

Panasonic

ideas for life

Memory Card Portable-Recorder

AG-HMR10

Camera Head for AG-HMR10 (optional)

POV CAM**AG-HCK10G**

AVCCAM

A Handheld HD Recorder with HD-SDI Input / Output
Featuring Versatile Operation and Full-HD Images



Camera Head (optional)
AG-HCK10G

* The camera cable
is optional.



Memory Card
Portable-Recorder
AG-HMR10



* Memory card is
not included

AVCHD
DOOLBY
DIGITAL
STEREO CREATOR

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

SD
HC


AVCCAM 3-Year Warranty Repair Program*

* AG-HMR10 users qualify for a 3-year warranty on repairs. Visit the website for details:
(For US Customer: www.panasonic.com/broadcast)
(For Outside US: http://panasonic.biz/sav/pass_e)
The optional AG-HCK10G camera head is not included.

Advanced HD Recording Technology

AVCHD Format Recording: Superior Quality, Efficiency and Reliability

A Wealth of Recording Functions to Meet Professional Needs



Memory Card
Portable-Recorder
AG-HMR10



* HD-SDI Camera connects to AG-HMR10.

* The image is simulated.

High-end AVCHD Image Quality

PH Mode for High Bit Rate Recording

The AG-HMR10 features the image-enhancing PH mode that Panasonic developed exclusively for AVCCAM camera recorders. It delivers a maximum AVCHD bit rate of 24 Mbps (average: 21 Mbps). Designed for professional image production, this mode handles full-pixel HD 1920 x 1080 and 1280 x 720 HD pixels, and lets you record 1080/30p, 1080/25p, and 1080/24p progressive images in addition to 1080/60i and 1080/50i when connected to the AG-HCK10G (optional).

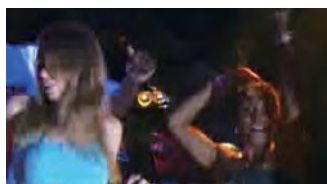


Image with HDV



Image with AVCHD (PH mode)

Ease, Efficiency, Reliability

Large-capacity SDHC Memory Card

Unlike videotape, there's no need for cueing with the SDHC Memory Card because recording automatically begins in a blank section of memory. Nor do you have to worry about accidentally recording over important footage. You can delete unwanted clips instantly right on the spot to preserve memory capacity. Editing after shooting is smooth and easy, with no need for digitizing. The solid-state memory design does away with the moving mechanism to provide excellent resistance to impacts, vibration and temperature changes, and eliminates concerns about dropouts and clogged heads.

- Using the high compression efficiency of the AVCHD format, up to 720 minutes*¹ of HD data can be recorded onto a single SDHC Memory Card.
- Combined with a maximum data transfer speed of 22 MB/s,*² this makes data transfers to computers easy and effortless.
- SDHC Memory Cards are inexpensive and can be easily purchased on location when needed.

*1: In HE (extended time) mode using a 32 GB SDHC Memory Card.

*2: Data transfer speed varies depending on the usage of SD devices. The speed given here is the maximum speed according to Panasonic specifications.

AVCHD Format for High-quality, Efficient HD Recording

This format complies with the latest H.264 motion image compression standard, and employs the High Profile standard to improve compression efficiency. Featuring twice the compression efficiency of HDV (MPEG-2), the AG-HMR10 achieves extended HD recording time.

■ MPEG-4 AVC/H.264 Technologies

- Intra-frame Prediction
- Variable Block Size Motion Compensation
- Loop Filter Prevents the Propagation of Compression Distortion
- New Entropy Encoding 'CABAC'

■ Comparison of HD Recording Formats

	HDV	AVCHD
Pixel (H x V)	1440 x 1080	1920 x 1080
Compression Method	MPEG-2	MPEG-4 AVC/H.264

■ HD multi-format recording

Recording Format	When set to 59.94 Hz	When set to 50 Hz
1080	1080/59.94i	1080/50i
1080 (only PH mode)	1080/29.97p* ¹ , 1080/23.98p* ¹ (Native* ²)	1080/25p* ¹
720 (only PH mode)	720/59.94p, 720/29.97p* ¹ , 720/23.98p* ¹ (Native* ²)	720/50p, 720/25p* ¹

* When the system frequency has been changed, turn the unit's power off and then back on so that the setting takes effect.

*1: Selectable only when combined with the AG-HCK10G.

*2: In the Native mode, AG-HMR10 records only active frames.

■ Records for 180 minutes (approx.) in the highest-quality (PH) mode

Recording Mode	Image Size (H x V)	Bit Rate	Max. Recording Time with a 32 GB SDHC Memory Card
PH Mode	1920 x 1080 1280 x 720	Approx. 21 Mbps (Average), Max. 24 Mbps	Approx. 180 minutes
HA Mode	1920 x 1080	Approx. 17 Mbps (Average)	Approx. 240 minutes
HG Mode	1920 x 1080	Approx. 13 Mbps (Average)	Approx. 320 minutes
HE Mode	1440 x 1080	Approx. 6 Mbps (Average)	Approx. 720 minutes

* A Class 4 or higher SDHC or SD Memory Card is required for PH and HA recording. Use a Class 2 or higher SDHC or SD Memory Card for other modes. (Panasonic SDHC or SD Memory Cards are recommended.)

More Efficient than Tape Versatile Solid-state Recording Functions

●Shot mark

To simplify shot selection, you can add a mark to the thumbnail images of each clip. You can then display and play only the clips that have shot marks.

●Pre-REC

This helps to ensure you always get the shot you want, by letting you continuously store, and subsequently record, images and sounds for 3 seconds before the REC button is pressed in standby mode.

* Can be used only when combined with the AG-HCK10G.

●REC CHECK

Plays back the last 2 seconds of the most recently recorded clip for quick confirmation.

* Can be used only when combined with the AG-HCK10G.

●Last clip delete

Only the most recently recorded clip is deleted with this one-touch function. It can be assigned as a User button function if desired.

●Meta-data recording

The date, camera operator, location, title and other information can be added to the image data.

●LCD REVERSE

The image displayed on the LCD monitor can be reversed vertically and horizontally to check the angle and recorded image.

* Only the image display is reversed. The recorded image remains in its original orientation. It can be assigned as the User button if desired.

●INDEX

Index flags can be added to any desired points in a clip during recording or playback. Up to 100 index flags can be added to each clip.

Adjust the Image Quality While Watching the Signal Level Waveform Monitor Display

A horizontal analysis of the input signal's brightness level can be displayed on the monitor. This lets you adjust the standard black and white levels while checking the Waveform Monitor (WFM), making it easy to get highly accurate adjustments.

■ Easy-to-see LCD



●Simplified Display in Vector Scope

The display can be switched from waveform monitor (WFM) to vector scope (VECTOR).

Image with Vector scope display



Fast Scene Searches 8.9 cm (3.5 inch) LCD Monitor Thumbnail View

Image data is recorded as a file for each scene. Thumbnail images and file information are automatically attached to each file to enable fast, nonlinear access confirmation and deletion of files displayed on the LCD monitor.



Meets a Variety of Needs Convenient Playback Functions

●Resume Playback

When the Stop key is pressed during playback, the stop position is stored in memory. Simply press the Play key to start playing again from the stop position. This feature is especially appreciated when reviewing long clips.

* Turning off the power resets the memory. This function is disabled in the factory default setting.

●Repeat Playback

This function provides repeat clip playback. It is convenient for use in presentations and demonstrations because playback is seamless, and there's no need for rewinding. There's also no wear or tear on the recording media or degradation in the image quality.

* Repeat playback of multiple clips is possible only for clips of the same format.

●Clip Operation

The AG-HMR10 allows fast forward, fast reverse, clip forward, clip reverse, and frame by frame playback operation.

On-site Recording and Monitoring Convenient Recording Functions

●Time stamp

You can insert time and date information into the video signal. This could be convenient, for example, when observing animals over an extended period, in certain academic uses, in surveillance, court reporting, legal depositions or law enforcement applications.



●TC/UB recording

Provides a built-in SMPTE time-code generator.



Interfaces

Excellent Mobility and Operating Ease in an Ultra-light, Compact Body Versatile Interfaces Meet a Wide Range of Applications

One-touch Operation of Key Functions User Button

The AG-HMR10 lets you assign any of the following 11 functions to the User button for instant access.

Function	With HD-SDI input	With AG-HCK10G input
INH	●	●
REC CHECK	—	●
SPOTLIGHT	—	●
BACKLIGHT	—	●
ATW LOCK	—	●
LCD DTL	●	●
LCD REVERSE	●	●
INDEX	●	●
SHOT MARK*1	●	●
LAST CLIP	●	●
COUNTER*2	●	●

*1: When the User button that has been assigned to SHOT MARK, it can be used during thumbnail display.

*2: When the User button that has been assigned to COUNTER, it can be used during clip playback.

Other Professional Features

- **Color bar:** Provides a useful test pattern for setting up your monitor and 1 kHz, audio test tone.*
* When SYSTEM FREQ is set to 50 Hz, a 997 Hz test tone is output.
- **Camera remote:** It features a remote jack to control the zoom and recording start/stop. Allows use of any camera remote controller that is compatible with the AG-DVX100/HVX200/HMC150/HMC40 Series.
- **KEY LOCK:** Temporarily disables the operating buttons on the camera to prevent operating mistakes.
- **LCD DTL:** Emphasizes the contours of images displayed on the LCD to aid in focusing.
* Emphasizing the contours of the displayed images does not affect the recorded images.

Designed with Operating Ease in Mind Excellent Mobility and Easy Operation

In addition to being lightweight and compact the shape of this handheld recorder provides an easy, fatigue-free grip. Operating ease has also been enhanced by a universal key layout that enables both right and left handed operation. Two multi-purpose threaded sockets are provided on each of the left and right sides. They can be used to mount the unit for a variety of applications.



Ready for Line Recording HD-SDI Input/Output

HD-SDI input and HD/SD-SDI output (down-converting the image for SD-SDI output) are equipped. Digital AV signals can be transmitted up to 100 m (328 ft) with a BNC cable. Line recording of high-quality images from video cameras and switchers is also supported. When connected to a camera recorder, the camera trigger can be interlocked to REC start and stop recording.*



* To use linked and automatic recording, the function must be supported by the connected camera recorder.

Connects to Microphones and Camera Head for Stereo Audio Recording

The stereo mini jacks on the AG-HMR10 let you input audio from external microphones. When the optional AG-HCK10G camera head is connected, audio recording is also possible from the stereo microphones built into the camera head. In either case, it's easy to adjust the audio input with the level meters displayed on the LCD monitor.

Monitor Connection HDMI Output Terminal

The AG-HMR10 is equipped with an HDMI (High Definition Multimedia Interface) output terminal for digital transferring of high-quality HD image and audio signals.

* The AG-HMR10 cannot output HDMI and HD/SD-SDI signals at the same time. Also, a conversion cable may be required for connecting the AG-HMR10 to a professional monitor.

* Not compatible with VIERA Link.

Recording or Playback of Images SD Down-conversion Output

Either HD-SDI or HDMI output can be used to down-convert and output HD images as SD images while they are being recorded or played. For SDI output, Side Crop, Letterbox or Squeeze can be selected for the 16:9/4:3 aspect ratio conversion mode.* It enables a wide variety of applications, such as viewing on an external monitor or SD dubbing.



Side crop



Letterbox



Squeeze

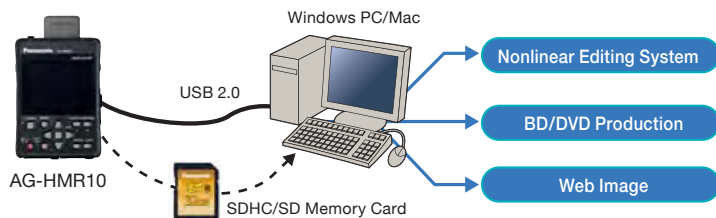
* Only the Squeeze mode can be used with HDMI output.

PC Connection via USB 2.0 Terminal (Type mini B)

This lets a Windows PC/Mac installed with the provided AVCCAM Viewer software to ingest, copy, and write HD video files, as well as transfer them to AVCHD-compatible nonlinear editing software for HD image production.

The AVCHD Format Enables Smooth Production and Easy Internet Distribution. Tapeless Design Means Lower Total Costs

Unlike tape, AVCHD files require no digitizing*1 and can be directly and quickly transmitted*2 to an HDD in a Windows® PC/Mac. This makes it easier to use motion images in new IT applications*3, like content production, Internet distribution and source material archiving. AVCHD's direct editing also saves your time and effort in TV program production. And AVCHD means lower costs for both media and equipment maintenance.



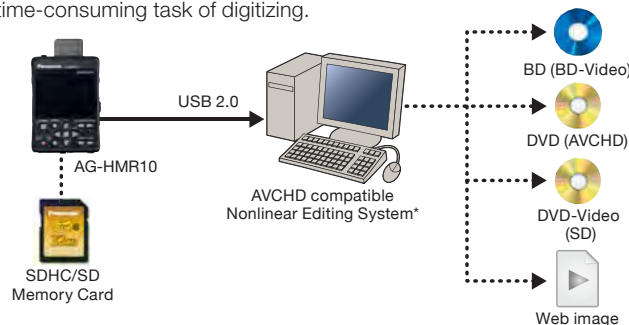
*1: Some editing software may require conversion to an intermediate codec. The conversion speed will vary depending on the hardware specifications of the Windows PC/Mac, the software used for converting, and the file format being converted.

*2: Maximum speed: 22 MB/s (Using a Class 10 SDHC Memory Card. Speed depends on the hardware specifications of the Windows PC/Mac.) Some computers may not recognize the SDHC Memory Card. If that occurs, use an SDHC Memory Card Reader.

*3: Optional AVCHD-compatible software is required. The minimum system requirements for using the software must also be satisfied.

AVCHD Nonlinear Editing

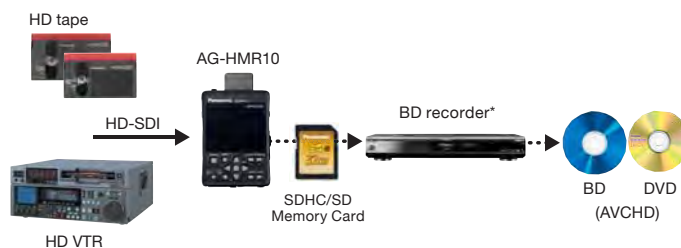
AVCHD files can be transferred at high speed by using the USB 2.0 interface to connect the AG-HMR10 to a Windows PC/Mac. This dramatically improves productivity when compared with the time-consuming task of digitizing.



* New AVCHD transcoder software is available for free downloading on the following website.
 <For US customers: www.panasonic.com/broadcast>
 <Outside US: <http://www.pavc.panasonic.co.jp/pro-av/support/desk/e/download.htm>>

Copying onto BD/DVDs with BD Recorder

You can easily copy AVCHD data onto the built-in HDD of a Panasonic BD recorder. You can also copy HD images onto a BD or DVD.



* Needs to be compatible with AVCREC. BD recorder is not available in some areas.

A Host of Software to Support Production

AVCCAM Viewer*1(Free Download)

AVCCAM Viewer for Windows PC/Mac*2 makes it easy to preview AVCCAM files and other AVCHD motion images, still images and meta-data, with very simple operation. Files can be played from an SDXC*3/SDHC/SD Memory Card, BD (Blu-ray Disc™), or hard disk, and saved to a PC (hard disk) from an SDXC*3/SDHC/SD Memory Card or BD. Files can also be copied or deleted, meta-data can be displayed, and data can be written to an SDXC*3/SDHC/SD Memory Card or BD*4.



*1: AVCCAM Viewer doesn't support DV files.

*2: Copying and playing data on BD (BD-RE Ver.3.0) are not supported by Mac OS X 10.4 (Tiger).

*3: Mac version doesn't support SDXC memory card.

*4: Do not insert a disc [DVD (AVCHD)] produced with the provided HD Writer 2.5E software into a device that does not support the AVCHD standard. If it is inserted into such a device, the disc may not eject. Also, do not play the disc with a device that does not support the AVCHD standard.

AVCCAM Restorer (Free Download)

The AVCCAM Restorer is software for restoring inconsistencies in video data recorded on an SDXC/SDHC/SD Memory Card. The software mainly targets inconsistent data created under the following conditions.

- When the camera recorder fails to complete writing of the file in the normal manner due to the power being cut or the like.
- When the writing of the recorded video data to the SDXC/SDHC/SD Memory Card has failed.

* This software can only be used with AVCHD clips recorded with a Panasonic AVCCAM series camera.

* Note that it will not always be possible to restore the data using this software.

* This software targets recorded data that has been damaged for restoration. It is not capable of performing processing to restore deleted data.

AVCCAM SD Card File Recovery (Free Download)

The AVCCAM SD Card file recovery is software for repairing the file which was erased or formatted accidentally. It supports SDXC/SDHC/SD Memory Card.

* This software can only be used with AVCHD, DV and JPEG clips recorded with a Panasonic AVCCAM series camera.

* Note that it will not always be possible to repair the file using this software.

AVCCAM Importer (Under development)

AVCCAM Importer is a software for Apple Final Cut Pro to enable direct editing of AVCHD *.mts file without conversion. Since AVCCAM Importer is a plug-in component for Apple QuickTime, QuickTime Player can play AVCHD *.mts file and other software based on QuickTime Framework can also handle AVCHD *.mts file directly after installation of AVCCAM Importer on a Mac.

*AVCCAM Importer supports the AVCHD files produced by AVCCAM products only.



Superb Full-HD Image Quality

High-Quality, Multi-Angle Shooting A 3MOS System with Full-HD Sampling

Camera Head
for AG-HMR10 (optional)

AG-HCK10G



* The image is simulated.

Allows Operation from a Distance Teams with AG-HMR10 Recorder

Zoom, focus, iris, shutter speed and white balance adjustments, as well as camera setup, can all be made from the AG-HMR10. Its built-in stereo microphone also lets you adjust the audio levels. The camera head option cable (optional) comes in 3 m (9.84 ft) (AG-C20003G) and 20 m (65.62 ft) (AG-C20020G) lengths to match your application.

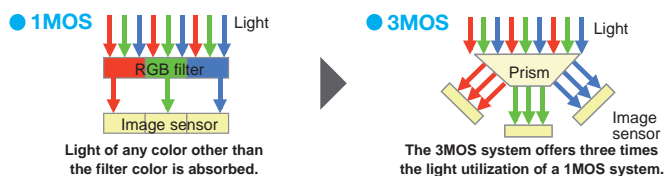
Highly Detailed Image Capture A Progressive 3MOS Sensor with Approx. 2.51 Megapixels

The progressive 3MOS image sensors record full-HD images with a total, 3.05-megapixel (approx.) resolution [effective motion-image resolution of 2.51 megapixels (approx.)]. This produces full-raster HD images with high resolution and superb image quality. Because each of the three separate image sensors receives one of the three primary colors of light (red, green and blue), they render more precise images and more faithful colors than the single light-receiving 1MOS sensor.

What's the 3MOS System?

3MOS (MOS= Metal Oxide Semiconductor)

Image Sensors Process the three primary colors of light (red, green and blue).



HD multi-format recording

Recording Format	When set to 59.94 Hz	When set to 50 Hz
1080	1080/59.94i	1080/50i
1080 (only PH mode)	1080/29.97p, 1080/23.98p (Native*1)	1080/25p
720 (only PH mode)	720/59.94p, 720/29.97p, 720/23.98p (Native*1)	720/50p, 720/25p

* When the system frequency has been changed, turn the unit's power off and then back on so that the setting takes effect.

*1: In the Native mode, AG-HMR10 record only active frames.

Up to 120x Zoom Power HD Lens Unit

Even at the 490 mm zoom setting (35 mm lens equivalent), this advanced 12x optical zoom lens is free of image degradation. And the AG-HMR10 is equipped with a digital zoom that instantly magnifies the image by any of three fixed values. 2x, 5x or 10x. Use it together with the 12x optical zoom lens, and you get super magnification equivalent to a 120x zoom, without the drop in light intensity that happens when using a lens extender. This advanced lens also lets you capture 40.8 mm wide-angle shots (35 mm lens equivalent) — unusual for such a compact unit.

* The image quality decreases as the digital zoom magnification increases.



Image with Wide-angle



Image with 12x optical zoom



Image with 12x optical zoom x 10x digital zoom (120x)

Take Clear Shots While Walking or Zooming Optical Image Stabilizer (OIS)

Because hand-shake correction is done by actually driving the lens, there's none of the image degradation that occurs with electronic stabilization. You can capture beautiful, high-quality shots even in situations where hand-shake is typically a big problem — such as when zooming, shooting indoors in dim lighting, or shooting outdoors at night.

* Hand-shake from strong vibrations may remain.

Also, visible differences may be slight under some conditions.



Image with OIS OFF



Image with OIS ON

AG-HMR10

Specifications

As of March 2011

[GENERAL]

Power Supply:	DC7.2 V (using with battery), 7.3 V (using with AC adapter)
Power Consumption:	11.7 W (when the optional AG-HCK10G Camera Head is connected) 6.5 W (in standalone condition)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (No condensation)
Weight:	Approx. 580 g (Approx. 1.28 lb.) excluding battery Approx. 691 g (Approx. 1.52 lb.) including bundled battery
Dimensions (W x H x D):	96 x 52.6 x 133 mm (3-3/4 inches x 2-1/8 inches x 5-1/4 inches) excluding the projection

[Video Recording]

Recording Format:	AVCHD
Compression Method:	MPEG-4 AVC/H.264
Recording Media*1:	SD Memory Card : 512 MB, 1 GB, 2 GB (FAT12, FAT16) SDHC Memory Card : 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 32 GB (FAT32)
Recording Video Format*2:	[59.94 Hz] PH mode: 1080/60i, 1080/30p*3 (over 60i), 1080/24p*3 (Native)*4, 720/60p, 720/30p*3 (over 60p) and 720/24p*3 (Native)*4 HA, HG and HE mode: 1080/60i only [50 Hz] PH mode: 1080/50i, 1080/25p*3 (over 50i), 720/50p and 720/25p*3 (over 50p) HA, HG and HE mode: 1080/50i only
Transmission Rate:	PH mode: Approx. 21 Mbps (VBR, Max. 24 Mbps) HA mode: Approx. 17 Mbps (VBR), HG mode: Approx. 13 Mbps (VBR) HE mode: Approx. 6 Mbps (VBR)
Recording Time:	Approx. 180 minutes (In PH mode with 1920 x 1080 pixels and using a 32 GB SDHC Memory Card)
SD Memory Card:	Max. recordable clips per card: 900 (after formatting, without removing/inserting the card) Max. playable clips: 1,000 (up to 1,000 clips displayed)
Thumbnail View:	8 frames/page
Editing Functions:	Delete, write-protect
Formatting Function:	Yes

[Video System]

Video Signals:	[59.94 Hz] 1080/60i, 720/60p [50 Hz] 1080/50i, 720/50p
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[Video IN/OUT]

SDI Input:	HD-SDI Input, BNC x 1, 0.8 Vp-p, 75 Ω
SDI Output:	HD-SDI/SD-SDI Output, BNC x 1, 0.8 Vp-p, 75 Ω
AG-HCK10G Input:	20-pin dedicated terminal (connection with the AG-HCK10G)
HDMI Output:	HDMI Output x 1 (HDMI Type A terminal), [59.94 Hz] 1080/60i, 720/60p, 480/60p [50 Hz] 1080/50i, 720/50p, 576/50p (Not compatible with VIERA Link)

[Audio System]

Compression Method:	Recording/Playback: Dolby Digital/2 ch
Sampling Frequency:	48 kHz
Quantization:	16 bit
Compression Bit-rate:	PH mode: 384 kbps, HA, HG and HE mode: 256 kbps

[Audio IN/OUT]

AG-HCK10G Input:	20-pin dedicated terminal (connection with the AG-HCK10G)
External	-70 dBV (Mic sensitivity: -50 dB equivalent, 0 dB=1 V/Pa 1 kHz)
Microphone Input:	Stereo mini jack (3.5 mm diameter) (Not compatible with plug-in power microphone)
HDMI Output:	2 ch (Linear PCM), 5.1 ch (Dolby Digital)
Headphone:	Stereo mini jack (3.5 mm diameter) x 1, 100 Ω -22 dBV (with 32 Ω load)
Built-in Speaker:	20 mm (round) x 1

[Other Connectors]

Camera Remote:	Super mini jack (2.5 mm diameter) x 1, for zoom and rec start/stop operations
USB:	Type mini B connector (compliant with USB ver. 2.0)

[Monitor]

LCD Monitor:	88.9 mm (3.5 inches), LCD color monitor, Approx. 210,000 pixels
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[Standard Accessories]

AC adapter/charger,	2,640 mAh/2,500 mAh (typ./min.) battery pack (secure type), AC cable, DC cable (catch type), CD-ROM, AVCCAM Restorer (Windows PC/Mac)
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- *1: SDHC/SD Memory Card (8 MB to 32 GB) can be used for reading metadata.
 *2: When the system frequency has been changed, turn the unit's power off and then back on so that the setting takes effect.
 *3: Selectable only when combined with the AG-HCK10G.
 *4: In the Native mode, AG-HMR10 record only active frames.

AG-HCK10G

Specifications

As of March 2011

[GENERAL]

Power Supply:	DC8 V-9 V (Supplied from the AG-HMR10)
Power Consumption:	3.5 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (No condensation)
Weight:	Approx. 275 g (Approx. 0.61 lb.)
Dimensions (W x H x D):	53.5 x 56 x 123.8 mm (2-1/8 inches x 2-1/4 inches x 4-7/8 inches) excluding the projection part

[CAMERA]

Pick-up Device:	3MOS (1/4.1 type progressive modes supported)
Picture Elements:	Effective: Approx. 2.51 megapixels x 3 (16:9)
Lens:	Lens with optical image stabilizer, 12x zoom, F1.8 to 2.8 (f=4.0 mm to 48 mm), 35 mm equivalent: 40.8 mm to 490 mm (16:9)
Filter Diameter:	43 mm
Optical Color Separation:	Prism system
ND Filter:	Auto On/Off by IRIS
Minimum shooting distance:	Approx. 0.9 m (Approx. 35.43 inches)
Gain Selection:	0 dB to +34 dB (Variable in 1-dB steps)
White balance:	ATW, preset 3200 K, preset 5600 K, W.set
Shutter Speed (Preset):	[59.94 Hz] 60i/60p mode: 1/60 sec. to 1/2000 sec. (7 steps) 30p mode: 1/30 sec. to 1/2000 sec. (8 steps) 24p mode: 1/24 sec. to 1/2000 sec. (8 steps) [50 Hz] 50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps) 25p mode: 1/25 sec. to 1/2000 sec. (8 steps)
Shutter Speed (Synchro Scan):	[59.94 Hz] 60i/60p mode: 1/60.0 sec. to 1/250.0 sec. 30p mode: 1/30.0 sec. to 1/250.0 sec. 24p mode: 1/24.0 sec. to 1/250.0 sec. [50 Hz] 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.

Slow Shutter Speed:	[59.94 Hz] 60i/60p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 24p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. [50 Hz] 50i/50p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec. 25p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec.
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Minimum Luminance:	Approx. 1 lx (Gain: +34 dB, Slow Shutter: 1/2 sec.)
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Digital Zoom:	2x/5x/10x (When set to 59.94 Hz: 1080/60i, 720/60p only; when set to 50 Hz: 1080/50i, 720/50p only)
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[Video Recording]

Recording Video Format*5:	[59.94 Hz] PH mode: 1080/60i, 1080/30p (over 60i), 1080/24p (native)*6, 720/60p, 720/30p (over 60p) and 720/24p (native)*6 HA, HG and HE mode: 1080/60i only (Recording with the AG-HMR10) [50 Hz] PH mode: 1080/50i, 1080/25p (over 50i), 720/50p and 720/25p (over 50p) HA, HG and HE mode: 1080/50i only
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[Video Output]

AG-HMR10 Output:	20-pin dedicated terminal (connection with the AG-HMR10)
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[Audio Input]

Internal Microphone:	Stereo microphone
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[Standard Accessories]

Lens cap (mounted to the AG-HCK10G), Lens hood (mounted to the AG-HCK10G)

- *5: When the system frequency has been changed, turn the unit's power off and then back on so that the setting takes effect.
 *6: In the Native mode, AG-HMR10 record only active frames.

* Weight and dimensions shown are approximate. Specifications are subject to change without notice.

POV CAM

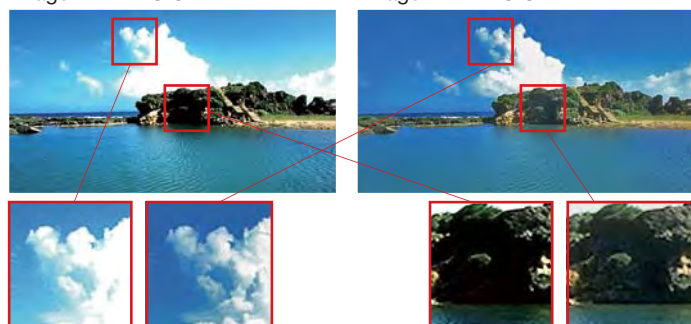
Suppresses Blocked Shadows and Blown Highlights Dynamic Range Stretch (DRS)

A gamma curve and knee slope are estimated to match the contrast of each pixel, and applied in real time. When dark, bright, and intermediate shades are all contained in the same scene, this produces excellent gradation for each shade and minimizes blocked shadows and blown highlights. The images that result are enhanced by a visually wider dynamic range.

Images with the Dynamic Range Stretch (DRS) Effect

Image with DRS OFF

Image with DRS ON

Blown highlights
are suppressed.Blocked shadows
are suppressed.

Highly Detailed Image Composition Advanced Pro-tuning Functions

Matrix settings

Lets you choose basic color hues that convey the desired overall image mood.

NORM1	For colors suited to shooting outdoors or under halogen lights.
NORM2	For colors more vivid than NORM1.
FLUO	For colors suited to shooting indoors under fluorescent lights.
CINE-LIKE	To reproduce colors similar to those in movies.

Knee point settings

Controls the highlights within the frame. (AUTO/LOW/MID/HIGH)

Adjustable detail level, V detail level, detail coring and skin tone detail

Corrects edges, removes image noise, smoothes skin's texture.

Adjustable chroma level, chroma phase, color temp and master pedestal

Sets the basic levels for brightness and other signals.

White balance

1-value memory, 2-value preset (3200 K, 5600 K) and Auto Tracking White (ATW).

Zebra

Select any two levels from among 50 % to 105 %, in 5 % steps.

Cine-like Gamma Curves 7-mode Gamma for Richer Gradation

Drawing on technologies developed for the VariCam HD camera recorders for digital cinema, Panasonic has equipped the AG-HCK10G with advanced gamma functions that address seven different shooting scenarios and enhance your creative abilities. This includes the cine-like gamma, which produces the characteristic warm tone of film recordings.

AG-HCK10G Gamma Modes

HD NORM	Suitable for HD recording
LOW	Works to flatten out a high contrast scene
SD NORM	Normal setting for SD (This was available in the DVX100 series.)
HIGH	Expands the tone of dark parts and make a brighter image. The contrast softens
B.PRESS	Makes the contrast sharper than LOW
CINE-LIKE-D	The Cine-like mode shifted to prioritize dynamic range
CINE-LIKE-V	The Cine-like mode shifted to prioritize contrast

Quick, Easy Focusing HD Focus Assist Function

In addition to the center zoom function, which enlarges the center area of the image for easier focusing, a focus bar can be displayed to indicate the focus level by the length of the bar. A peak hold function in the focus bar makes it easy to find the optimal focus position. The One-Push Auto Focus mode also lets you temporarily switch to AF mode during manual focusing.

Image before center zoom



Image with center zoom



* This function cannot be used for digital zooming.

Focus Bar

Wide Range of Settings Slow Shutter and Synchro Scan Functions

The slow shutter function uses image accumulation to allow shutter speeds with frame rates reduced by half or more. The accumulation method provides bright-color images with less noise than those captured using conventional gain-up, so you get the higher sensitivity needed for nighttime shooting without illumination.

Options

As of March 2011



VW-W4307H
Wide-conversion lens



VW-T4314H
Tele-conversion lens



AG-C20003G 3 m (9.84 ft)
AG-C20020G 20 m (65.62 ft)
Camera Head Option Cable

* These options are not available in some areas.

System Application

Highly Flexible Shooting For Use in a Wide Range of Fields



■ Recording Unique News Angle

The AG-HCK10G makes it easy to shoot from high angles. And because the AG-HMR10 recorder comes standard with HD-SDI output, you don't need a converter for connecting to an HD digital broadcast recorder, an HD switcher, or a relay transponder.



■ Recording Plant and Animal Observations

The compact AG-HCK10G can be easily set up in the shadow of a tree for close-up observation of plants and animals in their natural habitat. The Time Stamp function lets you insert information such as the date and time directly onto the images as you record, for scientific use.



■ Shooting from Special Angles

The AG-HCK10G lets you shoot from angles that would be difficult with ordinary cameras, such as high places and narrow spaces. Because the recorder and camera are separate, even if some unexpected problem would occur with the camera, the recorded data remains safe.



* Not drip-proof.

* Cannot be used in an enclosed condition.

* Wiring and installation/removal require specialized skills and experience.
To ensure safety, consult your dealer for wiring and installation/removal.

Interface

