

JVC[®]
The Perfect Experience / —

GR-HD1

High-Definition
Digital Video Camera

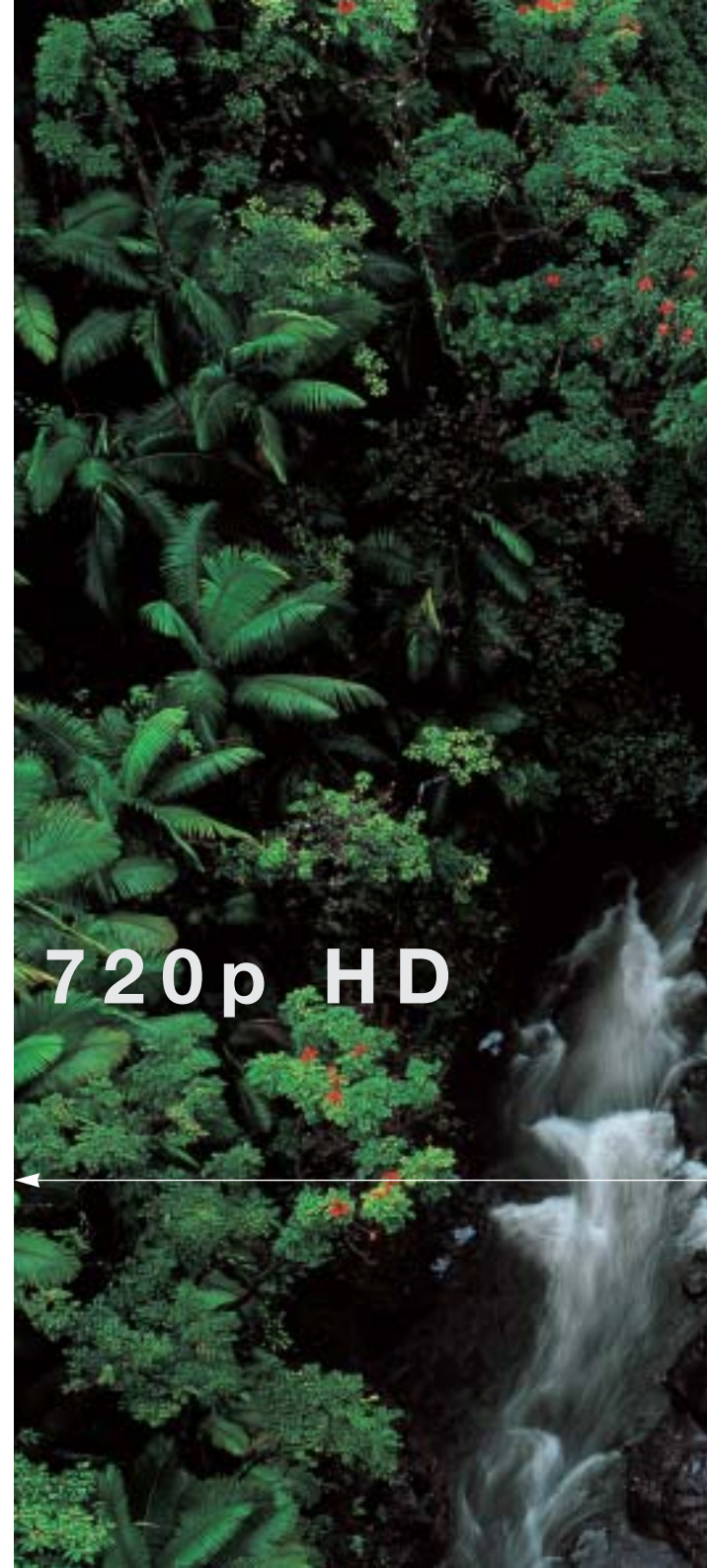
HD
High-Definition



Experience
HD
High-Definition

Unprecedented Power! 720p HD

No image can tell a story in all its grand presence, minute detail and sheer reality like digital High Definition. High Definition transports you into a big new world of uncompromising quality — where textures and colors come to life with startling and dynamic realism and the subtlest of nuances. You can see the forest, *and* the trees, see the leaves, *feel* them move. That's power. The power of imaging. The unprecedented power of HD.





1280

720

16 : 9

HD

High-Definition

Now, JVC lets you capture Hi-Def images yourself. With the solid, compact, ergonomically balanced, enormously easy-to-use GR-HD1, you can go where no Consumer or HD camera has gone before. And at a fraction of the cost of current HD cameras with a signature look different from anything else. Then, with a multitude of avenues for creating, editing, enjoying and sharing your images, you can easily distribute your works to a worldwide audience by HD or regular DVD. HD quality, built to go places. With the GR-HD1 HD CyberCam from JVC, you too can join the world of HD and make digital movies on a level only accessible to cinematographers and broadcasters until now.

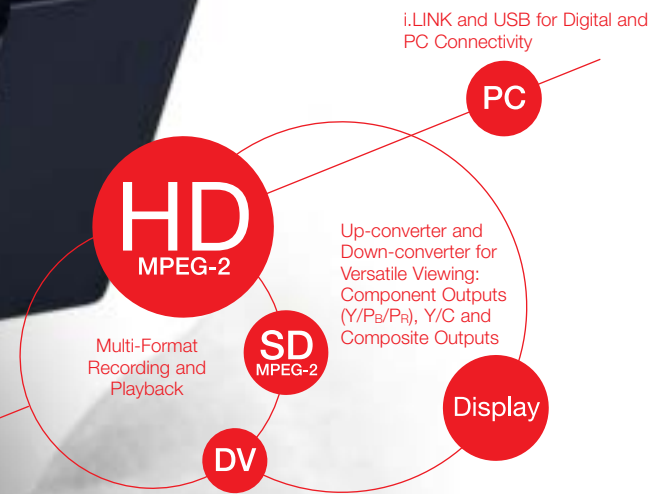


JVC Puts the Power of HD within Your Grasp

	Recording MPEG-2	Playback				
		Digital	Analog Component			+ Y/C and Composite
		IEEE-1349 i.LINK	1080/60i	720/60p	480/60p	480/60i
HD	• 720/30p 16:9	○	●	●	●	●*
SD	• 480/60p 16:9	○	●		○	●*
DV	• 480/60i 4:3/16:9	○				○**
			HD	HD	SD	NTSC

● Up-convert Output * Widescreen or Letterbox
 ● Down-convert Output ** 16:9 DV is Widescreen
 ○ Unconverted

DV

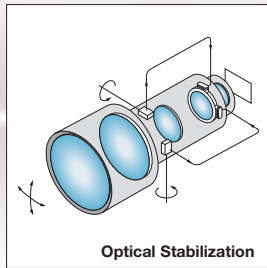


JVC's Definitive Solution for 3-CCD Performance in a Single CCD

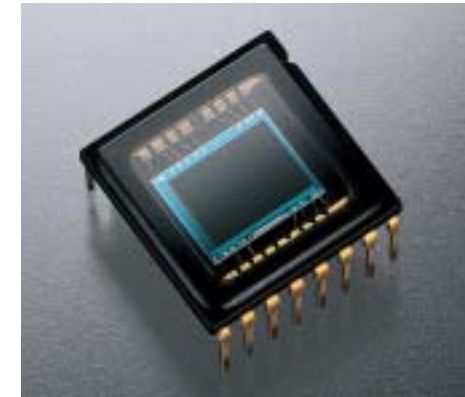
JVC puts high quality up front, at the lens. With almost no variance in brightness from F1.8 at full wide to F1.9 at full telephoto, it is able to offer the fundamental image-gathering performance a Hi-Def system requires. High-precision multi-coated all glass optics ensure low-distortion, ghost-free images with high peripheral resolution and brightness, as well as high edge-to-

edge color purity across the entire zoom range. Demanding Hi-Def images need to be rock solid, so performance is supported by on-demand Optical Image Stabilization — Optical so as to avoid any loss of resolution — and enthusiasts can take full control with manual focusing and zoom rings on the lens barrel. It's a crystal clear entry point for breathtaking Hi-Def images.

Hi-Def F1.8 – F1.9 Optically Stabilized Zoom Lens



The "retina" of this camera's eye is a powerful combination of a 1.18 Megapixel Progressive Scan CCD and JVC's patented progressive digital filter technology, both the result of JVC's years of research in the field. Designed for a true 16:9 pixel wide array of 1280 x 720 (for moving images) and 4:3 1280 x 960 (for stills), and progressive scanning to sample the entire picture at once, this CCD has an uncanny ability to capture detailed images without interline motion blur resulting from interlace scanning.



Hybrid Complementary-Primary Digital Filter

Hi-Def color purity and discrete reproduction allows you to see full detail without being obscured by low-resolution color smearing. The Hi-Def standard colorimetric range takes in more colors than NTSC as well. Things simply not possible to see with regular TV, like fine designs on a jersey, are clearly visible. Pictures have texture!

What matters is that the GR-HD1 lets you record, preserve and playback high quality 700/650 Horizontal/Vertical-line resolution (close to the achievable limit of the format) component Hi-Def video in a reasonable price range. To those who still believe that the number of CCDs is *the* factor in determining picture quality, think again: JVC's GR-HD1 is ready to challenge and overwhelm preconceptions.

HD Mode MPEG-2 16:9 Image size: 1280 x 720, 840,000 pixels

Recorded Horizontal resolution: 700 16:9 TV lines*,
Vertical resolution: 650 TV lines

SD Mode MPEG-2 16:9 Image size: 940 x 480, 460,000 pixels

Recorded Horizontal resolution: 400 16:9 TV lines*,
Vertical resolution: 480 TV lines

DV Mode

16:9 Image size: 940 x 480 (Anamorphic Squeeze mode) 460,000 pixels

Recorded Horizontal resolution: 400 TV lines*

4:3 Image size: 720 x 480 standard (360,000 pixels)/940 x 646 wide-angle 30psf (D.Wide) (610,000 pixels)

Recorded Horizontal resolution: 540 TV lines
Vertical resolution: 360 TV lines

*See note facing page.

HD CyberCam



performance renders 3-CCD unnecessary

Y (Luminance) information is obtained from pairs of picture elements:

$$Y_{\text{odd}} = (W+G) = (R+2G+B)$$

$$Y_{\text{even}} = (Cy+Ye) = ((G+B)+(R+G)) = (R+2G+B)$$

C (Chroma) information is generated by combining blocks of four picture elements:

$$R = (W+Ye) - (G+Cy)$$

$$G = (G+Cy+Ye) - W$$

$$B = (W+Cy) - (G+Ye)$$

Sample Count Comparison between Single and Three CCD

1280x659 CCD(s)	CCD Elements	Luma Samples	RGB Chroma Samples
JVC Single CCD	843,520	843,520	843,520
Similar Three CCD	843,520	842,861	841,582

The Hybrid Complementary-Primary progressive color filter system developed by JVC employs a filter matrix overlaying the CCD's picture elements including two complementary colors Yellow and Cyan (Ye and Cy), one primary color Green (Gr), and clear. Shifting one pixel at a time across the CCD and combining these together in pairs for brightness and blocks of four for color delivers maximum resolution. This system's superior ability to sample both Y Luminance and RGB Chroma information results in color performance nearly identical to using three CCDs, proving that it is possible to deliver Hi-Def performance with a single CCD.

Aside from the number of Luminance and RGB Chroma samples, the die-hard 3-CCD enthusiast may wish to point out a higher ratio of Chroma pixels to Luma pixels offered by 3-CCD (1:1 vs 0.75:1). However, this actually turns out to be a moot point since 4:2:0 DV or MPEG-2 encoding inevitably reduces Chroma detail in the R-Y and B-Y color difference components. Both record just one sample each of color for every block of 4 Luma samples. So instead of expending resources on Chroma detail never used in the recording process, JVC concentrated on providing 3-CCD level performance with a single CCD system tailor-made to provide all the color sample and resolution requirements of Hi-Def recording in MPEG-2 format.

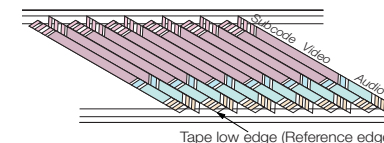


Hi-Def MPEG-2 on MiniDV Cassette

Another remarkable aspect of this video camera is that it records 60 minutes of HD signals on conventional MiniDV cassette.

The benefits are obvious: MiniDV cassettes, "the defacto standard", are widely available and affordable compared to other formats used in professional systems, and by using a common cassette mechanism with DV, it was possible for the GR-HD1 to offer regular DV recording as well.

This was made possible since the "Hi-Def MPEG-2 on MiniDV" encoder and decoder developed by JVC together with NTT records Hi-Def Component MPEG2-TS signals in the same track format as DV.



Digital MPEG-2 Hi-Def and SD Recording

While the picture is encoded one frame at a time for DV, the time axis is encoded as well for MPEG-2, conforming to the HD Digital VCR Conference's Part 7 (DVB) and Part 8 (ATV) standards. The GR-HD1 uses a GOP (Group Of Pictures) of 6 for HD and 12 for SD, with a frame order of IBBPBB. The "I frame" is

a complete frame without reference to any past or future frames; the "P frame" is encoded relative to the past reference frame; and the "B frame" is encoded relative to the past reference frame, future reference frame, or both.

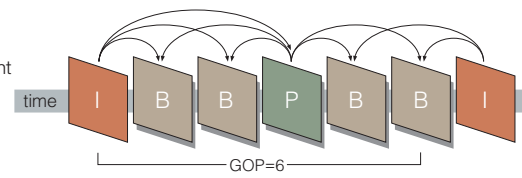
MPEG-2

In HDTV, high power MPEG encoding eliminates redundant information over time.

I : I Frame (Intra Coded Frame)

B : B Frame (Bi-directionally Predictive Coded Frame)

P : P Frame (Predictive Frame)



High-Speed Search Playback Possible

The "I frame" can be played back without using any other frame and is recorded in the appropriate variable-speed playback

area on the tape, allowing high-speed search during playback.

*The difference between HDTV TV lines and regular TV lines.

All "TV line" standard measurements are relative to the diameter of a circle the same size as the picture height. HDTV 16:9 Horizontal TV lines figures appear to be 75% of what the equivalent 4:3 Horizontal TV Lines would be if the measurement was relative to the whole picture width, since the image is wider. (For example, for the GR-HD1 HD mode would be around 1244 TV lines per picture width, while the count would be about 933 TV lines per picture width for a 4:3 camera if both had 700 TV lines counting by standard horizontal resolution). DV has a practical recorded horizontal limit of 540 4:3 TV lines, 1280x720p HD has a practical recorded limit of 720 16:9 TV lines using the standard measurement method.

Capture Your HD Footage and Captivate Your Audien



JVC Hi-Def camcorder users don't just film digital movies, they create them! The HD revolution is carried on the shoulders of a new wave of creativity unleashed by today's high powered production software. The GR-HD1's capture, editing and DVD authoring software provides capabilities only Pro's could take for granted until now, and fills out an equally important part of the basic low cost system. And compatibility with well accepted industry standard production software is already possible, with greater integration on the way.



HD Capture Software

Hi-Def footage recorded with the GR-HD1 is easily transferred to your computer's hard disk using on-screen camera control buttons, via IEEE1394

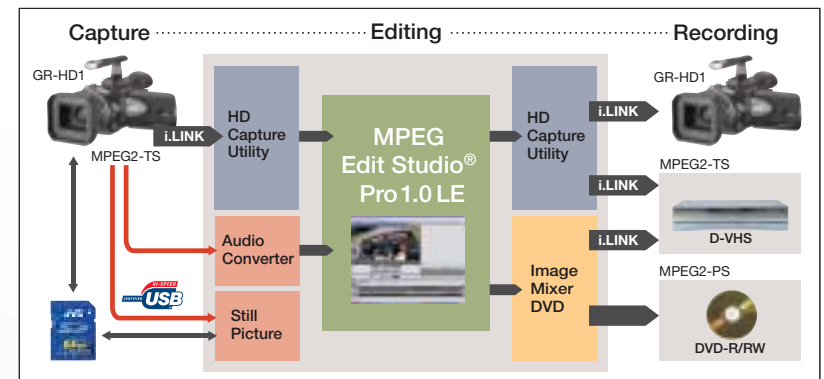
i.LINK interface. One can also record MPEG2-TS images back to tape. It also automatically stores data in separate files should it detect different data types or unrecorded sections during capture.

Seamless Frame-Accurate Digital Editing with MPEG Edit Studio™ Pro LE

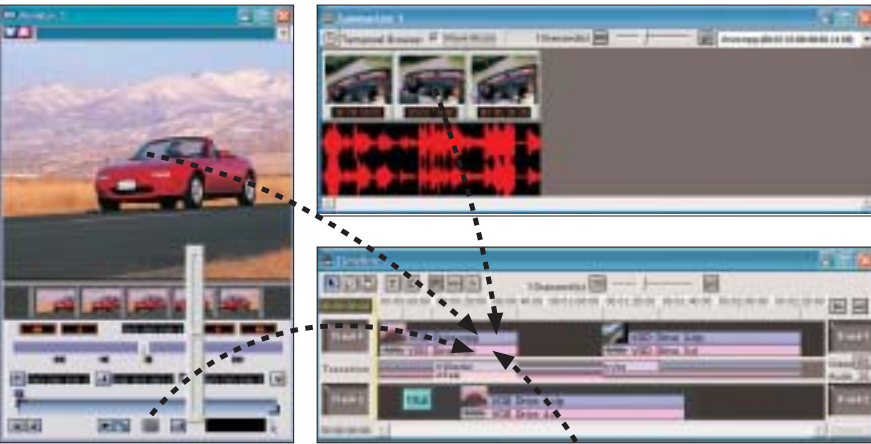
This NLE (Non-Linear Editing) application allows frame-accurate MPEG-2 editing with intuitive drag-and-drop operation.

Coupled with the search functions accompanied by sound, you'll be able to make frame-accurate cuts with precise voice timing so you won't cut off a crucial comment or quote prematurely. Video and audio can be edited separately, and combined from different clips.

In addition to the incredibly easy drag-and-drop interface, you'll find numerous features that enable easy project management so you can store and revise your past work whenever necessary. And thanks to the edit spooler function, edits can be done in the background, freeing up you and your computer for other jobs and letting you use your time more efficiently.



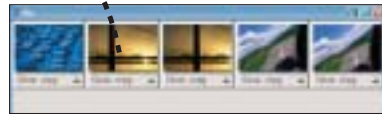
ce with a Hi-Def Edited Movie



Editing of both HD and SD material is possible, so you can export edited HD videos back to the GR-HD1 or to a JVC HM-DH40000/DH30000 Digital HDTV Video Recorder in native MPEG2-TS Hi-Def format, as well as convert edited HD videos to NTSC MPEG2-PS for authoring to DVD using the provided ImageMixer DVD software.

Import Soundtracks with Audio Converter 1.0

Lets you import MP3 files, as well as other audio file formats (WAV, WMA, MP2), with full sound mixing and editing support, for use in your movie soundtrack in the MPEG-1 Audio Layer 2 format used by MPEG Edit Studio™ Pro LE.

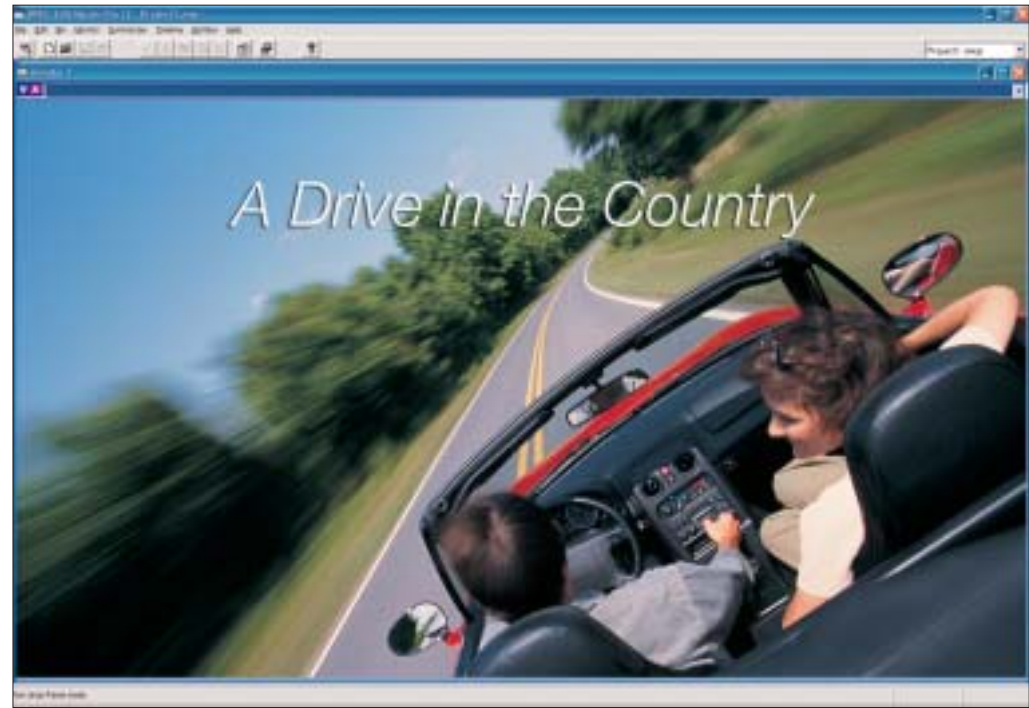


The predictive encoding nature of MPEG, and thus the lack of complete picture information for each frame, has long been considered a factor making frame-accurate MPEG edits impossible. But MPEG Edit Studio Pro LE uses highly efficient coding to make handling and editing of high data rate HD signals possible, and solves the issue of addressing each frame individually by synthesizing frame data based on surrounding frames to complete the picture. With MPEG Edit Studio Pro LE, edit cuts can start with any type of frame, without any image freeze even if an "I frame" isn't used.

Full Digital Interfaces *The GR-HD1 is excellent at getting the images and sounds you need to the location where you need them.*

Live HD images at 720/30p can be monitored digitally via the i.LINK connector (Analog output is also possible for playback from tape)

i.LINK (IEEE 1394) is primarily for transfer of MPEG-2 and DV video data to and from a PC or other compatible device like a D-VHS VCR. (Dubbing is not possible from analog HD sources). You get lossless digital dubbing of both pictures and sound in one cable. Connected to JVC's HM-DH40000/DH30000, it allows 4 hours of dubbing onto a D480 D-VHS tape (DV MPEG max. 25Mbps → DVHS MPEG max. 28Mbps).



Your edited HD Movies make the best possible DVDs

Progressive HD looks great converted to interlace NTSC DVDs. And DVD Authoring is easy with ImageMixer DVD. The software handles MPEG2-PS files created in MPEG Edit Studio™ Pro 1.0 LE without the need for re-encoding. Down-converted MPEG-2 files can be authored to DVD simply by dragging and dropping the files onto the menu. Just choose from the variety of ready-made frames and graphics, and it

automatically creates a main menu for DVD playback. ImageMixer DVD discs can be played on most ordinary home DVD units depending on the player and disc.



USB for transfer of digital still images to and from a PC.

SD or MMC Memory Card for storage of digital stills and transfer of data to PC with appropriate slot or external reader.

Web-Camera Function

Communicate via web-camera by running third party applications such as Windows® Messenger for teleconferencing, video phoning, webcasting or surveillance.



Pro Performance in Style



Rotating Grip

Transition from a high to low angle shot without removing your hand from the grip or taking your eyes off the action. Find that most comfortable and stable shooting position. Get HD footage in places and angles that bulkier cameras just won't allow.

Removable Carrying Handle and Accessory Shoes

Aluminum die-cast carrying handle for high action mobility; upgrade camera or handle shoe with options like MV-E100 microphone.

Lens Hood

Cuts lens flare for superior results.

High Resolution LCD Color Monitor and Color Viewfinder

With the rotating 3.5" high-resolution 2 Megapixel LCD monitor, you can shoot at angles and positions where the viewfinder isn't comfortable or practical. The LCD monitor can be viewed simultaneously with the viewfinder including comprehensive menu and camera condition information, especially convenient when working with others. The crisp, brilliant color viewfinder has a diopter to adjust for eyesight.

Power-Linked Operation — with Tally Lamp, Beep or Melody

Pull out the viewfinder or open the LCD monitor and the camera automatically powers up so you're ready to shoot. Close — power automatically shuts off to save energy.

If needed, beep or melody sounds signify power-on and recording signaled by the tally lamp as well as a beep or melody. A shutter sound can indicate still shooting.

Aluminum Diecast Body

Whole body frame is strengthened for the rigors of HD recording.

Manual Focus Ring & Zoom Ring

Individual lens barrel rings adjust focus and zoom. Auto focus and power zoom can be activated at anytime.

Manual/Auto Shutter Speeds, Iris, White Balance

Shutter speeds range from 1/15 and the filmic 1/30, all the way up to 1/1000 sec. Iris ranges from F1.8 through F22.0 with an Iris Lock function. In addition to One-touch manual white balance; Halogen, Cloudy and Sunny settings finely tune colors for a more natural look. All are directly accessible by conveniently mounted buttons.

Manual Exposure, Back Light Compensation and Program AE

You have total control over image exposure in ± 10 steps using the exposure dial, and can instantly compensate for backlighting via the BLC button. Program Auto Exposure includes Sports, Snow, Spotlight and Twilight to best match the scene.

Full Auto Modes

Just set to cruise control and let the camera take care of all critical settings.

HD and SD mode MPEG-1 Layer2 16bit Digital Stereo Audio/DV mode PCM Digital 2 or 4 channel Audio

Record wide dynamic range 48kHz digital audio with the camera's stereo microphone or via external stereo mini-plug mic input. HD and SD modes record at 384 kbps. DV mode also records in 2 channel 48kHz or the 32 kHz 4 channel mode for post audio dubbing. Wind cut mode helps cut down wind created noise. Monitor by stereo headphone jack.

HD/SD/DV/Digital Still 10x Zoom plus SD/DV Mode Digital 40x/200x Zoom

Get close with the stabilized all glass 10x optical zoom, plus for SD and DV mode 40x/200x digital zoom with spline interpolation to minimize jagged edges.

DV Mode 16:9 Anamorphic Wide

In DV mode, 16:9 "Squeeze wide" uses a wider view of the CCD (941x483 pixels) to create a full 16:9 image. This is then fit into the regular 4:3 NTSC signal to make a natural electrical anamorphic "squeezed" image to play back on a 16:9 TV at 60i.

DV Mode 4:3 Digital Wide

Digital Wide's broader pixel area (941 x 646) generates a high-resolution wide-angle image equivalent to a 0.7x wide conversion lens. The frame rate is 30psf output on 60i, with increased sensitivity.

HG Digital Stills

Progressive CCD recording captures digital stills a frame at a time so they have less motion blur and 1.5 times the vertical resolution of conventional field stills from an interlace camera. The Optical Image Stabilizer also helps shooting without blur from camera motion when zoomed in.

- Four sizes are captured to SD memory card or MMC MultiMediaCard; VGA 640 x 480, Panorama 16:9 848 x 480 or 1280 x 720, and Megapixel 1280 x 960 still pictures.
- Progressive pictures captured from tape to PC also make high quality stills; HD at 1280 x 720, SD 848 x 480. DV stills; 640 x 480.
- For Index playback and file viewing, File information includes Folder, File, Date made, Image size, Picture quality, and Protect mode. On screen display is possible.
- Digital Print Order Format (DPOF) ready.



Navigation, On Screen Display

An index picture and counter information are stored on the SD Memory Card when you start shooting video, push the Index button, or at regular intervals. To search video footage, just call up the navigation screen and choose the scene you want. Date, Time and Time-code are always recorded to tape, selectable for display onscreen with the LCD, viewfinder or connected TV.

Built-in Digital Effects and Scene Transitions

In addition to Black and White "Monotone" effect for HD and Digital Still modes, SD and DV modes also have Sepia, Classic Film and Strobe effects and 9 transitions you can apply both in the field shooting or during playback — White/Black and Color Fades; Corner, Window, Slide, Door Scroll and Shutter Wipes.

DV and Digital Still Camera mode Playback Digital Zoom, and DV Mode Playback Effects

Blow up by as much as 20x part of a Still or DV picture right in the LCD or connected monitor. Playback effects via the camera's multi-brand compatible remote control include Slow speed search, Frame by frame viewing, Classic Film, B/W Monotone, Sepia and Strobe.

Also

- Macro shots as close as 2 inches (5cm) from lens. Tele-macro close-ups from 2 feet (60cm) away.
- Gain Up mode
- At intervals of 5, 15, 30 or 60 seconds or manually, the 5-Second Recording mode records events in 5 second clips. Similarly, Animation mode records a few frames.
- DV LP mode provides 1.5x recording time
- Self Timer
- Blank Search locates empty tape sections.
- Tape Remaining Time Indication

DIGITAL
HD CyberCam



Specifications

Recording system	Mini DV format, HD Digital VCR Conference's Part 7 (DVB) and Part 8 (ATV) standards, DVC-SD, DVCA/TV / DVB compliant				
Digital / component	Format	Hor. / Vert. Res.	i.LINK IEEE 1394	Component	S / Composite
Video format recording / playback	1280×720p / 30 fps MPEG2 HD 16:9	700 / 650 TV Line *(See note page 6)	720p / 29.97 Lines / actual fps	480p / 59.94 480i / 29.97	480i / 29.97 (Anamorphic "squeeze" or Letterbox depending on component output)
	720×480p / 60 fps MPEG2 SD 16:9	400 / 480	480p / 59.94	Playback only: 720p / 60 fps HD only 1080i / 30 fps	
	720×480i / 30 fps DV 4:3 or (16:9) and DV 4:3 D.Wide	540 / 360 (400 / 360)	480i / 59.94 (16:9 is anamorphic "squeeze" only)		
HD/SD bit rate	19.7 Mbps Transport Stream (MTRM Standard compatible with D-VHS)	540 / 360	480i / 29.97 psf (Progressive segmented frame)		
Digital Audio signal recording	HD, SD mode MPEG1 Layer2 16 bit Stereo, 384 kbps DV mode PCM 16 bit 2 channels or 12 bit 4 channels				
Image sensor	1/3 inch 1.18 million-pixel progressive CCD	Area for motion pictures (pixels)	HD 16:9	1280×720	840,000
			SD 16:9	940×480	460,000
			DV 16:9	940×480	460,000
			DV 4:3	940×646	610,000
			DV:4:3	720×480	340,000
		Area for still pictures	1280×960 (max) in memory mode		1,120,000
Lens	F1.8—F1.9, f = 5.2mm ~ 52mm	when compared to a 35mm still camera: 40.3mm ~ 403mm in 16:9 HD mode 55.0mm ~ 550mm in 16:9 SD mode and 16:9 DV Anamorphic mode 67.8mm ~ 678mm in 4:3 DV mode 47.7mm ~ 477mm in 4:3 DV D.Wide mode 37.1mm ~ 371mm in 4:3 Digital Still memory mode			
		Filter Diameter	52mm		
Zoom magnification	10x optical zoom, SD/DV 40x and 200x digital zoom				
Sensitivity	35 lux minimum illumination				
Monitor	3.5" color LCD monitor (200,000-pixel polycrystalline silicon LCD)				
Viewfinder	0.44" color LCD viewfinder (113,000-pixel polycrystalline silicon LCD)				
I/O terminals	i.LINK:	4pin (IEEE1394 conforming) S400			
	Multipin	Y/C:	Input Y: 0.8V(p-p) ~1.2V(p-p), 75Ω C: 0.2V(p-p) ~0.4V(p-p), 75Ω Output Y: 1.0V(p-p) 75Ω C: 0.29V(p-p) 75Ω		
		Composite:	Input Y: 0.8V(p-p) ~1.2V(p-p), 75Ω Output Y: 1.0V(p-p) 75Ω		
		Audio:	Stereo Input: 300mV (rms), 50kΩ Stereo Output: 300mV (rms), 1kΩ		
		Editing control			
	Headphone	ø3.5mm Mini-plug			
	USB	Mini-USB B-type (5 pin)			
	Component	Analog Output Y: 1.0V(p-p) 75Ω Pb: 0.7V(p-p), 75Ω Pr: 0.7V(p-p), 75Ω			
	Stereo Microphone	ø3.5mm Mini-plug (480 μ (rms))			
	DC	JVC link cable			
Dimensions (W×H×D)	4-9/16×3-15/16×10-3/4 inches, 114.5×99×271.5 mm Including maximum protrusion, but with LCD closed and Viewfinder pushed in				
Weight	Main unit alone: 2.8 lbs (1,270g) During shooting operation: 3.3 lbs (1,490g) including Battery Pack, Mini DV Cassette, Memory card				
Operating temperature	0 to 40 degrees Centigrade (32 to 104 degrees Fahrenheit)				
Operating humidity	35 to 80%				
Storage temperature	-20 to 50 degrees Centigrade (-4 to 122 degrees Fahrenheit)				
Power source	DC 6.3V (using AC Adapter), DC 7.2V (using Battery Pack)				
Power consumption	HD/ SD mode 8.0W (using viewfinder), 9.7W (using LCD monitor) DV mode 6.8W (using viewfinder), 8.5W (using LCD monitor)				

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Continuous (Actual) recording time*1		HD/SD mode	DV mode
Using viewfinder:	BN-V416	1 hr. 15 min. (37 min.)	1 hr. 30 min. (45 min.)
	BN-V428	2 hr. 15 min. (1 hr. 8 min.)	2 hr. 50 min. (1 hr. 25 min.)
	VJ-V840KIT	3 hr. 20 min. (1 hr. 40 min.)	4 hr. 00 min. (2 hr.)
	VJ-V856KIT	4 hr. 50 min. (2 hr. 25 min.)	5 hr. 40 min. (2 hr. 50 min.)
Using LCD monitor:	BN-V416	1 hr. 00 min. (30 min.)	1 hr. 10 min. (35 min.)
	BN-V428	1 hr. 50 min. (55 min.)	2 hr. 10 min. (1 hr. 5 min.)
	VJ-V840KIT	2 hr. 50 min. (1 hr. 25 min.)	3 hr. 10 min. (1 hr. 35 min.)
	VJ-V856KIT	4 hr. 00 min. (2 hr.)	4 hr. 30 min. (2 hr. 15 min.)

*1 Note... Continuous recording time, actual recording time, and number of still pictures are approximate.

Still Picture Format	JPEG compliant, DCF, Digital Print Order Format			
	SD Memory Card (ex)		MultiMediaCard (ex)	
Picture Capacity (Fine/Standard)	8MB	~	64MB	8MB ~ 32MB
640×480 (4:3)*	30/80	~	297/772	36/95 ~ 149/388
848×480 (16:9)*	25/66	~	241/643	29/79 ~ 121/323
1280×720 (16:9)*	10/26	~	99/257	12/31 ~ 49/129
1280×960 (4:3)	7/20	~	74/193	9/23 ~ 37/97

*These sizes also recordable on tape.

*i.LINK denotes IEEE (Institute of Electronics and Electronics Engineers) 1394-1995 and its extended specifications. i.LINK and i.LINK's logo "i.LINK" are trademarks of Sony Corporation.

<Windows®>

• OS: Microsoft® Windows® XP Home Edition/Professional (Pre-install version) • CPU: Intel® Pentium®4 2GHz or above
• RAM: 256MB or above for DDR SDRAM or DRD RAM, 384MB or above when taking video memory from RAM (Both 512MB or above recommended) • Terminal: IEEE1394 (i.LINK) terminal and USB terminal (Standard equipment) • Displays: 1024 x 768 or above • Video memory: 32MB or above • Hard Disk: Ultra ATA/100 (7200rpm or above recommended)
• Other: CD-ROM drive (For installation) • When making DVD Video discs, using ImageMixer DVD • Recordable DVD drive that PIXELA Corporation supports is necessary.* • DVD-RAM media cannot be supported by ImageMixer DVD.

*Information about compatible drives will be provided at the web site of PIXELA Corporation, etc.

[When installing MPEG Edit Studio™ Pro 1.0 LE] HDD unused space: Approx. 50MB or above necessary (Just for installation)
[When installing ImageMixer DVD] HDD unused space: Approx. 120MB or above necessary (Just for installation)

<Macintosh>

This software is incompatible with Macintosh
*note: • May not work correctly depending on the PC environment. • Microsoft® and Windows® are registered trademarks of Microsoft Corporation in U.S.A. and other countries. • Intel®, Pentium® are registered trademarks of Intel Corporation. • MPEG Edit Studio is a registered trademark of KDDI Corporation. • Other listed corporations' and products' names are their owner's trademarks or registered trademarks.



GR-HD1 Provided Accessories

①AA-V40U, AC Power Adapter/Charger ②DC Cord to Charger from camera
③RM-V717U, Remote Control Unit ④USB Cable ⑤Component Video Cable
⑥S/AV/Editing Cable ⑦BN-V428U, High Capacity Battery Pack 2800 mAh
⑧Lens Cap ⑨CD-ROM with software ⑩Audio Cable x 2 for stereo microphone and headphone ⑪Audio Extension Cable ⑫Editing Extension Cable ⑬Cleaning Cassette ⑭8 MB SD Memory Card (Already inserted in the camcorder) ⑮Shoulder Strap • Carrying Handle • Lens Hood (Already attached to the camcorder)
• AAA (R03) Battery x 2 (for remote control unit) • Core Filters for cables

GR-HD1 Optional Accessories

• VU-A100KIT, Accessory Kit : System Carrying Bag (soft type) x 1pc - Battery pack, BN-V428U x 1pc - DV PRO Tape, M-DV63PROBU x 3pcs
• CB-A110, Hard Case • WR-HD1, Marine Case • BN-V428, High Capacity Battery 2800 mAh • VU-V840KIT, High Capacity Battery Kit 4000 mAh
• VU-V856KIT, High Capacity Battery Kit 5600 mAh • BH-V1, Car Battery Inverter
• CU-V10, Stereo Microphone • VC-VDV204 / VDV206, DV Cables (i.LINK/Firewire)
• CU-ASD032 / ASD064, 32 and 64 MB SD Memory Cards • CU-A80SD, Dual Interface Memory Card Adapter • VU-VCKIT1D, Cleaning Kit

JVC Mini-DV Tape

• M-DV60ME High Grade
• M-DV60PRO Pro
• M-DV63PROBU Professional DV
• M-DV12CL Cleaning Tape

Mini DV



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JVC CANADA INC.
21 Finchdene Square Scarborough Ontario M1X1A7

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