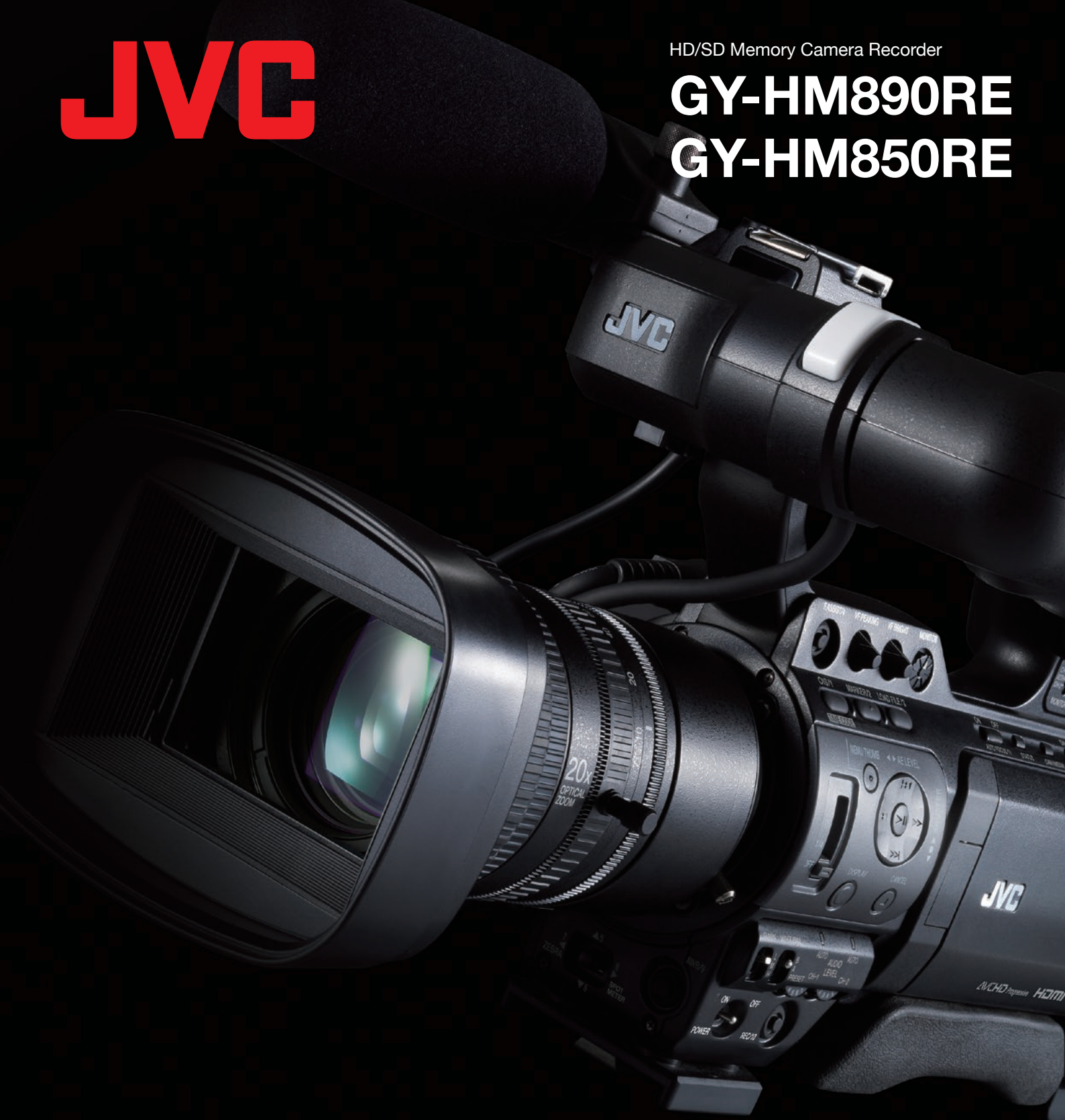
JVC

HD/SD Memory Camera Recorder

GY-HM890RE
GY-HM850RE



ProHD

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE
MOV QuickTime™
MP4
MXF
ftp
SDHC™
SDXC™
AVCHD Progressive

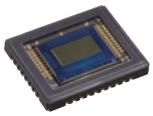
Quality and Mobility when Every Minute Counts

Rush to the scene with the ProHD GY-HM850RE/HM890RE compact shoulder camcorder and deliver the news faster than ever. Wirelessly backhaul via FTP or stream LIVE over a Wi-Fi or 4G-LTE/3G network. Record on cost-effective SDHC/SDXC cards, in HD or SD, including simultaneous recording in two different resolutions. You can even stream and record at the same time. Save time and money getting breaking news on the air with the GY-HM850RE or studio-friendly GY-HM890RE, and stay on top of the action.

QUALITY

Fujinon 20x Optical Zoom Lens with AF/OIS

Newly developed Fujinon 20x zoom lens with built-in AF/OIS delivers precision performance with simplified, comfortable operation. ···› P4



Full HD 1/3-inch CMOS Sensors

Three CMOS sensors offer an excellent sensitivity of F11 (60Hz) / F12 (50Hz) and a remarkable S/N ratio for vivid colour reproduction. ···› P4

H.264
50Mbps

Extreme-High Quality HD Recording

Record in XHQ H.264 50Mbps for the highest quality, as well as various other modes to support a wide range of native workflows. ···› P4

SDHC/SDXC Memory Card Recording

Dual card slots allow continuous shooting over multiple SDHC/SDXC cards for “unlimited” recording capability using cost-effective media for low running cost. ···› P5

Picture shows the GY-HM890RE with an optional Wi-Fi adapter.

NETWORK

First On-Air, First On-Line with Network Connectivity

While recording content on SDHC/SDXC media, the GY-HM850RE/HM890RE also has built-in wireless network clients to enable quick access. Simply plug in a USB modem or Wi-Fi adapter to enjoy these benefits.

- **Easily connect to Wi-Fi or 4G-LTE/3G network**
- **Send footage quickly via FTP server**
- **LIVE streaming backhaul in real-time**
- **Remote functions via network**

Photo courtesy of WSET, Virginia

Photo courtesy of Ferro Productions, New York

Photo courtesy of Church of Champions, Houston

STUDIO SYSTEM

System Expandability Maximises Your Value

The GY-HM890RE can be upgraded with various options making it a valuable part of your studio system by virtue of:

- **Compatible with studio and ENG systems**
- **Fibre Optic and Multicore system solutions available**

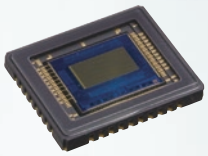
Innovative Technologies to Maximise Usability and Versatility

Newly-developed 20x Fujinon Auto Focus Zoom Lens with Manual Functions

The GY-HM850RE/HM890RE is equipped with a newly-developed Fujinon wide-angle 20x zoom lens offering one of the highest magnifications in the industry. For superior low-light performance and assured brightness at the tele end, the lens offers F1.6-3.0, a focal range of 29mm – 580mm (35mm equivalent) and includes servo zoom, along with manual focus and iris rings. Optical image stabiliser and chromatic aberration correction are also built into this interchangeable 1/3-inch bayonet mount lens.

High Performance Full HD 1/3-inch CMOS Sensors

At the heart of the GY-HM850RE/HM890RE are three 1/3-inch 2.07 effective-megapixel CMOS sensors, each capable of capturing full HD 1920 x 1080 resolution images. Featuring 12bit processing, an excellent sensitivity of F12 (50Hz) / F11 (60Hz) and a remarkable signal-to-noise ratio, the devices provide superior precision and colour reproduction with minimal aberration. For improved CMOS sensor performance, flash-band compensation is also supported.



MPEG-2/AVCHD Recording and Dual Codec

The GY-HM850RE/HM890RE supports both the popular MPEG-2 Long GOP 35/25/19Mbps format widely used by television broadcasters, and the highly efficient AVCHD progressive format, which provides compatibility with a wide range of affordable NLE systems. This means that professionals have unprecedented flexibility to meet production standards through a wide range of workflows. The dual codec also enables the GY-HM850RE/HM890RE to offer simultaneous HD/SD or HD/Web recording, producing full HD files on one memory card while creating smaller, Web-friendly files on the other. Also supported is the MPEG-4/AVC H.264 8Mbps SD format.

FALCONBRID™ Image Processing Engine

FALCONBRID™ is JVC's high-speed processor for advanced video applications. Delivering tremendous processing power, the on-board FALCONBRID™ engine processes large amounts of video data at exceptional speeds. Together with this technology, superior image quality has been realised with 2D DNR processing and dynamic range compensation circuitry.

FALCONBRID™

	Mode (Bit rate)	Resolution	File format	Frame rate						
				Progressive					Interlace	
				60p	50p	30p	25p	24p	60i	50i
MPEG-2	HQ (35Mbps)	1920x1080	MOV/MP4/MXF			●	●	●	●	●
	HQ (35Mbps)	1440x1080	MOV/MP4/MXF						●	●
	HQ (35Mbps)	1280x720	MOV/MP4	●	●	●	●	●		
	SP (25Mbps)	1440x1080	MOV/MP4/MXF						●	●
	SP (19Mbps)	1280x720	MOV/MP4	●	●					
AVCHD	Progressive (28Mbps)	1920x1080	MTS	●	●					
	HQ (24Mbps)	1920x1080	MTS						●	●
	SP (17Mbps)	1920x1080	MTS						●	●
	LP (9Mbps)	1440x1080	MTS						●	●
	EP (5Mbps)	1440x1080	MTS						●	●
MPEG-4/ AVC H.264	XHQ (50Mbps)	1920x1080	MOV	●	●	●	●	●	●	●
	UHQ (35Mbps)	1920x1080	MOV			●	●	●	●	●
	SD (8Mbps)	720x576	MOV							●
	WEB HQ (3Mbps)	960x540	MOV			●	●	●		
	WEB LP (1Mbps)	480x270	MOV			●	●	●		

Virtually Lossless H.264 50Mbps Recording

The GY-HM850RE/HM890RE is also equipped with the H.264 Extreme-High Quality (XHQ) 50Mbps (MOV) recording mode used in HD SLRs. MPEG-4 AVC/H.264 offers approximately twice the compression efficiency of conventional codecs, and offers superior motion prediction, so even at the same bit rate it provides a smooth and detailed picture with virtually no block noise even when recording rapid action sequences. Added to this, the 50Mbps bit rate is high enough to support full 1920 x 1080 encoding in 50p or 50i, resulting in stunningly detailed HD images.

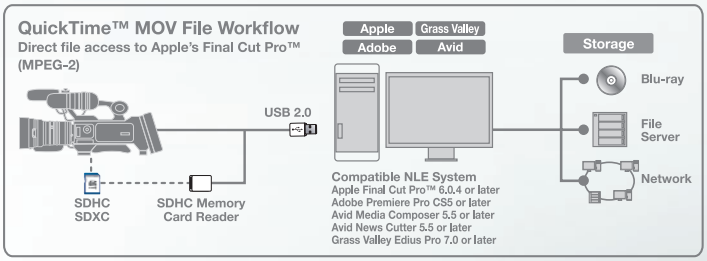
H.264 50Mbps

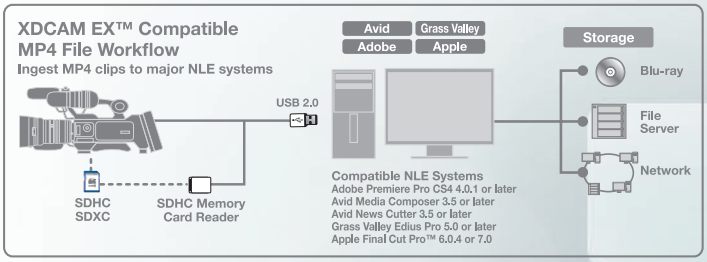
H.264 XHQ 50Mbps

MPEG-2 50Mbps

Multiple File Formats for Native Workflows

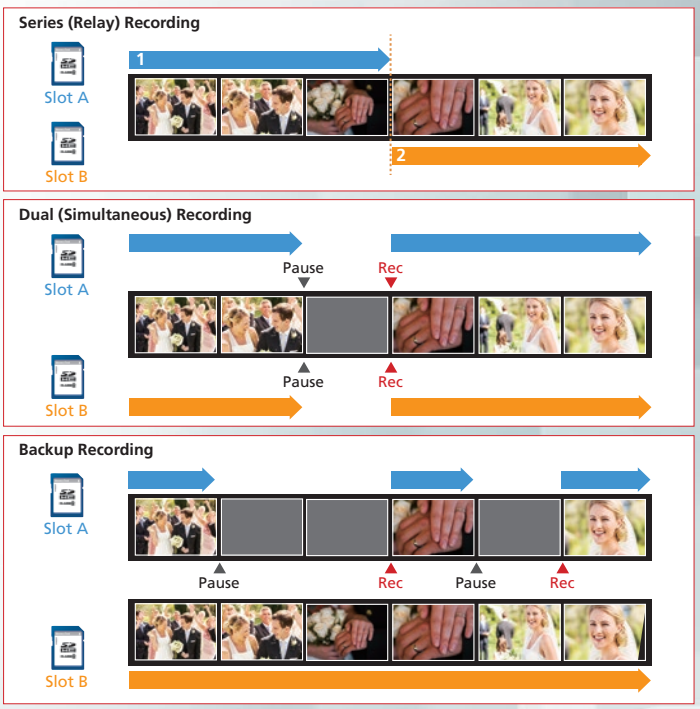
Record HD or SD footage directly in ready-to-edit QuickTime™ MOV files, the native file format of Apple's Final Cut Pro™. Native file recording ensures your footage is ready to edit the moment it's shot, resulting in a more efficient workflow with lossless quality. For direct editing in other major NLE systems such as Avid Media Composer, Adobe Premiere and Grass Valley Edius Pro, it is also possible to record XDCAM EX™ compatible MP4 files for the same seamless native workflow.





Dual SDHC/SDXC Card Slots for Maximum Versatility

Dual SDHC/SDXC card slots enable simultaneous recording and relay recording with reliable and cost-effective media. In relay recording mode, you can shoot continuously over multiple cards. When one card is full, the camcorder switches seamlessly and automatically to the other card. And because cards are hot swappable, there is in effect no limit to the continuous shooting time in any mode. It is possible to start editing footage from one card while still shooting to the other. With simultaneous recording, you can easily create backup or duplicate files as you shoot, either for a client copy or simply for peace of mind. Additionally, while the Rec trigger is used to pause and unpause recording on one card, the other card can act as a continuous backup that overrides the pause function.*



*During simultaneous backup recording in HD mode, the duplicate file records in the same file format and bit rate as the original. Backup recording is not available in AVCHD mode.

Ergonomic Design for Comfortable Operation

Compact Shoulder Form Factor

The GY-HM850RE/HM890RE features the shoulder-mount form factor that professionals often prefer, in a size that remains compact and light despite its massive capabilities. This combination contributes to stable shooting over long durations with less fatigue. Handle zoom and REC button are also available from low angle shooting.

Picture shows the GY-HM890RE

4 Position ND Filter (None, 1/4, 1/16, 1/64)

High-Resolution 4.3" LCD Monitor

The high-resolution 1.15M-pixel 4.3" LCD monitor displays a wide variety of monitoring and setup indications.

0.45" LCOS Viewfinder

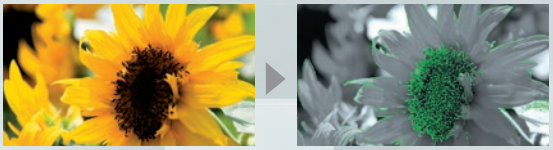
The GY-HM850RE/HM890RE is equipped with a high-resolution (852 x 480 x 3) LCOS (Liquid Crystal On Silicon) 0.45" viewfinder. The 16:9 image is crisper and more detailed than conventional LCD viewfinders, with higher vertical resolution and superior RGB colour separation.

Histogram Display and Expanded Focus Functions

The GY-HM850RE/HM890RE features Histogram Display and Expanded Focus functions to support more accurate focusing.

Focus Assist Function

When Focus Assist is switched on, the image in the viewfinder of LCD monitor switches to monochrome and all objects that are in focus appear with coloured edges (selectable from red, green or blue). Keeping important elements in the picture in focus while shooting is greatly simplified.



Focus Assist OFF Focus Assist ON

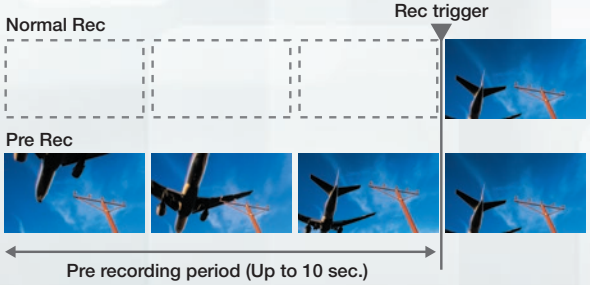
Intuitive GUI

The GY-HM850RE/HM890RE features ProHD's highly intuitive GUI navigation system, providing easily accessible menu items and customisable settings to match individual preferences or demands of the moment.

12 Assignable User Buttons

Pre Rec and Interval Rec Modes

With Pre Rec enabled, the camcorder continuously buffers up to 10 seconds of video, so that when recording is started the cached video is included in the recorded file — keeping you from missing a crucial shot because you didn't hit the record button in time. Interval Rec allows you to record single frames at set intervals to capture time-lapse recordings of street traffic, construction sites, growing plants, etc.



Variable Frame Rate Recording (Over Cranking, Under Cranking)

When recording in the H.264 1080p 50/35Mbps or MPEG-2 720p 35Mbps mode, the camera can be set to record at a frame rate different than the playback rate. This makes it possible to record slow or fast motion when the recording is played back at 24p, 25p or 30p. Under-cranking in the MPEG-2 1080p 35Mbps mode is also possible.

Cutting-Edge Connectivity

The GY-HM850RE/HM890RE meets the needs of professional applications with cutting-edge connectivity. For easy monitoring of footage, you can monitor from the digital 3G SDI and HDMI outputs simultaneously, easily switching between output in HD or SD.

- **SDI** (HD/SD) in*
- **SDI** (HD/SD) out
- **HDMI** (HD/SD) out
- **Genlock** in
- **TC** in/out
- **AV** out
- **USB** (Host and Device)
- **Mic/Line** x 2 with phantom power
- **Aux In** for Wireless Receiver
- 6-pin and ø2.5mm **Remote Control**
- ø3.5mm Stereo **Headphone** out

Picture shows the GY-HM890RE. SDI input and studio connectors are not available for the GY-HM850RE.

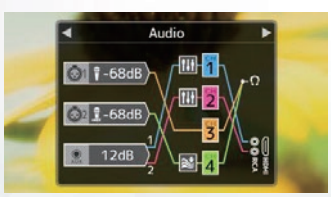
*Featured on the GY-HM890RE only

Wired Remote Control Operation

In addition to JVC's proprietary wired remote control system, the GY-HM850RE/HM890RE also supports LANC remote controllers for flexible camera operability in a variety of setups.

4-Channel Audio System

The GY-HM850RE/HM890RE is equipped with two XLR audio inputs that are switchable between microphone (with phantom power support) and line input, plus stereo AUX inputs. The audio from each of these inputs can be assigned to an independent channel, enabling commentary or narration to be added in the field.



Genlock Input and TC Input/Output

Equipped with genlock input and timecode in/out terminals, GY-HM850RE/HM890RE can be easily integrated into multi-camera setups.

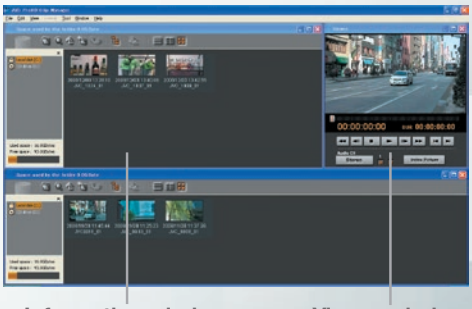
SDI Input GY-HM890RE

At press conferences and other venues where the number of cameras allowed is limited, the digital audio and video signals from another camera or other SDI source can be recorded or streamed by the GY-HM890RE.

ProHD Supporting Software

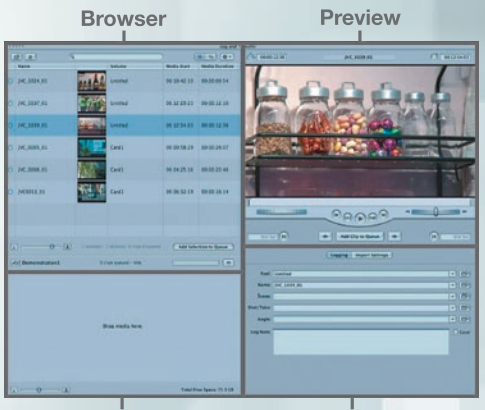
The ProHD Clip Manager for both Mac and Windows makes it easy to manage MP4 clips on the GY-HM850RE/HM890RE's memory cards from your computer. Copy, move, delete, preview clips, and edit clip metadata.

Main screen for Windows®



The ProHD Log and Transfer Plug-in works with Apple's Final Cut Pro™ to enable MP4 files recorded on the HM850RE/HM890RE to be dropped into the clip bin and automatically converted to QuickTime™.

Log and transfer screen



IP Network & Live Streaming

Live Streaming up to 12Mbps of High Bit Rate Streaming

If your task involves mission-critical ENG applications, turn to the GY-HM850RE/HM890RE as it is capable of streaming LIVE HD/SD and proxy video/audio files via network up to 12Mbps. Coupled with the superior mobility of the camera, this wireless capability allows you to stream backhaul live to the newsroom or to a reliable cloud service such as Zixi, as well as content delivery networks such as USTREAM and YouTube using Wi-Fi or 4G-LTE network. All you need to do is press a button and you're streaming HD to the world.

Advanced IP Functions for FTP Uploading

Video clips recorded on an SDHC/SDXC card can be transferred from the GY-HM850RE/HM890RE via FTP server. Clips can be trimmed right on the camera, which is useful for selecting only vital scenes before uploading to an FTP server. What's more, if an upload is interrupted by a weak connection, the FTP Resume function is smart enough to restart from where it left off. This will help to save time for uploading.

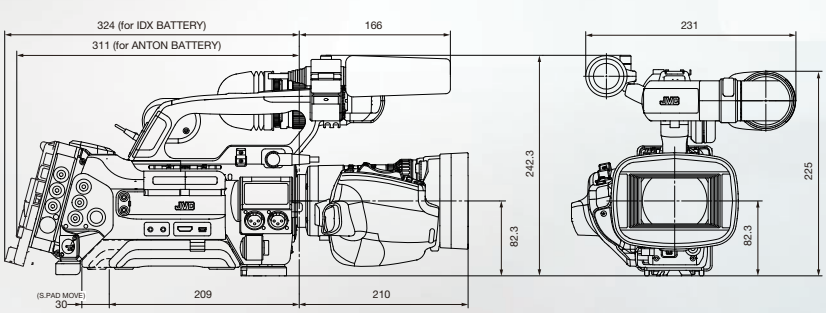
IP Connection realised with a Variety of USB Host Adapters

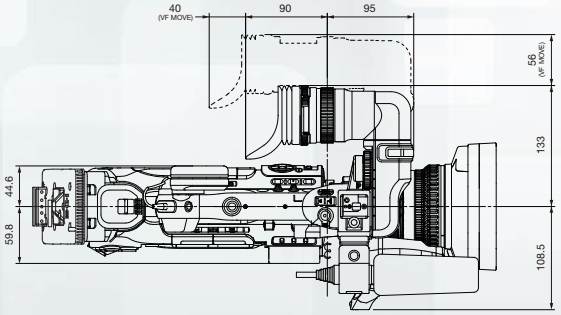
Full HD video footage recorded on the GY-HM850RE/HM890RE can stream backhaul live to the target location using an adapter such as 4G LTE/3G modem, Wi-Fi LAN, or Ethernet, whichever is more stable and cost-effective. Such use of an adapter enables uploading video clips to and receiving Metadata (in XML) from the FTP server, remote controlling web server content, viewing and editing Metadata, and most of all for live streaming footage from anywhere in the world immediately after it is recorded.

Supports SMPTE 2022-1 Protocol for HQ Streaming

Stable, high-quality live streaming over IP is made possible thanks to support for the new SMPTE 2022-1 protocol. Since its introduction in 2007, the SMPTE 2022-1 standard has added sections to cover more types of IP video transport. Of the standard, the GY-HM850RE/HM890RE supports the first protocol, which is forward error correction (FEC) for real-time video/audio transport over IP networks.

Dimensions





Advanced Live Streaming with Built-in Zixi Engine

For advanced live streaming solutions, JVC has tagged with Zixi. The GY-HM850RE/HM890RE features the Zixi engine, installed directly into the camera to provide high-quality delivery over 4G LTE or standard Internet connection. The powerful Zixi engine applies forward error correction (FEC) and adaptive bit rate control with the new “high reliable mode” to correct packet loss by over 40%*, delivering a robust, reliable HD stream. In the camera’s FTP setting, the new Zixi protocol has been added for transferring clips while recording from the camera via Zixi server.

*Quality of live streaming depends on network conditions including packet loss.

IP Remote Control with Viewing

When the camera is IP connected to a server console, vital camera operations can be remotely controlled via wireless or wired LAN from smart devices and computers. Remote control functions include lens and camera settings as well as registering zoom presets. Best of all, recording and live streaming may also be triggered remotely—invaluable for minor adjustments when a single reporter is operating the camera or shooting with a 2-camera setup.

The camera on the stage can be remote controlled from a smart device. Controls include REC/STOP, Zoom, Focus, Iris and more detailed settings while viewing live images from the smart device screen.

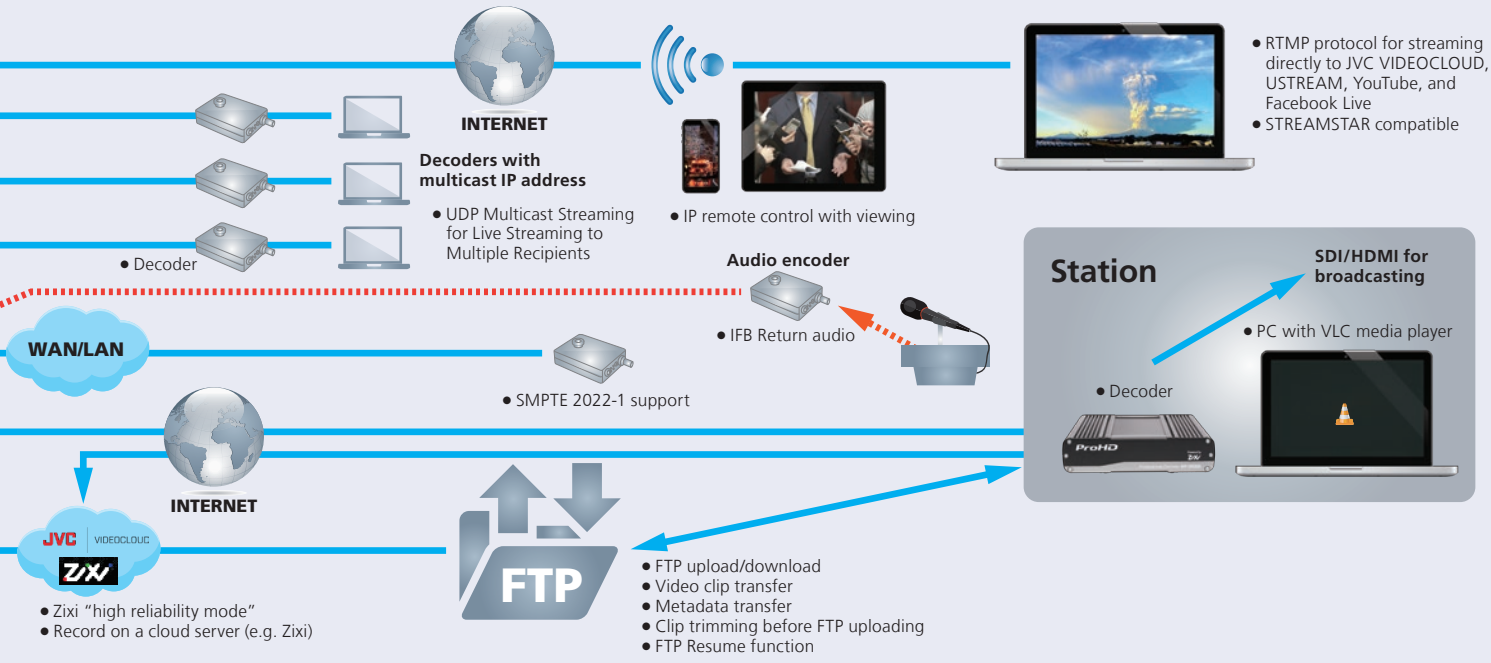
IFB Return Audio via IP

With Interruptible FeedBack (IFB) return audio function*, the camera crew can listen to audio from remote locations via IP even while live streaming. The same audio can be heard from multiple GY-HM850RE/HM890RE cameras simultaneously.

*Requires other devices

JVC VIDEOCLOUD Support

GY-HM850RE/HM890RE has JVC VIDEOCLOUD simple setting function.GY-HM850RE/HM890RE can easily connect with JVC VIDEOCLOUD by using IP remote controller.



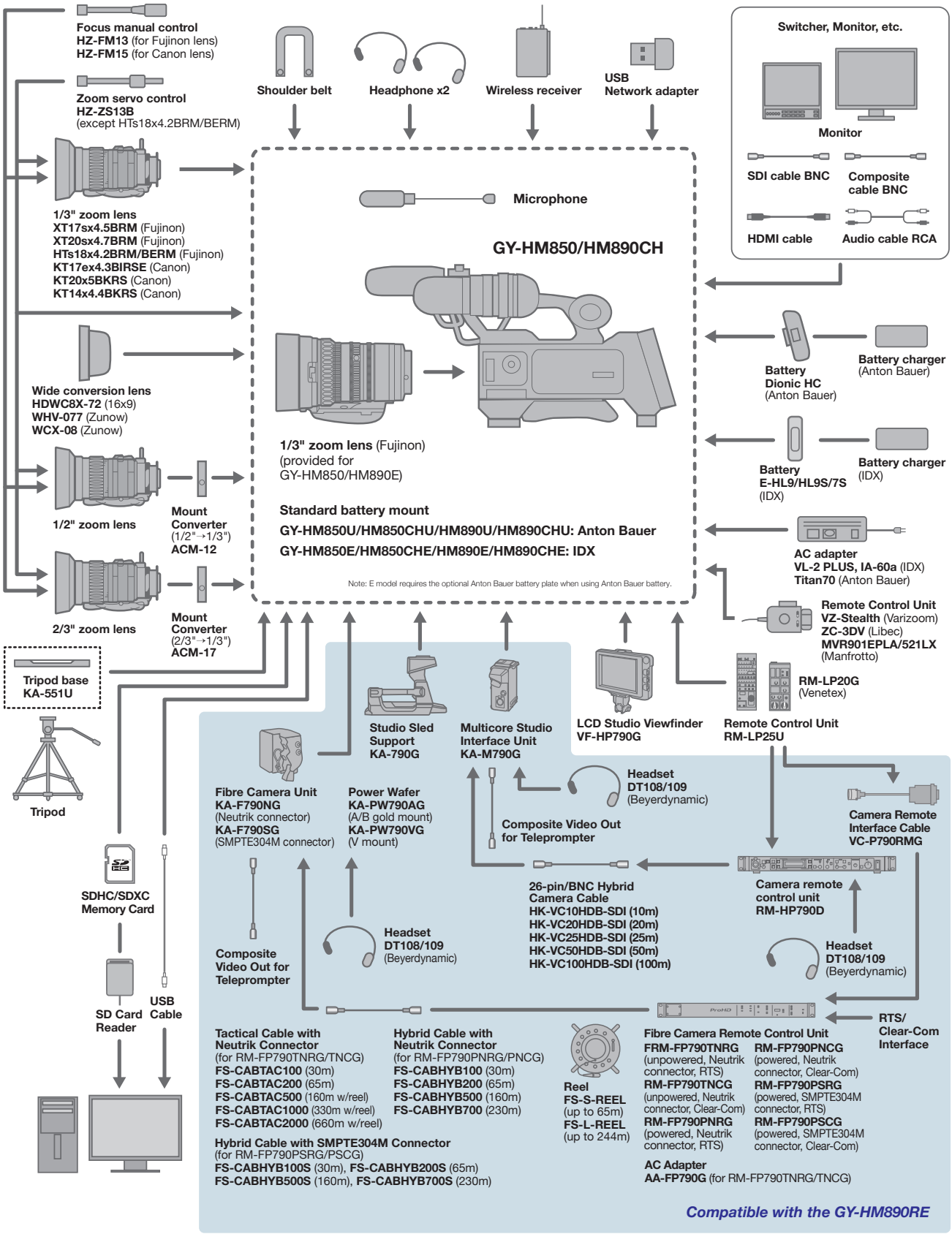
SDHC Class 4/6/10, SDXC recording time (approx.)

A recording file is automatically split when the size exceeds 4GB. SDXC card users can select "Splits a file when it exceeds 4GB or 30 minutes" or "Splits a file when it exceeds 64GB or 4 hours" at MOV/MXF recording mode.

	MOV/MP4/MXF			MTS					MOV				
	MPEG-2/HD			AVCHD					H.264/HD		H.264/SD	H.264/Proxy	
	HQ	SP		HQ Progressive	HQ	SP	LP	EP	XHQ	UHQ	SD	HQ	LP
	720p/1080i	1080i	720p	1080p	1080i				1080i/1080p		480i/576i	540p	270p
4GB	12m	17m	22m	16m	19m	25m	46m	1h 22m	9m	12m	47m	2h 10m	4h 45m
8GB	25m	35m	45m	33m	38m	50m	1h 35m	2h 48m	18m	25m	1h 35m	4h 30m	9h 40m
16GB	50m	1h 10m	1h 30m	1h 7m	1h 18m	1h 40m	3h 10m	5h 36m	36m	50m	3h 10m	9h	19h 20m
32GB	1h 40m	2h 20m	3h	2h 15m	2h 36m	3h 20m	6h 20m	11h 12m	1h 12m	1h 40m	6h 20m	18h	19h 20m
64GB	3h 20m	4h 40m	6h	4h 30m	5h 12m	6h 40m	12h 40m	22h 24m	2h 25m	3h 20m	12h 40m	36h	78h 40m
128GB	6h 40m	9h 20m	12h	9h	10h 32m	13h 20m	25h 20m	44h 48m	4h 50m	6h 40m	25h 20m	72h	157h 20m

Notes: • Recording times are estimate. • Recommended SDHC/SDXC memory card brands: Panasonic, Toshiba, and SanDisk
• SDHC Class 10 enabled only in XHQ mode; SDHC Class 4 enabled in AVCHD mode.

System Configuration



Note:
- GY-HM8x0E(U) Fujinon 20x lens, control via IP and serial, lens remote connection for zoom only (no electrical or mechanical focus control via external devices)
- GY-HM8x0CHE with optional lenses, no IP or serial control available, control via external original lens manufacturer control-units possible.

Options

(Fujinon)

HTs18x4.2BRM
HTs18x4.2BERM (2x extender)
1/3″ high quality zoom lens

(Fujinon)

XT17sx4.5BRM
XT20sx4.7BRM
1/3″ zoom lens

(Canon)

KT17ex4.3BIRSE
1/3″ high quality zoom lens with 2x extender

(Canon)

KT20x5BKRS
KT14x4.4BKRS
1/3″ zoom lens

HDWC8X-72

WHV-077 (Zunow)
WCX-08 (Zunow)
HDWC8X-72 (16x9)
Wide conversion lens

ACM-12
1/2″ bayonet mount converter

ACM-17
2/3″ bayonet mount converter

HZ-ZS13BU
Manual zoom control

Cannot be used for HTs18x4.2BRM lens.
Use Fujinon ZMM-6: Module unit/ CZH-14: Grip/CFC-12-990: Cable/ MCA-7: Mounting clamp

HZ-FM13U (Fujinon)
HZ-FM15U (Canon)
Manual focus control

For optional lens only. Cannot be used for KT17ex4.3BIRSE lens.
Use Canon FFM-100: Flex focus module/ FC-40: Flex cable/FFC-200: Flex focus controller

KA-M790G
Multicore studio interface unit

KA-790G
Studio sled support

RM-HP790
Camera control unit

VZ-Stealth (Varizoom)
ZC-3DV (Libec)
MVR901EPLA (Manfrotto)
Remote control unit

RM-LP25U
RM-LP20G (Venetex)
Remote control unit

VF-HP790G
8.4″ LCD studio viewfinder

FS-790
Telecast fibre studio system

FS-CABTAC100 (100 feet)
FS-CABTAC200 (200 feet)
FS-CABTAC500 (500 feet)
FS-CABTAC1000 (1000 feet)
FS-CABTAC2000 (2000 feet)
Fibre cables (Tactical cable)

FS-CABHYB100 (100 feet)
FS-CABHYB200 (200 feet)
FS-CABHYB500 (500 feet)
FS-CABHYB700 (700 feet)
Fibre cables
(Hybrid cable/Optical CON)

FS-CABHYB100S (100 feet)
FS-CABHYB200S (200 feet)
FS-CABHYB500S (500 feet)
FS-CABHYB700S (700 feet)
Fibre cables
(Hybrid cable/SMPTE304M)

HK-VC10HDB-SDI (10 m)
HK-VC20HDB-SDI (20 m)
HK-VC25HDB-SDI (25 m)
HK-VC50HDB-SDI (50 m)
HK-VC100HDB-SDI (100 m)
Multicore hybrid cable

KA-551U
Tripod base
V-mount adapter

QR JVCDIGI
Anton Bauer
Gold Mount plate

RM-LP100
Remote Camera Controller via LAN

E-HL9/HL10DS
IDX battery

VL-2PLUS
IDX V-mount battery charger/AC adapter

Dionic HC
Anton Bauer battery

Tandem 70
Anton Bauer battery charger/AC adapter

IA-60a
IDX AC adapter

GY-HM890RE/HM850RE Specifications

GENERAL SPECIFICATIONS		
Power		DC12V (10.5V – 17V)
Power consumption		Approx. 28W (camera body with provided lens and LCD/VF ON, single recording mode, default settings)
Dimensions		231 mm (W) x 243 mm (H) x 419 mm (D)
Weight		Approx. 4.8 kg (8.0lbs.) (including battery), Approx. 4.0 kg (8.9lbs.) (without battery)
Operation temperature		0°C to 40°C (32°F to 104°F)
Storage temperature		-20°C to 50°C (14°F to 122°F)
Operating humidity		35% to 80%
Storage humidity		Under 85%
CAMERA		
Image sensor		1/3-inch 2.2M pixels progressive scan 3 CMOS
Synchronising		External/Internal synchronisation
Stabiliser		Optical image stabiliser
Lens		Fujinon F1.6 to 3.0, 20x (interchangeable) f=4.1 to 82mm (35mm equivalent: 19 to 580mm)
Sensitivity		F12 (50Hz)/F11 (60Hz), 2000lx (typical; Extended mode)
Minimum illumination		0.15lx (typical; 1920x1080 mode, F1.6, Lolux mode with 1/25 or 1/30 shutter)
Filter diameter		72mm
Shutter speed		1/4 to 1/10000, EEI
Gain		-6, -3, 0, 3 , 6, 9, 12 , 15, 18dB, Lolux (30, 36 dB), ALC
ND filter		None, 1/4, 1/16, 1/64
LCD display		4.3-inch LCD, 1.15 M pixels, 16:9
Viewfinder		0.45-inch LCOS, 1.22 M pixels, 16:9
VIDEO/AUDIO RECORDING		
Recording media		2x SDHC/SDXC memory card (HD: Class 6/10 AVCHD/SD/Web: Class4)
Video recording	Video codec	MPEG-4 AVC/H.264 (HD/SD), MPEG-2 Long GOP VBR (HD) MPEG-2 Long GOP CBR (HD), AVCHD (HD/SD)
	File format	MOV, MP4, MTS (AVCHD), MXF
	HD (MPEG-2 Long GOP VBR)	NTSC setting: HQ mode:1920 x 1080/59.94i, 29.97p, 23.98p, 1440 x 1080/59.94i
		1280 x 720/59.94p, 29.97p, 23.98p (max.35Mbps)
		PAL setting: HQ mode: 1920 x 1080/50i, 25p, 1440x1080/50i
		1280 x 720/50i, 25p (max. 35Mbps)
	HD (MPEG-2 Long GOP CBR)	NTSC setting: SP mode: 1440x1080/59.94i, 1280x720/59.94p (18.3Mbps)
		PAL setting: SP mode: 1440x1080/50i, 1280x720/50p (18.3Mbps)
	HD (H.264)	NTSC setting: XHQ mode: 1920x1080/59.94p, 59.94i, 29.97p, 23.98p (max.350Mbps)
		1920x1080/59.94i, 29.97p, 23.98p (max. 35Mbps)
		PAL setting: XHQ mode: 1920 x 1080/50p, 50i, 25p (max.50Mbps)
		1920 x 1080/50i, 25p (max. 35Mbps)
	AVCHD	NTSC setting: Progressive mode (max. 28Mbps): 1920 x 1080/59.94p
		HQ mode (max. 24Mbps): 1920 x 1080/59.94i, SP mode (max. 18Mbps): 1920 x1080/59.94i
		LP mode (9Mbps): 1440 x 1080/59.94i, EP mode (5Mbps): 1440 x1080/59.94i
		PAL setting: Progressive mode (max. 28Mbps): 1920 x 1080/50p
		HQ mode (max. 24Mbps): 1920 x 1080/50i, SP mode max. 18Mbps): 1920 x1080/50i
		LP mode (9Mbps): 1440 x 1080/50i, EP mode (5Mbps): 1440 x1080/50i
	SD (H.264)	720 x 576/50i
	Proxy (H.264)	NTSC setting: HQ mode (3Mbps): 960 x 540/29.97p, 23.98p, LP mode (1.2Mbps)
		480 x 270/29.97p, 23.98p
		PAL setting: HQ mode (3Mbps): 960 x 540/25p, LP mode (1.2Mbps): 480 x 270/25p
Audio recording		LPCM 2ch, 48kHz/16-bit (MOV/MP4), Dolby Digital, 2ch (AVCHD), µLaw 2ch (Proxy)
LIVE VIDEO STREAMING		
Protocol		RTMP, MPEG2-TS/UDP, MPEG2-TS/RTP, RTSP/RTP, ZIXI
Resolution and bit rate		1920 x 1080 (59.94i/50i) Audio AAC 128 k 12/8/5/3 Mbps 1280 x 720 (59.94p/50p) Audio AAC 128 k 12/8/5/3 Mbps 1280 x 720 (29.97p/25p) Audio AAC 128 k 8/5/3/1.5 Mbps 720 x 480 (59.94i) 720 x 576 (50i) Audio AAC 128 k/64 k 8/5/3/1.5/0.8/0.3 Mbps 640 x 360 (59.94p/50p) Audio AAC 128 k 3/1. 5Mbps 640 x 360 (29.97p/25p) Audio AAC 128 k/64k 3/1.5/0.8/0.3 Mbps
INTERFACE		
Video Input		SDI input (BNC x 1) (GY-HM890RE only)
Video output		Composite outpur (BNC x 1)
		3G-SDI output (BNC x 1)
		HDMI output x1
Audio input		XLR 3-pin x 2, (MIC, +48V, LINE)/ø3.5mm mini jack x 1
Audio output		RCA x 2
Headphone		ø3.5mm mini jack x1
Genlock input		Genlock input (BNC x 1)
Time code input /output		RCA x 1
Remote		DIN 6-pin x 1/ø2.5mm mini jack x 1
USB		HOST x 1 (network connection), DEVICE x 1 (mass storage)
DC input		XLR 4-pin x 1
PROVIDED ACCESSORIES		
Anti reflective film, viewfinder, microphone, document and software disc, instructions		

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