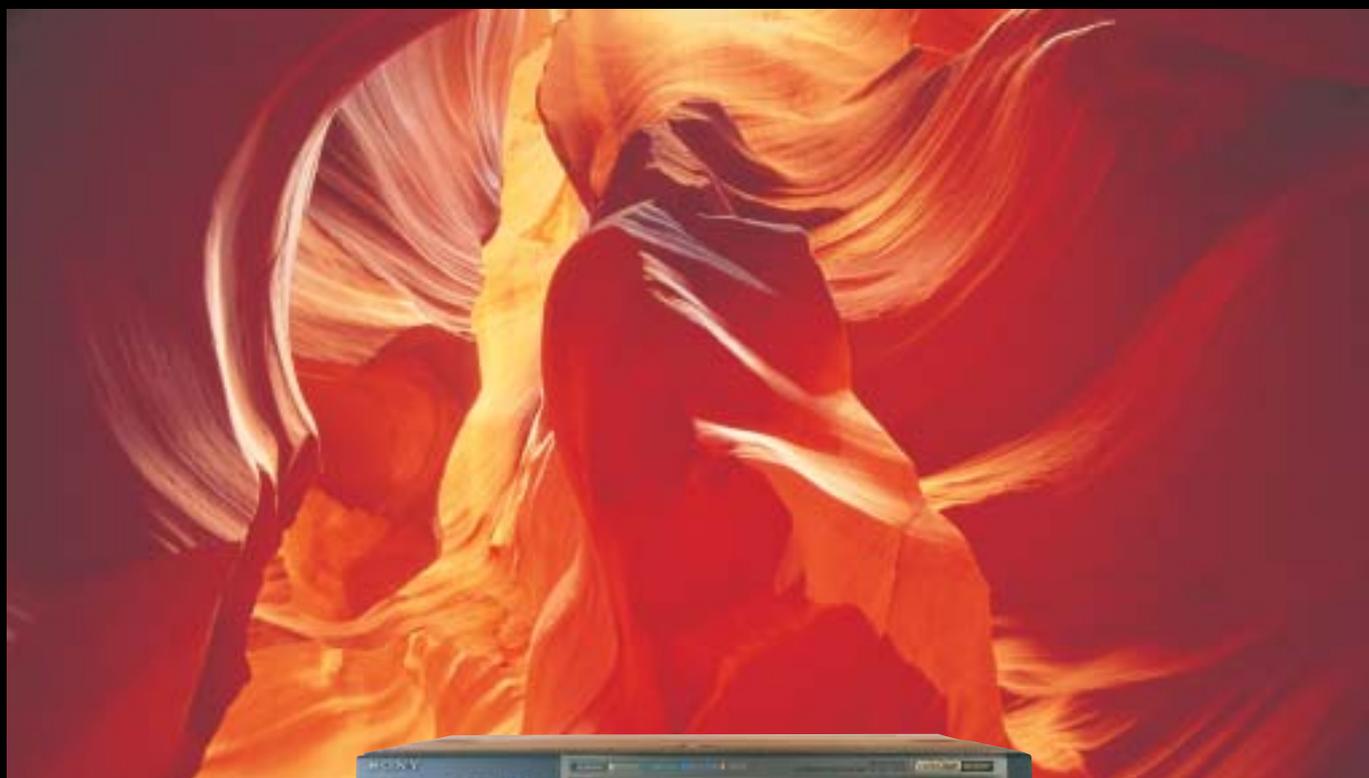


SONY®

High Definition Video System
Digital HDVS®

HDCAM™



Sony Digital Recorder and Player
HDW-2000 Series

1/2-Inch Platform Advances to Greater Heights





Since introducing its first model, Sony has continually enhanced the BETACAM™ Series of products, each offering high performance and preserving a consistent half-inch platform capability. The analog BETACAM and BETACAM SP™ formats introduced an entirely new set of opportunities to ENG and EFP operations, while the use of digital processing in the Digital BETACAM and MPEG IMX™ formats brought standardized 4:2:2 digital recording into both news gathering and field production. Today, each format is in service in a multiplicity of programming applications, offering high reliability and superb performance that only BETACAM technology provides.

In 1997 Sony revolutionized HDTV program origination with the introduction of a 1/2-inch camcorder the HDW-700. This was soon followed by the HDW-700A camcorder, which operates according to the updated 1080/60i production standard. This camcorder, in association with its editing VTR the HDW-500, extended the BETACAM format tradition into the realm of mobile HD program creation. In 1999 the HDCAM™ format was dramatically broadened to include the new multi-frame rate camcorder the HDW-F900 and its companion VTR the HDW-F500 – both responding to the breakthrough new ITU 709 global standard for international HD program origination. The pivotal inclusion of the new 24-frame progressive format in this standard constituted a central design imperative for the HDW-F900/F500 system and introduced to the world the first digital 24-frame motion picture capture system.

With the HDW-F900/F500 Series squarely addressing the needs of movie-making and high-end prime time television program and commercial production, Sony returned to the central agenda of a mainstream HD capture system in support of the emerging broader DTV broadcasting agendas around the world. This is based upon the SMPTE 274M HD production standard.

A second-generation 1080/60i camcorder and VTR system have been developed which is intended as a more cost-effective and feature enhanced system specifically designed to streamline the migration to DTV. This central design strategy was incorporated into this new HDCAM system.

Accordingly, the new HDW-2000 Series VTR offers full HDCAM record and editing facilities, but also includes both the all-important function of legacy playback of all standard definition BETACAM formats and internal up-conversion of that playback to the 1920 x 1080 digital sampling format for playout in the HDTV format. The legacy playback includes analog BETACAM/BETACAM SP, Digital BETACAM, BETACAM SX™, and the MPEG IMX 1/2-inch tape recordings. Thus a crucial bridge between SDTV libraries (and ongoing SDTV digital origination) has been realized.

Recognizing the inevitable two-way flow of program material between SDTV and HDTV, the new HDW-2000 Series VTR also includes digital down-conversion* as a standard feature, thus allowing the creation of “Super-sampled” digital 4:2:2 SDTV program material.

The HDW-2000 Series also provides the same reliability and operability inherited from the long-established BETACAM Series offering a powerful workhorse solution to HDTV environments as well as to current SDTV systems. Its counterpart, HDW-750 camcorder is extremely compact and lightweight and maintains the robust and reliable construction for which BETACAM technology is world-renowned.

With its high quality, superb operability and added reliability, the HDW-2000 Series VTR is an economically well-balanced solution for next generation HDTV programming.

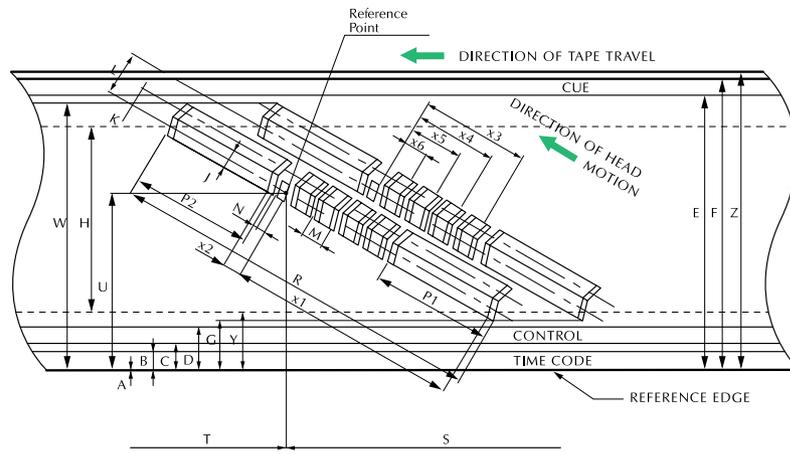
* Down conversion is not available for tapes played back at 23.98 or 24 Hz.

Features

High-Definition Picture Quality with HDCAM Format

The HDW-2000 Series recorders/player adopt the proven HDCAM format, recording high-definition component digital signals using the state-of-the-art HDCAM compression technology. This excellent compression scheme maintains

a high video bit rate of 140 Mbps (data rate on tape of 185 Mbps). The format combines superb picture quality with the high reliability and robustness of 1/2-inch tape integrated into a design approach inherited from the BETACAM series.

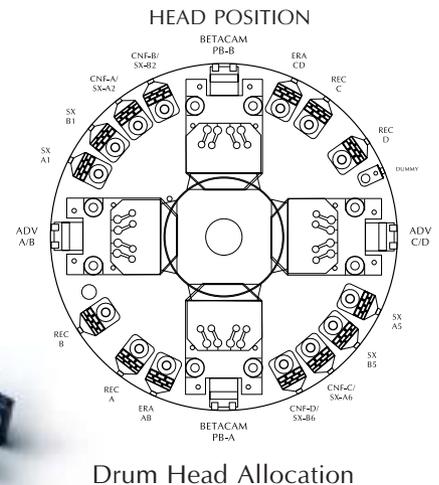


Compact, Affordable High-Definition Video Cassette Recorder/Player with Legacy Playback

The HDW-2000 Series high-definition VTRs are not only affordable, they also provide a smooth migration path into the HDTV world. Three different models are available to suit budgetary and operational needs. In addition to HDCAM recording/playback, the HDW-M2000 and HDW-M2100 are equipped with backward playback capability for current 1/2-inch tape formats; Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP and BETACAM.

However, the HDW-2000 eliminates this capability in order to provide utmost cost efficiency.

With its affordability and different choice of feature sets, the HDW-2000 Series is destined to be a true workhorse in broadcast stations and ENG applications.



HDW-2000 Series Line-up

		Recording Format	Playback Format
HDW-2000	HD Digital Video Cassette Recorder	HDCAM	HDCAM
HDW-M2000 HDW-M2000P	HD Digital Video Cassette Recorder	HDCAM	HDCAM, Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP, BETACAM
HDW-M2100 HDW-M2100P	HD Digital Video Cassette Player	—	HDCAM, Digital BETACAM, MPEG IMX, BETACAM SX, BETACAM SP, BETACAM

Wide Array of Signal Formats

The HDW-M2000/M2100 can playback a wide variety of legacy SDTV VTR formats in addition to the HDCAM format. Since the HDW-M2000/M2100 can output signals in 1080i, 576i and 480i, each format is reproduced in its corresponding vertical resolution.

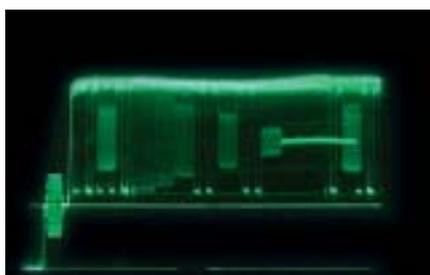
As an even greater advantage, the HDW-2000 Series has up and down converters built-in so a program originated for SDTV can be up converted for HDTV transmission, and materials that were made in the HD format can be down

converted as "Super-sampled" SD images. This is a distinct advantage of the HDW-2000 Series. The "Super-sampled" HD origination produces standard definition 480 and 576-line NTSC/PAL signals which are superior to those originated in standard definition (their horizontal and vertical MTFs are higher and the associated scanning aliasing is less). Furthermore, a 720P progressive output is available for integration into 720P-based systems.

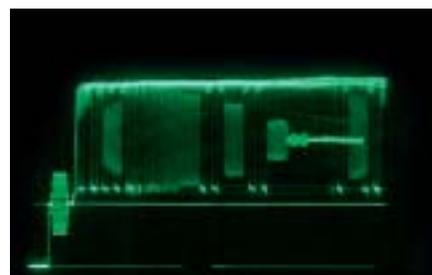
*For output of the 720P signal, an upgrade of software, hardware, or both may be required. Please consult your nearest Sony office.



Multi-burst Chart



Conventional 480/576-line Digital VTR



"Super-sampled" HDCAM Down-Converted signals

1080/59.94i, 1080/50i Switchable Operation

All models of the HDW-2000 Series provide recording and playback capability of the HDCAM format in 1080/59.94i and 1080/50i frame rates. Furthermore, the HDW-M2000/M2100 allow legacy playback of both 480/59.94i and 576/50i on the same deck. This flexibility makes the HDW-2000 Series an extremely effective tool for international programming.

*The frame rate of the source tape cannot be converted at the output between 1080/59.94i and 1080/50i or between 480/59.94i and 576/50i.

*Playback of a 576-line analog Betacam tape on the HDW-M2000/M2100 (NTSC model), and playback of a 480-line analog Betacam tape on the HDW-M2000P/M2100P (PAL model) is for monitor purposes only.

Progressive Operation

To meet the increasing needs of 24P program creation, the HDW-2000 Series VTR provides the capability to playback tapes recorded in 23.98/24/25/29.97 progressive modes. Furthermore, the 23.98P/24P recordings can be converted to a 25P signal with appropriate conversion of time code*.

*Requires audio pitch correction.

*Down conversion and/or "pull-down" of tapes played back at 23.98 or 24 Hz are not provided.

Long Recording Time on a Single Cassette

Utilizing the HDCAM format's new high-density recording capability and compression technology, the HDW-2000 Series provides a long recording time of 124 minutes at 1080/59.94i and 149 minutes at 1080/50i per one L cassette. Small size cassettes can also be used, which provide 40 minutes recording at 1080/59.94i and 48 minutes at 1080/50i. This flexibility allows the HDW-2000 Series to cover a wide range of applications including news, sports and production.

Digital Audio and Dolby® Recording

The HDCAM format records four channels (two AES/EBU stereo pairs) of non-compressed digital audio (20 bit at 48 kHz). The HDW-2000 Series recorders can also record non-audio data streams within the audio recording area by packaging the data within an AES/EBU wrapper.

Furthermore, the HDW-2000 recorders can record Dolby-E and Dolby AC-3 data (non-audio) streams on the audio tracks.



*Dolby and the double-D symbol are trademarks of Dolby Laboratories Inc.

Compact Design and Low Power Consumption

This Series features a compact 4RU-size* design and weighs only 23 kg (50 lb 11 oz) – 12 kg (26 lb 7 oz) lighter than the HDW-500 HD Video Recorder. It also has low power consumption of 220 W. This compactness and low power consumption are suited to not only studio use but also installation into OB-vans.

*4RU size=427 x 174 x 540 mm (16 7/8 x 6 7/8 x 21 1/2 inches)



HDW-M2000

Versatile Interfaces

The HDW-2000 Series features a wide range of interfaces including;

- HD SDI input and output
- SDI output (D1 component)
- SDTI input and output (optional-requires HKDW-102 SDTI Interface Board)
- Analog Composite output (NTSC/PAL)
- Digital Audio I/O(AES/EBU)
- Analog Audio I/O
- Audio Monitor (2-ch analog)
- Analog Component output

User-friendly Control Panel

Control panels are compact, yet comprehensive. There is a minimal learning curve since its design and functionality are inherited from universally used BETACAM SP VTRs. In addition, the control panel has a multi-function display that provides comprehensive information for quick access and easy control of a variety of functions. Dedicated control knobs and meter displays are included for each of the four audio channels.

Using the optional control panel HKDW-101, VTRs can be controlled from the same control panel simultaneously.



HKDW-101 Control Panel with BKMW-102 Case

Easy Maintenance

Most of the circuitry of the HDW-2000 Series is arranged on plug-in boards to allow quick and easy maintenance. The drum assembly has been designed to achieve simple, low-cost maintenance by adopting an upper drum mechanism and an auto adjustment function as used in MPEG IMX VTRs and BETACAM SX recorders. This helps to drastically reduce the time required for periodic drum replacement.





Operational Convenience

Frame Accurate Editing

The HDW-2000 Series recorders enable insert or assemble editing with frame accuracy. Each channel of video and audio signal is independently editable. It is possible to execute precise editing on HDCAM tapes in machine-to-machine or A/B roll configurations.

High Speed Color Picture Search

Recognizable color pictures are provided in shuttle mode at speeds up to ± 50 times normal playback.

Dynamic Tracking™ Playback

A Dynamic Tracking playback capability provides high quality pictures over the range of -1 to +2 times normal playback speed during playback of HDCAM tapes, -1 to +3 times for BETACAM/BETACAM SP/MPEG IMX/Digital BETACAM tapes, -1 to +2 for BETACAM SX tapes.

Digital Jog Sound

Reproduction of four (eight for MPEG IMX) channels of digital audio is achieved, in the Jog mode. With a responsiveness and sound quality reminiscent of BETACAM SP machines, this feature is helpful in quickly and precisely establishing an editing point while monitoring the digital audio signals which remain in absolute sync with the pictures.

Audio Crossfade Function

As with all Sony half-inch professional formats, the HDW-2000 Series recorders feature Digital Audio Crossfade to achieve 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 audio signal. The crossfade duration can be selected from a range of values.

Dynamic Motion Control (DMC) Playback

The HDW-2000 Series also provides a DMC playback capability, memorizing the tape speed trajectory over the DT speed range (-1 to +2 times normal speed).

Pre-read Editing

The HDW-2000 and HDW-M2000 recorders are equipped with advanced playback heads to enable pre-read editing. This function allows application including titling with a single VTR, A/B-roll with two VTRs, as well as audio mix and channel swap.

1080/1035 Line Conversion

The HDW-2000 Series provides bi-directional vertical filtering between the two active line standards of 1080 and 1035 and enhanced quality of variable speed Dynamic Tracking playback as standard.

Shot Marks

The HDW-2000 Series recorders can scan tapes with Shot Marks and automatically detect their positions. After scanning, a list of all the marks is displayed on the video monitor, allowing easy cueing to any mark.



HDW-750 Menu



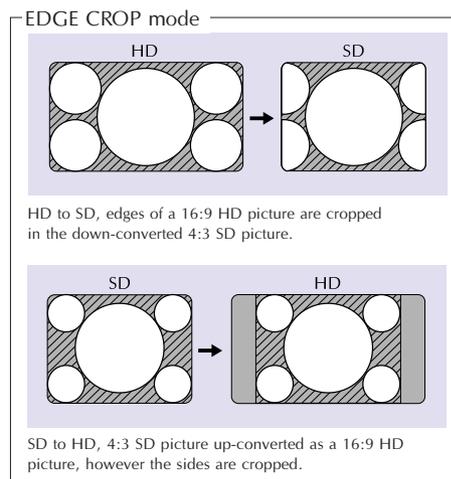
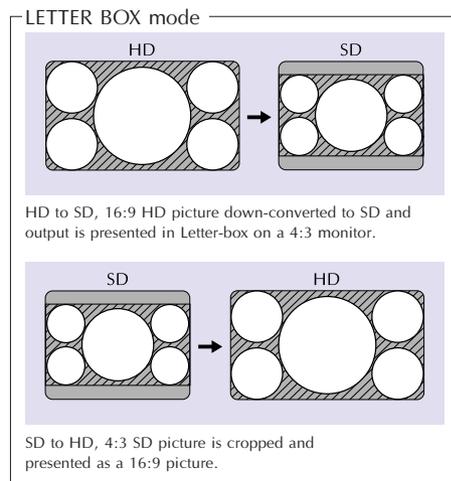
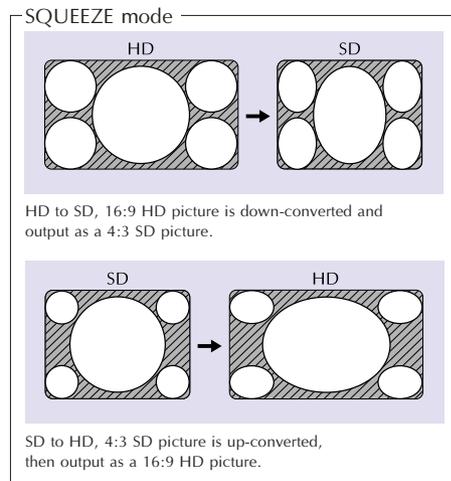
HDW-2000 Series Time Code List



HDW-750

Selectable Picture Mode

Three modes of operation enable correct presentation, depending on the application required.



Metadata Handling

In the HDW-2000 Series, special care has been given to metadata handling in order to increase production efficiency, and to provide the utmost convenience in media asset management systems and material distribution systems. In general, metadata consists of user-defined data indicating when, where, or by whom the material was created, Closed Caption data, and a variety of other data describing the material content.

Among such metadata, UMID, as standardized in SMPTE 330M, is a globally unique identifier used for the identification of picture/audio material and data. UMID is automatically generated within compatible equipment such as VTRs and camcorders during each recording.

The HDW-2000 Series VTR provides the facility to record UMID on tape when the VTR performs dubbing, editing, and copying through up-/down-conversion. This recorded UMID is used in subsequent processes from editing, archiving and on to distribution, bringing efficiency throughout the entire program production chain.

The HDW-2000 Series VTRs enables up to 255 bytes x 3 packets of metadata per field to be recorded, which can be transferred to other devices via HD-SDI, or SDTI.

Content Information Management (Tele-File™ system and JZ-1 Videocassette Logging Software)

The Tele-File system is a non-contact read/write system for storing production-related data on an IC memory embedded in a 1/2-inch cassette label. This system allows operators to efficiently manage cassette content information such as Shot Marks, scene numbers, and cassette numbers. The HDW-2000 Series VTRs come equipped with a built-in reader/writer module, enabling data to be written to and read from a Tele-File label (option: MLB-1M-100) within the VTR. This system is especially useful for managing cue-up points, which increases the efficiency of locating editing points in subsequent operations. For further enhanced Tele-File system operations, the JZ-1 Videocassette Logging Software provides an easy-to-use GUI environment for creating edit logs as well as facilitating the creation of content-related Tele-File data. This is available by connecting a PC running the JZ-1 software to the HDW-2000 Series VTR.



HDW-2000 Series Specifications

		HDW-2000	HDW-M2000/M2000P	HDW-M2100/M2100P	
General	Power requirements	100 to 240 V, 50/60 Hz			
	Power consumption	220 W			
	Operating temperature	+5 to +40 °C (41°F to 104°F)			
	Storage temperature	-20 to +60 °C (-4 to 140°F)			
	Humidity	25 to 90%			
	Mass	23 kg (50 lb 11 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	HDCAM	96.7 mm/scc, 80.6 mm/s (50 Hz), 77.4 mm/s (48 Hz)		
		Digital BETACAM	---	96.7 mm/s	
		MPEG IMX	---	64.5 mm/s (59.94 Hz), 53.8 mm/s (50 Hz)	
		BETACAM SX	---	59.6 mm/s	
		BETACAM/BETACAM SP	---	118.6 mm/s (59.94 Hz), 101.5 mm (50 Hz)	
	HDCAM Record/playback time (59.94 Hz/50 Hz)		124 minutes (59.94 Hz, with BCT-124HDLC)		
			149 minutes (50 Hz, with BCT-124HDLC)		
			40 minutes (59.94 Hz, with BCT-40HDC)		
			48 minutes (50 Hz, with BCT-40HDC)		
	HDCAM playback time (48 Hz)		155 minutes (48 Hz, with BCT-124HDLC)		
			50 minutes (48 Hz, with BCT-40HDC)		
	Fast forward/rewind time	Approx. 3 minutes (with BCT-124HDLC)			
	Search speed range	Shuttle mode			
HDCAM		Still to ±50 times normal speed playback (59.94 Hz), Still to ±58 times normal speed playback (60 Hz), Still to ±60 times normal speed playback (48 Hz)			
Digital BETACAM		Still to ±50 times normal speed playback			
MPEG IMX		Still to ±78 times normal speed playback			
BETACAM SX		Still to ±78 times normal speed playback			
BETACAM/BETACAM SP		Still to ±35 times normal speed playback (59.94 Hz) Still to ±42 times normal speed playback (50 Hz)			
Variable mode					
HDCAM		-1 to +2 times normal speed playback			
Digital BETACAM		-1 to +3 times normal speed playback			
MPEG IMX		-1 to +3 times normal speed playback			
BETACAM SX		-1 to +2 times normal speed playback			
BETACAM/BETACAM SP		-1 to +3 times normal speed playback			
Log mode		Still to ±1 times normal speed playback			
Servo lock time	0.6 s or less (59.94 Hz, from standby on), 0.7 s or less (50 Hz, 48 Hz, from standby on)				
Load/unload time	6 s or less (both L and S cassettes)				
Input/output	HD-SDI input	BNC x 1 (SMPTE 292M), Serial Digital (1.485 Gbps)			
	SDTI input (with optional HKDW-102 installed)	BNC x 1 (SMPTE305M), 270 Mbps			
	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			
	Analog 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		
	Time code input	XLR-3-pin type, female, x 1 (0.5 to 18 Vp-p, 10 kΩ, balanced)			
	HD-SDI output	BNC x 3 (SMPTE 292M including one character out), Serial Digital (1.485 Gbps)			
	SDTI output (with optional HKDW-102 installed)	BNC x 2 (SMPTE 305M), 270 Mbps			
	SDI output	BNC x 3 (SMPTE 259M including one character out), Serial Digital (270 Mbps)			
	Analog 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			
	Analog component output	BNC x 3, for 1 set, 1.0 Vp-p, 75 Ω, sync negative			
	Digital audio output (CH 1/2, CH 3/4)	BNC x 2, AES/EBU			
	Analog audio output (CH 1/2/3/4)	XLR-3-pin type, x 5, male, +4 dBm (600 Ω load), low impedance, balanced			
	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)			
	Remote 1 In	D-sub 9-pin, Sony 9-pin remote interface			
	Remote 1 Out	D-sub 9-pin, Sony 9-pin remote interface			
	RS-232C	D-sub 9-pin			
	Remote 2 Parallel I/O	D-sub 50-pin			
	Video control	D-sub 9-pin, D-sub 15-pin			
	Control panel	D-sub 15-pin			
	Others	"Memory Stick"™ slot, PCMCIA slot			
	Processor adjustment range	Video level	±3 dB [∞] to +3 dB, selectable		
Chroma level		±3 dB [∞] to +3 dB, selectable			
Set up/black level		±3 IRE			
Chroma phase/hue		±30°			
System sync phase		±15 μs			
System SC phase		±200 ns			
Digital video performance	Y/C delay	---	±100 ns		
	Sampling frequency	Y: 74.25 MHz, R-Y/B-Y: 37.125 MHz			
	Quantization	10 bit/sample (compression: 8 bit/sample)			
	Compression	Coefficient recording system			
	Channel coding	S-I-NRZI PR-IV			
Analog component output performance	Error correction	Reed-Solomon code			
	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			
Analog composite output performance	K Factor (2T Pulse)	1% or less			
	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	53 dB or more			
	Differential gain	2% or less			
	Differential phase	2% or less			
	Y/C delay	20 ns or less			
Digital audio performance	K Factor (2T Pulse)	1% or less			
	Output SCH phase	Based upon RS-170A/CCIR R.624-3			
	Sampling frequency	48 kHz (Synchronized with video)			
	Quantization	20 bit/sample			
	Wow & flutter	Below measurable level			
	Headrooms	20 dB (or 18 dB selectable)			
	Emphasis (ON/OFF selectable in REC mode)	T1=50 μs, T2=15 μs (on/off selectable in recording mode)			
	Analog audio output performance	A/D quantization	20 bit/sample		
D/A quantization		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)			

Digital BETACAM playback (HDW-M2000/M2000P, HDW-M2100/M2100P)			
Video performance	Bandwidth	Y	0 to 5.75 MHz +0.5 dB/-0.5 dB
		R-Y/B-Y	0 to 2.75 MHz +0.5 dB/-0.5 dB
			62 dB or more
	S/N ratio		1% or more
Digital audio (CH 1 to CH 4)	K factor		20 Hz to 20 kHz +0.5 dB/-1.0 dB
	Frequency response (0 dB at 1 kHz)		95 dB (at 1 kHz, emphasis ON)
	Dynamic range		0.05% rms (emphasis ON)
	Distortion (T.H.D. at 1 kHz, reference level)		Below measurable level
Analog audio (cue track)	Wow & flutter		100 Hz to 12 kHz +3 dB/-3 dB
	Frequency response (0 dB at 1 kHz)		45 dB (at 1 kHz)
	S/N ratio (at 3% distortion level)		2% or less
	Distortion (T.H.D. at 1 kHz, reference level)		HDW-M2000/M2100: Less than 0.5% rms HDW-M2000P/M2100P: Less than 0.2% (DIN 45508 weighted)

MPEG IMX playback(HDW-M2000/M2000P, HDW-M2100/M2100P)			
Video 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
Audio performance	Frequency response		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, 16 bits/48 kHz)
	Distortion		0.05% or less (at 1 kHz, emphasis ON, reference level (+4 dBm))

BETACAM SX playback (HDW-M2000/M2000P, HDW-M2100/M2100P)			
Video performance	Bandwidth	Y	HDW-M2000/M2100: 0 to 4.5 MHz +0.5 dB/-3.0 dB HDW-M2000P/M2100P: 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 (2T pulse)		1% or less
Audio performance	Frequency response		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))

Analog BETACAM playback (HDW-M2000, HDW-M2100)			
Video performance	Bandwidth	Y	Metal tape: 30 Hz to 4.5 MHz +0.5 dB/-4.0 dB Oxide tape: 30 Hz to 4.1 MHz +0.5 dB/-4.0 dB
		R-Y/B-Y	30 Hz to 1.5 MHz +0.5 dB/-3.0 dB 30 Hz to 1.5 MHz +0.5 dB/-3.0 dB
	S/N ratio	Y	51 dB or more 48 dB or more
		R-Y/B-Y	48 dB or more 45 dB or more
	K-Factor (2T Pulse)		2% or less 3% or less
	LF non-linearity	Y	
Audio performance	LNG	Frequency response	50 Hz to 15 kHz +1.5 dB/-3.0 dB 50 Hz to 15 kHz +1.5 dB/-3.0 dB
		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		1.0% 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

Analog BETACAM playback (HDW-M2000P, HDW-M2100P)			
Video performance	Bandwidth	Y	Metal tape: 25 Hz to 5.5 MHz +0.5 dB/-4.0 dB Oxide tape: 25 Hz to 4.0 MHz +0.5 dB/-4.0 dB
		R-Y/B-Y	25 Hz to 2.0 MHz +0.5 dB/-3.0 dB 25 Hz to 1.5 MHz +0.5 dB/-3.0 dB
	S/N ratio	Y	48 dB or more 46 dB or more
		R-Y/B-Y	48 dB or more 45 dB or more
	K-Factor (2T Pulse)		2% or less 3% or less
	LF non-linearity	Y	
Audio performance	LNG	Frequency response	50 Hz to 15 kHz +1.5 dB/-3.0 dB 50 Hz to 15 kHz ±3.0 dB
		S/N ratio	68 dB or more 62 dB or more (Dolby NR off)
	T.H.D.		1% or less 2% or less
	Wow & Flutter		1.0% rms or less
	AFM	Frequency response	20 Hz to 20 kHz +0.5 dB/-2.0 dB
		S/N ratio	More than 72 dB (CCIR 468-3 weighted) Less than 0.5%

Optional Accessories



HKDW-101,
Control Panel



HKDW-102,
SDTI Interface Board



BKMW-102,
Remote Control Unit



BKMW-103,
Control Panel Extension Kit



RMM-131,
Rack Mount Kit



RCC-5G,
9-pin Remote Cable



HKDV-900,
HD Digital Video Controller*



BVR-50,
Video Controller



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



BCT-HD12CL,
Cleaning Cassette



BKNW-1000 Series, ISR Proxy™
Remote Monitoring and Maintenance
Software

MLB-1M-100 Memory Label
(for Tele-File system)
JZ-1 Videocassette Logging software
(for Tele-File system)

*To connect the HKDV-900 with the HDW-2000 Series VTRs, the optional video controller cable, RCC-1505H/1510H/1530H is required.

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