HVR-1500A

Digital HD Videocassette Recorder

SONY

www.sonybiz.net/hdv

HDV™
HDV 1080i

Bringing a New Level of Functionality and Robustness to HDV Productions - the HVR-1500A HDV Recorder

The HVR-1500A is an HDV™ source feeder/ recorder*1 positioned at the top of Sony's HDV Series.
Inheriting the design concept of the market-acclaimed DSR-1500AP, the HVR-1500A offers the same convenient features that professional users demand, such as quick mechanical response, multi-format DV playback and a rich set of professional video/audio interfaces ranging from analogue to digital SDI and AES/EBU.
The HVR-1500A also offers HD-SDI input/output and RS-422A control capabilities, bridging HDV source footage and assets with high-end HD formats and HD editing equipment. In addition, with the optional HVBK-1520 board installed, the HVR-1500A has a range of conversion capabilities that allow DV recordings to be up-converted to 1080i or 720P signals, and 1080i HDV recordings to be cross-converted to 720P signals. This allows operators to integrate DV and HDV source footage and assets into the same HD editing system, giving them the flexibility to choose between either a 1080i or a 720P system.
The HVR-1500A can also be used as a standard definition DVCAM™ recorder, in which case the same editing features as the DSR-1500AP are offered.
The HVR-1500A is certainly the HDV recorder of choice for environments where robustness and functionality are prime concerns.

*1 In HDV mode, editing capabilities are not available.

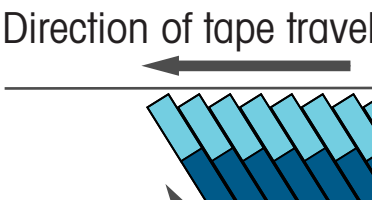
The monitor image is simulated.

HDV FORMAT

HDV 1080i Specification

The HDV 1080i specification*1 for the HDV format features 1,080 effective scanning lines (interlace scanning system) and 1,440 horizontal pixels. It adopts the MPEG-2 compression format (MP@ H-14 for video), which uses 8-bit digital component recording with a sampling rate of 4:2:0. MPEG-1 Audio Layer II is used as the audio compression format, allowing for two-channel recording with a sampling frequency of 48 kHz/16-bit. The HDV 1080i specification provides the high picture quality required for HDTV programme production.

■ Track Pattern of the HDV 1080i Specification



*1 The HDV format also defines the HDV 720p specification, which features 720 effective scanning lines (progressive scanning system) and 1,280 horizontal pixels.

The Right Media for Optimum HDV Content

As a member of the proven DV family of formats, the HDV format was developed from the outset to be compatible with all grades of DV videocassette tape. The Digital Master™ Tape has been designed and tested with HDV VTRs for outstanding performance. It is an ideal and reliable choice for affordable HD productions across a wide variety of environments.

VERSATILE RECORDING & PLAYBACK

Switchable Recording HDV 1080i/DVCAM/DV and 60i/50i

The HVR-1500A can be switched between HDV 1080i*2, DVCAM and DV (SP)*3 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 50i and 60i systems, eliminating the need for two separate VTRs, one for each standard.

*2 In HDV mode, editing capabilities are not available.

*3 The HVR-1500A supports DV (SP) mode only; DV (LP) mode is not available. Assemble or insert editing is not supported in DV (SP) mode.

Playback Compatibility with DV (25 Mb/s) Family Formats

For operational versatility, the HVR-1500A is designed to play back DV (25 Mb/s) family format recorded tapes without a mechanical adaptor and without having to switch playback modes on the menu. DVCPRO™ 25 recorded tapes (M-size cassettes) can also be played back.

Long Recording Time

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 when recording on a PHDV-276DM DigitalMaster standard cassette tape and 63 minutes when recording on a PHDVM-63DM DigitalMaster mini cassette tape. The DVCAM format adopts a wider track pitch than the HDV/DV format (15 µm compared to 10 µm), and offers a maximum recording time of 184 minutes on a PDV-184N standard cassette tape and 40 minutes on a PDVM-40N mini cassette tape.

Up-conversion Capability

With the optional HVBK-1520 Format Converter Board installed, the HVR-1500A has an up-conversion capability that allows DV recordings and SD signals*4 fed to the HVR-1500A to be converted to 1080i or 720P signals and then output*5 from the HD-SDI interface. This allows DV recordings to be integrated into existing HD editing systems that support the 1080i or 720P format.

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.

*4 DV signals fed to the HVR-1500A's i.LINK™ interface cannot be up-converted and output from the HD-SDI interface.

*5 There may be a delay of one frame in outputting up-converted signals from the HD-SDI interface.

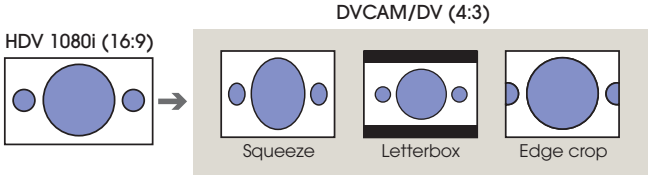
Cross-conversion Capability

With the optional HVBK-1520 Format Converter Board installed, the HVR-1500A has a cross-conversion capability that allows 1080i recordings to be converted to 720P signals, as well as 720/30P (29.97 frames/s) recordings to be converted to 1080/60i (59.94 fields/s) signals. These signals are output*6 from the HD-SDI interface. This allows source footage and assets in different HDV formats to be integrated into the same HD editing system.

*6 There may be a delay of one frame in outputting cross-converted signals from the HD-SDI interface.

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 analogue component, composite, or S-Video connectors. This allows 1080i recordings to be edited using non-linear editing systems running DV editing software 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, Letterbox, or Edge crop.



Interfaces and Output Formats

50i System

Playback Format		Signal Format on Line Select Menu	Interface & Output Format					
			HD-SDI	SD-SDI	i.LINK †5	Analogue Component	Analogue Composite	S-Video
HDV	1080/50i	1080i	1080/50i	576/50i	HDV 1080i or DV/DVCAM †6	1080/50i or 576/50i †6	576/50i	576/50i
		720P	720/50P †2	576/50i	HDV 1080i or DV/DVCAM †6	1080/50i or 576/50i †6	576/50i	576/50i
DV †4	576/50i	1080i	1080/50i †2	576/50i	DV/DVCAM	576/50i	576/50i	576/50i
		720P	720/50P	576/50i	DV/DVCAM	576/50i	576/50i	576/50i

60i System †1

Playback Format		Signal Format on Line Select Menu	Interface & Output Format					
			HD-SDI	SD-SDI	i.LINK †5	Analogue Component	Analogue Composite	S-Video
HDV	1080/60i	1080i	1080/60i	480/60i	HDV 1080i or DV/DVCAM †6	1080/60i or 480/60i †6	480/60i	480/60i
		720P	720/60P †2	480/60i	HDV 1080i or DV/DVCAM †6	1080/60i or 480/60i †6	480/60i	480/60i
	720/30P †3	1080i	1080/60i †2	480/60i	–	720/60P or 480/60i †6	480/60i	480/60i
		720P	720/60P	480/60i	–	720/60P or 480/60i †6	480/60i	480/60i
DV †4	480/60i	1080i	1080/60i †2	480/60i	DV/DVCAM	480/60i	480/60i	480/60i
		720P	720/60P †2	480/60i	DV/DVCAM	480/60i	480/60i	480/60i

HVR-1500A cannot playback 1080/24P, 1080/25P, 1080/30P, 720/24P, or 720/25P.

†1 In this table, "60i", "60P", and "30P" indicate a field rate of 59.94 Hz, a frame rate of 59.94 Hz and a frame rate of 29.97 Hz, respectively. †2 The HVBK-1520 Format Converter Board is required for up- or cross-conversion to these signals and output of these signals from the HD-SDI interface. †3 The HVR-1500A can play back but cannot record 720/30P signals. When 720/30P recordings are played back, their signals are converted to 720/59.94P signals. †4 "DV" indicates DVCAM, DV (SP), and DVCPRO 25 formats. The HVR-1500A can play back but cannot record DVCPRO 25 signals. †5 DVCPRO 25 signals cannot be output from the i.LINK interface. †6 Selectable via the menu.

Input Signals and Recording Formats

YES: recording possible NO: recording not possible

YES: signals output possible NO: signals output not possible

Input Signal		Recording Format			Output Format - Digital Video						Output Format - Analogue Video					Output Format - Analogue Audio		
					SDI output		Digital audio output		i.LINK output				Component					
		HDV †6	DVCAM	DV (SP)	SD-SDI	HD-SDI	AES/EBU 1/2	AES/EBU 3/4	DV/DVCAM	HDV	Composite Y/CPST	S Video Pr/R-Y/S-C Pb/B-Y/S-Y	SD	HD	Monitor (Super Impose) CPST	AUDIO OUT 1/3 XLR 1/3	AUDIO OUT 2/4 XLR 2/4	Monitor RCA pin
Analogue signal inputs (HVBK-1505)	Composite †1	NO	YES	YES	YES	YES †7	–	–	YES	NO	YES	YES	YES	NO	YES	–	–	–
	Component †1	NO	YES	YES	YES	YES †7	–	–	YES	NO	YES	YES	YES	NO	YES	–	–	–
	S-video †1	NO	YES	YES	YES	YES †7	–	–	YES	NO	YES	YES	YES	NO	YES	–	–	–
	Analogue audio †1	NO	YES	YES	YES	YES	YES	YES	YES	YES	–	–	–	–	–	YES	YES	YES
Digital audio (AES/EBU)		NO	YES	YES	YES	YES	YES	YES	YES	YES	–	–	–	–	–	YES	YES	YES
SD-SDI †3		NO	YES	YES	YES	YES †7	YES	YES	YES	NO	YES	YES	YES	NO	YES	YES	YES	YES
HD-SDI †3		YES †6	NO	NO	YES †8	YES	YES	NO	NO †9	YES	YES †8	YES †8	YES †8	YES	YES †8	YES	YES	YES
i.LINK DV format (DVCAM/DV) †4		NO	YES	YES	YES	NO	YES	YES	–	–	YES	YES	YES	NO	YES	YES	YES	YES
i.LINK HDV format (1080i) †5		YES †6	NO	NO	YES †8	YES	YES	NO	–	–	YES †8	YES †8	YES †8	YES	YES †8	YES	YES	YES

HVR-1500A cannot record 720/24P, or 720/25P.

†1 With the HVBK-1505 Analogue Input Board (option) installed †2 It is not possible to input an HD component signal. †3 An SDTI signal is not supported. †4 It is not possible to input a DV(LP)/DVCPRO signal. †5 It is not possible to input an HDV signal other than 1080 50i/60i. †6 HDV recording can only record HDV 1080 50i/60i (audio: 2-channel mode). It is not possible to record MPEG-2 signals other than in HDV 1080i format. This unit also does not support HDV extended format four channel audio signal input/output, recording or tape playback. †7 With the HVBK-1520 Format Converter Board (option) installed, signals can be upconverted and output. †8 HD signals can be down-converted and output. †9 HD-SDI input signals cannot be down-converted and output from i.LINK output connector.

PROFESSIONAL INTERFACES

A full range of professional interfaces are available, allowing for flexible analogue or digital configurations in both SD and HD systems. This allows operators to integrate the HVR-1500A exactly according to their system needs.

HD-SDI Interface

The HVR-1500A provides HD-SDI input/output capability. 1080/60i (59.94 fields/s) or 1080/50i HD-SDI signal can be input in real time and these HDV recordings can be output in normal playback and search modes. Analogue component or analogue composite signals that are down-converted from 1080i HDV recordings can also be output from the HD-SDI interface. 720/60P (59.94 frames/s) and 720/50P signals that are up-converted from DV recordings or cross-converted from 1080i HDV recordings can also be output from the HD-SDI interface in normal playback and search modes.
Time code and audio signals are embedded in this HD-SDI signal. This interface allows operators to record programmes directly from HD-SDI-based editing systems such as the HDCAM™ and XDCAM™ HD systems. The HVR-1500A can be utilized as a recorder that receives signals from a remote camera such as BRC Series camera. This interface also allows operators to integrate HDV footage and assets easily into existing HD-SDI-based editing systems.

SD-SDI Interface

The HVR-1500A also provides SD-SDI input*7/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.

*7 SD-SDI signals fed to the HVR-1500A's SD-SDI interface cannot be up-converted to HDV signals for recording to tape or to HD-SDI signals for output from the HD-SDI interface.

AES/EBU Interface

For professional digital audio needs, the HVR-1500A offers AES/EBU digital audio inputs/outputs.

i.LINK Interface

The HVR-1500A is equipped with a 6-pin i.LINK*8 *9 interface. This allows it to transfer digital video, audio and command signals (in HDV, DVCAM, and DV format) to a compatible VTR or non-linear editing system via just a single cable.

*8 i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connector. Not all products with an i.LINK connector will necessarily communicate with each other. For information on compatibility, operating conditions and proper connection, please refer to the documentation supplied with any device with an i.LINK connector. For information on devices that include an i.LINK connection, please contact Sony's local office.

*9 DVCAM/DV signals fed to the HVR-1500A's i.LINK interface cannot be up-converted to HDV signals for recording to tape or to HD-SDI signals for output from the HD-SDI interface.

Analogue Interfaces

As standard, the HVR-1500A provides analogue 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 analogue editing system and as a simple playback viewer in various applications such as broadcast studios, OB vehicles and production offices. By installing the optional HVBK-1505 Analogue Input Board, a full range of analogue video and audio inputs also become available, allowing a smooth transition to digital systems.

OPERATIONAL RELIABILITY

By packing sophisticated mechanical technologies into its robust aluminum diecast chassis, the HVR-1500A provides the reliable operation that today's video professionals demand.

Quick Response Mechanism

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 85 times normal play speed. In HDV mode, the colour picture search*10 speeds are ±8 and ±24 times normal play speed and in DVCAM mode they are between -60 and +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.

*10 The colour picture search function can be controlled through the RS-422A interface.

Tape and Head Cleaner for Reliable Operation

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.

OPERATIONAL CONVENIENCE

Built-in 2.7-inch LCD Monitor

The HVR-1500A is equipped with a 2.7-inch*11 colour LCD monitor with a high resolution of 211 K dots. 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 right.

*11 Viewable area, measured diagonally.

Full Screen Display Mode

Status Display Mode

Small Screen Display Mode

The monitor images are simulated.

Auto Repeat

The HVR-1500A has a convenient auto repeat function. This enables the VTR 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.

Assign Button

Functions frequently used for VTR operations can be assigned to an ASSIGN button located on the front panel of the HVR-1500A.

Digital Slow Motion and Jog Sound (in DVCAM mode)

When used with an editing controller, such as Sony's RM-280 Edit Controller, the HVR-1500A can provide excellent digital slow motion and jog sound for DVCAM recordings. It offers variable speed playback within the range of -0.5 to +0.5 times normal play speed. This allows operators to locate editing points quickly and accurately using noiseless slow-motion playback pictures.

Picture Search (in HDV mode)

With an editing controller, such as Sony's RM-280 Edit Controller, the HVR-1500A provides a convenient colour picture search function for HDV recordings.*12

*12 In HDV mode, audio jog search is not supported and video jog search is supported in forward mode only.

Playback speed	Image quality
x24	Coarse
x8	Coarse
x1	Normal
x1/5	Normal
x1/10	Normal
x1/30	Normal
Forward frame-by-frame	Normal
STILL	Normal
x-1	Coarse
x-8	Coarse
x-24	Coarse

Picture Search Using Menu Keys

The HVR-1500A provides a picture search function via the menu keys on its front panel. By pressing the →/ B and ←/ A buttons, forward and reverse search of 8 and 10 times normal play speed is available in HDV and DVCAM/DV modes, respectively. The ↑ and ↓ buttons allow frame-by-frame picture search, as well as slow-motion playback.

Button operation	Slow motion playback	Recording format	
		HDV	DVCAM/DV
→ / B	FWD search	x8	x10
← / A	REV search	x-8	x-10
↑	FWD frame-by-frame	Yes	Yes
↑(held down)		x1/5	x1/2
↓	REV frame-by-frame	No	Yes
↓(held down)		x-1	x-1/2

Audio Level Control

Audio levels can be adjusted via the control knobs on the front panel. In recording mode, the input audio level of the analogue XLR, SD-SDI, AES/EBU and i.LINK*14 interfaces can be adjusted.
In playback mode, the analogue XLR, SD-SDI, HD-SDI, AES/EBU and i.LINK*13 output audio levels can be controlled.

*13 In HDV mode, the input/output audio levels cannot be adjusted.

PROFESSIONAL CONTROL

RS-422A Control

The HVR-1500A is equipped with an RS-422A interface, which is the industry standard for professional editing. This allows the VTR to interface with other VTRs from Sony, editing controllers such as Sony's RM-280 Edit Controller and non-linear editing systems. The RS-422A offers frame-accurate insert and assemble editing in DVCAM mode. It can also be used for source feeding*[14] in HDV mode.

*14 The availability of frame-accurate control is dependent on the connected editing controller. For information on compatible editing controllers, please contact Sony's local office.

HD and SD Reference Inputs

The HVR-1500A accepts both HD and SD reference signals.

Time Code Input/Output

The HVR-1500A has a time code input/output capability to synchronise time code when making tape copies.

Built-in Signal Generator

Equipped with a built-in signal generator, the HVR-1500A can generate colour 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*[15] to create a pre-striped tape prior to editing. They can also be output from the analogue and digital interfaces to adjust other equipment in the system.

*15 Recording these signals to tapes in the HDV format is not available.

OTHER FEATURES

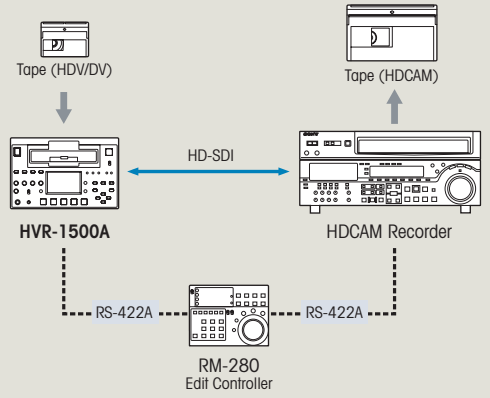
- Compact Design (half-rack wide, 3U high)
- AC Operation (100 to 240 V, 50/60 Hz)
- Low Power Consumption (approximate 60 W)
- VITC (Vertical Interval Time Code) (DVCAM format only)
- Video Processor Control via Menu
- Closed Caption Function (DVCAM/DV NTSC format only)
- SIRCS (Sony Integrated Remote Control System) Interface

REAR PANEL

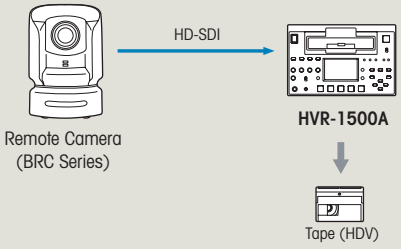
Rear panel of the HVR-1500A (with the optional HVBK-1505 board)

APPLICATION EXAMPLES

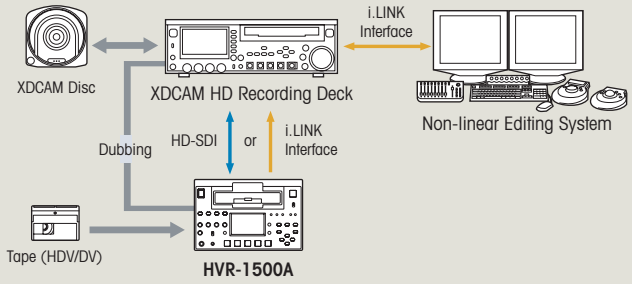
HDV/HDCAM/DV Linear Editing System



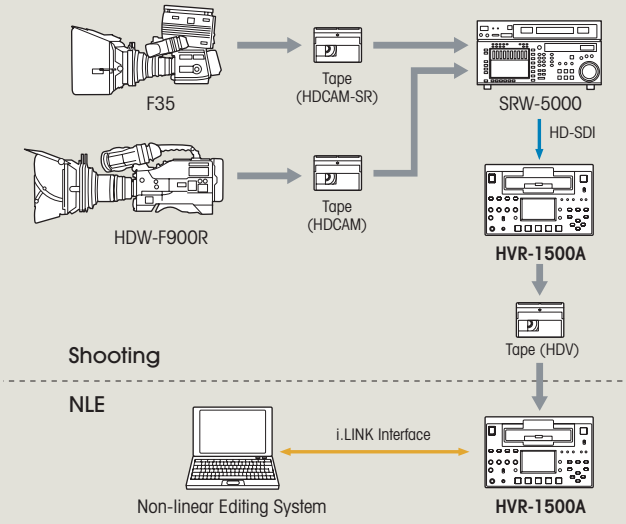
Low-cost HD Studio System



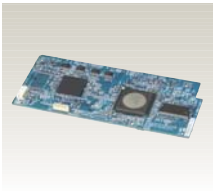
HDV/XDCAM HD/DV Production System



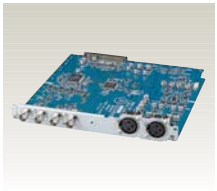
HD Non-linear Editing System



ACCESSORIES



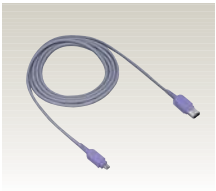
HVBK-1520
Format Converter Board



HVBK-1505
Analogue Input Board

RM-280
Edit Controller

DSRM-10
Remote Control Unit



VMC-IL4615/IL4635
i.LINK Cable (4-pin to 6-pin,
1.5 m (59 1/8 inches)/
3.5 m (137 4/5 inches))

RCC-5G
9-pin Remote Control Cable
(5 m (196 7/8 inches))

PHDV-276DM/186DM/124DM/64DM
DigitalMaster Standard Cassette Tape
PHDVM-63DM
DigitalMaster Mini Cassette Tape

PDVM-12N/22N/32N/40N
Digital Videocassette (Non-IC type/Mini size)
PDV-34N/64N/94N/124N/184N
Digital Videocassette (Non-IC type/Standard size)
PDVM-12ME/22ME/32ME/40ME
Digital Videocassette (IC-type/Mini size)
PDV-34ME/64ME/94ME/124ME/184ME
Digital Videocassette (IC-type/Standard size)

PDVM-12CL
Cleaning Cassette Tape
(Mini size)

PDV-12CL
Cleaning Cassette Tape
(Standard size)

SPECIFICATIONS

		HVR-1500A	
		50i system	60i system*7
Recording/playback performance			
Recording format		HDV 1080/50i , DVCAM , DV (SP)	HDV 1080/60i , DVCAM , DV (SP)
Playback format		HDV 1080/50i, DVCAM, DV (SP), DVCPRO 25	HDV 1080/60i, HDV 720/30P*6, DVCAM, DV (SP), DVCPRO 25
HD-SDI output format		1080/50i*1, 720/50P*1	1080/60i*1, 720/60P*1
Tape speed	HDV/DV SP	18.831 mm/s	18.812 mm/s
	DVCAM	28.221 mm/s	28.193 mm/s
Playback/recording time	HDV/DV SP	Max. 276 min with PHDV-276DM cassette Max. 63 min with PHDVM-63DM cassette	
	DVCAM	Max. 184 min with PDV-184N cassette Max. 40 min with PDVM-40N cassette	
Fast forward/rewind time		Approx. 3 min with PHDV-276DM and PDV-184N cassette	
Video Input			
Digital video	HD-SDI / SD-SDI (BNC type x1)	SMPTE 292M compliant	
		Conforms to Serial Digital Interface (270Mb/s), ITU-R BT. 656	Conforms to Serial Digital Interface (270Mb/s), SMPTE 259M
Analogue video	Ref. video (HD/SD) (BNC type x2, loop-through connection)*3	HD: bipolar tri-level sync, 0.3 Vp-p, 75 Ω , sync negative SD: black burst or composite sync, 0.3 Vp-p, 75 Ω , sync negative	HD: bipolar tri-level sync, 0.3 Vp-p, 75 Ω , sync negative SD: black burst or composite sync, 0.286 Vp-p, 75 Ω ,sync negative
	Component*2 (BNC type x3)*3	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω , (100% colour bars) B-Y: 0.7 Vp-p, 75 Ω , (100% colour bars)	Y: 1.0 Vp-p, 75 Ω, sync negative R-Y: 0.7 Vp-p, 75 Ω , (75% colour bars) B-Y: 0.7 Vp-p, 75 Ω , (75% colour bars)
	Composite*2 (BNC type x2, loop-through connection)*3	1.0 Vp-p, 75 Ω , sync negative	
	S-Video*2 (BNC type x2)*3	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.3 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.286 Vp-p, 75 Ω (at burst level)
Audio Input			
Digital audio	AES/EBU (BNC type x2)	Conforms to AES-3id-1995	
Analogue audio*2	Audio (XLR 3-pin female x2)	+4/0/-3/-6 dBu, high impedance, balanced	+4/0/-6 dBu high impedance, balanced
Vidio Output			
Digital video	HD-SDI (BNC type x2)	Conforms to Serial Digital Interface (1.485, 1.485/1.001 Gb/s), SMPTE 292M	
	SD-SDI (BNC type x2)	Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M
Analogue video	Component (HD) (BNC type x3)*4	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω B-Y: 0.7 Vp-p, 75 Ω	
	Component (SD) (BNC type x3)*4	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω , (100% colour bars) B-Y: 0.7 Vp-p, 75 Ω , (100% colour bars)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω , (75% colour bars) B-Y: 0.7 Vp-p, 75 Ω , (75% colour bars)
	Composite (BNC type x1)*4	1.0 Vp-p, 75 Ω , sync negative	
	S-Video (BNC type x2)*4	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.3 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.286 Vp-p, 75 Ω (at burst level)
	Monitor video (BNC type x1)	Composite, 1.0 Vp-p, 75 Ω , sync negative, with superimposed text information	
Audio Output			
Digital audio	AES/EBU (BNC type x2)	Conforms to AEC-3id-1995	
Analogue audio	Audio (XLR 3-pin male x2)	+4/0/-3/-6 dBu, 600 kΩ loading, low impedance,	+4/0/-6 dBu, 600 kΩ loading, low impedance balanced
	Monitor (RCA pin x1)	-∞ to -9 dBu ±1 dB (-18 dBFS), 47 kΩ , unbalanced	-∞ to -11 dBu ±1 dB (-20 dBFS), 47 kΩ , unbalanced
	Headphones (JM-60 iack x1)	-∞ to -11 dBu (-18 dBFS), 8 Ω , unbalanced	-∞ to -13 dBu (-20 dBFS), 8 Ω , unbalanced
i.LINK Interface			
	i.LINK 6-pin x1*5	IEEE 1394-based	
Time Code Input/Output			
TC In	BNC type x1	0.5 Vp-p to 18 Vp-p, 3.3 kΩ , unbalanced	
TC Out	BNC type x1	2.2 Vp-p ±3 dB (when 600 Ω terminated), unbalanced	
Remote			
RS-422A		D-sub 9-pin (female) x1	
Control-S (SIRCS)		Stereo mini jack x1	
General			
Mass		6.9 kg (15 lb 3 oz)	
Dimensions (W x H x D)		211 x 130 x 420 mm (8 3/8 x 5 1/8 x16 5/8 inches)	
Power requirement		AC 100 V to 240 V, 50/60 Hz	
Power consumption		60 W	
Operating temperature		5 °C to 40 °C (41 °F to 104 °F)	
Storage temperature		-20 °C to 60 °C (-4 °F to 140 °F)	
Operating relative humidity		Less than 80%	
Storage relative humidity		Less than 90%	
Supplied Accessories			
		AC power cord x1, Operating instructions x1	

*1 The HVBK-1520 Format Converter Board is required for up- or cross-conversion to these signals and output of these signals from the HD-SDI interface.
*2 The HVBK-1505 Analogue Input Board is required.
*3 Component, composite and S-Video inputs share the same BNC connectors.
*4 Component, composite and S-Video outputs share the same BNC connectors.
*5 HDV and DV streams share the same i.LINK connector.
*6 The HVR-1500A can play back but cannot record 720/30P signals. When 720/30P recordings are played back, their signals are converted to 720/59.94P signals.
*7 In this table, "60i", "60P", and "30P" indicate a field rate of 59.94 Hz, a frame rate of 59.94 Hz and a frame rate of 29.97 Hz, respectively.