search capability:
 - Digital Betacam tape: ±50 times (in color)
 - MPEG IMX tape: ±78 times (in color)
 - Betacam SX tape: ±78 times (in color)
 - Betacam SP/Betacam tape: ±35 times (NTSC)/±42 times (PAL) (up to ±10 times in color)
- ◆ They provide variable speed playback, from -1 to 3x (Digital Betacam/MPEG IMX, Betacam SP/ Betacam format) or from -1 to 2x (Betacam SX) normal speed.
- ◆ Dynamic Motion Control (DMC) function provides programmable slow-motion playback. This can be controlled via the control panel of the VCR.
- ◆ Setup files can be saved on and recalled from a Memory Stick. These files can later be copied onto another DVW-2000 Series VCR, enabling quick and consistent setup of multiple VTRs.
- ◆ They can handle various kinds of metadata, which can be used in later in production to drastically increase productivity:
 - Shot Mark handling capability, for quick cue-up to user-defined shot points
 - UMID capability to automatically generate and record UMID (Unique Material Identifier) used for the identification of picture/audio material.
 - Built-in Tele-File module enables cassette content information to be written to or read from optional Tele-File label (MLB-1M-100).
- ◆ Most of the circuitry the VCRs is arranged on plug-in boards to allow quick and easy maintenance. The drum assembly is also designed for simple, low-cost maintenance.
- ◆ They offer optional HD upconversion capability, providing 1080/59.94i or 720/59.94P HD outputs. Furthermore, the DVW-M2000 can output these HD signals when playing back any of its playback-compatible formats. This option allows smooth migration to today's and future HDTV operations.
- ◆ Frame accurate (±0) insert and assemble editing on DVW tapes in machine-to-machine or A/B-roll configurations.
- ◆ They are equipped with advanced playback heads to enable pre-read editing. This provides single-VCR titling, audio mix/swap, and voice over with no delay between video and audio. In addition, A/B-roll editing with two VCRs is available.
- ◆ They provide complete reproduction of four channels of independently editable, 20-bit digital audio in Jog mode during normal playback speed, whether forward or reverse. Ideal for quickly and precisely establishing an editing point while monitoring the digital audio signals, which remain in absolute sync with the pictures.



Powerful Legacy Playback Capability (DVW-M2000 only)

The DVW-M2000 has capability to playback all Sony 1/2" SD formats including Digital Betacam, MPEG IMX, Betacam SX, Betacam SP, and Betacam formats, allowing users to continue to utilize archive material. Furthermore, this allows a flexible choice of acquisition tools, ranging from analogue Betacam and Betacam SX to MPEG IMX formats. This VCR can also be used as a multi-format feeder in the editing suite, minimizing the amount of equipment needed.

J-10 • J-30

Compact Betacam Players

Accepted by producers, journalists, and production staff around the world as the ideal desktop 1/2" standard-definition compact players, the J Series offer sophisticated features within an affordable price range for viewing, logging, and source feeding to servers or non-linear editing systems.

Comprising four models, the J-10, J-10SDI, J-30, and J-30SDI also come equipped with an i.LINK (IEEE1394) interface as standard, opening the door to the DV world for Betacam users.

The J-10/J-10 SDI playback Betacam SX, Betacam SP, and Betacam tape recordings. The J-30/J-30 SDI add playback capability for MPEG IMX and Digital Betacam recordings as well. During tape loading, each format is automatically identified for playback, so no menu settings or switching is necessary.



FEATURES

- ◆ Compact and lightweight they measure just 12 1/8 x 4 x 15 3/4" and weigh under 18 lbs. The size of a standard desktop PC, they can be placed on the desks of busy producers, journalists, and editors either horizontally or upright in the supplied vertical stand - ideal for space constrained environments. In addition, their light-metallic color makes them deal in an office environment.
- ◆ Despite their compact size, they can play large-size as well as small-size cassettes.
- ◆ Players are switchable between 525/60 and 625/50 playback modes, enabling operation in international environments.
- ◆ The J-10/J-10 SDI play back Betacam SX, Betacam SP, and Betacam tape recordings. The J-30/J-30 SDI add playback capability for MPEG IMX and Digital Betacam recordings as well. During tape loading, each format is automatically identified for playback, so no menu settings or switching is necessary.
- ◆ The J Series players can scan tapes with Shot Marks and automatically detect their position. After scanning, a list of all marks can be displayed on a video monitor, allowing easy cueing to any mark
- ◆ The J-10 and J-30 offer one set of analog component outputs (BNC x 3) as standard. The J-10 SDI and J-30 SDI offer two SDI outputs (BNC x 2) - including one with superimposition capability. Time code output is provided on the J-10/30 SDI as well.
- ◆ Two channels of analog audio output are available through the rear panel XLRs or RCA jacks. There is a headphone jack on the front panel. Audio channels to be output can be selected from Ch 1/2, Ch 3/4, and Cue track. Audio is automatically muted for off-speed playback and non-data playback.
- ◆ The J-30 SDI (only) can read UMID (Unique Material Identifier) on Digi Beta apes and output them via its SDI interface. It can also read Essence Marks from the DVW-970.
- ◆ Equipped with an i.LINK interface, they allow 1/2" standard definition Betacam series materials - even 20-year-old archives — to be converted to a 25 Mbps DV signal and sent to a compatible DV device via a single cable. In addition, RS-422A 9-pin remote control interface allows them to be remotely controlled.
- ◆ Supplied wireless remote comes in handy when connecting to monitors or projectors with composite or S-Video input capability.

Betacam and Digital Betacam Player/Recorders

J-10 (Mfr # J10 • B&H # SOJ10)	CALL	J-10SDI (Mfr # J10SDI • B&H # SOJ10SDI)	CALL
J-30 (Mfr # J30 • B&H # SOJ30)	CALL	J-30SDI (Mfr # J30SDI • B&H # SOJ30SDI)	CALL
DVW-2000 (Mfr # DVW2000 • B&H # SODVW2000), DVW-M2000 (Mfr # DVWM2000 • B&H # SODVWM2000)	CALL		
BKDW-101 Control Panel for DVW-2000/M2000 (Mfr # BKDW101 • B&H # SOBKW101)			2089.95
BKMW-102 Control Unit for DVW-2000/M2000 (Mfr # BKMW102 • B&H # SOBKMW102)			389.995
BKMW-103 Control Panel Expansion Kit (Mfr # BKMW103 • B&H # SOBKMW103)			369.95
BKMW-104 HD Upconverter Board f/ DVW-2000/M2000 (Mfr # BKMW104/1 • B&H # SOBKMW104)			7199.95
RMM-131A Rackmount Kit for DVW-2000/M2000, J-Series (Mfr # RMM131/A • B&H # SORMM131A)			284.95
BCT-D12CL Digital Betacam Cleaning Cassette (B&H # SOBCTD12CL)			19.95

Digital Betacam Cassettes (Quantity Discounts are Available)

BCT-D6 (Mfr # BCTD6A • B&H # SOBCTD6)	15.25	BCT-D32 (Mfr # BCTD32A • B&H # SOBCTD32)	17.25
BCT-D12 (Mfr # BCTD12A • B&H # SOBCTD12)	16.25	BCT-D40 (Mfr # BCT-D40A • B&H # SOBCTD40)	21.95
BCT-D22 (Mfr # BCT-D22A • B&H # SOBCTD22)	17.95	BCT-D34L (Mfr # BCTD34LA • B&H # SOBCTD34L)	24.99
BCT-D64L (Mfr # BCTD64LA • B&H # SOBCTD64L)			30.95
BCT-D94L (Mfr # BCT-D94LA • B&H # SOBCTD94L)			47.95
BCT-D124L (Mfr # BCT-D124LA • B&H # SOBCTD124L)			64.95

HIGH DEFINITION DIGITAL VIDEO FORMAT

AVCHD High Definition Digital Video Format

As its name implies, AVCHD uses an MPEG-4 AVC (H.264) video codec. AVC's better compression (compared to the older MPEG-2 codec of HDV) lets it record video of the same quality of MPEG-2 but in less space. The audio track can be stored as uncompressed 7.1 linear PCM or compressed AC-3 5.1. The compressed audio and video data are encapsulated in an MPEG-2 Transport stream called BDAV. This stream format and most of the structure of AVCHD are derived from the Blu-ray Disc BDMV format. Consequently, AVCHD recordings can be played without modification in most set-top Blu-ray Disc players from Sony and Panasonic.

AVCHD supports a variety of resolutions and aspect ratios, all the way from 480/60i to 1080/24p "Full HD" with 1920 x 1080 pixels in 16:9 aspect ratio. The typical maximum bit rate for HD recordings is ~24Mbps when recording to hard disk or flash memory and ~18Mbps for when recording to DVD. This results in 3MB or 2.25MB used per second respectively (which is about 7.5 minutes of recording for every GB of storage). Consequently, you can record up to 2 hours of HD video on a 16GB SD card.

At the maximum resolution, a standard 8cm DVD will hold 15 minutes of HD video. Dual layer disks will hold 27 minutes. By comparison, the discs can store 30 minutes of SD (standard-definition) MPEG-2 video, and MiniDV tapes can store a full 60 minutes of either standard-definition DV or high-definition (HDV) video. However, AVCHD camcorders using flash memory offer much more capacity, and typically offer USB connections to access their content.

Among the touted advantages of AVCHD over MiniDV tapes is random access, since AVCHD does not need to be fast-forwarded or rewound as on tape formats such as MiniDV. For advanced users, however, digital video-footage is rarely edited in-camera anyway; instead, it is transferred entirely to a computer, where the operator uses video editing software. So random access is less important to some professional users but may prove valuable to professionals in electronic news gathering.

The biggest problem with editing and converting these files is the sheer amount of resources they require—decoding and re-encoding AVC is much more intensive than, say, MPEG-2. Furthermore, AVCHD employs long-GOP frame storage, which while space-efficient, introduces problems into editing and decoding of material. Even so AVC's challenges will be overcome with time, especially on multi-core CPUs.

AG-HMC70

Shoulder-Mount AVCHD Camcorder

Like the AG-HSC1U (next page), the AG-HMC70 utilizes the H.264-based Advanced Video Codec High Definition (AVCHD) video format to deliver crisp HD images. AVCHD delivers twice the recording efficiency of MPEG-2 codec technologies like HDV, and is supported by a number of non-linear editing packages including Final Cut Pro. The AG-HMC70 records high-quality 1080i images onto SD/SDHC memory cards eliminating the need for a special deck, as well as the time required to transfer content from a tape or optical disc to a PC for editing or content distribution. Plus, recording capacity will increase and media cost decrease as higher capacity cards come out. The camcorder features three native 16:9 progressive 1/4" CCDs to record widescreen 1440 x 1080 HD resolution images of weddings, sports, concerts, or other events. The camcorder is equipped with a 12x Leica wide-angle zoom lens, one-push auto focus, and integrated Optical Image Stabilization (O.I.S.) to ensure stable images. It can even capture 2.1MP still images while video recording. For audio, the AG-HMC70 features two locking XLR inputs at the rear, complete with hard switches for mic/line, +48v phantom power, auto/manual level, mic attenuation and front/rear assignment. Headphone volume control lets you match the camera's output to the shooter's stereo headphones.



AG-HMC70

High Image Quality

- ◆ 1/4-inch progressive 3-CCD system captures widescreen HD images with high sensitivity, superb color reproduction and resolution
- ◆ Features a 38.5mm (35mm lens equivalent) wide-angle, 12x zoom lens with integrated optical image stabilizer.
- ◆ Provides pro-tuning color reproduction inheriting the color tones of Panasonic's professional HD camera series.
- ◆ Mechanism-free memory-card recording means high durability and reliability against vibration, impacts and temperature change.
- ◆ SD/SDHC memory cards are inexpensive, widely available, and can be repeatedly reused.
- ◆ Can record up to 6 hours of high-resolution 1080i HD images in HE (extended-time) mode onto a 16-GB SDHC card

Professional Features

- ◆ Lightweight, shoulder-mount design facilitates stable shooting and better balance during long recording sessions.
- ◆ Offers professional audio capabilities including two XLR Mic/Line switchable inputs with attenuation, +48v phantom power, and both auto and manual with Rec level dials. This allows flexible, high quality audio recording using a wide range of wired and wireless microphones and mixers.
- ◆ HD/SD component (BNC x3), as well as composite (BNC) and audio output (RCA x 2).
- ◆ Built-in speaker provides clear sound, even in the field. Also has a headphone output.

Other Functions

- ◆ The camcorder's large 3-inch 16:9 LCD monitor offers thumbnail display of recorded images so videographers can monitor or delete clips.
- ◆ One-push auto focus
- ◆ Users can also capture 2.1 Megapixel still images with the camcorder onto the SDHC memory card – even during video recording.
- ◆ HDMI output, USB 2.0 interface
- ◆ Instantly transfer content from the AG-HMC70 to Mac or PC computers with an SD/SDHC card reader or by connecting the camcorder directly via its USB 2.0 interface.

SD/SDHC Card Versatility

- ◆ Recording on SD/SDHC cards offer a fast and simple IT-compatible workflow, and ensures ultra-reliable performance since the HMC70 uses no moving parts while recording.
- ◆ The HMC70 is resistant to shock, vibration, temperature change and extreme weather conditions and because it is solid-state, users have instant access to the recorded footage without the need to ingest or digitize. In addition, SD and SDHC memory cards are inexpensive and can be reused repeatedly.
- ◆ Since AVCHD records video as digital data files, content can be transferred and stored on affordable, high-capacity hard disk drives (HDD) and optical storage media.
- ◆ Allows continuous record time for long-form HD video production. With just the touch of a button, users can choose to shoot in one of three recording modes – 6Mbps, 9Mbps or 13Mbps. Using a 16GB SDHC memory card, the HMC70 can record for up to 6 hours at 6Mbps quality and up to 160 minutes at 13Mbps, the camera's highest quality mode.
- ◆ SD card content can be played back directly on large HD flat screen displays, front and rear-screen projectors, and PCs that offer an SD card slot with AVCHD decoder software. Using NLE software, content can also be rendered in various formats and delivered on a wide range of media.

AG-HMC70 Shooter's Package: Includes AG-HMC70 with battery and charger, 8GB SDHC card, 7.2v 5800mA battery, MC70 phantom powered electret shotgun microphone, elegant soft carrying case with 3" LCD hood, SDHC to USB2.0 reader/writer and Tiffen digital Ultra Clear Protective filter. (Mfr # HMC70 Shooter • B&H # PAAGHMC70SH)**CALL**

Thermodyne Hard Shell Case (Yellow) with foam interior (Mfr # AG-YUC70 • B&H # PAAGYUC70)**209.95**

0.7x Screw-on Wide Angle Lens Adapter (Mfr # VWW4307HPPK • B&H # PAVWW4307HPP)**189.95**

1.4x Screw-on Telephoto Lens Adapter (Mfr # VWT4314HPPK • B&H # PAVWT4314HPP)**199.95**

7.2v 5800 mA Battery (Mfr # VVVBG260PPK • B&H # PAVVVBG260PP)**169.95**

16GB SDHC High Capacity Memory Card (Class 6) with up to 20MB/s read/write speed, and temperature range of -13° to 185° (Mfr # RPSDV16GU1K • B&H # PASDV16GB206)**199.95**

AG-HMC150

Advanced Professional AVCHD Handheld Camcorder

The HMC150 provides enhanced HD production capabilities, extended recording capability and the fast, simple and highly reliable workflow offered by tapeless, solid-state recording. It features three native 16:9 progressive 1/3" CCDs, optical image stabilization (O.I.S.) function to ensure stable shooting and a 28mm Leica Dicomar wide-angle zoom lens (35mm equivalent). The HMC150 offers 1080i and 720p recording at 13Mbps, comparable to current HDV compression formats with bit rates of 25Mbps. It supports a full range of HD formats including 1080/60i, 1080/50i, 1080/30p, 1080/25p, 1080/24p native; 720/60p, 720/50p, 720/30p, 720/25p, 720/24p native; and it is 50Hz/59.94Hz switchable. Additional features include XLR audio input and a wide range of interfaces including HDMI out, USB 2.0, component out (D terminal), composite and RCA audio out. A 3.5" LCD monitor displays thumbnail images for quick viewing and playback. The camera also has remote jacks for focus iris and start/stop functions, a pre-record feature that allows the camera to capture footage occurring immediately before real-time recording begins, Time Code/User Bits menu, and a time/date stamp menu option for documentation purposes.



AG-HSC1U

World's Smallest Professional 3-CCD High Definition Camcorder

Weighing just 1.1 lbs., the AG-HSC1U camcorder delivers stunning 1080i recordings with the accuracy and natural 3-CCD color reproduction that professionals require for capturing events in HD.

Very affordable, the AG-HSC1U is ideal for widescreen, high-resolution event documentation, presentation, training, coaching, and video production applications. Highly reliable and flexible because it's solid state with no moving parts like tape or disc-based systems, the noiseless AG-HSC1U utilizes advanced AVCHD (H.264) compression to record up to 88 minutes (41 minutes in the highest quality mode) of video on a high-speed 4GB SDHC memory card. The AG-HSC1U features a highly-sensitive 12x Leica Dicomar lens system with optical image stabilizer to ensure ultra-steady, crisp shooting of both moving pictures and still images. The camcorder has a 3" widescreen (16:9) LCD monitor and 5.1-channel surround sound five-microphone system. It can also capture 2.1 megapixel 16:9 still pictures even during video recording. A highly-portable 40GB hard drive, capable of receiving and storing the contents of ten 4GB SDHC cards in the field, is packaged with the camcorder. SD video can be output in the widescreen 16:9 format.



FEATURES

High Sensitivity & Resolution

- ◆ Panasonic-developed 1/4" 16:9 progressive 3-CCD system delivers high color resolution with natural hues and beautiful detailed HD images. Panasonic also enlarged the area of each CCD pixel enabling high sensitivity shots in light as low 6 lux. This means you can shoot dark scenes with minimal noise.
- ◆ The CCD creates native progressive images with outstanding vertical resolution. Progressive interlace conversion is then used to provide higher quality images. There is also progressive 3D noise reduction for dramatically reduced noise and after images.
- ◆ AVCHD (MPEG-4, AVC/H.264) compression records HD 1080i signals onto an SD/SDHC Memory Card. By utilizing the H.264-based Advanced Video Codec, the AG-HSC1U delivers twice the recording efficiency of older MPEG-2 codec technologies like HDV.
- ◆ Achieve high compression while high resolution recording is provided with a low bit rate. Record up to 180 minutes of HD (1080i) video onto a 8GB SDHC memory card, while Variable Bit Rate (VBR) compatibility means dramatically reduced image degradation during rapidly changing scenes.

12x Leica Dicomar Optical Lens

- ◆ Equipped with a 12x Leica Dicomar optical zoom lens with smooth, slow zoom and built-in lens cap. The glass-molded ultra high refractive index aspherical lens enables wideangle shots with a wide end of 38.5mm (35mm equivalent with a compact unit. With the optical system, the lens itself zooms in on the subject, so even with 12x zoom (up to the 35mm equivalent of 462mm) you can enjoy shooting with superb HD image quality. If needed, a 30x to 700x Digital Zoom lets you go all the way out for incredible close-ups.
- ◆ With 13 individual lens elements arranged in 10 groups, this wide angle Auto/Manual focus F1.8 lens (43mm filter size) boasts the ideal design for HD shooting applications. The lens elements are made of low dispersion glass to assure low chromatic aberration and high resolution. Furthermore, 21 multi-coated lens surfaces minimize flare and ghosting. The result is sharp, crisp images with delicate nuances and exceptional shading.

Optical Image Stabilizer

- ◆ With the Optical Image Stabilizer (OIS), the lens itself moves to correct hand-shake. The result is highly precise correction for virtually no image quality degradation. Because the optical system uses a gyrosensor to detect hand-shake and the lens itself moves to correct it, correction is extremely precise to assure virtually no image quality degradation. This lets you enjoy beautiful HD quality images even in shooting situations where hand-shake can easily occur, such as with zoom shots and when shooting indoor or night scenes when there is little light.

5.1-Channel Recording

- ◆ Five built-in microphones enable 5.1-channel sound recording for incredible presence— record active sounds coming from many directions. When zooming in on a subject the Zoom Mic function links the microphones' action to the camera's action, so the five mic units function as an ultra directional zoom microphone. Also has an external stereo mic input (3.5mm phone jack and three modes of audio recording: Auto, Manual and Manual + AGC audio levels.

AG-HSC1U

Conveniences

- ◆ 3" 16:9 high resolution (251,000-pixel) LCD screen rotates up to 270° for multiple viewing angles for playback or monitoring.
- ◆ Icons of often-used menus for each mode are displayed in the LCD monitor. These let you perform operations quickly and easily, without taking your eye off the display.
- ◆ Directional keys make it easy to navigate the On-Screen Menu (center button is enter key)
- ◆ Image data is recorded as a file for each scene. Thumbnail images & file information are automatically attached to each file to enable smooth, easy confirmation and deletion of files displayed on the LCD monitor.



- ◆ Fast, accurate Auto Focus with no hunting, offer manual focus as well.
- ◆ Five program AE modes in manual mode, fades to black or white with Audio Fade
- ◆ For increased versatility, the AG-HSC1U can capture 2.1-MP still images onto the SDHC memory card – even during video recording. TV Link allows easy playback of recorded images on a large-screen TV.
- ◆ Auto Ground-Directional Standby (AGS) automatically pauses recording if the camera is pointed down.
- ◆ Telemacro lets you shoot macro close-ups from just 2' away from the subject for authentic extreme close-up shots.
- ◆ High speed shutter adjustable to 1/8,000 sec. when shooting moving and still images.
- ◆ Quick Start lets you record just 1.7 seconds after switching the power on.
- ◆ Mode Dial let you switch modes with your fingertip without changing your grip on the camcorder. Easy-to-press cross keys enable sure, comfortable single-handed control even while shooting.
- ◆ With an original Panasonic battery pack the number of minutes of remaining power is indicated in the LCD monitor so you can shoot without worrying about the power suddenly running out.
- ◆ Lens cover automatically opens when the power is switched on. Switch off the power and the cover closes to protect the lens.

Additional Features

- ◆ SD Media Storage is provided to eliminate the problem of insufficient data storage capacity when shooting. The touch of a button is all it takes to complete high-speed transfer of data from an SD/SDHC memory card to the included 40GB hard disk drive—the same capacity as 10 4GB SDHC memory cards. Battery operation is also possible so you'll have no problems in locations where there's no power supply.
- ◆ Connections include HDMI, USB 2.0, composite and component video, stereo audio plus stereo mic in.
- ◆ Color reproduction with features such as color matrix, chroma gain and gamma curve for the same look that you get with Panasonic's professional cameras—natural and accurate colors.



- ◆ In the Beautiful Skin mode, areas of skin color are detected and soft focus is applied to make small blemishes and wrinkles less noticeable.
- ◆ Comes with HD Writer software to perform simple edits as well as the ability to record onto a DVD-R for HD playback on a Blu-ray disc player from Panasonic or Sony.

Ideal Camcorder Shape with Mechanism-less Drive

- ◆ Using an SD/SDHC Memory Card as the recording medium enables a mechanism-less construction without the need for a tape or disc drive system. No tape mechanism, heads, guides, pinch rollers or dropouts for trouble-free performance. This assures excellent reliability, fast operation and enables a compact, lightweight design.
- ◆ By using the ultra-compact SD/SDHC Memory Card, Panasonic succeeded in dramatically reducing body size and weight. This extra mobility enables even more shooting versatility.
- ◆ Thanks to the mechanism-less construction, which doesn't require drive circuitry to move a tape or disc, the design is exceptionally well sealed to keep dirt and dust out as well as protect against shocks. There is also no noise from a tape or disc transport to get into the on-board mic.
- ◆ The body is satin-finished metallic gray to prevent reflections, and it offers strong protection from condensation forming due to rapid temperature changes, ideal when shooting outdoors.



AG-HSC1U 3CCD High Definition SD/SDHC Camcorder (Mfr # AG-HSC1U • B&H# PAAGHSC1U)

Includes 4GB SDHC card, AC adaptor, DC cables, A/V and USB cables, 7.2v 1320 mAh battery pack, wireless remote, and a 40GB SD/SDHC storage drive.....**1699.95**

VW-W4307H 0.7x W/A Converter (Mfr # VW-W4307H • B&H # PAVWW4307H)**169.95**

VW-T4314H 1.4x Tele Conversion Lens (Mfr # VW-T4314H • B&H # PAVWT4314H)**189.95**

7.2v 1320 mAh Battery Pack (Mfr # VVVBG130PPK • B&H # PAVVVBG130PP)**99.95**

Elegant Soft Carrying Case (Mfr # AGYUSC1 • B&H # PAAGYUSC1)**94.95**

7.4v 760 mAh Battery (Mfr # CGAS303A/1B • B&H # PACGAS303A): For 40GB SD storage unit ...**109.95**

INTRODUCTION TO HDV

WHAT IS HDV?

HDV, or High Definition Video, is a digital video tape recording format developed by a consortium of companies consisting of Canon, JVC, Sharp, and Sony, and uses both Mini (small) and Standard (large) DV cassette tapes. Use of ordinary DV cassettes for data storage allowed the format to be developed quickly because a new storage medium and associated transport mechanism didn't need to be designed from scratch. Additionally, the already widely-employed and well-understood long-GOP, MPEG-2 compression algorithm was used for compress-

ing the video datastream, with MPEG-1 Layer II audio, so that new codecs didn't need to be developed. Although long-GOP MPEG-2 is usually thought of as being a distribution format, its use in acquisition in the HDV format, due to the high compression ratios achieved, permitted use of low-cost, limited-bandwidth, DV tape transport mechanisms.



◆ The HDV format supports the two flavors of high definition television (HDTV) — 720p and 1080i. As in ordinary HDTV, the 720p HDV sub-format has a display frame size of 1280 pixels wide by 720 pixels (lines) high progressively scanned, while the 1080i HDV sub-format has a display frame size of 1920 pixels wide by 1080 pixels (lines) high with interlace scanning. 720p HDV products are offered by JVC. Canon and Sony have embraced the 1080i HDV format and Sony, commencing with their HVR-V1 series camcorders, offers 1080p capability as well.

◆ Although 720p HDV video frames are written to tape as full-resolution, 16:9 ratio, 1280 pixel wide by 720 pixel high frames, 1080i HDV video frames are written to tape in the form of anamorphically squeezed, 4:3 aspect ratio, 1440 x 1080, so as to further reduce the bandwidth requirement and permit the use of existing 25 Mbps DV tape transports. For display purposes, the 1440 x 1080 frames are expanded (stretched) horizontally to 1920 x 1080 pixels high, thus forming a proper widescreen 16:9 aspect ratio image when viewed on an HDTV.

◆ HDV frame rates conform to the traditional SDTV rates of 25 fps in PAL and 29.97 fps in NTSC. Some HDV products also support rates of 23.976 (also known as 23.98), 50, or 59.94 frames per second. No HDV products support a film-like true (actual) 24 frame per second rate.

◆ As with most all digital HDTV formats, HDV color space is 709, the field order (dominance) is upper (top) field first when interlaced, and black level is 0 IRE. HDV color sampling is 8-bit 4:2:0. Both the 720p and 1080i HDV sub-formats convey significantly more picture information than standard definition video formats.

A Word about DVCPRO HD

DVCPRO HD, also known as DVCPRO100, uses four parallel codecs and a coded video bitrate of approximately 100 Mbit/s, depending on the format. It encodes using 4:2:2 color sampling. DVCPRO HD prefilters the 720p image from the DSP to a recorded size of 960 x 720, and 1080i is prefiltered to 1280 x 1080 for 59.94i and 1440x 1080 for 50i. This is a common technique, utilized in most tape-based HD formats such as HDCam and HDV. The final DCT compression ratio is approximately 6.7:1. To maintain compatibility with HDSDI, DVCPRO100 upsamples video during playback. DVCPRO HD EX format, which runs the tape at slower speed, results in twice as long recording times. DVCPRO-HD is codified as SMPTE 370M; the DVCPRO-HD tape format is SMPTE 371M, and the MXF Op-Atom format used for DVCPRO-HD on P2 cards is SMPTE 390M.

DVCPRO cassettes are always labeled with a pair of run times, the smaller of the two being the capacity for DVCPRO50. A "M" tape can hold up to 66/33 minutes of video. The color of the lid indicates the format: DVCPRO tapes have a yellow lid, longer "L" tapes made specially for DVCPRO50 have a blue lid and DVCPRO HD tapes have a red lid. The formulation of the tape is the same, and the tapes are interchangeable between formats. The running time of each tape is 1x for DVCPRO, 2x for DVCPRO 50, 2x for DVCPRO HD EX, and 4x for DVCPRO HD, since the tape speed changes between formats. Thus a tape made 126 minutes for DVCPRO will last approximately 32 minutes in DVCPRO HD. Panasonic's P2 system uses recording of DV/ DVCPRO/ DVCPRO50/ DVCPROHD streams in an MXF wrapper on PC card-compatible flash memory cards.

INTRODUCTION TO HDV

Technically Speaking

The HDV format writes widescreen 16:9 aspect ratio 720p (1280 x 720 pixels high progressive scan) 19.7 Mbps (mega bits per second) 8-bit 4:2:0 MPEG-2 (Moving Picture Experts Group-2) TS (Transport Stream) data to 6mm wide MiniDV tape, less than the 25 Mbps data rate of the ordinary consumer DV format or, alternatively, anamorphically squeezed 4:3 aspect ratio 1080i (1440 by 1080 interlaced 2 fields per frame) data at a 25 Mbps data rate in an MPEG-2 PES (Packetized Elementary Stream).

Tape speed (18.812 millimeters per second) and track width are identical to that used in standard DV recording. While the majority of HDV products support only the use of the smaller Mini cassette shells and thereby limit maximum record/play time to about 60 minutes, some HDV products can also use the larger Standard size cassettes, thus permitting up to about 276 minutes of record/play time in applications that require it.

Note that the MPEG-2 data on a DVD-Video disc, whether burned on a computer-attached DVD writer or a standalone DVD recorder in a home/office environment or commercially replicated in a factory/plant, is an MPEG-2 Program Stream, not a Transport Stream or a Packetized Elementary Stream, and that HDV MPEG-2 video is always CBR (Constant Bit Rate), never VBR (Variable Bit Rate).

In contrast, the MPEG-2 data on a DVD-Video disc is almost always VBR-encoded. Note also that although 1080i HDV data is written to tape in an MPEG-2 Packetized Elementary Stream format, all HDV data, whether 720p or 1080i, is in MPEG-2 Transport Stream format when transmitted over an IEEE1394a (FireWire 400 / Sony i.LINK) connection.

Formats Compared

Those who are considering use of an HDV-format camcorder or HDV-format VCR need to be aware that the 720p and 1080i flavors of HDV are quite separate and distinct from each other. At the present time, JVC is the sole manufacturer of 720p HDV equipment. Also, all HDV products manufactured by JVC are 720p. Conversely, Sony and Canon are the only manufacturers of 1080i HDV equipment. Additionally, all HDV products produced by Sony and Canon are 1080i, although the Sony HVR-V1 Series camcorders also offer various 1080 progressive modes using either 2-3 pulldown or PsF (Progressive segmented Frame) recording techniques and the Sony HVR-S270 and HVR-Z7 series camcorders offer native progressive recording capability. Sony HVR-M35 series VCRs support these native progressive modes, which are unique to the HVR-S270 and HVR-Z7 series camcorders. The HVR-M35 series VCRs also have the ability to play 720p HDV tapes.

The 720p HDV format is sometimes referred to as HDV1 (or HD1) and the 1080i HDV format is sometimes referred to as HDV2 (or HD2). The HDV 1080i format, because it uses non-square pixels, appears as a 1920 pixel wide by 1080 line high widescreen 16:9 aspect ratio image when displayed on a 1080i-capable television display device. This is a display aspect ratio of 1.7778:1 (16 divided by 9 equals 1.7778). Content acquired in the HDV 720p format, because it uses square pixels, will be shown with a display aspect ratio of 1:1 (1 to 1).

There are 45 blanked (unseen or non-visible) scan lines when material in the 1080i format is displayed on an 1125-line HDTV system. Lines 1 thru 20 inclusive, 561 thru 583 inclusive, and 1124 and 1125 are non-active, and field 1 contains 563 lines while field 2 contains 562 lines. There are 30 blanked (unseen or non-visible) scan lines when material in the 720p format is displayed on a 750-line HDTV system. Lines 1 thru 25 inclusive and 746 thru 750 inclusive are non-active.

JVC 720p HDV camcorders employ a 74.25 MHz luminance sampling frequency, while Sony and Canon 1080i HDV camcorders utilize a lower 55.6875 MHz luminance sampling rate. This contrasts with the DV25 formats (DV, DVCAM, and DVCPRO), all of which use a much lower 13.5 MHz luminance sampling rate. Both JVC 720p and Sony/Canon 1080i HDV camcorders use a type of MPEG-2 "profile at level" video compression known as MP@H-14 (Main Profile at High-14 Level).

With the exception of the GY-HD200U and the GY-HD250U in 60p mode, JVC camcorders use a GOP (Group Of Pictures) size of 6 frames, whereas Canon and Sony use a GOP of 12 (in 50i mode) or 15 (in 60i mode). These long GOPs allow for more efficient MPEG video compression, and thus enable the use of 25 Mbps MiniDV cassettes for data storage and a IEEE1394a connection for data transfer from HDV device to

computer.

DV video uses intraframe compression, so the data stored for each frame is complete: for editing/playback purposes, the compressed data for any given, individual frame provides all of the information needed by the decoder to completely reconstruct that particular frame; no reliance is made or need be made upon the information stored for any previous or subsequent frame or frames. This is not the case in the long-GOP interframe MPEG-2 compression scheme used in the HDV format. Here, only I frames are complete frames, containing all of the information needed to decode the frame for editing or display purposes. Decoding of other frames in a sequence (GOP) requires an examination of one or more previous and/or subsequent frames (B frames and P frames), thus making editing of such streams a much more computationally intensive process than is the case with intraframe DV compression.

With the exception of the GY-HD200U and GY-HD250U in 60p mode, the GOP structure (sequence of frame types) used in the JVC 720p HDV format is IBBPBB. The GOP sequence used by the Canon and Sony 1080i HDV products is IBBPBBPBBPBBPBB when operating in the 60i mode, and IBBPBBPBBPBB when operating in the 50i mode. Another difference between DV video and HDV video is that DV operates in the familiar ITU-R BT.601 (formerly CCIR 601) color space, whereas HDV operates in the ITU-R BT.709-5 color space. Most extant consumer-level NLE (non-linear editing) systems are designed to operate in the ITU-R BT.601 color space. A properly-written HDV editor will operate in ITU-R BT.709-5 color space.

B&H wants to thank Frank O'Neill, independent consultant in New York City with his help on the introduction to HDV. Frank can be reached at frank@humanvalues.net

XH-A1 • XH-G1**3-CCD Handheld High Definition (HDV) Camcorders**

Ideal for broadcasters, event videographers, cinematographers and production facilities with tight budgets, the feature rich XH-A1 and XH-G1 offer professional, high quality, low cost HD solutions—whether on set, in the field, or shooting a feature film. They feature genuine Canon 20x HD zoom lens, Super Range Optical Image Stabilization, selectable 60i, 24F, 30F frame rates, total image control and deliver stunning 1080i HD video. They also feature Canon's DIGIC DV II proprietary digital signal processor designed specifically for HD acquisition, as well as Canon's next-generation Instant AF (Auto Focus), offering a dramatic improvement in auto focus speed and accuracy (compared to traditional autofocus systems).



Audio features include two built-in XLR terminals with mic/line level and phantom power, an external microphone holder for attaching shotgun microphones, a voice-recording mode, and two-channel manual audio level adjustment allows precise control.

For convenience, they have a 2.8" widescreen LCD housed securely beneath the handle, which allows it to swing out easily when needed. The handle provides an additional record start/stop and a zoom control, making it ideal for low-angle shooting. Finally, they include toggle switches, which are standard on high-end video equipment for gain, color bars, and white balance.

Otherwise the same, the XH-G1 adds HD-SDI output with embedded audio and timecode; Genlock synchronization and Timecode In/Out.

FEATURES**True HD 1080 Capture with Choice of Frame Rates**

The XH-G1 and XH-A1 capture true 1080 High-Definition video, providing images of stunning clarity. Moreover, the frame rate is selectable: Capture and output video in 60i (60 frames per second, interlaced), 30F, or 24F (30 or 24 frames per second, progressive).

The 60i frame rate delivers exceptional resolution for environments like ENG or Reality TV. At the 30F rate, broadcasters can record high motion like sports with confidence that each frame is captured individually and completely. Filmmakers can utilize the 24F rate when creating the look and feel of film.

Three 1/3" Native 16:9 CCDs

A sophisticated 3CCD design employs separate native 16:9 sensors for each primary color. With 1.67 million pixels (1440 x 1080) per sensor, the effective pixel count of the XH-A1 and XH-G1 is significantly higher than that of comparable HD camcorders. Canon's superior design thus delivers outstanding picture quality at 1080 HD resolution. It further ensures highly accurate color with wide dynamic range and virtually no color noise.

DIGIC DV II HD Image Processor

Engineered and manufactured by Canon, the DIGIC Digital Signal Processing chip (DSP) uses proprietary algorithms and architecture to deliver the highest image quality at the highest operating speeds. The latest-generation DIGIC DV II HD Processor is designed for HD video, operating at 1440 x 1080 pixels with 4:2:2 color sampling. A new hybrid noise reduction system uses dual processes to improve image clarity in monotone and shadow areas. Color reproduction has also been improved, especially in skin tone areas and with dark and light scenes. The DSP also enables high-quality still image recording in either video or digital camera color spaces.

XH-A1 • XH-G1

Image Enhancement

- ◆ The XH-A1 and XH-G1 provide advanced features that improve image viewability and maximize visual appeal.
- Skin Detail mode minimizes imperfections, such as blemishes and wrinkles, without removing detail in other areas of the image. Three intensity levels are provided, and an alternating zebra pattern in the viewfinder simplifies the process of selecting the desired area for the effect.
- Sky Detail can be used to enhance outdoor footage by removing unwanted detail and noise in the sky.
- Clear Scan eliminates the flicker and black bands that usually result when shooting a computer or other CRT screen. Frequency is adjustable from 50.2 Hz to 200.3 Hz to accommodate a wide variety of monitors.

Program AE Modes

- ◆ Seven programmed Auto Exposure modes simplify camera settings for a variety of everyday and special shooting situations.
- Point-and-shoot Easy Recording mode lets the camera make all the key decisions. The XH-A1/G1 automatically sets focus, shutter speed, aperture, gain, white balance, and AE program shift as required to deliver the most pleasing video images.
- Similar to Easy Recording mode, the Auto mode also provides point-and-shoot simplicity, however, it gives the the option of manually changing the settings.
- In Shutter Priority mode you select shutter speed, the camera automatically selects the proper aperture for correct exposure.
- In Aperture Priority mode you select the lens aperture, the camera automatically selects the shutter speed for correct exposure.
- In Manual mode users can select any combination of aperture and shutter speed. Indicators in the viewfinder show the relation of selected combinations to the exposure as metered by the camera.
- Spotlight mode adjusts exposure for optimum results when the subject is illuminated by concentrated light source (spotlight) while the background is relatively dark.
- In Night mode the cameras use slower shutter speeds to enable capture as ambient light levels begin to fall.

Canon Optics

They are equipped with a professional Canon L Series 20x HD video zoom lens which incorporates both fluorite and UD (Ultra-Low Dispersion) glass elements to achieve HD performance throughout the whole zoom range. This state-of-the-art design ensures outstanding resolution, contrast, and color reproduction, delivering image quality throughout the entire zoom range unmatched by conventional optics. The 20x zoom covers an exceptionally

wide and useful range of focal lengths—from 32.5–650mm (35mm photo equivalent), assuring unmatched versatility for a wide range of shooting applications. An optional 0.8x HD Wide Angle Adapter is also available.



Without Optical Image Stabilization
With Optical Image Stabilization

Super-Range Optical Image Stabilization

Canon's Optical Image Stabilization (OIS) uses a gyro sensor to detect camera movement and activate the Lens Shift System to compensate for shake and jitter. The 20x HD zoom lens incorporates Canon's Super-Range IS Technology, which further improves low-frequency vibration control by using two detection methods (gyro and vector). The image at the CCD sensor is analyzed, providing additional feedback to the lens shift element for even greater compensation and precision. The result is highly reliable camera shake correction, even at long focal lengths, without any image degradation.

Built-In Neutral Density Filters

Two built-in Neutral Density (ND) filters (1/6 and 1/32) reduce exposure by two or five stops for added image control. They can be used, for example, when shooting bright, sunlit exteriors or to decrease depth of field for a more dramatic, cinematic look. A focus distance readout in the viewfinder assists in setting manual focus.

Comprehensive Focus and Zoom Control

The focus, zoom and manual iris rings provide the "feel" of a professional broadcast lens. It allows fine, smooth adjustment in 1/8th-stop increments manually. The XH-G1 and XH-A1 provide superb response, enabling zoom speed control by varying the angle of rotation of the zoom ring with a High-Speed Zoom Mode. Zoom speed can be variable or constant with 16 possible speed level settings. Programmable lens presets enable repetitive focus and zoom actions to be memorized for instant recall.

Instant AF: Canon's next-generation autofocus technology. An external sensor works in combination with Canon's high-performance internal AF system to dramatically reduce focusing time and increase accuracy, even in low-light or high brightness situations. Focusing performance is much improved with difficult subjects. The high resolution of HD video makes focus more critical than ever, and Canon's Instant AF helps videographers

High-Resolution Widescreen EVF and LCD



image-only setting that hides all information overlay. Two focusing aids are available: peaking, which highlights the edges of in-focus areas; and magnifying, which provides a 2x enlargement of the central portion of screen.

XH-A1 • XH-G1

Professional Features

- ◆ When shooting with the shutter priority auto exposure mode, the XH-G1 and XH-A1 provide 14 different shutter speeds ranging from 1/3 to 1/15,000 of a second. The 24F mode includes a 1/48 second setting that perfectly matches the shutter speed of a movie camera. (For NTSC 60i/30F and PAL 50i/25F, there are 13 available settings.)
- ◆ They include a full complement of input and output ports to meet just about any interface requirement. Two XLR mic/line audio inputs accommodate professional balanced connections. Also provided are industry standard connectors, including component (HD/SD) and composite video outputs (BNC/RCA), an IEEE1394 (Firewire) port, a LANC terminal, and a headphone jack.
- ◆ Individual audio level controls, switchable 20dB mic attenuation, 12dB mic gain boost, and various monitoring options provide full control over the sound as it is recorded. They even include switchable phantom power (+48v) to eliminate the need for any external power supply with direct mic input. An external microphone holder is provided for on-camera mounting and for an optional professional shotgun microphone.



- ◆ Their 16:9 color viewfinder include aspect guides for 4:3, 13:9, 14:9, 1.66:1, 1.75:1, 1.85:1, and 2.35:1 picture formats. 80% and 90% picture and title safe areas can also be superimposed. Other available overlays include a center crosshair mark, horizontal level marker, and a grid.
- ◆ High-brightness portions of the image are displayed in the viewfinder as a B&W zebra pattern. The sensitivity level can be adjusted from 70 to 100 IRE in 5 IRE-unit increments.
- ◆ They include 4:3 output capability, which is highly useful in field situations where a widescreen monitor is not available for viewing 16:9 footage. The "letterboxed" 16:9 image output enables the entire frame to be viewed on a standard-definition 4:3 set.

Total Image Control

By giving the operator total control of more than 23 independently adjustable variables, the XH-A1 and XH-G1 enable the capture of the perfect look in HD.

- ◆ Select automatic gain control or one of 3 preset gains (low, medium, high), which can be assigned values from -3dB to +36dB.
- ◆ Numerous white balance modes ensure color accuracy in a variety of shooting situations. Automatic modes use a precision 128-segment through-the-lens metering system.
 - Auto: Provides automatic adjustment of white balance.
 - Outdoor: Balances for bright sunlight (5600°K) can be customized.
 - Indoor: Balances for incandescent lighting (3200°K) can be customized.
 - Color Temperature: Balances to a specifically selected value between 2800–12000°K in 100°K increments.
 - Custom Presets A & B: Enables two manual white balance settings to be programmed for instant recall.
- ◆ Black settings (Stretch, Mid. Press) provide a choice of dynamic range adjustment affecting the dark areas of the image. STRETCH expands the range, providing greater shadow detail. PRESS narrows it, increasing the deep black content of the image.
- ◆ Color Matrix (Normal, Cine 1, and Cine 2) adjust the color during the shooting. The Normal setting is a matrix based on the assumption that images will be reviewed on a TV monitor. If Cine 1 is selected, the resulting quality and grayscale resemble those of a movie film. Cine 2 is a matrix that is for images being transferred to film.
- ◆ Gamma settings: Normal gamma curve provides the best results for viewing on a TV monitor. Cine 1 creates images that resemble the quality of film as viewed on TV. CINE 2 selects a gamma curve for images that are to be transferred to film.
- ◆ Four Knee settings provide a choice of dynamic range (knee point) adjustment in the highlight areas to control overexposure when shooting high-brightness subjects. High setting enables high-key shooting, while low provides maximum protection from overexposure.
- ◆ Master Pedestal adjustments from ± 9 set the video reference black. Higher values brighten the darker areas of the image, reducing overall contrast. Black level and image sharpness can be adjusted from ± 9 .
- ◆ Horizontal Detail Frequency (High, Middle, Low) and Horizontal/Vertical Detail Balance (± 9) adjustments.
- ◆ Noise Reduction 1/2 (OFF, High, Middle, Low settings) accommodate numerous shooting situations and desired image qualities.
- ◆ Color Gain/Phase is adjustable from -50 to +50 and -9 to +9 respectively.
- ◆ Master Red, Blue, and Green Gain settings independently adjustable from -50 to +50, provide precise control over color balance.
- ◆ Six Color Matrixes (RG, RB, GR, GB, BR, BG), each independently adjustable from ± 50 , provide even finer color control capability

Compact and Lightweight

The XH-A1 and XH-G1 share a lightweight, compact design that employs an internal battery compartment. Therefore, size is not affected by the battery used. It houses any BP-900 series battery or DC coupler. The reduced size and weight of these camcorders make them easily transportable and maneuverable—major advantages for location work and specialized "tight-space" shooting, often making it possible to capture footage not possible with larger cameras.

An optional 0.8x HD Wide Angle Adapter is also available. Their compactness in combination with their superb HD image quality make the XH-A1 and XH-G1 ideal not only as support cameras in larger production environments but also as primary capture devices for smaller organizations, such as local news stations, event videographers, and independent filmmakers.



XH-A1 • XH-G1

Unique Customization Features

- ◆ Unmatched customization capabilities make them exceptionally versatile and flexible. Customization enables them to be precision-tailored for different environments, different users, and different jobs. In all, there are 23 image adjustment, 22 display option, and 21 custom function settings that define the cameras' performance and operating characteristics. Groups of these settings can be saved and exported to other XH-A1/XH-G1's using an SD memory card or Canon's Console software. Organizations that use many cameras can take advantage of this feature to easily set up multiple units for uniform capture characteristics.
- ◆ Up to nine sets of customized image adjustments can be stored in the XH-A1/XH-G1's internal memory for instant recall. In addition, two Custom Keys can be programmed to provide instant access to a number of shooting functions to suit the user or the particular application.

Digital Still Camera Functions

- ◆ In addition to video, the XH-A1/XH-G1 can also capture digital still images and store them on a memory card. Still images can be captured at full HD (1920 x 1080) resolution in either video color space or digital camera color space. Images captured in video color space include time code and camera set-up metadata. Images captured in digital still color space include EXiF metadata.
- ◆ They also offer numerous advanced still camera features such as auto exposure bracketing, selectable metering modes, continuous shooting and can use select EOS Speedlite flashes. With many pre/post production, storyboarding, and continuity applications, still image recording is another way the XH-A1 and XH-G1 deliver versatility.
- ◆ They have an SDHC and SD memory card slot. In addition to enabling camera-to-camera transfer of custom settings, memory cards can be used to store digital still images taken with the camcorder.
- ◆ The XH-A1/XH-G1 have an accessory shoe that can be used to mount optional accessories. It can also be used with an optional flash unit for still photography. The shoe is compatible with E-TTL II Canon Speedlite flashes designed for use with the Canon EOS SLR camera system.

Canon Console Software

An optional software package designed to address the creative needs of XH-G1 and XH-A1 users. Incorporating many of the traditional aspects of a CCU (camera control unit), Console runs on a laptop or desktop computer and provides tools for creative expression as well as remote access to basic camera settings and operations. Functions, such as a vectorscope and waveform monitor, enable critical evaluation of the camera signal. Users can also capture the camera's video output directly to a computer's hard drive.



Console's REC PANEL includes five windows:

- Rec Viewer**—Live video, clip counter, audio meter and controls, color/monochrome settings, split-screen, and zebra levels.
- Camera Control**—Remote operation of most camera functions.
- Vector and Waveform Monitors**—Professional tools for checking video signal quality.
- Focus Assist**—Aids for achieving precise focus, such as electronic zoom and black-and-white view.

Console's PLAY PANEL features three windows that enable review of captured footage or recall of any existing clips or stills that may be stored on a hard drive or memory card:

- Play Viewer**—Displays selected clip with a running counter. You can adjust playback speed and view audio monitor settings.
- File Browser**—Enables users to select the clip to be shown in the Play Viewer.
- Vector and Waveform Monitors**—Enables critical evaluation of recorded

Professional JackPack (XH-G1 only)



While there are many situations that call for smaller, lighter HD cameras, most are unsuitable for professional applications because they lack the necessary interface capability. The XH-G1 features a Professional JackPack with HD-SDI or SD-SDI output, Genlock input, and SMPTE Timecode in/out connectors. The HD-SDI output provides a high definition 60i signal at 1920 x 1080 resolution with 4:2:2 color sampling, embedded audio and time code. A single connection carries video, audio, SMPTE (LTC) Timecode, and digital audio, to significantly reduce cabling complexity. It also enables longer cable runs, thus improving operator mobility. The Genlock input accepts either an SD (black burst) or HD (tri-level) sync signal, enabling multi-camera synchronization in live-switched environments. A switchable input/output port accommodates time code

XH-A1 HDV Camcorder (Mfr # 1191B001; B&H # CAXHA1): Includes BP-950G battery pack, CA-920 compact power adapter/charger, DC coupler, lens hood, shoulder strap, wireless controller, 16MB SD memory card, component video and stereo video cables.....**Call**

XH-A1E (Mfr # XHA1E; B&H # CAXHA1E): Same as above, except in 'PAL'**4099.95**

XH-G1 HDV Camcorder (Mfr # 1629B001; B&H # CAXHG1): Includes BP-950G battery pack, CA-920 compact power adapter/charger, DC coupler, lens hood, shoulder strap, wireless controller, 16MB SD memory card, component video and stereo video cables..... **Call**

XH-G1E: Same as above, except in 'PAL' (Mfr # XHG1E; B&H # CAXHG1E)**6999.95**

Console Image Control/Storage Software (Mfr # 1259B002; B&H # CACSW): Allows you to control your XH-A1 or XH-G1 settings via a desktop or notebook PC**600.00**

XL-H1A • XL-H1S

3-CCD HDV Camcorders with Interchangeable Lenses

Very similar to the XH-A1 and XH-G1 (see box below), the XL-H1A and XL-H1S feature an improved 3rd generation genuine Canon 20x HD zoom lens, Super Range Optical Image Stabilization, selectable 60i, 24F, 30F frame rates, total image control and stunning 1080i HD video. They offer total Cine control, customizable settings and a well-balanced design for the creative control, flexibility and advanced

capability that broadcasters, ENG producers, commercial and event videographers, cinematographers and production facilities demand. They also feature uncompressed SD (standard definition) output, and of course, Canon's XL-interchangeable lens mount system. This means, that they can be fitted with a wide array of optional lenses. Canon's EF Adapter XL enables you to attach many Canon EF photographic lenses to achieve specialized image capture for telephoto and other applications. Otherwise the same, the XL-H1S adds



FEATURES

- ◆ Three 1/3" 16:9 interlaced CCDs capture images at 1080i resolution. Selectable frame rates allowing the user to adjust to the assignment at hand and can switch back to SD resolution if needed. At the 30 Frame rate, broadcasters can capture high motion, like sports with confidence that each frame is captured individually and completely. Filmmakers can utilize the 24 Frame rate when creating the look and feel of movie film. The 60i frame rate, meanwhile, delivers exceptional resolution for shooting environments like ENG or Reality TV.
- ◆ Canon's DIGIC DV II image processor processes both HD and SD video signals as well as still photos, while maintaining the correct color space for each mode.
- ◆ Creating the perfect look requires total control over the image. To achieve this, they provide total image control of more than 23 variables (same functions and adjustments as the XH-A1 and XH-G1). This offers filmmakers the ability to customize their video recordings with three color matrixes for a wide range of color correction and two cine gammas for intricate adjustment of dynamic range. Customizable functions include: knee, black stretch, horizontal detail, coring, sharpness, noise reduction, color gain, hue and master color adjustments. Each one of these settings can be modified independently, thereby giving you precise control over the "film-like" appearance of their video.
- ◆ Menu option offers user a choice of aspect ratio guides in the viewfinder. There is a choice of 4:3, 13:9, 14:9, 1.66:1, 1.75:1, 1.85:1, 2.35:1 guides. The viewfinder also includes a Focus Help feature with two settings:
 - Peaking creates an exaggerated line in the viewfinder that disappears when the image
 - Magnifying enlarges the viewfinder image, helping the camera operator better see if the image is properly focused.
- ◆ Multi functional color electronic viewfinder (EVF) and 2.4" 16:9 LCD monitor with safe area marking built-in; black and white mode; zebra pattern (70-100 IRE); horizontal and vertical flip and a Distance Readout (using 20x HD Video lens).
- ◆ Their still image capture plus metadata feature provides an in-camcorder solution for cinematographers and directors to check for scene continuity and provides added back-up to any still photographers on set.
- ◆ In addition to extraordinary video capabilities, they capture still images plus metadata at full HD resolution (1920 x 1080) onto SD or SDHC memory cards. The "Photo" button allows you to capture still images at up to 5 fps. Camcorder settings can be stored on the memory card and transferred to another camcorder so setup can be replicated.

XL-H1A and XL-H1S vs. XH-A1 and XH-G1

The XL-H1A can be viewed as the "big brother" to the handheld XH-A1. It is fairly comparable but designed for those wanting a shoulder-mount HD camcorder, and the flexibility of interchangeable lenses. It is the perfect camcorder for those doing wedding/event or other applications where multi-camera functionality isn't needed.

Likewise, the XL-H1S is the "big brother" of the handheld XH-G1. It is fairly comparable, but designed for those wanting a shoulder-mount HD camcorder, and the flexibility of changeable lenses. Like the XH-G1, it offers uncompressed HD output (HD-SDI) for pristine image quality, and is designed for multi-camera shooting (genlock and timecode).

XL-H1A • XL-H1S

Custom Operation Functions

Shockless White Balance/Gain, AE Response, High-Speed Zoom, Focus Ring Control, Button Operation, Rings Direction, Dials Direction, Focus Priority, Still Image Recording, Marker Level (Marker Brightness), Focusing Assist, B&W Gearing Mode, Subject Distance Unit, Zoom Indicator, Color Bars, 1 kHz Tone, Wireless Remote, Power Save, Tally Lamp, LED, Beep, Record (Character, Magnifying)

Additional Functions

- ◆ Sharing of custom preset files with other XL-H1S and XL-H1A camcorders as well as XH-A1, and XH-G1 camcorders.
- ◆ Push AE (Usable in Manual Exposure Mode)
- ◆ Gain Settings (-3dB, 0dB, +3dB, +6dB, +12dB, +18dB, +36dB, with fine tuning in 0.5dB increments from 0dB to +18dB)
- ◆ AGC Limit
- ◆ Iris Limit (limits iris setting to f/9.5)
- ◆ Iris control using LANC (while using optional ZR-2000)
- ◆ Custom Preset files
 - Store 9 custom preset files on the camera
 - Store 20 custom preset files to memory card
- ◆ White Balance Auto, Set (2), Preset (outdoor/indoor), Color Temperature (2,000 K to 15,000 K)
- ◆ Color corrections (16 areas, 2 regions)
- ◆ Selective Noise Reduction (enables application of NR to targeted color areas)
- ◆ Clear Scan (100 levels: 60.1 Hz - 203.9 Hz)
- ◆ Separate sensitivity settings for each XLR input channel (Line/Mic)
- ◆ Simultaneous use of the built-in microphone and XLR input
- ◆ Two-step switching for line output level
- ◆ XLR/microphone sensitivity selection range, +12dB/+6dB/0dB/-6dB/-12dB
- ◆ Audio Limiter (On/Off)
- ◆ Choice of setting in automatic level control for both XLR channels for link or non-link (independent) of channels when both are set to microphone or line
- ◆ 1 kHz Reference Tone (-12dB, -18dB, -20dB)
- ◆ LR/LL/RR/monaural selectable for monitor output

20x HD Video Zoom Lens III

The new Canon 20x HD Video Zoom Lens III with Professional L Series Fluorite is the latest in a long and distinguished line of industry-leading lenses from Canon. It has been specifically designed for demanding producers of high definition video who require the ultimate in optical quality. This lens brings features which give the XL-H1S/XL-HA1 users unprecedented control over zoom, focus and iris settings, delivering an even higher level of creative expression.



The lens offers independent manual focus, zoom and iris rings. These rings are also large and spaced appropriately for easy access on the go. Manual focusing and zooming can be done simultaneously. Both focusing and zooming are more responsive, and the speed of the rotation can be adjusted to match the user's preference.

- Responsive manual zoom ring with three settings (Slow, Normal, Fast)
- Increased weighting of zoom ring for smoother control
- Smooth zoom start and stop
- Selectable rotational angle of zoom between Wide and Tele (45°, 60° or 90°)
- Zoom Grip Lever has 16 zoom levels. Maximum and minimum speeds have been expanded.
- Handle Zoom Lever can be set to any of 3 speeds.
- Manual focus capability during zoom (in both Manual Focus and AF Modes)-
- Selectable response on focus ring (Slow, Normal, Fast)
- Focus Limit (On/Off)
- Four selectable focus preset speeds
- Push AF
- ◆ The lens incorporates multiple Fluorite elements for superior contrast, resolution and color fidelity through the reduction of chromatic aberration. It offers a fast f/1.6 to f/3.5 aperture for users that shoot under the most demanding lighting conditions and a close focusing distance from only 20mm away (at wide angle). In 16:9 mode, the 20x zoom range is 38.9mm to 778mm (35mm equivalent).
- ◆ Lens features a 72mm filter thread and two independent ND filters (1/6, 1/32).
- ◆ Super-Range Optical Image Stabilization (OIS) system corrects camera shake instantly so even hand held shots, at full telephoto, and shots taken from a moving car, are smooth and steady.
- ◆ You can also program the lens to memorize any given focus or zoom point and return to that point with the touch of a button.

XL-H1A 3-CCD HDV Camcorder (# CAXLH1A): Includes FU-2000 color viewfinder, microphone and external mic holder, tripod adapter base, BP-950G battery pack, CA-920 compact power adapter/charger, DC-920 DC coupler, lens hood, shoulder strap, wireless controller, 32MB SD memory card, component video and stereo video cables, HDVM-E63PR cassette.....**CALL**

XL-H1S 3-CCD HDV Camcorder (# CAXLH1S): Same as above, except it features uncompressed digital HD-SDI output for seamless integration into broadcast studios or high-quality image transfer to non-linear editing systems. The genlock input allows movie sets to easily synchronize camera settings across multiple camcorders and SMPTE timecode input/output allows for streamlined tape and edit management.**CALL**

XL-H1A • XL-H1S ACCESSORIES

BP-930 7.2v, 3000 mAh Li-Ion Battery Pack

Delivers up to 135 minutes of power when using the viewfinder only or up to 130 minutes when using the LCD screen.

(Mfr # 3058A002 • B&H # CABP930)**74.95**

BP-945 7.2v, 4500 mAh Li-Ion Battery Pack

Delivers up to 3.5 hours of recording time using the viewfinder only, or up to 200 minutes when the LCD screen is used.

(Mfr # 4244A002 • B&H # CABP945)**114.95**

BP-950G 7.2v, 5200 mAh Li-Ion Battery Pack

Estimated battery life of 5 hours.

(Mfr # 0971B002; B&H # CABP950G)**129.95**

BP-970G 7.2v, 7200 mAh Li-Ion Battery Pack

Provides over 35% more recording time than the BP-950G.

(Mfr # 0972B002; B&H # CABP970G)**164.95**



CB-920 Car Battery Adapter: Charges BP-900 series batteries and powers the camcorder from a car's cigarette lighter socket.

(Mfr # 8034A002; B&H # CACB920)**119.95**

CH-910 Dual Battery Charger/Holder:

Charges two battery packs consecutively. You can also power your camera by connecting it to the CH-910 with charged battery packs.

(Mfr # 3036A002; B&H # CACH910)**139.95**

CA-920 Compact Power Adapter: A small and lightweight charger/power adapter allows you to charge and supply AC power. It will charge one battery at a time. (Mfr # 8029A002 • B&H # CACA920)**119.95**

DC-Coupler DC-920:

Combines with the CA-920 or CB-920.

(Mfr # 8033A001 • B&H # CADC920)**24.95**

Optional Interchangeable Lenses

The XL-H1A and XL-H1S accept a host of Canon interchangeable XL lenses

or Canon's extensive range of photographic lenses. For wide angle imaging, Canon offers a 3x Wide Angle Lens with resolution in excess of 600 TV lines, while the 16x Mechanical Servo Zoom Lens gives you the flexibility of

calibrated focus and

zooms. For added optical lens magnification, apply the 1.6x Extender between the camcorder and the zoom lens. There is also a 16x Automatic Lens with Super Range Optical Image Stabilization.

Using the optional EF Adapter opens them to a wealth of Canon EOS EF photographic lenses, a tremendous super telephoto boon to those producing wildlife, astronomy or



16x IS II Zoom Lens:

16x zoom lens (5.5-88mm f/1.6-2.6) resolves 600 lines of resolution exceeding the DV standard of 500 lines for extraordinary sharpness. Also has Super Range Optical Image Stabilization, built-in ND filter, manual focus and zoom rings, and a Push AF button.

(B&H # CAV16XXL1S)**1399.95**

3x Wide-Angle Zoom Lens:

The 3x (10.2mm f/1.8-2.2) zoom gives them a 70° field of view, making it ideal for shooting interiors as well as landscapes. Incorporates 18 of the highest quality, precision crafted optical elements to deliver extraordinarily sharp images as compared to wide angle converters. Six-blade iris for minimal light flare. Manual zoom and focus ring. Built-in 1.5x ND filter.

72mm filter size. (B&H # CA3XXL1)**1199.95**

1.6x Extender XL:

Increases the focal length of Canon XL lenses by 1.6x. (Not compatible with the 3x Zoom).

(B&H # CA1.6XXL1)**389.95**

FU-1000 Professional Quality B&W Viewfinder:

A 1.5" B&W CRT viewfinder, the FU-1000 provides very high image quality. It has a horizontal resolution of 500 lines, while the large image facilitates focusing in tough shooting situations. (B&H # CAFU1000)**1479.95**

16x Manual Servo Zoom Lens:

16x (5.4-86.4mm f/1.6) manual servo zoom lens gives you the flexibility of calibrated power zoom, power iris (has auto iris capability), two built-in ND filters and calibrated manual focus. Has a macro and flangeback adjustment mechanism. Includes soft case. 72mm filter size. (B&H # CAM16XXL1S)**1399.95**

EF Adapter XL:

Allows the attachment of over 50 high-quality Canon photographic EF lenses—ranging from fisheye to super telephoto to a choice of versatile zooms—to the XL-H1A and XL-H1S. Potential focal range in 35mm equivalent is 24mm to 17,280mm. (Not compatible with Canon EF-S lenses.) (B&H # CAEFAXL1)**449.95**

RC-72 Ratio Converter:

When shooting in 4:3 mode, this 0.8x converter provides the same angle of view as 16:9 mode. For the Canon 20x with 72mm filter threads.

(Not compatible with the Canon 3x zoom lens.) (B&H # CARCXL2)**299.95**



XL-H1A • XL-H1S ACCESSORIES

Optional 6x HD Zoom XL 3.4 - 20.4mm L Lens

Canon's optional 6x HD Zoom XL lens is made for high-definition ENG, commercial, documentary and feature videographers who demand uncompromising optical quality. This 3.4 - 20.4mm wide-angle zoom provides an extensive range of focal lengths from 24.5 to 147mm (35mm equivalent), which adds even more versatility and artistic range to the XL-H1S and XL-H1A. Canon reserves the "L-Series" designation for its highest quality lenses. The 6x HD has excellent color reproduction and delivers edge-to-edge sharpness. With high-refraction glass and the integration of UA (Ultra High Refractive Index Aspherical) lens design, it achieves high resolution and increased zoom magnification in a compact size. Multi-coating reduces ghosting and flare for a clear, crisp image, and ensures minimal distortion that makes it ideal for wide-screen TV. The XL mount system supports the HDV standard, ensuring communication compatibility and full HDV functionality with the XL-H1S and XL-H1A. This includes HDV functions such as HD and still image auto-focusing, still image stabilization, and distance information.



Manual Iris Ring - The manual iris adjustment ring of the HD 6x zoom lens lets you adjust your f-stop with the same hand and in the same way you focus and zoom.

Distance Display - In combination with the camera, the lens lets you see subject-distance read-out in your viewfinder, providing the same, useful subject distance information you get from reading the markings on the barrel of a front focusing lens.

MOD (Minimum Object Distance) Function - Creates an AF range suitable for normal shooting situations from one meter to infinity. This prevents the lens from focusing on dust particles that can occasionally appear on the surface of the lens.

Focus Preset Function - This function lets you manually focus on your subject, then store that information in memory. Once the focus is set, you can then capture shots in which you change your focus from infinity (or some other distance) to your subject - using three different speed settings.

Zoom Preset Function - You can preset the focal length of your lens, then store that information in memory. This feature is useful when you want to preset a focal length for the end of a shot - for example, when you want to zoom in on your subject.

One-push AF Function - The one-push AF function is used when you want to fix the focus on a particular subject using AF. For example, when you are tracking a specific person in a shot that includes many people moving in different directions.

Two Built-in ND Filters - Two neutral density levels (1/6, 1/32), gives you the flexibility to obtain optimal results under a wide variety of lighting conditions.

MA-300 Microphone Adapter and Holder for the XL-H1

(Mfr # 8032A002; B&H # CAMA300): Provides two additional XLR terminals, allowing you to connect and use unbalanced



microphones on all four channels.....**164.95**

MM-XL1 Mini Mount for the XL-H1 (Mfr # MMXL; B&H # LIMMXL): Isolates your microphone from zoom, motor, gear and handling noise. Enables you to instantly switch mics up to 30mm...**125.00**

EQ-XL1 Equalizer

(Mfr # EQ102; B&H # LIEQ102):

A high-performance fabric/mesh slip-on windscreen for the XL-H1 that offers far higher wind protection than common foam sock**120.00**



SBR-1000 Shooting Brace

(Mfr # 0975B001; B&H # CASBR1000): For additional support of your video camera. The neck strap is designed to increase comfort during long shoots.....**199.95**

ZR-2000 Remote Zoom Controller

(Mfr # 0973B002; B&H # CAZR2000):

Connects to the LANC terminal of your camcorder, and controls recording start/stop, focusing, and 16 different zoom speeds. Especially useful when your camera is mounted on a tripod and maximum stability is desired**379.95**

HC-3200 System Case (Mfr # 9826A001; B&H # CAHC3200): A solid, lockable system case that protects your camcorder and accessories. A shoulder strap and carry handle are used to transport the case. 15.4 x 24.8 x 11.6", weight 13 lbs.....**419.95**

and carry handle are used to transport the case. 15.4 x 24.8 x 11.6", weight 13 lbs.....**419.95**



Speedlite Flashes (For SLR-style Photography)

The Canon Speedlite 430EX and the more powerful 580EXII feature E-TTL II metering, full swiveling bounce head zooms, custom functions, fast recycling time, and wide coverage. They can be used for adding light to images shot in Photo Mode. These electronic flash units attach to the Advanced Accessory Shoe to provide SLR-type flash photos.

Speedlite 430EX E-TTL II Flash (B&H # CA430EX)**240.00**

Speedlite 580EXII E-TTL II Flash (B&H # CA580EX2)**409.95**

GY-HD110U

1/3" 3-CCD ProHD Camcorder

In 2005, JVC introduced the GY-HD100U for professional HD acquisition. The winner of more than 12 industry awards including NAB's coveted Award for Innovation in Media (AIM), it was enthusiastically embraced by schools, television and cinema, and seasoned network-level shooters for use in a wide range of applications including, creating films for theatrical release, documentaries, commercial production and in local and network news operations. The GY-HD100U broke a number of technological barriers, and offered full native HDTV capture and recording, progressive scanning, interchangeable lenses and 24 frame film-like recording in a compact, shoulder-mount design.

A worthy successor, the GY-HD110U JVC continues to empower HD users. It offers a host of improvements and upgrades such as 13-segment audio indicator, choice of three image formats on composite output and user-adjustable DNR settings, B&W viewfinder display, and manual audio control within FAS (Full Auto Shooting) mode.



FEATURES

HDV Features

- ◆ Features real HD 24p recording capability — previously available on only the most expensive HD cameras. With HD progressive 24 frame per second recording, images can be shot with film-like quality and smooth motion which is ideal for DVD production. It Uses a 2:3:2:3 pulldown when recording to tape and converts the images to 60 frames.
- ◆ Uses three 1/3" high definition CCD image sensors, each array has a pixel resolution of 1280 x 720 and uses a micro lens system. Since this native resolution matches that of most HDTV displays, there is no need for image scaling, further enhancing the quality of the recorded images. Other advantages of these CCDs include sophisticated circuitry that virtually eliminates lag and image burn.
- ◆ In addition to providing superior quality HD recording in the 24p format, the GY-HD110U can output an analog component 720p HD signal at 60 or 50 frames per second which is ideal for live broadcasting. Via a third-party HD SDI converter, the uncompressed full-resolution signal can be fed into a video server, HD switcher or microwave link.
- ◆ Records and plays back HDV format (SD or HD) on Mini DV cassettes. Can also record in DV format on the same tapes.

Professional Camera Functions

- ◆ In an emergency, or when there is no time to pause and adjust the white balance or change the gain, the Full Auto Shooting (FAS) mode provides simple point-and-shoot operation, leaving the operator only to zoom, focus, and press the record button.
- ◆ Activating FAS (Full Auto Shooting) puts the camera into the Auto Iris mode, even if the lens is set to manual. Automatic Video Level Control (ALC) is also activated, along with Extended Electronic Iris (EEL), providing both variable gain and variable shutter and Full Auto White to follow any changes in color temperature. This means you can shoot continuously from darkness into bright light, from indoors to outdoors, without having to adjust gain, iris, white balance or ND filter. On the other hand, you can control the audio level during FAS, manually adjusting it as desired.
- ◆ A sophisticated six-axis color matrix circuit is effective in achieving true color reproduction and camera color matching. This is most important with interchangeable lenses to ensure natural and faithful tones at all times. Seven color matrix presets are provided to give more creative control over the look and feel of the video content.
- ◆ To handle difficult or variable lighting environments, it offers an array of functions for creative flexibility. These include zebra, gain, white balance and full shutter control. Also, all switches have been positioned where professional camera operators expect them to be. Shooting is intuitive, precise, easy, and error-free, because there is no learning process to go through.
- ◆ JVC's exclusive smooth motion function captures images at double the normal rate when shooting in 30p or 25p (that is, at 60p or 50p). When the two images are merged, they are passed through a newly developed filter that smoothes out the subject's motion by retaining a small percentage of residual image. This eliminates the motion judder that typically appear in images shot at 30p or 25p. The smooth motion function can be enabled in the 24p mode if desired.
- ◆ One-touch function gives you either a fast, enhanced reproduction of shaded areas (Black Stretch) or a contrasty look (Black Compression).
- ◆ A user control is provided to switch the mixture of in-band and out-band correction (Detail Correction), to adjust the picture sharpness and produce a pleasing picture.

GY-HD110U

Viewfinder and LCD Monitor

- ◆ To fit any operator comfortably, the detachable 230,000-pixel LCD color viewfinder has an eyepiece that can be moved backwards and forwards and can also be adjusted laterally for left or right eye shooting.
- ◆ To make focusing even easier, a monochrome mode is available. Stronger contrast and reduced color noise make visualization and composition easier and put less strain on your eyes so you can shoot for longer periods. You can also keep using the viewfinder even when using the LCD display.
- ◆ A 250,000-pixel 3.5" color TFT LCD monitor provides a high-resolution image during shooting and playback. A push button selects three display modes:

- Video only
- Video images with text information overlay including time, status, mode and other data are shown on the screen.
- Only information such as time, status, mode, time code, audio levels and other data is shown on the screen. When the LCD display panel is in this mode, the viewfinder can also be used.

- ◆ When the LCD panel is rotated towards the subject, mirror mode can be selected to display an image on the LCD screen,



- which, in terms of left and right, is exactly the same as the image in the eyepiece viewfinder. This is a very useful feature for TV news reporters when talking to camera on a self-operated video reporting system. Normal or Mirror mode is selected in the menu.
- ◆ Patented "FOCUS ASSIST" function enables fast, easy and accurate focusing in both the 0.44" viewfinder and the 3.5" LCD panel. When Focus Assist is activated, the picture in the viewfinder becomes monochrome and all objects which are in focus take on a color fringe. You can also limit the area in focus for more precise focusing. This is particularly helpful when using the technique of pulling focus. There are two Focus Assist

HD Progressive (720p) Format

The GY-HD110U uses the same progressive scanning system as used in high-end HDTV cameras. Progressive scanning systems uniquely capture and store full frames of image information. When progressive recordings are frozen or played in slow motion, each individual frame contains the full detail of the original image — excellent for viewing and analyzing motion. Stills and prints captured from HD progressive video look far better than from interlaced video.

Flat panel displays and fixed matrix projectors, such as LCD, DLP, and D-ILA are all native progressive scanning systems. This means that JVC's progressive HDV recordings can be displayed without imperfection, because they do not need to pass through the degenerative process of de-interlacing. But to maximize picture quality and performance from input to output, JVC takes it a step further, and employs Progressive HDV's resolution of 1280 x 720—the same as the native resolution of most HD display devices in use today (LCD, plasma, DLP, D-ILA). HDV 720p is thus natively compatible in terms of both scanning and resolution.

Real 24p

With ProHD, the dream of creating HD video with the essence of film is realized. 24p Progressive Full HD images are ideal for cinematographic applications. By capturing and recording at the film frame rate of 24fps, and offering extensive user configurable settings such as exposure, gamma and detail, ProHD becomes an important tool for creative expression. From shooting to editing and distribution, an HD system can be established for film-like productions. Unlike 24p images in standard definition, when real 24p HD video is down-converted to SD, the result is truly film-like DVDs. In addition, native 24p editing is now possible in HD at a low bit rate of 19 Mbps, enabling the creation of EDLs (Edit Decision Lists) of 24 frame material with compatible nonlinear editing software. For the ultimate expression on the big screen, 24 frame progressive recordings can be transferred easily to 16mm or 35mm film. The camcorder itself, with its video lens removed and replaced by a film lens converter system, such as the Mini 35 from P & S Technik, effectively becomes a digital film camera.



The GY-HD110, fitted with Mini 35 film adapter from P & S Technik, becomes a digital film camera.

Versatile and Flexible

- ◆ The GY-HD110U is a versatile HD source device that maintains a quality HD signal at all times due to its ability to convert the recorded HDV 720p signal to different HD signal types in real time.
- ◆ Professional 1/3" bayonet lens mount allows the use of other professional HD lenses. With optional mount adapters, existing 1/2" and 2/3" bayonet mount lenses can also be used.
- ◆ Designed to facilitate easy transfer to 16mm or 35mm film, it enables recordings to be transferred with full HD fidelity without frame rate conversion.
- ◆ Customized camera settings can be stored on a SD memory card and loaded into another GY-HD110U or changed on site.
- ◆ User buttons enable instant switching of settings to suit shooting conditions.
- ◆ Shutter speeds and menus can be selected using a dial, making it very easy to use.
- ◆ IEEE1394 (6-pin) interface allows direct connection to non-linear editing systems or to a PC for capturing, editing and archiving.
- ◆ To display the image via composite output, three modes (Letterbox, Squeeze and Side Cut) are available:

Letterbox: Masks upper and lower parts of the image.

Squeeze: Squeezes the image electronically.

Side Cut: Cuts off the right and left sides of the image.

GY-HD110U

Audio

- ◆ To record high-quality digital audio, the camcorder has two XLR connectors with independent controls for each channel.
- ◆ The input audio can be monitored in recording or EE mode. The playback sound can be monitored in the playback mode. The speaker also outputs an alarm tone in case an abnormal condition occurs in the unit.
- ◆ When color bars are output, an audio reference level (test tone) can also be output if required. Done via the menu, reference level can be set at -12 dB or -20 dB. To minimize extraneous noise picked up by the microphone, a "wind cut" function is provided.

High Performance

- ◆ Cinema mode color (available in the set-up menu) automatically adjusts the gamma curve and color matrix to give a film look.
- ◆ Recording check function for convenient recording review function.
- ◆ Can connect (via IEEE1394 port) to the optional DR-HD100 hard disk drive. This allows footage to be edited immediately without waiting for data to be transferred.
- ◆ Built-in time code reader/generator can be used to record the time code and user's bits.
- ◆ Safety Zone indication and Zebra pattern video level indication in viewfinder
- ◆ Variable Scan function allows flicker-free shooting of computer screens.
- ◆ Slow shutter makes it possible to brightly shoot video of dark subjects with little motion by accumulating the images.
- ◆ Built-in SMPTE/EBU color bar generator.

User-Friendly Design

- ◆ Compact design and shoulder mount offers excellent mobility and enhanced usability. Wide range of ergonomic adjustments ensures that any camera operator, regardless of stature and physique, can firmly and comfortably support the camcorder.
- ◆ Has multiple adjustments to provide a comfortable positioning of the camera, such as a shoulder pad that can be moved back and forth, a viewfinder with an eyepiece that can be adjusted left and right as well as back and forth, and a padded

GY-HD110U 1/3" 3-CCD Professional HDV Camcorder Kits

GY-HD110U 1/3" 3-CCD Professional HDV Camcorder (Mfr # GYHD110U; B&H # JVGYHD110U): With 16x Fujinon lens (T16x5.5BRMU), BN-V428 battery, AA-P30 AC adapter/charger, short shotgun mic, Impact pro soft case**CALL**

GY-HD110U 1/3" 3-CCD Professional HDV Camcorder (Mfr # GYHD110PKL13; B&H # JVGYHD110PKL13): With 16x Fujinon (T16x5.5BRMU) and 13x Fujinon W/A lens (TH13x3.5BRMU) lens, BN-V428 battery, AA-P30 AC adapter/charger, short shotgun mic, DC cable, AC cable

GY-HD110U OPTIONAL ACCESSORIES

In addition to the standard detachable 16x servo Fujinon lens (T16x5.5BRMU), a wide range of options are available, including a 13x (3.5mm) wide zoom lens, a wide angle converter for the standard 16x lens, and adapters that allow 1/2" and 2/3" bayonet mount lenses to be used.



TH13x3.5BRMU Fujinon 1/3" 13x High Definition Wide Angle Lens (Mfr # TH13X35BRMU; B&H # FUTH13X35BRMU): Designed specifically for JVC's line of ProHD cameras. Focal-length range is 3.5 to 46mm with a minimum object distance of 0.4 meters, or about 1.3'**6,599.95**

ACM-17 1/3" to 2/3" Lens Mount Converter (Mfr # ACM17; B&H # JVACM17): Allows 2/3" lenses to be used with the GY-HD100U, GY-HD200 and GY-HD250U**749.95**

ACM-12 1/3" to 1/2" Lens Mount Converter (Mfr # ACM12; B&H # JVACM12): Allows 1/2" lenses to be used with the GY-HD100U, GY-HD200 and GY-HD250U**699.95**

WCV-82SC 0.82x Wide-Angle Converter Lens (Mfr # WCV82SC; B&H # JVVCV82SC): Offers an 18% wider angle-of-view to the TH16x5.5BRMU lens, giving you the ability to make that tight shot or change your perspective for a more refined final product**509.95**

HZ-ZS13BU Rear Zoom Servo Control (Mfr # HZ-ZS13U; B&H # JVHZZS13U): Provides precision zoom control when operating with Fujinon or Canon lenses from a tripod. Useful in a variety of professional broadcast applications, including live event coverage and sports**649.95**

HZ-ZS100U Handle-Mounted Zoom Control (Mfr # HZ-ZS100U; B&H # JVHZZS100U): Mounts on the handle of your tripod for easy access to zoom features**249.95**

HZ-FM13U Rear Manual Focus Control (Mfr # HZ-FM13U; B&H # JVHFM13U): Provides precision manual focus control for Fujinon lenses**629.95**

HZ-FM15U Rear Manual Focus Control (Mfr # HZ-FM15U; B&H # JVHFM15U): Provides precision manual focus control for Canon ENG/EFP lenses**599.95**

GY-HD200UB

1/3" 3-CCD HDV Camcorder

Stepping up from the GY-HD110U, the compact, shoulder mounted GY-HD200UB features HDV 720/60P true progressive image acquisition, 14-bit A/D converter and 14.4v power system. It also offers live transport stream output capability of 1080i and 720p signals through the IEEE1394 connection. The 1080i signal can also be recorded as either .m2t or QuickTime files, making the GY-HD200UB the fastest and most efficient "shoot-to-edit" professional HD camera system in the industry.

Ideal for independent filmmakers, stringers and sports videographers, the GY-HD200UB incorporates JVC's "Super Encoder", making it capable of 60p recording. 60p acquisition is ideal for viewing and analyzing motion, as well as for delivering an "overcranked" recording for superb slow motion when the final output is 24p.

Utilizes all of the accessories available for the GY-HD110U, including 1/3" mount HD lenses. Additionally, like the GY-HD110U, the GY-HD200UB accepts the HZ-CA13U adapter to address the needs of the film community. An optional lens adapter, the HZ-CA13U is specifically designed for the 1/3" bayonet mount of JVC ProHD camcorders, enabling the use of 16mm film prime lenses with a PL (Positive Lock) mount. However, the GY-HD200UB is also capable of correcting the inverted image from a prime lens so there is no requirement for a mechanical or editing functionality to record the image in the proper proportion. By utilizing the exclusive HZ-CA13U lens adapter, facilities with a large stock of 16mm film lenses—like film schools, filmmakers and film camera rental houses—will especially benefit from this revolutionary capability. Additionally, the GY-HD200UB has enhanced Gamma capability further empowering videographers to enhance the captured image.



Same features (and accessories) as the GY-HD110U, PLUS—

- ◆ Offers substantially better horizontal resolution and S/N ratio thanks to advanced image processing technology developed by JVC. To improve both the S/N ratio and the horizontal resolution, a new 14-bit A/D converter was specially developed by JVC to prevent signal deterioration and to generate a fourfold increase in gradations.
- ◆ Uses a wideband analog front end to process its CCD sampling via the 14-bit A/D converter. This further improves the S/N ratio and horizontal resolution by optimizing the CCD drive circuitry. The LVDS (Low Voltage Differential Signal) interface minimizes any other possible signal degradation and so contributes to the improved S/N ratio.
- ◆ To enable 720p/60 recording, a new super encoder and a new pixel converter were developed, incorporating an adaptive filter which optimizes the scalar performance of cross-converted signals, including 1080i. The resultant effects are increased resolution and reduced aliasing. Objects thus have much more natural looking edges and images are therefore extremely lifelike in appearance.
- ◆ Progressive signal can be converted to other formats, irrespective of whether the conversion is up, cross or down. Conversion is always performed in real time because the time-consuming complexity of de-interlacing is not required. The GY-HD200 can be set to output 1080i/60 from any recorded 720p/60 footage, whether recorded on a MiniDV cassette or on the DR-HD100 hard disk drive.
- ◆ Outstanding image quality is supported by a wide range of powerful features which have great appeal to true film professionals. These include the image inverse function (HV flip), as required by certain film lens adapters, and a menu to select the appropriate combination of color matrix and film gamma type.
- ◆ Cinema Gamma is deployed to make video look like film, and Film Out gamma is used when the video is to be ultimately transferred to film. This choice of gamma means that the cinematographer, irrespective of whether the final production will be presented as film or as video, can be sure of always getting the best possible film look.
- ◆ White shading adjustment compensates for differing lens characteristics. (Necessary to perform this adjustment to the camera when attaching a lens that is different from the previously attached lens.
- ◆ Includes Anton/Bauer Gold Mount battery adapter plate
- ◆ 6-pin remote control connector
- ◆ Comes with a 2-year warranty (parts), 1-year (labor) vs. 1-year warranty (parts and labor) on the GY-HD110U

GY-HD200UB ProHD Camcorder (Mfr# GY-HD200UB)

With Fujinon TH16x5.5BRMU 16:1 lens, mic holder, microphone, SD memory card, and Anton Bauer Trim Pack Package.....**CALL**

GY-HD250U

1/3" 3-CCD HDV Camcorder

A full HD resolution camcorder, the GY-HD250U features 720/60p capture and recording for ENG applications—plus it offers studio capabilities as well as well. An affordable studio-capable HD camera, the compact and versatile GY-HD250U allows users to utilize much of their existing infrastructure including cabling, while providing robust performance in both standard and high definition. In addition to its studio capability, the GY-HD250U offers the comfort and stability of a shoulder-style camcorder with a full complement of features needed for ENG and cinematography applications.

Like the GY-HD200, the GY-HD250 records true 720 progressive at 60 fps thanks to an advanced codec that provides ultra efficient compression without visible motion artifacts. It has built-in genlock capability, component and HD-SDI output, with professional connectors mounted on a magnesium die cast chassis. Also features enhanced cinema gamma, external time code sync, Anton Bauer Gold Mount, and patented focus assist.



The GY-HD250U easily converts to a cost effective studio camera with the KA-HD250 studio adapter. An optional CCU provides connection to 26-pin multicore cabling for power, genlock, R/B gain, black level and intercom up to 330 feet. An optional pan and tilt head and 16:9 LCD studio viewfinder make it ideal for educational, religious, cable and broadcast studios. The GY-HD250 captures real 24p and 30p acquisition that produces polished, film-like quality HD recordings. The time code is recorded in native 24p mode, enabling the user to transfer recordings to film for theater distribution with ease. The camera allows for extensive user customization with additional gamma settings for cinema applications. The GY-HD250U also has image inversion capability, enabling use of prime lenses without the need of a mechanical device or software to record the image in the proper proportion.

FEATURES

Genlock

This camcorder has genlock input capability for synchronization and time code input/output, making multi-camera shooting possible. For synchronization, BB or VBS signals (SD) and HD tri-level sync signals (HD) are available to lock to various components, including external audio recorders, other cameras and switchers. In addition, H Phase (HD/SD) and SC Phase (SD only) can be adjusted.

IEEE 1394 interface/HD-SDI output interface

A convenient IEEE 1394 interface allows easy direct connection to NLE systems or to a PC for capturing, editing and archiving. An HD-SDI (High Definition Serial Digital Interface) is also provided to enable transmission of uncompressed digital HD signals via co-axial cable. Since the HD-SDI interface can use existing SDI (Serial Digital Interface) cabling, configuring studio applications is greatly simplified.

Shutter angle display mode

In addition to the conventional second-unit indication for shutter values, a shutter angle display mode is available. This makes it easy for all users — including those more familiar with film cameras — to set the shutter value.

GY-HD250U

KA-HD250U Studio Adapter Kit

The KA-HD250U converts a GY-HD250U into a studio camera, providing necessary signals (power genlock, intercom, prompter) as well as remote



control of camera functions. It utilizes standard JVC or Sony multicore cable and connectors, and can be added to an existing SD system with no additional cabling. For HD usage, it is only necessary to add an HD-SDI cable to carry the digital HD signal.

Equipped with Analog 26P Camera Connector

The Studio Adapter Kit is designed to connect with the RM-P210U Remote Control Unit (sold separately). It can be used from up to a distance of 100 meters away. The remote control unit provides power for the camera and thus there is no requirement for a separate power supply for the camera.

Multi-system Output

Output composite signals and RGB component, Y/PB/PR component, or YC separate signals from the 26P camera connector. (Selectable with the menu switch.)

Equipped with Intercom Terminal

Use a headset to communicate with the remote control unit operator. (Dynamic only)

Equipped with Prompter Output Terminal

Output prompter video from the remote control unit as composite signals.

VF-P400 4" Viewfinder Compatible

A general-purpose viewfinder that can be used with the KA-HD250U. An external HD monitor can also be connected through the external monitor component terminals (BNC x 3).

Studio Adapter Kit

(Mfr # KA-HD250U; B&H # JVKAH250U)**2,599.95**

RM-HP250AU Remote CCU (Control Camera Unit)

Featuring both analog HD/SD signals interface via multicore



26-pin cable and HD/SD SDI output, the RM-HP250AU lets you replace your current SD multicore camera system and maintain your current infrastructure, or implement an efficient HD system to meet the current and future needs of your facility.

- ◆ Multicore camera control unit with cable extension up to 100m
- ◆ Both analog HD/SD signals interface via multicore 26-pin cable
- ◆ HD/SD SDI output
- ◆ Local remote control capability with optional RM-LP25U
- ◆ Camera menu access and control
- ◆ 4 user-settings assignable to any camera function
- ◆ 4 user scene file settings
- ◆ Compatible with Sony 26-pin CCU cable
- ◆ RTS or 2-wire compatible intercom system
- ◆ Compact size (only 1RU high)

RM-HP250AU ProHD Remote CCU (Mfr # RM-HP250AU; B&H # JVRMHP250AU)**3299.95**

RM-LP25U ProHD Local Remote Control Camera Unit

A local remote control panel specifically designed for the GY-HD250/201/200 ProHD HDV camcorders. It allows you to control virtually all basic and advanced functions of the camera without having to access the unit directly. This can be very useful in a variety of applications where the camera is not directly next to the DP or cinematographer. This rack-mountable unit has a joystick-type control for iris and master black adjustments and offers five-user memory scene file settings, and f-Stop LED indication.

RM-LP25U ProHD Local Remote Control Camera Unit

(Mfr # RM-LP25U; B&H # JVRMLP25U)**3849.95**



RM-P210U Multicore Camera Control Unit



Allows remote operation of the GY-HD250U (with studio adapter)

from a distance of up to 328'. It accepts JVC or Sony 26-pin CCU (HD-SDI must be run separately when using GY-HD250U).

- ◆ Full access to camera menus, function controls and camera setup parameters
- ◆ Dynamic or carbon equivalent RTS/4-wire compatible intercom
- ◆ Front panel built-in genlock controls
- ◆ Serial data communications for more reliable and accurate communications between the camera and RCU
- ◆ Multiple outputs (R/G/B component for computer graphics and keying, plus Y/R-Y/B-Y component (SD only) or Y/C for S-VHS)
- ◆ Gain select switch with variable gain function
- ◆ 4 programmable function buttons for quick access to menu items
- ◆ LCD read out at the base station for easy menu navigation and simple operation

RM-P210U Multicore Camera Control Unit
(Mfr # RM-P210U; B&H # JVRMP210U)**1894.95**



4" Monochrome Studio Viewfinder

(Mfr # VF-P400U; B&H # JVVFP400U)**729.95**

GY-HD250U

GY-HD250U 1/3" 3-CCD Professional HDV

Camcorder (Mfr # GYHD250U; B&H # JVGYHD250U):

With 16x Fujinon lens and 60/24-frame progressive recording, includes Timecode, Genlock and HD-SDI Output**CALL**

GY-HD250U 1/3" PAL 3-CCD Professional

HDV Camcorder (Mfr # GYHD251P; B&H #

JVGYHD251P): Same as above, except in 'PAL'

10,999.95

GY-HD250U Professional HDV Kit

(B&H #JVGYHD250UAB): Includes an Anton Bauer

Dionic-90 lithium-ion battery and Titan-70

on-camera AC power/charger**10,799.95**

GY-HD250U Professional HDV Kit

(B&H #JVGYHD250S16): Includes KA-HD250U studio

adapter kit, Marshall V-R70DP 1.2 mega-pixel

7" widescreen video monitor, HZ-FM500 rear

manual focus control, HZ-ZS13U rear servo

zoom control, and an RM-P210U multicore

camera control unit**16,499.95**

GY-HD250ST16S Professional HDV Package

(B&H #JVGYHD25016): Includes a KA-HD250U

studio adapter kit, VF-P400U 4" monochrome

studio viewfinder, KA-V400U 20-pin to 6-pin

adapter, RM-P210U multicore camera control

unit, HZ-FM500 rear manual focus control,

HZZS13U rear servo zoom control**18,660.00**

DR-HD100 Hard Disk Drive

Incorporating the latest DTE (Direct to Edit) technology, the DR-HD100 is specifically designed to attach to the GY-HD110U, GY-HD200U or GY-HD250U. Interlocked to the camcorder's record trigger, HD and SD images can be recorded together with audio and time code. Powered by either a built-in rechargeable or an external battery, the DR-HD100 comes with its own cradle, from which it is detached easily. Optional bracketry is available for mounting the HDD recorder at the rear of the camcorder.



- ◆ DTE technology permits DR-HD100 recordings in HDV and DV to be set to the NLE's native file format. This means no file transfer and conversion processes. Compatible with applications from Avid, Apple, Adobe, Canopus and many more. As new application support is released, the DR-HD100 can be updated via the disk drive itself.
- ◆ Once attached, the DR-HD100's record and record/pause functions are controlled from the camcorder. Camcorder generated time code is recorded to files on the DR-HD100 and DR-HD100 status and other information appears in the viewfinder and LCD display.
- ◆ Extends uninterrupted record time by hours. For example, a 100GB FireWire drive can store 7.5 hours of DV video and 10 hours of HDV video. It is also possible to daisy chain up to four external drives of different capacities to the DR-HD100, enabling uninterrupted recording of incredibly long durations.
- ◆ Detailed LCD shows system mode, time code and disk space remaining. Video clips can be reviewed on the viewfinder, LCD panel or external monitor, by using DR-HD100's playback mode. Functions include record, play, pause, stop, forward index, back index and multi speed fast forward and rewind.

DR-HD100 60GB Hard Disk Drive for JVC (Mfr # DRHD100GB60 • B&H # JVDHRD10060)**CALL**

DR-HD100 100GB Hard Disk Drive for JVC (Mfr # DRHD100GB100 • B&H # JVDHRD100100)**CALL**

	GY-HD110U	GY-HD200U	GY-HD250U
HD/SD SDI Output	–	–	BNC
HD-SDI	–	–	SMPTE292M/299M standard (embedded audio)
SD-SDI	–	–	SMPTE259M/272M standard (embedded audio)
Analog Composite Output	Unbalanced RCA	RCA	RCA
Analog Component Output	Unbalanced RCA	BNC	BNC
Analog Composite Input	–	–	BNC switchable from Genlock input
Genlock input	–	–	BNC
Mic Input	balanced XLR, +48 V phantom power	balanced XLR, +48 V phantom power	balanced XLR, +48 V phantom power
Line Input	Balanced XLR	Balanced XLR	Balanced XLR
Audio Outputs	Stereo 1/8-inch	Unbalanced RCA	Unbalanced RCA
Earphone Jack	Stereo 1/8-inch x2	Stereo 1/8-inch x2	Stereo 1/8-inch x2
Time Code Input / Output	–	–	BNC switchable from component output
IEEE1394 Connector	6-pin	6-pin	6-pin
Remote Connector	–	DIN 6-pin	DIN 6-pin
Dimensions	9 1/4 x 9 1/8 x 12 1/8"	8 7/8 x 9 1/8 x 15 13/16"	8 13/16 x 9 1/2 x 15 1/4"
Weight	6.9 lbs.	8.0 lbs.	8.3 lbs.

BR-HD50U

ProHD Player/Recorder

A companion to the GY-HD110U camcorder, the BR-HD50U is an HDV and DV player/recorder designed to transfer video and audio data to a non-linear editing (NLE) system. Optimized for use with a wide variety of existing systems and formats, this unit features switchable HDV and DV modes and analog outputs. It can also be connected to a plasma or an LCD panel equipped with an HDMI connector and be used as a low-cost viewer. With its low cost and high flexibility, the BR-HD50 is ideal for any facility looking for a smooth upgrade path from standard definition to high definition production.



BR-HD50U

(Mfr # BRHD50U; B&H # JVBHRD50U)

FEATURES

Advanced HDV Performance

- ◆ As the HDV format uses the same recording track pitch as Professional DV, the BR-HD50 can record signals in either standard or high definition depending on the user's needs.
- ◆ A sophisticated cross-converter function enables output of not only 720p signals, but also 1080i, 480/30 and 480/60 signals. So, thanks to switchable HDV and DV recording modes, plus DVCAM playback, the BR-HD50 is a real asset for any existing editing system.
- ◆ Switch between HDV 60Hz or 50Hz as required. This makes it easy to work with internationally sourced material and transfer it to a non-linear system for editing. You can record to Standard DV or Mini DV tape in either HDV 60Hz or 50Hz.
- ◆ Can record signals in 720p/24, 25 & 30, 480p/60 & 576p/50 and in 480i/60 and 480p/24.
- ◆ DV and Mini DV compatible mechanism provides high stability, and accommodates standard DV and Mini DV cassettes without the need for a cassette adapter.
- ◆ DVCAM recordings can be played back directly on the BR-HD50 in SD mode. This means that DVCAM recordings can easily be used as source material for editing.
- ◆ JVC's auto error correction system operates on a frame-by-frame basis to ensure accurate error compensation during playback. After optimally calibrating the playback RF waveform with a pre-filter circuit, the VCO (voltage control oscillator) voltage is changed so that the data reading of the clock phase is shifted to the position where the error rate is lowest. The result is accurate, consistent suppression of block noise and reliable, professional standard performance at all times.
- ◆ During recording and playback, to reduce the block noise which is caused by dust adhering to the heads, the BR-HD50 incorporates an advanced drum assembly with specially designed "sweeper" heads. These dummy heads sweep off any magnetic material dropped by the tape or any dust that may have entered from outside the unit.

User Friendly Design

- ◆ Large 8-digit LED display on the front panel displays time code, user bits and VTR status.
- ◆ Audio indicator lights up whenever audio signals are input. It also provides a convenient way to check for the presence of audio signals during tape playback.
- ◆ Built-in time code reader/generator provides preset, rec run and regen time codes. DV 20x search function (100x max. in the FF or REW mode) and the HD 8.5x forward search function (6.5x in reverse), provides super-fast access to any desired point on the tape.
- ◆ When connected to a camcorder via the IEEE1394 connector, the BR-HD50 will start recording 5 minutes before the tape in the camcorder ends. This enables continuous shooting for extended periods with no breaks in the recording.
- ◆ Systematic, easy-to-understand menu screens simplify set-up and operational procedures. Menu setting is performed via the buttons on the front panel.
- ◆ Includes headphone connector, repeat playback and wired remote control.



The BR-HD50U ProHD player/recorder is equipped with an RS-422A interface allowing easy integration with high-grade NLE systems, and an all-in-one HDMI output for direct digital connection to HD projector and LCD displays. An IEEE1394 interface allows lossless dubbing and recording of both HD and SD programs. Compressed HD (MPEG-2) or SD (DV) digital signals can be input or output to or from external devices such as a non-linear editing system. A front panel switch allows easy switching between SD and HD. Versatile analog connections include composite and S-Video inputs/outputs and analog component output in HD and SD (3 BNCs).

AG-HVX200

1/3" 3-CCD

P2 HD Handheld Camcorder

A leader in developing video technologies for the production industry, including filmmaking, broadcasting and other professional applications, Panasonic packs a wealth of their leading technologies into the AG-HVX200. Revolutionizing the entire production paradigm when it debuted, the handheld AG-HVX200 records HD, either 1080i or 720p video acquired by a high-performance optical system and high-performance digital signal processor onto a P2 card using the broadcast-quality DVCPRO HD codec.

This system achieves a level of image quality that conventional handheld HD cameras simply cannot match, while also supporting HD/SD multi-format and multi-codec recording capabilities.

Variable frame rate recording is just one of the features that makes the AG-HVX200 unique in its class. Using technologies that make the Panasonic VariCam camcorder a favorite in movie production, this powerful function allows the overcranking and undercranking techniques used with film cameras to create fast-motion and slow-motion effects. The P2 card offers superior reliability, immediate playback and outstanding cost-performance. It allows direct connection to non-linear editing systems and streamlines the production work flow, by providing to the editing system data files ready to be edited, rather than a video tape which would require the task of digitizing.



True High Definition

High Sensitivity Progressive CCD

Each pixel has a large light-receiving area, giving the 1/3" progressive CCD the kind of high sensitivity not available in compact HD cameras. This advanced CCD combines with a digital signal processor (DSP) in combination with a very sophisticated offset spatial technology to achieve a balance of high resolution and high S/N ratio that rivals HD broadcasting cameras.

The AG-HVX200's digital signal processor for 1080/60p video signals uses 14-bit A/D conversion and 19-bit inner processing to attain unprecedented accuracy. While the camera does not record 1080/60p, it is from this capture that all other signals are made. The DSP performs a variety of adjustments, including eight types of gamma settings, for each of the R, G and B channels. It also converts the signals to HD or SD format. With a performance equivalent to the processors used in many higher-end HD cameras, the DSP helps the AG-HVX200 deliver beautiful images in all video formats.

Progressive to interlace conversion, cross conversion and down conversion all start with the 1080p/60 scan. That initial 1080p Native Progressive Scan offers the highest level of vertical resolution possible at this level of camera. Keep in mind that the camera does not record this signal but uses it as a basis for all capture. The result is an HD or SD recording with a level of image quality that electronically processed scans cannot match.

Leica Dicomar 13x HD Zoom Lens

- ◆ Developed specifically for HD recording, this lens system features a large 82mm (diameter) filter along with 15 lens elements in 11 groups, including three aspherical lenses. Incorporates Leica optical technology and know-how throughout. The use of low-dispersion glass reduces color aberration and increases resolution, while a multi-coating process minimizes flare and ghosting. This results in sharp, crisp, beautifully rendered images with delicate nuances and exceptional shading.
- ◆ A powerful 13x zoom lens designed especially for HD video recording, the lens extends all the way to 4.2mm (equivalent to 32.5mm on a 35mm lens), covering the full wideangle range needed in most broadcast and professional shooting. There's no need for a bulky wide-angle conversion lens.
- ◆ With a minimum object distance (MOD) of approximately 1.9' in telephoto mode, the AG-HVX200 has true handheld maneuverability. And with the same cam-driven zoom ring acclaimed in the DVX100 series, the AG-HVX200 gives you the superior operability and control you need in demanding applications.
- ◆ Panasonic's advanced OIS (Optical Image Stabilizer) dramatically reduces the blurring caused by hand-shake. Optical processing with an automatic correction function helps assure consistently clear, sharp images.

AG-HVX200

The Speed and Convenience of P2

Offering a large capacity and high speed, the P2 (Professional Plug-in) is a compact solid-state memory card for professional AV use. Basically, four SD Memory Cards are packaged together to create a single P2 card. When striped as a RAID 0 array, the P2 delivers 4x the transfer speed and 4x the capacity of a single SD Memory Card. A slim, large-capacity 32GB P2 card (AJ-P2CO32RG) can hold 64 minutes of DVCPRO/DV codec recording yet weighs only about 45 grams.

Compliant with PC Card standards (Type II), the P2 card plugs directly into the card slot of a laptop PC. AV data on the card mounts instantly, with each cut as an MXF file. The data can be used immediately — no digitizing necessary — for nonlinear editing, or it can be transferred over a network. The P2 far surpasses all other AV media in transfer speed, too. P2 cards provide superb reliability in even the harsh environments. P2 cards withstand shock up to 1,500 G and vibration up to 15 G, operate in temperatures from -4 to 140°F (-20 to 60°C), and can be stored in temperatures from -40 to 176°F. In durability too, the P2 card goes well beyond ordinary PC cards. For example, the connector portion is specially designed for professional use and has passed insertion/removal tests of more than 30,000 cycles. P2 cards also have a write protect switch that helps prevent accidental data deletion. Solid state memory has the unique advantage of being rewritable, over and over again, in part because it is a non-contact media and requires no rotation. You can use the same P2 card again and again for years — slashing media expenses while also minimizing impact on the environment.



- ◆ Press the Record Button in standby mode and the AG-HVX200 instantly finds a blank area of the P2 card and begins recording. It can begin recording immediately even when you're using it to preview video. In normal use, there's no chance of accidentally overwriting a recording. Recordings will not be erased unless you intentionally delete a file or initialize the card.
- ◆ The AG-HVX200 has two card slots so you can hot-swap P2 cards and have continuous non-stop recording. With multiple cards you can record for hours without interruption. Or, using the optional AJ-PCS060G "P2 Store" external hard drive, you can download recorded files from a P2 card and then initialize it (erasing the files), so it's ready for re-use.
- ◆ Using two P2 cards and setting the AG-HVX200 for consecutive overwriting, you can repeatedly re-record during a particular recurring time slot, always maintaining a recording of the most recent period. Unlike video tape, P2 cards need no rewinding. They minimize wasted time and allow seamless, continuous recording. This makes them especially useful for unattended monitoring.
- ◆ While in standby mode, you can continuously store, and subsequently record, up to 7 seconds in DVCPRO50/DVCPRO or 3 seconds in DVCPRO HD of video and audio. In effect, this lets you record footage of events that occur even before you press the rec start button, giving you a way to "go back" and capture moments you otherwise would have missed.
- ◆ One-shot rec: Convenient for producing animation, this mode records for a set time (from 1 frame to 1 second) each time you press the Start button.
- ◆ Interval rec: Recording one frame at a time at set intervals (from 2 frames to 10 min), this mode is useful for monitoring and special ultra-undercranking effects.
- ◆ The Clip Thumbnail/Data Function records each cut as a clip (file) and automatically attaches a thumbnail image and file information to it. To preview a clip on the LCD monitor or to check clip data, simply choose the clip you want from the list of thumbnails.
- ◆ Shot Marker Function allows you to add a simple OK/NG shot marker to each clip either during or after recording. When a P2 card containing marked clips is inserted in a PC, the PC will display with a M demarcation in the P2 viewer which of the clips is the one with the Marker.
- ◆ In PC mode, the AG-HVX200 connects directly via USB 2.0 to a Windows PC. In IEEE1394 Device mode, it connects directly to a Mac. This lets you use the AG-HVX200 as a P2 card drive, providing easy access to recordings on the P2 card.
- ◆ The battery-powered AJ-PCS060G "P2 Store" external hard drive gives the AG-HVX200 added versatility in the field. Equipped with a card slot, the P2 Store makes it easy to download files and initialize a card so it can be reused right away. In the editing booth, the P2 Store can connect to a PC via its USB 2.0 port and serve as an external hard disk drive.



Optional
AJ-PCS060G
"P2 Store"
external hard drive



AG-HVX200

Superb Images and Sound of the DVCPRO HD Codec

Using the DVCPRO HD codec, the AG-HVX200 records HD video with outstanding image and audio quality onto a P2 card in file format. This codec, thanks to a low compression ratio at a video bit rate of 100 Mbps (1080/59.94i, 720/59.94p) and the easy-to-edit intraframe compression system, is suitable for recording fast-moving subjects with no motion artifacts other than motion blur. The 4:2:2 sampling rate minimizes jaggies at chroma edges and is advantageous in image and compositing. Sound quality is excellent too, thanks to DVCPRO HD's uncompressed 16-bit, 4-channel digital audio recording capability. The AG-HVX200 also offers 1080/24p shooting (images are recorded in 60i by 2:3 pull-down). It can record onto a P2 card in 1080/60i or 720/60p HD, and it's compatible with the SD (480i) format currently used in broadcasting. The multi-codec system lets you record in DVCPRO 50, DVCPRO and DV.

VariCam Creativity

Variable Frame Rate from 12 to 60 fps Allow Cinematic Expression

The AG-HVX200 is equipped with Panasonic's VariCam—widely used in the production of movies, TV programs and commercials. Named for its ground-breaking variable frame rate capability, it allows the frame rate of AG-HVX200 in 720p mode to be set from the conventional 24fps/30fps to any of 11 steps between 12 fps and 60 fps. Like the AJ-HDC27 VariCam HD Cinema camcorder, the AG-HVX200 allows the undercranking and overcranking used with film cameras to create fast-motion and slow-motion effects.

Normal cinematic shooting is done at 24 fps, the same rate as in



film cameras. The AG-HVX200 can record in 1080/24p (over 60i) or 480/24p (over 60i) mode, as well as 720/24p mode. 30 fps is the standard frame rate used in production of TV commercials, music clips and video software. The AG-HVX200 can also record in 1080/30p (over 60i) or 480/30p (over 60i) mode, as well as 720/30p mode.



Higher-speed shooting at 26 to 60fps produces slow-motion

effects. This is especially effective for high-action scenes like car chases or crashes, or for scenes with considerable dramatic impact.

Lower-speed shooting at 12 to 22 fps lets you attain fast-



motion effect. This technique can be combined with warp-speed effect, special emphasis to flowing water, fast-moving clouds.

Native and Over-60p Modes for Previewing Visual Effects

720p Native Mode: In 720p Native mode, the AG-HVX200 records images at the frame rate set in the camera. For example, in 24p mode it records 24 frames. Using the AG-HVX200 to play back the recording at the normal rate, you can preview the speed effect right on the spot, without using a frame rate converter. Native mode also extends the recording time of a P2 card.

720p over 60p Mode: This is a VariCam-compatible mode for recording 60p-converted video. For example, in 24p mode it records 60 frames by applying a 2:3 pulldown. Recording time is the same as in 1080i or 720p mode, but the unit can output a DVCPRO HD stream from the IEEE 1394 connector as it records. This lets you produce a backup copy using a connected external hard disk recorder, such as the AJ-HD1200A or the FireStore FS-100.

1080/480 24p Advance Mode: The 1080 and 480 progressive recording systems convert recordings to 60i in 24p, 30p, or 24pA (Advance) mode. The 24p Advance mode uses 2:3:3:2 pulldown and performs 60i/24p conversion with minimum image degradation when recording data is captured via an IEEE 1394 interface to a compatible nonlinear editing system. This lets you maintain superior image quality throughout the production process.

Slow-/Fast-Motion Effects Using Mini DV Tape

In addition to its two P2 card slots, the AG-HVX200 is equipped with a mini DV tape drive, which allows recording in 60i, 30p, 24p or 24pA (Advance) modes. It also lets you down-convert an HD source (1080i/720p) recorded on a P2 card and copy it to a mini DV tape. During copying, frame-rate conversion is applied to overcranked and undercranked HD image sources in 720p native mode. This lets you create special speed effects during DV production – until now, a feat possible only with a complete VariCam system.

Eight-Mode Gamma for Richer Gradation

Drawing on technologies developed for the VariCam, Panasonic has equipped the AG-HVX200 with advanced gamma functions that address eight different shooting scenarios and expands your creative abilities. Included are Cine-Like Gamma, which gives recordings the characteristic warm tone of film recordings, and a News Gamma that's designed especially for news gathering.

AG-HVX200

Ergonomic Design

- ◆ Ergonomic design throughout –including the viewfinder, monitor and handgrip. The large viewfinder makes it easy to view content, even with your eye at a slight distance, and it tilts upward 90° for easy low-angle shots. The AG-HVX200 also has a detail (PEAKING) function.
- ◆ The large, bright 3.5" color LCD monitor opens all the way to 120° and swivels freely within a range of 270°. This makes it easy to shoot from a variety of angles and view the image comfortably. In 16:9 wide-screen mode, the AG-HVX200 can display images in letterbox format.
- ◆ In addition to the lens grip, the upper part of the handle grip contains both the Record Start/ Stop button and a lens zoom control. This design assures easy shooting even at low angles or when using a tripod. The zoom speed can be set to any of three speed levels or off.
- ◆ The AG-HVX200 has the same magnesium alloy diecast chassis as Panasonic's DVCPRO broadcast models for outstanding reliability and durability. Built for professionals, the AG-HVX200 stands up to the bumps and jolts that may occur in the field.



Support Functions for Greater Convenience

- ◆ **Mode check:** Displays a list of the camera set on the viewfinder and monitor.
- ◆ **Zebra:** Select any two levels from among 50% to 105%, in 5% steps.
- ◆ **Tally lamps:** Provided on the unit's front and rear, and menu switchable.
- ◆ **Center Marker:** Provides an accurate numeric display of the brightness at screen center.
- ◆ **Remote:** Controls zoom, rec, focus and iris

Built-In Advanced Image Adjustments

- ◆ Matrix setting including "Cine-like" mode
- ◆ Adjustable V detail level, detail coring and skin detail
- ◆ Adjustable chroma phase, color temp and master pedestal
- ◆ Knee point settings: Auto, Low, Mid and High

Manual Zoom, Focus, Iris and Gain Functions for the Professional

Cam-Driven Manual Zoom: The cam-driven (mechanical) manual zoom ring provides the same fast, precise zooming as cameras with interchangeable lenses. You'll also enjoy the operating feel. When you turn the zoom ring, you experience the same kind of steady resistance as you feel with 35mm lenses. The AG-HVX200's servo-driven zoom also allows slow zooming.

Manual Focus with Center Zoom: Enjoy quick, sharp focusing manually or automatically. In manual mode, the focus ring gives you the same kind of operating feel and responsive control as cameras with interchangeable lenses. An HD-compatible focus assist (Center Zoom) function enlarges the center part of the image, making it easier to get the more precise focus needed in HD production. In auto mode, you get quick focusing when shooting at a high or low angle. When set to infinity, the focal distance is immediately prepared for the next manual focus. When in manual mode, pressing the Push Auto button temporarily activates auto focus.

Manual Aperture: The large aperture dial (direction setting possible) offers easy manual operation. You also can add backlight or spotlight correction to the auto aperture function.

Gain, ND Filter: Increases gain up to 18 dB. The selector has three positions: L is fixed at 0 dB; M and H can be set to 0, +3, +6, +9, or +12 dB. +18 dB can also be quickly accessed by the use of the USER 1, 2 or 3 switch. Two ND filters (1/8 ND, 1/64 ND) are built-in and easily accessible.

Slow, Synchro and High Speed Shutter: Used with the variable frame rate functions, this allows you to create a blurring effect or crystal clear stop motion sports action. A synchro scan function that's suitable for capturing screen shots from a computer monitor.

Scene File, User Buttons & Auto Functions for Quicker, Easier

Shooting

Scene File Dial: Set this dial for a set of shooting conditions, and instantly retrieve the settings when needed. Six preset files are provided, and you can change any of the six file names and their settings as desired. You can also transfer the setting files to an SD memory card.

Three User Buttons: The AG-HVX200 has three user buttons, each of which can be assigned any one of 12 functions (rec check, spotlight, backlight, black fade, white fade, ATW, ATW lock, gain 18dB, focus ring, memo/index, slot sel, shot mark). The assigned functions can then be accessed at the touch of a button.

Auto/Manual Mode Selector: Select the auto position to turn on Auto Aperture, Auto Gain, Auto Tracking White Balance, and Auto Focus — and you are immediately ready to shoot. You can customize the auto mode by removing functions and setting the gain to any value desired.

White Balance with the Auto Tracking White Function: One press of the AWB button adjusts the white balance and black balance. There are three white balance values to select from:

VIDEO FORMAT & CODEC SUPPORTED BY AG-HVX200				
	Recording Video Format ¹	Codec	Media	Rec. Time ³
HD	1080/60i, 1080/24p (over 60i), 1080/24pA (over 60i), 1080/30p (over 60i), 720/60p, 720/24p (over 60p), 720/30p (over 60p)	DVCPRO HD	P2 card	16 minutes
HD	720/24png (Native) ²	DVCPRO HD	P2 card	40 minutes
HD	720/30png (Native) ²	DVCPRO HD	P2 card	32 minutes
SD	480/60i, 480/24p (over 60i), 480/24pA (over 60i), 480/30p (over 60i)	DVCPRO50	P2 card	32 minutes
SD	480/60i, 480/24p (over 60i), 480/24pA (over 60i), 480/30p (over 60i)	DVCPRO/DV	P2 card	64 minutes
SD	480/60i, 480/24p (over 60i), 480/24pA (over 60i), 480/30p (over 60i)	DV	mini-DV tape	63 minutes

1. 24p=23.98p, 30p=29.97p, 60p=59.94p and 60i=59.94i 2. In the Native mode, AG-HVX200 record only active frames.
3. P2: using two 8GB P2 cards. (half with a single card); DV: using a AY-DVM63 mini-DV tape

AG-HVX200

System Interfaces

- ◆ With its IEEE1394 and USB 2.0 interfaces, the AG-HVX200 connects directly to compatible Mac and Windows non-linear editing systems. The IEEE1394 port supports SBP2 (Serial Bus Protocol 2) and allows direct connection to a Mac, making it easy to transfer P2 files for use with Final Cut Pro. When you've recorded on mini DV tape, the AG-HVX200 can stream to a conventional DV-compatible non-linear editing system. The USB 2.0 interface lets you transfer P2 files to a Windows PC for use with a non-linear editing system like Avid.

- ◆ IEEE1394 interface can be used to control an external device synched with the camera's



Start/Stop operation, making it easy to create backup recordings. Compatible devices include the AJ-HD1200A (for DVCPRO HD recording), AJ-SD93 (DVCPRO 50/DVCPRO),

and AG-DV2500 (DV). When used with the FireStore FS-100, the AG-HVX200 can provide extended-time recording in all codec formats, including DVCPRO HD (except in native recording mode).

- ◆ AG-HVX200 offers a host function. Insert a P2 card in the card slot, and data can be transferred to an external Hard Disk Drive (AC power required) via the IEEE1394 port.
- ◆ The AG-HVX200 is equipped with analog component signal terminals for outputting 1080i, 720p and 576i (each 59.94 Hz) camera video signals. This lets you preview recorded clips on an ordinary HD/SD TV monitor.
- ◆ The AG-HVX200 can record in SD with a 16:9 or 4:3 aspect ratio. When 16:9 is selected, the AG-HVX200 can record in native 16:9 or can be switched to a letterboxed 4:3 image.
- ◆ Connecting two AG-HVX200 units together with an IEEE1394 cable allows set initial time-code, which then enables time-code-matched editing with multiple camcorders. Built-in SMPTE timecode generator/reader lets you select the Drop Frame/Non-Drop Frame and Free Run/Rec Run modes, preset and regenerate. User bits are also provided. User files (with sets of camera settings) can be transferred to an SD Memory Card. This makes it easy to synchronize images recorded simultaneously using multiple cameras.

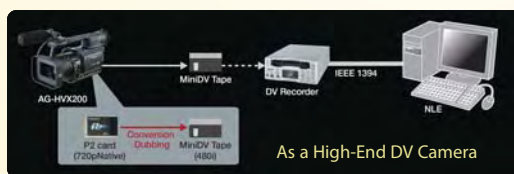
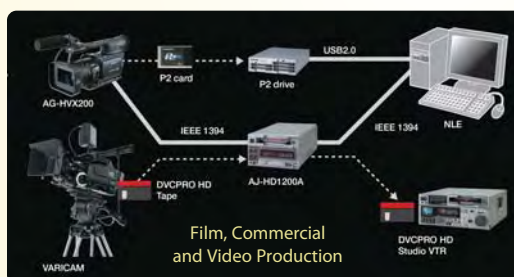
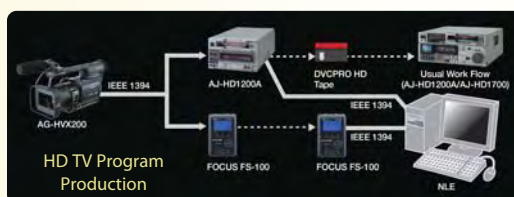
Professional Audio Features

XLR Audio Inputs: In addition to the built-in stereo microphones, the AG-HVX200 is equipped with two XLR audio input terminals with a 48-V phantom power supply for professional use. Both input 1 and input 2 can be switched between line and mic, and Audio is locked to the Video, unlike consumer DV camcorders.

Audio Dials & Flexible Input Selection: The AG-HVX200 has the same kind of level-adjustment dials as DVCPRO camera-recorders. This practical design incorporates professional operating features that have been refined over years of use on location. A switch lets you select built-in mic, input 1, or input 2 for the audio input of both channel-1 and channel-2. Auto level control can be turned on or off.

Versatile Operating Style

A TOOL TO SATISFY EVERY VIDEO PROFESSIONAL



Simple Solution: Using an AG-HVX200 and a laptop computer (PC or Mac) you can access each clip or transfer clips via USB2.0 (PC) or IEEE1394 (Mac) without capturing process.

News Gathering: Out in the field, the P2 Store hard drive lets you use and re-use the same P2 cards repeatedly. Back in the editing room, connect the P2 Store (or a P2 drive) directly to a NLE system. Mobile, reliable and easy to use, the AG-HVX200 speeds up production and gets the news quickly from the field to the air.

HD TV Program Production: Program creation for HDTV can be made in 1080i or 720P format. Recordings can be output to a DVCPRO HD VTR via the IEEE 1394 interface and added to the existing HD production flow. Used with the FOCUS FireStore FS-100, the AG-HVX200 can provide extended-time recording.

Film, Commercial and Video Production: Use as a main camera on an independent film shoot, or as a second camera on an VariCam HD production. Or it can be used in a high-end SD production with the AJ-SDX900. The HVX200 records in all of these formats so you can go where you need to go with the camera. Its size and flexibility make it the camera of choice for many applications; it is mobile, and maneuverable, ready for all kinds of specialty shots.

As a High-End DV Camera: The HVX200 can record in any of the 60i, 30p, 24p and 24pA (Advance) modes used by DVX100 series equipment. Further, thanks to the P2 card recording and down-conversion function, you can copy overcranked and undercranked HD sources in 720p native mode to mini DV tape. This allows you to offer fast-motion and slow-motion effects in DV productions that here-to-fore just could not be accomplished without a complete VariCam System.

AG-HVX200

AG-HVX200 3-CCD P2/DVCPRO HD

Camcorder: Includes 16 GB P2 card, CGA-D54set 5400 mAh battery, AG-B15 AC adapter/charger, microphone holder, component video cable, wireless remote control, shoulder strap.
(Mfr # AG-HVX200 • B&H # PAAGHVX200) **Call**

AG-MC200G Super-Directional Camera Mountable Shotgun Microphone:

A camera mounted condenser mic with superior directional characteristics than that of standard unidirectional microphones. Its focused pickup eliminates audio at the sides of the microphone, greatly reducing feedback problems. Uses +48v phantom power and features a standard XLR output. The microphone is ideal for camera use, as well as portable recording devices and field mixers.
(Mfr # AG-MC200G • B&H # PAAGMC200G) **329.95**

CGP-D28A 7.2v 2800mAh Lithium-Ion Battery Pack

(Mfr # CGPD28A • B&H # PACGPD28) **99.95**

CGR-D54set 7.2v 5400mAh Lithium-Ion Battery Pack

(Mfr # CGAD54set/1B • B&H # PACGRD54) **149.95**

Impact CGR-D54 7.2v 5400mAh Lithium-Ion Battery Pack

(Mfr # CGRD54 • B&H # IMCGRD54) **119.95**

AG-B25 AC Adapter/Charger

(Mfr # AG-B25 • B&H # PAAGB25): An AC adapter for the HVX-200, as well as a charger for the CGR-D54 battery **149.95**



16GB P2 Card

(Mfr # AJ-P2C016RG • B&H # PAAJP2C016RG) **899.00**

32GB P2 Card

(Mfr # AJ-P2C032RG • B&H # PAAJP2C032RG) .. **1549.95**

64GB P2 Card

(Mfr # AJ-P2C064RG • B&H # PAAJP2C064RG) **CALL**

HOOD-100 LCD Monitor Hood:

For the AG-HVX200's LCD monitor. Blocks sun and ambient lighting glare.
(Mfr # HOOD100 • B&H # PAHOOD100) **24.95**

Thermodyne Hard Shipping Case with

Wheels (Mfr # SHAN-HVX200 • B&H # PASCHVX200): Designed for the AG-HVX200, this rugged ATA-Certified transit case has a built-in heavy-duty handle and wheels, weather-resistant, gasket-sealed construction and heavy-duty field-replaceable hardware. Made in the USA, it comes with a 5-year, factory backed Thermodyne warranty **349.95**

HD-LOGGER: The HD Log by Imagine Products is a software utility designed to streamline the ingestion of P2 media on Mac OS X systems. This utility doesn't tie up your NLE system, making multitasking possible. Features include a transcribing feature, which allows users to easily edit descriptions and shooting notes for additional meta-data flexibility. (Mfr # HD-LOGGER • B&H # PAHDL) . **639.95**

FS-100 FireStore with 100 GB Capacity

(Mfr # FS-100 • B&H # PAFS100) **1499.95**

FS-100 FireStore with 160 GB Capacity

(Mfr # FS100-160 • B&H # PAFS100160) **1799.95**

AJ-PCS060G 60GB Portable Hard Drive Storage Device (P2 Store) for P2 Card Contents



The AJ-PCS060G is a ruggedized, portable hard disk unit with a P2 card slot that quickly transfers the content of P2 cards to an internal hard disk drive. The 2.5" disk drive can hold the contents of almost four 16GB P2 cards, and the entire contents of a 16GB P2 card can be transferred to the internal hard disk drive in about 15 minutes (in the non-verify mode). To help safeguard data, the volumes are read-only and cannot be accidentally overwritten.

After the P2 content has been transferred, the AJ-PCS060G can connect to a non-linear editing system or server via a USB 2.0 interface and appear as an external disk drive. The AJ-PCS060G has a shock-resistant magnesium alloy body and is equipped with special impact-absorbing materials to cushion the hard disk against shock and vibration.

In the field, the 1.5 lb. AJ-PCS060G serves as an aggregation and transport device, storing the contents of P2 cards and minimizing the number of P2 cards needed. Back at the studio, it serves as a high-speed drive for transferring video into a station's local area network (LAN) or non-linear editing system to speed access to the recorded content.

For quick and easy operation, the AJ-PCS060G has a large start button. It also includes LED indicators for copy status, drive capacity, and battery life remaining. Drivers for Windows and Mac systems are included. It runs on DC power, so you can use a 7.2v DC battery or AC adaptor to power it.

AJ-PCS060G 60GB Portable Hard Drive Storage Device for P2 Card Contents (Mfr # AJ-PCS060G; B&H # PAAJPCS060G) **1529.95**

Porta Brace C-P2STOR Belt Pack Carrying Case for the AJ-PCS060G with an Adjustable Belt (Mfr # C-P2STOR; B&H # POCP2STOR) **79.95**

AG-HPX500

2/3" 3-CCD Shoulder-Mounted P2 HD Camcorder

Broadcasters and video professionals all around the world have already joined the P2 revolution. Now this advanced technology is available to even more professional videographers. Weighing only 8.2 lbs., the AG-HPX500 features a 2/3" lens mount that accepts interchangeable lenses, HD/SD multi-format compatibility with 50/60-Hz selectability, and a variable frame rate function that allows cine-like picture quality. The camcorder is also equipped with eight gamma modes to address a wide range of shooting situations, including Cine-like Gamma to create film-like recordings. Ideal for applications

ranging from news acquisition, independent filmmaking, corporate video, sports and much more, the AG-HPX500 records in 32 HD and SD formats, including 1080i and 720p in production-proven, 100 Mbps DVCPRO HD. Equipped with four P2 card slots, the AG-HPX500 allows extended HD recording time and delivers the high reliability, quick recording starts and IT benefits that distinguish P2 and revolutionize the recording and editing workflow. Key interfaces include IEEE 1394, USB 2.0, HD/SD-SDI, analog component and four audio XLR inputs. Its four 48-kHz/16-bit digital audio channels are independently controllable. The camera is also equipped with a variety of shooting assist functions and presets.



Professional HD Quality

- ◆ 2/3" bayonet mount allows use of a wide assortment of broadcast and professional lenses. 2/3" zoom lenses make it easier to capture the shallower depth of field often used in professional videos.
- ◆ Chromatic Aberration Compensation technology sets up a conversation between lens and camera. This allows a highly sophisticated algorithm to be deployed which will automatically compensate the registration error caused mainly by lens chromatic aberration, and minimize the circumjacent blur.
- ◆ The 2/3" progressive CCDs have a larger light receiving area for higher sensitivity, and achieves an optimal balance among image quality, sensitivity and cost.
- ◆ The camera process scans at full 1080/60 (or 50) progressive frames a second. It is this initial capture that is the foundation for all of the formats that this camera generates. While the camera does not record 1080P/60 (or 50), the signals start there and are either cross converted or down converted to the format being utilized that

- ◆ Advanced progressive (APT) technology produces higher total image quality by linking the progressive 3CCD camera system with a high-performance digital signal processor (DSP). In A.P.T, an extremely accurate CCD alignment process is used to offset the pixels on the red and blue channels in both the Horizontal and Vertical directions. This allows for additional resolution to be gained from areas of the green CCD which are non-photo-sensitive. The R, G and B color signals from the 3 CCDs are then sent through a 14-bit A/D converter. Next, a 19-bit DSP performs a highly precise calculation on the signals to generate 1080/60P (50P) video signals.



day.

- ◆ Supporting 32 HD/SD recording formats, the AG-HPX500 meets professional needs in news acquisition and in the production of TV programming, independent films and other demanding video content. Its versatility allows this content to be distributed worldwide. For 1080i/720p HD recording, the AG-HPX500 uses the DVCPRO HD codec, with its proven track record in higher end production applications. For SD recording, the AG-HPX500's multicodec

The signals are then converted into HD or SD format and recorded. By using these progressive video signals, with their excellent vertical resolution, as source signals, a high level of image quality is achieved that would be difficult to obtain by interpolating from interlace scans.

capabilities let you select from DVCPRO50, DVCPRO and DV video quality.

- ◆ The AG-HPX500 has four P2 cards slots so you can record continuously onto all four in sequence. Using four 16-GB P2 cards you can record up to 64 minutes of HD recording (1080/60i or 720/60p, 4 cards x 16 minutes = 64) or 128 minutes of SD (DVCPRO 50) recording (4 cards x 32 minutes = 128).
- ◆ The AG-HPX500 can record full 48-kHz/16-bit digital audio on all four channels. You can freely select the audio source for each

AG-HPX500

Shooting Performance:

A Host of Features and Functions, Including a Variable Frame Rate Function for Cine-Like Video Production

Variable Frame Rate

In 720p mode, the frame rate can be set from the conventional 24p/30p to any of 11 steps between 12p and 60p (or 50p). Like the VariCam, the AG-HPX500 allows undercranking and overcranking common in film cameras, to create fast-motion and slow-motion effects.

- ◆ Higher-rate shooting produces a slow-motion effect. This is especially effective for high-action scenes like car chases or crashes, or for scenes to create dramatic impact.
- ◆ Lower-rate shooting creates a fast-motion effect. This technique can be combined with a Slow Shutter Speed to emphasize movements, such as flowing water or fast-moving clouds.

Native and Over-60p (50p) Modes

- ◆ 720p Native Mode: The AG-HPX500 records images at the frame rate set in the camera. Using the AG-HPX500 to play back the recording at the normal rate, you can preview the speed effect right on the spot, without using a frame rate converter. Native mode also extends the recording time.
- ◆ 720p over 60p (or 50p) Mode: The unit can output a DVCPRO HD stream from the IEEE 1394 connector as it records. This lets you produce a backup copy using a connected external hard disk recorder, such as the Panasonic AJ-HD1400 DVCPRO HD recorder or the Focus Enhancements FireStore FS-100.

Cine-Like Gamma (Eight-Mode Gamma)

Drawing on technologies developed for the VariCam, Panasonic has equipped the AG-HPX500 with advanced gamma functions that address eight different shooting scenarios and expand your creative abilities. Included are Cine-Like Gamma, which gives recordings the characteristic warm tone of film recordings, and a News Gamma that's designed especially for news gathering.

AG-HPX500 Gamma Modes

NEWS: Minimizes washout to faithfully capture all visual information especially in the highlights

HD NORM: Suitable for HD recording

LOW: Works to flatten out high-contrast scenes

SD NORM: Normal setting for SD

HIGH: Provides additional contrast and color gradation

B.PRESS: Provides more contrast and richer blacks to low-contrast scenes

CINE-LIKE-D: Shifts the Cine-Like mode to prioritize dynamic range

CINE-LIKE-V: Shifts the Cine-Like mode to prioritize contrast

Slow, Synchro and High-Speed Shutter

Used with the variable frame rate function, this allows you to create a blurring effect or crystal-clear stop-motion of sports action. The AG-HPX500 also features a synchro scan function for capturing screen shots from a computer monitor.

Table of Frame Rate and Speed Effect

60Hz Mode			50Hz Mode	
Supported Frame Rate	Speed Effect in 24p base	Speed Effect in 30p base	Supported Frame Rate	Speed Effect in 25p base
12 fps	200% Faster	250% Faster	12 fps	208% Faster
18 fps	133% Faster	167% Faster	18 fps	138% Faster
20 fps	120% Faster	150% Faster	20 fps	125% Faster
22 fps	109% Faster	136% Faster	23 fps	108% Faster
24 fps	100% Standard	125% Faster	25 fps	100% Standard
26 fps	92% Slower	115% Faster	27 fps	92% Slower
30 fps	80% Slower	100% Standard	30 fps	83% Slower
32 fps	75% Slower	94% Slower	32 fps	78% Slower
36 fps	66% Slower	66% Slower	37 fps	67% Slower
48 fps	50% Slower	62% Slower	48 fps	52% Slower
60 fps	40% Slower	50% Slower	50 fps	50% Slower



1080/480 24p Advance Mode

When recording in 1080/24p or 480/24p at 60 Hz, the AG-HPX500 lets you select 24pA (Advance) mode. In this mode, it performs 60i conversion using 2:3:3:2 pulldown, which maintains higher image quality than ordinary 24p (2:3 pulldown) in nonlinear editing. In 30p and 25p recording (at 50 Hz), the AG-HPX500 uses 2:2 pulldown.

Scene File Dial

Set this dial for a set of shooting conditions, and later you can instantly retrieve the settings when needed. Six preset files are provided, and you can change any of the six file names and their settings as desired. You can also transfer the setting files to an SD Memory Card for loading into another AG-HPX500 so the cameras will match.

Shooting Assist Functions

- ◆ Three User Buttons: Assign a function to each, and then you can select those chosen functions with pushbutton ease.
- ◆ Focus Assist facilitates focusing using a very effective histogram display.
- ◆ Eight chromatic aberration correction(CAC) files (fixed) and four shading correction files support a variety of interchangeable lenses.
- ◆ Color temperature can be adjusted after the white balance is set.
- ◆ Rec Review function for easy checking of recorded results
- ◆ 4-position optical neutral density filter wheel

AG-HPX500

P2 Cards: High Capacity, Fast Transfer and Superior Reliability

Developed for cost effective production applications, the P2 card consists of four SD cards packaged together along with an LSI that works to stripe the cards as a 0 Raid Array. Together these parts form a single compact unit that weighs only about 0.099 lbs (45 grams). This ultra-reliable card has four times the capacity and four times the transfer speed of a single SD card. In addition to the high resistance to impact, vibration and temperature change that semiconductor memory is known for, the P2 card also offers outstanding reliability. Unlike tapes and discs, it has no rotating or contact parts. It's built to withstand repeated recording and initialization over many years of use. The P2 card connector is specifically designed to stand up to the repeated insertion and removal involved in professional use. When you press the Record button in standby mode, the AG-HPX500 instantly finds a blank area on the P2 card and begins recording. It can begin recording immediately even when you're using it to preview video. In normal use, there is no chance of accidentally overwriting a recording. Recordings will not be erased unless you intentionally delete a file or initialize the card. The AG-HPX500 records the A/V data for each recording as a file on the P2 card, which eliminates the need for digitizing. The files can be used directly in a nonlinear editing system or transferred over a network. The P2 card transfers data at a speed that discs simply cannot match, giving you faster, easier operation. The P2 card is convenient too - you can plug it directly into the card slot on a certain laptops.

Advanced Recording Functions

In addition to continuous, multiple-card recording, the four P2 card slots of the AG-HPX500 also enable useful recording functions that are possible only with memory cards.



Card selector:

The recording slot can be switched instantly when the unit is in standby mode. Immediately after recording a clip, you can remove the P2 card and use it in editing or transmission. This lets you continue your recording work with much shorter downtime than when changing tapes or discs.

Hot-swap-rec:

You can replace a full memory card with a blank one while the P2 cam is recording onto a second card. Successively swapping cards gives you virtually unlimited recording capability.

Loop-rec:

This function can be specified in length and the camera will continuously record over that area until you push the pause. This allows for a longer record time than pre-record.

Other Versatile Recording Functions

- ◆ **Pre-rec:** While in standby mode, you can continuously store, and subsequently record, up to 3 seconds in HD (7 seconds in SD). In effect, this lets you record footage of the beginning of an event when the beginning is unpredictable, like a whale breaching the surface of the water or the unexpected arrival of a key person. This can give you the confidence that you always have your shot.
- ◆ **One-shot rec:** Convenient for producing animation, this mode records for a set time (from 1 frame to 1 second) each time you press the Start button.
- ◆ **Interval rec:** Recording one frame at a time at set intervals (from 2 frames to 10 min), this mode is useful for monitoring and special ultra-undercranking effects.

Clip Thumbnail/Data Function: The P2 cam records each recording as a clip (file) and automatically attaches a thumbnail image and file information to it. To preview a clip on the LCD monitor or to check clip data, simply choose the clip you want from the list of thumbnails. The thumbnail image and file information can also be displayed on a PC using P2 Viewer (can be downloaded for free) or non-linear editing software.



press the Text Memo button at any of up to 100 locations and a blank text memo label is registered. On your PC, you can then search for the label and write a memo into it.

Shot Marker and Text Memo: A shot mark, which allows convenient OK and NG marking, can be added to each clip during or after recording. When a P2 card with marked clips is inserted in a PC, it's possible to have only the marked clips displayed. The AG-HPX500 also has a text memo function. When recording or previewing a clip,

SD Memory Card Slot: Plug an SD card into the provided slot, and you can save or load scene files and user-setting files. You can create a metadata upload file (produced with P2 Viewer) containing information such as the name of the camera operator, the name of the reporter, the recording location, and text memos on an SD Memory Card, and load it as clip metadata.

AG-HPX500

System and Interfaces

*Comes equipped with IEEE1394, USB 2.0 and HD SDI Interfaces.
Allows remote control with the AJ-RC10G.*

- ◆ IEEE 1394-compliant DVCPRO (6-pin) output connector lets you output all HD/SD compression streams without decoding. This means you can connect and use a DVCPRO HD VTR (such as the AJ-HD1400) or Focus Enhancements FireStore FS-100 for degradation-free backup recording. The interface also makes it easy to upload data to a Mac- or PC-based nonlinear editing system. For convenience, the AG-HPX500 has a host mode that lets you copy P2 files to a hard drive without using a PC.
- ◆ The AG-HPX500 comes equipped with a USB 2.0 interface. Connect the AG-HPX500 to a Windows PC, and you can upload files from a P2 card to the PC for nonlinear editing, or to a network server.
- ◆ The AG-HPX500 has a built-in SMPTE time code generator/reader. The TC-IN/TC-OUT terminals are independent, so through connection is possible. The AG-HPX500 supports TC synchronous recording using multiple cameras.
- ◆ The AG-HPX500 has a 10-pin RCU terminal for connection to the optional AJ-RC10G Remote Control Unit. The AJ-RC10G comes with a 10-pin multi-cable that connects to the AG-HPX500's down-conversion video OUT terminal for monitoring at the RCU. The AJ-RC10G provides control of the AG-HPX500's camera and recorder functions.
- ◆ Analog component (Y/Pb/Pr) output
- ◆ DC power supply for the BT-LH80W 7.9" LCD monitor
- ◆ Color bar and standard audio signal (1-kHz test tone) output
- ◆ Multiple battery support, including Anton Bauer batteries

HD SDI/SD Down-Conversion Output

The AG-HPX500 comes equipped with two BNC video line outputs for flexible monitoring or line recording use.

- ◆ **SDI OUT:** Switchable between HD-SDI or SD-SDI (down conversion). HD-SDI output simultaneously backs up recordings to an external digital VCR (such as the AJ-HD1400) in sync with Rec start/stop.
- ◆ **VIDEO OUT:** Outputs down-converted SD video (composite).

Designed for Easy Operation

The position, function and shape of all switches, dials and terminals are designed for fast operation and to prevent errors for greater reliability.

- ◆ The Audio Rec level adjustment features a push lock function.
- ◆ The Audio Input level adjustment (front) can be switched ON/OFF and allocated to desired channels.
- ◆ The viewfinder mount allows easy and precise adjustment



AG-HPX500 (Mfr # AG-HPX500 • B&H # PAAGHPX500)

2/3" shoulder-mounted P2 camcorder with AG-VF11 1.5" B/W viewfinder (4:3 NTSC/PAL switchable), component video cable and shoulder strap.....**CALL**

ACCESSORIES

AJ-VF15B (Mfr # AJ-VF15B • B&H # PAAJVF15B)

16:9/4:3 switchable 1.5" high-grade viewfinder.....**1799.95**

AJ-VF20WB (Mfr # AJ-VF20WB • B&H # PAAJVF20WB)

16:9/4:3 switchable 2" high-grade viewfinder**2459.95**

SHAN-RC700 (Mfr # SHAN-RC700 • B&H # PASHANRC700)

Rain cover**249.95**

SHAN-TM700 (Mfr # SHAN-TM700 • B&H # PASHANTM700)

Quick-release camera mounting plate**429.95**

AJ-PCS060G (Mfr # AJ-PCS060G • B&H # PAAJPCS060G)

P2 "Store" portable hard disc unit 60GB**1529.95**

BT-LH2600W (Mfr # BT-LH2600W • B&H # PABTLH2600W)

26" 16:9 widescreen HD/SD LCD monitor**3999.95**

16GB P2 Card (Mfr # AJ-P2C016RG • B&H # PAAJP2C016RG)**899.00**

32GB P2 Card (Mfr # AJ-P2C032RG • B&H # PAAJP2C032RG)**1549.95**

AJ-RC10G (Mfr # AJRC10G • B&H # PAAJRC10G)

Remote control unit with 10m cable**3999.95**

FS-100 FireStore (Mfr # FS-100 • B&H # PAFS100): A direct-to-edit digital video recorder with a 100 GB capacity**1499.95**

FS-100 FireStore (Mfr # FS100-160 • B&H # PAFS100160): A direct-to-edit digital video recorder with a 160 GB capacity**1799.95**

BT-LH900A (Mfr # BT-LH900A • B&H # PABTLH900A)

An 8.4" HD/SD LCD monitor, 1024 x 768 (XGA), NTSC/PAL/HD auto-switchable, 16:9/4:3**3999.95**

XA17x7.6BERM (Mfr # XA17x7.6BERM-M58B • B&H # FUXA17X76BER)

A high-quality 17x 2/3" lens, with a focal-length range of 7.6 to 130mm with a minimum object distance of 2'. The lens also incorporates a 2x extender giving a maximum focal length of 260mm. It is 3.3" x 3.3" x 8", and weighs 3.8 lb.....**8299.95**

KJ16x7.7B-IRSD (Mfr # KJ16EX7.7B IRSD PS12 • B&H # CAKJ16EX77BI)

A high-quality 16x 2/3" lens, with a focal-length range of 7.7 to 124mm with a minimum object distance of 2', and comes with a 2x extender for increased telephoto capability.**7999.95**

KJ20x8.5-KRS (Mfr # KJ20X8.5B KRS • B&H # CAKJ20X85BKR)

A high-quality 20x 2/3" lens, with a focal-length range of 8.5 to 170mm with a minimum object distance of 3'. It is 6.4" x 4.1" x 6.7", and weighs 2.8 lb**6999.95**

AG-HPG10 (P2 GEAR)

Portable P2 Memory Card Recorder

A single portable unit, the AG-HPG10 (dubbed P2 Gear) provides viewing, backup and file management functions, bringing greater speed, mobility and flexibility to your P2 workflow.

A small, lightweight (1.1 lb.), battery-powered P2 HD portable recorder/player that's tough enough for rugged field work, the P2 Gear has two P2 card slots and a 3.5" LCD monitor, allowing HD/SD multi-format recording and playback and quick, on-the-spot viewing of P2 content in multiple formats (1080i, 720p, 576i and 480i).

The heavy-duty, shock-resistant player is equipped with speakers, easy-to-use controls and professional input/outputs (IEEE1394, USB 2.0 and HD-SDI) for essential in-the-field functions including: viewing clips recorded on a P2 card or the FOCUS FS-100 portable hard drive, copying files to an external hard drive, outputting a playback signal to a large monitor and backup recording with P2 HD/P2 or tape-based DVCPRO cameras. To expedite workflow, the P2 Gear can be connected to a Windows PC or Mac and used as P2 card reader for data transfers into nonlinear editing systems. In addition, it can be connected to a PC or Mac for baseband monitoring or integrated with conventional tape-based decks and recorders as a source device without control.



FEATURES

Multi-Format Capability

- ◆ Equipped with two P2 card slots and an LCD monitor, P2 Gear lets you quickly and easily view content on P2 cards. Its multi-format and multi-codec capabilities mean that you can play back P2 files of any format recorded with AG-HVX200 or AG-HPX500 camcorders. You can display, play back, and view recordings in DVCPRO HD, as well as in SD in DVCPRO50, DVCPRO and DV. P2 Gear also supports 50/60-Hz operation.
- ◆ Equipped to provide SDI output (HD/SD and four embedded audio channels supported), component and composite video output, and audio output (CH-1/CH-2 pin jacks). This makes it easy to preview recordings on a large external monitor. In broadcasting applications, the AG-HPG10 can be used for microwave feeds from field locations.
- ◆ During playback, P2 Gear can down-convert 1080 or 720 (HD) to 480 (SD) and output it, letting you view HD content on an SD monitor. The image aspect can be selected from squeeze, letterbox and side cut. P2 Gear can also cross-convert 720 to 1080 for HD transmission.

Clip Copying and Editing

- ◆ P2 cards record a scene as a clip (file). To play back or delete a clip, or to check its metadata (file information) or add or delete a shot marker, just select the clip from the thumbnail display. P2 Gear also provides a number of functions that are convenient in the field, including:
 - **Clip Copy:** The two card slots let you copy clips from one P2 card to another. Copy only the usable scenes, and you can use the card's capacity more effectively.
 - **Thumbnail Image Change:** By default, the first image in a clip is used as the thumbnail. At a desired location within a clip, you can change the thumbnail to a different image.
 - **Clip Metadata Edit:** A clip's metadata can contain such information as the camera operator's name, reporter's name and shooting location. P2 Gear lets you check this information and edit the text.
 - **Text Memo:** When recording or previewing a clip, you can attach a memo (similar to a bookmark) at a desired location (up to 100 locations on a frame basis). Later you can display or delete a memo, or add a new one. The simplified editing function lets you copy a segment between memos and create a new clip. Text information can be added to a memo using P2 Gear or a PC (with P2 Viewer).
 - **Shot Marker:** During or after recording, you can mark each clip with OK, NG or other designation.

Simplified Waveform and Vectorscope Display

P2 Gear has a built-in Waveform and Vectorscope display that many will find to be very useful in making a judgment call on the recorded material, or the incoming signal. A single touch of the function key displays the waveform and vectors of a playback video signal or IEEE1394 input video signal. (Vectors are shown on the right side of the image, wave form on the bottom).

AG-HPG10 (P2 GEAR)

- ◆ The USB 2.0 interface includes both host and device modes, for flexible interfacing with an external hard drive and PC-based nonlinear editor.
- **External hard drive:** USB 2.0 (host) lets you copy files between a P2 card and hard drive and make backup copies of video clips. USB bus power (5 V, 0.5A) is provided to power the external drive. Within the USB interface, there is an ability to make 23 partitions and it is possible to rename those partitions.
- **Nonlinear Editor:** USB 2.0 (device) connection lets you upload and download files, just as you would with a P2 drive.
- ◆ Use P2 Gear to copy files from a P2 card to an IEEE 1394-equipped external hard disk drive. If your time-line needs to be recorded back to a P2 Card you can also do this via the 1394 input on P2 Gear.

Playback Functions

- ◆ Supports the variable frame-rate recording widely used in creative video production. Use P2 Gear for on-the-spot previewing of slow-motion and other special effects recorded in native 720p mode with the AG-HVX200 or AG-HPX500
- ◆ For presentations and demonstrations, use P2 Gear for repeated playback of a selected clip or multiple clips. Playback is seamless, with no need for rewinding or cuing. There is no wear or image deterioration even after extended hours of continuous playback.
- ◆ If you press the Stop key during playback, P2 Gear temporarily "bookmarks" the stop position until another operation is performed. When you press the Play key, playback resumes at the bookmarked position.

Highly Mobile

P2 Gear main unit weighs just 2.5 lbs. and is small enough to use with one hand. Thanks to its rugged construction, it's tough enough to withstand rigorous field use. A powerful 5400 mAh battery pack mounts to the main unit's back. P2 Gear can also use the AG-HVX200's battery, or run on AC via the supplied AC adapter.



IEEE1394 Line Recording and Hot-Swap Recording

P2 Gear can provide degradation-free recording from IEEE 1394 (6-pin) digital streaming input. It supports the IEEE 1394 synchro function of Panasonic camera-recorders and allows backup recording in any of three ways (set on the camera): recording with P2 Gear only, simultaneous recording linked with camera operation, and continuous recording from when the camera's media becomes full. Using the 1394 input on P2 Gear, when a DVCPRO HD VTR such as the AJ-HD1400 is used as the source player, P2 Gear can easily perform media conversion, copying from tape to card.

Because P2 card starts up quickly, has high access speed and requires no cuing, P2 gear begins recording instantly. It also prevents accidental overwriting, so recordings are safe. Dual card slots let you hot-swap P2 cards, so you can make continuous recordings without roll-change errors. Two 16GB P2 cards (AJ-P2C016RG) can store up to 32 minutes of HD recording or up to 128 minutes of SD (DVCPRO/DV) recording.

Field Workflows

- ◆ Makes it easy to check images and audio recorded in the field or on a desktop. Can also output to a large screen monitor or for microwave feeds.
- ◆ Connect via USB or IEEE 1394 and you can copy files from a P2 hard disk to an external hard drive. When connected via USB files can be written from hard drive to a P2 card.
- ◆ Works well for applications that demand high reliability. Provides backup recording in any of three ways (set on the camera): recording with P2 Gear only, simultaneous recording linked with camera operation, and continuous recording beginning when the camera's recording media becomes full.
- ◆ Files in the P2 Store can be displayed as thumbnails on P2 Gear. Copy only the files you need onto a P2 card, and you can maximize use of both your P2 cards and the P2 Store.

AJ-PCD35

5-Slot P2 Card Drive with IEEE 1394b/USB 2.0 Interface

The AJ-PCD35 P2 solid-state memory drive answers the need of today's video professional for faster, easier file transfers on the desktop or in the field. This flexible, time-saving internal/external drive allows users to mount five 64GB P2 cards simultaneously for instant access and continuous editing of all recorded content in sequence.



In addition to USB 2.0, the P2 drive offers an IEEE1394b interface for high-speed transfers of DVCPRO, DVCPRO50, or DVCPRO HD content into nonlinear editing systems and servers. Compatible with Windows 2000, XP and MAC OS X, the AJ-PCD35 can be installed directly into a standard PC 5.25" bay drive enclosure or connected to a computer and local area network (LAN) via its USB 2.0 or IEEE1394b interfaces. The flexible AJ-PCD35 also serves as a stand-alone external drive when connected with laptops for in-the-field use.

- ◆ Mount up to five P2 cards at the same time. This is especially convenient for editing a continuous clip recorded by a P2 camcorder in sequence onto multiple cards
- ◆ High speed data transfer via IEEE1394b and USB 2.0 interfaces
- ◆ Internal or external PC operation - installs in a standard 5.25" bay or connects using a USB 2.0 or IEEE1394b cable
- ◆ Non-linear editor software allows the AV data (MXF files) on a P2 card to be directly loaded as clips. Supports Windows 2000/XP and Mac OS X.

AJ-PCD35 P2 Drive (Mfr # AJ-PCD35 • B&H # PAAJPCD35)**CALL**

AJ-HPM110

P2 HD Mobile Recorder/Player

Ideal for use in the field, in mobile vehicles or in the studio, the 14.4 lb. AJ-HPM110 is an ultra-reliable solid-state recorder featuring master quality recording and playback in a wide range of high-definition formats, including 1080p (native), 1080i and 720p, and in standard definition. The rugged AJ-HPM110 records in independent-frame DVCPRO HD/50/25 and DV formats as well as master-quality, full-raster 1920 x 1080 AVC-Intra (with the optional AJ-YBX200G codec board). It also offers the flexibility of up/down/cross and aspect conversion.

Six P2 card slots allows recording of continuous, extended clips in sequence onto high capacity P2 cards or output an extended play-list from five mounted cards to the sixth card slot. With six 32GB P2 cards, users can record for 4 hours in 1080p/24 in AVC-Intra 100 and up to 8 hours in 720p/24 in AVC-Intra 100 or DVCPRO HD.

The most versatile full production-quality HD field recorder at any price, the AJ-HPM110 works with any professional camera system, from tape-based digital to high-end cinema cameras with 1080/24PsF output (in full-raster 1920 x 1080 or 1280 x 720). In addition to native 1080/24p recording and support of 1080/24PsF, it offers recording in multiple frame rates, 24p pull-down removal as well as real-time playback of 720p variable frame rates for work with speed effects like over- and under-cranking.

An array of connections, including HD-SDI input/output, IEEE1394 and USB 2.0 host mode, ensures flexible operation in a wide variety of production environments. Whether connected to a Panasonic P2 HD or a tape-based camera, users can use manageable clip thumbnails to rapidly access and view content on the 9" LCD monitor for previewing, shotmarking and insert editing. An RS-422A remote allows the AJ-HPM110 to be used as a play source in an edit session, as well as an edit/copy function for writing data to multiple P2 cards.

The AJ-HPM110 offers eight 16-bit digital audio channels including 5.1-channel surround sound with audio split/dubbing features, broadcast-level editing controls including a jog/shuttle dial with 100X speed in forward/reverse and audio faders, standard analog component/composite and audio input/outputs, an SD card slot and assignable user files. For convenience, it folds like a laptop PC for easy transport, and operates on either AC or DC power.



FEATURES

Reliable, Low-Cost P2 Card with 32 GB Capacity

A compact P2 card holds up to 32 GB (AJ-P2C032RG) of data. The AJ-HPM110 records AV data as MXF files, which expedites and streamlines news gathering and program production. Because the P2 card has no moving mechanisms, it offers outstanding reliability and high resistance to impact, vibration and temperature fluctuations. Reusable many times, the P2 card reduces operating costs many times over.

Six P2 Card Slots

Can hold six 32GB P2 cards for recording over 3 hours of DVCPRO HD, 8 hours of DVCPRO HD / AVC-Intra 100 720 24p native or 4 hours of AVC-Intra 100 1080 24p native content. It will play a continuous, extended clip recorded in sequence onto six P2 cards. Or, mount five P2 cards recorded using a P2 cam, and output the playlist editing result to a sixth P2

card.

Optional Board for AVC-Intra Record/Playback

The optional AJ-YBX200G codec board adds AVC-Intra codec recording and playback capabilities to the AJ-HPM110. The codec is based on the H.264 standard, which brings superb image quality, highly efficient encoding, and outstanding editing precision. The intra-frame compression system of this codec ensures stable quality for fast-motion images, degradation-free frame-by-frame editing, and fast processing with a multi-core CPU. The high-accuracy intra prediction process and advanced, context-adaptive entropy coding technology combine to provide twice the intra-frame compression efficiency of MPEG-2.

AVC-Intra 100 records high-quality, full-pixel, full-sampling HD images (1920 x 1080, 4:2:2, 10-bit) at the same bit rate as DVCPRO HD, while AVC-Intra 50 provides DVCPRO HD-level (1440 x 1080, 4:2:0, 10-bit) at a

AJ-HPM110

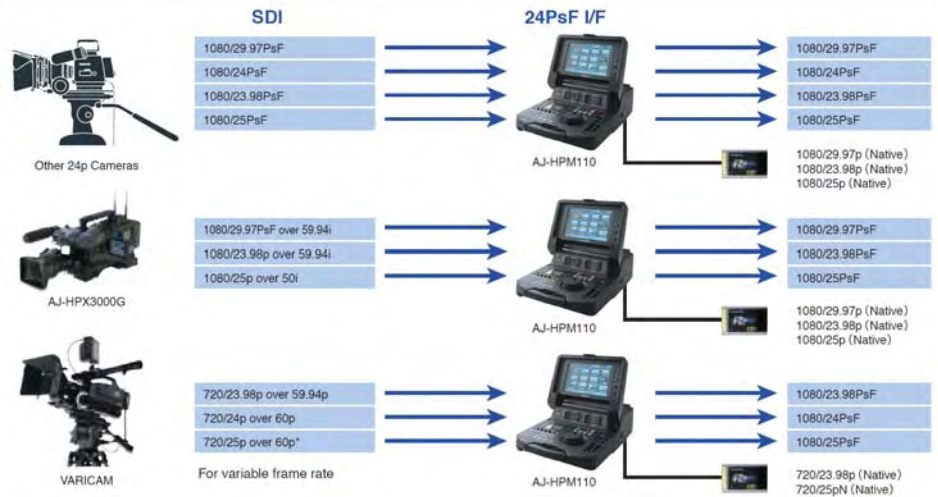
Native 24p Recording with 1080/24PsF

The AJ-HPM110 supports 1080/24p (30p/25p) recording and playback in both AVC-Intra 100 and AVC-Intra 50 modes. In HD-SDI mode, it supports 1080/24PsF input/output for use in high-end movie production. The AJ-HPM110 combines easy portability and convenient nonlinear acquisition in a 24p recorder.

HD/SD Compatibility

Supporting a wide range of HD formats, such as 1080p, 1080i and 720p, the AJ-HPM110 can be switched to 59.94 Hz or 50 Hz to adapt to the world's HD broadcasting formats. It also supports SD, and multi-codec recording (DVCPRO 50, DVCPRO, DV) is possible in both NTSC (480i) and PAL (576i).

CORRESPONDENCE CHART OF 24P/25P/30P INPUT/OUTPUT



8-Channels of 16-bit Digital Audio

AVC-Intra and DVCPRO HD offer superb 16-bit linear PCM sound quality, with eight embedded channels for recording in 5.1-channel surround sound. The AJ-HPM110 uses HD-SDI for independent input/output and editing of all eight channels. The SD mode supports four-channel recording and playback in all codec systems (DVCPRO 50, DVCPRO, DV).

Jog/Shuttle Dial and Audio Fader

Like a broadcast editor, the AJ-HPM110 is equipped with a jog & shuttle dial. You can shuttle search at 100x normal speed in forward or reverse and jog search within a range of -1x to +1x speed. Audio can be monitored up to 10x speed. Equipped with large audio fader levers, the AJ-HPM110 also can be used as an audio mixer.

Endless Recording with Loop Rec

The loop rec function continuously records video data onto available memory card areas. When the card becomes full, older data is deleted to free up the recording area, resulting in loss-less, endless recording. When used with cameras for time-sensitive, information gathering like weather and news reporting, the loop rec function holds the latest video data for a predetermined time period.

Menu Setting and User File

Using the crosshair cursor buttons or jog dial, it's easy to select menu items and make settings on the LCD monitor. A user file containing up to five groups of settings can be saved or loaded. You can assign frequently used menu items to the three PF keys, then select them instantly with the touch of a finger.

SYSTEM APPLICATIONS AND OPTIONS

FIELD RECORDING: As a Viewer and Editor



CINE-LIKE PRODUCTION: Makes the AG-HVX200 More Effective



Speed Effects with the VariCam/AG-HVX200

The AJ-HPM110 can extract active frames from VFR (variable frame rate) signals output by a VariCam and record them in 720/24p (30p/25p). The built-in monitor lets you check the VFR effect during playback. The AJ-HPM110 can also provide VariCam-like 60p pull-down output (50p from 25p signals) by playing back a video clip in a P2 card recorded in native 720/24p (30p/25p) by a P2 camcorder.

Up-/Down-/Cross-Conversion

The AJ-HPM110 can convert up or down between HD and SD or cross convert between 720p and 1080i during playback. Also featuring an aspect conversion function.

AJ-HPM110

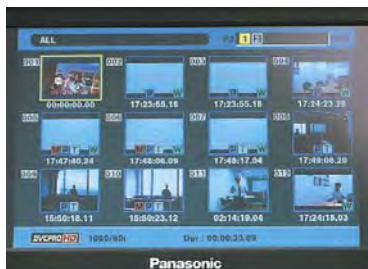
Clip Thumbnail Display on the 9" Monitor

The AJ-HPM110's built-in 9"

LCD monitor not only serves as a playback monitor, it also displays clips in a thumbnail list.

You can select a clip and play it back immediately. Each thumbnail is indicated

with a text memo and a symbol that shows the presence or absence of a shot marker. You can also set the AJ-HPM110 to display only the clips you select in the thumbnail list. The crosshair cursor buttons or jog dial let you select a thumbnail quickly and easily. You can delete, copy or merge clips, or add a shot marker and text memo. Details of each clip can be viewed in a properties window.



Playlist Allows VTR-Like Nonlinear Editing

The P2 card enables a highly advanced playlist function. You can mark up to 100 events and play them in any order. With the P2 card's

high-speed random access capability, you get seamless, continuous, on-the-spot playback with no time lag or other disruptions between cuts (clips). Edit the recordings and use the results in on-air broadcasts — a quick, easy solution for breaking news reporting and similar "when it counts" tasks. Mark In/Out points, cue, review, trim and perform other tasks just the way you would with a conventional editing controller. The display of playlist and event properties lets you handle production and correction tasks intuitively and accurately.

Overwrite (Insert) Editing with the Playlist

Source materials from another clip can be inserted into the playlist. This gives you the same result as insert editing with a VTR. The AJ-HPM110 lets you insert edit in three modes: video, audio and both.

Audio Split/Audio Dubbing with the Playlist

The AJ-HPM110's audio split feature makes it possible, using the playlist, to move the audio In point forward or backward relative to the video In point. Also, one or two additional audio channels can be recorded onto a recorded clip. This lets you connect a microphone for voiceovers. The input audio can be mixed with the playback sound.

Creating New Clips From the Playlist

Playlists can be saved as files and reused. The edit/copy function can also write out the result of playlist playback as a separate clip. The AJ-HPM110 lets you edit and copy image data over multiple P2 cards

Complete Portability

With its rugged casing and magnesium die-cast frame, the AJ-HPM110 is tough enough for go-anywhere field production. The rear connector section is protected by a cover. With the editing panel closed, the AJ-HPM110 is the size of a large briefcase and comes equipped with a metal handle for easy carrying. You can take it onboard an airplane as a carry-on.



The versatile AJ-HPM110 runs on either 100 to 240v AC or 12vDC. Plug it in and you have an outstanding desktop recorder, or take it outside and mount it in an OB van or carry it right into the field.

P2 Viewer 3.5

Free Downloadable P2 Application Software for Easy Viewing and Copying of P2 Files

Available as a free download, P2 Viewer lets you use a PC to view an manipulate clips recorded onto P2 cards. The P2 Viewer's sophisticated GUI makes it easy to access and use all P2 functions.



- ◆ Supports P2 clips (AVC-Intra, DVCPRO HD, DVCPRO 50, DVCPRO, DV) and proxy files.
- ◆ Displays shot markers, voice memos, HD 16:9 wide, and proxy clip information as thumbnail icons.
- ◆ Indicates metadata as tags in clip filtering displays.
- ◆ Displays the properties of each clip and allows certain properties to be edited.
- ◆ P2 Viewer lets you create metadata for uploading to a P2 cam using an SD card
- ◆ Lets you play, delete, move, or write text memos and voice memos.
- ◆ Lets you copy clips to other P2 cards or hard disks

AJ-HPM110

Versatile Connectivity

- ◆ Equipped with an RS-422A interface, it can be connected to a broadcasting VCR. Using an external controller, this lets you operate the AJ-HPM110 as an editing player. The Capture IN function provides control over an external VCR from the AJ-HPM110 control panel for easy production of P2 clips from tape sources.
- ◆ It is equipped with a USB 2.0 interface for host/device. In host mode, you can connect a disk drive and read and write P2 files. In device mode, you can connect a PC (or nonlinear editor) and use the AJ-HPM110 as a P2 card drive for direct transfer of P2 clips into nonlinear editing software.



- ◆ The AJ-HPM110 comes equipped HD-SDI and SD-SDI input/output. This allows it to handle a variety of operations such as line recordings, studio production and on-air broadcasting. The input system can be separately selected for video and audio with the Input Select key on the front panel.
- ◆ Equipped with various analog inputs and outputs including: composite In, HD component out/composite out (shared), composite monitor out, audio in/out (4 channels), & audio monitor out (2 channels).
- ◆ Using the P2 viewer software, create a metadata upload file containing the names of the camera operator and reporter, the shooting location and other text information, and save it onto a SD/SDHC memory card. The AJ-HPM110 has a SD/SDHC slot and reads the information as metadata.
- ◆ Has a IEEE1394 digital interface allowing connection to a DVCPRO HD camcorder or VCR, or FireStore for input or output of a DVCPRO compressed stream without image degradation. This lets you extend the AJ-HPM110's recording/backup capabilities.



P2HD 5-year Warranty Repair Program

The P2HD five year warranty repair program further enhances the P2 card's outstanding reliability and durability, and helps to reduce running costs. Simply register within one month of your purchase and you will be upgraded to a 5-Year Warranty.



AJ-HPM110 SPECIFICATIONS

Power Source:	100 V to 240 V, 50/60 Hz / DC 12V/4.8A
Weight and Dimensions (W x H x D)	14.4 lbs, 11.9 x 4.8 x 16.3"
Recording Format	AVC-Intra 100/AVC-Intra 50/DVCPRO HD/DVCPRO 50/DVCPRO/DV switchable
Audio Recording Format	AVC-Intra100/AVC-Intra50/DVCPRO HD: 48kHz/16-bits, 8CH DVCPRO 50: 48kHz/16-bits, 4CH; DVCPRO/DV: 48kHz/16-bits, 2CH/4CH switchable
Recording/Playback Time (Time shown above is when you record a series of 1 shot to P2 card.)	
AVC-Intra100/DVCPRO HD AJ-P2C032RG	32 min. (with single cards) / 192 min. (using 6 card slot)
AVC-Intra 50/DVCPRO 50 AJ-P2C032RG	64 min. (with single cards) / 384 min. (using 6 card slot)
DVCPRO/DV AJ-P2C032RG	128 min. (with single cards) / 768 min. (using 6 card slot)
Video Input / Output Signals	
Analog Composite Input	BNC (x1) / BNC (x1)
Reference Input	BNC (x2) (loop-through), Black Burst/HD tri-sync auto
SDI (HD/SD) Input/Output	BNC (x1) / BNC (x1)
HD Component Output	BNC (x3)
Composite Output	BNC (x3)
Monitor Output	BNC (x1)
Audio Inputs / Outputs	
Analog Audio Input	XLR x 4 (Line/Mic/Mic+48V switchable at CH2)
SDI Input/Output	BNC (x1 ea.)
Analog Audio Output	XLR x 4 (CH1/CH2/CH3/CH4)
Monitor Output / Headphones	RCA (x2) / Stereo Mini Jack
Other Input and Output	
Time Code Input / Output	BNC (x1) / BNC (x1)
RS-422A Input	D-sub 9-pin
DVCPRO/DV	IEEE1394, 6-pin (x1)

AJ-HPM110 P2 HD Mobile Recorder/Player (Mfr # AJ-HPM110).....**CALL**

AJ-YBX200G AVC-Intra Codec Board (Mfr # AJ-YBX200G)

This optional codec board adds AVC-Intra codec recording and playback capabilities to the AJ-HPM110. The codec is based on the H.264 standard, which brings superb image quality, highly efficient encoding, and outstanding editing precision. The intra-frame compression system of this codec ensures stable quality for fast-motion images, degradation-free frame-by-frame editing, and fast processing with a multi-core CPU.....**CALL**

16GB P2 High Performance Card (Mfr # AJ-P2C016RG • B&H # PAAJP2C016RG).....**899.00**

32GB P2 High Performance Card (Mfr # AJ-P2C032RG • B&H # PAAJP2C032RG).....**1,549.95**

AJ-HDX900

3-CCD 16:9 1080i/720p DVCPRO HD Camcorder

To produce the high-quality HD content that's in demand for worldwide HD production and broadcasting, the AJ-HDX900 records pristine 100Mbps HD images in any of 11 video formats, encompassing 60Hz and 50Hz production. Using the proven reliability of the DVCPRO HD format, the AJ-HDX900 excels in the HD production of cable and television production in any format, sports and events, digital cinematography, music and video clips, corporate video, and other content for use virtually anywhere in the world. The versatile, cost-effective

camera provides higher-quality 4:2:2 intra-frame recording that holds up through layers of special effects, graphic overlays and constant editing and processing. A progressive HD CCD and 14-bit digital processing assure outstanding image quality. Filmlike gamma curve and dynamic range stretching (DRS) function respond to high-end production needs. The AJ-HDX900 comes equipped with IEEE1394 digital output, offering quick, easy linking with IT systems such as hard disk recorders, and is compatible with an Remote Control Unit (RCU), for added operational and functional flexibility.



FEATURES

- ◆ Designed to broadcast specifications, the DVCPRO HD codec combines a video bit rate of 100 Mbps with 4:2:2 sampling and intra-frame compression. This reliable recording system also minimizes quality degradation with fast-moving subjects and is highly resistant to drop-out. HD-LP format allows 33 minutes of recording on medium-size cassette with 1/4" metal particle tape.
- ◆ The 2/3" 1-million-pixel IT 3CCD system delivers superb HD imagery combined with exceptional sensitivity of F10 at 2,000 lux.
- ◆ AJ-HDX900 can capture outstanding shots in lighting as low as 0.032 lux (+62 dB gain). The native progressive video format, which drives the CCDs continuously in progressive mode, outputs high-quality HD images that are suitable for use in filmlike production or in combination with computer graphics.
- ◆ Incorporates a 14-bit A/D conversion system as well as a high-performance digital signal processing (DSP) circuit.
- ◆ The 12-axis color correction matrix lets you make fine adjustments in specific color regions. Functions such as skin detail let you further fine-tune the image.

720p/1080i HD Multi-Format Recording

	59.94Hz area	50Hz area
1080	1080/59.94i; 1080/29.97p (over 59.94i); 1080/23.98p (over 59.94i); 1080/23.98p (over 59.94i)	1080/50i, 1080/25p (over 50i)
720	720/59.94p; 720/29.97p (over 59.94p); 720/23.98p (over 59.94p)	720/50p, 720/25p (over 50p)

- ◆ In addition to Filmlike 1 and Filmlike 2 gamma modes, it offers a third gamma mode called Filmlike 3, which produces a film-like texture that makes images more emotionally expressive. This makes Filmlike 3 a good choice for certain TV programs, music and video clips, and other content.
- ◆ DRS (Dynamic Range Stretching) function recognizes the average brightness of highlight and shadow areas, automatically adjusts the aperture and uses knee control to suppress blown highlights in the shadow areas. In scenes with mixed dark and light areas, DRS provides a wider dynamic range with minimal blown highlights and blocked shadows with no need to manually tweak the camera for each specific condition.
- ◆ It provides an easy-to-use, pushbutton super gain function with a maximum gain of +36 dB. It also has a digital super gain (in cumulative mode) utilizing variable frame rate technology and allowing an extra gain of +20 dB (at 6 fps). Unlike conventional gain adjustment, digital super gain is virtually noise-free, so picture quality is preserved intact. With super gain and digital super gain, the AJ-HDX900 allows ultra-high-sensitive shooting at up to +62 dB.
- ◆ Record full 48-kHz/16-bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic, line, wireless receiver, and others. A 5-pin XLR jack with 2-channel compatibility is used for the front mic input.

AJ-HDX900

Advanced Functions

- ◆ Store specific camera settings in built-in memory, then retrieve them when needed for quick, easy setup. Four files with settings can be stored in the camera's memory. Files can also be copied onto an SD Memory Card, allowing storage of up to eight files.
- ◆ Assign functions to each of the three user buttons. You can also customize the on-screen menu with the items you use most.
- ◆ The interval REC function records at preset intervals, which is useful in monitoring or observation applications, or when you want to create a frame-by-frame effect. Use the One-shot REC function to create claymation and other special-effect productions.
- ◆ The electronic shutter has six fixed speeds of up to 1/2000 sec, plus "Half-Speed" (180 degree) slow and synchro-scan.
- ◆ Displays a zebra pattern for contrast adjustment, auto white balance setting, and color bar output.
- ◆ ND filter (CLEAR, 1/4ND, 1/16ND, 1/64ND) and CC filter (Cross, 3200K, 4300K, 6300K).
- ◆ Enters standby mode 3 seconds after power is turned on; begins recording in 0.5 second (2 seconds in Power Save mode).
- ◆ Equipped with two BNC video outputs for flexible monitoring or line recording use.
- MON OUT: Outputs EE or VTR playback images in HD-SDI or HD-Y format
- VIDEO OUT: Switchable between HD-SDI/SD-SDI (down conversion) and analog composite (down conversion) output. A dedicated selector switch improves operating ease. The HD/SD down converter comes built-in. Aspect mode is selectable. Provides the high image quality needed for either monitoring or live on-air transmission.
- ◆ A 4-pin DC output is provided for powering the BT-LH900 or LH900A 8.4" LCD monitor, which can serve as a viewfinder.
- ◆ Shading correction function that adjusts for use of a lens extender.
- ◆ Color bar (switchable between SMPTE, ARIB, and full color) and standard audio signal (1-kHz test tone) output
- ◆ Built-in SMPTE time code generator/reader, with time code In/Out terminal
- ◆ Multiple battery support, including Anton Bauer batteries
- ◆ UniSlot wireless receiver compatible

Optional RCU and GPS

- ◆ The AJ-HDX900 comes equipped with a 10-pin RCU terminal for connecting the optional AJ-RC10G Remote Control Unit. The AJRC10G comes with a 10-pin multi-cable that can connect to the AJ-HDX900's down-conversion video OUT terminal for monitoring at the RCU. The AJ-RC10G provides detailed control of gamma, flare and the AJ-HDX900's versatile paint functions. The AJ-RC10G has a slot for SD memory card; you can save scene settings on a memory card for easy transfer to other cameras.
- ◆ By mounting the optional AJ-GPS900G GPS unit, the AJ-HDX900 can record real-time position data (latitude, longitude, and altitude) onto the tape, conforming to UMID standards.

Conveniences

- ◆ Has an IEEE 1394 (6-pin) output terminal for degradation-free output of DVCPRO HD compression data in all HD formats. Data can be captured directly to a DVCPRO HD compatible nonlinear editor. Also, connect to a DVCPRO HD digital VTR or FireStore FS-100 hard disk recorder, and you can record on the AJ-HDX900 while simultaneously making a backup copy on the connected unit.
- ◆ Power-Save Management (SAVE REC) function reduces power consumption during recording to a low 36 watts by interrupting playback-related circuits.
- ◆ Offers lightweight operation not entirely reflected in its 9.9 lb. weight. Designed to provide excellent balance while shooting, the AJ-HDX900 doesn't become front heavy when equipped with lens, battery, and wireless receiver. Maintains a natural, horizontal position when held on the shoulder or lifted by the handle. Body height is also minimized giving operators a clear view front and rear.
- ◆ Catch sudden, spontaneous scenes you may otherwise miss. When in standby mode, prerecording function continually stores in memory up to 7 seconds (presettable) of the most recent video and audio material entering the camera. Press the REC button, and the material is recorded onto the tape before real-time recording begins.
- ◆ The position, function, and shape of all switches, dials and terminals are designed to allow quick operation and prevent errors for greater reliability.
- Audio Rec level adjustment features a push lock function.
- Audio Input level adjustment (front) can be switched ON/OFF and allocated to desired channels.
- The Easy-Slide Shoulder Pad can be slid with one hand, and securely locked in position.
- A 3-point locking viewfinder mount allows precise adjustment.

AJ-HDX900 and Accessories

AJ-HDX900 (Mfr # AJ-HDX900 • B&H # PAAJHDX900).....	CALL
AJ-HVF21GF 2" HD 59.94Hz/50.00Hz Switchable Viewfinder (Mfr # AJ-HVF21GF • B&H # PAAJHVF21GF)	CALL
AJ-GPS900G GPS Unit (Mfr # AJ-GPS900G • B&H # PAAJGPS900G)	CALL
AJ-RC10G Remote Control Unit (Mfr # AJRC10G • B&H # PAAJRC10G)	3995.00
AJ-MC900G Stereo Microphone (Mfr # AJ-MC900G • B&H # PAAJMC900G)	CALL
AJ-MH800G Microphone Holder (Mfr # AJ-MH800G • B&H # PAAJMH800G)	CALL
TMRC700 Tripod Adapter Plate (Mfr # SHAN-TM700 • B&H # PASHANTM700)	429.95
AJ-SC900 Soft Carrying Case (Mfr # AJ-SC900 • B&H # PAAJSC900)	CALL
AJ-HT901G Hard Carrying Case (Mfr # AJ-HT901G • B&H # PAAJHT901G)	CALL
SHAN-RC700 Rain Cover (Mfr # SHAN-RC700 • B&H # PASHANRC700)	249.95

AJ-HD1400

DVCPRO HD-EX VCR with DVCAM and DV Playback

From field recording to nonlinear and in-studio editing, the AJ-HD1400 is an invaluable solution for HD production. It records at 100 Mbps with 4:2:2 color sampling and intra-frame compression in multiple U.S. and worldwide HD/SD formats including 1080/59.94, 1080/50i, 720/60p, 720/59.94p and 720/50p. Designed with comprehensive editing features, this AC/DC-powered recorder features HD-SDI and IEEE1394 input/output, a RS-422 9-pin interface for use in assemble/insert editing, and a built-in up/down converter. Lightweight, the AJ-HD1400 offers a handle for on-the-go use and its compact design makes it a great space-saver for desktop use and in-studio editing. From field recording to nonlinear and in studio editing, the AJ-HD1400 is a practical, reliable solution to a host of HD production needs.



FEATURES

- ◆ A flexible solution for both broadcast and cinema, the AJ-HD1400 covers all of the world's HD broadcast formats in both 1080i and 720p. It also offers playback of all DVCPRO HD sources, including 1080/23.98p over 59.94i recorded by the AJ-HDX900 DVCPRO HD camcorder and the 720/24p (and 25p) over 60p recorded by Varicam.
- ◆ Plays DVCPRO 50, DVCPRO, DV and DVCAM SD sources. (Optional AJ-CS455P Playback Adapter is needed for DV and DVCAM playback). Built-in up/down converter makes it possible to output HD data from SD sources, or SD data from HD sources using just the AJ-HD1400. HD and SD can be output simultaneously. There's also an aspect ratio conversion function for added flexibility.
- ◆ The DVCPRO HD codec combines a video bit rate of 100 Mbps with 4:2:2 image sampling and intra-frame compression. This reliable recording system also minimizes quality degradation with fast-moving subjects and is highly resistant to drop-out. The DVCPRO HD-LP format allows up to 64 minutes of recording on large or medium-size cassette with reliable 1/4" metal particle tape.
- ◆ The AJ-HD1400 can play 720/23.98p over 59.94p sources and convert them for output as 1080/23.98psf, and it can play 720/25p over 60p sources and convert them for output as 1080/25p. This provides the AJ-HDC27H Varicam user with an easy integration path to native 1080/24p or 1080/25p based program production.

Application 1

IEEE 1394 for Nonlinear Editing

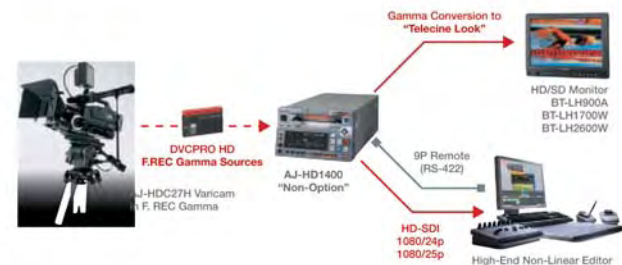
Equipped with an IEEE 1394 interface, the AJ-HD1400 connects easily to a nonlinear editing system for low-cost desktop production of native HD materials. The IEEE 1394 interface can also be used for uploading SD source data.



Application 2

Full Compatibility with AJ-HDC27H Varicam

The AJ-HD1400 can convert data from AJ-HDC27H Varicam native 720p sources for output as 1080/24p or 25p data, and it provides a built-in function for gamma conversion of F.REC cine-gamma sources. Its HD-SDI and 9-pin remote interfaces also make the AJ-HD1400 ideal for high-end cinema production with non-compressed HD nonlinear editing.



- ◆ The AJ-HD1400 is a simple, low-cost solution for producing cinema or film-like video. There are two modes (TELECINE 5, TELECINE 6) for converting source materials recorded using the F.REC mode and gamma curve into video images with a film-like tone. There's also a CINEON mode for converting data into a gamma curve suitable for film recording.
- ◆ DVCPRO HD offers superb 16-bit linear PCM sound quality, with eight embedded channels for recording in 5.1-channel surround sound. The AJ-HD1400 uses HD-SDI for independent input/output and editing of all eight channels.

AJ-HD1400

Versatile Interfaces and Functions

- ◆ Equipped with an IEEE1394 interface, the AJ-HD1400 can transfer DVCPRO compression data without quality loss to a nonlinear editing system for low-cost desktop HD editing.
- ◆ SD output is also possible. Also, HD sources can be downconverted and output as either DVCPRO 50 or DV data. You can also use the AJ-HD1400 for convenient backup recording from the AG-HVX200, AG-HPX500 or AJ-HDX900 DVCPRO HD camcorders.



- ◆ HD-SDI input/output and SD-SDI output, make the AJ-HD1400 ideal for use in an HD broadcasting system. Use the AJ-HD1400 for line recording, in-studio production, data transmission and more. A switch is provided on the front panel for selecting the HD-SDI or IEEE1394 interface for the input signal.
- ◆ RS-422 interface allows assemble/insert editing similar to a studio recorder. Control from an external editing controller allows to-the-frame editing precision (with HD-SDI connection and using TC mode). This also makes the AJ-HD1400 a good choice for high-end production in non-compression, nonlinear editing systems.
- ◆ D-Sub 15-pin encoder remote control terminal gives the AJ-HD1400 data transmission capabilities that rival many studio recorders.
- ◆ Joystick offers easy, comfortable Slow and Shuttle Search operation. For added convenience, the stick can also be used to select menu items and set the time code.
- ◆ 2-channel analog audio in, and 4-channel analog audio out.
- ◆ Built-in SMPTE time code generator/reader and time code in/out.
- ◆ Optional AJ-A95 remote controller available, with shuttle search.
- ◆ Rec inhibit switch
- ◆ Headphone output with volume control

Conveniences

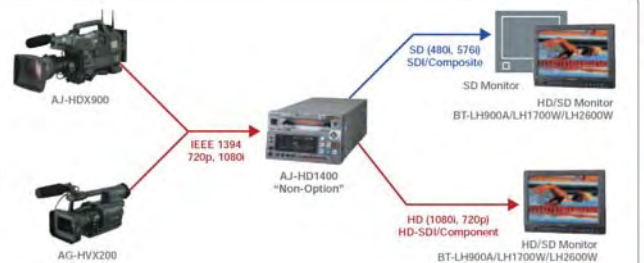
- ◆ Measuring only 8½" wide, the AJ-HD1400 is virtually the same size as a 3RU high waveform monitor, making it a space-saver in OB vans and other tight places. Weighing only 15 lbs. its easy to carry via the convenient handle.
- ◆ Operating on either AC or 12v DC, the versatile AJ-HD1400 is a great desktop or rack-mounted VCR that you can also take away for OB van or field use.
- ◆ You can assign functions from the setup menu to each of the three PF (Programmable Function) buttons provided. This customizing feature gives you quick, direct access to the operational functions you use most.
- ◆ Records and plays data that conforms to the UMID standard and contains a variety of supplementary information. This allows it to read GPS data (latitude and longitude and altitude) recorded by the AJ-HDX90 camcorder. Recorder. The AJ-HD1400 can handle VANC for a variety of user data including Closed Captioning, Dolby Dial Norm, and network signaling.
- ◆ Auto back function for seamless recording. Auto rewind, auto repeat and memory stop functions.



Application 3

IEEE 1394 for Camera Backup Recording

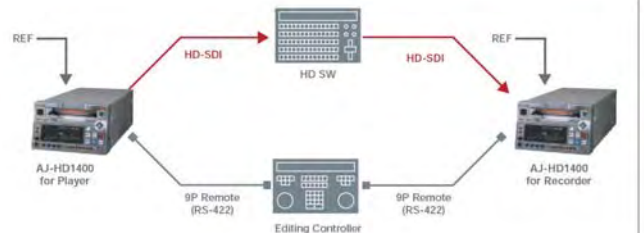
Connect to the AJ-HDX900 or AG-HVX200 DVCPRO HD camera-recorder, and the AJ-HD1400 is ready to make up to 64 minutes of digital backup recording linked to the camera's start/stop operation.



Application 4

HD-SDI/9-pin Remote Editing

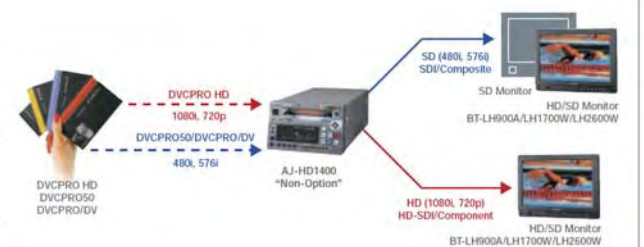
The AJ-HD1400's RS-422 9-pin remote and HD-SDI interfaces allow tape-to-tape editing with an external controller and convenient remote control of recording and data transmission.



Application 5

HD/SD Multi-Format Viewing and Conversion

Allowing playback monitoring of DVCPRO HD, DVCPRO 50, DVCPRO, AND DV (including DVCAM) sources and providing up/down/cross conversion of HD/SD formats, the versatile AJ-HD1400 lets you produce content for use in a host of applications anywhere in the world.



AJ-HD1400: Compact DVCPRO HD VCR (Mfr # AJ-HD1400 • B&H # PAAJHD1400) CALL

HVR-HD1000U

Shoulder-Mounted, Entry-Level HDV Camcorder

Designed for mobility and professional appearance, the HVR-HD1000U features a shoulder-mount design and black matte body similar to that of professional camcorders. Ideal for corporate communications, colleges, wedding and event videography, the camera is equipped with premium design characteristics, and can record high-definition 1080i on a standard mini DV tape.

A 10x Carl Zeiss Vario Sonnar lens with SteadyShot image stabilization to ensure the perfect shot every time. A built-in down-converter creates DV material, perfect for standard DVD productions. Plus, a special still photo mode is ideal for producing DVD cases and making wedding photo albums. Whether you are recording weddings and corporate communications or helping students make a documentary, the HVR-HD1000U is the best choice on the market today as an entry level professional camcorder.



FEATURES

1/3" Clear Vid CMOS Sensor

- ◆ Different from current CMOS technology, the next-generation ClearVid CMOS sensor uses a unique pixel layout rotated 45° to provide high resolution and high sensitivity. Since each pixel is positioned at this angle the result is far clearer diagonal lines. Images appear crisper, without the apparent "jaggies" that often plague video signals.
- ◆ The ClearVid CMOS sensor, coupled with an Enhanced Imaging Processor (EIP), generates stunning images. Moreover, thanks to the CMOS technology, bright objects do not cause vertical smear.

10x Zeiss T* Zoom Lens

- ◆ The HVR-HD1000U can adapt to a wide range of shooting situations and features a Carl Zeiss Vario-Sonnar T* lens with 10x optical zoom—the same lens used on high-end professional HDV camcorders. The T* lens coating suppresses unwanted reflections and faithfully reproduces colors for professional-looking results.
- ◆ Super SteadyShot (Optical) image stabilizer uses an active optical lens method that functions without any deterioration in image quality. The lens itself shifts vertically and horizontally to compensate for the polarized light axis in real time.

HDV Format

- ◆ Featuring high picture quality that can be used for HDTV program production, Sony's HDV 1080i format features 1,080 effective scanning lines (interlace scanning system) and 1,440 horizontal pixels. It uses MPEG-2 compression for video, and MPEG-1 Audio Layer II for audio compression, allowing two-channel recording with a sampling frequency of 48 kHz/16-bit.
- ◆ The HDV format adopts the same track pitch and tape speed as the DV format, thus offering the same recording time – up to 63 minutes when recording on a DigitalMaster mini cassette tape.
- ◆ HDV format is compatible with all grades of DV video tape. This allows you to use high-grade DV video tapes when high robustness is critical, or consumer grade video tapes for more economical operations. For heavy-duty applications, Sony's high-grade mini cassette tape, DigitalMaster TMPHDVM-63DM is compatible with the HDV, DVCAM, and DV formats.
- ◆ A highly advanced HD Codec Engine efficiently compresses base band HD signal data at approximately 25 Mb/s with MPEG-2 compression, while maintaining optimal HD quality.

Photo-creation Functions

While the HVR-HD1000U doesn't contain all the features you'd find in higher end professional camcorders, such as DVCAM recording/playback, XLR audio connectors, and TC preset menu, it does boast a diverse range of photo-creation functions. These photo-creation functions are available at the touch of a button. You can store high-quality still images on Memory Stick Duo media, and then use them to design DVD cases, website content, news, etc.

- ◆ In Photo mode, the HVR-HD1000U can take 6.1-megapixel 4:3 aspect images.
- ◆ You can take 4.6-megapixel (16:9 aspect) photos while you are shooting HDV video simply by pressing the photo button.
- ◆ In case you missed your still photo while recording, you can capture and save still frames from recorded video by just pressing the photo button during playback. HDV footage will give you a 1.2-megapixel still image of that magic moment.

HVR-HD1000U

Professional Design

- ◆ Lightweight and easy to use – even for beginners, the HVR-HD1000U provides a professional shoulder-mount design that allows for easy balance and stable operation.
- ◆ A special camera control ring allows any one of the following functions to be assigned to it for easy adjustment:

— Focus (default)	— AE Shift
— Brightness	— Zoom
— Video: 1/4~1/10000 sec.	— Shutter
— Photo: 1/4~1/500 sec.	— WB Shift
- ◆ The HVR-HD1000U's ergonomically designed handle contains a convenient record button and zoom control, essential for low position shooting. Two cold shoes on the front and rear of the handle let you attach two accessories like the HVL-LBP Battery Video Light and HVR-DR60 Hard Disk Recording Unit.

Professional Functions

- ◆ Smooth Slow Rec function enables slow-motion playback by capturing images at 4x faster than the normal field rate (240 fields/s). In this mode, quad-speed images are captured for three seconds, stored in the built-in buffer memory, and then recorded to tape (in either HDV or DV format) as slow-motion pictures lasting 12 seconds.
- ◆ Connections include composite (RCA), S-Video, component video (RCAx3) and HDMI output. It also has an i.LINK (IEEE1394) 4-pin connector, stereo audio output, external stereo mic input, headphone jack, LANC and a USB connector.
- ◆ A large, freely rotating 2.7" LCD touch screen provides easy viewing when the HVR-HD1000U is in a low-level position or on a tripod. The 211,200-pixel widescreen (16:9) LCD provides proper brightness and a high level of color reproduction.
- ◆ Super NightShot function uses a built-in infrared light emitter that allows you to record in zero lux light levels. It also enables night-time monitoring and surveillance.
- ◆ Uses the same infoLITHIUM L series batteries as the HVR-Z1U and HVR-V1U. With the NP-F970, almost 10 hours of operating time can be achieved thanks to the power management system and low power consumption of the ClearVid CMOS Sensor.

HVR-HD1000U HDV Camcorder (Mfr # HVRHD1000U; B&H # SOHVRHD1000U)

Includes lens hood, lens cap, microphone, windscreen, eye cup, NP-F570 battery pack, AC adapter, power cord, RCA A/V cable and 1-year warranty**Call**



HVL-LBP LED Light (Mfr # HVLLBP; B&H # SOHVLLBP)

An LED light system that features a wider uniform light for 16:9 aspect ratios and operates with daylight balanced color temperature. Powered by InfoLithium "L Series" battery such as the NP-F970 (up to 3 hours), the HVL-LBP has a dimmer dial that adjusts the light intensity. It also has a battery indicator that shows remaining battery strength. It includes a Diffuser/Condensing lens system and battery adapter**499.95**

RM-1BP LANC Remote Control (Mfr # RM1BP; B&H # SORM1BP)

The RM-1BP is a LANC remote controller that can be connected to a tripod handle and used for convenient control of zoom, focus and start/stop. Using the rocker switch to select either slide-wheel zoom or zoom speed, it is easy to perform the sort of slow zooms that are tricky using the camcorder's own controls. This added functionality is ideal for live event coverage such as concerts and sports**219.95**



VCT-PG11RMB 2-Stage Tripod (Mfr # VCTPG11RMB; B&H # SOVCTPG11RMB)

The VCT-PG11RMB is a two-stage aluminum-alloy tripod designed for use with the HVR-V1U, DSR-PD170, HVR-Z1 and HVR-A1 camcorders. It features the RM-1BP remote LANC controller on the pan arm for fingertip control of zoom, focus and recording functions, and a 75mm leveling ball-mount for rapid setups. The dual-tubed upper stage provides superior torsional resistance, and the mid-level spreader provides greatly increased vertical strength regardless of terrain**1099.95**

VCL-HG0737C High-Grade Wide-Angle Converter Lens (Mfr # VCLHG0737C; B&H # SOVCLHG0737C)

This lens converts the focal distance of the body lens by 0.7x when attached. The High Grade optics maintains superior image quality and minimizes image distortion**129.95**



VF-37CPKS 37mm Filter Kit (Mfr # VF37CPKS; B&H # SOVF37CPKS)

Consists of a Circular Polarizer, MC Protector Filters and a case**49.95**

AC-VQ1050B AC Adapter/Charger (Mfr # ACVQ1050B; B&H # SOACVQ1050B)

The AC-VQ1050B can power the HVR-HD1000u as well as charge two InfoLithium L Series batteries simultaneously. It features an LCD readout panel**149.95**



HVR-A1U

Professional HDV Camcorder

The HVR-A1U is an extremely compact and lightweight camcorder, ideal for applications where space is at a premium or extreme mobility is required. Equipped with a 1/3" 2.97-megapixel (total) CMOS sensor and an Enhanced Imaging Processor that optimizes the performance of the CMOS sensor, the camera provides outstanding high-definition picture quality.

In addition to HDV 1080i recording and playback, the HVR-A1U offers the DVCAM/DV recording and playback capabilities that are provided on current Sony DVCAM models.

Down-conversion capability of its 1080i recordings is also provided for a flexible choice of production systems in HDV, DVCAM, or DV format. Furthermore, the HVR-A1U incorporates a variety of convenient and professional features such as XLR audio input, time code capability, automatic shooting modes, and still image recording. Extremely affordable, the HVR-A1U is another powerful option for HD field acquisition for video professionals.



HDV FORMAT

- ◆ Featuring high picture quality that can be used for HDTV program production, Sony's HDV 1080i format features 1,080 effective scanning lines (interlace scanning system) and 1,440 horizontal pixels. It uses MPEG-2 compression for video, and MPEG-1 Audio Layer II for audio compression, allowing two-channel recording with a sampling frequency of 48 kHz/16-bit.
- ◆ The HDV format adopts the same track pitch and tape speed as the DV format, thus offering the same recording time – a maximum of 63 minutes when recording on a DigitalMaster mini cassette tape.
- ◆ The HDV format is compatible with all grades of DV videotape. This allows operators to use high-grade DV videotapes for applications where high robustness is critical, or consumer grade videocassette tapes for more economical operations. For heavy-duty applications, Sony's high-grade mini cassette tape, DigitalMaster TMPHDVM-63DM is compatible with the HDV, DVCAM, and DV formats.
- ◆ HVR-A1U employs a highly advanced HD Codec Engine which compresses base band HD signal data at approx. 25 Mb/s with MPEG-2 compression, while maintaining optimal HD quality.

1/3" Type, 2.97-megapixel CMOS Sensor

The HVR-A1U incorporates a 1/3" CMOS sensor with 2.97 million pixels and a 4:3 aspect ratio to produce high-quality images with high sensitivity and low noise levels. The sensor features a unique pixel design that optimizes the photo-sensor area in each pixel, as well as an advanced noise reduction technique, and offers high-speed processing capability. Since data captured using a single CMOS sensor for high-definition format recording is extremely large, it would take considerable time to transfer and process by traditional methods. With the Sony CMOS sensor, large data is processed at an incredibly high speed thanks to its flexible multi-channel readout structure. Use of the CMOS sensor also allows even large amounts of HD resolution data to be processed with amazingly low power requirements, thus making the camcorder's overall size extremely compact. Lastly, CMOS sensors can eliminate vertical smear, even though the pixel size is small.

Enhanced Imaging Processor (EIP)

The EIP is Sony's image processing IC intended for high-speed processing of large amounts of data captured by the CMOS sensor. In addition, the EIP employs the unique algorithm that first separates image data into texture patterns and brightness components and then processes these two elements independently. This makes it possible to have high details in the blacks as well as in brightly illuminated areas of the picture, delivering a clear image with a wide dynamic range even under backlight conditions. Combined use of the EIP and CMOS sensor allows the camcorder to provide extremely high image quality with a high level of gradation and detailed image reproduction.



HVR-A1U

10x Carl Zeiss Zoom Lens

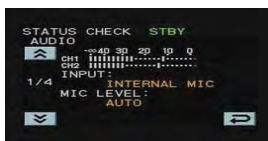
The HVR-A1U is equipped with Zeiss Vario-Sonnar T high-definition lens with 10x zoom function. Its fully coated glass is the same as used on Carl Zeiss prime lenses, producing sharp, high-contrast images, with virtually no chromatic aberration.

Electronic Super SteadyShot

The HVR-A1U's Super SteadyShot system detects horizontal and vertical movements and electronically compensates for unsteady camera handling. The active image area (the number of pixels used) in the CMOS sensor is automatically adjusted for the Super SteadyShot system to achieve the best performance at each zoom position. The HVR-A1U also offers a Full Scan mode, which allows it to capture images with the resolution of approximately two million pixels at every zoom position when the Super SteadyShot system is off. With this mode, images of higher picture quality can be obtained.

Audio

- ◆ The HVR-A1U provides two XLR audio inputs for connecting professional mics or for feeding an external-line audio source. 48v phantom power can be supplied for the external condenser microphone.
- ◆ INPUT 1 audio can be recorded on CH1 only, or on both CH1 and CH2 audio tracks, with easy selection via a switch. The HVR-A1U also comes equipped with two mics; an external directional and built-in stereo mic.
- ◆ Each input level for CH1 and CH2 can be independently adjusted and viewed with an audio level meter on the LCD monitor.



Compact & Lightweight

Extremely compact and lightweight, the HVR-A1U provides an unprecedented level of mobility in HD field acquisition. The camcorder itself weighs only 1 lb. 7 oz. and just 2 lb. 14 oz. including the lens hood, XLR audio adaptor, directional microphone, NP-QM91D InfoLITHIUM battery pack, and PHDVM-63DM DigitalMaster mini cassette tape.

High Performance Recording and Playback

- ◆ The HVR-A1U can switch between HDV 1080i, DVCAM, and DV recording, providing full flexibility to record in either standard or high-definition depending on production needs.
- ◆ Captures native 16:9 widescreen images with a high resolution of 720 x 480 pixels in DVCAM and DV formats, as well as 16:9 images in standard definition.
- ◆ The HVR-A1U can convert material from 1080i down to 480i, and output these video signals through its i.LINK interface. In addition, these signals can also be output via either analog component, composite, or S-Video connectors. This allows editing of recorded material with a non-linear editing system using current DV editing software as well as recording SD signals to an external VCR, while simultaneously recording HDV signals with the HVR-A1U. The HVR-A1U can also down-convert to 480P and output these signals through its analog component video connectors. When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox, or Edge crop.
- ◆ The HVR-A1U incorporates a high-resolution digital camera function. With its 2.97-megapixel CMOS sensor, still pictures with 1920 x 1440 pixels can be recorded to Memory Stick Duo media. Still pictures can be captured by pressing the dedicated 'Photo' button, and this can be done even when recording video to tape, without any interruptions. In addition, any desired video frame recorded on tape can be captured as a still image with 1440 x 810 pixels and recorded onto Memory Stick Duo media after video shooting.

16:9 Color/B&W LCD Viewfinder and 2.7" Color LCD Monitor

- ◆ 0.44" LCD viewfinder displays high-resolution (252,000 pixels) 16:9 widescreen images in either color or B&W (selectable to match the user's preference).
- ◆ High resolution (123,200 pixels) 2.7" color LCD monitor allows the input source to be viewed during recording or the playback picture to be checked on location in 16:9 widescreen ratio.
- ◆ Camera setting menus for audio, output signal, assign button and exposure lever functions and hours meter on the LCD monitor can be displayed on the LCD monitor with the touch of a button for easy check.
- ◆ The LCD monitor combines the characteristics of both transmissive and reflective LCD panels, providing clear viewing even in bright daylight conditions as well as in dark conditions. The LCD monitor also provides touch-panel control for easy operations.

Simultaneous Operation of LCD Monitor and Viewfinder

- ◆ Expanded focus— magnifies the center of the screen on the LCD monitor and viewfinder to about twice the size, helping manual focusing.
- ◆ Peaking— enhances the outline of the image where the camera focuses on most, and displays the enhanced outline with color in the LCD monitor and viewfinder, helping manual focusing.
- ◆ Four types of markers can be displayed on the LCD monitor and viewfinder, and can be displayed simultaneously:
- ◆ Zebra pattern — displays a striped pattern in the LCD monitor and viewfinder across highlight areas, helping manual exposure settings (100%, or 70 to 100%—in 5% steps).
- ◆ Histogram Indicator for brightness can be displayed on the LCD monitor and viewfinder, allowing operators to easily evaluate the brightness of currently captured images for proper exposure.



SAFETY ZONE



GUIDE FRAME



CENTER



4:3

HVR-A1U

Camera Operation

- ◆ Four types of zoom control functions offer diverse shooting styles:
 - “Zoom lever” located on the camera body
 - “Zoom/focus ring” on the lens body – allows fine adjustments in zoom position
 - “Zoom buttons” on the LCD monitor – convenient for low-angle shooting
 - Supplied wireless remote control
- ◆ Two types of exposure control using the Exposure Lever:
 - Manual exposure control using the Exposure Lever.
 - AE (Auto Exposure) Shift function adjusts AE level (while AE mode is activated) by 15 steps using the Exposure Lever, for more accurate automatic exposure settings.
- ◆ Tele Macro function allows capture of a macro image from a distance—ideal for shooting small moving objects. Close-up images can be shot without the camcorder casting a shadow on the subject. In addition, the image of the subject is shot in proper focus, while the background is out of focus, allowing the subject to stand out.
- ◆ Frequently used functions such as Status Check, Super SteadyShot, One Push Auto White Balance, Histogram, and Color Bars can be assigned to the Assign Button (push button), allowing operators to make rapid changes under field conditions.
- ◆ With the optional NP-QM91D InfoLITHIUM Rechargeable Battery Pack attached, the HVR-A1U can continuously record in HDV mode for up to 300 minutes, or up to 340 minutes in DVCAM/DV mode.
- ◆ Displays the attached battery's current charge level and its current remaining recording time on the LCD monitor with the touch of a button, when the power is turned off.
- ◆ SuperNight Shot allows operators to capture image in B&W using a built-in infrared light, even in no light conditions.
- ◆ Skin Tone Detail reduces detailed signal for skin color, smoothening the reproduction of human skin.
- ◆ Black Stretch allows more contrast to be seen in dark parts of the picture without affecting mid-tones while maintaining the absolute black level.

Backlight Compensation

Backlight Compensation function allows the HVR-A1U to produce natural and rich tones for both light and dark areas of an image under backlight conditions. Conventional systems of backlight compensation tend to make the details in light areas sacrificed, but the Backlight Compensation function of the HVR-A1U can deliver superior images with a very wide dynamic range by increasing only the brightness of dark areas while properly retaining the brightness of light areas.

Time Code Preset

Time code can be preset using any number in H/M/S/F (hours/minutes/seconds/frames) to record desired tape- position information. The time-code mode can be selected between “REC RUN” and “FREE RUN”. In addition to the time code, user bits can also be set. The Histogram Indicator for brightness can be displayed on the LCD monitor and viewfinder, allowing operators to easily evaluate the brightness of currently captured images for proper exposure.

Shot Transition

Shot Transition function allows for smooth automatic scene transitions. The operator can program start and end settings for zoom, focus, and white balance into the A/B buttons and, by pressing the start button, a smooth transition will take place according to the set time, because the camera automatically calculates the intermediate values during the scene transition. The start of this

function can be synchronized with the camera's REC start function.

Transition progress can be checked using an indicator displayed on the LCD monitor. In addition, a start timer function is also available, so operators don't miss a shot. This function is very useful when complex camera settings are required during the scene transition – for example, when shooting subjects moving from the background to the foreground of a scene.

Cinema-like Image Shooting

Cinematone Gamma allows operators to quickly set up and load a gamma curve with similar contrast characteristic to a film gamma curve. Cineframe feature allows picture movement to be reproduced like a film of 24 and 30 frames/s.

HVR-A1U 1/3" Professional HDV Camcorder (Mfr# HVRA1U • B&H# SOHVRA1U)

With 15MB Memory Stick Duo, Memory Stick Duo adapter, AC-L15A AC adapter, power cable, lens hood with integral lens cover, wireless remote control with battery, A/V and component breakout cables, USB cable, shoulder strap, XLR microphone adapter, short shotgun microphone with windscreen, NP-FM50 rechargeable battery pack**CALL**

HVR-A1U HDV Camcorder Kit (B&H # SOHVRA1UK)

Includes HVR-A1U HDV, VCL-HG0737C 0.7x wide conversion lens, 10 Sony PHDVM-63DM Master Digital cassettes, and Impact DV camcorder bag**2499.00**

HVR-A1U HDV Camcorder Kit (B&H # SOHVRA1UTHPA)

Kit includes an HVR-A1U HDV camcorder and an LC-ZA1TH hard shell Thermodyne shipping/carrying case with a cushioned interior**2399.95**

NP-QM71D M-Series Info-Lithium Battery Pack (Mfr# NPQM71D; B&H# SONPQM71D)

7.2v, 2760mAh with LED display**59.95**

NP-QM91D M-Series Info-Lithium Battery Pack (Mfr # NPQM91D • B&H # SONPQM91D)

7.2v, 4140 mAh with LED display**89.95**

VCL-R2037S 2x Teleconverter (Mfr # VCLR2037S • B&H # SOVCLR2037S)**39.95**

VCL-HG0737C 0.7x Wide Conversion Lens (Mfr # VCLHG0737C • B&H # SOVCLHG0737C)..**129.95**

LC-A1TH Hard Shipping/Carrying Case (Mfr # LCZA1TH • B&H # SOLCZA1TH).....**209.95**

HDR-FX1**3-CCD Consumer HDV Camcorder**

The "consumer version" of the HVR-Z1U, the HDR-FX1 records and plays back high definition video (1440 x 1080) while offering a wealth of features. Each of the camcorder's three 1/3", 16:9 CCDs include an on-chip micro-lens on top of the CCD sensor that increases the light focusing rate for focusing on the fly. The CCDs also utilize Carl Zeiss Vario-Sonnar T* optics, minimizing warping while maximizing sharpness and contrast. To meet the demands of the experienced user, the camcorder has a shooting range from 32.5mm to 390mm, a 12x optical zoom and a multitude of zoom control mechanisms, including a non-perpetual zoom ring that allows for professional-like control. Users also have the option to switch between the zoom ring, the two zoom levers as well as a variable zoom control on the handle for greater shooting flexibility. It also offers increased focusing control with expanded focus and peaking functions.

**FEATURES****Highest Quality**

- ◆ Three 1/3" 16:9 Advanced HAD CCDs with 380,000 pixels each, provides excellent detail and clarity with exceptional digital video performance. This is combined with a dichroic prism to separate color information, resulting in extremely accurate colors and greatly reduced "bleeding" and "smearing".
- ◆ The advanced CCD design allows more light to reach the imager which reduces video noise to improve S/N ratio by up to 6db (2x better than a standard CCD). Particularly effective when shooting in dark situations.
- ◆ Records and plays back both High Definition (HD) and Standard Definition (SD) video recorded on standard MiniDV cassettes.
- ◆ Equipped with a Carl Zeiss Vario-Sonnar T 12x optical zoom lens superb image clarity and color while reducing glare and flare.
- ◆ Incorporates Sony's SteadyShot Image Stabilization system to control an even higher range of shake and vibration frequencies. This optical stabilization system achieves an even higher level of smoothness without degradation of video like some digital stabilization systems.
- ◆ Budding hobbyist as well as the seasoned videographer can make their video look like a professionally-shot film. Cinematone Gamma and Cineframe functions enable high quality picture processing to create video with the warmth, softness and richness similar to a big screen movie.

High Performance

- ◆ 3.5" SwivelScreen LCD with 250K pixels makes images sharp and detailed during playback or when monitoring recording. The Hybrid Reflective-Transmissive LCD Screen provides accurate viewing in sunlight or bright light, virtually eliminating the "washout" common with other LCD Screens.
- ◆ Offers increased focusing control with expanded focus and peaking functions. In the expanded focus mode, the camera's LCD image is magnified up to 4x its original size without any loss of resolution. The peaking function emphasizes the outline of objects creating clear contrast and clarity in a scene.
- ◆ Dual independent zoom and focus rings provide precise and detailed control over the zoom and focus. Fast, intuitive framing when zooming, and finely detailed focusing is easy with the natural "feel" of the rings.
- ◆ Shot Transition allow a smooth automatic scene transition. Settings for focus, zoom, iris, gain, shutter, and white balance can be set to the A/B button and a smooth transition will take place according to the set time. This function enables the focus to gradually shift from the front of the screen to a deeper part of the screen. Thus the iris enables a smooth change of depth of field.

Conveniences

- ◆ Picture Profile allows users to set manual adjustments for a scene (color, sharpness, white balance, etc) into any one of six presets, so they can be called up at the touch of a button. Settings for various shooting conditions are offered as defaults. For total control, iris, gain, white balance, shutter speed and focus can be adjusted manually.
- ◆ Convert and/or record any analog NTSC video source to digital video via the analog inputs. Analog NTSC video can also be passed through the camcorder directly into a PC via the i.LINK interface in real-time for easy PC editing of your analog footage.
- ◆ CineFrame™ Recording provides the option of recording video at either 30 fps or with a feeling of "film-like" 24 fps.
- ◆ Three buttons on the exterior of the camcorder are user-assignable so that they can be set to the options most commonly utilized, for ease of recording.
- ◆ Includes a well-placed wide-range stereo mic for superior audio quality. Wind noise is also minimized so videographers can capture the sound they want, not the noise they don't. Additionally, sound adjustments that are usually made via a menu are now adjustable through an external audio level switch.

HDR-FX1: Includes AC-L15 Power Adaptor/ In-Camera Charger, NP-F570 InfoLITHIUM rechargeable battery, wireless remote control, lens Hood, A/V and component video cables, cleaning cassette, shoe adapter, large eye cup and shoulder strap. (Mfr # HDRFX1 • B&H # SOHDRFX1)

HVR-V1U

Compact, Handheld 3-Chip HDV Camcorder

Compact, lightweight, and extremely affordable, the HVR-V1U is a powerful tool for HD field acquisition. Equipped with a 3-chip ClearVid CMOS sensor imaging system combined with Sony's Enhanced Imaging Processor (EIP) technology for higher sensitivity and higher resolution, the HVR-V1U natively captures progressive images at 24P, 30P or 60P, while maintaining full 1080i HDV resolution. Footage shot using the progressive scan feature can be played back on any of Sony's HDV professional camcorders and VCRs, and easily edited with compatible non-linear editing systems.

Ideal for applications where space is at a premium or extreme mobility is required, additional features include Carl Zeiss 10x Vario-Sonnar T Lens with extra-low dispersion glass, huge 3.5" Clear Photo LCD plus viewing screen, XLR audio input, time code capability, various automatic shooting modes, and still picture recording.*

In addition to HDV 1080i recording and playback, it offers DVCAM/DV recording and playback as well. Down-conversion capability of its 1080i recordings is also provided for a flexible choice of production systems in HDV, DVCAM, or DV format. For added flexibility and versatility, the HVR-V1U enables simultaneous or "hybrid" recording to tape and the attachable HVR-DR60 hard-disk recording unit (optional). A 1.8" drive with a 60 GB capacity for up to 4.5 hours of recording time in either the HDV or DVCAM/DV mode, it features Smart Protection, which is combined with a built-in "shock absorber" that automatically protects it at a force of up to three Gs. A buffer memory allows up to 14 seconds of video and audio signals to be continuously buffered in the memory while the camera is in stand-by mode.



FEATURES

HDV Format

Sony's HDV 1080i format records stunning HD images with 1080 active scanning lines on DV tapes. It adopts the MPEG-2 compression format, using 8-bit digital component recording at 25 Mb/s, which is the same data rate as DVCAM/DV, enabling a long recording time on compact DV cassettes. As with the DVCAM and DV formats, the HDV format allows an i.LINK connection to compatible non-linear editors, enabling a cost-effective HD production system. The HVR-V1U uses mini cassette tapes and provides a maximum recording time of 63 minutes with the PHDVM-63DM.

3 ClearVid CMOS Sensor Imaging System

- ◆ The ClearVid CMOS Sensor uses the most advanced technologies in the semiconductor industry. Thanks to the unique grid arrangement of the photo diode sensors in which each is rotated by 45°, sensor resolution is optimized and the photosensitive surface area maximized. Unlike CCD sensors, there is no vertical smear when shooting high-intensity subjects, further reducing shooting-condition constraints.
- ◆ The HVR-V1U employs a 1/4" 3-chip ClearVid CMOS Sensor imaging system, which produces high-resolution (1920 x 1080) images with rich and natural colors. The combined use of the imaging system and EIP (Enhanced Imaging Processor) technology enables a most precise interpolation scheme. This allows a higher resolution for each R, G, and B channel than is offered by equivalent-class camcorders that resort to spatial offset techniques to improve resolution.

Enhanced Imaging Processor (EIP) Technology

- ◆ The EIP imaging processor brings out the full power of the 3 ClearVid CMOS Sensor imaging system. It handles video data in 1920 x 1080p and 4:2:2 color space for high-quality signal processing before recording to tape in the HDV format. EIP combined with ClearVid CMOS Sensor imaging system allows the HVR-V1U to provide extremely high image quality with a high level of gradation and detailed image reproduction.
- ◆ The combination of the ClearVid CMOS Sensor and the EIP technologies also result in a feature called "smooth slow rec. (recording)." Due to the speed of the camcorder's signal processing, video images can be captured at very high speeds, up to 240 fields per second, allowing very fast movements to be recorded in precise detail without creating artifacts or signal degradation.

HVR-V1U

Carl Zeiss Vario-Sonnar T* Lens

- ◆ The HVR-V1U is equipped with high-quality Carl Zeiss Vario-Sonnar T* lens. Thanks to its multi-layer coating and extra-low dispersion glass, this lens offers excellent spectral characteristics, which result in virtually negligible chromatic aberrations.
- ◆ The lens features a 20x zoom function. Moreover, a built-in digital extender increases the zoom ratio to 30x. The optional VCL-HG0868K 0.8x wide conversion lens uses the bayonet mount for instant attachment or detachment. Combining these features, operators can effortlessly capture close-up or wide-angle shots as production requires.
- ◆ Super SteadyShot system has sensors that detect horizontal and vertical movements independently. It uses a prism system located behind the lens to adjust and optically compensate for unsteady camera handling.

Creative Shooting Features

- ◆ Interval recording function records signals at pre-determined intervals (over 30 seconds) for pre-determined durations (longer than 0.5 seconds). This is ideal for recording subjects over long periods, such as the movement of clouds or the blossoming of flowers.
- ◆ The Smooth Slow Rec function enables clean slow-motion playback by capturing images at 4x faster than the normal field rate (240 fields/s). For example, when setting the function to Fine mode, quad-speed images are captured for three seconds, stored in the built-in buffer memory, and then recorded to tape (in either HDV, DVCAM, or DV format) as slow-motion pictures lasting 12 seconds. The Smooth Slow Rec function also supports Standard and Low modes, which can record high-speed images for 6 and 12 seconds, respectively.
- ◆ Shot Transition function allows for smooth automatic scene transitions. After an operator has programmed a shot's start and end settings (e.g., for zoom, focus, iris, gain, shutter speed, and white balance) and pressed the start button, a smooth transition takes place over the duration of the shot by automatically calculating intermediate setting values. Ideal when complex camera settings are required during the scene transition – for example, when panning the camcorder

Professional Features

- ◆ The HVR-V1U has a built-in down-conversion capability, allowing 1080i recordings to be output as 480i signals. The 480i signals can be output from the i.LINK connector. In addition, these signals can also be output from either the analog component, composite, or S-Video connectors. This allows 1080i recordings to be edited using non-linear editing systems running DV editing software, and viewing the 1080i recording on an SD monitor. When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox, or Edge crop.
- ◆ Can switch between HDV 1080i, DVCAM, and DV recording, providing the full flexibility to record in either standard- or high- definition format according to different production needs.
- ◆ When recording in DVCAM and DV formats, standard- definition images can be captured by the HVR-V1U in either 16:9 or 4:3 aspect ratio.
- ◆ Time code can be manually preset using any number in H/M/S/F (hours/min./seconds/frames) to record desired tape-position information. The time code mode can be selected between "REC RUN" and "FREE RUN". In addition to time code, user bits can also be set and recorded.
- ◆ The HVR-V1U has two XLR audio input connectors for connecting professional microphones or for receiving external-line audio sources. Microphone power of approximately 48v can be supplied for the external condenser microphone. INPUT 1 audio can be recorded either on CH1 only or on both CH1 and CH2 audio tracks.



Operational Versatility

- ◆ Up to 6 different picture-tonal settings can be saved in the memory with custom 12-character names as picture profiles on the HVR-V1U and displayed on the LCD monitor at the touch of a button. This allows operators to easily call up customized picture-tonal settings to suit particular shooting conditions, rather than having to readjust the camera each time. The factory default setting includes six pre-loaded picture profiles for typical shooting conditions.
- ◆ At the touch of a button, the video and audio of the last shot taken by the HVR-V1U can be instantly played back on the LCD monitor. This is achieved without even having to switch from "Camera mode" to "VTR mode". After playback, the tape is automatically cued up to the end of the last shot to continue back space editing. These features allow operators to seamlessly shoot and review material.
- ◆ Using the playback zoom function of the HVR-V1U, a selected area of the recorded HD images can be enlarged and played back on the LCD monitor and viewfinder, allowing operators to perform a detailed evaluation of the material. These enlarged images can also be output in SD format via the i.LINK and analog connectors, allowing operators to cut out parts of the HD image and use them as SD material.
- ◆ With the optional NP-F970 InfoLiTHIUM rechargeable battery, the HVR-V1U can operate continuously for up to 7 hours.

TC LINK Function for Multi-camera Operations

- ◆ Using the TC LINK function, the time code of the HVR-V1U can be synchronized with another camcorder such as the HVR-Z1U, DSR-PD170, or a second HVR-V1U. By connecting the HVR-V1U to another i.LINK compatible camcorder via an i.LINK cable and activating this function, the HVR-V1U's time code generator will switch to free-run mode and reset its time code to that provided from the connected camcorder.
- ◆ Once the time code of the HVR-V1U is synchronized, the i.LINK cable can be disconnected, and the next HVR-V1U that needs synchronized time code can be set up.
- ◆ TC LINK is a convenient function when using the HVR-V1U in multi-camera operations, such as live-event recording and stage-shooting applications.

HVR-V1U

Operational Conveniences

- ◆ The HVR-V1U is designed to be very compact and lightweight, for a high level of mobility in the field. It weighs approximately 3 lb. 6 oz. (camcorder only).
- ◆ The one-push auto focus button, which is used for temporary auto focus adjustments, is located near the EXPOSURE/IRIS dial and the zoom and focus rings.
- ◆ The side grip is located near the HVR-V1U's center of gravity. By tilting it to the front by approximately 10°, it lightens the load on the operator's wrist during shooting.
- ◆ A rubber coating is used on the bottom of the HVR-V1U's handle for slip resistance. A large space of 1 3/8" is offered below the handle for secure carrying of the camcorder, even when wearing gloves.
- ◆ Audio level dials are located on the carrying handle where they are easy to adjust, while avoiding inadvertent operation. The microphone power can be easily turned on and off via the mechanical switches.
- ◆ The HVR-V1U's motorized zoom ring and focus rings provide a smooth and natural operational feel for fine adjustments of zoom and focus settings.
- ◆ To facilitate zoom control and recording operations during low-angle shooting, an additional zoom lever and a rec start/stop button are available on the carrying handle.
- ◆ Exposure/Iris dial is located near the zoom and focus rings for convenient camera operations. The dial can be used to set the iris, AE shift, and exposure compensation functions, providing manual exposure control during auto exposure mode. The rotation direction and response for controlling these functions can be selected via the menu according to operators' preference.
- ◆ It can store and recall 20 different setting configurations using Memory Stick Duo media, and another two using its built-in memory. This is useful for example, when sharing the same setting configurations among multiple cameras.
- ◆ When shooting in 16:9 mode, markers such as 4:3, 13:9, 14:9, and 15:9 can be displayed on the LCD monitor and viewfinder. This allows scenes to be captured to match the aspect ratio of the edited master.

HVR-DR60 Hard Disk Recording Unit



Extremely compact and lightweight, the HVR-DR60 can be mounted on the HVR-V1U, thereby converting it to a 'hybrid' recording system. After a shoot, you can simply connect the unit to a compatible nonlinear editor and edit your footage instantly. It offers direct access to recordings, which makes digitizing a thing of the past. For peace of mind in the field, the HVR-DR60 secures your footage by acting as a backup

recording device, but also extends recording time to 4.5 hours. In addition, when used with the HVR-V1U, the HVR-DR60 offers additional unique convenient features:

On the LCD monitor and viewfinder of the HVR-V1U, the status of the HVR-DR60 such as connection, recording format, battery level, remaining recording time, recording folder name, etc. can be checked. This keeps operators informed of both the camcorder and hard drive status, without taking their eyes away from what is being shot.

To trigger recording of the HVR-DR60, the HVR-V1U sends the same rec start/stop trigger that controls its tape transport to the HVR-DR60. This feature offers operators the choice of tapeless operation or hybrid operation.

HVR-DR60 (Mfr # HVRDR60 • B&H # SOHVRDR60)**CALL**

Creative Versatility for Cinema & Drama Productions

- ◆ Thanks to the 3 ClearVid CMOS Sensor imaging system and Enhanced Imaging Processor (EIP) technology, the HVR-V1U supports 24p (23.978 fps), the frame rate of film and 30p (29.97 fps) progressive scan modes, in addition to typical 60i. The signals generated by the 3 ClearVid CMOS Sensor imaging system are processed in the progressive domain as 1920 x 1080p signals, allowing high-resolution progressive footage to be captured.
- ◆ The 24p progressive scan signals are recorded to tape as 60i signals through means of 2-3 pull-down. This 2-3 sequence HDV material can be reverted to its original 24p form, as captured by the camera, using a compatible nonlinear editor. Similarly, a 30p signal is recorded as a 60i signal by dividing each frame into two fields. This approach allows 24p and 30p progressive footage to be played back or fed to an editing suite using any of the thousands of Sony HDV solutions already in use throughout the world.
- ◆ The HVR-V1U offers a choice of various gamma setting functions, which makes it ideal for use in creative productions such as cinema films and dramatic programs.
 - Cinematone Gamma allows operators to quickly set up and load a gamma curve with similar contrast characteristics to a film gamma curve. Three gamma curves can be selected from "OFF" (normal gamma), "TYPE1", or "TYPE2".
 - Black Stretch enhances video signal levels in dark picture areas for clear reproduction of dark contrast, without sacrificing highlight contrast of the same picture. Black Compress suppresses video signal levels in dark picture areas to emphasize the depth of dark picture tones.
 - The knee correction function compresses the wide dynamic range acquired by the CMOS sensors into the standard video-level range. The HVR-V1U can select knee points from high, middle, low, and auto modes to meet various production needs.
- ◆ Cinematone Color function provides cinematic color for deep-color and high-contrast images approaching cinema film. Combined with the Cinematone Gamma function, more cinema-quality images can be captured.
- ◆ The HVR-V1U can display setting values in a format that film operators are familiar with:
 - The focal length can be displayed on the LCD monitor and viewfinder in either feet or meters
 - Shutter speeds can also be displayed on the LCD monitor and viewfinder in units of rotation angles converted from shutter speeds.

HVR-V1U

Operational Conveniences

- ◆ Iris, gain, shutter speed, white balance, and menu buttons are on the left side of the HVR-V1U's rear panel to avoid them being accidentally pressed during operation.
- ◆ Video connectors such as i.LINK, analog component and multi-AV output connectors are located on the right side of the HVR-V1U's rear panel where they don't get in the way of camera operations during shooting.
- ◆ HDMI output connector transfers non-compressed, high-definition digital video and audio signals from and to the HVR-V1U and other HDMI-equipped devices, such as consumer HDTV monitors, via a single cable.
- ◆ The HVR-V1U is equipped with a widescreen (16:9) high-resolution (211,000 pixels) color LCD viewfinder. Operators can choose to display pictures in color or in black and white. In addition to a standard-size eye cup, a large-size eye cup is also supplied. This can be attached to the standard-size eye cup to provide superb light-blocking capability, easy focusing, and more comfortable use of the viewfinder.
- ◆ Functions frequently used in the field can be assigned to six Assign Buttons (push buttons), allowing operators to make rapid changes depending on the shooting conditions. These include include: Last Scene Review, Marker, Hyper Gain, Digital Extender, All Scan Mode, Spot Light, Focus Infinity, Rec Review, End Search, Index, Peaking, SteadyShot, Color Bar, Back Light, Fader, Display, and Picture Profile.

Additional Features

- Still picture recording to Memory Stick Duo media
- 2-channel Independent audio level control with audio level meter on LCD monitor
- Simultaneous operation of LCD monitor and viewfinder,
- AE Shift, Hyper Gain, All Scan Mode,
- AF Assist, Expanded Focus, Peaking,
- Status Check,
- Battery Info,
- Histogram Indicator,

HVR-V1U HDV 1080i/24p Cinema Style Camcorder (Mfr # HVRV1U • B&H # SOHVRV1U)

Includes AC-L15 AC adapter/charger, NP-F570 InfoLITHIUM rechargeable battery, ECM-NV1 monaural electret condenser microphone, A/V and component video cables, USB cable, lens hood with lens cover, large eyecup and RMT-831 wireless remote commander**CALL**

NP-F970 (Mfr # NPF970 • B&H # SONPF970)

Small and lightweight 7.2v, 6600mAh InfoLITHIUM rechargeable battery**99.95**

0.8x W/A Conversion Lens: Designed for the HVR-V1U, this lens features high-resolution, coated optics, and a 20% wider angle of view for shooting in tight spots or creative expression. It securely mounts to the camera's lens via an ingenious front bayonet type mount. The included sun shade, front and back lens cap protect it from damage. A convenient carrying pouch keeps it safe when you're on the move. (Mfr # VCLHG0862K • B&H # SOVCLHG0862K)**479.95**

LCD Hood: Clips onto the HVR-V1U's LCD panel to improve visibility, or when you want to prevent light from the LCD monitor leaking out into the surroundings. It is designed to fold up while still attached to the monitor, so it can also serve as an LCD cover when in transit. (Mfr # SHL35WBP • B&H # SOSHL35WBP)**54.95**

2-Stage Tripod: Features the RM-1BP remote LANC controller on the pan arm for fingertip control of zoom, focus and recording functions, and a 75mm leveling ball-mount for rapid setups. The dual-tubed upper stage provides superior torsional resistance, and the mid-level spreader provides greatly increased vertical strength. (Mfr # VCTPG11RMB • B&H # SOVCTPG11RMB)**1099.95**

Tripod Adapter: With an accessory mount for hard disk recorders and wireless receivers which rotates 270° for varying application requirements. (Mfr # VCT1BP • B&H # SOVCT1BP)**169.95**

HVL-LBP LED Light: Features a wider uniform light for 16:9 aspect ratios and operates with daylight balanced color temperature. A dimmer dial adjusts the light intensity, and an indicator shows the remaining battery strength. (Mfr # HVLBP • B&H # SOHVLLBP)**499.95**

RM-1BP LANC Remote Control: Can connect to a tripod handle and used for convenient control of zoom, focus and start/stop. Using the rocker switch to select either slide-wheel zoom or zoom speed, it is easy to perform the sort of slow zooms that are tricky using the camcorder's own controls. (Mfr # RM1BP • B&H # SORM1BP)**219.95**

AC-VQ1050B AC Adapter/Charger: Charges two InfoLithium L Series batteries simultaneously. It features an LCD readout panel. (Mfr # ACVQ1050B; B&H# SOACVQ1050B)**149.95**



HVR-Z1U

Compact, Handheld 3-CCD HDV Camcorder

Featuring three high-resolution 1/3" megapixel CCDs, the HVR-Z1U captures and plays back 1080i HD signals, while maintaining DVCAM/DV recording and playback capabilities.

What's more, the HVR-Z1U offers a down-conversion capability of its 1080i recordings. These features allow the HVR-Z1U to be active in HD systems, while providing backward compatibility with SD systems. Operators can continue to acquire in DVCAM or DV formats, and switch to the HDV format as needed, or acquire in HDV 1080i from the start and use the down-conversion capability as required. In addition to a unique camcorder body design with a multitude of camera features, the HVR-Z1U offers maximum operability in the field, as well as opening up a new range of opportunities for creative shooting. Combining these features with HD picture quality, the HVR-Z1U is a powerful acquisition tool for a wide variety of applications — video journalism, wedding and event videography, corporate and training productions, digital movie-making, and broadcast newsgathering.



FEATURES

Three 1080i HD CCDs

- ◆ Three 1/3" widescreen 16:9 1080i HD CCD combined with precise spatial offset technology and interlace scanning system achieves a resolution of 1440 x 1080.
- ◆ The HVR-Z1U incorporates a high-integrity 14-bit HD DXP (Digital eXtended Processor) which features a 14-bit A/D converter and advanced camera processing. The DXP can process the high-quality images captured by the 1080i HD CCDs with greater precision than conventional A/D converters.
- ◆ In addition, the higher resolution allows the contrast to be reproduced more faithfully in mid-tone areas of the picture. The 14-bit HD DXP also enables highly sophisticated image controls, such as Cinematone Gamma, and Color Correction functions.

12x Zeiss Vario-Sonnar T* Zoom

- ◆ Equipped with a 12x Zeiss Vario-Sonnar T* high definition lens, the HVR-Z1U produces sharp, high-contrast images, with virtually no chromatic aberration. The lens has a wide viewing angle, and a focal length ranging from 32.5 to 390mm in 16:9 mode, and from 40 to 480mm in 4:3 mode, thanks to a large filter diameter of 72mm.
- ◆ Employs Super SteadyShot system, whereby horizontal and vertical movements can be detected independently by the sensors. The prism system located behind the lens adjusts and optically compensates for unsteady camera handling, and a choice of SteadyShot function types—'Hard', 'Standard', 'Soft' or 'Wide Conv' (when using the optional VCL-HG0872 lens)—can easily be selected.

Multi-Format Record/Playback

- ◆ The HVR-Z1U can switch between HDV 1080i, DVCAM and DV recording, providing full flexibility to record in either SD or high definition depending on production needs. In addition, it can be switched between 60i and 50i modes (NTSC and PAL), allowing for flexible productions without the need for two separate camcorders.
- ◆ The HVR-Z1U can convert material from 1080i down to 480i and 576i, and output these video signals via its i.LINK interface, or through its analog component, composite, or S-Video connectors. This allows editing of recorded material with a non-linear editing system using DV editing software as well as recording SD signals to an external VCR, while simultaneously recording HDV signals. The HVR-Z1U can also down-convert to 480p and 576p and output these signals through its analog component video connectors.
- ◆ When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox or Edge crop.

HDV Format

Sony's HDV 1080i format records stunning HD images with 1080 active scanning lines on DV tapes. It adopts the MPEG-2 compression format, using 8-bit digital component recording at 25 Mb/s, which is the same data rate as DVCAM/DV, enabling a long recording time on compact DV cassettes. As with the DVCAM and DV formats, the HDV format allows an i.LINK connection to compatible non-linear editors, enabling a cost-effective HD production system. The HVR-Z1U uses mini cassette tapes allowing recording of up to 63 minutes.

HVR-Z1U

High Performance Shooting

- ◆ To facilitate zoom control and recording operation during low-angle shooting, an additional zoom lever and a rec start/stop button is available on the carrying handle. Zoom speed can be selected from H, L or OFF via the three-position slide switch located on the side of the handle. The H and L settings can be selected from values of 1 to 8 via the menu.
- ◆ In addition to 2 zoom levers on the carrying handle and on the side of the camera body, a motorized zoom ring, equipped with stops and barrel marking, is located on the lens body. Turning this zoom ring allows for fine adjustments in zoom position settings, providing operability and feeling comparable to manual zoom operations. Furthermore, the supplied wireless remote control can be used for external control.
- ◆ AF (Auto Focus) Assist function allows operators to focus on desired subjects when using the AF mode. Operators can manually change focus positions using a focus ring during AF mode, allowing AF reference focus positions to be shifted to manually changed positions. This is useful, for example, when operators want to focus on subjects far away through a window.
- ◆ At the touch of a button, the center of the screen on the LCD monitor and viewfinder can be magnified to about twice the size, making it easier to confirm focus settings during manual focusing.
- ◆ To avoid missing a single recording opportunity, the time until the recording restarts from stop mode can easily be shortened. When standby mode continues for more than three minutes, it is automatically switched to stop mode.
- ◆ Hyper Gain function automatically boosts the gain level up to +36 dB at the touch of an Assign Button. This makes it possible to shoot in extremely low-light conditions.
- ◆ AE (Auto Exposure) override function allows users to manually change exposure settings during the AE mode via an iris dial. This allows operators to set the desired exposure settings immediately, with no need to set all exposure settings modes to manual.
- ◆ All Scan Mode is similar to Underscan Mode displaying all effective scanning lines in the screen. It is useful to check pictures for web applications.

Widescreen Color Viewfinder and LCD Monitor

- ◆ The 0.44" color LCD viewfinder displays high-resolution (250,000 pixels) color pictures in widescreen 16:9 ratio. Operators can also select to display pictures in black and white. The size of the eyepiece has been increased to allow viewing of images even while wearing glasses. The supplied large-size eye cap provides superb light-excluding capability, and allows easy focusing and comfortable use of the viewfinder.

- ◆ High resolution (250,000 pixels) 3.5" color LCD monitor allows for viewing of the input source during recording, or checking the playback picture on location in a widescreen 16:9 format.



The large screen is also helpful in setting menus or audio recording levels, as well as monitoring the camera and audio status while mounted on a tripod. The hybrid LCD monitor combines the characteristics of both transmissive and reflective LCD panels. The transmissive LCD panel is well suited to dark conditions, such as those found in the studio, while the reflective LCD panel provides clear viewing in bright conditions, such as under strong sunlight.

- ◆ The LCD monitor and viewfinder can be used simultaneously. The LCD monitor is located above and in front of the handle, which places it on the same level as the viewfinder. This allows operators to perform focus adjustments on the subject with the LCD viewfinder, while adjusting the color balance with the LCD monitor.
- ◆ The Peaking function can perform an effect on pictures displayed in the LCD monitor and viewfinder that allows operators to easily adjust focus positions. It enhances the outline of the image, which the camera focuses on most, and colors the outline to make it more visible. Enhance levels can be selected from a choice of High, Middle and Low, and the outline color from Red, White and Yellow.
- ◆ At the touch of a button, the center of the screen on the LCD monitor and viewfinder can be magnified to twice the size, making it easier to confirm focus settings during manual focusing.
- ◆ Three types of markers can be displayed on the LCD monitor and viewfinder by pressing an Assign Button:



Center: Displays a marker at the center of the screen

4:3: Displays a marker in the shape of 4:3 when using a widescreen monitor

Safety Zone: Displays a marker indicating the range that can be displayed on a standard TV (4:3 and 16:9) for home use (80%)

Optional HVR-DR60 Hard Disk Recording Unit

Via a simple i.LINK connection, the HVR-DR60 Hard Disk Recording Unit allows recording of HDV1080i streams from the HVR-Z1U. The 1.8" internal HDD offers a large capacity of 60GB, which translates into an impressive 270 minutes (4.5 hours) for both HDV and DVCAM recordings. Using the hybrid recording function, in which video and audio material is recorded simultaneously to hard disk and tape, you can be assured that you won't lose an important shot. Weighing a mere 8 oz.

(without battery), the HVR-DR60 adds little weight while adding considerable functionality to the HVR-Z1U. Rubber shock absorbers hold the HDD unit in place, preventing external shock being transmitted when the HVR-DR60 chassis is subject to impact.

HVR-DR60 (Mfr # HVRDR60 • B&H # SOHVRDR60) **CALL**



HVR-Z1U

Operational Conveniences

- ◆ Functions frequently used in the field can be assigned to six Assign Buttons allowing users to make rapid changes under field conditions. Assignable functions include AE Override, Hyper Gain, All Scan Mode, White Balance Outdoor Level ($\pm$), Back/Spot Light, Marker, Rec Review, Steady Shot, Index Mark (index recording), White/Black fader, audio dubbing (DVCAM format only), display, and color bars (two types).
- ◆ i.LINK (4-pin) interface allows for one-cable digital transfer of audio, video, and command signals to a non-linear editing system in the HDV, DVCAM and DV formats.
- ◆ With the NP-F970 InfoLITHIUM rechargeable battery, the HVR-Z1U can continuously record in HDV or DVCAM/DV mode for 360 minutes (6 hours).

- ◆ The optimum weight distribution and balance of its body make the HVR-Z1U particularly suitable for hand-held shots, and also allows users to easily carry the camera without causing fatigue. In addition, the camcorder can sit comfortably on the shoulder simply by attaching the optional VCT-FXA Shoulder Brace.



- ◆ With the touch of a button, operators can display settings menus for audio, output signal and camera, as well as Assign Button and Picture Profile functions, superimposed over the video on the LCD monitor, allowing for easy status or settings checks during recording, playback and feeding.
- ◆ Personal Menu function allows users to make a customized settings menu with frequently used menu items, and to easily recall it at the touch of a button. Up to 28 menu items each for the camera and VCR settings can be added and their order can be arranged in the menu.
- ◆ By connecting the HVR-Z1U to an HDV 1080i, DVCAM or DV compatible VCR or HDD recorder with an i.LINK interface, operators can control the HVR-Z1U and the connected device externally, to perform simultaneous recording and sequential recording.

Unique Features for Creative Shooting

- ◆ Shot Transition function allows for smooth automatic scene transitions. The operator can program start and end settings for zoom, focus, iris, gain, shutter speed and white balance into the camera's A/B buttons and, by pressing the start button, a smooth transition will take place according to the set time, because the camera automatically calculates the intermediate values during the scene transition. The transition progress can be checked using an indicator displayed on the LCD monitor. This is very useful when complex camera settings are required during the scene transition – for example, when shooting subjects moving from the background to the foreground of a scene. In addition, a start timer function is also available for the Shot Transition function, helping to prevent operators from missing a shot. Transition types can be selected from a choice of "LINEAR", "SOFT STOP", and "SOFT TRANS", transition time can be set from 2 to 15 seconds, and the start delay time can be selected from 5, 10 and 20 seconds.
- ◆ Cinematone Gamma allows operators to quickly setup and load a gamma curve with similar contrast characteristics to a film gamma curve. Three gamma curves can be selected from "Off" (normal gamma), "Type 1", or "Type 2".
- ◆ The Cineframe feature allows picture movement to be reproduced like a film. Combined with the use of the Cinematone Gamma feature, this allows a cinematic and film-like look to be achieved. Three types of Cineframe modes can be selected.
 - The Cineframe 24 and Cineframe 30 features are used in 60i mode and can reproduce the picture movement like films of 24 or 30 frames/second in HDV, DVCAM and DV formats.
 - The Cineframe 25 feature is used in 50i mode and can reproduce the picture movement like films of 25 frames/second in HDV, DVCAM and DV formats.
- ◆ Color Correction offers two functions for creative shooting. The Color Extraction function can retain up to two desired colors of monitored pictures in the screen by designating color hue, saturation and range, while making the other colors black and white. This provides interesting in-camera color effects that can emphasize particular colors in the screen. In addition, the Color Revision function can change the hue of only the colors designated by Color Extraction, while retaining the hue of the other colors. This also provides interesting in-camera effects.



HVR-Z1U HDV Camcorder

(Mfr # HVRZ1U; B&H # SOHVRZ1U) **CALL**

NP-F970

Info-Lithium Battery Pack: 7.2v, 6600mAh
InfoLITHIUM rechargeable battery.

(Mfr # NPF970; B&H # SONPF970) **99.95**

VCL-HG0872

72mm 0.8x High Grade Wide Angle Converter

Lens: Provides an even wider angle of coverage (0.8x) for those times when you are shooting in a confined space or for shooting scenery.

(Mfr # VCLHG0872; B&H # VCLHG0872) **369.95**

VCT-1170RM

Tripod with Two-way Head and Remote: With two-way head. Supports up to 11 lb. and features ball-levelling and a four function video remote for lightweight camcorders.

(Mfr # VCT1170RM; B&H # SOVCT1170RM) **329.95**

HVR-Z1U

Picture Profile

- Up to six different picture-quality settings can be registered in the memory as picture profiles and displayed on the LCD monitor at the touch of a button. This function allows operators to easily call up customized picture-quality settings to the camera to suit various shooting conditions, saving on the labor needed to reset the camera each time for the same conditions. At the default setting, 6 picture profiles are registered with, recommended setting for typical shooting conditions.

Audio

- The HVR-Z1U has a built-in high-quality stereo microphone as well as two XLR audio inputs for connecting professional mics or feeding an external-line audio source. 40v phantom power can be supplied for the external condenser microphone. INPUT 1 audio can be recorded on CH1 only, or on both CH1 and CH2 audio tracks, with easy selection via a switch.



- Input level for CH1 and CH2 can be independently adjusted using two audio level



dials on the camera and viewed with an audio level meter on the LCD monitor.

Time Code

- Time code can be preset using any number in H/M/S/F (hours/minutes/seconds/frames) to record desired tape-position information. Time-code mode can be selected between "REC RUN" and "FREE RUN". In addition to the time code, user bits can also be set.

Battery Info

- Information on a compatible battery pack can be displayed on the LCD monitor with the touch of a button. The battery's current charge level and its current remaining recording time can be checked when the power is turned off. The remaining recording time available for the selected recording format also appears.

CAMCORDER FEATURES	HVR-A1U	HVR-V1U	HVR-Z1U
Image Sensors, 1/3-inch type	One CMOS	3-CMOS	Three CCDs
Sensor native aspect ratio	4:3	16:9	16:9
Sensor pixels	2.97 MP	1.04 MP	1.04 MP
Carl Zeiss Vario-Sonnar Optical Zoom Lens	10x	20x	12x
Zeiss T* (T-star) coatings	✓	✓	✓
Filter thread	37mm	62mm	72mm
Super SteadyShot image stabilization	Electronic	Optical	Optical
Manual and auto zoom	✓	✓	✓
Manual and auto focus	✓	✓	✓
Programmable Shot Transition	3 variables	6 variables	6 variables
HDV 1080i record/play	✓	✓	✓
DVCAM and DV SP record/play	✓	✓	✓
Still photo recording	✓	—	—
Switchable 50i/60i	—	—	✓
Progressive Recording	480p	—	480p, 576p
CineFrame modes	24F, 30F	24P, 30P	24F, 25F, 30F
SMPTC time code	✓	✓	✓
Downconversion to SD	✓	✓	✓
Aspect ratio squeeze, crop or letterbox	✓	✓	✓
i.LINK IEEE 1394 DV/HDV interface	✓	✓	✓
Hybrid widescreen LCD monitor (measured diagonally)	2.7"	3.5"	3.5"
Expanded Focus	✓	✓	✓
Center, Safety and 4:3 markers	✓	N/A	✓
All Scan Monitoring	✓	✓	✓
Histogram	✓	✓	—
Assignable buttons	1	6	6
Low light mode	Super Night-Shot	—	Hyper Gain
Cinematone Gamma modes	2	2	2
Black Stretch	✓	✓	✓
USB Port	✓	✓	—
HDMI Output	—	✓	—
Personal Menu	✓	✓	✓
Balanced XLR audio input	✓	✓	✓
Separate left/right level	✓	✓	✓
Separate left/right metering	✓	✓	✓
Separate left/right AGC	—	✓	✓
Built-in pro microphone	✓	Includes ECM-N1	✓
Dimensions (WxHxD)	5 x 9 ¹ / ₈ x 12 ³ / ₈ "	NA	6 ¹ / ₈ x 7 ¹ / ₈ x 14 ¹ / ₈ "
Weight (not including battery and cassette)	1 lb., 7 oz.	3 lb. 6 oz.	4 lbs., 10 oz.

HVR-Z7U • HVR-S270U

Handheld and Shoulder-Mount Interchangeable Lens HDV Camcorders

Ideal for documentaries, electronic newsgathering, independent production, music videos, web streaming, and more, the HVR-Z7U and HVR-S270U deliver the enhanced functionality professionals have been waiting for—interchangeable lens system, native progressive recording, and solid-state memory recording. Incorporating a 1/3" bayonet joint interchangeable lens systems, the HVR-Z7U and HVR-S270U also feature 1080, 24p and 30p native progressive recording, increased sensitivity for low-light conditions, and offer the option of hybrid solid-state recording when using a supplied memory-recording unit. This allows a streamlined nonlinear editing workflow to be achieved, with HDV/DVCAM/DV file recording on a CompactFlash card.

They camcorders use Sony's 1/3" 3 ClearVid CMOS Sensor system enhanced by Exmor technology (similar to the imaging technology used in the Sony PMW-EX1) providing superb performance in low-light environments with sensitivity of 1.5 lux. They can switch between 1080p, 1080i in the HDV format, DVCAM, and DV recording, and both can down-convert material from HD to SD, and output the video signals through their i.LINK interface and other SD output connectors. The HVR-Z7U has an HDMI output, the HVR-S270U has HD/SD-SDI output.

They also use Sony's XtraFine LCD and XtraFine electronic viewfinder for high-resolution and high-contrast images with remarkable color reproduction. The HVR-S270U features a new LCD/EVF configuration named "Dual Finder," where the LCD located on the EVF enables multiple styles of operation.

Both come standard with a 12x high-quality, multi-purpose Carl Zeiss lens for HD video, with a Vario-Sonnar T coating to reduce reflections. A specially designed 8x wide-angle lens is also available as an option. These lenses give them the same functionality as Sony's HVR-Z1U and HVR-V1 fixed-lens camcorders with built-in features such as auto-focus, optical stabilizer, and*

automatic back-focus adjustment. Using a special adaptor, users can also



HVR-S270U



HVR-Z7U

FEATURES

- ◆ They record HDV1080i using one of the "MPEG2 Long GOP" compression profiles. The highly efficient and robust "MPEG2 Long GOP" codec - which is also used in the Sony XDCAM HD and XDCAM EX series - enables users to record stunning-quality HD video. The HVR-Z7U provides over 60 minutes of recording time using the mini DV videotape. While the HVR-S270U has the additional option of using standard-size cassettes that provide over 4.5 hours of continuous recording.
- ◆ The HVR-Z7U and HVR-S270U can switch between HDV 1080i, DVCAM, and DV recording, providing full flexibility to record in either standard definition or high definition depending on your production needs.

HDV Format

- ◆ Native editing in the HDV format is supported by many non-linear editing packages. Additionally, HDV signals can be recorded as a file on non-tape media—on a standard CF card, for example, when using the supplied CF Memory Recording Unit. The optional 60GB HVR-DR60 can be used in the same manner, providing 4.5 hours of recording time.
- ◆ The HVR-Z7U and S270U can convert material from 1080i down to 480i, and output the video signals through their i.LINK interface and other SD output connectors. This allows users to edit recorded material with a compatible nonlinear editing system using current DV editing software, as well as record SD signals to an external VTR.

HVR-Z7U • HVR-S270U

1/3" 3 ClearVid CMOS Sensor System

They incorporate a newly developed 1/3" 3 ClearVid CMOS Sensor system which has 45° rotated pixels on each chip in order to increase the signal density, while each pixel maintains sufficient surface area. In combination with Enhanced Imaging Processor (EIP), the 3 ClearVid CMOS Sensor system achieves high resolution, high sensitivity, wide dynamic range, and excellent color reproduction. The pixel shift interpolation technique has been traditionally used in small 3CCD camcorders. However, it normally requires the combination of all three color element (RGB) signals to maximize resolution. If an object lacks one or more color elements, the resolution of the object may be degraded. The 3 ClearVid CMOS Sensor system is different. It can always produce maximum resolution, regardless of the balance between color elements, thanks to its unique and sophisticated interpolation technology.

Enhanced Functionality via "Exmor" Technology

Both the HVR-Z7U and HVR-S270U offer cutting-edge features, such as "Exmor" technology (used in the PMW-EX1) which utilizes the full potential of the 3 ClearVid CMOS Sensor system.

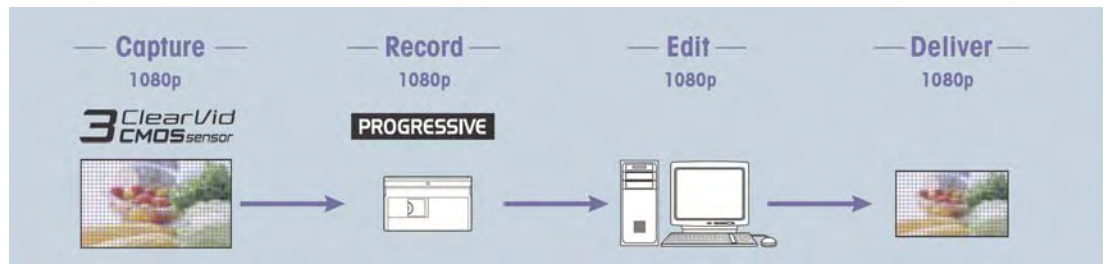
Multiple A/D (analog to digital) converters on each pixel row convert analog signals to digital as soon as they are generated, unlike traditional technology that only has one A/D converter on each chip. The technology of "Exmor" can eliminate the influence of external noise that enters the signal chain during transfer to the A/D converter, resulting in high-quality digital signals with extremely low noise. This significantly enhances shooting in low-light environments.

Adopting this groundbreaking technology enables the HVR-Z7U and HVR-S270U to achieve low light sensitivity of just 1.5 lux (at 1/30 shutter,

SELECTABLE PROGRESSIVE SHOOTING MODES

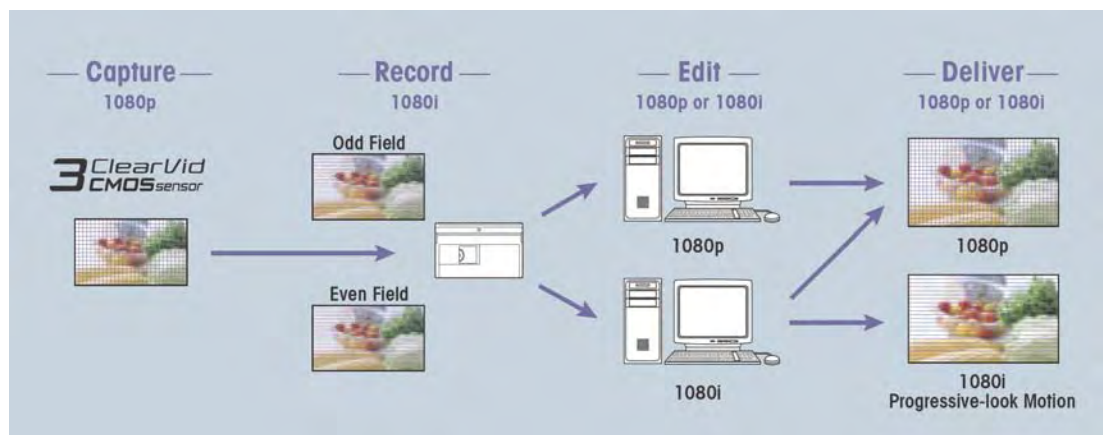
24p/30p HDV Native Progressive Recording Modes

The HVR-Z7U and HVR-S270U feature new 24p/30p HDV native progressive recording modes. The 3 ClearVid CMOS Sensor system and EIP create true 1080p images, which can then be recorded as progressive signals by the HVR-Z7U and HVR-S270U camcorders in HDV format. The progressive HDV stream can be output from an i.LINK connector and used for progressive editing with compatible non-linear editing (NLE) software. Native progressive recording modes are suitable for output to film, CG composition, viewing on a progressive monitor, or as an Internet movie.



24p/30p Progressive Scan Modes

In these modes, the 1080p image captured by the 3 ClearVid CMOS Sensor system is also recorded as an interlaced signal by dividing each frame into two fields. This enables compatibility with current editing and monitoring equipment that only accept interlace signals, while maintaining the quality of the 1080p image. When using the "24p scan" setting, captured images are recorded as 60i through means of 2-3 pull-down. Progressive scan modes are suitable for feature films, documentaries, and music videos, which have to be recorded as interlaced video for viewing on interlaced monitors, but want to offer a "progressive look" to their motion. It is also possible to edit footage recorded in the "24p scan" mode as progressive material. NLE software that is compatible with the "24p scan" mode can remove the 2-3 pull-down, then edit the footage as 24p material. For 30p, most NLE software can output the edited timeline in progressive format by merging odd and even fields.



HVR-Z7U • HVR-S270U

Interchangeable Lens System

- ◆ Various video lenses can be attached to the HVR-S270U and HVR-Z7U for unlimited possibilities. They are both equipped with a universal standard 1/3" bayonet mount mechanism for quick changing of lenses.
- ◆ The HVR-S270U and HVR-Z7U come standard with a high-quality, 12x multi-purpose Carl Zeiss lens for HD. Stunning resolution and contrast is achieved thanks to the Carl Zeiss Vario-Sonnar T* coating, which suppresses unwanted reflections. A specially designed 8x wide-angle lens is also available as an option, to suit a diverse range of shooting requirements.

	Lens	Optical Zoom	Focal Length	F number
Standard Lens	VCL-412BWH ¹ VCL-412BWS ²	12x	32-384mm (16:9)	1.6 - 2.0
Wide Lens	VCL-308BWH ³ VCL-308BWS ⁴	8x	24-192mm (16:9)	1.6 - 2.4

1. Supplied with the HVR-Z7U; 2. Supplied with the HVR-S270U
3. Optional for the HVR-Z7U; 4. Optional for the HVR-S270U

- ◆ The supplied 12x and optional 8x lenses give the HVR-Z7U and HVR-S270U the same functionality as fixed-lens camcorders like the HVR-Z1U and HVR-V1U, thanks to built-in features such as auto-focus, optical image stabilizer, and automatic back-focus adjustment. Users of the above camcorders will easily become adept at using the HVR-Z7U and HVR-S270U, even if they have never used interchangeable lenses.
- ◆ Of course, the flexible bayonet lens mount allows use of standard 1/3" HD video lenses from Canon and Fujinon. If you want to attach a 1/2 or 2/3" HD video lens, it is possible to do so by adding a standard lens adapter from the lens manufacturer.
- ◆ The HVR-S270U and HVR-Z7U have 12-pin lens connectors allowing compatibility with professional ENG lenses. This feature is very useful not only for those who already have these professional HD video lenses, but also for those who prefer to use HD digital cinema lenses for their unique contrast, color, and atmosphere.
- ◆ With an optional adapter it is also possible to use Sony A-series lenses designed for Sony digital SLR still cameras. By using lenses in various configurations, creative effects can be achieved.

Natural-Touch Lens Operation

Focus:

The focus ring offers two types of manual focus, plus an auto focus mode that can be easily switched by sliding the focus ring forward or backwards. When the focus ring is in the front position, the lens works in the same way as the HVR-Z1U, HVR-V1U, and DSR-PD170. In this case, either manual or auto focus mode can be selected by the assignable button on the lens. On the other hand, when the focus ring is set to the rear position, the focus ring has a physical stop at infinity and works in the same way as a professional interchangeable lens, with fixed-focus-position and distance indicators.



Zoom:

Fast, intuitive manual-zoom response is provided by an internal gearwheel mechanism that provides accurate zoom positioning. A high-quality servo-motor provides incredibly smooth zoom performance.

Iris:

The iris ring encircles the lens barrel. Manual iris adjustment is possible with an ENG-type ring system that allows fine exposure control for challenging lighting situations.

Advanced Camera Operation

Picture Profile:

Up to six different picture-quality settings, including gamma and color settings, can be registered in the memory as picture profiles. This labor-saving function allows users to easily recall customized picture quality settings for various shooting conditions. It is also useful for matching footage shot at different times or for multi-camera setups.

Color Depth:

Generally, the brightness of a video image increases as the color level becomes more vivid. In the HVR-Z7U and HVR-S270U the brightness and color level are processed independently so that more flexible tone – for instance, a dark image with a vivid color – is realized by 3D-LUT color processing (3D-LUT = three-dimensional look-up table Color Correction).

Color Correction: Improved Color Correction provides two functions for creative shooting.

- The Color Extraction function can retain up to two desired colors of monitored pictures in the screen, while making all other colors B&W. This advanced function allows users to select the color simply by pressing a button to memorize the center color of the captured image.
- The Color Revision function can change the hue of only the color designated by the Color Extraction function. This function is good not only for creating impressive images, but also for blue- or green-screen shooting in order to normalize uneven color.

WB Shift: The WB (White Balance) Shift function allows users to create an impressive color or to adjust the color temperature of the camcorder. There are two WB Shift options to choose from:

- LB-CC type: adjusting the LB axis (color temperature) and CC filter effect
- R-B level type: adjusting the red and blue levels

Skintone Detail:

This function allows users to change the sharpness of an object with a specific color, and is particularly good for making skin tones look more natural. The target color can be specified by controlling the Phase/Range/Saturation/Y Level/Y Range parameters or by pressing a button to specify the color of an object with a color picker. If the sharpness of the background object is decreased, the blur looks more natural.

HVR-Z7U • HVR-S270U

Shooting Support Functions

- ◆ They have three built-in ND (Neutral Density) filters, which help reduce light intensity under bright shooting conditions.
- ◆ Negative gain settings of -6 and -3 dB have also been added to help reduce sensitivity under bright lighting conditions. When the iris needs to be opened to create a short depth of field, a suitable brightness can be achieved with this function.
- ◆ Smooth Gain function is a smooth transition gain system that avoids sudden brightness changes caused by manual gain-level adjustment. With this function, the brightness changes gradually when the gain-level position is switched and avoids any sudden, unwanted iris adjustment.
- ◆ Smooth WB function provides a smooth transition white balance system that avoids unnatural sudden color temperature changes between preset white balance settings. For example, this function is useful when you move from an artificial, low-light environment inside a building, to bright natural sunlight outside.
- ◆ A Histogram Indicator for brightness can be displayed on the LCD monitor and viewfinder, allowing you to easily evaluate the brightness of captured images. A target window appears in the center of the screen and the brightness level is indicated by a vertical red line in the histogram. The zebra indicator level appears as a yellow vertical line in the histogram as reference for proper exposure.
- ◆ They both have a built-in three dimensional gravity (3G) sensor, which detects the horizontal level of the camcorder and displays it via an indicator in the LCD/EVF. This digital leveler function makes it possible to obtain a horizontal level reading even when shooting without a tripod.
- ◆ Six types of AE (Auto Exposure) can be selected to automatically adjust the exposure to the most suitable level.
- ◆ When the focus position needs to be manually moved to pre-decided positions, you can put up to two markers (A and B) on a focus position indicator in the LCD/EVF as reference points. When the focus position becomes aligned with one of these markers, it will begin to flash. This allows you to keep your eye on the subject of your shot, without having to check the focus indicator on the lens.

Memory Recording Unit

The HVR-S270U and HVR-Z7U both include a unique Memory Recording Unit to support HDV tape recording. It captures the HDV1080i, DVCAM, or DV stream output from the camcorder and records it as movie file while you are simultaneously recording to tape. You can use a standard CompactFlash (CF) card, which offers secure recording, high-speed access, large data capacity, removable media convenience, and high durability against external vibration. The CF card is used for HDV camcorders because the media is easily obtainable for file recording in the same way as mini DV tape is easily obtainable for HDV recording. This general versatility is very important for those who frequently need to obtain media quickly, such as someone shooting a documentary or news reports while moving from city to city.



- ◆ Record up to 72 minutes of HDV, DVCAM or DV files on a 16 GB CF card.
- ◆ The Memory Recording Unit can be integrated to the HVR-Z7U or HVR-S270U without the

need for cabling, simply by attaching it onto the special shoe connector. This combination never interferes with shooting operations. The Memory Recording Unit auto-



CF Card Capacity	Record Time (approximately)
16 GB	72 minutes
8GB	36 minutes
4 GB	18 minutes
2 GB	9 minute

matically

synchronizes with the recording action of the camcorder – i.e., when the camcorder starts or stops recording, so does the unit. (The intelligent shoe connector inputs and outputs an HDV/DV stream and supplies power to the Memory Recording Unit. The i.LINK connector is not available when the unit is attached on the camcorder).

- ◆ The Memory Recording Unit provides a hybrid operation, where images are recorded to tape and a CF card simultaneously, in a similar fashion to the HVR-DR60 Hard Disk Recording Unit. This means you can immediately access a movie file for streamlined NLE work, while keeping the master source tape in a safe place.
- ◆ The file format is M2T for HDV mode and AVI or RawDV for DVCAM/DV modes. In the same fashion as HVR-DR60 operation, these files can be edited using popular NLE software.
- ◆ In addition, when the built-in down-converter of the connected HDV camcorder is active, SD images can be recorded on a CF card while HD images are recorded to tape. HD master tape is recorded and SD movie files are created at the same time. HDV or DVCAM tape-based users can gradually move to IT workflow with this hybrid-operation. Tape-less recording is also available if desired.
- ◆ The Memory Recording Unit can be used as an external recording unit, just like the HVR-DR60, by attaching the supplied cradle that has an i.LINK connector, battery attachment, and DC power input. When the Memory Recording Unit is connected to a compatible PC via the i.LINK connector, it is recognized as an external drive and can be used to access files. When



Memory Recording Unit attached on the HVR-Z7U



Memory Recording Unit attached on the HVR-S270U

HVR-Z7U (ONLY)

The HVR-Z7U is the world's first professional handheld HDV camcorder with an interchangeable lens system. The compact design makes it easy to use and flexible when shooting applications requiring mobility and in space-constrained locations. Its ergonomically designed body-weight balance and a well-planned layout of buttons and connectors reduce camera operator fatigue. It uses the same InfoLithium batteries as the HVR-Z1U and VR-V1U, and accepts miniDV cassette tapes, which provide over 60 minutes recording time for HDV and DV formats, over 40 minutes for DVCAM format.



- ◆ The HVR-Z7U has an incredible, high resolution 3.2" XtraFine LCD with 921,000 pixels—4x greater than the LCD of the HVR-Z1U — allowing for even easier focus adjustments.
- ◆ Not to be undone, the 0.45" XtraFine EVF (Electronic View Finder) features 1,227,000 pixels with three independent LEDs for R/G/B colors. This allows users to check objects with remarkable color reproduction and resolution. The EVF can also switch between color or B&W display.
- ◆ The LCD and EVF both offer 100% full-scan display, letting you check the entire recorded area, as well as 6500K color temperature – standard for professional monitors.
- ◆ The HVR-Z7U features two accessory shoes. There is a cold shoe on the front that can be removed to make room for a mattebox. While at the rear, there is a screw-hole type shoe located on the handle, which can be changed to a cold shoe, if required, using supplied parts.
- ◆ A one-touch clip-type mic holder makes it easy to remove the microphone for quick storage.

HVR-Z7U (Mfr # HVR-Z7U • B&H # SOHVRZ7U)

Includes AC-VQ1050 adapter/charger, NP-F570 infoLITHIUM battery pack, A/V and component video cables, lens hood, shoe adapter, shoe kit, eye cup, wireless remote control, ECM-XM1 condenser mic, HVR-MRC1 memory recording unit.....**CALL**

- ◆ They both feature a smooth Slow Rec function enables slow-motion playback by capturing images 4x faster than the normal field rate (240 fields/s). In this mode, quad-speed images are captured for three seconds, stored in the built-in buffer memory, and then recorded to tape (in either HDV, DVCAM, or DV format) as slow-motion pictures lasting 12 seconds. This allows recorded images to be checked immediately in the field. Although the resolution of the picture quality is decreased, this function is effective for some applications that don't need full HD quality, such as web movies or the analysis of moving objects like a golf swing, for example.



HVR-S270U (ONLY)

The HVR-S270U offers videographers a traditional "on-the-shoulder" feel with the benefits of increased camera stability and longer recording. A standard-size cassette tape provides approximately 4.5 hours of HDV/DV recording or approximately 3 hours of DVCAM recording. Of course, recording on a mini DV tape is still an option

- ◆ An HD/SD-SDI output connector provides embedded audio and TC data and can, for example, be linked up to an XDCAM HD deck. BNC connectors provide secure cabling connections.
- ◆ Four-channel audio recording is realized in HDV and DVCAM thanks to four XLR audio input connectors – two at the front, and two at the back.
- ◆ The HVR-S270U features a new configuration of a 3.2" XtraFine LCD monitor (921,000 pixels) and an XtraFine EVF (1,227,000 pixels). The LCD is located on the EVF unit. This unique layout enables user to perform both traditional EVF monitoring and LCD monitoring, while the camcorder is held on the shoulder. The 180° tilt mechanism allows for LCD monitoring when the camcorder is held in a high or low-angle position, and the 270° swivel mechanism will allow LCD monitoring from the front, right, or even left of the camcorder so that a reporter or a director can monitor what is being captured by the camcorder.
- ◆ Uses V-lock professional batteries

HVR-S270U (Mfr # HVR-S270U • B&H # SOHVS270U)

Includes lens hood, CR2025 lithium battery, eye-cup, shoe kit, ECM-XM1 condenser mic, shoulder belt, HVR-MRC1 memory recording unit.....**CALL**

HVR-Z7U • HVR-S270U ACCESSORIES

VCL-308BWH Wide-Angle Lens

Wide-angle Carl Zeiss lens for the HVR-Z7U.

VCL-308BWS Wide-Angle Lens

Wide-angle Carl Zeiss lens for the HVR-S270U.

LA-100W Lens Adapter

Lens adapter to allow use of Sony's A-series lenses (designed for Sony digital SLR still cameras) on the HVR-Z7U and HVR-S270U.

AC-VQL1BP AC Adapter/Charger

For the HVR-Z7U only. 4-slot battery charger for InfoLITHIUM battery packs, the AV-VQL1BP displays current available time for shooting and remaining time to complete charge. Has two selectable charge modes (Normal/Full). Displays battery log information (total charge times/charge cycles and last operation date). (Mfr # AC-VQL1BP • B&H # SOACVQL1BP)**399.95**

SH-L32WBP LCD Hood

An LCD hood for the 3.2" LCD monitors of the HVR-Z7U and HVR-S270U. An adjustable 360° shade prevents light from the LCD monitor from leaking out into the surroundings. It is designed to fold up while still attached to the monitor, so it can also serve as an LCD cover when in transit.

(Mfr # SH-L32WBP • B&H # SOSHL32WBP)**64.95**

RM-1BP Remote LANC Controller

A LANC remote controller that can be connected to a tripod handle and used to control zoom, focus and start/stop. This added functionality is ideal for live event coverage such as concerts and sports. Included with the VCT-SP1BP Camera Support.

(Mfr # RM1BP • B&H # SORM1BP)**219.95**

VCT-PG11RMB 2-Stage Tripod

Features the RM-1BP remote LANC controller on the pan arm for fingertip control of zoom, focus and recording functions, and a 75mm leveling ball-mount for rapid setups. The dual-tubed upper stage provides superior torsional resistance, and the mid-level spreader provides greatly increased vertical strength.

(Mfr # VCTPG11RMB • B&H # SOVCTPG11RMB)**1099.95**



VCT-SP1BP Camera Support: For the HVR-Z7U only. A weight support for stable/comfortable shooting, the VCT-SP1BP supports several shooting styles (e.g., high-angle shooting). Carbon shaft for light weight and rigid design. Quick-release function from harness allows excellent mobility. Includes RM-1BP Remote LANC Controller. (Mfr # VCT-SP1BP • B&H # SOVCTSP1BP)**699.95**



HVL-LBP LED Battery Video Light: Ideal for wide-angle shooting, the HVL-LBP features LED reliability and low power consumption, wide uniform light for 16:9 aspect ratios, and operates with daylight-balanced color temperature. A dimmer dial adjusts the light intensity, and an indicator shows the remaining battery strength. Powered by NPF-970 InfoLITHIUM battery for up to 3 hours at maximum brightness.

◆ Perfect for outside shooting in shade or sunlight

◆ Color balanced at 5500K daylight color temperature

◆ Use as a hand-held battery light or on top of a light stand to act as a backlight

◆ Uniform flood-lighting over wide areas for backgrounds, and quick conversion to a focused spot-light for interviews.

◆ Spot or flood lighting with an attached condensing lens On or Off

◆ Dimmer dial allows linear brightness adjustment from 10% to 100%.

◆ Permits battery level check even when the light is turned off.

◆ Supplied battery adapter has a tripod screw hole and strap for flexible attachment.

HVL-LBP LED Battery Video Light (Mfr # HVLLBP • B&H # SOHVLLBP)**499.95**

	HVR-Z7U	HVR-S270U
Supplied Lens	Carl Zeiss Vario-Sonnar T* Zoom Lens, 12x (optical)	
Built-in Filter	Clear, 1/4, 1/16, 1/64	
Imaging System	1/3", progressive 3 ClearVid CMOS Sensor system with technology of Exmor	
Focus	Auto, Manual (focus ring/one push auto/infinity/AF assist/ focus macro)	
White Balance	Auto, One-push A(A/B positions), Indoor (3200 K), Outdoor (selectable level -7 to +7, approx. 500K/step), Manual WB Temp (selectable 2300K to 15000K, 100K/step)	
Shutter Speed Auto / Manual	1/60 - 1/2000 / 60i/30p: 1/4 - 1/10000 24p: 1/3 - 1/10000	
Gain	-6, -3, 0, 3, 6, 9, 12, 15, 18, 21 dB	
Minimum Illumination	1.5 lux (Auto Gain, Auto Iris, 1/30 Shutter)	
Recording format	HDV1080/60i, 1080/24p, 1080/30p, DVCAM, DV SP 480/60i (NTSC)	
Play Out/Down Conversion Format	HDV1080/60i, 1080/24p, 1080/30p, DVCAM, DV SP 480/60i (NTSC)	
Max. Playback/Rec. Time HDV/DV SP	63 min with PHDVM-63DM Cassette	276min with PHDV-276DM Cassette
Max. Playback/Rec. Time DVCAM	41 min with PHDVM-63DM Cassette	184min with PHDV-276DM Cassette
Audio/Video Output	10-pin Connector A/V OUT Jack with Supplied Cable	Composite Video (BNCx1) Unbalanced Audio (pin x2ch)
Component Video Output	Special Connector	BNC x3
HDV/DV Input / Output	i.LINK interface (IEEE 1394, 6-pin)	i.LINK interface (IEEE 1394, 6-pin)
XLR Audio Input	XLR 3-pin Female x 2ch	XLR 3-pin Female x 4ch
Headphone	Stereo Mini Jack	Stereo Mini Jack
LANC	Stereo Mini Jack	Stereo Mini Jack
Digital Video Output	HDMI connector	HD/SD-SDI BNC x1
Dimension (WHD), Weight	6 ¹⁵ / ₁₆ x 7 ¹³ / ₁₆ x 17 ¹ / ₂ " , 5 lbs. 4 oz.	12 ¹ / ₈ x 10 ⁵ / ₈ x 20" , 13 lbs. 15 oz.

GV-HD700

HD Video Walkman

The world's first HD Video Walkman, the HV-HD700 is a compact, portable device to view and playback both high-definition HDV video and standard mini DV tapes. The GV-HD700 features a WVGA (1,152k dots), 7" widescreen LCD screen for monitoring video and still images. Its all-scan function ensures that 100% of the recorded frame area is displayed on the screen for accurate reviewing of shots. It can also record HDV and DV signals from an external source for use as a back-up deck as well as transfer still images from tapes to Memory Stick media cards.

For convenient operation, any of fourteen commonly-used functions, such as search, index mark and playback zoom, can be assigned to three function buttons. Users can customize the LCD screen by storing up to six set-ups. The unit's status check mode gives handy on-screen confirmation of key audio, output, assign and LCD settings. The model is equipped with multiple ports for recording and playing tapes from a range of sources, and also has HDMI output for connection to a compatible HDTV or computer monitor. It also incorporates Sony x.v.Color technology. Based on the new international xvYCC color standard, Sony x.v.Color nearly doubles the data range of colors that can be displayed accurately on xvYCC-compliant displays, such as Sony BRAVIA televisions. Supplied accessories include an AC Adaptor, wireless remote controller, component and AV Multi Cable (without S-Video). For extra versatility the GV-HD700 can be used with InfoLITHIUM L and M Series batteries.



FEATURES

- ◆ Can playback High Definition Video (HDV) and Standard Definition Video recorded on MiniDV cassette.
- ◆ Provides excellent viewing clarity with improved resolution. The 7" (1.1 million pixel) LCD rotates for multiple viewing angles providing sharp detailed images for monitoring or playback.
- ◆ The GV-HD700 is capable of passing the x.v.Color signal recorded by the latest Sony HD camcorders to a compatible HDTV. With the ability to reproduce nearly twice as many (1.8x) viewable colors than currently possible.
- ◆ Customize up to 6 different LCD screen profiles (personal settings); choose from Brightness, Color Depth, Contrast, Sharpness and Color Phase.
- ◆ Compatible with both L and M Series InfoLITHIUM batteries. You can now charge the battery at anytime because unlike nicad batteries, Sony's rechargeable Lithium Ion batteries are not subject to a life shortening "memory effect".
- ◆ Sony's exclusive AccuPower meter displays the battery time remaining in minutes, on
- ◆ Three buttons on the exterior of the video walkman are user-assignable so that they can be set to the options most commonly utilized which make it easier to control your playback options and settings.
- ◆ Capture digital still images up to 1440 x 810 resolution from video-tapes, analog inputs or digital video i.LINK input, directly onto Memory Stick media. The images can be easily transferred to PCs for emailing, printing or sharing with other compatible Memory Stick devices
- ◆ Features 12-bit/16-bit recording offering the same outstanding sound quality as Compact Disc. 12-bit recording enables you to add an additional audio track with compatible audio dubbing equipment or i.LINK compatible computers.
- ◆ Standard Play mode offers up to 60 minutes of digital recording, or Long Play for up to 90 minutes, on one MiniDV cassette.
- ◆ Equipped with an IEEE1394 interface for high speed bi-directional digital video/audio communication between two devices including camcorders, digital VCRs, and PCs.
- ◆ While playing back your images you can edit images by zooming in (up to 2 times) and cropping your picture (up, down, left, right). You can save the new image as a separate file. Resize lets you save a copy of an image to a smaller or larger file size.
- ◆ Provides noise free playback in slow motion and in the pause mode for detailed playback.
- ◆ Inputs and outputs include analog audio and composite video input; analog audio and video outputs (composite, S-Video and component); HDMI output, digital video and audio inputs and outputs (via i.LINK); USB port, and headphone jack.
- ◆ Measures 8" x 2.5" x 6.38" and weighs 2.13 lbs. with tape and battery.

GV-HD700 HDV Video Walkman VCR

Includes AC-L100 Power Adapter, NP-F570 InofLITHIUM rechargeable battery, wireless remote control, component video cable, A/V cables and USB cable.

(Mfr# GVHD700 • B&H# SOGVHD700) 1099.95

HVR-M15AU

HDV 1080i VCR

The HVR-M15AU enables video recording and playback in a choice of formats – 1080/24p, 1080/30p, 1080/25p, 1080i, DVCAM, and DV. It also features down-conversion capability for 1080i recording, providing the flexibility to record in either standard definition (SD) or high definition (HD) depending on production needs. Affordable and professional, the HVR-M15AU records and plays HDV at all the same frame rates as Sony's HDV camcorders. It can also record and play DVCAM, mini- and standard-size DV tapes for extended record/playback time. Using a PHDV-276DM cassette, you can record up to 276 minutes in HDV/DV mode, 184 minutes in DVCAM mode. Optimized for use with non-linear editing systems thanks to its highly compact size, the HVR-M15AU offers SMPTE time code and can also copy external time code thanks to the HDV/DV in TC. Playback repeat function makes it deal for a variety of other applications including retail, tradeshow and other points of information.



FEATURES

HDV Format

- ◆ Sony's HDV 1080i format records stunning HD images on DV tapes. It adopts the MPEG-2 compression format, using 8-bit digital component recording at 25 Mb/s, which is the same data rate as DVCAM/DV. The HDV format adopts the same track pitch and tape speed as the DV format, thus offering the same recording time – a maximum of 276 minutes.
- ◆ The HVR-M15AU can switch between HDV 1080i, 1080/24p, 1080/30p, 1080/25p, DVCAM, and DV recording, providing full flexibility to record in either SD or HD depending on your need. In addition, it can be switched between 60i and 50i modes (NTSC and PAL), which allows for flexible production operations, without the need for separate VCRs for each standard.

Inputs/Outputs

- ◆ Equipped with a 4-pin i.LINK interface, two composite (RCA) and S-Video input/output, component video output (RCA x3), stereo audio input/output, Control-L (LANC) and Control-S terminal.



High Performance

- ◆ It can convert material from 1080i down to 480i and 576i, and output these video signals via its i.LINK, analog component, composite or S-Video connectors. This allows users to edit recorded material with a compatible non-linear editing system using current DV editing software, as well as record SD signals to an external VCR.
- ◆ Video material can also be down-converted to 480P and 576P and output via the VCR's analog component video connector. When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox, and Edge Crop.
- ◆ When the HVR-M15AU records signals from the i.LINK port, the time code that was recorded on the original tape can be copied onto other tapes, along with the video and audio signals. This is effective when downloading edited material from non-linear editors or creating dubs from other VCRs.
- ◆ Can output 3 types of color bars via i.LINK, HDMI, analog component, S-Video, and composite connectors, as well as a 1kHz audio tone signal via the i.LINK, HDMI, and analog audio connectors. These are useful when checking the system conditions.
- ◆ Equipped with Control-L (LANC) as well as a Control-S terminal to connect with the optional DSRM-10 Remote Control for jog and shuttle operation.

Conveniences

- ◆ The HVR-M15AU is compact, with a small footprint that enables it to be deployed in existing work environments without disruption. It is also unique in that it can be placed either horizontally or vertically.
- ◆ Auto repeat function enables it to automatically rewind the tape to either the beginning of the tape, the first complete blank portion, or an index point on the tape, and start playback again from there.
- ◆ Incorporates a tape cleaner that adopts a high-grade sapphire blade. The cleaner helps prevent signal dropouts and improve the reliability of recording and playback by cleaning away particles from the tape during operation.
- ◆ The HVR-M15AU has a dual-size cassette mechanism that accepts both mini- and standard-sized DigitalMaster, DVCAM, and DV cassette tapes – without using any special adaptor. This feature allows the six different types of cassette tape to be used without the cumbersome process associated with additional mechanical hardware.
- ◆ Includes a wireless remote to control the recorder's functions.

HVR-M15AU Compact Desktop HDV VCR
(Mfr # HVRM15U • B&H # SOHVRM15U) **CALL**

Rackmount for the HVR-M15AU
(Mfr # (RMMHVRM15 • B&H # SORMMHVRM15) **154.95**

HVR-M25AU

HDV 1080i VCR

The HVR-M25AU enables video recording and playback in a choice of formats – 1080/24p, 1080/30p, 1080/25p, 1080i, DVCAM, and DV. It also features a down-conversion capability for 1080i recording, which provides the flexibility to record in either standard definition (SD) or high definition (HD) depending on your production needs.

Affordable and professional, it can record and play HDV at all the same frame rates as the HVR-V1U camcorder. It can also record and play DVCAM and mini-DV tapes, offering smooth migration from SD to HD.

Supporting standard-size cassettes for extended record/playback time, with a single Sony PHDV-276DM Digital Master cassette you can record up to 276 minutes in HDV and DV mode, 184 minutes in DVCAM mode. The HVR-M25AU offers SMPTE time code to identify each hour, minute, second and frame. It can also copy external time code thanks to the HDV/DV in TC. Even better, with the Duplicate Plus dubbing function (carries audio, video, time code and user bits over the i.LINK IEEE1394 interface) it allows you to copy an HDV, DV or DVCAM work tape with the original time code intact. Optimized for use with non-linear editing systems, the HVR-M25AU features a built-in 2.7" widescreen 16:9 LCD monitor for more demanding production environments. With a playback repeat function, programmable Custom Repeat and an HDMI output for HDTV televisions, you can use the HVR-M25AU as a high definition player at retail, tradeshow and other points of information.



FEATURES

Switchable HDV 1080i/DVCAM/DV SP and 60i/50i Record/Playback

- ◆ The HVR-M25U can switch between HDV 1080i, 1080/24p, 1080/30p, 1080/25p, DVCAM, and DV recording, providing full flexibility to record in either SD or HD depending on your production needs. In addition, they can be switched between 60i and 50i modes (NTSC and PAL), which allows for flexible production operations, without the need for separate VCRs for each standard.



Dual-size Cassette Mechanism

The HVR-M25AU has a dual-size cassette mechanism that accepts both mini- and standard-sized DigitalMaster, DVCAM, and DV cassette tapes – without using any special adaptor. This feature allows the six different types of cassette tape to be used without the cumbersome process associated with additional mechanical hardware.

Long Recording Time

The HDV format adopts the same track pitch and tape speed as DV, thus offering the same recording time – a maximum of 276 minutes when recording on a DigitalMaster standard cassette tape and a maximum of 63 minutes when recording on a DigitalMaster mini cassette

tape.

Built-in 2.7" Clear Photo LCD Plus Monitor

The HVR-M25AU is equipped with a high resolution (211,000 pixel) 2.7" widescreen color LCD monitor with Clear Photo LCD Plus panel, which provides enhanced brightness and a higher level of color reproduction than that used in the DSR-25. The monitor allows operators to view the input source during recording, and check the playback picture in a 16:9 widescreen aspect ratio. Setup menus, VCR/audio settings, and audio level meters can also be displayed.

DUPLICATE PLUS

DUPLICATE PLUS function makes it easy to copy video and audio from an i.LINK compatible VCR or camcorder onto the HVR-M25AU – along with the original time code. Simply connect the two devices together via i.LINK and press the DUPLICATE PLUS function and Play buttons. The copying will then begin. This function can also be used for copying the content of multiple tapes onto a single tape, which is convenient when you need to compile multiple mini cassette tapes onto a single standard cassette tape. Another unique feature of the DUPLICATE PLUS function is the ability to selectively copy portions of material recorded in a designated format from a tape that contains mixed-format recordings. For example, you can choose to copy only HDV recordings from a tape that includes DVCAM and DV video as well.

HVR-M25AU

Down Conversion Playback

- ◆ The HVR-M25AU can convert material from 1080i down to 480i and 576i, and output these video signals through its i.LINK interface. In addition, these signals can also be output via the VCR's HDMI, analog component, S-Video, or composite connector. This allows users to edit recorded material with a compatible non-linear editing system using current DV editing software, as well as record SD signals to an external VCR.
- ◆ Video material can also be down-converted to 480P, 576P and 720P and output via the VCR's HDMI or analog component video connector. When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox, and Edge Crop.

Inputs/Outputs

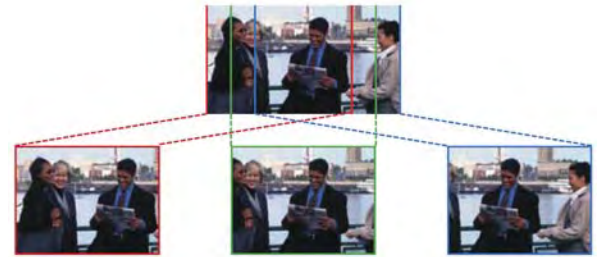
- ◆ The HVR-M25AU is equipped with a 4-pin i.LINK interface. This allows for one cable digital transfer of video, audio, and command signals to a compatible connected VCR or non-linear editing system in HDV, DVCAM, or DV format.



- ◆ Comes equipped with an HDMI interface allowing the HVR-M25AU to transfer non-compressed, high-def digital video and audio to other HDMI-equipped devices via a single cable.
- ◆ The HVR-M25AU can output three types of color bar via the i.LINK, HDMI, analog component, S-Video, and composite connectors, as well as an audio tone signal of 1 kHz via the i.LINK, HDMI, and analog audio connectors. These are useful when checking the system conditions.

Edge Crop Adjust

When down-converting signals in the Edge Crop mode, the Edge Crop Adjust function is provided to adjust the edge crop position. By displaying the edge crop marker on the LCD monitor, operators can conveniently check the edge crop position before outputting down-converted signals.



(Images simulated)

Time Code

- ◆ The time code of the HVR-M25AU can be preset using any number in H/M/S/F (hours/minutes/seconds/frames) to record desired tape-position information. The time code mode can be selected between "REC RUN" and "FREE RUN". In addition to the time code, user bits can also be set.
- ◆ When the HVR-M25AU records signals from the i.LINK port, the time code that was recorded on the original tape can be copied onto other tapes, along with the video and audio signals. This is effective when downloading edited material from non-linear editors or creating dubs from other VCRs.

Conveniences

- ◆ Time counter display allows time data such as time codes, user bits, and count values of the counter to be displayed on the LCD monitor. Furthermore, users can customize how this data appears by selecting size, position, and color via the menu. It is also possible to output video with superimposed time data via the analog component, composite or S-Video connectors.
- ◆ MARKER BURN function allows 4:3 marker to be superimposed onto video output – whether it is displayed on the LCD monitor or output via the analog component, composite or S-Video connectors. This function is available when displaying 16:9 signals or down-converted signals in letter box or squeeze mode. It is particularly useful when making work tapes for editing in both 16:9 and 4:3 aspect ratios.
- ◆ The HVR-M25AU has a convenient auto repeat function. This enables them to automatically rewind the tape to either the beginning of the tape, the first complete blank portion, or an index point on the tape, and start playback again from there. In addition, the HVR-M25U has a Custom Repeat function that allows operators to set the number of repeat playbacks, the interval between each playback, and the hour at which the playback should begin.
- ◆ All Scan Mode– similar to the Underscan mode of ordinary monitors– displays all effective scanning lines in the LCD monitor when 1080i mode is selected. This is useful if you want to check pictures for web applications, for example.
- ◆ Status Check button displays menu settings for audio level meter, output signal, assign button, and custom repeat on the LCD monitor – allowing easy status or setting checks during recording, playback, source feeding.
- ◆ Buttons for Index, Counter Reset and Audio Dub on the front panel can be used as "Assign Buttons", to which users can assign another frequently used function from any of the following: HDV/DV converter, data code, HDMI/component, end search, color bar, All scan Mode, Search Select, Search ±, counter size, counter color and FF/REW speed.
- ◆ Supplied Remote Commander unit enables wireless control the recorder's functions. The HVR-M25AU is also equipped with a LANC terminal, as well as a Control S terminal to connect with the optional DSRM-10 Remote Control Unit for jog and shuttle operation.
- ◆ Tape cleaner with high-grade sapphire blade prevents signal dropouts and improves record/playback reliability by cleaning away particles from the tape during operation.

HVR-M25AU Desktop HDV/DVCAM/DV VCR (Mfr # HVRM25AU • B&H # SOHVRM25AU).....**CALL**
RMMHVRM25 Rackmount for HVR-M25AU (Mfr # RMMHVRM25 • B&H # SORMMHVRM25).....**184.95**

HVR-M35U

HDV 1080i VCR

The M35U records and plays back HDV 1080i60, 1080i50, 1080p30, 1080p25, 1080p24, and DV/DVCAM 480i60, 576i50.

Like the HVR-M25U, the HVR-M35U is NTSC/PAL switchable.

The HVR-M35U also offers 4-channel audio recording and playback, and can record HDV 4-channel audio signals from the i.LINK input. Additionally, the HVR-M35U offers an integral monaural speaker for convenient audio monitoring, capable of playing back a mixed audio signal.

The HVR-M35U also offers various digital interfaces which include i.LINK for DV/DVCAM and HDV I/O, a dual function HD/SD SDI output connector, as well as AES/EBU BNC connectors. Timecode out is also supplied via a BNC connector. In addition to its compact design, the deck has a ClearPhoto LCD plus 2.7" 16:9 panel for video monitoring, as well as support of both mini and standard size video tape cassettes. The HVR-M35U also incorporates the Duplicate Plus feature for operational convenience similar to that offered in the HVR-M25U, with the added integration of the new Native Progressive recording formats. Like the HVR-M25U, the HVR-M35U also offers 1080i to 720p conversion capabilities (through the analog component and SDI outputs only), as well as HD to SD downconversion.



FEATURES

- ◆ HD/SD-SDI output with embedded audio and timecode data, allows straight duplication to a deck with HD/SD-SDI input.
- ◆ The HVR-M35U features multi-format playback and recording capability. It supports HDV native progressive recording modes and has a 60i/50i switchable function, so it can playback/record:
 - HDV1080i: 60i/50i/24p/30p/25p
 - DVCAM/DV: 60i/50i
 - HDV720p (24/25/30p) tape playback is available for a simple viewing.
- ◆ Built-in 2.7" wide LCD panel with monaural speaker enables quick check of video and audio, including 16:9 aspect images, audio level meter and set-up menu. "Clear Photo LCD plus" technology further improves the visibility of previous LCDs, offering more detailed and colorful reproduction of objects in dark or bright places.
- ◆ It can play back the 4-channel audio data in HDV1080i format recorded by the HVR-S270U. It can also play back the four-channel audio data in DVCAM format. The four-channel audio data is embedded in the i.LINK and HD/SD-SDI output, or is output through the AES/EBU audio connectors.
- ◆ The HVR-M35U can convert material from HD down to SD, and output the SD video signal through its i.LINK, SD-SDI, analog component, S-video, and composite connectors. This allows users to edit recorded material with a compatible nonlinear editing system using current DV editing software, as well as record SD signals to an external VTR.
- ◆ When down-converting these signals, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze, Letterbox, and Edge Crop.
- ◆ When down-converting signals in Edge Crop mode, you can use Edge Crop Adjust function to adjust the edge crop position. By displaying the edge crop marker on the LCD monitor, operators can conveniently check the edge crop position before outputting down-converted signals.
- ◆ Accepts both standard and mini size HDV, DVCAM, and DV cassettes without using any special adapter. Standard size cassettes allow recording times of up 276 minutes and can also be used by most DVCAM/HDV shoulder-mount camcorders including the HVR-S270.
- ◆ Full range of connections including composite and S-Video input/output, component out and i.LINK (IEEE1394).
- ◆ Equipped with HDV/DV IN TC, enabling time code synchronization with external equipment - ideal when dubbing tapes or recording to tapes with material edited by nonlinear editing system.
- ◆ Time code can be preset using any number in H/M/S/F (hours/minutes/seconds/frames), for accurate tape-position information.
- ◆ DUPLICATE PLUS makes it easy to copy video and audio from a VCR or camcorder along with the original time code by connecting them together via i.LINK. You can also selectively copy portions of material recorded in a designated format from a tape that contains mixed-format recordings.
- ◆ Repeat function enables it to repeatedly play back a program. In addition, it has a Custom Repeat function that allows operators to set a repeat number of times, a repeat interval, and a start time of repeat.
- ◆ Other than the default functions, frequently used functions can be assigned for convenient and customized operation.

HVR-M35U (Mfr # HVR-M35U • B&H # SOHVRM35U)

HVR-M15AU / M25AU / M35U / 1500A

DECK FEATURES	HVR-M15AU	HVR-M25AU	HVR-M35U	HVR-1500A
HDV 1080i Record / Play	✓	✓	✓	✓
DVCAM and DV SP Record / Play	✓	✓	✓	✓
Switchable 50i/60i	✓	✓	✓	✓
True Progressive Mode	480p, 576p	480p, 576p	480p, 576p	—
Compatible Cassette Size	Standard and Mini	Standard and Mini	Standard and Mini	Standard and Mini
Maximum Recording Time: DV, HDV modes	276 minutes (approximate)	276 minutes (approximate)	276 minutes (approximate)	276 minutes (approximate)
Maximum Recording Time: DVCAM mode	184 minutes (approximate)	184 minutes (approximate)	184 minutes (approximate)	184 minutes (approximate)
Widescreen LCD Monitor (viewable area, measured diagonally)	—	2.7" Clear Photo LCD plus	2.7" Clear Photo LCD plus	2.7"
SMPTE Time Code	✓	✓	✓	✓
Time Code/User Bits Settings	Reset only	✓	✓	✓
HDV/DV in Time Code	✓	✓	✓	✓
Duplicate Plus with Time Code, User Bit	—	✓	✓	—
Tape Counter	On-screen display	LCD	LCD	LCD
Vertical or Horizontal Operation	✓	—	—	—
1080i to 720P Conversion	✓	✓	✓	✓
Downconversion to SD	✓	✓	✓	✓
Edge Crop Adjustment	—	✓	✓	—
Audio Record Volume Control	-6/0/+6 dB, AGC	✓	✓	✓
HD/SD-SDI Output	—	—	BNC (x1)	BNC (x2)
SDI Input / Output	—	—	—	BNC (x1) / BNC (x2)
Audio Inputs	RCA (x2)	RCA (x2)	Unbalanced RCA (x4)	Balanced XLR (x2)
Audio Outputs	RCA (x2)	RCA (x2)	Balanced XLR (x4)	Balanced XLR (x2)
AES/EBU Digital Input / Output	—	—	— / BNC (x2)	BNC (x2) / BNC (x2)
Audio Monitor Output	—	—	RCA (x1)	RCA (x1)
Time Code Input / Output	—	—	— / BNC (x1)	BNC (x1) / BNC (x1)
i.LINK IEEE 1394 DV/HDV Interface	✓	✓	✓	✓
HDMI Output	—	✓	—	—
Component video Output	RCA	BNCx3	BNCx3	BNCx3
Composite video Input / Output	RCA	BNC	BNC	BNC
S-Video Input / Output	Yes	✓	✓	✓
Headphone Jack	—	✓	✓	✓
Control-S Interface	✓	✓	✓	✓
LANC Interface	✓	✓	✓	✓
RS-422 (9-pin)	—	—	—	✓
Repeat Functions	Auto	Auto and Custom	Auto and Custom	Auto
Dimensions (WxHxD), Weight	7 ¹ / ₈ x 2 ⁷ / ₈ x 10 ¹ / ₂ ", 5 lbs. 1 oz.	8.4 x 3.5 x 15", 9 lbs. 8 oz.	8.4 x 3.5 x 15.4", 9 lbs. 12 oz.	8. x 5.1 x 16.6", 15 lbs. 3 oz.

HVR-1500A

HDV VCR

The HVR-1500A is an HDV/DVCAM/DV player and recorder. It offers many features demanded by professionals, such as quick mechanical response, multi-format DV playback, and a robust set of professional video and audio interfaces ranging from analog to digital SDI and AES/EBU. Additionally, the HVR-1500A offers HD-SDI input/output. This allows it to be used as an HD recording deck for cameras with HD-SDI outputs. The HVR-1500A can also be used as a standard definition DVCAM recorder, offering the same editing features as the Sony DSR-1500A. Positioned as the high-end HDV deck in the HVR Series, the HVR-1500A is designed to be the bridge between HDV and HDCAM format, as well as between HDV and XDCAM HD format. Other uses can include dubbing from HDCAM decks for off-line production, such as viewing or distributing content on lower-cost HD media, or for baseband, real-time writing back from an HD non-linear editing system.



FEATURES

HDV Format

- ◆ Sony's HDV 1080i format records stunning HD images with 1080 active scanning lines on DV tapes. It adopts the MPEG-2 compression format, using 8-bit digital component recording at 25 Mb/s, which is the same data rate as DVCAM/DV.
- ◆ The HDV format adopts the same track pitch and tape speed as the DV format, offering the same recording time – 276 minutes of recording time with a PHDV-276DM DigitalMaster standard cassette tape and 63 minutes with PHDVM-63DM DigitalMaster mini cassette tape. Using the wider pitch DVCAM format, it offers 184 minutes of recording time on a PDV-184N standard cassette tape and 40 minutes on a PDVM-40N mini cassette tape.
- ◆ The HVR-1500A can be switched between HDV 1080i, DVCAM, and DV (SP) recording modes, providing full flexibility to record in either standard definition or high definition depending on your production needs. In addition, it can be switched between 60i and 50i modes, eliminating the need for two separate VCRs, one for each standard.
- ◆ For operational versatility, the HVR-1500A can play DV (25 Mb/s) format recorded tapes without an adapter and without having to switch playback modes on the menu.

Up/Down-conversion Capability

- ◆ The HVR-1500A has a built-in down-conversion capability that allows 1080i recordings to be output as 480i and 576i signals from the i.LINK and SD-SDI interfaces. These signals can also be output from the analog component, composite or S-Video connectors. This allows 1080i recordings to be edited using nonlinear editing systems or to be viewed on an SD monitor. When down-converting the 1080i recording, the aspect ratio displayed can be converted from 16:9 to 4:3. Display modes can be selected from Squeeze or Edge crop.
- ◆ With the optional HVBK-1520 Format Converter Board, the HVR-1500A allows DV recordings and SD signals to be converted to 1080i or 720P signals and then output from the HD-SDI interface. This allows DV recordings to be integrated into existing HD editing systems. When up-converting the DV recording, the aspect ratio displayed can be converted from 4:3 to 16:9. Display modes can be selected from Squeeze, Edge Crop, or Letterbox. Can also cross convert between 1080i and 720p signals.

High Performance Features

- ◆ Accepts both HD and SD reference signals.
- ◆ RS-422A interface offers frame-accurate insert and assemble editing in DVCAM mode when used with compatible editing controllers. It can also be used for source feeding in HDV mode.
- ◆ Can generate color bars or black burst for video, and a 1-kHz tone or silent signal for audio. These signals can be recorded to tape when the HVR-1500A is operating in DVCAM or DV mode to create a pre-stripped tape prior to editing. They can also be output from the analog and digital interfaces to adjust other equipment in the system.
- ◆ Time code I/O capability to synchronize time code when making tape copies.
- ◆ Used with the Sony RM-280 Edit Controller, it can provide excellent digital slow motion and jog sound for DVCAM recordings. It offers variable speed playback within the range of $\pm 0.5\times$ normal play speed.
- ◆ Audio levels can be adjusted via front panel control knob. In recording mode, the input audio level of the analog XLR, SD-SDI, AES/EBU, and i.LINK interfaces can be adjusted. In playback mode, the analog XLR, HD/SD-SDI, AES/EBU, and i.LINK output audio levels can be controlled.

HVR-1500A

Professional Interfaces

A full range of professional interfaces are available, allowing for flexible analog or digital configurations in both SD and HD systems. This allows you to integrate the HVR-1500A exactly according to their system needs.

- ◆ Equipped with a 6-pin i.LINK interface, the HVR-1500A can transfer digital video, audio, and command signals (in HDV, DVCAM, and DV format) to a compatible VCR or non-linear editing system via just a single cable.
- ◆ As standard, the HVR-1500A provides analog output interfaces for video and audio. These include composite, component, and S-Video (Y/C) outputs and two channels of audio output (via XLR connectors). Using these interfaces, the HVR-1500A can act as a source feeder for an analog editing system and as a simple playback viewer in various applications such as broadcast station studios, OB vehicles, and production offices.
- ◆ With the optional HVBK-1505 Analog Input Board, a full range of analog video and audio inputs also become available, allowing a smooth transition to digital systems.



- ◆ The HVR-1500A offers HD-SDI input/output capability, through which 1080/60i or 1080/50i HDV recordings can be output in normal playback and search modes.
- ◆ Time code and audio signals are embedded in this HD-SDI output. This interface allows operators to integrate HDV footage and assets easily into existing HD-SDI-based editing systems such as the HDCAM and XDCAM HD systems.
- ◆ The HVR-1500A also provides SD-SDI input/output capability. Time code and audio signals are embedded in the SDI signal. This allows the HVR-1500A to connect with a wide variety of digital equipment including SDI-based editing systems.
- ◆ For professional digital audio needs, the HVR-1500A offers AES/EBU digital audio inputs/outputs.

Built-in 2.7" LCD Monitor

The HVR-1500A is equipped with a high resolution (211,000 pixels) color LCD monitor. This allows operators to view the input source during recording and check the playback picture in a 16:9 widescreen aspect ratio. It can also display the 4-channel audio level meters and time code, as well as setup menus for video, audio, and VTR settings. Three different display modes can be selected, as shown.



Full Screen Display Mode



Status Display Mode



Small Screen Display Mode

Operational Reliability

- ◆ Quick mechanical response is an essential requirement for professional video production. The HVR-1500A provides this feature by using a reliable direct reel and drum motor mechanism. Fast forward and rewind speeds are an impressive $\pm 85\times$ normal play speed. In HDV mode, the color picture search speeds are ± 8 and $\pm 24\times$ normal play speed, and in DVCAM mode they are $\pm 60\times$ normal play speed. In editing environments, where speed and time are critical, this mechanism reduces the frustration editors often feel when they are searching for specific scenes.
- ◆ The HVR-1500A incorporates a tape cleaner that adopts a high-grade sapphire blade. This tape cleaner helps prevent signal dropouts by cleaning away particles that accumulate while the tape is running. The recorder also incorporates a head cleaner to maintain the performance of the drum heads. These cleaners improve the reliability of recording and playback. By packing sophisticated mechanical technologies into its robust aluminum diecast chassis, the HVR-1500A provides the reliable operations that today's video professionals demand.

Conveniences

- ◆ Compact design, half-rack width, 3RU high
- ◆ Video processor control via menu
- ◆ Closed caption function (DVCAM/DV NTSC format only)
- ◆ SIRCS (Sony Integrated Remote Control System) interface
- ◆ Functions frequently used for VCR operations can be assigned to an ASSIGN button located on the front panel.
- ◆ With an editing controller, such as the Sony RM-280 Editing Controller, the HVR-1500A provides a convenient color picture search function for HDV recordings.
- ◆ It provides a picture search function via the menu keys on its front panel. Forward and reverse search of 8 and 10x normal play speed is available in HDV and DVCAM/DV modes, respectively. There are also buttons that allow frame-by-frame picture search, as well as slow-motion playback.
- ◆ The HVR-1500A has a convenient auto repeat function, enabling it to automatically rewind the tape to either the beginning of the tape or to a user-defined index point, and to start playback again from there. Repeat start and stop index points can also be defined by setting time code values.

HVR-1500A HDV/DVCAM VTR (Mfr # HVR1500; B&H # SOHVR1500)**CALL**

HVR-1505 Analog Input Board (Mfr # HVBK1505; B&H # SOHVBK1505)**999.95**

HVBK-1520 Format Converter Board (Mfr # HVBK1520; B&H # SOHVBK1520)**1609.95**

RM-280 Remote Edit Controller (Mfr # RM280; B&H # SORM280): A lightweight remote for basic VTR control and simple edit functions. Equipped with a jog wheel, it can control up to 2 decks at once and supports multiple frame rates including 24p**2357.50**

XDCAM

Professional Tapeless Products for File-Based Production

XDCAM is the family name of the Sony line-up of tapeless camcorders and decks. The HD line-up is now stronger than ever, and with a choice of XDCAM EX, XDCAM HD and XDCAM HD 422, offers the most flexible path to file-based production. All use MPEG-2 HD data compression to record breakthrough pictures. Simply choose the format best suited to the programming being created.

Instant recording with no overwriting of existing footage. Each new recording is made onto an empty area of the disc or flash memory card. This is extremely convenient, as camera operators don't have to worry about accidentally recording over good takes, and they don't have to search through footage for the correct position to start the next recording. In short, it means the camcorder is always ready for the next shot.

Each time a recording is started and stopped on any XDCAM-family camcorder, the video and audio signals are recorded as one clip. During playback, users can cue-up to the next or previous clip simply by pressing the 'Next' or 'Previous' button, as you would do on a CD or DVD player. Furthermore, thumbnails are automatically generated for each clip as a visual reference, allowing operators to cue-up to a desired scene simply by guiding the cursor to it. For further convenience, the 'Expand' function allows one selected clip in the Thumbnail display to be divided into 12 even-time intervals, each with their own thumbnail identifier. This is useful if you want to quickly search for a particular scene within a lengthy clip.

XDCAM EX

XDCAM EX represents an exciting new low-cost entry point into the world of HD. The first professional HD camcorder to record onto Sony's SxS PRO memory cards which comply with the ExpressCard standard, XDCAM EX can record up to 100 minutes of content onto two removable 16GB cards when recording at 35 Mb/s. Switchable between 1080 and 720 line operation and supporting the major international recording standards up to CineAlta 1080/23.98PsF, XDCAM EX makes it fast and easy to shoot, edit and distribute great quality high definition pictures.

XDCAM HD

XDCAM HD unites high definition picture quality with all the benefits of non-linear, file-based workflow and exceptionally affordable media costs. Featuring camcorders with 1/2" interchangeable lenses, and based on the same XDCAM Professional Disc technology that had already transformed operational efficiency in the SD (Standard Definition) world, XDCAM HD offers an elegant path to HD for cost-conscious users looking to switch analog production or DVCAM.

MPEG HD encoding ensures crisp, clear image quality with true 1080 line HD resolution. Recording rates of 18 Mb/s, 25 Mb/s and 35 Mb/s, and support for 50GB Dual Layer Professional Disc, allows picture quality or record duration to be maximized. Support from 40 XDCAM partner vendors also ensures that XDCAM HD fits seamlessly into today's most popular non-linear editing environments.

XDCAM HD 422

Designed for exacting studio, news and location production environments, the top-of-the-line XDCAM HD 422 family takes HD performance to a whole new level. They offer striking-quality HD recording at a data rate of up to 50 Mb/s using the MPEG-2 4:2:2P@HL compression technology, "MPEG HD422". They also provide multi-format recording flexibility including 1080i, 720P, and SD, which comes with HD/SD conversion and cross conversion between 1080i and 720P.

Currently consisting of a camcorder and a recording deck, XDCAM HD 422's fast file-based operations and superb picture quality make them invaluable tools for applications such as news gathering where speed is a key concern, production for TV dramas, documentaries, and mainstream entertainment programs where a high-quality look is crucial.

The PDW-700 camcorder is equipped with three newly-developed 2/3" 'Power HAD FX' progressive CCDs with 1920 x 1080 effective pixels. Stunning-quality HD images can be captured by this high-resolution CCD in conjunction with the 14-bit A/D converter and advanced digital signal processing incorporated in the PDW-700.

The PDW-HD1500 is a half-rack-wide recording deck equipped with a range of interfaces including HD-SDI, SD-SDI, i.LINK, and Ethernet. This is ideal for both video-based installations and file-based nonlinear operations.

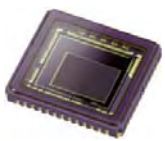
PMW-EX1**XDCAM EX HD Camcorder**

Incorporating all the benefits of the XDCAM HD optical disc-based recording system – tapeless workflow, selectable bit rates and outstanding picture performance, the PMW-EX1 adds new creative recording and lens features, to redefine the standard for a compact professional camcorder. The PMW-EX1 features three 1/2" Exmor CMOS sensors, 1920 x 1080 and 1280 x 720 HD recording capability, and flash memory recording using SxS PRO memory cards—based on the ExpressCard industry standard—as its recording media. Combining the moderate bit rate of MPEG-2 Long GOP compression with the SxS PRO memory card, the PMW-EX1 offers cost-effective long form recording coupled with non-linear capabilities such as random access and high speed file-based operation. Equipped with two SxS PRO memory card slots, it can record over two hours of HD footage using two 16GB SxS PRO memory cards.

The PMW-EX1 produces images in 1080P, 720P and 1080i HD resolutions. It is switchable between 1080P, 1080i and 720P with a multiple frame recording capability such as 59.94i, 50i, 29.97P, 25P and native 23.98P. What's more, it offers a "Slow & Quick Motion" capability, which is also commonly known as "over-and" and "under-cranking", allowing users to create unique looks or slow and fast motion effects. Other features include large 3.5" color LCD screen, Slow Shutter, interval recording, and a Picture Profile feature.

**FEATURES****Three 1/2" "Exmor" CMOS Sensors**

- ◆ Three 1/2-inch "Exmor" CMOS image sensors each with 1920 x 1080 effective pixels



delivers excellent picture performance with full HD resolution. It helps the camera to provide an excellent sensitivity of F10,

a remarkable S/N ratio of 54 dB, and high horizontal resolution of 1000 TV lines.

- ◆ The sensor also offers greatly reduced power consumption and associated heat dissipation, making possible the use of 1/2" sensors on a handheld camcorder.
- ◆ In addition, the large 1/2" image sensor can capture images with a shallower depth of field than other handheld camcorders with smaller-size image sensors, giving users more creative freedom of expression.

Uncompressed Audio

- ◆ For high-quality audio, it records and plays back high-quality, two-channel 16-bit, 48-kHz linear PCM uncompressed audio.

**Fujinon 14x Wide Angle Zoom Lens**

Equipped with a Fujinon HD 14x zoom lens, the PMW-EX1 offers optimum picture performance and unprecedented functionality. It offers a wide angle of view of 5.8mm (equivalent to 31.4mm on a 35mm lens), and many convenient features for diverse shooting situations. The lens has a unique focus ring mechanism which offers two types of manual focus, plus an auto focus operation. The

PMW-EX1 is equipped with two independent focus wheel mechanisms, which can be switched by sliding the focus ring itself back and forth.

- ◆ When the focus ring is in the front position, the lens works in the same way as a typical auto focus lens on a handheld camcorder. In this case, either manual or auto focus mode can be selected by the AF/MF switch on the lens. On the other hand, when the focus ring is set to the back position, the lens has an absolute focus position, and works in the same way as an interchangeable lens.
- ◆ In addition to the unique focus ring, there are independent rings for zoom and iris adjustment; all have physical stops and absolute markings permitting precise adjustments. The location, rotational range and feel are identical to manual high-end HD lenses.
- ◆ To minimize the blurring effect caused by hand-shake, the PMW-EX1 incorporates an optical image stabilizer function that provides highly stable images.
- ◆ AF (Auto Focus) Assist function enables users to manually change focus positions using the focus ring during AF mode. This means that AF reference focus positions can be positively shifted manually to a new position.
- ◆ MF (Manual Focus) Assist helps to precisely focus on the subject when shooting in MF mode. When the MF Assist is enabled, auto focus is momentarily activated by pressing the corresponding button, the camera will then finely focus on the subject closest to the focal point of the lens at that time.

PMW-EX1

XDCAM EX—New Generation HD Recording System

Nonlinear Recording Media, SxS PRO - for Greater Efficiency, Operability, and Reliability

Sony's newest brand of flash media, the SxS PRO Memory Card is based on ExpressCard media technology – the replacement standard for PC cards. Providing reliability, durability and expansion flexibility while offering improved performance, the card is the definitive media for HD video. Using a serial interface, the SxS PRO Memory Card transfers at high bus speeds, is very reliable and comes in a small size for significantly lower storage cost per minute. In addition to small size and long record times, the card increases workflow efficiency, with seamless transition from camcorder acquisition to PC or laptop for editing and archiving.



- ◆ Half the size of a conventional PC card (3 x 1½ x 7/32"), it fits in ExpressCard 34 and 54 slot sizes
- ◆ Uses PCI Express interface, and achieves an extremely high data transfer speed of 800 Mb/s
- ◆ Most new Macs and PCs are equipped with ExpressCard slots
- ◆ Highly reliable: can resist shocks (1500 G) and vibrations (15 G)

"MPEG-2 Long GOP" Codec

The PMW-EX1 records 1920 x 1080 HD images using the "MPEG-2 Long GOP" codec, which conforms to the MPEG-2 MP@HL compression. This highly efficient "MPEG-2 Long GOP" codec – that is also adopted in the XDCAM HD and HDV 1080i series of products – enables users to record stunning-quality HD video and audio over a long period of time by efficiently compressing the data.

Selectable Bit Rates

Select between 35 Mb/s (HQ mode) or 25 Mb/s (SP mode) depending on the desired picture quality and recording time. HQ mode supports both 1920 x 1080 and 1280 x 720 resolutions. SP mode supports 1440 x 1080 resolution at 25 Mb/s, which provides compatibility with HDV 1080i products. Footage recorded in the SP mode can be seamlessly integrated into HDV-compatible editing systems by connecting the camcorder via i.LINK interface. It can also be recorded on XDCAM HD's optical disc via the supplied Clip Browser software.

Long Recording Time

The moderate bit rates produced by the efficient MPEG-2 Long GOP compression allows 70 minutes (SP mode) and 50 minutes (HQ mode) to be recorded to a 16GB SxS PRO memory card. Equipped with two memory card slots, the PMW-EX1 can record up to 140 minutes. When a clip spans across two cards, the transition is seamless without any artifacts or frame loss. Cards can be hot-swapped while shooting without interrupting the recording. This makes the PMW-EX1 ideal for a wide variety of long form content-production applications.

Multiple-format Recording & Interlace/Progressive Operation

The PMW-EX1 offers a wide array of recording formats for multiple content creation applications. Scanning mode is switchable between 1920 x 1080, 1280 x 720, and 1440 x 1080 resolutions. Frame rate is also selectable from interlace and progressive – 59.94i, 50i, 29.97P, 25P, and native 23.98P. In addition, 59.94P, 50P, 25P, and native 23.98P progressive recording is available in 1280 x 720 mode. The SxS PRO memory card can simultaneously hold a mix of multiple files of any of these recording formats, allowing for flexible use of the memory card.

IT Friendly

Recordings are made as data files in the "MP4" format, which is widely used in a number of portable devices and has been standardized by ISO. The file-based recording allows material to be handled with great flexibility in a commonly available IT-based environment for copying, transferring, sharing, and archiving. All these operations are accomplished lossless without any "re-digitizing" process required. File-based data copying allows lossless dubbing of AV content, which can be performed easily on a PC. The file-based recording system allows for material to be viewed directly on a PC – simply by inserting the SxS PRO memory card into the ExpressCard slot on a PC, or by linking a PC to the XDCAM EX via USB. This works in the same way as a PC reads files on internal or external drives. The high speed file-based operation and SxS PRO memory card can dramatically improve the efficiency and quality of professional video applications.

No Accidental Overwriting of Footage, Immediate Recording Start

By virtue of recording on flash memory card, the PMW-EX1 makes each new recording on an empty area of the card. This is extremely convenient, as camera operators do not have to worry about accidentally recording over good takes, and they don't have to search through footage for the correct position to start the next recording. In short, it means the camera is always ready for the next shot!

Instant-access Thumbnail Search

With "Expand" Function

When a recording is started and stopped on the PMW-EX1, video and audio signals are recorded as one clip. During playback, you can cue-up to the next or previous clip simply by pressing the 'Next' or 'Previous' button. Furthermore, thumbnails are automatically generated for each clip as a visual reference, allowing operators to cue-up to a desired scene simply by guiding the cursor to a thumbnail and pressing the 'Play' button. For further convenience, the 'Expand' function allows one selected clip in the Thumbnail display to be divided into 12 even-time intervals, each with their own thumbnail identifier. This is useful if you want to quickly search for a particular scene within a lengthy clip.



PMW-EX1

Operational Versatility

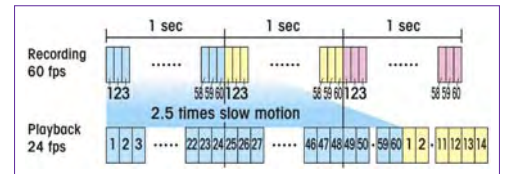
- ◆ 0.54" color LCD viewfinder displays high-resolution (250,000 pixels) color pictures in 16:9 widescreen mode. Operators can switch the display mode between color and monochrome according to their preference.
- ◆ Large, high resolution (1920 x 480 pixels) 3.5" color LCD Screen conveniently pivots under the built-in stereo microphone for storage. The LCD screen is located in the front, and can be flexibly rotated for accessible viewing from any shooting angle.
- ◆ The ease of focusing offered by the high resolution panel, location and adjustability permits the LCD to be used as a viewfinder or camera assistant operator panel. It can also be used to instantly review recorded footage, as well as access the camera's set-up menus and view thumbnails, display status indications such as audio meters, depth-of-field indicators, remaining memory capacity and battery time.
- ◆ The use of the hybrid LCD screen – which comprises transmissive and reflective panels – offers clear viewing in both studio and "full sun" field shooting conditions.



- ◆ At the touch of a button, the center of the screen on the LCD monitor and viewfinder can be magnified to about twice the size, making it easier to confirm focus settings during manual focusing.
- ◆ Peaking function lets users quickly and accurately adjust camera focus by altering the way pictures are displayed on the LCD monitor and viewfinder. It can enhance the outline of the image which the camera focuses on most, and change its color to make it stand out. Enhance levels can be selected from HIGH, MIDDLE and LOW, and the outline color from Red, White, Yellow and Blue.
- ◆ A depth-of-field graphic can be displayed on the LCD monitor and viewfinder to help users easily read the actual depth-of-field of a scene, and help set up the lens and

Creative Recording Modes and Settings

- ◆ The PMW-EX1 offers native 23.98P recording capability. This accompanied with other creative features makes the camcorder ideal for cinema production.
- ◆ A powerful Slow & Quick Motion function, commonly known as over-cranking and under-cranking by filmmakers, enables users to create unique 'looks' or slow and fast-motion special effects. The PMW-EX1 can capture images at frame rates selectable from 1 fps to 60 fps in 720P mode and from 1 fps to 30 fps in 1080P mode, in increments of 1 fps. For example, when viewed at 23.98P, images captured at 60 fps will appear 2.5x slower than normal. Conversely, images captured at four fps will appear 6x faster than normal.
- ◆ With the Slow & Quick Motion function of this camcorder, images are recorded natively with no padded frames and at full resolution. The obtained quality of the slow- and fast motion images is extremely high and incomparable from those created in the editing process. In addition, these slow- and quick-motion images can be played back immediately after shooting, without using any converters or processing on nonlinear editing systems.
- ◆ Offers a wide variety of gamma curves to flexibly handle contrast, and give a specific 'look' to an image. In addition to four types of standard gamma curves, the PMW-EX1 provides four types of CINE Gamma (CINE 1, 2, 3, and 4), which are identical to those on high-end CineAlta camcorders. Operators can select the best-suited preset gamma curve depending on scenes.
- ◆ Interval Recording function records one frame at pre-determined intervals. Use when shooting over long periods of time, and also when creating special effects with extremely quick motion.
- ◆ Unique Frame Recording is especially useful for clay animation shooting. Using this function, images for pre-determined frames are recorded every time the Record button is pressed.
- ◆ In addition to traditional electronic shutter speed controls adjustable in fractions of a second, the PMW-EX1 also has a "shutter angle" control – which is familiar to filmmakers. By setting the shutter adjustment mode to "angle", the PMW-EX1 automatically sets the proper exposure time, based on the selected frame rate and shutter angle.
- ◆ Slow Shutter function helps to capture clear images in low-light environments. The Slow Shutter function not only increases camera sensitivity but also produces a special blurring effect when shooting a moving object, for enhanced shooting creativity. The shutter speed is selectable from 2-, 3-, 4-, 5-, 6-, 7-, 8-, 16-, 32-, and 64- frame accumulation periods.



Picture Profile Feature

Picture Profile allows you to easily call up customized picture-tonal settings to suit particular shooting conditions, rather than having to readjust the camera each time – giving greater operational efficiency. Up to six different picture-tonal settings such as the parameters of matrix, color correction, detail, gamma, and knee can be saved in the memory. These settings are displayed on the LCD monitor at the touch of a button.

Shot Transition function

With a simple push of a button, Shot Transition allows smooth, precise and repeatable automatic scene transitions to occur. You can program the duration and select from three transition profiles: Linear, Soft Stop, or Soft Transition. Many lens parameter such as the start and end settings for zoom, focus, and/or camera parameters such as white balance and gain can be programmed to transition in unison. It works by automatically calculating the intermediate values during the scene transition. Shot Transition can be triggered manually or synchronized with the camera's REC start function. The transition progress can be checked on a bar graph on the LCD monitor. In addition, a start timer function is available for Shot Transition, helping to prevent you from missing a shot. This is very useful when changes to the lens or camera settings are required during the scene – such as changing the focus from the background to the foreground of a scene.

PMW-EX1

exposure for optimum depth-of-field control.

- ◆ The average brightness level of the center of a frame can be displayed on the LCD monitor and viewfinder as a percentage (%). This is useful when a waveform monitor is not available for shooting.
- ◆ Histogram Indicator can be displayed on the LCD monitor and viewfinder, allowing operators to easily evaluate the distribution of brightness of the currently captured images. This enables proper exposure control of iris, gain, and gamma.
- ◆ With the supplied BP-U30 battery, it can record continuously for up to two hours, while the optional BP-U60 battery extends the operating time to 4 hours.
- ◆ The hand grip can rotate approximately 120° which allows users to flexibly adjust the angle of the grip. This gives users greater control and comfort when holding the camera from any shooting position.
- ◆ Frequently used functions can be programmed onto four assignable buttons, allowing users to make rapid changes when working in the field. These functions can be ATW, Freeze Mix, Rec Review, Expanded Focus, Depth-of-field indicator, and more.
- ◆ The PMW-EX1 comes equipped with a built-in stereo microphone and two XLR audio inputs for connecting professional mics or feeding an external-line audio source. These allow high-quality, 2-channel 16-bit, 48-kHz linear PCM uncompressed audio to be recorded on the PMW-EX1.

Interfaces

- ◆ The PMW-EX1 comes equipped with a wide range of interfaces optimized for a variety of operational needs, wide interoperability and flexible workflow. These include an HD-SDI output, down-converted SD-SDI output, i.LINK (HDMI) input/output, and analog



Included Software

The PMW-EX1 comes with three application software packages that provide powerful and intuitive management of recorded contents in an easy way. Included are two versions of Clip Browser (one for Mac, one for PC) and XDCAM Transfer application software for Apple Final Cut Pro non-linear editing systems.

Clip Browser

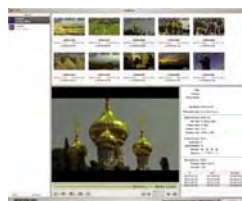
An easy-to-use software that allows users to easily browse and copy video clips recorded by the PMW-EX1 to other devices such as hard disk drives.

- ◆ Browse video clips recorded by the PMW-EX1 camcorder
- ◆ Copy clip files from the SxS PRO memory card
- ◆ Play back video clips on a PC
- ◆ Combine segmented clips recorded across two SxS PRO memory cards
- ◆ Convert MP4 files to the MXF format for export to non-linear editing systems



Clip Browser for PC

Clip Browser for Mac



XDCAM Transfer for Apple Final Cut Pro

A software plug-in for Apple Final Cut Pro, the PDZK-P1 XDCAM Transfer provides support for MP4 files recorded by XDCAM EX systems. With this software installed on a Macintosh computer, the PMW-EX1 camcorder or SxS PRO memory card can be mounted on Mac Finder directly, and users can seamlessly import and edit recorded material.

Optional Accessories

SxS Memory Card USB Reader/Writer (Mfr # SBAC-US10; B&H # SOSBACUS10)

A compact and portable SxS Memory Card USB reader/writer that connects to both Windows-based PCs and Macintosh computers via a USB 2.0 interface.....**243.00**

8GB SxS PRO Memory Card (Mfr # SBP-8; B&H # SOSBP8)**399.95**

16GB SxS PRO Memory Card (Mfr # SBP-16; B&H # SOSBP16)**875.00**



Batteries and Charger: Two compact batteries – the BP-U30 (28 Wh) and BP-U60 (56 Wh) – and the BC-U1 battery charger effectively support professional video shootings in both the field and the studio. The batteries are equipped with the professional INFO function that intelligently communicates battery status data to the PMW-EX1. The remaining capacity of the battery is displayed on the LCD monitor and

viewfinder when the camcorder is powered on. This intelligent battery-management function allows operators to monitor the battery status easily and accurately. (Four LEDs displaying 20%, 40%, 60% and 80% remaining capacity.)

BP-U30 (28 Wh) 2-Hour Lithium-ion Battery (Mfr # BP-U30; B&H # SOBPU30)**117.00**

BP-U60 (56 Wh) 4-Hour Lithium-ion Battery (Mfr # BP-U60; B&H # SOBPU60)**234.00**

BC-U1 Battery Charger (Mfr # BC-U1; B&H # SOBCU1): For BP-U30 and BP-U60 batteries. **117.00**

PMW-EX3

XDCAM EX HD Camcorder

The PMW-EX3 features similar functionality to the PMW-EX1, plus it features a removable lens system. It incorporates three 1/2" type "Exmor" Full HD CMOS Sensors, each with 1920 x 1080 effective pixels to deliver stunning-quality HD images in 1080P, 720P and 1080i HD resolutions. Frame rate is selectable from interlace and progressive, such as 59.94i, 50i, 59.94P, 50P, 29.97P, 25P and native 23.98P recording. For creative shooting, it features "Slow & Quick Motion", commonly known as "over-cranking" and "under-cranking", selectable gamma curves, slow-shutter, interval recording and Picture Profile feature. Additionally, the PMW-EX3 offers remote-control and multi-camera operation capability,



Same as the PMW-EX1 Except:

- ◆ The PMW-EX3 features a 1/2-inch "EX mount" interchangeable lens system that allows the lens to be as compact and lightweight as possible while maintaining its high optical performance. If a wide-angle lens is needed, the Fujinon 1/2" XS8X4AS-XB8 is available.
- ◆ A variety of 1/2" HD lenses from major manufacturers can be used with the PMW-EX3 via the supplied lens adapter, expanding the spectrum of creative expressions. 2/3" lenses can also be used using a 2/3" lens adapter equipped with a 12-pin lens connector.
- ◆ The PMW-EX3 comes equipped with a remote control interface. Various camera settings can be remotely controlled using an optional RM-B150 or RM-B750 Remote Control Unit via its 8-pin remote connector.
- ◆ The position of the shoulder pad of the PMW-EX3 can be selected from two positions. In addition, the PMW-EX3 comes with a detachable cheek pad. Users can always attain a comfortable and well-balanced camera position, even when the camcorder is docked with long lenses.

PMW-EX30

XDCAM EX Recording Deck

The PMW-EX30 is a versatile and affordable compact recording deck that can be used for many different applications. It allows simple viewing of recorded materials with a monitor, dubbing to other format/media such as HDV, XDCAM HD and HDCAM, and feeding to nonlinear editing systems. In addition, the PMW-EX30 can be used as an affordable full HD recorder for event recordings — it can record HD signal outputs from a switcher.

The PMW-EX30 is equipped with a wide array of interfaces including HD-SDI input and output, HDMI output, HD analog component, composite outputs and more. Equipped with two SxS PRO memory card slots, the PMW-EX30 can record up to 140 minutes of HD footage using two 16-GB SxS PRO memory cards. The recording time can be further extended up to approximately 260 minutes when an optional PHU-60K Professional Harddisk Unit is attached to the PMW-EX30 deck.



- ◆ Highly compact design - can be placed either horizontally or vertically
- ◆ MPEG HD recording and playback at 35 and 25 Mb/s
- ◆ Equipped with two SxS PRO memory card slots
- ◆ Built-in 3.5-inch LCD monitor
- ◆ Adjustable audio input volume (CH1 and CH2)
- ◆ Comprehensive range of HD interfaces - HD-SDI input/output, i.LINK (HDV) input/output and component output
- ◆ Down-converted SD outputs for migration to SD environments - SD-SDI, i.LINK (DVCAM), component, S-Video and composite
- ◆ HDMI output for digital connection to a range of consumer displays

XDCAM HD (Overview)

Versatile, Disc-based HD Recording System



Sony's XDCAM HD system is suitable for all types of users – including cinematographers, broadcasters, and video professionals – and complements the other products in the Sony range such as the HDCAM Series for high-end video production and the affordable, entry-level HDV Series.

One of the major characteristics of the XDCAM HD system is its use of an optical disc as a recording medium. Ideal for broadcasters, production facilities, corporate, government and

educational facilities, the tremendous benefits of disc-based operation include instant random access and network capability to name just a few. Sony's XDCAM HD brings these disc-based benefits to HD programming, providing much improved workflows and cost efficiencies as well as offering striking-quality HD images. The XDCAM HD lineup includes two camcorders, recorders and playback decks. They can record up to two hours of 1080i high-definition video onto professional disc media – a 23GB optical disc using blue-violet laser technology. They are also capable of recording at multiple frame rates such as 59.94i, 50i, and native 23.98P, and allow users to select the recording bit rate from 35, 25, and 18 Mb/s. The XDCAM HD system uses the "MPEG HD" codec, which is based on MPEG-2 MP@HL compression for HD video recording, and it provides four channels of high-quality uncompressed audio. Additionally, the camcorders have the ability to record and play back video in the DVCAM format, and the decks have the capability to play back material recorded in the DVCAM format along with HD up-conversion output capability.

Last but not least, the XDCAM HD camcorders and decks provide native 23.98P recording capability. Furthermore, the PDW-F350 offers "Slow & Quick Motion" capability, also commonly known as "over- and under-cranking", which allows users to create unique 'looks' or special effects of slow and fast motion. With a stunning level of HD picture quality, system flexibility, and operational conveniences, Sony XDCAM HD takes the world of HD production to a whole new level.

Key Features of the XDCAM HD System

The XDCAM HD system is a highly versatile production tool that offers flexible recording functionalities including a choice of video frame rates, interlace or progressive modes, recording data rates, and both HD or SD formats (4:3/16:9 selectable).

- XDCAM HD products offer a wide choice of video formats for both frame rates and scanning mode. They include 1080/59.94i, 50i, 29.97P, 25P, and native 23.98P.
- XDCAM HD products record 1080-line high-definition video using the "MPEG HD" codec that uses the industry-standard MPEG-2 MP@HL compression. The use of this codec, which is based on common MPEG compression, allows compatibility with many other devices such as nonlinear editing systems.
- In addition to HD video recording, XDCAM HD products can record four-channel, 16-bit, 48-kHz uncompressed audio.
- Users can select desired bit rates of either 35, 25, or 18 Mb/s depending on their requirements for picture quality and recording length. Choosing the highest bit rate of 35 Mb/s results in the highest-quality pictures and a recording time of 150 minutes (on a 50GB disc, while choosing the 18 Mb/s bit rate provides a longer recording time of up to 265 minutes.

XDCAM HD (Overview)

IT/Network Friendly

Recordings are made as data files in the MXF (Material eXchange Format) file format. This allows material to be handled with great flexibility in an IT-based environment – easily available for copying, transferring, sharing, and archiving – without any “digitizing” process required. File-based data copying allows for degradation-free dubbing of AV content, which can be performed easily on a PC. The file-based recording system also allows for material to be viewed directly on a PC, simply by linking an XDCAM unit via i.LINK. This works in just the same way as a PC reading files on an external drive.

XDCAM HD camcorders and decks include i.LINK supporting DV OUT and File Access Mode. An optional Gigabit Ethernet interface is available on the decks. Connecting them to an Ethernet network offers a network-based operations that can dramatically improve the efficiency of their workflows.

Scene Selection Function

Scene Selection allows simple cuts-only editing (video and audio of a clip cannot be edited independently) to be performed within the camcorder or deck itself. The results of the edits can be saved as an XDCAM EDL (called “Clip List”), which can be written back to the original disc to stay with the material. The disc can then be played back according to the Clip List so that only selected portions are played out in the desired order. Scene Selection delivers dramatic improvements in productivity when transferring material to a nonlinear editor and/or server, or when searching for material and/or edit points in linear editing systems. When GUI-based operation is preferred, Scene Selection can be performed on a PC running the bundled PDZ-1 Proxy Browsing Software, providing a visually familiar working environment.

Metadata

All XDCAM HD products can record a variety of metadata, which provides a huge advantage when searching for specific data after the initial recording has been made. Information such as production dates, creator names, and camera setup parameters can be saved together with the AV material on the same disc using the supplied PDZ-1 software. This makes it possible to organize and efficiently search through all recordings.

HD/SD Switchable Recording and Up/Down Conversion Capability

XDCAM HD camcorders provide the capability to record in DVCAM format with NTSC/PAL and 16:9/4:3 switchable modes, as well as the MPEG HD format. What’s more, both the XDCAM HD camcorders and decks incorporate a down-conversion capability that allows material recorded in the MPEG HD format to be converted to SD signals and output via the SD video output connectors (including SD composite and i.LINK connectors). This enables users to view the material on an SD monitor or transfer it to other SD-based equipment such as a VCR or editor. The PDW-F75 and PDW-F30 decks also boast an up-conversion capability, which allows DVCAM material to be converted to HD signals and output via its HD-SDI or HD analog component connector. Another powerful capability of the decks is up-conversion recording via the optional PDBK-104 board. This allows input signals from the SD-SDI or SD analog composite connector to be recorded in the MPEG HD format, further increasing flexibility in mixed SD/HD operations.

Powerful Nonlinear Recording –the Professional Disc Media

XDCAM HD products use the PFD23 large-capacity nonlinear optical disc for recording. The disc media is a 12cm, single-layer, reusable optical disc with a capacity of 23 GB. This large capacity makes it possible to record up to two hours of HD material on a single disc. The disc media is highly reliable and durable because it experiences no mechanical contact during recording or playback, and is packaged into an extremely durable and dust-resistant disc cartridge.

The non-contact recording and playback also makes it an ideal media for long-term storage of AV assets. Whereas traditional tape archive systems must be rewound on a periodic basis to remove magnetic powder debris, the Professional Disc media completely eliminates this process. Its reliability has already been demonstrated by the SD version of the XDCAM products in various areas such as ENG and EFP.

Power of Proxy Data –Highly Streamlined Workflows

While recording video and audio, they products also record a low-resolution version of this AV data on the same disc. Called “Proxy Data”, this is much smaller in size—only 1.5 Mb/s for video and 0.5 Mb/s for audio, and its format is identical to that of the SD version of the XDCAM products. Because of its lower resolution, Proxy Data can be transferred to a PC at an amazingly high speed, and easily browsed and edited using the PDZ-1 Proxy Browsing Software (or 3rd party compatible editing software). What’s more, with the PDZ-1 software, it can be converted to the popular ASF format for playback on Windows Media Player, providing dramatic improvements in production workflows. Proxy Data can also be viewed directly on a PC without data transfer using an i.LINK (File Access Mode) connection, and can even be sent over a standard Ethernet network. The overall flexibility of Proxy Data means that it can be used for a variety of applications, such as immediate logging on location, off-line editing, daily rushes of shooting on location, client approvals, and more.

Editing Solutions

XDCAM HD products are equipped with both conventional AV and IT-based interfaces for flexible integration into a wide array of editing environments. These interfaces include HD-SDI, HD analog component video, analog/digital audio, and RS-422A 9-pin remote control – enabling connection to a wide variety of VCRs, linear and nonlinear editors, and audio mixers. SD interfaces, including SD-SDI and SD analog composite, are also provided for down-converted SD outputs, allowing the XDCAM HD system to be integrated into a conventional SD-based editing environment as well. Another interface that all XDCAM devices provide is an i.LINK interface that supports DV OUT and File Access Mode.

Recordings made in both MPEG HD and DVCAM formats can be output as DV files via the i.LINK port, and then used in DV-based nonlinear editing system. The i.LINK (File Access Mode) allows not only SD (DVCAM) files but also HD (MPEG HD) files to be written (recorded) onto and read from the disc. This lets you to establish an extremely compact and affordable HD nonlinear edit-

PDW-F335 • PDW-F355



XDCAM HD Camcorders

The PDW-F350 and PDW-F330 are highly versatile and cost-effective HD camcorders. Equipped with three 1/2" HD CCDs they offer HD recording in 1080/59.94i, 50i, 29.97P, 25P, and 23.98P modes – as well as DVCAM-format recording. A rich variety of features useful for creative shooting are incorporated into these camcorders such as interval recording, slow-shutter, and selectable gamma curve. Additionally, the PDW-F355 provides a "Slow & Quick Motion" function, which is also commonly known as "over-cranking" and "under-cranking".

Disc recording provides users with a number of benefits that are especially useful during shooting. For example, because new footage is always recorded onto an empty area of the disc, there is no need to cue-up to the next recording position before shooting. This means that operators can start shooting without the worry of accidentally recording over existing footage. In short, the XDCAM HD camcorders are ideally suited to a broad array of shooting opportunities such as event shooting, news gathering, field productions, and indie productions.

FEATURES

Highest Quality

- ◆ They are equipped with three 1/2" high-performance HD Power HAD CCDs. Featuring 1440 x 1080 resolution (each), the CCDs provide outstanding sensitivity of F9 (at 2000 lx, 3200K), aS/N ratio of 54 dB, and a low vertical smear level of -120 dB.
- ◆ High-integrity 12-bit A/D conversion circuit allows images captured by the Power HAD CCDs to be processed with great precision. This high-resolution A/D conversion allows the contrast to be reproduced faithfully in both mid-to-dark tone and bright areas of the picture.
- ◆ A key to quality in DSP cameras is how many bits are used in their nonlinear processes, such as gamma correction. The ADSP of the PDW-350 and F330 uses more than 30-bits in nonlinear processes, minimizing round-off errors to maintain the high quality of the Power HAD CCDs. The ADSP also enables highly sophisticated image controls, such as skin tone detail control and Dynamic Contrast Controls.
- ◆ They record high-quality uncompressed four-channel audio in HD recording mode. They are also equipped with a range of audio interfaces.

A Wide Choice of Lenses

Both camcorders are also capable of auto focus. When the VCL-719BXS lens is used, operators can adjust the focus during manual focus mode simply by pushing the "PUSH AF" button. It also provides a full-time autofocus function that automatically tracks the focus in a dynamic manner. This is especially convenient for one-man shooting situations, when the camera operator is also performing other tasks and doesn't have the capacity to alter the focus manually.

A variety of 1/2" HD lenses are separately available to offer optimum performance with the XDCAM HD camcorders. A 2/3" lens can also be used with the optional LO-32BMT lens adaptor. This allows users to choose from a broad range of lenses, including cinema-style lenses, according to their particular shooting requirements.

High Performance

- ◆ One of the big appeals of the XDCAM HD camcorders is their highly flexible multi-format recording capability. Users can select a recording format from HD (MPEG HD) or SD (DVCAM), 59.94i/50i interlace mode, or 29.97P/25P/23.98P progressive mode.
- ◆ They offer two convenient features – Slow Shutter and Turbo Gain – for shooting in low-light conditions, which can be used alone or together depending on the situation or your preference. The Slow Shutter function allows operators to use shutter speeds longer than the frame rate, and to intentionally blur images when shooting a moving object, for increased shooting creativity. The Turbo Gain function allows the camera gain to be boosted up to +48 dB.
- ◆ They offer highly advanced image control features such as Skin Tone Detail and Dynamic Contrast Control, allowing operators to create stunning images. They also incorporate noise reduction to reproduce low-light scenes more clearly.
- ◆ Picture Cache recording provides up to 12 seconds of loop recording using solid state memory. When in Standby mode and the REC button is pressed, everything that happened up till 12 seconds before that moment can be recorded to disc. Valuable shots, which would otherwise have been missed, are now captured.

PDW-F335 • PDW-F355

Conveniences

- ◆ They are designed to be compact, light-weight, and ergonomically well balanced, providing a high level of mobility and comfort in various shooting situations. They weigh under 12 lbs. including viewfinder, microphone, disc and battery pack.
- ◆ A number of unique design features are used to minimize errors caused by shock or dust entering the disc drive. The disc drive entrance is concealed by two lids, helping to prevent any dust from entering the drive. In addition, four rubber dampers are used to hold the disc drive block in place and to absorb the shocks that would otherwise go into the disc drive.
- ◆ A large, easy-to-view, 3.5" color LCD screen on the side panel enables operators to instantly review recorded footage, as well as access the set-up menus and view status indications such as 4-channel audio meters, and the remaining disc and battery time. It also enables advanced operations such as Thumbnail Search and Scene Selection.
- ◆ The PDW-F355 is equipped with the DXF-20W 2" monochrome viewfinder as standard. The PDW-F335 is equipped with the DXF-801 1.5" monochrome viewfinder as standard, although the DXF-20W is available as an option.
- ◆ The PDW-F355 has a "Live & Play" function that can simultaneously output both playback signals (images already recorded) and incoming camera signals (images seen through the viewfinder). Both signals are fed to their respective output and viewfinder connectors independently and can be viewed at the same time. This allows users to frame the next shot, adjust the exposure and focus the lens while the camcorder is playing back recordings from the disc.

Wide Variety of Interfaces

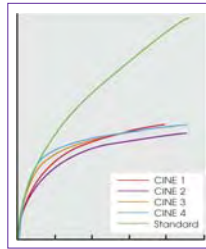
The PDW-F335 and PDW-F355 come equipped with a wide range of interfaces as standard:

They have timecode I/O, 4-pin XLR power input, genlock video input, mic input (XLR 5-pin), 2 XLR line/mic/mic +48v selectable inputs and i.LINK interface. They each offer composite video output, headphone jack and two audio outputs. The PDW-F335 offers analog component SD/HD output (BNC x3), the PDW-F355 offers SD-SDI and HD-SDI output.

Creative Versatility for Movie Making

Part of Sony's CineAlta family, they provide many creative features for movies production.

- ◆ Interval recording function records signals at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating pictures with special effects of extremely quick motion.



- ◆ Operators can choose from five types of gamma curves (Standard, CINE 1, 2, 3 and 4). CINE 1-4 gamma curves provide natural tonal reproductions for scenes with wide dynamic ranges. The CINE 1 and 2 curves are inherited from HyperGamma, which is available on the top-of-the-line CineAlta camcorder.
- ◆ The PDW-F355 (only) has a genlock video input that can accept a 23.98PsF signal input. This allows multi-camera operation in 23.98P mode. The camcorder can also output 23.98PsF pictures as well as 2-3 pull-down converted images from the HD-SDI connector.
- ◆ The PDW-F355 (only) offers a powerful Slow & Quick Motion Function that enables users to create elegant fast- and slow-motion footage – commonly known as over- and under-cranking in film shooting. The PDW-F355 can capture images at frame rates selectable from 4 fps (frame per second) to 60 fps in increments of 1 fps. For example, when viewed at 23.98P, images captured at 4 fps will appear 6x faster than normal. Conversely, images captured at 60 fps will appear 2.5x slower than normal. The quality of the slow- and fast-motion images created using the PDW-F355 is extremely high and incomparable to those created in the editing process. Another spectacular benefit is that users can see the results right in the camcorder's LCD screen, without using any converters or processing on non-linear editing systems. This ensures maximum creativity during the shooting process.

Additional Features

- ◆ Built-in ND filter wheel: Clear, 1/4ND, 1/16ND, 1/64ND.
- ◆ Down-conversion output: MPEG HD playback can be converted to SD signals and output via the composite, component (PDW-F335 only), or i.LINK connector.
- ◆ Freeze Mix function superimposes a previously recorded image on the viewfinder. This allows users to quickly and easily frame or reposition a subject when a shot must be taken from the same position or in the same framework as a previous take.
- ◆ Ability to write on EDL (the result of Scene Selection) back onto disc
- ◆ Proxy Data recording
- ◆ Auto Tracing White Balance for automatic adjustments in camera color temperature according to lighting changes.
- ◆ Memory Stick (Pro) media (up to 2GB) for storage of camcorder setup files.
- ◆ Metadata recording: UMID, Extended UMID, EssenceMark (Shot Mark).
- ◆ Sony WRR-855 Series Wireless Microphone Receiver can be attached via the optional CA-WRR855 adaptor.
- ◆ Remote control operation via Sony RM-B150 and RM-B750 remote control units.
- ◆ Intelligent light system synchronizes strobe on/off to the REC button.
- ◆ They come bundled with four software packages: PDZ-1 Proxy Browsing Software, PDZ-VX10 XDCAM Viewing Software, Proxy Viewer Software and PDZK-P1 XDCAM Transfer Software (for use with Final Cut



PDW-F335 • PDW-F355

PDZ-1 Software

An easy-to-use PC application that allows you to browse and storyboard video clips recorded by an XDCAM system. It runs on Windows-based PCs and supports three types of interfaces: i.LINK (File Access Mode), Ethernet, and USB (only for connection with the PDW-U1).

Once Proxy Data recorded on a Professional Disc media is transferred to a PC running PDZ-1, you can conveniently view and storyboard recorded footage right on the PC. PDZ-1 also provides a variety of convenient tools for disc operations

such as entire or partial disc copy (dubbing), and transfer between two XDCAM devices.

Storyboarding on a PC not only allows users to preview their edited sequences instantly, it also provides other powerful benefits such as the creation of ASF files (playable on Windows Media Player) and EDL data in various EDL formats, plus the transfer of high-resolution clips selected in the edited sequence.

- ◆ High-speed ingestion of Proxy Data from the XDCAM devices
- ◆ Browsing of Proxy Data recorded by the XDCAM systems (including those recorded by the SD version of the XDCAM system)
- ◆ Simple and quick cuts-only editing (storyboarding) with the following functions: Preview a result of the storyboard on the PC; Save the results as a Clip List (XDCAM EDL); Convert the Proxy Data on the storyboard to an ASF file for replay on Windows Media Player
- ◆ Export the Clip List in AAF, BE-9100, NewsBase XML, and ALE (Avid Log Exchange) formats
- ◆ Transfer high-resolution clips according to the Clip List
- ◆ Transfer selected clips with margins at the head and tail of the clips
- ◆ Disc copy – entire disc (all clips) or only selected clips
- ◆ Registration of metadata such as “title”, “creator”, or “comments” for a disc or clip
- ◆ Registration of “Essence Mark” metadata for instant cue-up to desired scenes. Names for the Essence Mark can also be easily assigned
- ◆ Automatic renaming of clips by predetermined rule (use-predetermined prefix plus sequential numbers)
- ◆ Clip search function using the registered metadata as a keyword
- ◆ Print function allows metadata such as thumbnails, creation date, and comments to be printed out in an easy-to-see storyboard view



PDZ-VX10 Sony XDCAM Viewer

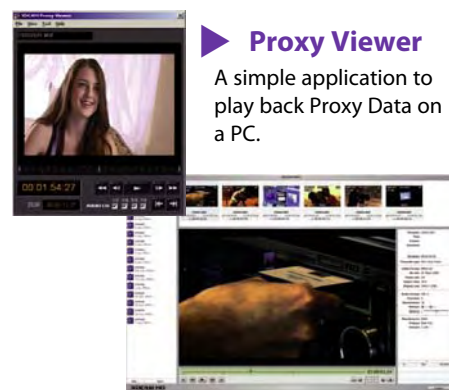
Allows you to view high-resolution and Proxy MXF files recorded by XDCAM systems on your PC. With this software, thumbnails for

all clips can be displayed in Windows Explorer, enabling the contents of the disc to be scanned through easily and quickly.



Proxy Viewer

A simple application to play back Proxy Data on a PC.



PDZK-P1

XDCAM Transfer for Final Cut Pro

A plug-in software for Final Cut Pro, it provides native support for MXF files recorded by XDCAM systems. With the software installed, XDCAM devices can be mounted on Mac Finder via i.LINK, and users can seamlessly import, edit, and export recorded material.

	PDW-F335	PDW-F355
Image Device	1/2" power HAD HD 3CCD, 16:9/4:3 switchable	1/2" power HAD HD 3CCD, 16:9/4:3 switchable
Lens Mount	Sony 1/2" Bayonet Mount	Sony 1/2" Bayonet Mount
Signal-to-Noise Ratio	54 dB	54 dB
Resolution	1440 x 1080	1440 x 1080
Sensitivity	f/9 @ 2000 Lux	f/9 @ 2000 Lux
Minimum Illumination	0.004 lux with f1.4, +48 dB gain	0.004 lux with f1.4, +48 dB gain
Signal System	DVCAM: NTSC/PAL switchable; MPEG HD: MPEG-2	DVCAM: NTSC/PAL switchable; MPEG HD: MPEG-2
Vertical Smear	-120 dB	-120 dB
Built-in Filters	ND Filter, 1: Clear, 2: 1/4 ND, 3: 1/16 ND, 4: 1/64 ND	ND Filter, 1: Clear, 2: 1/4 ND, 3: 1/16 ND, 4: 1/64 ND
LCD Monitor	3.5" (8.89cm)	3.5" (8.89cm)
Viewfinder	2" monochrome, quick start type	2" monochrome, quick start type
Weight	8.4 lb (3.8 kg)	8.7 lb (3.9 kg)
B&H # / Mfr #	(Mfr # PDW-F335L; B&H # SOPDWF335L)	(Mfr # PDW-F355L; B&H # SOPDWF355L)

PDW-F335 • PDW-F355

PDW-F335 XDCAM HD 1/2" 3-CCD Camera

(Mfr # PDW-F335L; B&H # SOPDWF335L) CALL

PDW-F335 XDCAM HD 1/2" 3-CCD Camera Kit (B&H

#SOPDWF335LK)

Kit includes PDW-F335 XDCAM HD 1/2" 3-CCD camera, a Sony PDW-U1 XDCAM drive unit that is fitted with a high-speed USB 2.0 capable of high transfer speeds, and Sony Vegas Pro 8 Video Editing

software for Windows 14,999.95

PDW-F355 XDCAM HD 1/2" 3-CCD Camera

(Mfr # PDW-F355L • B&H # SOPDWF355L) CALL

PDW-F355 XDCAM HD 1/2" 3-CCD Camera Kit (B&H

#SOPDWF355LK)

Kit includes PDW-F355 XDCAM HD 1/2" 3-CCD camera, a Sony PDW-U1 XDCAM drive unit that is fitted with a high-speed USB 2.0

2/3" to 1/2" Lens Mount Adapter

(Mfr # LO32BMT; B&H # SOLO32BMT): Allows mounting of a 2/3" lens on 1/2" cameras CALL

2" Monochrome Viewfinder (Mfr # DXF20W; B&H

#SODXF20W): Provides extra resolution and ample detail. For the PDW-F335 only (Comes standard with the PDW-F355).....2399.95

5" Monochrome Viewfinder (Mfr # DXF51; B&H

SODXF51): With 650 lines of resolution. When connected to a 16:9 aspect camera, the viewfinder will automatically switch the aspect ratio from 4:3 to 16:9. (Requires VDDXF51 accessory shoe kit).....CALL

65WH Li-Ion V-Mount Battery (Mfr # BPGL65; B&H

SOBPL65): With advanced INFO feature that provides accurate power consumption and run-time information 274.95

95WH Li-Ion V-Mount Battery (Mfr # BPGL95; B&H

SOBPL95): With advanced INFO feature that provides accurate power consumption and run-time information 549.95

Lithium-ion Battery Pack (Mfr # BPL60S; B&H

SOBPL60S): A 14.4v/65Wh li-ion rechargeable battery pack that can power the average pro camcorder for 160 minutes. A 5-step LED capacity indicator is built-in for easy reference of remaining capacity.....399.95

Compact 2-Channel Battery Charger (Mfr

BCL70; B&H # SOBCL70): For Sony V-Mount lithium-ion batteries. Up to two battery packs can be charged sequentially.....599.95

4-Channel Battery Charger (Mfr # BCM150; B&H

SOBCM150): For BP-L Series li-ion and BP-M100 and BP-M50 nickel metal hydride battery packs. Charges up to 4 batteries sequentially. LED indicators indicate charge/discharge status of a nickel metal hydride battery. LCD screen indicates information such as battery reserve, charge time for full charge, charge/discharge cycles. DC power output to an external device via the XLR 4-pin connec-



tor.....1099.95

4-Channel Lithium-Ion Battery Charger

(Mfr # BCL500; B&H # SOBCL500): A desktop-type four-channel quick charger for the BP-GL/IL/L Series li-ion batteries. It has a compact space saving design — 3U high, 19" rack mountable with front I/O mechanisms. A BP-GL95 can be fully charged in approx. 145 minutes....1399.95

AC Adapter/Charger (Mfr # ACDN10; B&H

SOACDN10): A compact and lightweight AC power supply and charger. A V-mount mechanism for direct attachment to compatible camcorders.....609.95

Hand-Held Remote Control (Mfr # RMB150A; B&H

SORMB150): A set-up controller that connects to the camera head or the rear-mounted camera adapter via an 8-pin remote connector. It allows you to remotely control basic functions like gain, shutter, pedestal, knee and iris.....2099.95

Shipping Case with Built-in Wheels (Mfr

LC424TH; B&H # SOLC424TH): A rugged ATA-certified hard-shell Thermodyne carrying and shipping case with a custom foam interior for complete protection of a camcorder with a lens, two batteries, charger, tripod adapter and tape. It has weather-resistant, gasket-sealed construction, heavy-duty field replacement hardware plus a spring loaded handle and latches, and conforms to airline carry-on regulations CALL

Soft Carrying Case (Mfr # LC400BP; B&H

SOLC400BP): Holds full-size camcorders equipped with accessories. An ultra-wide opening allows insertion of the camera without disturbing the viewfinder or microphone. Floor, viewfinder and microphone compartments are reinforced with cold-molded laminate panels. Bottom risers offer protection from below. The bag features two accessory pockets, an ergonomic interlock handle, dual padded strap, three

PDW-F75 • PDW-F30

XDCAM HD Recorder • NLE Feeder/Viewer

The XDCAM HD decks are highly versatile, making them useful for many different applications including HD video recording, linear/nonlinear editing, and presentations at large exhibition or conference venues. The PDW-F75 is a powerful recording deck that can record in both high definition (MPEG HD) and standard definition (DVCAM) modes. It can record onto both 25GB single layer and 50GB dual layer, providing up to 4.5 of HD recording. The PDW-F75 is equipped with a comprehensive range of interfaces for integration into both A/V and IT-based systems. Includes HD-SDI input and output, composite and



HD analog component outputs, and more.

The PDW-F30 is an NLE feeder/viewer type deck, but also offers the capability to record MXF files (in both MPEG HD and DVCAM formats) via its i.LINK (File Access Mode) or Ethernet interfaces. Both decks offer the capability to input and output 25 Mb/s HDV stream (MPEG-2 TS) for interfacing with HDV products or HDV-based nonlinear editors via i.LINK. The decks are also

equipped with a VCR-like jog dial, providing familiar and fast control of the playback. In addition to random-access capability, 'Thumbnail Search', 'Expand' and 'Scene Selection' functions significantly increase operational efficiency.



FEATURES

- ◆ Playback of MPEG HD and DVCAM material
- ◆ Scene Selection function for in-deck cuts-only editing
- ◆ Up-conversion output: DVCAM playback can be converted to 1080i HD signals and output via the HD connectors.
- ◆ Thumbnail Search operation
- ◆ Expand function
- ◆ Both are equipped with a Jog/Shuttle dial that provides VCR-like operation:
 - Jog: 1x normal speed
 - Variable: -1 to +2x normal speed
 - Shuttle: ± 20x normal speed
- ◆ Repeat playback function
- ◆ Gigabit Ethernet capability for network-based file transfer (requires the optional PDBK-101 board)
- ◆ Input and output 25 Mb/s HDV stream (MPEG-2 TS) for interfacing with HDV products or HDV-based nonlinear editor via an i.LINK port (requires the optional PDBK-102 board)

PDW-F75 Only

- ◆ MPEG HD recording at 35, 25 and 18 Mb/s via HD-SDI, HD analog component and RGB input (HD analog component and RGB input requires optional PDBK-103 board)
- ◆ Up-conversion recording (requires the optional PDBK-104 board): Input from SD-SDI or composite connectors can be recorded in the MPEG HD format.
- ◆ Down-conversion output: MPEG HD playback can be converted to SD signals and output via the SD-SDI, composite and i.LINK (DV OUT) connectors.
- ◆ Trigger REC function (synchronized recording with the HDW-730/750 series, HDW-790 and HDW-F900R HDCAM camcorders via HD-SDI input.
- ◆ They have a large 3.5" 16:9 widescreen color LCD screen for displaying playback pictures, audio monitors, timecode and setup menus
- ◆ Compact and lightweight design; they can be placed either horizontally or vertically
- ◆ Both include a simple remote control
- ◆ They come bundled with four software packages: PDZ-1 Proxy Browsing Software, PDZ-VX10 XDCAM Viewing Software, Proxy Viewer Software and PDZK-P1 XDCAM Transfer Software (for use with Final Cut Pro).



PDZ-1 Proxy Browsing Software

PDW-F75 • PDW-F30

PDW-F30 XDCAM HD Player (Mfr # PDWF30; B&H # SOPDWF30): With MPEG HD/DVCAM playback, i.LINK	8499.95
PDW-F75 XDCAM HD Recorder (Mfr # PDW-F75; B&H # SOPDWF75): Dual-Layer, with MPEG HD/DVCAM playback, i.LINK	CALL
RMM-F7030 Rackmount Kit (Mfr # RMMF7030; B&H # SORMMF7030): For PDW-F30 and PDW-F75	319.95

Inputs/Outputs

	PDW-F70	PDW-F30
INPUT		
HD-SDI	✓	—
HD analog component	✓ w/PDBK-103	—
RGB	✓ w/PDBK-103	—
SD-SDI	✓ w/PDBK-104	—
SD analog composite	✓ w/PDBK-104	—
Digital audio	✓	—
Analog audio	✓	—
Timecode	✓	—
Reference	✓	—
OUTPUT		
HD-SDI	✓	—
HD analog component ²	✓ ¹	✓ ¹
RGB	✓ ¹	✓ ¹
SD-SDI	✓	—
SD analog composite	✓	✓
Digital audio	✓	—
Analog audio	✓	✓
Audio monitor	✓	✓
Timecode	✓	—
OTHERS		
i.LINK (DV OUT)	✓	✓
i.LINK (File Access Mode)	✓	✓
i.LINK (HDV)	✓ w/PDBK-102	✓ w/PDBK-102
Ethernet	✓ w/PDBK-101	✓ w/PDBK-101
Remote	RS-422, RS-232C	RS-422, RS-232C

1. HD analog component & RGB outputs share the same D-sub 15-pin connector.
2. 1080/23.98P recordings are output as 1080/59.94i signals via 2-3 pull-down conversion.

RM-280

Portable Editing Controller

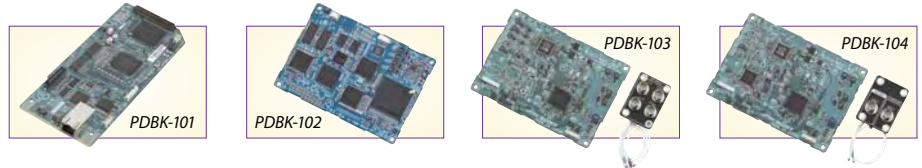
The optional RM-280 is a compact editing controller intended for simple VCR remote control or basic two-machine editing via RS-422 interface. Its extremely compact and lightweight design allows use as a handheld VCR remote. Basic editing functions including insert and assemble editing which is accompanied by a jog/shuttle dial. The RM-280 also supports multiple frame rates.



RM-280 Portable Editing Controller
(Mfr # RM280; B&H # SORM280)**2357.50**

Interface Options

Four types of optional boards are available for the decks:



Optional Plug-In Board (Mfr # PDBK101; B&H # SOPDBK101): Provides a Gigabit Ethernet interface with the PDW-F75 and PDW-F30**1799.95**

HDV Input/Output Board (Mfr # PDBK102; B&H # SOPDBK102): Allows 25 Mb/s HDV stream (MPEG-2 TS) to be input and output between the PDW-F75/F30 decks and an HDV device.....**1799.95**

RGB/HD Component Input Board (Mfr # PDBK103; B&H # SOPDBK103): Provides HD analog component and RGB inputs with the PDW-F75 (these inputs share the same BNC connectors)**1799.95**

SD Up-Conversion Board (Mfr # PDBK104; B&H # SOPDBK104): Provides the SD-SDI and SD composite input with the PDW-F75**1799.95**

*Only one of the PDBK-102, PDBK-103 or PDBK-104 boards can be installed at any one time.

PDW-U1 XD CAM Drive Unit

The PDW-U1 brings XDCAM HD operation to the desktop. It allows material recorded on Professional Disc media to be viewed directly on a PC via its USB interface. It can also be used as a source feeder for non-linear editing systems. The PDW-U1 can handle both XDCAM HD and SD discs, providing a high level of versatility and cost-efficiency. Its compact and lightweight design makes it equally ideal for field and desktop use.



- ◆ Handles files in XDCAM HD and SD formats
- ◆ Handles both dual-layer (PFD50DLA) and single-layer (PFD23A) discs
- ◆ Supports hi-speed USB 2.0 interface — compatible with most PCs
- ◆ Allows direct access to files on Professional Disc media from a USB-connected computer
- ◆ High-speed file transfers with the newly developed optical drive
- ◆ Material browsing using the supplied PDZ-VX10 XDCAM Viewer software and PDZ-1 Proxy Browsing software
- ◆ Compact and lightweight, it measures 2-3/8 x 6-1/2 x 9" (WHD) and weighs 3 lbs.
- ◆ Can be operated either horizontally or vertically

PDW-U1 XDCAM Drive Unit

PDW-700

2/3" XDCAM HD422 Camcorder



Sony's top-of-the-line XDCAM camcorder, the PDW-700 offers striking-quality HD recording at a rate of up to 50MB/s (on 50GB Dual Layer discs) using the MPEG-2 4:2:2P@HL compression, "MPEG HD422. It also provides multi-format recording capability including 1080i, 720p and SD, which comes with HD/SD conversion and cross conversion between 1080i and 720p.

The PDW-700 is equipped with three 2/3" CCDs – a "Power HAD FX" progressive CCD with 1920 x 1080 effective pixels. Stunning-quality HD images are captured by this high-resolution CCD in conjunction with the 14-bit A/D converter, 4:2:2 sampling and recording, and advanced digital signal processing.

It features two HD/SD-SDI outputs and a composite/HD-Y output, as well as a pool-feed input (HD/SD-SDI and composite) input

options. The camera's ruggedness and durability have been enhanced with dust and water resistant mechanisms, as well as new features to cool the camera and reduce fan noise. The camcorder maintains XDCAM's file-based architecture and use of proxy video and metadata. It also features a digital extender, picture cache, interval recording, slow shutter, focus magnification, clean switching between the "live and playback" function, and a large 3.5" LCD screen. With fast file-based operations and superb picture quality, the PDW-700 is an invaluable tool for news gathering, TV, documentaries, and mainstream entertainment programming where a high-quality look is everything.

FEATURES

Highest Quality

- ◆ Equipped with three 2/3" high-performance Power HAD FX CCDs. Featuring 1920 x 1080 resolution (each), the CCDs provide outstanding sensitivity of F11 (at 2000 lux), a S/N ratio of 54 dB, minimum illumination of 0.016 lux (F1.4 lens, +42dB, 16 Frame) and a low vertical smear level of -135 dB.
- ◆ 14-bit A/D conversion circuitry allows images captured by the Power HAD FX CCDs to be processed with great precision. This high-resolution A/D conversion allows contrast to be reproduced faithfully in both mid-to-dark tone and bright areas of the picture.
- ◆ Thanks to the 14-bit A/D converter, pre-knee signal compression in highlighted areas can be eliminated, and the camera can clearly reproduce a high-luminance subject at a 600% dynamic range. DSP LSI in conjunction with the 14-bit A/D converter reproduces images captured by the CCD at maximum quality. In addition, white balance, white shading, and flare are digitally corrected, allowing for stable image correction.

High Performance

- ◆ Picture Cache recording buffers up to 30 seconds of audio and video signals into the camcorder's memory before the Rec start button is even pressed (when in Standby mode). Plus, this function works even before the disc is inserted in the drive.
- ◆ Wide variety of capture modes including 1080/50i, 1080/59.94i, 1080/25P and 1080/29.97P are available.
- ◆ Highly flexible multi-format recording capability lets users select a recording format from HD (MPEG HD422 and MPEG HD*) and SD (MPEG IMX* and DVCAM*), 59.94i/50i interlace mode, or 29.97P*/25P progressive mode. (* with the optional CBKZ-MD01 SD record and playback software).
- ◆ Interval Recording function records signals at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating pictures with special effects of extremely quick motion.
- ◆ With optional HDCA-702 MPEG TS Adaptor, the PDW-700 provides MPEG Transport Stream output capability via a DVB-ASI connector. The HDCA-702 encodes signals to MPEG TS and output via its DVB-ASI connector, concurrently with the PDW-700 recording onto disc. The bit rate is selectable from 17.5 Mb/s to 43 Mb/s, which is suitable for material transmissions using microwave and satellite modulators.
- ◆ The shutter speed of the PDW-700 is selectable down to a 16-frame period (in 2-, 3-, 4-, 5-, 6-, 7-, 8- and 16-frame periods). During such a long frame period, electrical charges accumulate on the CCDs which dramatically increases sensitivity. This helps camera operators to shoot in extremely dark environments. The Slow Shutter function also allows operators to use shutter speeds longer than the frame rate and to intentionally blur images when shooting a moving object, for increased shooting creativity.

- ◆ Records uncompressed four-channel, 24-bit audio. It is also equipped with a range of audio interfaces.
- ◆ Equipped with a slot to accommodate the DWR-S01D digital wireless mic receiver, which provides two-channel audio with stable and secure transmission tolerant to interference waves. The WRR-855 series receiver can also be used in this slot.
- ◆ The PDW-700 has a Live & Play function that can simultaneously output both playback signals (images already recorded) and incoming camera signals (images seen through the viewfinder). Both signals are fed to their respective output and viewfinder connectors independently, and can be viewed at the same time. This allows users to frame the next shot, adjust the exposure, and even focus the lens while the camcorder is playing back recordings from the disc.
- ◆ Digital Extender enables images to be digitally doubled in size. Unlike lens extenders, this function performs this capability without any loss of image sensitivity, which is often referred to as the F-drop phenomenon.
- ◆ For pool-feed operations, CBK-HD01 and CBK-SC02 boards provide HD- and SD-SDI inputs, and SD composite input respectively.
- ◆ Trigger REC function enables synchronized recording with PDW-HD1500 and PDW-F75 XDCAM decks or HDCAM portable decks connected via the HD-SDI interface – a convenient feature for backup recording.
- ◆ Freeze Mix function superimposes a previously recorded image on the viewfinder; this allows the operator to quickly and easily frame or reposition a subject when a shot must be taken from the same position or in the same framework as a previous take.
- ◆ Four assignable buttons: two on the camera handle and two on the inside panel, enable users to assign frequently used functions.
- ◆ Metadata recording: UMID, Extended UMID, Essence Mark (Shot Mark), Clipflag.
- ◆ Intelligent light system synchronizes strobe on/off to the Rec start button.
- ◆ To minimize errors caused by shock or dust entering the disc drive, the entrance is concealed by two lids to prevent any dust from entering the drive. In addition, four rubber dampers are used to hold the disc drive block in place and to absorb shocks that would otherwise go into the disc drive.

PDW-HD1500

XDCAM HD422 Recording Deck

Able to operate on AC or DC power, the PDW-HD1500 is a compact HD recorder which provides outstanding picture quality of MPEG HD422 as well as an 8-channel (HD-SDI), 24-bit audio recording capability. With its large 4.3" LCD and built-in speaker, it performs as a versatile and high-quality recorder which is suitable for both in-house and field operations. It comes equipped with a multi-format up/down converter, which is highly useful when employing both HD- and SD-format materials at the same time. What's more, the RS-422 interface enables the PDW-HD1500 to be used as a player deck for linear editing. The PDW-HD1500 offers fast data transfer at approx. 220 Mb/s through Gigabit Ethernet, thanks to newly developed dual-optical head.



- ◆ Multi-format HD/SD recording/playback capability
 - HD recording at up to 50 Mb/s using MPEG HD422 (MPEG-2 4:2:2P@HL compression)
 - Recording and playback in the MPEG HD format (MPEG-2 MP@HL compression)
 - 1080i and 720P recording and playback
 - Up/down-conversion and cross-conversion between 1080i and 720P
 - Three types of picture output mode are supported for down-conversion: Edge crop, Squeeze and Letterbox (16:9/14:9/13:9)
- ◆ High-quality eight-channel (HD-SDI) 24-bit audio recording
- ◆ Handles dual-layer disc (PFD50DLA) and single-layer disc (PFD23A)
- ◆ Wide variety of video and audio inputs and outputs, including 2 HD-SDI outputs
- ◆ High-speed file transfer via i.LINK File Access Mode (FAM) or FTP via Gigabit Ethernet
- ◆ Easy and intuitive search operation via Thumbnail Search and Expand functions
- ◆ Also equipped with a Jog/Shuttle dial, providing VTR-like operation (Jog: $\pm 1\times$ normal speed, Variable: $\pm 2\times$ normal speed, Shuttle: $\pm 20\times$ normal speed)
- ◆ Clip Continuous REC function via RS-422A or HD-SDI using Trigger REC function
- ◆ TBC Control via front panel operation or remote control panel via RS-422
- ◆ Compact and lightweight, the PDW-HD1500 is half-rack size and 14 lbs.
- ◆ RS-422 interface allows the deck to be used as a feeder for linear editing
- ◆ AC, DC or battery powered; Built-in

Optional Accessories for the PDW-700 and PDW-HD1500



CBK-SC02 Analog Composite Input Board for PDW-700

CBK-HD01 HD/SD-SDI Input Board for the PDW-700

CBKZ-M01 SD Record and Playback Software for the PDW-700

HDVF-200 HD Camera Viewfinder

PDBK-201 MPEG TS Board for the PDW-HD1500

PDBZ-S1500 SD Record and Playback Software for the PDW-HD1500

HDCAM (Overview)

An HD version of Digital Betacam, HDCAM uses an 8-bit DCT compressed 3:1:1 recording, in 1080i-compatible downsampled resolution of 1440 x 1080, and adding 24p and 23.976 PsF modes. The HDCAM codec uses non-square pixels and as such the recorded 1440 x 1080 content is upsampled to 1920 x 1080 on playback. The recorded video bitrate is 144 Mbit/s. Audio is also similar, with 4-channels of AES/EBU 20-bit/48 kHz digital audio.

Sony HDCAM ensures that your HD programs stand out from the crowd. Offering true 1080-line resolution and crystal clear digital sound, HDCAM offers breathtaking clarity and is the perfect complement for any project where a prestige look is required. A natural partner for documentaries, natural history and live production as well as mainstream entertainment, HDCAM is the preferred format for quality-conscious media professionals everywhere.

HDCAM builds on over 25 years of Sony heritage in 1/2" tape technology—the overwhelming choice of thousands of users who have standardized on Sony 1/2" formats for their operations. HDW-2000 Series VCRs and players offer the same intuitive control layout, ergonomics and workflow that are familiar to Digital Betacam and MPEG IMX users. Selected models are also playback-compatible with Betacam SP, Betacam SX, MPEG IMX and Digital Betacam tape libraries, so there is no need to forfeit the value of SD (standard definition) assets, even as you embrace high definition. The HDW-1800 and HDW-D1800 offer affordable entry into the world of HDCAM while delivering the same high quality video and audio. For complete portability in the field, the HDW-S280 offers HDCAM operation in the remotest of locations, while the J-H Series are cost-effective HDCAM players for viewing, logging and feeding of HDCAM material into non-linear systems.

HDCAM broadens creative and commercial options with a choice of shooting modes to suit the demands of any project. Switch between interlace and progressive at a choice of frame rates to suit creative preferences and distribution requirements. Equally, the benefits of HDCAM are not limited to productions destined for transmission and distribution in HD today. It's easy to down-convert HDCAM pictures to standard definition for post-production and distribution. Keeping costs down while providing an exceptional quality original recording for future distribution opportunities, HDCAM ensures your content commands a premium today and tomorrow.

J-H1 • J-H3 HDCAM Players

With the widespread use of HDCAM camcorders and studio VCRs in the field and post production, producers, journalists and others involved in the program production chain need a cost-effective HDCAM viewers that can readily be used in production environments.

Sony provides the solution with the J-H1 and the J-H3. Sharing the same design philosophy and physical dimensions of the existing J Series standard-definition players, the J-H1 and J-H3 are affordable, compact, lightweight and offer the same low-power consumption characteristics. The J-H1 is ideal for broadcast use and provides HDCAM playback at 59.94i, 50i, 25P, and 29.97P, while the J-H3 is equipped with a number of additional features to support 24P production, and to complement the CineAlta series of VCRs.



J-H1 • J-H3

Versatile Output Capability

- ◆ The J-H1/J-H3 are quipped with an RGB computer display interface to output HDCAM-originated content at XGA resolution. The pixel count of an XGA display is 1024 x 768, so the HDCAM image will be "letter-boxed" to 1024 x 577 pixels in the center. Alternatively, when large screen viewing is preferred, the players can be connected to an XGA capable data projector.
- ◆ The J-H1 and J-H3 both come equipped with a analog Y/Pb/Pr component output (BNC x 3) for connection to an HD picture monitor. The J-H3 steps-up with HD-SDI and SD-SDI outputs giving a choice of high quality monitoring and work-tape copying. (AES/EBU audio and non audio data are embedded in these digital outputs.)
- ◆ When equipped with the optional HKJ-101 i.LINK interface board, the J-H1 and J-H3 can down-convert HDCAM material as 25 Mb/s DV data, with audio and time code are transferred via a single i.LINK interface cable.
- ◆ DV-output capability allows the J-H1/J-H3 to be connected to a DVCAM deck for straight dubbing of HDCAM material to DVCAM tape. It also allows a direct connection to DV-based nonlinear editors.
- ◆ The J-H1 and J-H3 have a built-in down-converter, offering NTSC and PAL composite video output. HDCAM-originated content can be down-converted for viewing on a standard definition monitor or for subsequent production in the SD domain.
- ◆ They provide two channels of analog audio output, available either from the XLR connectors or RCA pin jacks located on the rear panel. A headphone jack is also provided on the front panel. The audio channels to be output to the analog outputs and headphone jack can be selected from Ch 1/2, Ch 3/4, and Cue track. Audio is automatically muted for off-speed playback and non-data playback.

Compact Body Design

- ◆ Sharing the same chassis design of the existing J Series multi-format compact players for standard-definition formats, both the J-H1 and J-H3 retain a compact and lightweight design. Equivalent in size to a standard desktop PC, they can be effortlessly placed on the desks of busy producers, journalists and editors.
- ◆ The J-H1 and J-H3 players are just 12 1/8 x 4 x 15 3/4" in size and weigh only 16 lb. 9 oz. They can be used horizontally or placed upright with the supplied vertical stand, allowing operators to locate players as desired even in space-constrained or awkward environments.
- ◆ Despite their very compact designs, the J-H1 and J-H3 can playback both large and small size cassettes.



HDCAM Playback Capability

Both the J-H1 and J-H3 have the capability to playback HDCAM cassettes that are recorded in 1080/59.94i, 50i and 1080/29.97P, 25P formats - primarily used in High Definition television production applications. The J-H3 has the additional capability to playback 1080/23.98, 24P formats to address the movie making industry, and high-end television and commercial productions.

Flexible Audio Outputs

They provide two channels of analog audio output, available either from the rear panel XLR connectors or RCA pin jacks. A headphone jack is also provided on the front panel. The audio channels to be output to the analog outputs and headphone jack can be selected from Ch 1/2, Ch 3/4, and Cue track. Audio is automatically muted for off-speed playback and non-data playback.

Additional Features of J-H3 — Extending Applications in Post Production

In addition to their common playback capability of 1080 progressive formats, HD-SDI and SD-SDI outputs, the J-H3 offers the following features:

- ◆ Reference input (HD/SD switchable)
- ◆ RS-422A
- ◆ Time code output
- ◆ Pull down function to convert 23.98P to 1080/59.94 and 525/59.94i

	J-H1	J-H3
Search speed (Shuttle / Jog Modes)	Still to $\pm 21\times$ / Still to $\pm 1\times$ (Normal Speed Playback)	
Servo lock time	1 sec or less (from standby on)	
Analog HD video	BNC (x 3)	
Analog SD video	BNC (x 1), RCA Jack (x 1)	
Computer display	D-sub 15-pin, XGA (1024 x 768 dots), RGB	
Timecode	—	BNC (x1)
Audio monitoring	RCA (x2), XLR (x2)	RCA (x2), XLR (x2)
Headphone	1/4" Stereo Jack	1/4" Stereo Jack
RS-232C/RS-422	Yes/No	Yes/Yes
Dimensions, Weight	12 1/8 x 4 x 15 3/4," 16 lb. 9 oz.	12 1/8 x 4 x 15 3/4," 16 lb. 9 oz.

JH-1 HDCAM Player

(Mfr # JH1; B&H # SOJH1).....CALL

JH-3 HDCAM Player

(Mfr # JH3; B&H # SOJH3).....CALL

RM-MJ Rackmount Kit (Mfr # RMMJ; B&H # SORMMJS): A custom rack mounting kit for the J-Series digital VTRs. This kit allows the deck to be installed in a standard 19" machine rack, and includes sliding rack rails to access the rear panel of the deck**239.95**

HKJ-101 i-Link (FireWire) Interface Board (Mfr # HKJ101; B&H # SOHKJ101): An optional FireWire (i.LINK) board for the J-H1 and J-H3 HDCAM video tape players. It supplies a 6-pin connector and outputs component digital video, the signal many non-linear editing platforms require**CALL**

HDW-S280

Portable HDCAM Recorder with 24P-Recording Capability

Packed into a compact half-rack-wide chassis only 3RU high, the HDW-S280 is an affordable HDCAM deck that offers 24P-recording capability. It also provides an assortment of features, such as interlace/progressive switchable recording with selectable frame rates, legacy playback of Betacam SX, Betacam SP and Betacam tapes, and up-/down-conversion capabilities.

Despite its small size, the HDW-S280 front panel incorporates a 3.5" 16:9 color LCD display for monitoring video, VCR status and setup menus. And, for enhanced installation flexibility, the unit can be AC, DC or battery driven. With such a rich set of features built into an extremely mobile design, the HDW-S280 recorder is ideal for use in a range of field and studio HD productions.



FEATURES

AC/DC Operation

The HDW-S280 can run on AC, 12v DC and battery power. Using the optional L551 battery adapter and BP-GL95 battery, the recorder can run for up to 80 minutes greatly increasing its flexibility for field productions.

HDCAM Format

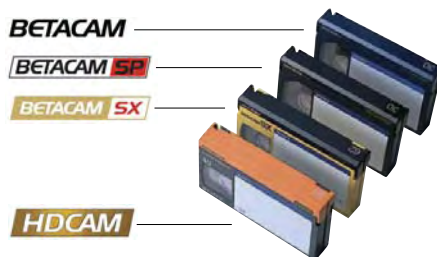
It uses the proven HDCAM format to record 1920 x 1080 resolution, high-definition component digital signals. HDCAM format uses an extremely intelligent compression scheme with a video bit rate of 140 Mb/s (data rate on tape of 185 Mb/s). This allows the format to integrate superb picture quality onto highly robust and cost-effective 1/2" tape with a design inherited from the Betacam Series.

Interlace/Progressive Switchable Recording and Playback

The HDW-S280 can record and play back material recorded in multiple signal formats. It supports both interlace and progressive recording modes with selectable frame rates: 1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/25PsF, 1080/24PsF and 1080/23.98PsF. (Doesn't offer 3-2 pull-down capability. Therefore, 1080/24PsF and 1080/23.98PsF playback cannot be converted to 1080/59.94i and 1080/50i output.) With the progressive recording capability, the HDW-S280 can be used to acquire film-like images for movies, dramas and documentaries.

Up- and Down-conversion Capabilities with Selectable Picture Modes

The HDW-S280 can output 480/59.94i and 576/50i signals in SD-SDI or analog composite from HDCAM playback. It can also output 1080i signals in HD-SDI from SD legacy playback. These up- and down-conversion capabilities provide unlimited operational flexibility. When monitoring such converted signals, the picture display mode can be selected from the following depending on the type of application.



Powerful Legacy Playback Capability

The HDW-S280 recorder is equipped with a powerful legacy playback capability for Betacam SX, Betacam SP and Betacam format tapes. This allows for flexible use of acquisition tools in the field, and easy integration into existing editing environments.

Sequential Recording Function

The HDW-S280 provides recording of up to 50 (24PsF)/48 (50i)/40 (59.94i) minutes on an S-sized cassette. Should a longer record time be required, two decks can be connected to record across two tapes without a break in the recording. When the tape remaining time of one deck reaches two minutes, the other deck automatically starts recording. Since the tape in the deck on stand-by can be exchanged while the other deck is recording, a limitless recording time can be achieved.

Back-space and Assemble Editing Functions

The HDW-S280 provides two types of editing capabilities. An automatic backspace editing with instant-start feature allows sequential recording, without picture interference at transition points. In addition, assemble editing – including two-machine editing – is also possible.

Easy Setup Using "Memory Stick" Media

Operators can store and recall VTR setup parameters onto optional Memory Stick media, enabling quick and consistent setup of multiple VTRs.

HDW-S280

Metadata Recording

The HDW-S280 recorder is capable of recording metadata including UMID (Unique Material Identifier) and shot marks, which are used for quick cue-up to scenes of interest. This metadata capability improves overall efficiency across the production process.

Search Functions – Jog and Shuttle Modes

The HDW-S280 delivers recognizable color pictures in shuttle mode at speeds of up to $\pm 10\times$ normal playback. Jog operation is also possible, at up to $\pm 1\times$ normal playback speed.



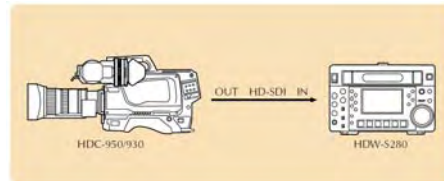
Versatile Interfaces

The HDW-S280 recorder features a wide range of interfaces including:

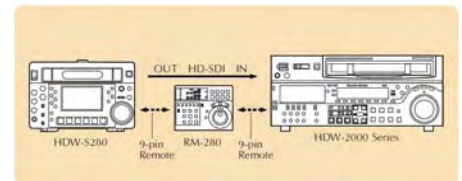
- HD-SDI input (BNC)
- HD-SDI output (BNC x2)
- Reference video input (BNC x2)
- Analog audio input (CH-1/2), balanced XLR (+40/0/-3/-20/-60 dBu selectable) x2
- Analog audio output (CH-1/2), balanced XLR (+4dBm) x2
- SD-SDI output (BNC x2)
- Analog composite output (BNC x2)
- Analog audio monitor output L/R (XLR x2)
- Time code input and output (BNC x1)
- RS-422 9-pin remote interface
- Video Control (D-sub 9-pin) for connection to HKDV-900 HD Digital Video Controller
- Stereo headphone jack
- DC output (4-pin) for RM-280 controller
- Memory Stick slot



System Configurations



Acquisition



Editing with RM-280 Editing Controller

Highly Compact and Portable Design

The HDW-S280 recorder is characterized by its highly compact and lightweight design, allowing for use in the field, and in confined spaces ranging from OB trucks and helicopters to non-linear editing desktops. The unit is only 3RU high and has a half-rack width, and weighs just 13 lb 4 oz. A carrying handle at the top and a tilt stand further enhance its mobility and field operability.

User-friendly Control Panel Design

The control panel of the HDW-S280 is compact, yet easy to use, providing good access to each VCR control. A Jog/Shuttle dial is provided for quick, precise picture search operations. It is also equipped with a 3.5" 16:9 color LCD display, allowing you to view playback material and VCR setup menus without the use of an external video monitor, which is convenient for field operations. At the push of a button, the LCD panel's display mode can be easily switched between video monitor with superimposed time code and audio level meters, or system status/menu control mode. Dedicated audio control knobs are also provided on the compact front

HDW-S280 Portable HDCAM Recorder (Mfr # HDWS280; B&H # SOHDWS280)**CALL**

HKDV-900 HD Digital Video Controller (Mfr # HKDV900; B&H # SOHKDV900): Controls the VTR's HD/SD output video signals and its down-converter image enhancer.....**CALL**

RM-280 Editing Controller (Mfr # RM280; B&H # SORM280): Designed for basic VTR control and simple edit functions. It is equipped with a jog wheel, can control up to 2 decks at once and supports multiple frame rates including 24p.....**2357.50**

BKP-L551 Battery Adapter (Mfr # BKPL551; B&H # SOBKPL551): A V-mount to 4-pin XLR DC male connector battery adapter.....**316.95**



BP-GL65 Lithium-ion Battery Pack (Mfr # BPL65; B&H # SOBPL65)**274.95**

BP-GL95 Lithium-ion Battery Pack (Mfr # BPL95; B&H # SOBPL95)**549.95**

RMM141/A Rack Mount Unit (Mfr # RMM141/A) Allows the HDW-S280 HDCAM compact recorder or the PDW-1500 XDCAM compact deck to be rack mounted either as a single unit, or side by side with another HDW-S280 or PDW-1500**CALL**

BC-M150 Battery Charger (Mfr # BCM150; B&H # SOBCM150): A 4-position V-mount battery charger with power supply for lithium-ion and NiMH batteries**1099.95**

BC-L70 Battery Charger (Mfr # BCL70; B&H # SOBCL70): A portable 2-position battery charger for V-mount lithium-ion batteries. Includes 100 watt AC power supply**599.95**

HDW-1800 • HDW-D1800

HDCAM Editing Recorders

Affordable studio editing recorders, the HDW-D1800 and HDW-1800 provide high picture performance, multi-format recording capability including 24P, frame-accurate editing capability, and high reliability – all inherited from the HDW-2000 series VCRs. The HDW-1800 is a studio edit recorder with HDCAM recording/playback capability, while the HDW-D1800 adds legacy playback of Digital Betacam and MPEG IMX format tapes with an internal up-conversion capability.

Both recorders have a built-in down-converter as standard, enabling SD/HD mixed operations as well as easy integration into existing SD-based editing environments. To accommodate the requirement for emerging HD formats, two powerful options are available: HKDW-104 for 720P and 2-3 pull-down output capability, and HKDW-105 for i.LINK HDV 1080i input. Both recorders feature a jog/shuttle dial, and a large color LCD screen that displays both playback pictures and various information such as timecode, audio level meters, and operational menus, offering great operational efficiency.



FEATURES

HDCAM Format

The HDW-1800 and HDW-D1800 adopt the proven HDCAM format to record 1920 x 1080 resolution, high-definition component digital signals. The HDCAM format uses an extremely intelligent compression scheme with a video bit rate of 140 Mb/s (data rate on tape of 185 Mb/s). This allows the format to integrate superb picture quality onto a highly robust and cost-effective 1/2" tape with a design inherited from the Betacam Series.

Interlace/Progressive Switchable Recording and Playback

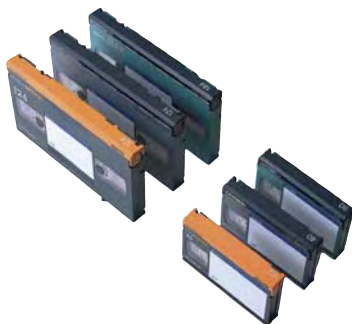
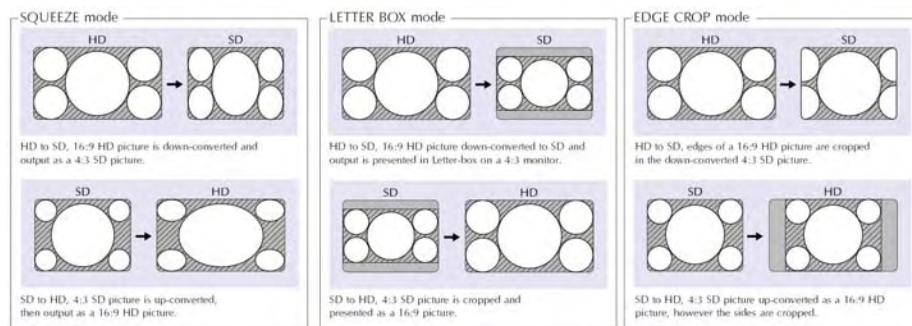
The HDW-1800 and HDW-D1800 can record and play back material recorded in multiple signal formats. They support both interlace and progressive recording modes with the following selectable frame rates: 1080/59.94i, 1080/50i, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, and 1080/23.98PsF.

Powerful Legacy Playback Capability (HDW-D1800 only)

The HDW-D1800 offers a powerful legacy playback capability for Digital Betacam and MPEG IMX format tapes. This allows flexible use of acquisition tools in the field, and easy integration into existing editing environ-

Up- and Down-conversion Capabilities with Selectable Picture Modes

The HDW-1800 and HDW-D1800 can output 525/59.94i and 625/50i signals in SD-SDI or analog composite from HDCAM playback. The HDW-D1800 can also output 1080i signals in HD-SDI from SD legacy playback. These up- and down-conversion capabilities provide unlimited operational flexibility. When monitoring such converted signals, the picture display mode can be selected from the following, depending on the type of application.



HDV 1080i Stream Recording

Designed for better, more cost-effective HDCAM/HDV mixed-format editing, the HDW-D1800 and HDW-1800 are equipped with a powerful HDV 1080i stream recording capability. With the addition of the optional HKDW-105 board, the HDW-D1800 and HDW-1800 can accept an HDV 1080i compatible stream via a single i.LINK cable connection, without any conversion. This is an extremely powerful feature for users who want to shoot in HDV format and post in HDCAM format, or who want to use both HDCAM and HDV material at the same time.

HDW-1800 • HDW-D1800

720P Conversion and 2-3 Pull-down Output

For further enhanced flexibility, they both provide the ability to output converted 720P signals when playing back 1080i material by use of the optional HKDW-104 board. This board also provides 2-3 pull-down capability, enabling 23.98PsF/24PsF material to be output as 59.94i signals.

Advanced Editing Functions

- ◆ The HDW-1800 and HDW-D1800 deliver recognizable color pictures in shuttle mode at speeds of up to 50x normal play. Jog operation is also possible, at -1 to +2x normal speed. High-quality jog audio is achieved, providing a responsiveness and sound quality reminiscent of Betacam SP machines.
- ◆ Frame accurate insert and assemble editing with frame accuracy is possible on the HDW-D1800 and HDW-1800. Each video and audio channel can be edited independently.
- ◆ They both feature Digital Audio Crossfade to achieve smooth audio transitions at audio insert edit points. Previously recorded audio signals are read in advance using pre-read heads and then re-recorded onto the same track after being mixed with the input signal. The crossfade duration can be selected from a range of values.
- ◆ Equipped with advanced playback heads, they offer a pre-read editing capability. This provides various application functionality, such as tiling with a signal VCR, A/B-roll with two VTRs, audio mix, and channel swap.
- ◆ The HDW-1800 and HDW-D1800 recorders also provide a DMC playback capability, which memorizes the tape speed trajectory over the DT (Dynamic Tracking) speed range.

Conveniences

- ◆ With these recorders, users can store and recall VTR setup parameters onto optional Memory Stick media, enabling quick and consistent setup of multiple VTRs.
- ◆ The HDW-1800 and HDW-D1800 are capable of recording metadata including UMID (Unique Material Identifier) and shot marks, which are used for quick cue-up to scenes of interest. This metadata capability improves overall efficiency across the production process.

4.3" Color LCD Screen

The control panels of these VTRs are simple and easy to use. They are equipped with a 4.3" (viewable area, measured diagonally) 16:9 color LCD screen, allowing users to view playback material and VCR setup menus. It is also possible to monitor output signals via 2-3 pull-down or converted 720P signals.



HDW-1800 System Status View



HDW-1800 LCD Monitor

	HDW-1800	HDW-D1800
Signal System	1080: 59.94i 29.97PsF, 50i, 25PsF, 24PsF, 23.98PsF	
Tape Speed	HDCAM: 59.94i, 29.97PsF: 96.7 mm/s; 50i, 25PsF: 80.6 mm/s; 24PsF, 23.98PsF: 77.4 mm/s	HDCAM: 59.94i, 29.97PsF: 96.7 mm/s; 50i, 25PsF: 80.6 mm/s; 24PsF, 23.98PsF: 77.4 mm/s Digital BETACAM: 96.7 mm/s MPEG IMX: 525/59.94i: 64.5 mm/s 625/50i 53.8 mm/s
Signal-to-Noise Ratio	Analog Composite Output: 53 dB	
Maximum	59.94i, 29.97PsF: 124 min (BCT-124HDL Cassette)	
Recording Time	50i, 25PsF: 149 min (BCT-124HDL Cassette) 24PsF, 23.98PsF: 155 min (BCT-124HDL Cassette) 59.94i, 29.97PsF: 40 min (BCT-40HD Cassette) 48 minutes (50i, 25PsF, with BCT-40HD Cassette) 50 minutes (24PsF, 23.98PsF, with BCT-40HD Cassette)	
Frequency Response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB (0 dB at 1 kHz)	
Dimensions / Weight	16.9" x 6.9" x 21.5" (WHD); 48.5 lbs.	
Mfr # / B&H #	Mfr # HDW1800; B&H # SOHDW1800	Mfr # HDWD1800; B&H # SOHDWD1800

HDW-1800 HDCAM Editing Recorder (Mfr # HDW1800; B&H # SOHDW1800) CALL

HDW-D1800 HDCAM Editing Recorder (Mfr # HDWD1800; B&H # SOHDWD1800) CALL

RMM-131 Rackmount Kit (Mfr # RMM131; B&H # SORMM131A) 284.95

RM-280 Remote Edit Controller (Mfr # RM280; B&H # SORM280): A lightweight remote for basic VTR control and simple edit functions. Equipped with a jog wheel, it can control up to 2 decks at once and supports multiple frame rates including 24p 2357.50

RCC-5G 9-pin Remote Cable (Mfr # RCC5G/US; B&H # SORCC5GUS): A 16' 9-pin control cable for RS-422A control protocol CALL

HKDV-900 HD Digital Video Controller (Mfr # HKDV900; B&H # SOHKDV900): Controls the VTR's HD/SD output video signals and its down-converter image enhancer CALL



HDW-2000 SERIES

HDCAM Studio Editing VCRs

The HDW-2000 Series adopt the proven HDCAM format, recording high-definition component digital signals using HDCAM compression technology. This excellent compression scheme maintains a high video bit rate of 140 Mbps (data rate on tape of 185 Mbps). The format combines superb picture quality with the high reliability and robustness of 1/2" tape integrated into a design approach inherited from the BETACAM series.

Five different models are available to suit budgetary and operational needs.

Designed to offer the utmost cost efficiency, the HDW-2000 is a studio editing VCR that works in the HDCAM format only. Incorporating all the fundamental functions of the HDW-2000, the HDW-S2000 and HDW-D2000 offer more flexibility with backward playback of legacy formats. The HDW-S2000 can also playback BETACAM SX, BETACAM SP, and BETACAM, while the HDW-D2000 can also playback MPEG IMX and Digital BETACAM.

For those who need the ability to play every 1/2" tape, the HDW-M2000 and HDW-M2100 (player only) are compatible with Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP and BETACAM.

With a rich choice of models, and the high quality and operability that the HDCAM format is renowned for, the HDW-2000 Series VCR offers an economically well-balanced solution for HDTV programming.



FEATURES

Wide Array of Signal Formats

The HDW-2000 Series can playback a wide variety of legacy standard definition (SD) formats in addition to HDCAM. Since they output signals in 1080i, 576i and 480i, each format is reproduced in its corresponding vertical resolution. As an even greater advantage, the HDW-2000 Series have built-in up/down converters so a program originated for SD can be up converted for HDTV transmission, and materials that were made in the HD format can be down converted as "Super-sampled" SD images. The "Super-sampled" HD origination produces standard definition 480 and 576-line NTSC/PAL signals which are superior to those originated in standard definition (their horizontal and vertical MTFs are higher and the associated scanning aliasing is less). Furthermore, a 720P progressive output is available for integration into 720P-based systems. (720P output might require an upgrade of software, hardware, or both.)

Interlace/Progressive Switchable Operation

The HDW-2000 Series provide recording/playback capability (the HDW-M2100 playback only) of the HDCAM format in 1080/59.94i, 1080/50i, 1080/29.97PsF and 1080/25PsF frame rates. The HDW-2000 Series also allows legacy playback of both 480/59.94i and 576/50i on the same deck. This flexibility makes the HDW-2000 Series an extremely effective tool for international programming. Furthermore, to meet the increasing needs of 24P program creation, the 23.98PsF/24PsF recordings can be converted to a 25PsF signal with appropriate conversion of time code.

Long Recording Time on a Single Cassette

Utilizing the HDCAM format's high-density recording capability and compression technology, the decks provide a long recording time of 124 minutes at 1080/59.94i and 149 minutes at 1080/50i per one L-cassette. Small size cassettes can also be used, which provide 40 minutes recording at 1080/59.94i and 48 minutes at 1080/50i. This flexibility allows the HDW-2000 Series to cover a wide range of applications including news, and production.

Digital Audio and Dolby Recording



The HDCAM format records four channels (two AES/EBU stereo pairs) of non-compressed digital audio (20 bit at 48 kHz). The HDW-2000 Series recorders can also record non-audio data streams within the audio recording area by

packaging the data within an AES/EBU wrapper. Furthermore, the HDW-2000 recorders can record Dolby-E and Dolby AC-3 data (non-audio) streams on the audio tracks.

Compact Design and Low Power Consumption

The decks feature a compact 4RU-size design, weigh only 50 lbs. and have low power consumption of 220 W. This compactness and low power consumption makes them ideal not only studio use but also for installation into OB-vans.

HDW-2000 SERIES

Advanced Editing

- ◆ HDW-2000 Series recorders enable frame accurate insert or assemble editing. Each channel of video and audio signal is independently editable. Execute precise editing on HDCAM tapes in machine-to-machine or A/B roll configurations.
- ◆ Recognizable color pictures are provided in shuttle mode at speeds up to $\pm 50\times$ normal playback.
- ◆ Dynamic Tracking playback capability provides high quality pictures over the range of -1 to $+2\times$ normal speed during playback of HDCAM tapes, -1 to $+3\times$ for Betacam SP/ MPEG IMX/Digital Betacam tapes, -1 to $+2$ for Betacam SX tapes.
- ◆ Reproduction of four (eight for MPEG IMX) digital audio is achieved, in the Jog mode. With a responsiveness and sound quality reminiscent of Betacam SP machines, this feature is helpful in quickly and precisely establishing an editing point while monitoring the digital audio signals which remain in absolute sync with the pictures.
- ◆ They feature Digital Audio Crossfade to achieve smooth audio transitions at audio insert edit points. Previously recorded audio signals are read in advance using Pre-read heads and then re-recorded onto the same track after being mixed with the input audio signal. The crossfade duration can be selected from a range of values.
- ◆ They also provides a DMC (Dynamic Motion Control) capability, memorizing the tape speed trajectory over the DT speed range (-1 to $+2$ times normal speed).
- ◆ The recorders are equipped with advanced playback heads to enable pre-read editing. This function allows titling with a single VCR, A/B-roll with two VCRs, as well as audio mix and channel swap.
- ◆ They provide bi-directional vertical filtering between the two active line standards of 1080 and 1035 and enhanced quality of variable speed Dynamic Tracking playback as standard.
- ◆ The HDW-2000 Series recorders can scan tapes with Shot Marks and automatically detect their positions. After scanning, a list of all the marks is displayed on the video monitor, allowing easy cueing to any mark.

HDW-2000 SERIES LINE-UP			
		Recording Format	Playback Format
HDW-2000	HD Digital Recorder	HDCAM	HDCAM
HDW-M2000	HD Digital Recorder	HDCAM	HDCAM, Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP, BETACAM
HDW-D2000	HD Digital Recorder	HDCAM	HDCAM, Digital BETACAM, MPEG IMX
HDW-S2000	HD Digital Recorder	HDCAM	HDCAM, BETACAM SX, BETACAM SP, BETACAM
HDW-M2100	HD Digital Player	—	HDCAM, Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP, BETACAM

User-friendly Control Panel

Control panels are compact, yet comprehensive. There is a minimal learning curve since its design and functionality are inherited from universally used Betacam SP VCRs. In addition, the control panel has a multi-function display that provides comprehensive information for quick access and easy control of a variety of functions. Dedicated control knobs and meter displays are included for each of the four audio channels. Using the optional HKDW-101 control panel, VCRs can be controlled from the same control panel simultaneously.



Easy Maintenance

Most of the circuitry of the HDW-2000 Series is arranged on plug-in boards to allow quick and easy maintenance. The drum assembly achieves simple, low-cost maintenance by adopting an upper drum mechanism and an auto adjustment function as used in MPEG IMX VCRs and Betacam SX recorders. This helps to drastically reduce the time required for periodic drum replacement.

Selectable Picture Mode

Three modes of operation enable correct presentation, depending on the application required. Choose from Squeeze mode, Letter Box mode and Edge Crop mode.

Metadata Handling

In the HDW-2000 Series, special care has been given to metadata handling in order to increase production efficiency, and to provide the utmost convenience in media asset management systems and material distribution systems. In general, metadata consists of user-defined data indicating when, where, or by whom the material was created, Closed Caption data, and a variety of other data describing the material content. Among such metadata, UMID is a globally unique identifier used for the identification of picture/audio material and data. UMID is automatically generated within compatible equipment such as VTRs and camcorders during each recording. The HDW-2000 Series provides the facility to record UMID on tape when the VCR performs dubbing, editing, and copying through up-/down-conversion. This recorded UMID is used in subsequent processes from editing, archiving and on to distribution, bringing efficiency throughout the entire program production chain. The HDW-2000 Series enables up to 255 bytes x 3 packets of metadata per field to be recorded,

HDW-2000 HDCAM Recorder (Mfr # HDW2000/20; B&H # SOHDW200020)	CALL
HDW-M2000 HDCAM Recorder (Mfr # HDWM2000/20; B&H # SOHDWM200020)	CALL
HDW-D2000 HDCAM Recorder (Mfr # HDWD2000/20; B&H # SOHDWD200020)	CALL
HDW-S2000 HDCAM Recorder (Mfr # HDWS2000/20; B&H # SOHDWS200020)	CALL
HDW-M2100 HDCAM Player (Mfr # HDWM2100/20; B&H # SOHDWM210020)	CALL

HDW-2000 SERIES ACCESSORIES



HKDW-101
Control Panel in
a BKMW-102 Holder

HKDW-101 Control Panel (Mfr # HKDW101; B&H # SOHKDW101): This panel adds a wide range of advanced control features to HDW-2000, HDW-M2100 and HDW-M2000 HDCAM VTR devices.....**CALL**

HKDW-102 SDTI Interface Board (Mfr # HKDW102; B&H # SOHKDW102): Adds SDTI (HDCAM) input and output capabilities to an HDW-2000 Series VCR.....**CALL**

BKMW-102 Desktop Control Panel Holder (Mfr # BKMW102; B&H # SOBKMW102): A holder for the HKDW-101 control panel. The combination of panel and holder puts a front control panel from the Digital Betacam VTR on the desktop for convenient access**389.95**

BKMW-103 Control Panel Extension Kit (Mfr # BKMW103; B&H # SOBKMW103): An expansion kit for the control panel. This kit provides a 9.8' cable to place a front control panel from the Digital Betacam VTR onto the desktop .**369.95**



RMM-131 Rackmount Kit

RMM-131 Rackmount Kit (Mfr # RMM131; B&H # SORMM131A)**284.95**

RCC-5G 9-pin Remote Cable (Mfr # RCC5G/US; B&H # SORCC5GUS): A 16' 9-pin control cable for RS-422A control protocol.....**CALL**

HKDV-900 HD Digital Video Controller (Mfr # HKDV900; B&H # SOHKDV900): A special rack-mountable controller designed for use with the HDW-2000 Series. This unit controls the VCR's HD/SD output video signals and its built-in down-converter image enhancer. To connect the HKDV-900 to a HDW-2000 VCR requires the optional RCC-1505H or RCC-1530H control cables.....**CALL**

	HDW-1800	HDW-2000	HDW-D1800	HDW-D2000
HDCAM record and play	✓	✓	✓	✓
MPEG IMX and Digital Betacam replay			✓	✓
LCD display on front panel	✓		✓	
Editing controls on front panel		✓		✓
Editing via RS-422A (9-pin)	✓	✓	✓	✓
SDTI-CP option		✓		✓
SD component output		✓		✓
4-channels of analog input/output	2-channels	✓	2-channels	✓
Cue channel input/output		✓		✓
i.LINK input (option)	✓		✓	
HD-SDI input monitor connector		✓		✓
1080/50i to 720/50P output converter (option)	✓		✓	
15-pin connector for video control		✓		✓
Control panel EXT operation		✓		✓
Tele-File Reader/Writer		✓		✓
3:2 pulldown option	✓		✓	
Dual reference input for 3:2 pull-down	✓		✓	

HDCAM Tape

Sony HDCAM tape offers optimum record and playback performance across the full range of HDCAM recorders and players. Building on an unrivaled heritage for Metal Tape design, including two Emmy Awards, HDCAM tapes provide high density recording and duration of up to 155 minutes.



- ◆ Sony's ultra fine metal particles and calendering technology realize high C/N of more than 45dB or more than enough range for HDCAM Digital High Definition Recording with a recording wavelength of 0.49μm.
- ◆ Metal particles 50% smaller than Digital Betacam to ensure stable recording.
- ◆ Aluminum silica protective layer with an anti-oxidation effect achieves outstanding archival characteristics.
- ◆ Low-shrinkage tape also helps to accomplish outstanding archival characteristics.
- ◆ High reliability and the ability to withstand repeated playbacks and edits is realized through

BCT-6HD (Mfr # BCT-6HD/2; B&H # SOBCT6HD)
6 minute small HDCAM tape.....**23.95**

BCT-12HD (Mfr # BCT12HD/2; B&H # SOBCT12HD)
12 minute small HDCAM tape**24.95**

BCT-22HD (Mfr # BCT22HD/2; B&H # SOBCT22HD)
22 minute small HDCAM tape.....**28.50**

BCT-32HD (Mfr # BCT32HD/2; B&H # SOBCT32HD)
32 minute small HDCAM tape**29.95**

BCT-40HD (Mfr # BCT40HD/2; B&H # SOBCT40HD)
40 minute small HDCAM tape**34.95**

BCT-34HDL (Mfr # BCT34HDL; B&H # SOBCT34HDL)
34 minute large HDCAM tape.....**38.50**

BCT-64HDL (Mfr # BCT64HDL; B&H # SOBCT64HDL)
64 minute large HDCAM tape.....**53.95**

BCT-94HDL (Mfr # BCT94HDL; B&H # SOBCT94HDL)
94 minute large HDCAM tape.....**74.95**

BCT-124HDL (Mfr # BCT124HDL; B&H # SOBCT124HDL)
124 minute large HDCAM tape.....**102.95**

BCT-HD12CL Cleaning Cassette
(Mfr # BCT-HD12CL; B&H # SOBCTHD12CL)**59.95**

HDW-2000 SERIES SPECIFICATIONS

	HDW-S280	HDW-1800	HDW-D1800	HDW-2000	HDW-M2000	HDW-D2000	HDW-S2000
Weight	13 lbs. 4 oz.	48 lbs. 8 oz.	48 lbs. 8 oz.	50 lbs. 11 oz.	50 lbs. 11 oz.	50 lbs. 11 oz.	50 lbs. 11 oz.
Dimensions (W x H x D)	8¾ x 5¼ x 16¾"	16½ x 6½ x 21½"	16½ x 6½ x 21½"	16½ x 6½ x 21½"	16½ x 6½ x 21½"	16½ x 6½ x 21½"	16½ x 6½ x 21½"
Tape Speed							
HDCAM		96.7 mm/s (59.94i, 29.97PsF), 80.6 mm/s (50i, 25PsF), 77.4 mm/s (24PsF, 23.98PsF)					
Digital BETACAM	–	96.7 mm/s	–	–	96.7 mm/s	96.7 mm/s	96.7 mm/s
MPEG IMX (525/59.94i)	–	64.5 mm/s	–	–	64.5 mm/s		
MPEG IMX (625/50i)	–	53.8 mm	–	–	53.8 mm		
BETACAM SX	59.6 mm/s	–	–	–	59.6 mm/s	59.6 mm/s	59.6 mm/s
BETACAM/BETACAM SP	118.6 mm/s (59.94i), 101.5 mm (50i)	–	–	–	118.6 mm/s (525/59.94), 101.5 mm/s (625/50)		
HDCAM Record/Playback Time with BCT-124HDL Cassette							
59.94i, 29.97PsF	–	124 Minutes		124 Minutes			
50i, 25PsF	–	149 Minutes		149 Minutes			
24PsF, 23.98PsF	–	155 Minutes		155 Minutes (Playback Only)			
HDCAM Record/Playback Time with BCT-40HD Cassette							
59.94i, 29.97PsF	40 Minutes	40 Minutes		40 Minutes			
50i, 25PsF	48 Minutes	48 Minutes		48 Minutes			
24PsF, 23.98PsF	50 Minutes	50 Minutes		50 Minutes (Playback Only)			
FF / Rew Time (Approx.)	2 Minutes	3 Minutes (BCT-124HDL)		3 minutes (BCT-124HDL)			
Jog Mode	Still to ±1 times (from Normal Speed Playback)						
Servo Lock Time	1.0 s or less	0.6 s or less (59.94i, 29.97PsF, from standby on), 0.7 s or less (50i, 25PsF, 24PsF, 23.98PsF, from standby on)					
Load / Unload Time	7 s or less			6 s or less (both L and S cassettes)			
HD-SDI Input			BNC x 1, Serial Digital				–
SDTI Input	–	–	–	BNC x 1, 270 Mb/s (with optional HKDW-102 installed)			–
Reference Video Input	BNC (x2) (with a loop-through), Tri-level sync, sync negative or Black Burst or Composite, sync negative						
Reference Video Input 2	–	With Optional HKDW-104		–			
Digital Audio Input	–	BNC (x2), AES/EBU					–
Analog Audio Input	Two Channels via XLR (x2)			CH 1/2/3/4/Cue via XLR (x5)			–
Time Code Input / Output	BNC (x1) / BNC (x1)	XLR (x1) / XLR (x1)					
i.LINK (HDV 1080i) input	–	With Optional HKDW-105		–			
HD-SDI Output	BNC (x2)	BNC (x3) (SMPTE 292M including one character out), Serial Digital (1.485 Gb/s)					
SDTI Output	–	–	–	BNC x 2 (SMPTE 305M), 270 Mb/s (with optional HKDW-102 installed)			
SDI Output	BNC (x2)	BNC (x3) (SMPTE 259M), Serial Digital (270 Mb/s)					
Analog Composite Output	BNC (x2) (RS-170A)	BNC (x3) (SMPTE 170M)		BNC (x3) (RS-170A)			
Analog Component Output	–	–	–	BNC (x3)			
Digital Audio Output (AES/EBU)	–	8 Ch. via BNC (x4)	4 Ch. via BNC (x2)	8 Channels via BNC (x4)			
Analog Audio Output	XLR (x2)	XLR (x4)		XLR (x5)			
Monitor Output L/R				XLR (x2)			
Headphones	1/4" Stereo						
Remote1 In	D-sub 9-pin, Sony 9-pin remote interface						
Remote1 Out	–	D-sub 9-pin, Sony 9-pin remote interface					
RS-232C	–				D-sub 9-pin		
Remote2 Parallel I/O	–				D-sub 50-pin		
Video control	D-sub 9-pin			D-sub 9-pin, D-sub 15-pin			
Control panel	–	–	–	D-sub 15-pin			
Others	Memory Stick	Memory Stick	Memory Stick	Memory Stick slot, PCMCIA slot			