





HDCAM-SR VTR Lineup

	SRW-5000	SRW-5500	SRW-5800	SRW-5100
				
Recording Format	HDCAM SR	HDCAM SR HDCAM ™	HDCAM SR	No
Playback Format	HDCAM SR			
	HDCAM standard		HDCAM with HKSR-5802	
	Digital BETACAM ™ with HKSR-5002		Digital BETACAM with HKSR-5802	
RGB SQ (440 Mbps)	Yes			Yes playback only
4:2:2/1080/60p and 50p	No	No	Yes	
Double-speed Material Transfer and Recording	No	No	Yes	
RGB HQ (880 Mbps)	No	No	Yes with HKSR-5803HQ	Yes with HKSR-5103 playback only
2K Real-time Recording and Playback	No	No		
3D Stereoscopic (Dual Stream) mode	No	No		
Network File Transfer	No	No	Yes with HKSR-5804	No
HDMI Output	No	No	No	Yes with HKSR-5105
i.LINK (HDV) Output	No	No	No	

Internal Format Conversion Capability

REC/PLAYBACK Tape Format			HD-SDI OUT		SD-SDI OUT	HD-SDI Format Conv. Out *1		
HDCAM-SR	2048 x 1080 /4:4:4 XYZ HQ	23.98PsF	2048 x 1080 /4:4:4 XYZ	23.98PsF	-	2048x1080/4:4:4(RGB)/23.98PsF		
						1920 x 1080/4:4:4(RGB)/23.98PsF		
						1920 x 1080/4:2:2/23.98PsF		
		24PsF		24PsF	-	1920 x 1080/4:2:2/59.94i		
						1920 x 1080/4:2:2/59.94p		
						2048x1080/4:4:4(RGB)/24PsF		
		25PsF		25PsF	-	1920 x 1080/4:4:4(RGB)/24PsF		
						1920 x 1080/4:2:2/24PsF		
						1920 x 1080/4:2:2/60i		
		25PsF		25PsF	-	1920 x 1080/4:2:2/60p		
						2048x1080/4:4:4(RGB)/25PsF		
						1920 x 1080/4:4:4(RGB)/25PsF		
	2048 x 1080 /4:4:4 RGB HQ	23.98PsF	2048 x 1080 /4:4:4 RGB	23.98PsF	-	1920 x 1080/4:2:2/50p		
						1920 x 1080/4:2:2/59.94i		
						1920 x 1080/4:2:2/59.94p		
		24PsF		24PsF	-	1920 x 1080/4:2:2/23.98PsF		
						1920 x 1080/4:2:2/23.98PsF		
						1920 x 1080/4:2:2/59.94p		
		25PsF		25PsF	-	1920 x 1080/4:4:4/23.98PsF		
						1920 x 1080/4:4:4/24PsF		
						1920 x 1080/4:2:2/24PsF		
		25PsF		25PsF	-	1920 x 1080/4:2:2/60i		
						1920 x 1080/4:2:2/60p		
						1920 x 1080/4:2:2/60p		
	1920 x 1080/4:4:4 SQ HQ**	23.98PsF	1920 x 1080/4:4:4	23.98PsF	-	1920 x 1080/4:4:4/25PsF		
						1920 x 1080/4:4:4/25PsF		
						1920 x 1080/4:2:2/25PsF		
		24PsF		24PsF	-	1920 x 1080/4:2:2/50p		
						1920 x 1080/4:2:2/50p		
						1920 x 1080/4:2:2/50p		
		25PsF		25PsF	625/50i*1	1920 x 1080/4:2:2/23.98PsF		
						1920 x 1080/4:2:2/23.98PsF		
						1920 x 1080/4:2:2/59.94i		
		29.97PsF		29.97PsF	525/59.94i*1	1920 x 1080/4:2:2/59.94p		
						1920 x 1080/4:2:2/59.94p		
						1920 x 1080/4:2:2/59.94p		
	30PsF		30PsF	-	1920 x 1080/4:2:2/59.94p			
					1920 x 1080/4:2:2/30PsF			
					1920 x 1080/4:2:2/30PsF			
	50i		50i	625/50i*1	1920 x 1080/4:2:2/60p*3			
					1920 x 1080/4:2:2/60p			
					1920 x 1080/4:2:2/60p			
	59.94i		59.94i	525/59.94i*1	1920 x 1080/4:2:2/50p			
					1920 x 1080/4:2:2/50p			
1920 x 1080/4:2:2/50p								
1920 x 1080/4:2:2**	50p	1920 x 1080/4:2:2	50p	-	1920 x 1080/4:2:2/59.94i			
					1920 x 1080/4:2:2/59.94p			
	59.94p		59.94p	525/59.94i*1	1920 x 1080/4:2:2/59.94p			
					1920 x 1080/4:2:2/59.94p			
60p			60p	-	1920 x 1080/4:2:2/60i			
					1920 x 1080/4:2:2/60i			
1280 x 720/4:2:2	50p		1280 x 720/4:2:2	50p	625/50i	1920 x 1080/4:2:2/50i		
						1920 x 1080/4:2:2/50i		
	59.94p			59.94p	525/59.94i	1920 x 1080/4:2:2/50p		
						1920 x 1080/4:2:2/50p		
59.94p				59.94p	525/59.94i	1920 x 1080/4:2:2/50p		
						1920 x 1080/4:2:2/50p		
HDCAM-SR or HDCAM	1920 x 1080/4:2:2	23.98PsF		1920 x 1080/4:2:2	23.98PsF	-	1920 x 1080/4:2:2/23.98PsF	
							1920 x 1080/4:2:2/59.94i	
							1920 x 1080/4:2:2/59.94p	
		24PsF			24PsF	-	1920 x 1080/4:2:2/59.94p	
							1920 x 1080/4:2:2/60i	
							1920 x 1080/4:2:2/60p	
		25PsF			25PsF	625/50i	1920 x 1080/4:4:4/24PsF	
							1920 x 1080/4:2:2/50p	
							1920 x 1080/4:2:2/50p	
		29.97PsF			29.97PsF	525/59.94i	1920 x 1080/4:4:4/25PsF	
							1920 x 1080/4:2:2/59.94p	
							1920 x 1080/4:2:2/59.94p	
		30PsF			30PsF	-	1920 x 1080/4:2:2/59.94p	
							1920 x 1080/4:4:4/30PsF	
							1920 x 1080/4:4:4/30PsF	
		50i			50i	625/50i	1920 x 1080/4:2:2/50p	
1920 x 1080/4:4:4/50i								
1920 x 1080/4:4:4/50i								
59.94i		59.94i	525/59.94i	1920 x 1080/4:2:2/59.94p				
				1920 x 1080/4:4:4/59.94i				
				1920 x 1080/4:4:4/59.94i				
Digital BETACAM**	625	50i	1920 x 1080/4:2:2	50i	625/50i	1920 x 1080/4:4:4/60i		
						1920 x 1080/4:2:2/50p		
						1920 x 1080/4:4:4/50i		
	525		59.94i	1920 x 1080/4:2:2	59.94p	1920 x 1080/4:2:2/50i		
						1920 x 1080/4:2:2/59.94p		
						1920 x 1080/4:4:4/59.94i		

*1: Requires optional HKSR-5001 board.

*2: SRW-5800 and SRW-5100 only. The SRW-5800 requires optional HKSR-5803HQ board. The SRW-5100 requires optional HKSR-5103 board.

*3: SRW-5800 and SRW-5100 only.

*4: Requires optional HKSR-5002 board for SRW-5500/5000 or HKSR-5802 board for SRW-5800/5100.

Versatile Interfaces

The SRW-5800/5500/5000/5100 features a wide range of interfaces including:

- 3G-SDI/HD-SDI I/O
- HD-SDI (format conversion) out (with HKSR-5001)
- SD-SDI out
- SD composite out
- AES/EBU digital audio I/O
- Analog audio out (one to four channel): SRW-5500/5000 only
- Analog audio monitor out
- Analog monitor out (cue)
- Analog audio in (cue): for SRW-5500 only
- Ethernet port
- RS-422 9-pin and 50-pin control interfaces
- Video control
- HDMI output: SRW-5100 only (with HKSR-5105)
- i.LINK output: SRW-5100 only (with HKSR-5105)



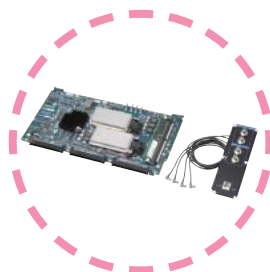
SRW-5000 Rear Panel



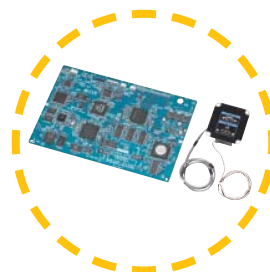
SRW-5500 Rear Panel



HKSR-5001
Format Converter Outputs
Connectors are Pre-installed



HKSR-5804
AUX Inputs
AUX Outputs
Gigabit Ethernet



HKSR-5105
HDMI Output
i.LINK (HDV) Output



SRW-5800 Rear Panel



SRW-5100 Rear Panel

Optional Accessories

Common Options



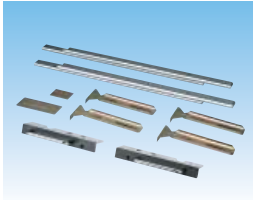
BCT-6SR/33SR/40SR
BCT-64SRL/94SRL/124SRL
 HDCAM-SR Video Cassette Tapes



BCT-6HD/12HD/22HD/40HD
BCT-34HDL/64HDL/94HDL/124HDL
 HDCAM Cassette Tapes



BCT-HD12CL
 Video Head Cleaning Cassette



RMM-110
 Rack-Mount Kit



HKDV-900,
 HD Digital Video Controller

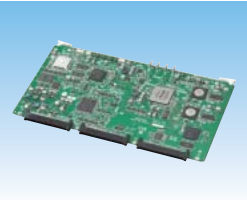


RM-280
 Editing Controller

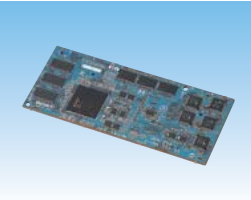


BVM Series
PVM Series
 LCD Video Monitor

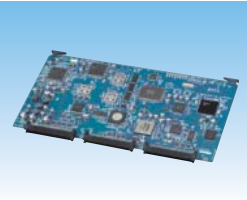
Optional Boards



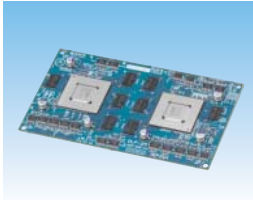
HKSR-5001
 Format-Converter Board



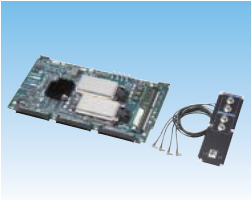
HKSR-5002
 Digital BETACAM Processor Board



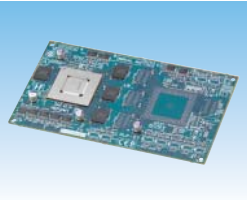
HKSR-5802
 Digital BETACAM and
 HDCAM Processor Board



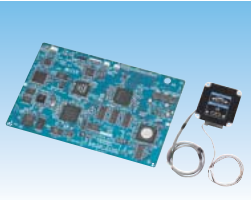
HKSR-5803HQ
 Advanced HQ Processor Board



HKSR-5804
 File Transfer Processor Board



HKSR-5103
 Advanced Processor Board



HKSR-5105
 HDMI/i.LINK (HDV) Output Board

	SRW-5000	SRW-5500	SRW-5800	SRW-5100
HKSR-5001	●	●	●	●
HKSR-5002	●	●		
HKSR-5802			●	●
HKSR-5803HQ			●	
HKSR-5804			●	
HKSR-5103				●
HKSR-5105				●

Specifications

		SRW-5000	SRW-5500	SRW-5800	SRW-5100
General					
Power requirements		100 to 240 V AC (±10%, 50/60 Hz)			
Power consumption		320 W (with all option boards installed)		380 W (with all option boards installed)	
Operating temperature		+5 °C to +40 °C (+41 °F to +104 °F)			
Storage temperature		-20 °C to +60 °C (-4 °F to +140 °F)			
Humidity		25% to 80% (relative humidity)			
Mass		30 kg (66 lb 2 oz)			
Dimensions (W x H x D) (excluding protrusion)		427 x 218 x 544 mm (16 7/8 x 8 5/8 x 21 1/2 inches)			
Tape speed		HDCAM-SR: 94.1 mm/s (24 Hz)			
		HDCAM: 77.4 mm/s (24 Hz)			
		Digital BETACAM: 96.7 mm/s			
Recording/ Playback time	HDCAM-SR	Recording & Playback: 155 min. with BCT-124SRL cassette (24 Hz)		Recording & Playback: 155 min. with BCT-124SRL cassette (24 Hz)* ¹	Playback: 155 min. with BCT-124SRL cassette (24 Hz)* ¹
	HDCAM	Playback: 155 min. with BCT-124HDL cassette (24 Hz)	Recording & Playback: 155 min. with BCT-124HDL cassette (24 Hz)	Playback: 155 min. with BCT-124HDL cassette (24 Hz)	
	Digital BETACAM	Playback: 124 min. with BCT-D124L cassette			
Fast forward/rewind time		Approx. 4 min. with BCT-124SRL cassette			
Search speed range	Shuttle mode	HDCAM-SR: -50 to +50 times normal speed (24 Hz)			
		HDCAM: -60 to +60 times normal speed (24 Hz)			
		Digital BETACAM: -50 to +50 times normal speed			
	Variable mode	HDCAM-SR: -1 to +2 times normal speed		HDCAM-SR: -0.5 to +1 times normal speed	
		HDCAM: -1 to +2 times normal speed			
		Digital BETACAM: -1 to +3 times normal speed			
	Jog mode	HDCAM-SR: -2 to +2 times normal speed		HDCAM: -2 to +2 times normal speed	
		Digital BETACAM: -3 to +3 times normal speed			
Noiseless picture playback		HDCAM-SR	-1 to +2 times normal speed (Dynamic Tracking Range)		-0.5 to +1 times normal speed (Non Tracking Range)
	HDCAM	-1 to +2 times normal speed (Dynamic Tracking Range)			
	Digital BETACAM	-1 to +3 times normal speed (Dynamic Tracking Range)			
Servo lock time		1.0 sec or less (from standby on)			
Load/unload time		7 sec or less			
Video Performance					
Sampling frequency		Y: 74.25 MHz, Cb/Cr: 37.125 MHz, G/B/R: 74.25 MHz			
Quantization		10 bits/sample			
Compression		MPEG-4 SSIP Simple Studio Profile			
Channel coding		S-NRZ			
Error correction		Reed-Solomon code			
Error concealment		Adaptive three-dimensional			
Digital Audio Performance					
Sampling frequency		48 kHz: up to 12 channel		48 kHz: up to 12 channel 96 kHz: up to 6 channel (440 Mbps) , up to 12 channel (880 Mbps)	
Quantization		24 bits			
Wow & flutter		Below measurable level			
Headroom		20/18/16/15/12/9 dB selectable			
Analog Audio Output Performance					
Quantization		24 bits			
Frequency response		20 Hz to 20 kHz, +0.5 dB/-1.0 dB (0 dB at 1 kHz)			
Dynamic range		More than 100 dB			
Distortion		Less than 0.05% (at 1 kHz)			
Crosstalk		Less than -80 dB (at 1 kHz)			

*1: 1/2 when double-data-rate recording/playback (880 Mbps).

*2: Planned to be available in the first half of 2011.

Specifications

	SRW-5000	SRW-5500	SRW-5800	SRW-5100
Inputs/Outputs				
HD-SDI input	A: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/BTA S-004/ITU-R.BT 709 B: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/BTA S-004/ITU-R.BT 709		A: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/ SMPTE 424M/BTA S-004/ITU-R.BT 709 B: BNC (x2) (including loop through), SMPTE 292M/SMPTE 372M/ SMPTE 424M*/BTA S-004/ITU-R.BT 709	—
Reference input	1: BNC (x2) (including loop through), HD Tri-level sync (0.6 Vp-p/75 Ω/negative) or SD blackburst/composite sync (NTSC: 0.286 Vp-p, PAL: 0.3 Vp-p/75 Ω/negative) 2: (Option: HKSR-5001), BNC (x2) (including loop through), HD Tri-level sync (0.6 Vp-p/75 Ω/negative) or SD blackburst/composite sync (NTSC: 0.286 Vp-p, PAL: 0.3 Vp-p/75 Ω/negative)			
Digital audio input (AES/EBU)	BNC (x6), 12 ch (2 ch each, 1/2 ch, 3/4 ch, 5/6 ch, 7/8 ch, 9/10 ch, 11/12 ch), AES-3id-1995			—
Analog audio input (Cue)	—	XLR 3-pin (female) (x1), HDCAM recording only	—	—
Time code input	XLR 3-pin (female) (x1), 0.5 to 18 Vp-p/10 kΩ/balanced			
AUX input	—	—	(Option: HKSR-5804): A: BNC (x1), SMPTE 292M/SMPTE 372M/ ARIB S004B B: BNC (x1), SMPTE 292M/SMPTE 372M/ ARIB S004B	—
HD-SDI output	A: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/SMPTE 372M/BTA S004/ITU-R.BT 709 B: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/SMPTE 372M/BTA S004/ITU-R.BT 709		A: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/ SMPTE 424M/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/ SMPTE 372M/SMPTE 424M/BTA S004/ ITU-R.BT 709 B: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/ SMPTE 424M*/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/ SMPTE 372M/SMPTE 424M*/BTA S004/ITU-R.BT 709	A: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/ SMPTE 424M/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/ SMPTE 372M/SMPTE 424M/BTA S004/ ITU-R.BT 709 B: BNC (x3), 1 & 2: SMPTE 292M/SMPTE 372M/ SMPTE 424M*/BTA S004/ITU-R.BT 709 3: character on/off, SMPTE 292M/ SMPTE 372M/SMPTE 424M*/BTA S004/ITU-R.BT 709
Format converter output	(Option: HKSR-5001): A: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/BTA S-004/ITU-R.BT 709 B: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/BTA S-004/ITU-R.BT 709		(Option: HKSR-5001): A: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/ SMPTE 424M/BTA S-004/ITU-R.BT 709 B: BNC (x2), character on/off, SMPTE 292M/SMPTE 372M/BTA S-004/ITU-R.BT 709	
SD-SDI output	BNC (x3), 1 & 2: SMPTE 259M 3: character on/off, SMPTE 259M			
Analog composite output	BNC (x1), 1.0 Vp-p/75 Ω/negative SMPTE 170M, character on/off or 0.286 Vp-p/75 Ω/negative blackburst			
Reference output	1125 Sync: BNC (x2), Tri Level sync 0.6 Vp-p/75 Ω/negative			
Digital audio output (AES/EBU)	BNC (x6), 12 ch (2 ch each, 1/2 ch, 3/4 ch, 5/6 ch, 7/8 ch, 9/10 ch, 11/12 ch), AES-3id-1995			
Analog audio output	XLR 3-pin (male) (x4), +4 dBm, 600 Ω, Lo-z, balanced		—	
Analog audio output (Cue)	XLR 3-pin (male) (x1), +4 dBm, 600 Ω, Lo-Z, balanced, HDCAM/Digital BETACAM playback only.			
Analog audio monitor	XLR 3-pin (x2), L/R, +4 dBm, 600 Ω, Lo-Z, balanced			
Time code output	XLR 3-pin (male) (x1), 2.2 Vp-p, Lo-Z, balanced			
Headphone output	JM-60 stereo phone jack (x1), ∞ to 12 dBu, 8 Ω, unbalanced			
AUX output	—		(Option: HKSR-5804): A: BNC (x1), SMPTE 292M/SMPTE 372M/ ARIB S004B/SMPTE 424M B: BNC (x1), SMPTE 292M/SMPTE 372M/ ARIB S004B	—
i.LINK	—		(Option: HKSR-5105): IEEE1394 6-pin (x1), HDV1080i output	
HDMI	—		(Option: HKSR-5105): (x1), output	
Remote (9P) input	D-sub 9-pin (female) (x1), RS-422A			
Remote (9P) input/output	D-sub 9-pin (female) (x1), RS-422A			
Video control	D-sub 9-pin (female) (x1), EIA RS-423			
Parallel remote	D-sub 50-pin (female) (x1)			
Ethernet	RJ-45 (x1), 10Base-T: IEEE802.3		RJ-45 (x1), 10Base-T: IEEE802.3 (Option: HKSR-5804): RJ-45 (x1), 1000Base-T: IEEE802.3ab	RJ-45 (x1), 100Base-TX: IEEE802.3u 10Base-T: IEEE802.3
RS-232C	D-sub 9-pin (male) (x1), factory use		—	
USB	(x1), factory use		—	
Supplied Accessories				
	Operation manual (1), installation manual (1)			

*1: 1/2 when double-data-rate recording/playback (880 Mbps).
*2: Planned to be available in the first half of 2011.

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Features and specifications are subject to change without notice.
The values for mass and dimension are approximate.
23.98p, 24p, 25p, 29.97p, and 30p are used as generic names in this literature for the industry standard 23.98PsF, 24PsF, 25PsF, 29.97PsF, and 30PsF (Progressive Segmented Frames), respectively.
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The SRW-5800, SRW-5500, SRW-5000, and SRW-5100 are produced at Sony EMCS Corporation Kosai Tec, which has received ISO14001 the Environmental Management System certification.



■ HDW-1800 Series Digital Video Recorders



HDW-D1800 (top)
and HDW-1800
Rear Panels



Search Functions – Jog and Shuttle Mode

The HDW-D1800 and HDW-1800 recorders deliver recognisable colour pictures in shuttle mode at speeds of up to 50 times normal playback. Jog operation is also possible, at -1 to +2 times normal speed. High quality jog audio provides a responsiveness familiar to Digital Betacam users.

4.3-inch Colour LCD Screen

The control panels are simple and easy to use. They are equipped with a 4.3-inch (viewable area, measured diagonally) 16:9 colour LCD screen, allowing users to view playback material and VTR setup menus. It is also possible to monitor output signals via 2-3 pull-down when converted to 720P.

Frame Accurate Editing

Insert and assemble editing with frame accuracy is provided on the HDW-D1800 and HDW-1800. Each video and audio channel can be edited independently.

Digital Audio Crossfade

Digital Audio Crossfade ensures smooth audio transitions at audio insert edit points. Previously-recorded audio signals are read in advance using pre-read heads and then re-recorded onto the same track after being mixed with the input signal. The crossfade duration can be selected from a range of values.



Video Monitor View



System Status View

Dynamic Motion Control (DMC) Playback

The HDW-D1800 and HDW-1800 recorders also provide DMC playback capability, which memorises the tape speed trajectory over the DT (Dynamic Tracking) speed range.

Pre-read Editing

Pre-read editing became an instant hit when it first appeared on Digital VTRs over 15 years ago. HDW-1800 Series recorders are equipped with advanced playback heads to enable pre-read editing. Captions can be added using a single VTR, A/B-roll editing can be performed with two VTRs and audio crossfades can be added for smooth audio transitions.

Easy Integration into your Facility

The HDW-D1800 and HDW-1800 are equipped with the following interfaces:

- HD-SDI input and output
- SD-SDI output
- Analogue composite output
- Digital audio input and output
- Analogue audio input and output
- Timecode input and output
- Reference input
- RS-422 9-pin remote interface
- Analogue audio monitor output
- Video control interface
- Remote parallel 50-pin interface
- RS-232C remote interface

Easy Setup Using “Memory Stick” Media

Users can store and recall VTR setup parameters onto optional Memory Stick™ media, enabling quick and consistent setup of multiple VTRs.

Metadata Recording

The HDW-D1800 and HDW-1800 can record metadata including UMID (Unique Material Identifier) and shot marks, which are used for quick cue-up to scenes of interest. This metadata capability improves overall efficiency across the production process.

Unrivalled Heritage in Advanced Metal Tape Technology

Sony HDCAM tape has been developed to offer optimum record and playback performance across the full range of HDCAM recorders and players.

Building on an unrivalled heritage for Metal Tape design, including two Emmy® Awards (Metal Broadcasting Tape Technology in 1990 and Digital Betacam Metal Tape Technology in 1995), HDCAM tapes provide high density recording and a duration of up to 155* minutes.

* When recording at 24PsF or 23.98PsF onto a large cassette.

The HDW-1800 and HDW-D1800 incorporate many of the operational features of the HDW-2000 Series. The following table shows the main operational differences.

	HDW-1800	HDW-2000	HDW-D1800	HDW-D2000
HDCAM record and replay	✓	✓	✓	✓
MPEG IMX and Digital Betacam replay			✓	✓
LCD display on front panel	✓		✓	
Editing controls on front panel		✓		✓
Editing via RS-422A (9-pin)	✓	✓	✓	✓
SDTI-CP (option)		✓		✓
SD component output		✓		✓
4 channels of analogue input/output	2 channels	✓	2 channels	✓
Cue channel input/output		✓		✓
i.LINK input (option)	✓		✓	
HD-SDI input monitor connector		✓		✓
1080/50i to 720/50P output converter (option)	✓		✓	
15-pin connector for video control		✓		✓
Control panel EXT operation		✓		✓
Tele-File Reader/writer		✓		✓
3:2 pulldown (option)	✓		✓	
Dual reference input for 3:2 pull-down	✓		✓	

OPTIONAL ACCESSORIES

FOR HDW-1800 SERIES DIGITAL VIDEO RECORDERS



RMM-131
Rack Mount Kit



RCC-5G
9-pin Remote Cable



RM-280
Editing Controller*1



HKDV-900
HD Digital Video Controller*2



BCT-124HDL/64HDL/22HD
HDCAM Tape Cassette



BCT-HD12CL
Cleaning Cassette



HKDW-104
Pull-down/720P Board



HKDW-105
i.LINK (HDV) Input Board

*1 Supplied with a 9-pin to 4-pin remote cable (2 metres) for connection to the HDW-D1800/HDW-1800. For longer cable runs, a 10-metre cable is available as an option (1-832-104-11.)

*2 To connect the HKDV-900 with the HDW-D1800/1800 VTR, the optional video controller cable, RCC-1505H/1510H/1530H is required.

■ Specifications

HDW-2000 Series and HDW-1800 Series

		HDW-2000	HDW-M2000P	HDW-M2100P	HDW-D1800
GENERAL					
Power requirements			100 to 240 V, 50/60 Hz		
Power consumption			220 W		150 W
Operating temperature			+5 to +40 °C (41 to 104 °F)		
Storage temperature			-20 to +60 °C (-4 to +140 °F)		
Humidity			25 to 90%		20 to 90%
Mass			23 kg (50 lb 11 oz)		22 kg (48 lb 8 oz)
Dimensions (W x H x D)			427 x 174 x 544 mm (16 7/8 x 6 7/8 x 21 1/2 inches)		
Tape speed			96.7 mm/s (59.94, 29.97PsF), 80.6 mm/s (50, 25PsF), 77.4 mm/s (24PsF, 23.98PsF)		
	HDCAM	—	96.7 mm/s		
	Digital Betacam	—	64.5 mm/s (525/59.94), 53.8 mm (625/50)		
	MPEG IMX	—	59.6 mm/s		—
	Betacam SX	—	118.6 mm/s (525/59.94), 101.5 mm/s (625/50)		—
HDCAM record/playback time (HDW-M2100P is replay only)	Betacam/Betacam SP	—	124 minutes (59.94, 29.97PsF, with BCT-124HDL cassette)		
			149 minutes (50, 25PsF, with BCT-124HDL cassette)		
			155 minutes (24PsF, 23.98PsF, with BCT-124HDL cassette)		
			40 minutes (59.94, 29.97PsF, with BCT-40HD cassette)		
Fast forward/rewind time			48 minutes (50, 25PsF, with BCT-40HD cassette)		
			50 minutes (24PsF, 23.98PsF, with BCT-40HD cassette)		
			Approx. 3 minutes (with BCT-124HDL cassette)		
			Still to ± 50 times normal speed playback (59.94, 29.97PsF),		
Search speed range	SHUTTLE MODE	HDCAM	Still to ± 58 times normal speed playback (50, 25PsF),		
			Still to ± 60 times normal speed playback (24PsF, 23.98PsF)		
			Still to ± 50 times normal speed playback		
			Still to ± 78 times normal speed playback		
	Digital Betacam	—	Still to ± 78 times normal speed playback		—
	MPEG IMX	—	Still to ± 35 times normal speed playback (525/59.94)		—
	Betacam SX	—	Still to ± 42 times normal speed playback (625/50)		
	Betacam/Betacam SP	—	-1 to +2 times normal speed playback		
VARIABLE MODE	HDCAM	—	-1 to +3 times normal speed playback		
	Digital Betacam	—	-1 to +3 times normal speed playback		
	MPEG IMX	—	-1 to +2 times normal speed playback		
	Betacam SX	—	-1 to +3 times normal speed playback		—
JOG MODE	Betacam/Betacam SP	—	Still to ± 1 times normal speed playback		
			0.6 s or less (59.94, 29.97PsF, from standby on), 0.7 s or less (50, 25PsF, 24PsF, 23.98PsF, from standby on)		
			6 s or less (both L and S cassettes)		
INPUT/OUTPUT					
HD-SDI input		BNC x 1 (SMPTE 292M), Serial Digital (1.485 Gb/s)		—	—
SDTI input (with optional HKDW-102 installed)		BNC x 1 (SMPTE305M), 270 Mb/s			
Reference video input		BNC x 2 (with a loop-through), Tri-level sync, 0.6 Vp-p, 75 Ω , sync negative or Black Burst or Composite, 0.3 Vp-p, 75 Ω , sync negative			
Digital audio input (CH 1/2, CH 3/4)		BNC x 2, AES/EBU		—	BNC x 2,
Analogue audio input (CH 1/2/3/4/Cue)		XLR-3-pin type, female, x 5 Low off: -60 dBu, high impedance, balanced High off: +4 dBu, high impedance, balanced High on: -4 dBm, 600 Ω termination, balanced		—	XLR-3-pin type, Low off: -60 dBu, high High off: +4 dBu, high High on: -4 dBm, 600 Ω
Time code input			XLR-3-pin type, female, x 1 (0.5 to 18 Vp-p, 10 k Ω , balanced)		
LINK(HDV 1080i) input (option: HKDW-105)					IEEE1394, 6-pin x 1
HD-SDI output			BNC x 3 (SMPTE 292M including one character out), Serial Digital (1.485 Gb/s)		
SD-SDI output			BNC x 3 (SMPTE 258M including one character out), Serial Digital (270 Mb/s)		
SDTI output (with optional HKDW-102 installed)			BNC x 2 (SMPTE 305M), 270 Mb/s		—
SDI output			BNC x 3 (SMPTE 259M including one character out), Serial Digital (270 Mb/s)		
Analogue composite output			BNC x 3 (RS-170A, including one character out, one WFM out) Y: 1.0 Vp-p, sync negative, R-Y/B-Y: 0.7 Vp-p, 75 Ω		
Analogue component output			BNC x 3, for one set, 1.0 Vp-p, 75 Ω , sync negative		—
Digital audio output		BNC x 2, AES/EBU (CH 1/2, CH 3/4)	BNC x 4, AES/EBU (CH 1/2, CH 3/4, CH 5/6, CH 7/8)		
Analogue audio output (CH 1/2/3/4)			XLR-3-pin type, x 5, male, +4 dBm (600 Ω load), low impedance, balanced		XLR-3-pin type, x 2, male, +4 dBm
Time code output			XLR-3-pin type, male, x 1 (2.2 Vp-p, low impedance, balanced)		
Monitor output L/R			XLR-3-pin type, male, x 2 (+4 dBm at 600 Ω load, low impedance, balanced)		
Headphones			JM-60 Stereo phone jack (∞ to -12 dBu at 8 Ω load, unbalanced)		
Remote1 In			D-sub 9-pin, Sony 9-pin remote interface		
Remote1 Out			D-sub 9-pin, Sony 9-pin remote interface		
RS-232C			D-sub 9-pin		
Remote2 Parallel I/O			D-sub 50-pin		
Video control			D-sub 9-pin, D-sub 15-pin		D-sub 9-pin
Control panel			D-sub 15-pin		
Others			"Memory Stick"™ slot, PCMCIA slot		"Memory
PROCESSOR ADJUSTMENT RANGE					
Video level			± 3 dB/ ∞ to +3 dB, selectable		
Chroma level			± 3 dB/ ∞ to +3 dB, selectable		
Set up/black level			± 30 IRE		
Chroma phase/hue			$\pm 30^\circ$		
System sync phase			± 15 μ s		
System SC phase			± 200 ns		
Y/C delay		—	± 100 ns		
DIGITAL VIDEO PERFORMANCE					
Sampling frequency			Y: 74.25 MHz, R-Y/B-Y: 37.125 MHz		
Quantisation			10 bit/sample (compression: 8 bit/sample)		
Compression			Coefficient recording system		
Channel coding			S-I-NRZI PR-IV		
Error correction			Reed-Solomon code		
ANALOGUE COMPONENT OUTPUT PERFORMANCE					
Bandwidth			Y: 0 to 5.75 MHz +0.5 dB/-2.0 dB, R-Y/B-Y: 0 to 2.75 MHz +0.5 dB/-2.0 dB		—
S/N ratio			56 dB or more		—
K Factor (2T Pulse)			1% or less		—
ANALOGUE COMPOSITE OUTPUT PERFORMANCE					
Bandwidth			0 to 5.75 MHz +0.5 dB/-3.0 dB		
S/N ratio			53 dB or more		
Differential gain			2% or less		
Differential phase			2° or less		
Y/C delay			20 ns or less		
K Factor (2T Pulse)			1% or less		
Output S/GH phase			Based upon RS-170A/CCIR R 624-3		
DIGITAL AUDIO PERFORMANCE					
Sampling frequency			48 kHz (Synchronised with video)		
Quantisation			20 bit/sample		
Wow & flutter			Below measurable level		
Headrooms			20 dB (or 18 dB selectable)		
Emphasis (ON/OFF selectable in REC mode)			T1=50 μ s, T2=15 μ s (on/off selectable in recording mode)		
ANALOGUE AUDIO OUTPUT PERFORMANCE					
A/D quantisation			20 bit/sample		
D/A quantisation			20 bit/sample		
Frequency response			20 Hz to 20 kHz +0.5 dB/-1.0 dB (0 dB at 1 kHz)		
Dynamic range			More than 95 dB (at 1 kHz, emphasis ON)		
Distortion			Less than 0.05% (at 1 kHz, emphasis ON, reference level)		
Crosstalk			Less than -80 dB (at 1 kHz, between any two channels)		
CUE TRACK					
Sampling frequency			100 Hz to 12 kHz ± 3 dB		—
S/N ratio			More than 45 dB (at 3% distortion level)		—
Distortion			Less than 2% (T.H.D. at 1 kHz, reference level)		—
Wow & flutter			Less than 0.2%		—
Erase ratio		More than 60 dB			—
SUPPLIED ACCESSORIES					
			Operation manual (1), Installation manual (1)		

HDW-1800		HDW-D2000	
150 W		100 to 240 V, 50/60 Hz	
		+5 to +40 °C (41 to 104 °F)	
		-20 to +60 °C (-4 to +140 °F)	
20 to 90%		25 to 90%	
22 kg (48 lb 8 oz)		23 kg (50 lb 11 oz)	
427 x 174 x 544 mm (16 7/8 x 6 7/8 x 21 1/2 inches)			
96.7 mm/s (59.94, 29.97PsF), 80.6 mm/s (50i, 25PsF), 77.4 mm/s (24PsF, 23.98PsF)		96.7 mm/s	
—		64.5 mm/s (525/59.94), 53.8 mm (625/50)	
—		—	
—		—	
124 minutes (59.94), 29.97PsF, with BCT-124HDL cassette)			
149 minutes (50i, 25PsF, with BCT-124HDL cassette)			
155 minutes (24PsF, 23.98PsF, with BCT-124HDL cassette)			
40 minutes (59.94, 29.97PsF, with BCT-40HD cassette)			
48 minutes (50i, 25PsF, with BCT-40HD cassette)			
50 minutes (24PsF, 23.98PsF, with BCT-40HD cassette)			
Approx. 3 minutes (with BCT-124HDL cassette)			
Still to +50 times normal speed playback (59.94, 29.97PsF),			
Still to +58 times normal speed playback (50i, 25PsF),			
Still to +60 times normal speed playback (24PsF, 23.98PsF)			
—		Still to +50 times normal speed playback	
—		Still to +78 times normal speed playback	
—		—	
—		—	
-1 to +2 times normal speed playback			
—		-1 to +3 times normal speed playback	
—		-1 to +3 times normal speed playback	
—		—	
—		—	
Still to +1 times normal speed playback			
0.6 s or less (59.94), 29.97PsF, from standby on), 0.7 s or less (50i, 25PsF, 24PsF, 23.98PsF, from standby on)			
6 s or less (both L and S cassettes)			
—		BNC x 1 (SMPTE 292M), Serial Digital (1.485 Gb/s)	
—		BNC x 1 (SMPTE305M), 270 Mb/s	
BNC x 2 (with a loop-through), Tri-level sync, 0.6 Vp-p, 75 Ω, sync negative or Black Burst or Composite, 0.3 Vp-p, 75 Ω, sync negative			
AES/EBU		BNC x 2, AES/EBU	
female, x 2		XLR-3-pin type, female, x 5	
impedance, balanced		Low off: -60 dBu, high impedance, balanced	
impedance, balanced		High off: +4 dBu, high impedance, balanced	
termination, balanced		High on: -4 dBm, 600 Ω termination, balanced	
XLR-3-pin type, female, x 1 (0.5 to 18 Vp-p, 10 kΩ, balanced)			
IEEE1394, 6-pin x1		—	
BNC x 3 (SMPTE 292M including one character out), Serial Digital (1.485 Gb/s)			
BNC x 3 (SMPTE 259M including one character out),			
Serial Digital (270 Mb/s)			
—		BNC x 2 (SMPTE 305M), 270 Mb/s	
BNC x 3 (SMPTE 259M including one character out), Serial Digital (270 Mb/s)			
BNC x 3 (RS-170A, including one character out, one WFM out)			
Y: 1.0 Vp-p, sync negative, R-Y/B-Y: 0.7 Vp-p, 75 Ω			
BNC x 2, AES/EBU		BNC x 3, for one set, 1.0 Vp-p, 75 Ω, sync negative	
(CH 1/2, CH 3/4)		(CH 1/2, CH 3/4, CH 5/6, CH 7/8)	
(600 Ω load), low impedance, balanced		XLR-3-pin type, x 5, male, +4 dBm (600 Ω load), low impedance, balanced	
XLR-3-pin type, male, x 1 (2.2 Vp-p, low impedance, balanced)			
XLR-3-pin type, male, x 2 (+4 dBm at 600 Ω load, low impedance, balanced)			
JM-60 Stereo phone jack (∞ to -12 dBu at 8 Ω load, unbalanced)			
D-sub 9-pin, Sony 9-pin remote interface			
D-sub 9-pin, Sony 9-pin remote interface			
D-sub 9-pin		D-sub 9-pin	
D-sub 50-pin			
D-sub 9-pin		D-sub 9-pin, D-sub 15-pin	
—		D-sub 15-pin	
Stick™ slot		™Memory Stick™ slot, PCMCIA slot	
—		—	
—		±3 dB/∞ to +3 dB, selectable	
—		±3 dB/∞ to +3 dB, selectable	
—		±30 IRE	
—		±30°	
—		±15 μs	
—		±200 ns	
—		—	
—		—	
Y: 74.25 MHz, R-Y/B-Y: 37.125 MHz			
10 bit/sample (compression: 8 bit/sample)			
Coefficient recording system			
S-1 NR2I PR-IV			
Reed-Solomon code			
—		Y: 0 to 5.75 MHz +0.5 dB/-2.0 dB, R-Y/B-Y: 0 to 2.75 MHz +0.5 dB/-2.0 dB	
—		56 dB or more	
—		1% or less	
0 to 5.75 MHz +0.5 dB/-3.0 dB			
53 dB or more			
2% or less			
2° or less			
20 ns or less			
1% or less			
Based upon RS-170A/CCIR R.624-3			
48 kHz (Synchronised with video)			
20 bit/sample			
Below measurable level			
20 dB (or 18 dB selectable)			
T1=50 μs, T2=15 μs (on/off selectable in recording mode)			
—		20 bit/sample	
—		20 bit/sample	
20 Hz to 20 kHz +0.5 dB/-1.0 dB (0 dB at 1 kHz)			
More than 95 dB (at 1 kHz, emphasis ON)			
Less than 0.05% (at 1 kHz, emphasis ON, reference level)			
Less than -80 dB (at 1 kHz, between any two channels)			
—		100 Hz to 12 kHz ±3 dB	
—		More than 45 dB (at 3% distortion level)	
—		Less than 2% (THD, at 1 kHz, reference level)	
—		Less than 0.2%	
—		More than 60 dB	
—		—	
Operation manual (1), Installation manual (1)			

Digital Betacam playback		HDW-M2000P, HDW-M2100P, HDW-D2000, HDW-D1800	HDW-2000 HDW-1800
VIDEO PERFORMANCE			
Bandwidth	Y R-Y/B-Y	0 to 5.75 MHz +0.5 dB/-0.5 dB 0 to 2.75 MHz +0.5 dB/-0.5 dB	—
S/N ratio		62 dB or more	—
K factor		1% or more	—
DIGITAL AUDIO (CH 1 TO CH 4)			
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +0.5 dB/-1.0 dB	—
Dynamic range		95 dB (at 1 kHz, emphasis ON)	—
Distortion (T.H.D. at 1 kHz, reference level)		0.05% rms (emphasis ON)	—
Wow & flutter		Below measurable level	—
ANALOGUE AUDIO (CUE TRACK)			
Frequency response (0 dB at 1 kHz)		100 Hz to 12 kHz +3 dB/-3 dB	—
S/N ratio (at 3% distortion level)		45 dB (at 1 kHz)	—
Distortion (T.H.D. at 1 kHz, reference level)		2% or less	—
Wow & flutter		Less than 0.2% (DIN 45508 weighted)	—

MPEG IMX playback		HDW-M2000P, HDW-M2100P, HDW-D2000, HDW-D1800	HDW-2000 HDW-1800
VIDEO PERFORMANCE			
Bandwidth	Y R-Y-B-Y	0 to 5.75 MHz +0.5 dB/-2.0 dB 0 to 2.75 MHz +0.5 dB/-2.0 dB	—
S/N ratio		56 dB or more	—
K factor (2T pulse)		1% or more	—
AUDIO PERFORMANCE			
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +0.5 dB/-1.0 dB	—
Dynamic range		90 dB or more (at 1 kHz, emphasis ON, 16 bits/48 kHz)	—
Distortion		0.05% or less (at 1 kHz, emphasis ON, reference level (+4 dBm))	—

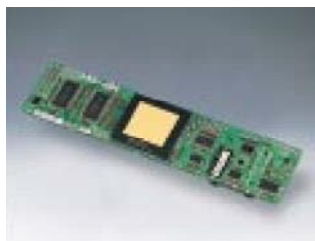
Betacam SX playback		HDW-M2000P, HDW-M2100P
VIDEO PERFORMANCE		
Bandwidth	Y	0 to 5.5 MHz +0.5 dB/-3.0 dB
	R-Y/B-Y	0 to 2.0 MHz +0.5 dB/-3.0 dB
S/N ratio		56 dB or more
K factor		1% or less
AUDIO PERFORMANCE		
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +0.5 dB/-1.0 dB (0 dB at 1 kHz)
Dynamic range		90 dB or more (at 1 kHz, emphasis ON)
Distortion		0.05% or less (at 1 kHz, emphasis ON, reference level +4 dBm)

Analogue Betacam SX playback		HDW-M2000P, HDW-M2100P	
		METAL TAPE	OXIDE TAPE
VIDEO PERFORMANCE			
Bandwidth	Y R-Y/B-Y	30 Hz to 4.5 MHz +0.5 dB/-4.0 dB 30 Hz to 1.5 MHz +0.5 dB/-3.0 dB	30 Hz to 4.1 MHz +0.5 dB/-6.0 dB 30 Hz to 1.5 MHz +0.5 dB/-3.0 dB
S/N ratio	Y R-Y/B-Y	51 dB or more 48 dB or more	48 dB or more 45 dB or more
K-Factor (2T Pulse)		2% or less	3% or less
LF non-linearity	Y R-Y/B-Y		3% or less 4% or less
Y/C delay			20 ns or less
VIDEO PERFORMANCE			
LNG	Frequency response	50 Hz to 15 kHz +1.5 dB/-3.0	
	S/N ratio	72 dB or more	50 dB or more (Dolby NR off)
	T.H.D.	1% or less	2% or less
	Wow & Flutter	0.1% rms or less	
AFM*	Frequency response	20 Hz to 20 kHz +0.5 dB/-2.0 dB	
	S/N ratio	85 dB or more	
	T.H.D.	0.5% or less	

Optional Accessories



HKDV-501A,
High Definition to Standard
Definition Down Converter Board



HKDV-502,
HD Line Converter Board



HKDV-503,
Video Remote Controller



HKDV-506A,
SDTI Interface Board



HKDV-507,
HD Pull-down Board



BKDW-509,
50-pin Parallel Remote Kit



RMM-110,
Rack Mount Kit



BCT-124HDL/64HDL/40HD/22HD,
HDCAM Video Cassette Tapes



BCT-HD12CL,
Video Head Cleaning Cassette Tapes

HDW-F500 Specifications

General		
Power requirements	100 to 240 V AC (±10 %, 50/60 Hz)	
Power consumption	230 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 humidity	25 % to 80 % (Relative humidity)	
Mass (Approx.)	35 kg (77 lb. 2 oz)	
Dimensions (W x H x D)	427 x 237 x 520 mm (16 3/4 x 9 3/8 x 20 1/2 inches)	
Tape speed	77.4 mm/s (24P mode)	
Digital recording/Playback time	Max. 155 min with BCT-124HDL cassette (24P mode)	
Fast forward/rewind time	Approx. 3 min with BCT-124HDL cassette	
Search speed range	±60 times normal playback speed (24P mode)	
Servo lock time	1.0 sec or less (From standby on)	
Load/unload time	6.0 sec or less	
Input/output		
HD serial V/A input	BNC (x1 with a monitoring loop-through), Serial digital (1.485 Gb/s), SMPTE 292M/BTA S-004/ITU-R.BT 709	
HD reference video input	BNC (x1, with a loop-through), Tri Level sync, 0.6 Vp-p, 75 Ω, sync negative	
SD reference video input	BNC (x1, with a loop-through), Black Burst, 0.286 Vp-p, 75 Ω, sync negative	
Digital audio input (CH1/2, CH3/4)	BNC (x2, with 2 loop-through), AES/EBU	
Analog audio input (CH1/2/3/4/Cue)	XLR-5-pin type (Male) Low OFF: -60 dBu, high impedance, balanced High OFF: +4 dBu, high impedance, balanced High ON: +4 dBm, 600 Ω termination, balanced	
Time code input	XLR-3-pin type, (Male x1), 0.5 to 18 Vp-p, 10 kΩ, balanced	
HD serial V/A output	BNC (x4, with a character out), Serial digital (1.485 Gb/s), SMPTE 292M/BTA S004/ITU-R.BT 709	
Pull-down output (Optional BKDV-507 required)	BNC (x2), with character	
Standard Definition V/A output (Optional BKDV-501A required)	BNC (x3, with a character out), D1 serial digital (270 Mb/s), SMPTE 259M	
Analog I/O down converted output (Optional BKDV-501A required)	Composite: BNC (x1 with a character out) 1.0 Vp-p, 75 Ω, sync negative) SD sync: BNC (x1, Black Burst, 0.286 Vp-p, 75 Ω, sync negative)	
Analog I/O reference output	1125 Sync: BNC (x2), Tri Level sync, 0.6 Vp-p, 75 Ω, sync negative	
Digital audio output (CH1/2 CH3/4)	BNC (x2), AES/EBU, unbalanced	
Analog audio output (CH1/2/3/4/Cue)	XLR-3-pin type, (Female x5), +4 dBm, (With a 600 Ω load), low impedance, balanced	
Monitor output (L/R)	XLR-3-pin type, (Female x2), +4 dBm, (With a 600 Ω load), low impedance, balanced	
Time code output	XLR-3-pin type, (Female x1), 2.2 Vp-p low impedance, balanced	
Phones	JM-60 stereo phone jack, - ∞ to -12 dBu (With an 8 Ω load), unbalanced	
HD SDTI input/output	BNC (x2), Input/output, Serial digital	
Remote 1 input	D-sub 9-pin, Female, Sony 9-pin remote interface	
Remote 1 output	D-sub 9-pin, Female, Sony 9-pin remote interface	
RS-232C	D-sub 25-pin, Female	
Video control	D-sub 9-pin, Female (For optional HKDV-503)	
Parallel remote (Optional BKDW-509 required)	D-sub 50-pin, Female	
Panel remote	D-sub 15-pin, Female	
Digital video performance		
Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125 MHz	
Quantization	10 bits/sample of input-output signals (8 bit sample for internal compression process)	
Compression	Coefficient recording system	
Channel coding	S-NRZI PR-IV	
Error correction	Reed-Solomon code	
Error concealment	Adaptive three dimensional	
Analog composite output performance (With optional HKDV-501A)		
Bandwidth	Y: 0 to 5.75 MHz +5.0 dB/-3.0 dB	
S/N ratio	56 dB or more	
Y/C delay	15 ns or less	
K Factor (2T Pulse)	1 % or less	
Output SCH phase	Based upon RS-170A/CCIR R.624-3	
Digital audio performance		
Sampling frequency	48 kHz (Synchronized with video)	
Quantization	20 bits/sample	
Wow & flutter	Below measurable level	
Headroom	20 dB (Or 18 dB selectable)	
Emphasis	T1 = 50 μs, T2 = 15 μs (on/off selectable in recording mode)	
Analog audio output performance		
A/D quantization	20 bits/sample	
D/A quantization	20 bits/sample	
Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB (0 dB at 1 kHz)	
Dynamic range	More than 95 dB (At 1 kHz emphasis ON)	
Distortion	Less than 0.05 % (At 1 kHz, emphasis ON, reference level)	
Cross talk	Less than -90 dB (At 1 kHz, between any two channels)	
Cue track		
Frequency response	90 Hz to 12 kHz ± 3 dB	
S/N ratio	More than 45 dB (At 3 % distortion level)	
Distortion	Less than 2 % (T.H.D at 1 kHz, reference level)	
Wow & flutter	Less than 0.2 % rms	
Supplied Accessories		
	AC power cord (1) RCC-5G, 9-pin remote cable (1) PSW4 x 16screws, for rack mounting (4)	
	SRAM 64 KB memory card (1) Operation manual (1) Maintenance manual part 1 (1)	
Optional Accessories		
	HKDV-501A, HD-SD Converter board HKDV-502, HD Line converter board	
	HKDV-503, HD Digital Video Controller HKDV-506A, SDTI input and output board	
	HKDV-507, HD Pull-down board BKDW-509, Parallel 50-pin interface kit	
	RMM-110, Rack Mount Adapter BCT-HD12CL, Cleaning Cassette	
	BCT-124HDL/64HDL/40HD/22HD, HDCAM tape cassette	