HDVS

High Definition Video System

General Catalogue 1991

SONY®

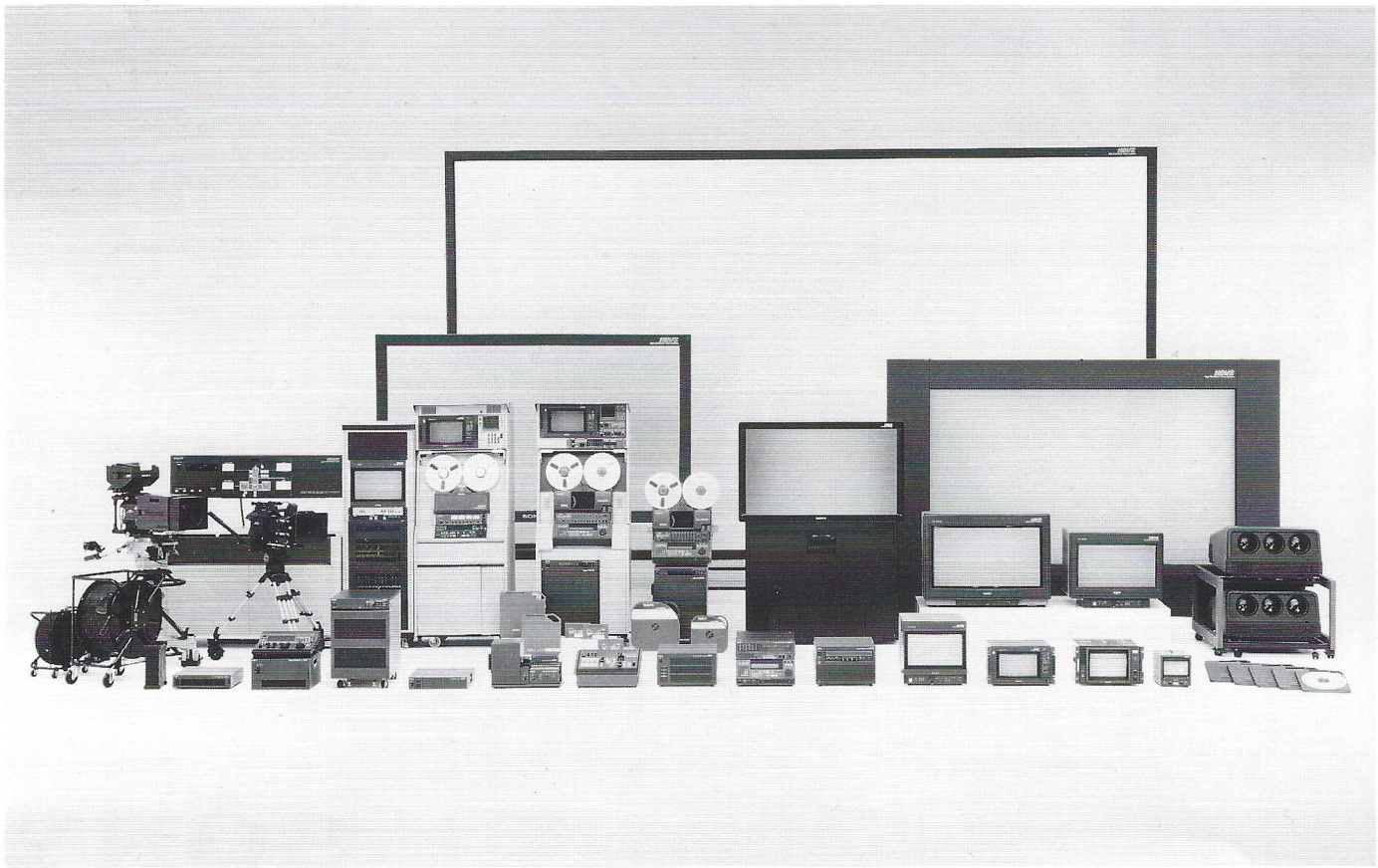
Sony's HDVS—Provides Stunning Picture Quality for a wide variety of applications

Sony has been providing the complete production and post production systems in high definition arena, which has already received worldwide acclamation. Despite being the acknowledged leader in high definition video, Sony has made a continuous effort to develop the finest technology necessary for making the system more complete.

Sony developed a second generation camera, the HDC-300 and a high performance digital VTR, the HDD-1000 and VTR Signal Processor, the HDDP-1000, as well as other products, such as the HDL-2000 Videodisc Player and the HDN-2000 NTSC Down-Converter, to the already impressive line-up. In addition, Sony added a latest concept in high definition technology—the HDDF-500 Digital Frame Recorder. The HDDF-500, which incorporates D-RAM memory as a recorded medium, brings HDVS into the digital world more and more.

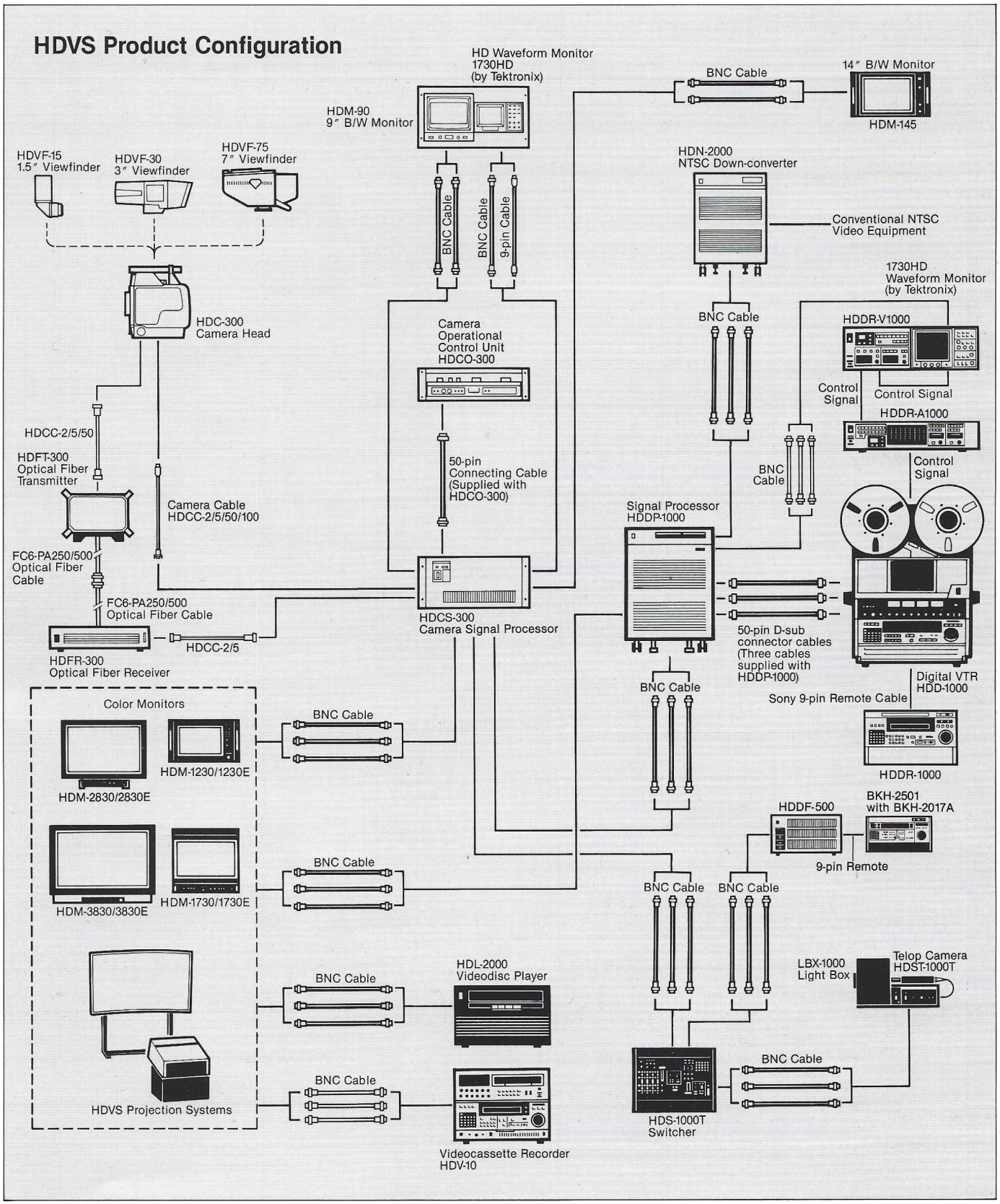
Sony now announces the HDV-10 1/2" Videocassette Recorder, developed with its wide experience of HDVS to extend the application of HD to meet new challenges. Moreover, for a long distance transmission application, Sony introduces the Optical Fiber Transmission System. Its system consists of three main component; the HDFR-300 Optical Fiber Receiver, the HDFT-300 Optical Fiber Transmitter and Fiber cables.

A complete HDVS line-up, from acquisition to display, can be offered from Sony. Sony's HDVS extends the possibility of video application, much more with stunning picture quality.



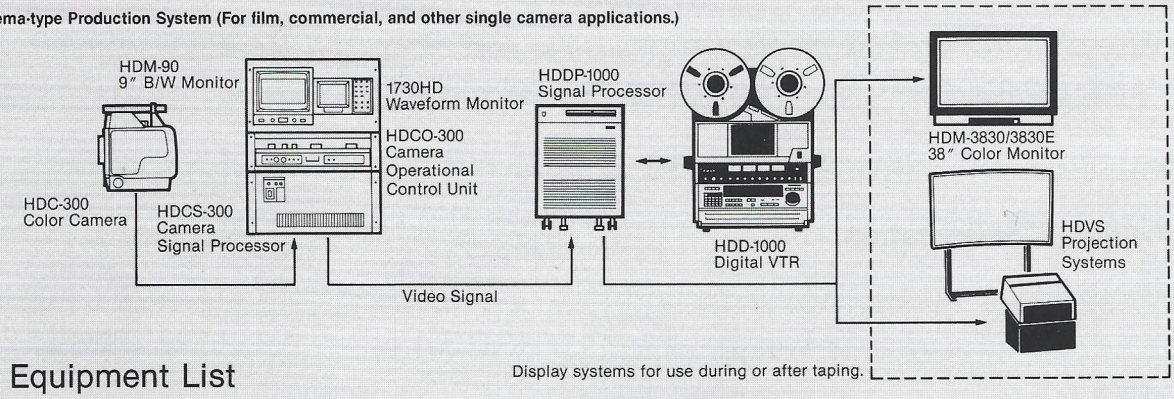
System Configurations

Sony produces the most extensive line of high definition video products in the world, and while many manufacturers are producing various kinds of high definition equipment, only Sony has a complete system capable of everything from program origination to post production and from program transfer to image display. The following diagrams provide a comprehensive look at HDVS connections as well as production and post production systems.



Production System Configurations

Cinema-type Production System (For film, commercial, and other single camera applications.)



Equipment List

CAMERA SYSTEM

HDC-300	Color Camera	1
HDCS-300	Camera Signal Processor	1
HDCO-300	Camera Operational Control Unit	1
HDVF-75	7″ Viewfinder	1
HDM-90	9″ B/W Monitor	1
1730 HD Waveform Monitor		1

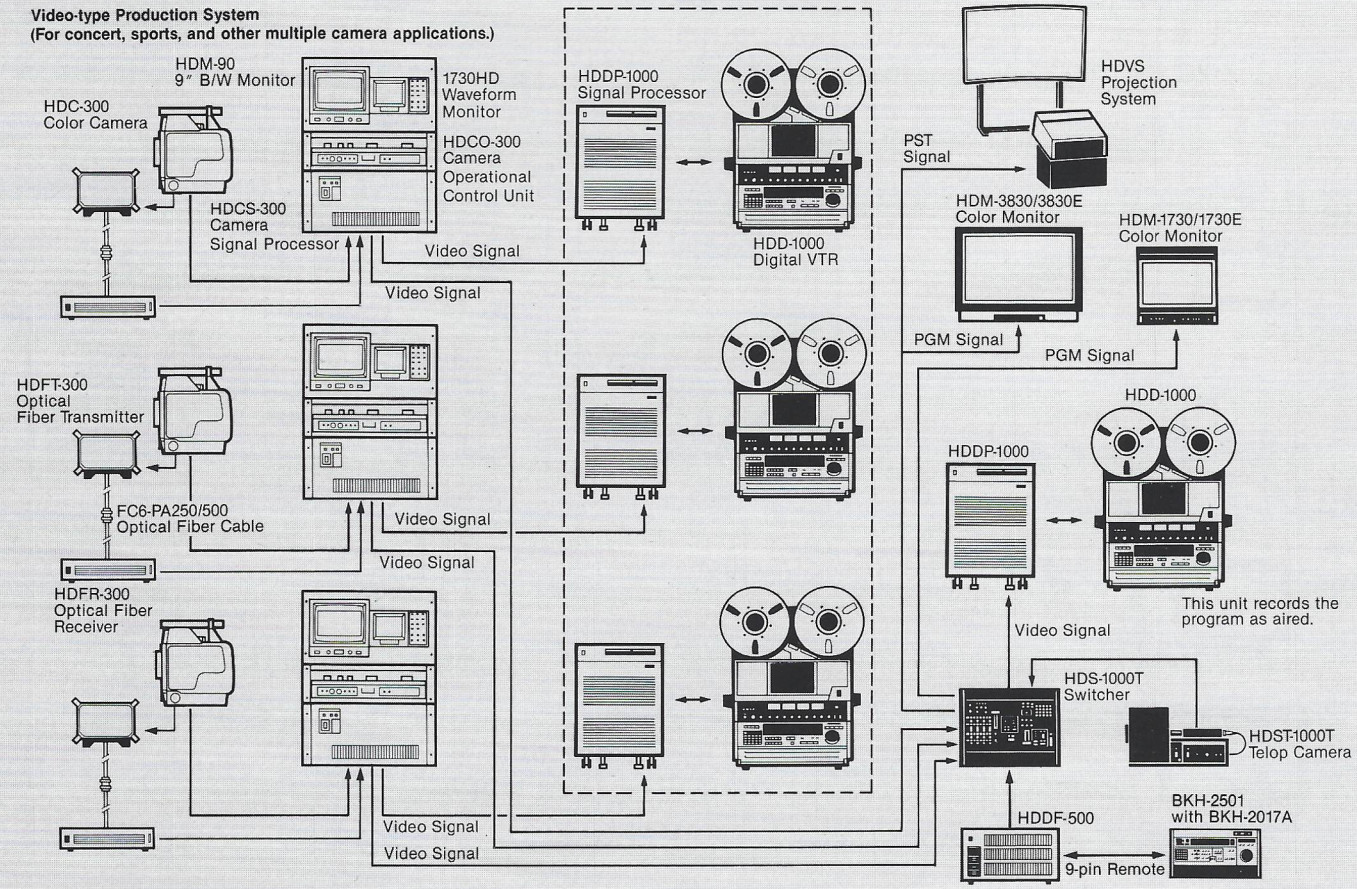
VTR SYSTEM

HDD-1000	Digital VTR	1
HDDP-1000	VTR Signal Processor	1

IMAGE DISPLAY SYSTEM

HDM-3830/3830E	38″ Color Monitor	1
HDVS Projection System		1

Video-type Production System
(For concert, sports, and other multiple camera applications.)



Equipment List

CAMERA SYSTEM

HDC-300	Color Camera	3
HDCS-300	Camera Signal Processor	3
HDCO-300	Camera Operation Control Unit	3
HDVF-75	7″ Viewfinder	3
HDM-90	9″ B/W Monitor	3
1730HD Waveform Monitor		3
HDS-1000T	Switcher	1
HDST-1000T	Telop Camera	1
HDFT-300	Optical Fiber Transmitter	3
HDFR-300	Optical Fiber Receiver	3
FC6-PA250/500	Optical Fiber Cable	6

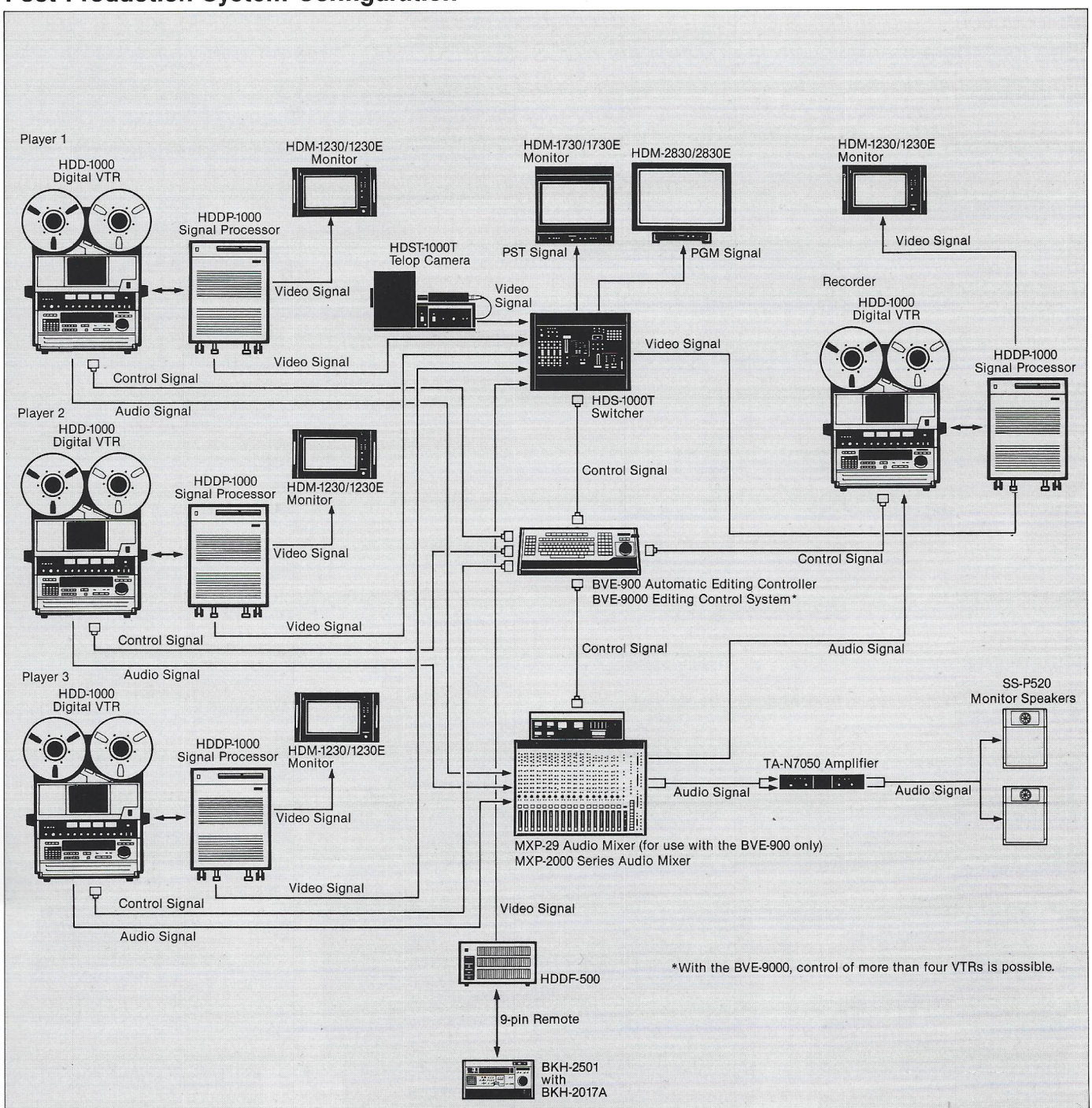
VTR SYSTEM

HDD-1000	Digital VTR	4
HDDP-1000	VTR Signal Processor	4
HDDF-500	Digital Frane Recorder	1
BKH-2501 with BKH-2017A	Remote Controller	1

IMAGE DISPLAY SYSTEM

HDM-1730/1730E	Color Monitor	1
HDM-3830/3830E	Color Monitor	1
HDVS Projection System		1

Post Production System Configuration



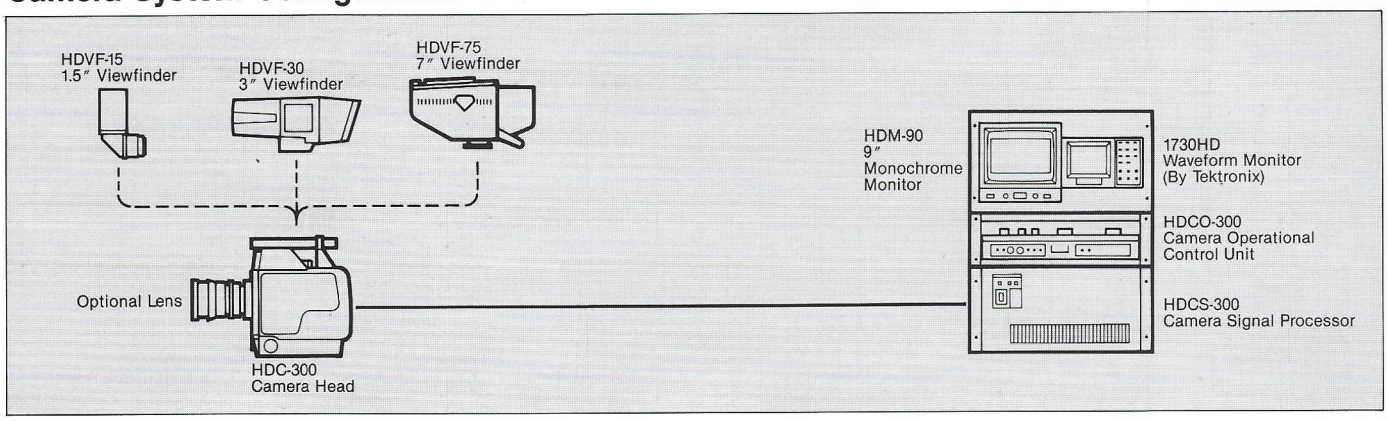
Equipment List

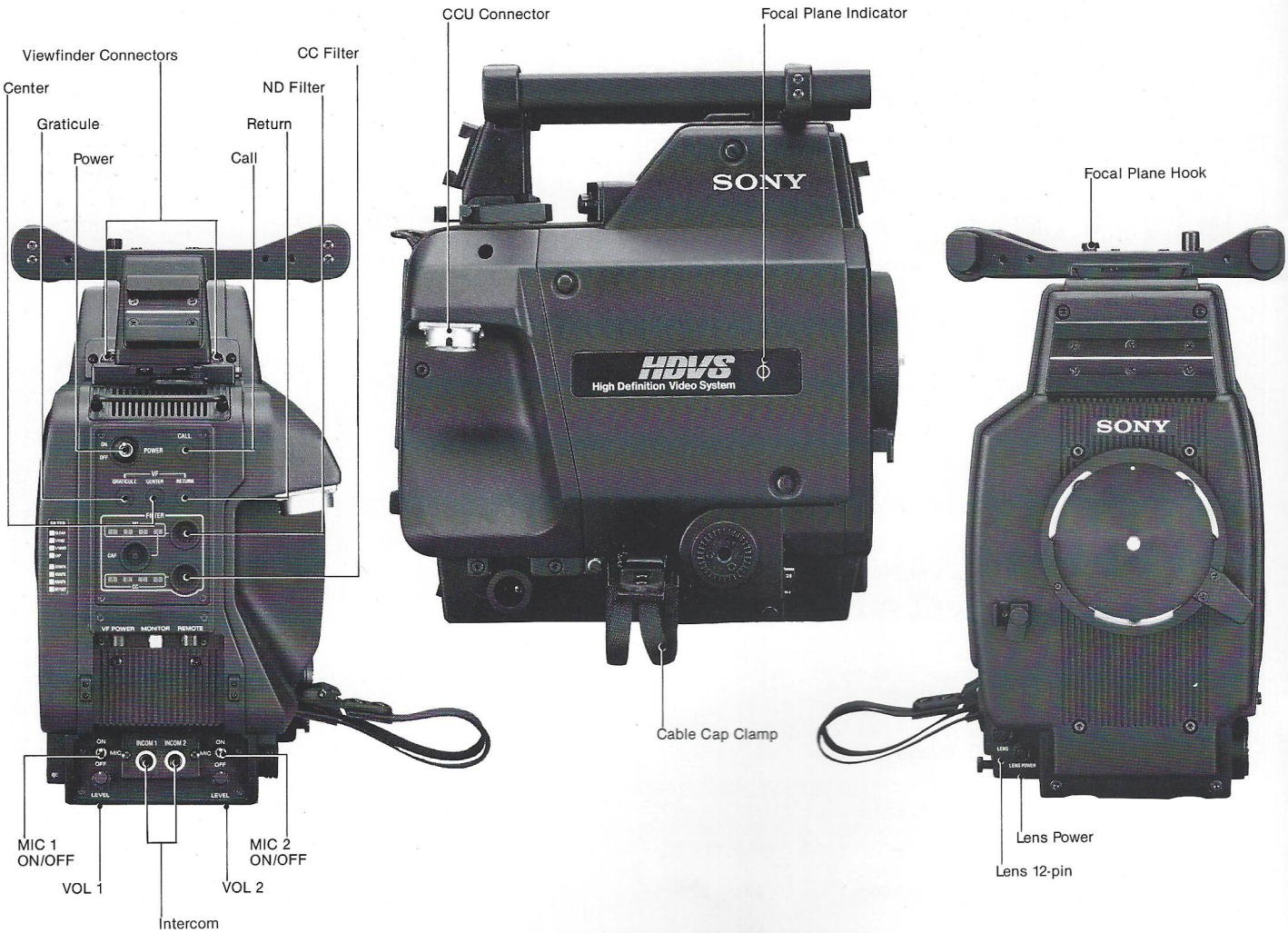
HDD-1000	Digital VTR	4
HDDP-1000	VTR Signal Processor	4
HDDF-500	Digital Frame Recorder	1
BVE-900/9000	Editor	1
HDS-1000T	Switcher	1
HDST-1000T	Telop Camera	1
MXP-29/2000	Audio Mixer	1
BKH-2501 with BKH-2017A	VTR Remote Controller	1
HDM-1230/1230E	Monitor	4
HDM-1730/1730E	Monitor	1
HDM-2830/2830E	Monitor	1
TA-N7050	Amplifier	1
SS-P520	Monitor Speakers	1 pair

Camera System—HDC-300 Color Camera

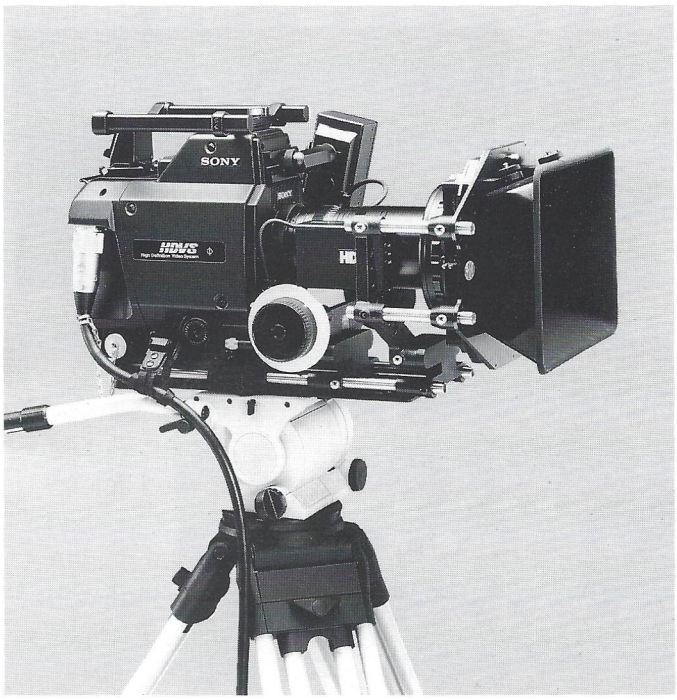
Based on user demands and improved technology, the HDC-300 offers high quality picture reproduction in a unit that is easy-to-use and incredibly mobile—features essential to any camera used for program production. In addition, the HDCS-300/HDCO-300 Camera Control Unit, which provides complete automatic setup or manual control of the setup parameters and permits the fine adjustments necessary for excellent colorimetry and minimized registration errors, houses a digital image enhancer for increased space-savings and reduced power consumption compared with previous models. Furthermore, a wide variety of viewfinders and lenses is available to allow the most suitable combination for any application to be chosen.

Camera System Configuration





(The lenses and the viewfinders are optional)



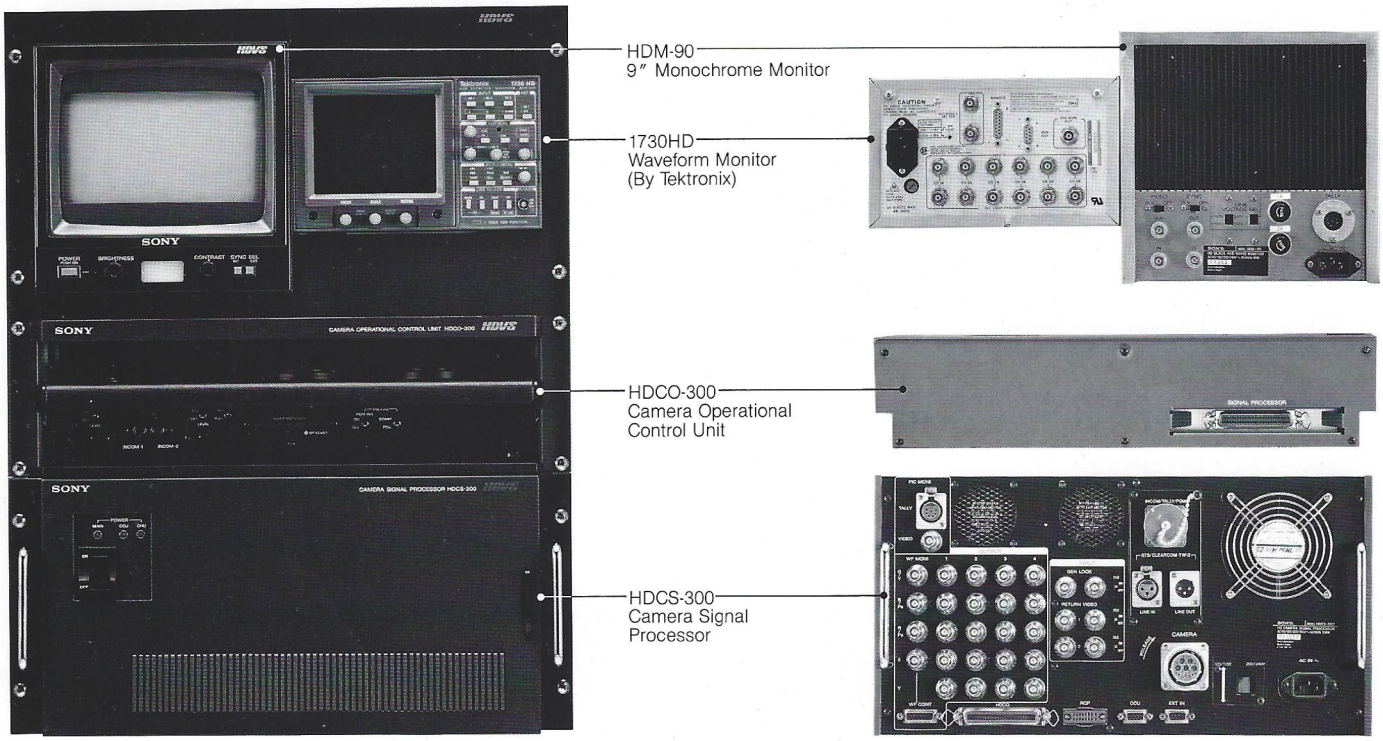
Features

- High sensitivity (F4.7 at 2000 lux).
- 1″ Saticon™ static focus/static deflection tubes provide high modulation depth. (30%, 800TV lines on AR chart at center)
- Compact and lightweight. (8.9 kg, 19 lb 10 oz)
- Low power consumption. (40W)
- Multiple camera systems are possible.
- Increased tube life.
- Three optional viewfinders (1.5″, 3″, 7″) are available to meet a wide variety of uses.
- Ergonomic design for improved utility.
- Special features.
  —Graticule—This function provides a 4:3 aspect ratio outline on the viewfinder display to facilitate productions intended for conventional television broadcast.
  —Focal Plane Indicator—This marker on the camera head body allows the fast and foolproof setting of the focal plane.

HDCS-300/HDCO-300 Camera Control System

Features

- Full automatic setup functions for comprehensive fine adjustments.
- Built-in digital image enhancer for clear and natural pictures.
  —Detail detection from separate R, G, and B, as well as mixed signals.
  —Black gamma correction.
- Compact and lightweight.
- Rack mountable.
- Low power consumption. (400VA)

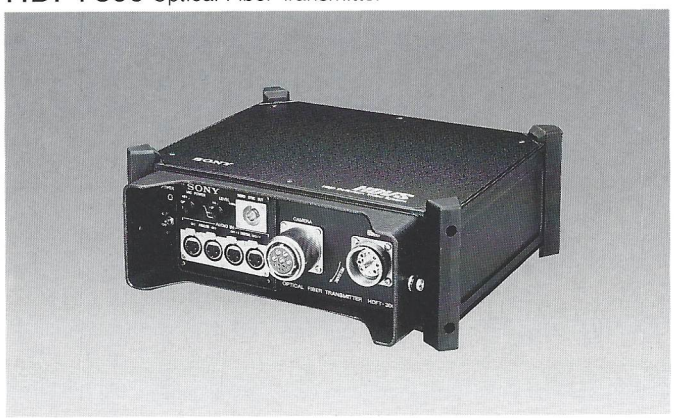


HDCO-300 Control Panel

Optical Fiber Transmission System
HDFT-300, HDFR-300, FC6-PA250/500, FC6E-PA10

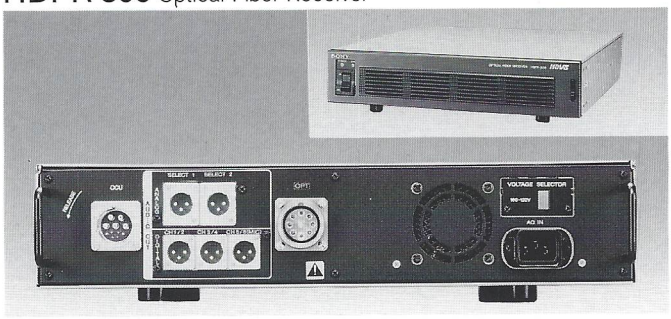
To meet the needs of long distance transmission applications such as the relay of various sports and event hall programs, Sony offers the optical fiber transmission system. In this system, full bandwidth of analog video and digital audio transmission are possible. By use of this system, transmission distance can be extended up to 1Km using with the cable extension connectors.
The optical fiber transmission system will expand the possibility of high definition video applications, much more.

HDFT-300 Optical Fiber Transmitter



FC6-PA250/500 Optical Fiber Cable

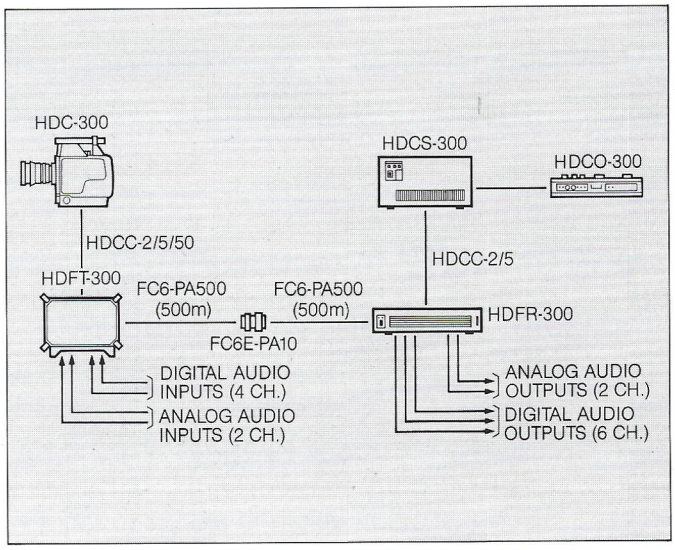
HDFR-300 Optical Fiber Receiver



FC6E-PA10 Cable Extension Connector

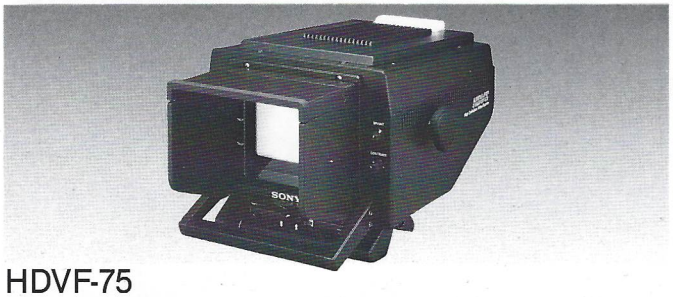
Features

- Mutual transmission system via optical fiber cables between the HDC-300 and the HDCS-300. (video × 1, return video × 1, talk back × 2, data × 1).
- Analog transmission of full bandwidth (G, B, R) component video.
- Digital Transmission of total six channels of audio.
  HDFT-300 (Transmitter)
  —Four channels of digital audio inputs conforming to the AES/EBU format.
  —Two channels of analog audio inputs
  HDFR-300 (Receiver)
  —Six channels of digital audio outputs in which two channels can be selected for output of analog audio parallel to digital outputs.
- Transmission distance can be extended up to 1Km using with cable extension connectors.
- Power supply for the HDC-300 and the HDFT-300 is provided by the HDFR-300.
- The HDFT-300 provides audio synchronization to video capability.
- Reel with casters is supplied for easy wiring operation.

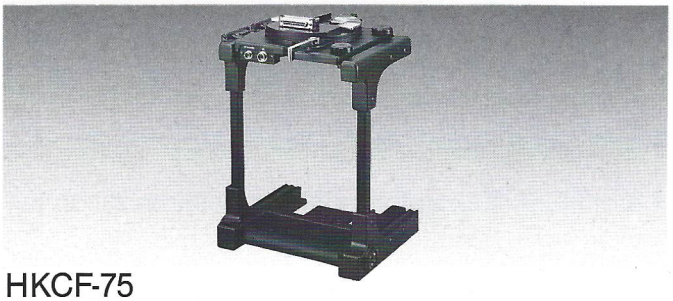


HDVF-15
1.5″ Viewfinder

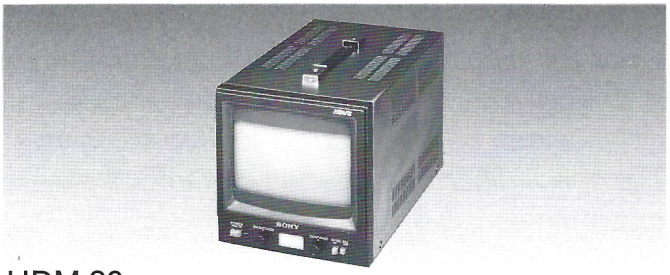
HDVF-30
3″ Viewfinder



HDVF-75
7″ Viewfinder

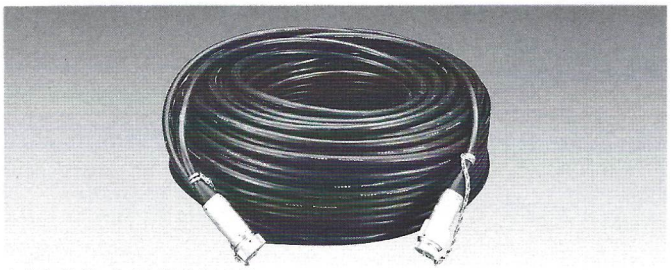


HKCF-75
Pan Tilt Table

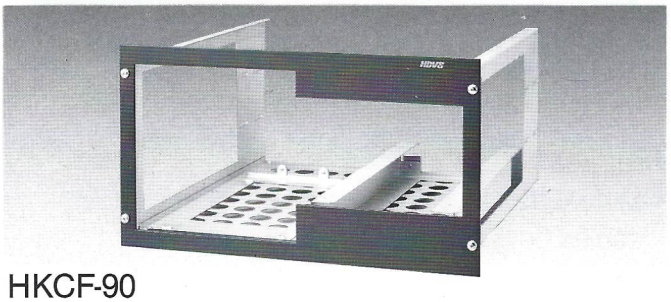


HDM-90
9″ Monochrome Monitor

HDM-145
14″ Monochrome Monitor



HDCC-2/5/50/100 (2m/5m/50m/100m)
Multicore Cable



HKCF-90
Rack Mount Plate Kit

ZOOM LENSES

Focal length (mm)	Zoom ratio	F. NO.	M.O.D. (m)	Weight (kg)	Manufacturer
8 - 48	6X	F1.7	0.8	8	NIKON
12.5 - 70	5.5X	F1.5	1.2	9	NIKON
12 - 120	10X	F1.8	1.3	6	NIKON
12.5 - 75	6X	F1.5	1.2	6.3	FUJINON
11 - 121	11X	F1.8	1.2	7.5	FUJINON
15 - 180	12X	F1.8	1.6	6.1	FUJINON
12.5 - 175*	14X	F1.6	1.4	20.5	FUJINON
18 - 400*	22X	F1.8	5.5	26	FUJINON
8.5 - 175	5X	F2.2	1.2	9	CANON
12.5 - 175*	14X	F1.6	1.3	26	CANON

*With a 2X extender.

FIXED FOCAL LENSES

Focal length (mm)	F. NO.	M.O.D. (m)	Weight (kg)	Manufacturer
9	F1.2	0.45	5.1	NIKON
15	F1.2	0.4	4.3	NIKON
21	F1.2	0.4	3.9	NIKON
30	F1.2	0.45	3.9	NIKON
50	F1.2	0.55	3.9	NIKON
9.5	F1.2	0.75	3.6	FUJINON
13	F1.2	0.75	3.1	FUJINON
18	F1.2	0.65	2.7	FUJINON
30	F1.2	0.7	2.7	FUJINON
50	F1.2	0.9	2.8	FUJINON
17	F1.2	0.5	3	CANON
38	F1.2	0.5	3	CANON

Digital VTR System

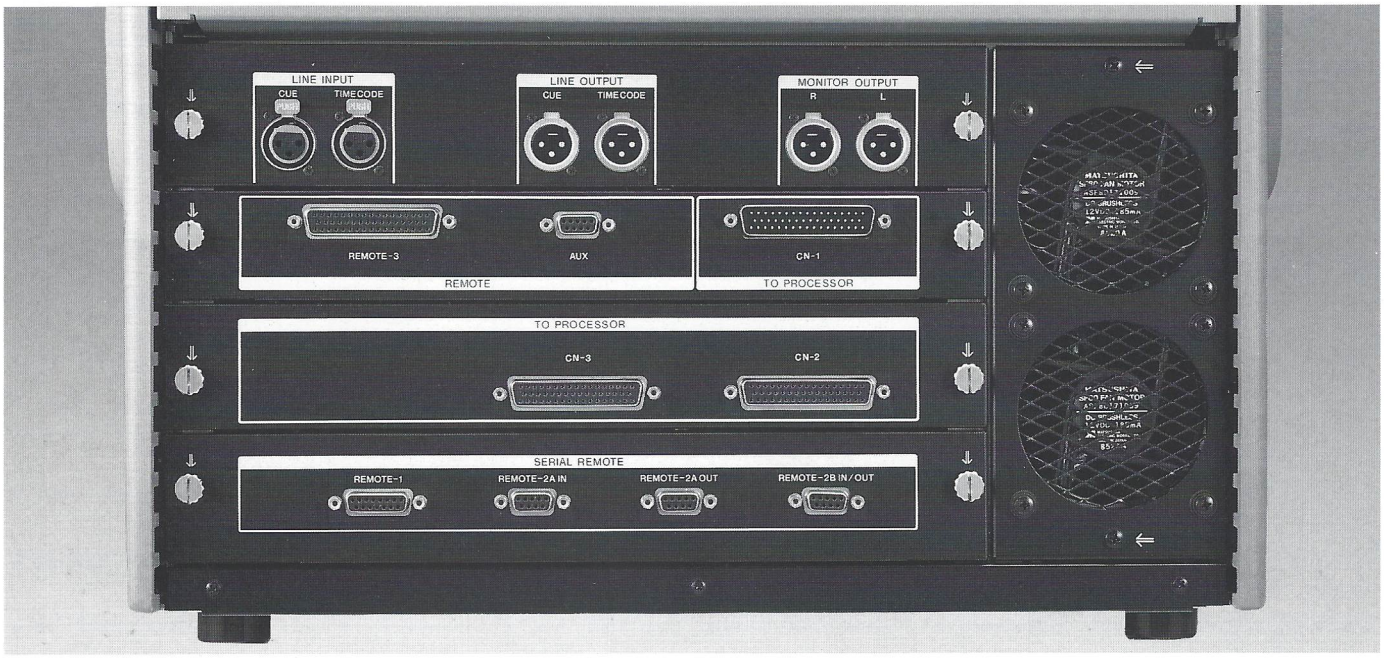
HDD-1000 Digital VTR

The transport, control panel, system control and servos of the HDD-1000 Digital VTR are based on Sony's well-accepted and user-friendly BVH-3000. Incorporating the latest technology, including eight channels of digital audio, the HDD-1000 offers the multi-generation capability and transparent recording expected from digital equipment with the reliability and durability expected from Sony.

Features

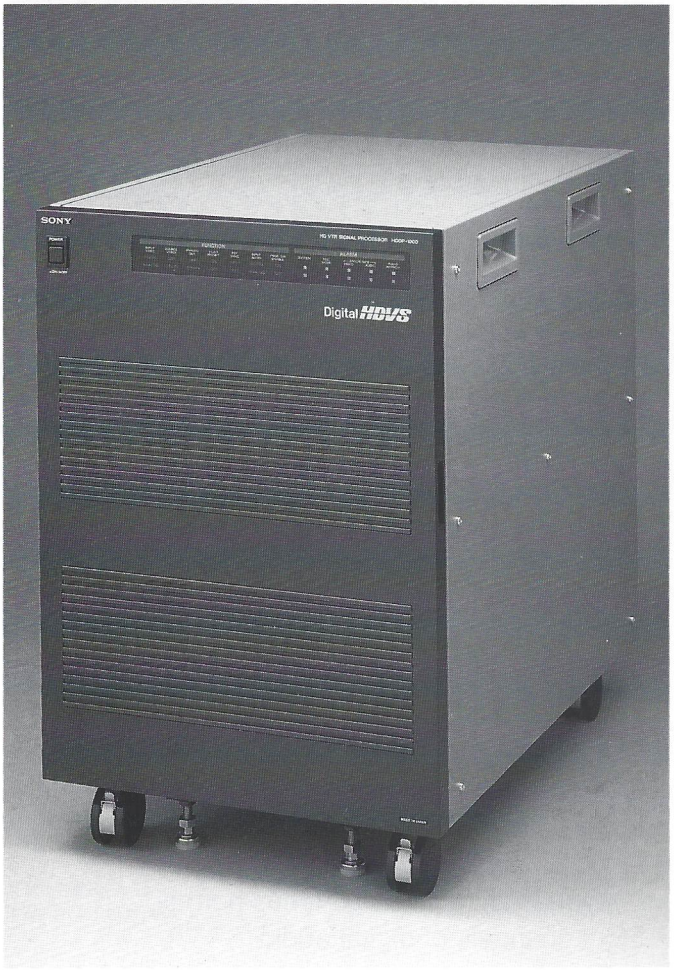
- Incorporates many of the features of the BVH-3000 including compact size, lightweight, ease of tape threading, computerized servo control, and front panel operation.
- With wide band Y, P_B, P_R recording, a high quality picture is assured.
- Wide band (30MHz) recording system.
- Front panel controls for basic simple editing.
- One hour recording time with 11.75-inch reel.
- Time code editing possible when interfaced with the BVE-910 Editing Control Unit or the BVE-9000 Editing System.
- Built-in time code generator/reader.
- 9-pin Remote Interface.
- Special playback modes
  — JOG: still to ±1/4 times normal
  — SHUTTLE: still to ±8 times normal
- Eight channels of digital audio.

HDD-1000 Rear Panel



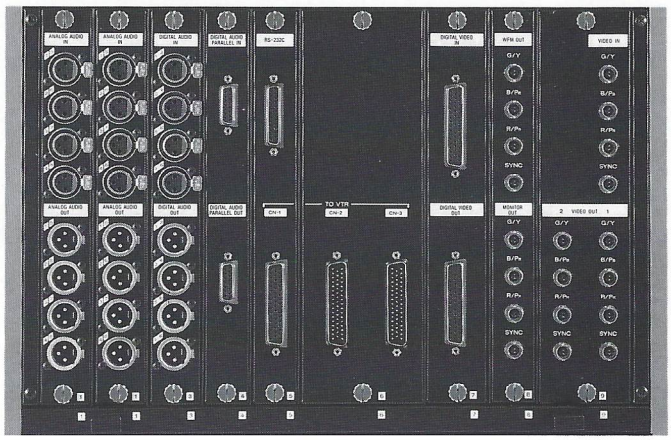
HDDP-1000 VTR Signal Processor

With a configuration based on Sony's DVPC-1000 Digital VTR Signal Processor, the HDDP-1000 VTR Signal Processor is highly reliable and easy to service.



Features

- Compact
- Easy to service
- 8-bit digital processing system.
- Signal to noise ratio of 56dB



HDDR-1000 VTR Control Unit
HDDR-A1000/V1000 Audio/Video Remote Control Unit

For the enhanced operability of HDD-1000 and HDDP-1000 Digital VTR System, the HDDR-A1000 Audio Remote Control Unit, the HDDR-V1000 Video Remote Control Unit and the HDDR-1000 VTR Control Unit are available.

HDDR-1000 VTR Control Unit

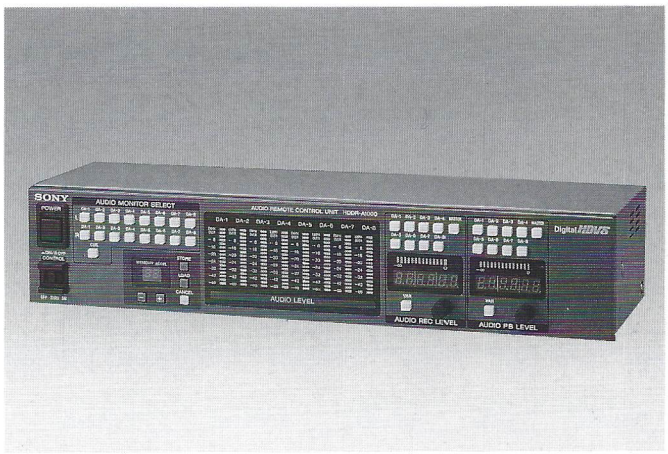
Features

- Similar control functions available on the HDD-1000 function control panel.
- Accepts both the HD sync signal and conventional sync signals as reference.
- Controls other VTRs having a Sony 9-pin remote interface.

HDDR-A1000 Audio Remote Control Unit

Features

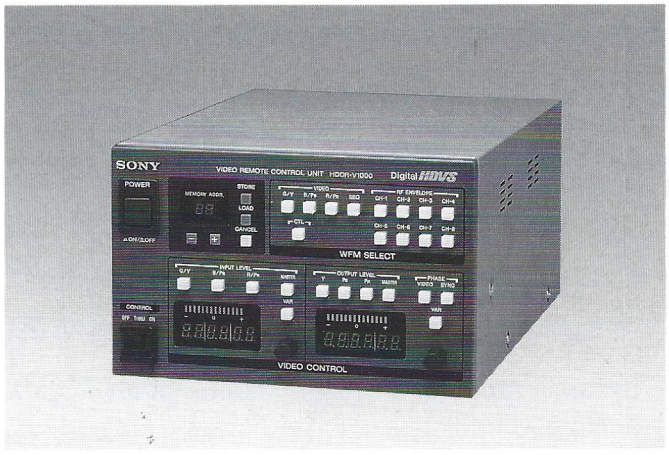
- Adjustments for recording/playback level in analog mode.
- Adjustments for playback level in digital mode.



HDDR-V1000 Video Remote Control Unit

Features

- Adjustments for input level of G/Y, B/P_B, R/P_R for analog mode.
- Adjustments for output level of Y, P_B, P_R for analog mode.
- Video Phase and Sync Phase adjustment.



HDV-10 Videocassette Recorder

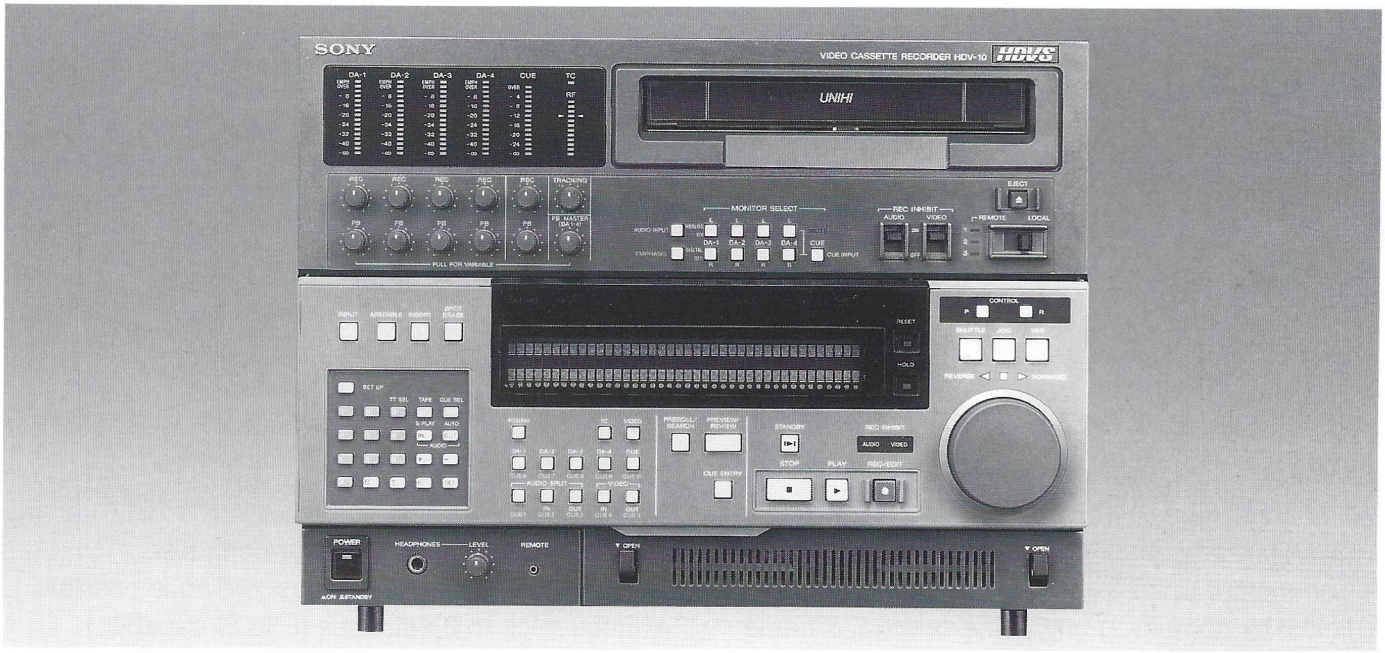
An analog component video cassette recorder, the HDV-10 is based on the UNIHI format. It provides a 63 minute recording time, with a video bandwidth of 20MHz for the Y signal and 7MHz for P_B and P_R signals. Employing Sony's innovative electronic and mechanical technology, the HDV-10 has been designed as a lightweight, compact and one-piece VTR. The HDV-10 includes four indepedently editable digital audio channels, and provides user oriented, easy operation with use of 21 numeric keypads and menu display on the front panel. With its advanced video processing and the convenience of its cassette format, the HDV-10 will extend the applications of HD video.*

*UNIHI is a 1/2" videocassette format developed for the applications of HD video.

Features

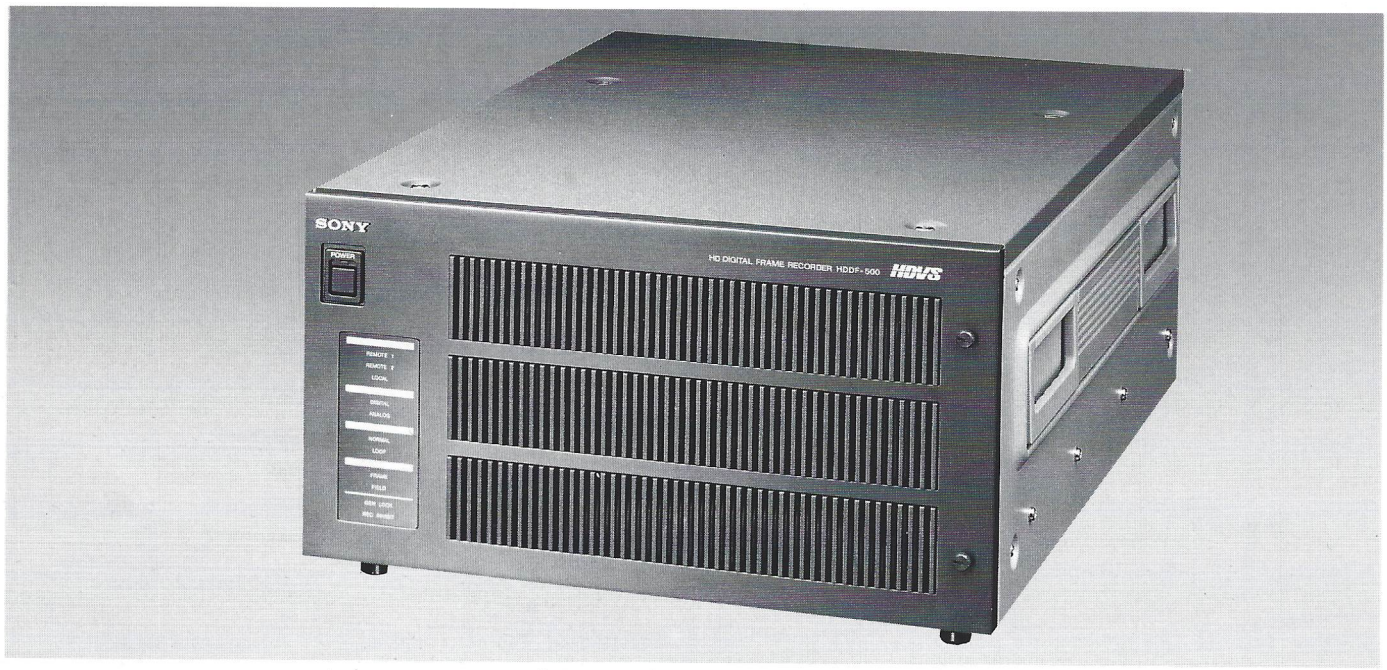
- **Wide Bandwidth Analog Frequency Modulation Recording**
  Based upon the UNIHI format, the HDV-10 achieves the wide bandwidth of Y: 20MHz/P_B: 7MHz/P_R: 7MHz.
- **Four Digital Audio Channels**
  Includes four independently editable digital audio channels. The digital recording technology gives a frequency response of 20Hz to 20KHz, with a dynamic range of more than 90dB. An analog audio cue track is also provided for effective audio editing.
- **UNIHI Videocassette Tape HCT-63**
  Metal particle video tape, 1/2" (12.65mm) wide and 13.5μm thick, based on the UNIHI format. This cassette provides a maximum of 63 minutes of recording/playback time.
- **Compact and Lightweight**
  Features the compact size and lightweight; 7 units (310mm) height, 50 Kg (110 lb 4 oz) in weight with one-piece consutruction.
- **Sequential Recording/Playback Capability**
  When two units of HDV-10 are interconnected via 9-pin remote interface, sequential recording and playback is possible.

- **Automatic Operation**
  The HDV-10 features convenient functions such as Power on Play, Auto Repeat and Auto Rewind.
- **Picture Freezing**
  Adopted frame memory enables the HDV-10 to provide freeze pictures.
- **Simple Operation**
  Using the optional remote control unit RM-770, basic functions such as STOP, REC, PAUSE, F-FWD, F-REW, PLAY and SEARCH-FWD/SEARCH-REW, can be controlled via the SIRCS interface.
- **Built-in Editing Facility**
  Capable of two machine editing with a simple connection via the 9-pin remote port.
- **Digital Audio I/O**
  Equipped with digital audio interfaces which conform to the AES/EBU format. Therefore the HDV-10 can be directly interfaced with the HDD-1000/HDDP-1000 HD digital VTR.
- **Analog Video and Audio I/O**
  Analog component video, both G, B, R and Y, P_B, P_R, together with analog audio can be interfaced directly to the HDV-10.
- **RS-232C/9-pin remote interface**
  Equipped with three 9-pin remote serial ports and one RS-232C serial port to interface with various external equipment.



HDDF-500 Digital Frame Recorder

By incorporating high capacity Dynamic RAM chips, the HDDF-500 can store 8 up to 32 frames (or 16 to 64 fields) and transfer these frames and fields maintaining highest picture quality.
The HDDF-500 can be controlled remotely using a VTR controller or editing control unit.
Furthermore, basic control is possible via pre-set internal switches of the HDDF-500.
With the adoption of computer parallel interface and 9-pin remote interface, the HDDF-500 allows both real time and non-real time operations.
Accordingly, this feature can be used effectively in image processing, such as in animation, computer graphics creation and image transfer.



Features

- 3 channel (G,B,R) equal bandwidth system (30MHz)
- Can store 8 up to 32 HDVS frames (or 16 to 64 fields) by combining any of the optional 8 frame memory and 4 frame memory boards. (a minimum of two same boards is required)
- Emulates HD Digital VTR (Real time operation)
  - — Can be controlled by VTR remote controllers provided for BVH-2000 or 3000 series, a front panel of HD Digital VTR or editing control units through the 9-pin remote interface.
  - — Basic control is possible via pre-set internal switches of the HDDF-500.
- Equipped with computer parallel interface and SCSI interface (Non-real time operation)
  - — Allows special effects or computer graphics storage into the HDVS format.
  - — Transfers to and from the external equipment such as DEC Micro VAX*, Micro PDP* or VAX*.
- Single and multi-frame recording is possible just like the BVH-2500 or 3000 series 1-inch VTR when using the BKH-2501 with BKH-2017A or BKH-3090 Sony VTR remote controller.
- Looping Playback/Endless recording is possible.
- Electronics to Electronics (E to E) capability
- Meets the needs of a variety of video signal I/O with selectable analog or digital input and simultaneous analog and digital outputs
- Allows stunt motion playback when tied to auxiliary controller.
- 74.25 MHz sampling frequency, 8 bit quantization digital processing system

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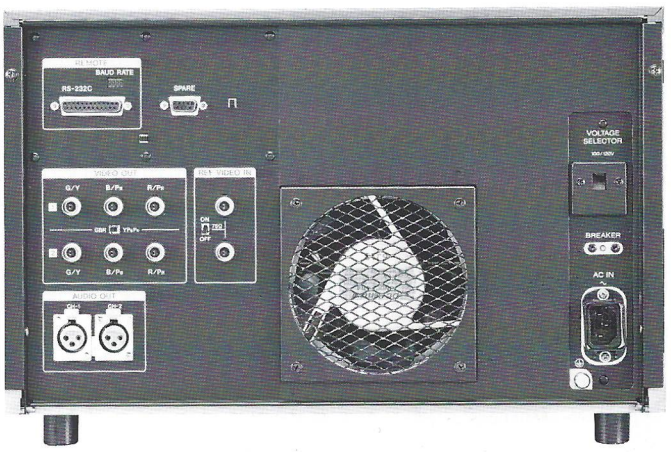
HDL-2000 Videodisc Player

Designed to facilitate the use of HDVS in a variety of applications, the HDL-2000 Videodisc Player combines full band high definition video with digital stereo audio in an easy to operate, yet sophisticated unit.

Features

- Full band high definition video (Y=20MHz).
- Two channel PCM audio.
- 15 minutes of playback with a CLV disc. (CAV disc=8 minutes)
- Automatic selection of CLV/CAV.
- Special playback modes available in CAV mode. (SCAN/SLOW/STILL)
- Wired/wireless remote control available.
- RS-232C interface provided.
- Automatic repeat.



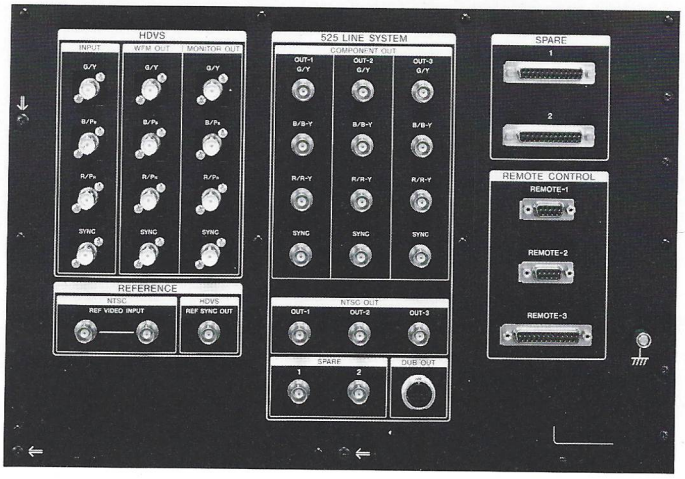
*The AUDIO OUT connector shown in the above photograph is a Japanese type. In the world except Japan, the male type of connectors is provided.

HDN-2000 NTSC Down-converter

The HDN-2000 NTSC Down-converter allows the direct down-conversion of software produced by high definition equipment into a conventional video format (NTSC).

Features

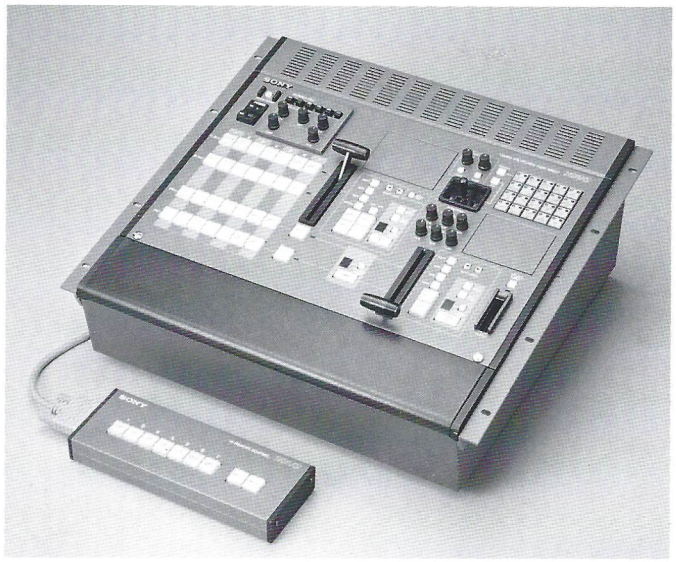
- Four down-conversion modes.
  - — Edge Crop
  - — Letter Box
  - — Squeeze
  - — Magnify
- Field freeze mode.
- 60.00 or 59.94Hz.
- Field synchronizer.
- Image enhancer.
- NTSC color bar generator.



Post Production Equipment

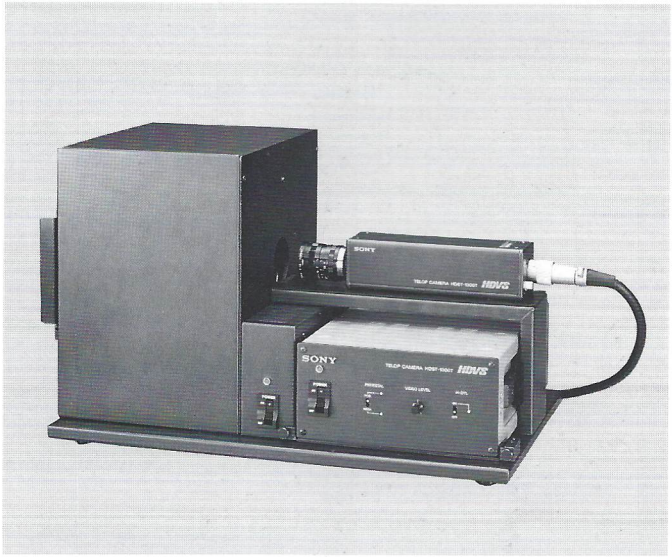
To make HDVS even more complete, Sony has developed the products necessary for post production. The EBR (Electron Beam Recording) system, production switcher, and telop camera form the most complete line of post production high definition equipment available from one manufacturer.

Switcher
HDS-1000T



Features
- Thirty-one standard/rotary wipes.
- Effects (Wipe/Key Wipe/Mix/Key Mix).
- Variable soft and border wipes.
- Chroma keyer/Downstream keyer.
- 7 input and 4 output buses.
- Serial and parallel interfaces.
- Color bar/Two title color generator.
- Take/Auto take (variable transition time).
- Pattern modulator/Positioner.
- Genlock inputs.

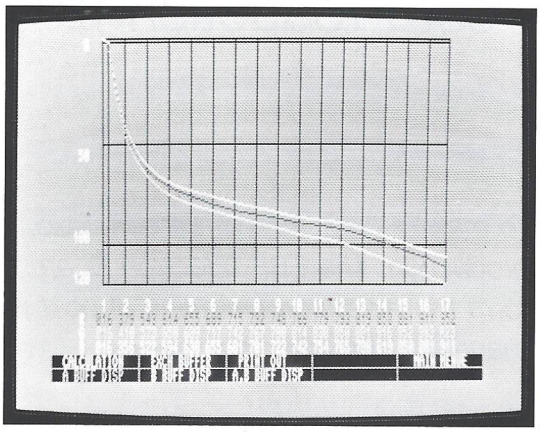
Telop Camera
HDST-1000T



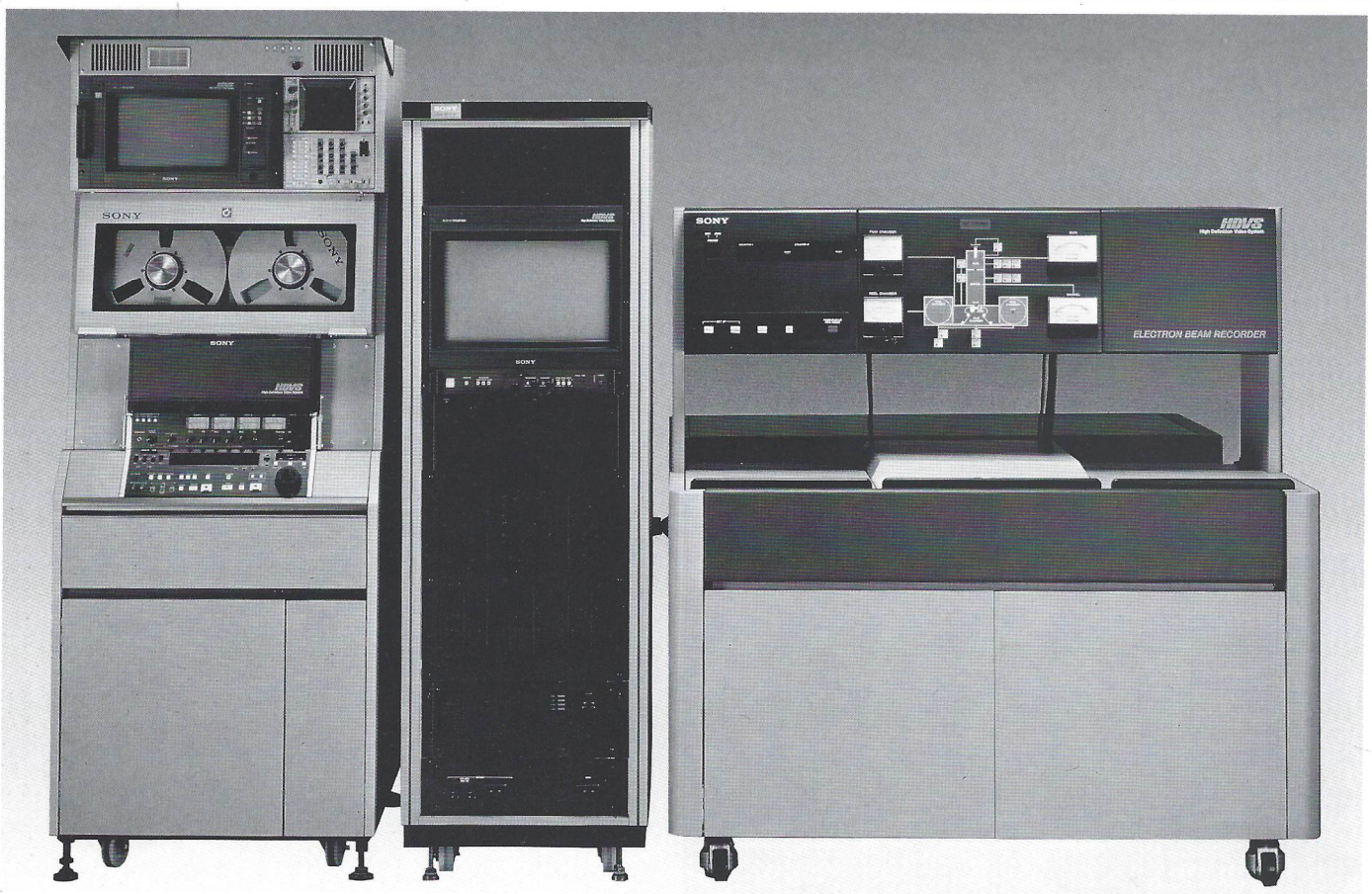
Features
- High resolution.
- Single 2/3-inch Saticon.
- Auto beam optimizer.
- Genlock.
- Auto gain control.
- Auto black level.

Electron Beam Recording (EBR) System

Developed to meet the demand for tape to film transfer, the EBR system provides producers with an alternative to producing with film.

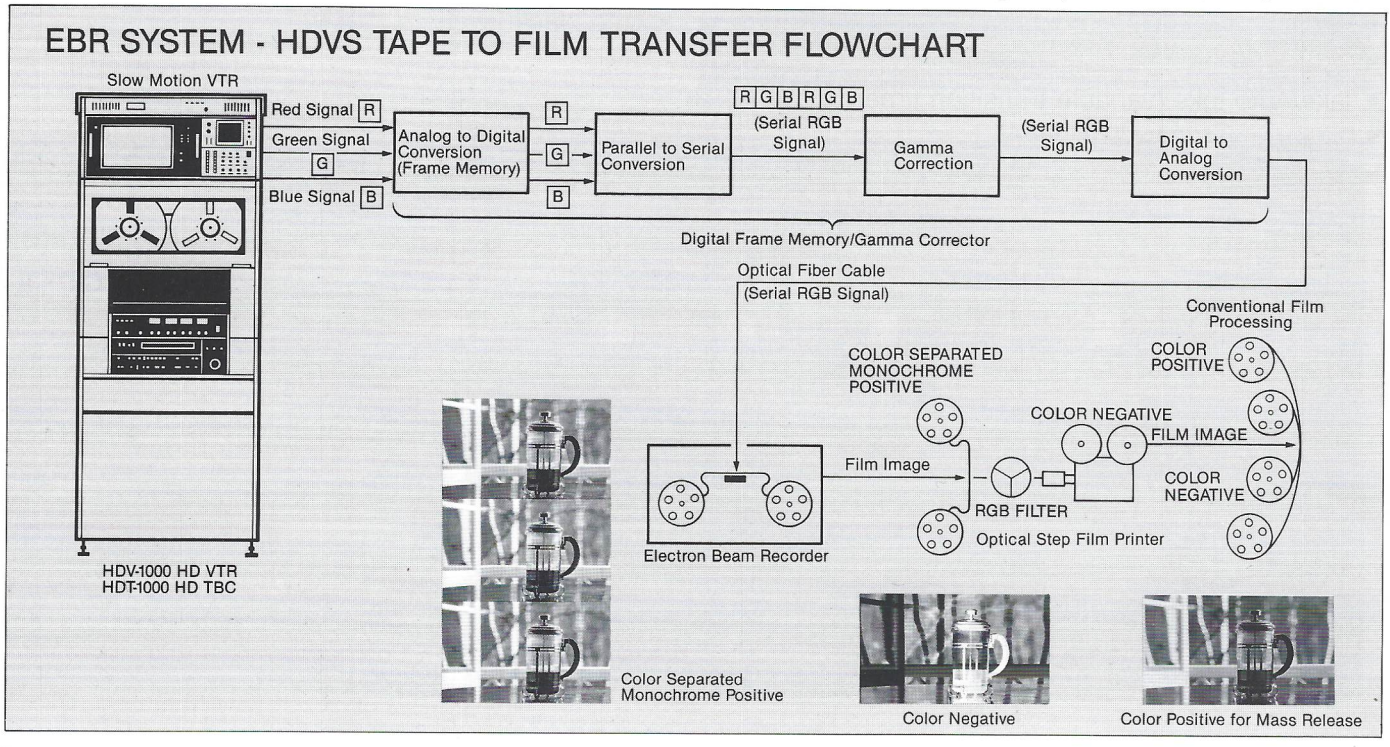


Typical gamma correction computer graphics



Slow Motion VTR, Frame Memory/Gamma Correction Unit, and EBR Unit

EBR SYSTEM - HDVS TAPE TO FILM TRANSFER FLOWCHART



Projection System

A quality projector is essential for any HDVS (High Definition Video System). Sony can offer a full line-up of HD projectors with a large scale display size of 55 inch, 100 to 350 inches: can be used for a wide variety of applications.

High Definition Projector—HDIH Series—
HDIH-1200/1200M, HDIH-2000/2000M, HDIH-3000/3000M

The HDIH series high definition projectors: the HDIH-1200/1200M, HDIH-2000/2000M and HDIH-3000/3000M cover a wide scale of screen size ranging from 100 to 350 inches with high quality picture.

Features

- Automatically selected aspect ratio
  16:9 (H:V) for HDTV
  4:3 (H:V) for four color standards
  (NTSC, PAL, SECAM, NTSC4.43)
- Large scale of screen display.
  HDIH-1200/1200M: Display in size from 100″ to 150″ diagonally
  HDIH-2000/2000M: Display in size from 150″ to 220″ diagonally
  HDIH-3000/3000M: Display in size from 220″ to 350″ diagonally
- High brightness
  The light output of 300 lumens at peak white is realized thanks to the adoption of high performance 9-inch CRT and HACC lens. The HACC lens also provides accurate color reproduction.
- LC² system.
  Liquid Coupling and Cooling (LC²) system is adopted to realize high contrast ratio.
- Wireless or wired remote control is possible for both registration and lens focus adjustments.
- The registration is digitally adjusted, and instructions and status indications are displayed on the screen.
- 9 types of test signal generators are built-in for easy adjustments of registration, white balance and lens focus.
- Ceiling and table top setup both possible.
- Rear projection
  Employing with the optional HDIS-1200RK Rear screen kit, the HDIH-1200/1200M can be used as the rear projection system.
- Twin stacking capability
  Using the optional HDIT-3000W Projection Head Stand, twin stacking application of HDIH-3000/3000M is possible. This system provides bright image projection (peak white: 600 lumens, all white: 260 lumens).

System Composition

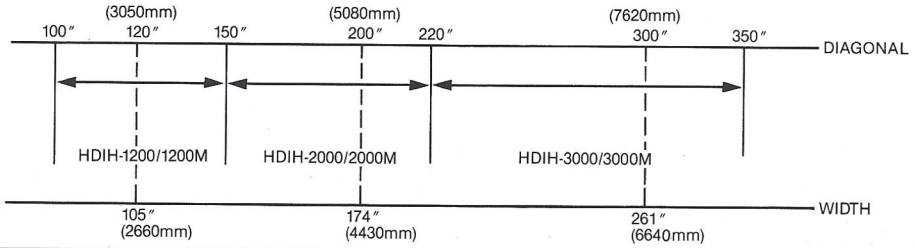
The HDIH series projection system is composed of the following components.

- HDIH-1200/1200M*1 Sony HD Projection Head
- HDIH-2000/2000M*1 Sony HD Projection Head
- HDIH-3000/3000M*1 Sony HD Projection Head
- HDIS-1200C1 Sony HD Screen
  (Semi-Curved 120″ diagonal, 16:9 aspect ratio)
- HDIB-1200C Sony HD Screen Stand
  (for the HDIS-1200C1)
- HDIS-1200RK*2 Sony HD Rear Screen Kit
- HDIT-1200 Sony HD Projection Head Stand (for the HDIH-1200/2000/3000 series)
- HDIT-3000W Sony HD Projection Head Stand (for twin stacking of HDIH-3000/3000M)

*1 A remote commander RM-1200 is supplied with each of the HDIH series projection head.
*2 This kit consists of mirror with stand, projection head twin-stack stand, rear screen (120″ diagonal) with screen stand.

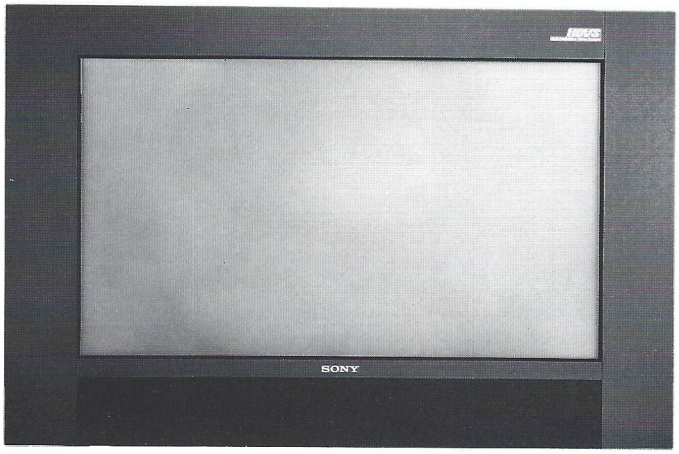
Screen Size Range

The HDIH-1200/1200M, HDIH-2000/2000M and HDIH-3000/3000M adapt to a range of display size, from 100″ to 350″ diagonal as the following chart shows:



Rear Projection (HDIS-1200RK)

Using the optional HDIS-1200RK Rear Screen Kit, the HDIH-1200/1200M can construct a rear projection system, which provides a wide viewing angle (±60° horizontally, ±26° vertically). This system can be more effectively used even in the difficult lighting conditions compared with the front projection system.



High Definition Rear Projector—HDIR-550/550M—

The HDIR-550/550M HD Rear Projector can be used even in the unfavorable lighting conditions with the adoption of innovative super fine pitch screen with black coated stripes. One-piece unit with a screen size of 50 inches allows high mobility along with the compact and lightweight mechanical construction.

Features

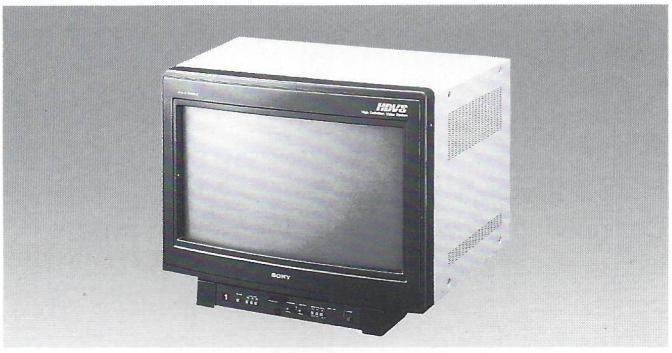
- One-piece unit
  A projection head, a rear screen and other mechanical devices are put together in one-piece unit for high mobility.
- Four casters allow easy transportation.
- High quality picture
  With the adoption of new 7-inch CRT, high resolution/non-spherical lens and super fine pitch screen, the HDIR-550/550M can provide high quality and precise images.
- High contrast ratio is realized due to the development of the optical coupling and liquid cooling system together with the adoption of anti reflective multi-coating lens.
- Black stripes are coated on the screen surface for adsorption of the ambient light.
- Automatically selected aspect ratio
  16:9 (H:V) for HDTV
  4:3 (H:V) for four color standards
  (NTSC, PAL, SECAM, NTSC4.43)
- The registration and white balance can be adjusted via the remote commander supplied with the HDIR-550/550M.

Color Monitors

Sony HD color monitors are available to suit almost any application from production and post production applications to commercial display. They are utilized not only for displaying the image recorded by HDVS, but also for evaluating the picture quality, with a variety of display size ranging from 12 to 38 inches diagonally.

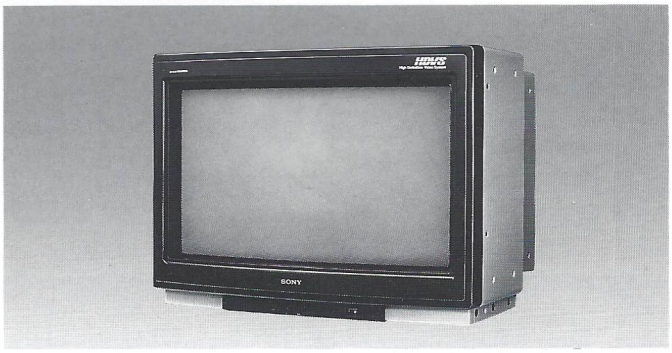
HDM-1230/1230E

HDM-2830/2830E



HDM-1730/1730E

HDM-3830/3830E



Features (HDM-1230/1230E/1730/1730E)

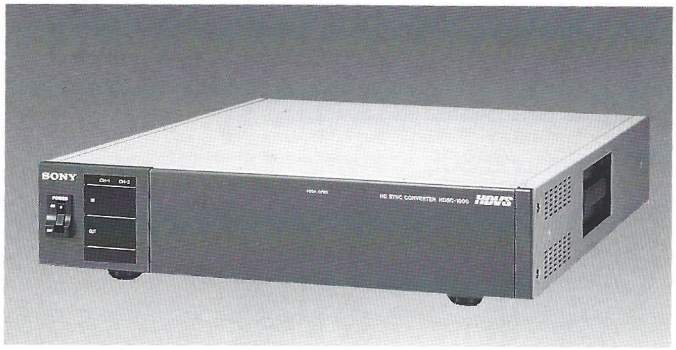
- 16:9 aspect ratio.
- SMPTE standard phosphor.
- 525 lines non-interlaced signal (IDTV decoder output) input is possible. (only for HDM-1730/1730E)
- Adjustable color temperature.
- The beam detecting circuit system allows black level and color temperature to be stabilized.
- Tri-level sync system
- G, B, R/Y, P_B, P_R inputs both are available.
- H Delay, V Delay and Underscan facilities are provided for monitoring or evaluating of camera/VTR signals.
- The pulse adding current is used for precise brightness and contrast controls.
- 9 independent sections (HDM-1230/1230E), 15 independent sections (HDM-1730/1730E) of the screen for convergence adjustment.
- 7 types of test signals are incorporated.
- Aperture adjustment in RGB mode.
- EIA standard 19-inch rack mountable

Features (HDM-2830/2830E/3830/3830E)

- 16:9 aspect ratio.
- Flat and square screen is adopted.
- The anti-reflection coating provides high contrast.
- SMPTE standard phospher.
- 525 lines non-interlaced signal (IDTV decoder output) input is possible.
- Adjustable color temperature.
- The beam detecting circuit system allows black level and color temperature to be stabilized.
- Tri-level sync system.
- G, B, R/Y, P_B, P_R inputs both are available.
- H Delay, V Delay and Underscan (only for HDM-2830/2830E) facilities are provided for monitoring or evaluating of camera/VTR signals.
- The pulse adding current is used for precise brightness and contrast controls.
- The digital uniformity circuit allows the white uniformity to be improved. (Exclusive for the HDM-3830/3830E)
- Digital convergence system is incorporated (169 points adjustable for the entire screen).
- 7 types of test signals are incorporated.
- Aperture adjustment in RGB mode.

Optional Accessories and Peripheral Equipment

HDVS ACCESSORIES

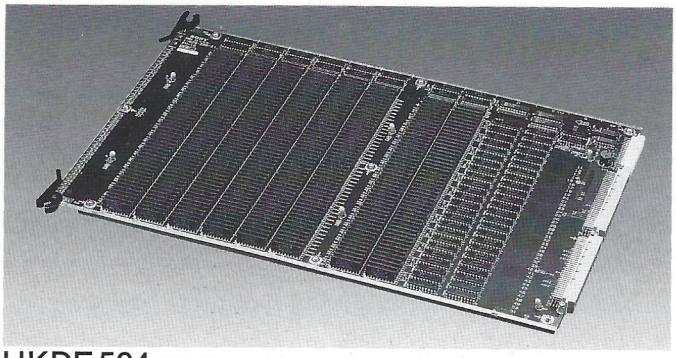


HDSC-1000 Sync Converter

Designed to allow complete flexibility for sync signal conversion, the HDSC-1000 can be used to convert any of the three high definition video sync signals into the sync signal required.

Features

- Supports all three high definition video sync signals.
- Automatic sync signal input and field frequency detection.
- Genlock capability.
- Sync phase adjustment.
- 525 sync output for off-line editing.
- Two sync converters per unit.



HKDF-504 HD Frame Memory Board (4 Frame Memory)
HKDF-508 HD Frame Memory Board (8 Frame Memory)

These boards are designed for storing HDVS frames or fields, which are inserted into the HDDF-500 HD Digital Frame Recorder.

HDCC-2/5/50/100 Multicore Camera Cable

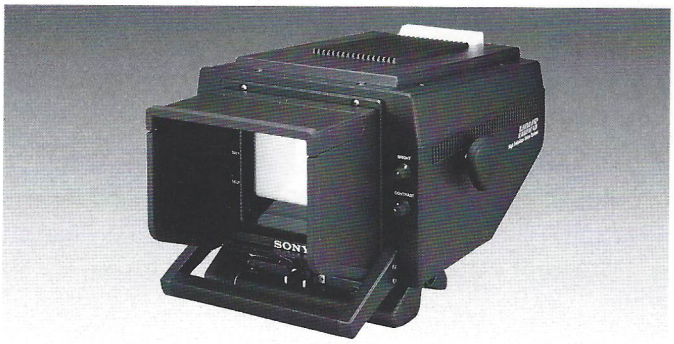
With this kind of cable, connections of up to 200 meters are possible.

HDVF-15 1.5″ Viewfinder

A compact viewfinder that will not block the operator's view.

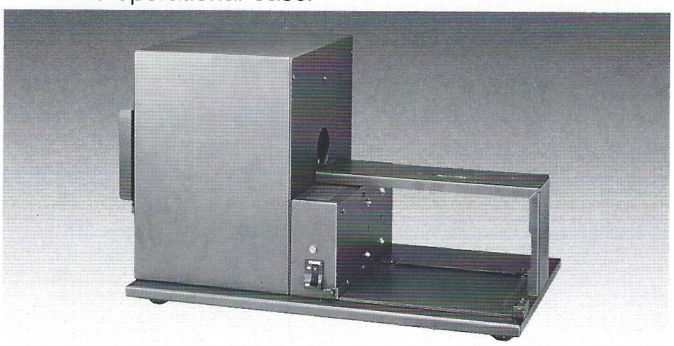
HDVF-30 3″ Viewfinder

This viewfinder provides a high resolution of 450 TV lines.



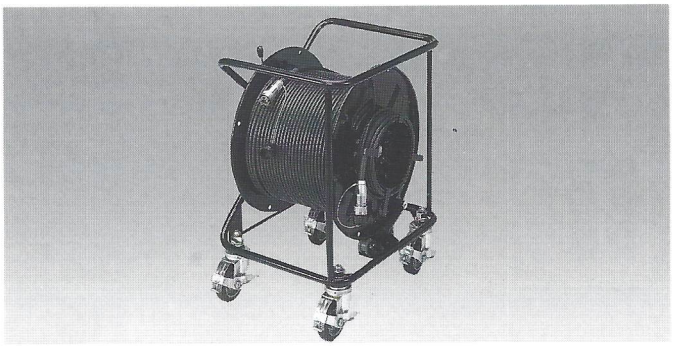
HDVF-75 7″ Viewfinder

A seven inch monochrome viewfinder designed to enhance operational ease.



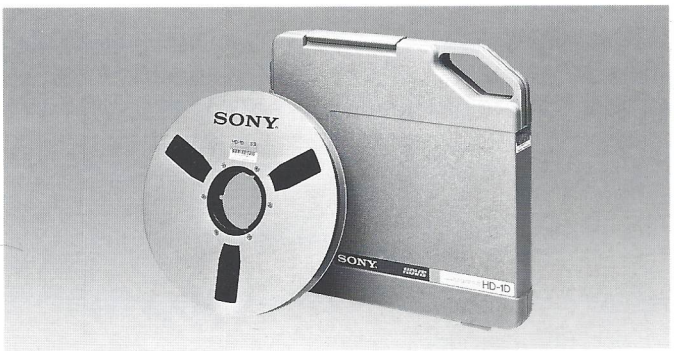
LBX-1000 Lightbox

For use with the HDST-1000T Telop Camera.



FC6-PA250/500 Optical Fiber Cable
With use of cable extension connector, connections of up to 1 Km are possibel.

FC6E-PA10 Cable Extension Connector
This connector is used for connection of optical fiber cables.

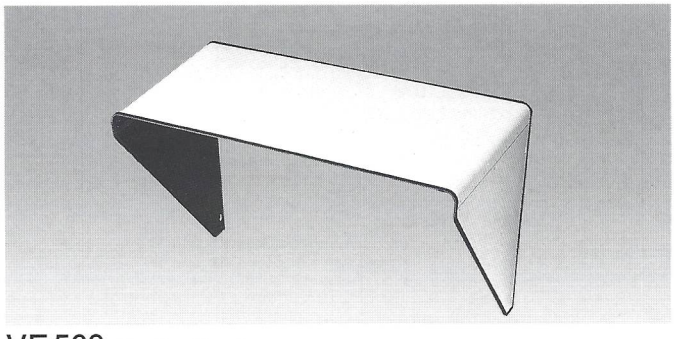


HD-1D Series High Quality Video Tape
This tape was especially designed for the digital VTR of HDVS. It is available in 33, 48 and 63 minute recording time.

HCT-63 Sony UNIHI Videocassette
This cassette was especially designed for analog videocassette recorder of HDVS, based on the UNIHI format. It is available for 63 minute recording time.

HDM-90 9″ Monochrome Monitor
This monitor is used with camera system and can be mounted in a rack with the HDCS-300/HDCO-300 and the 1730HD.

HDM-145 14″ Monochrome Monitor
This monitor provides a high resolution of 1000 TV lines.

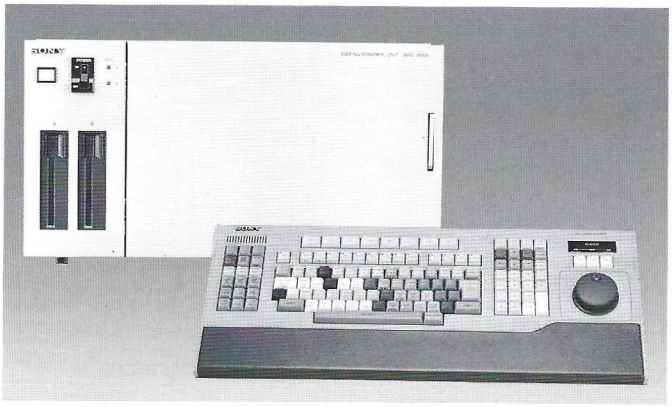


VF-503 Monitor Hood
Created expressly for use with the HDM-2820/2820E HD Color Monitor, this hood enhances viewing.

PERIPHERAL EQUIPMENT

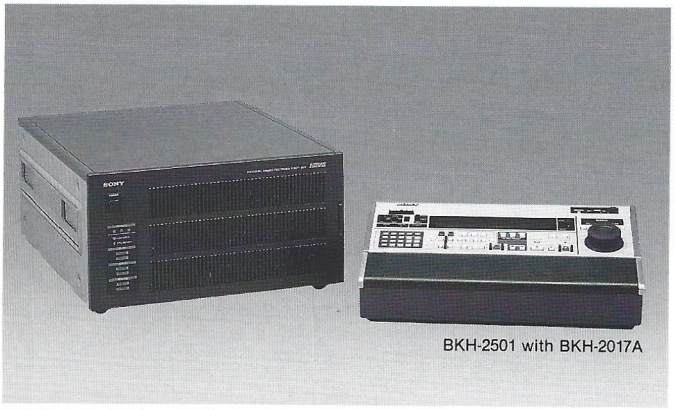
BVE-910 Editing Control Unit

This editing controller is capable of controlling up to four VTRs, as well as a video switcher and an audio mixer, for A/B roll editing.



BVE-9000 Editing Control System

This system is capable of controlling a large number of VTRs, as well as a video switcher and an audio mixer, for sophisticated post production editing.



BKH-2501 with BKH-2017A

BKH-2501 with BKH-2017A

Remote control panel with a adaptor box

This remote controller is capable of controlling the HDDF-500 Digital Frame Recorder.

MXP-2000 Audio Mixing Console

This sophisticated unit is available in a variety of configurations which will complete a high quality A/B roll editing system.

Specifications

CAMERA SYSTEM

GENERAL SPECIFICATIONS OF CAMERA SYSTEM

Sensitivity	F4.7 at 2000 lux, 3200K, reflection 90%
S/N	44dB (Y: 30MHz)
Registration error	Zone I : 0.025% Zone II : 0.05% Zone III: 0.05%
Resolution	30% modulation depth (800TV lines on AR chart)
Horizontal frequency	33.75kHz 1125 lines/frame
Vertical frequency	60Hz 2 : 1 interlace
Power consumption	400VA (Total of HDC-300, HDCS-300 and HDCO-300; using 100m cable, HDVF-15 and a portable zoom lens)

COLOR CAMERA (HDC-300)

Pick up tube	1 inch static focus/static deflection Saticon 3-tube system
Spectral system	F1.2 high index quartz filter
Built-in filters	CC: 3200K/4300K/6300K/Cross filter ND: Clear/1/4ND/1/16ND/Cap
Gain control	Selectable: −6dB, −3dB, 0, +3dB, +6dB for each step
Special functions	Graticule Centering Intercom (×2) Focal Plane Indicator
Power requirements	DC 17V
Power consumption	40W
Operating temperature	0°C to 40°C (32°F to 104°F)
Dimensions	Approx. 166(W) × 291(H) × 290(D)mm (6 5/8 × 11 1/2 × 11 1/2″)
Weight	Approx. 8.9 kg (19 lb 10 oz)
Supplied accessories	Tripod attachment (1) HD chart (1) Intercom panel assembly (for RTS) (1) Carrying case (1) Operation manual (1) Maintenance manual (1)

CAMERA SIGNAL PROCESSOR (HDCS-300)

Signal Standard	SMPTE 240M
Outputs	G(Y), B(PB), R(PR), Y OUT (BNC × 4 each) 1.0Vp-p: w/sync, 0.7Vp-p: w/o sync switchable, 75 ohms termination SYNC OUT (BNC × 4): ±0.3V, 75 ohms PIC MONI OUT (XLR 7-pin, BNC): Composite 1Vp-p, 75 ohms, tally signal for HDM-90/145 WF MONI OUT (9-pin, BNC × 4): Video 0.7Vp-p, sync ±0.3V, control signal for 1730HD
Inputs	RETURN VIDEO (BNC): 1Vp-p, 75 ohms GENLOCK (BNC): Sync ±0.3V, 75 ohms
Intercom	TALLY (19-pin): Red and green tally signal INTERCOM (19-pin/XLR 3-pin) PGM (19-pin): 0dBm/−20dBm (switchable)
Power requirements	AC 100 to 120/220 to 240V ±10%, selectable, 50/60Hz
Power consumption	400VA (with HDC-300, HDCO-300)
Dimensions	Approx. 424(W) × 221(H) × 486(D)mm (16 3/4 × 8 3/4 × 19 1/4″)
Weight	Approx. 33 kg (72 lb 12 oz)
Supplied accessories	Connecting cable (for HDCO-300) (1) Connecting cable (for wave form monitor) (1) Connecting cable (for picture monitor) (1) AC power cord (2) Extension board (1) 19-pin plug (1) 19-inch rack mount bracket (1) Operation manual (1) Maintenance manual (1)

CAMERA OPERATIONAL CONTROL UNIT (HDCO-300)

Lens	IRIS: Automatic/manual, close FOCUS: Remote control operation on/off
Levels	CONTROL DATA: PRESET/ MEMORY switched PEDESTAL: MASTER/R/B GAIN: MASTER/R/B, Master gain −6/−3/0/+3/+6dB selectable FLARE: R/B/G GAMMA: OFF/VARIABLE/FIX selectable (continuously adjustable within each range except for OFF) KNEE: Master/Out SLOPE: Master BLACK SHAD: R/G/B (horizontal SAW/PARA and vertical SAW/PARA) WHITE SHAD: Vertical SAW
Camera head	CHU POWER: Power on/off CENTERING: R/B horizontal and vertical Registration: Centering of R/B horizontal and vertical, screen division method adjustment of R/B, INITIAL/ADD switched Distortion: Master Automatic white balance Automatic black balance Automatic centering AUTO SETUP: Registration (13 × 13 screen division method, quick adjustment of size/center/skew), level (pedestal/gain/flare/gamma)
Digital image enhancement levels	Crisp Level dependence Limit curve Limit level Boost frequency V ratio Detail gain Black gamma *Detail signals detected from R/G/B/R+G/B+G/R+G+B
Monitor output	PIC MONI: R/G/B/R-G/B-G/Y/NAM Y WFM: R/G/B/SEQ/Y/R B/R G/B G/RGB
Intercom	INTERCOM: COMM/PRIV switched AUX INTERCOM: 4 wires, 600 ohms, 0 dBm or RTS system
Buzzer	BUZZER: Buzzer on/off
Dimensions	Approx. 424(W) × 100(H) × 440(D)mm (16 3/4 × 4 × 26 1/2″)
Weight	Approx. 9.5 kg (20 lb 15 oz)
Supplied accessories	Rack mount assembly (3U) (1 set) Intercom panel assembly (for RTS) (1) Operation manual (1) Maintenance manual (1)

9″ MONOCHROME MONITOR (HDM-90)

Signal Standard	SMPTE 240M
Power requirements	AC 100/120/220/240V ±10%, 50/60Hz
Power consumption	60W
Inputs	Video (BNC): 1Vp-p with tri-level sync, 75 ohms Sync (BNC): ±0.3V, 75 ohms Tally
Aspect ratio	16:9
Picture size	92 × 164mm (3 5/8 × 6 1/2″)
Resolution	Center: 850 lines
Operating temperature	0° to 40°C (32° to 104°F)
Operating humidity	10 to 90%
Weight	Approx. 12 kg (26 lb 6 oz)
Dimensions	Approx. 220(W) × 215(H) × 350(D)mm (8 3/4 × 8 1/2 × 13 7/8″)
Supplied accessories	AC power cord (2) Tally connector (XLR 7-pin) (1) Operation and maintenance manual (1)

14″ MONOCHROME MONITOR (HDM-145)

Signal Standard	SMPTE 240M
Power requirements	AC 100/120/220/240V ±10%, 50/60Hz
Power consumption	90W
Inputs	Video (BNC): 1Vp-p with tri-level sync, 75 ohms Sync (BNC): ±0.3V, 75 ohms Tally
Aspect ratio	16:9
Picture size	143.5 × 225mm (5 3/4 × 10 1/8″)
Resolution	Center: 1000 lines
Operating temperature	0° to 40°C (32° to 104°F)
Operating humidity	10 to 90%
Weight	Approx. 24 kg (52 lb 15 oz)
Dimensions	Approx. 424(W) × 291(H) × 441(D)mm (16 3/4 × 11 1/2 × 17 3/8″)
Supplied accessories	Rack mount bracket (1 set) AC power cord (2) Tally connector (XLR 7-pin) (1) Operation and maintenance manual (1)

1.5″ VIEWFINDER (HDVF-15)

Power requirements	DC 9.5V and 17V
Power consumption	7.5W
Input	Composite video
Aspect ratio	16:9
Picture size	15(H) × 28(W)mm (5/8 × 1 1/8″)
Resolution	Center: 450 lines
Weight	Approx. 1.2 kg (2 lb 11 oz)
Dimensions	Approx. 130(W) × 186(H) × 192(D)mm (5 1/8 × 7 3/8 × 7 5/8″)
Special feature	Eyepiece defroster
Supplied accessories	Eye cup (1) Operation and maintenance manual (1)

3″ VIEWFINDER (HDVF-30)

Power requirements	DC 12 to 17V
Power consumption	4.5W
Input	Composite video
Aspect ratio	16:9
Picture size	32(H) × 56(W)mm (1 5/16 × 2 1/4″)
Resolution	Center: 450 lines
Weight	Approx. 1.2 kg (2 lb 10 oz)
Dimensions	Approx. 85(W) × 90(H) × 225(D)mm (3 3/8 × 3 5/8 × 8 7/8″)
Supplied accessories	Connecting cord (1) Operation and maintenance manual (1)

7″ VIEWFINDER (HDVF-75)

Power requirements	DC 100 to 200V
Power consumption	45W
Input	Composite video
Aspect ratio	16:9
Picture size	68(H) × 120(W)mm (2 3/4 × 4 3/4″)
Resolution	Center: 1000 lines
Weight	Approx. 7.8 kg (17 lb 3 oz)
Dimensions	Approx. 260(W) × 218(H) × 422(D)mm (10 1/4 × 8 5/8 × 16 5/8″)
Supplied accessories	Connecting cord (2) Indoor hood (1) Outdoor hood (1) Carrying case (1) Operation and maintenance manual (1)

OPTICAL FIBER TRANSMISSION SYSTEM

GENERAL SPECIFICATIONS OF OPTICAL FIBER TRANSMISSION SYSTEM

Transmission signals	All signals between the HDC-300 and the HDSC-300. Six channels of digital audio signals
Transmission distance	250m/500m/750m/1Km (with use of the FC6E-PA10 calbe extension connectors)
Video	
Input/output	G/B/R analog component signals
S/N ratio	More than 47 dB (1 Km transmission)
Frequency response	60Hz to 30MHz
Audio	
Frequency response	20Hz to 20kHz
S/N ratio	More than 60dB at −60dBs IN (1Km transmission)
T.H.D	Less than 0.05% at −60dBs IN (1Km transmission)
Head room	More than 20dB
Input	
Analog	−60dBs/−40dBs/−20dBs/+4dBs (2 channels)
Digital	AES/EBU format (4 channels)
Output	
Analog	−20dBs/+4dBs (2 channels, selectable)
Digital	AES/EBU format (6 channels)
Operating temperature	0°C to 40°C (32°F to 104°F)

OPTICAL FIBER TRANSMITTER (HDFT-300)

Input	G/B/R analog component video (11-pin multipel connector) Analog audio (XLR 3-pin, 2 channels) Digital audio (XLR 3-pin, 4 channels)
Output	V.F out (11-pin multiple connector) Sync out (11-pin multiple connector) Digital audio sync out (XLR 3-pin)
Power requirements	DC 150V (supplied from the HDFR-300)
Power consumption	Max. 300W
Dimensions	Approx. 316(W) × 116(H) × 286(D)mm (12 1/2 × 4 5/8 × 11 3/8″)
Weight	Approx. 5Kg (11 lb)
Supplied accessories	Carrying case (1) Multicore cable (HDCC-5) (1) Shoulder belt (1) Maintenance manual (1)

OPTICAL FIBER RECEIVER (HDFR-300)

Input	V.F in (11-pin multiple connector) Sync in (11-pin multiple connector)
Output	G/B/R analog component video (11-pin multiple connector) Analog audio (XLR 3-pin, 2 channels) Digital audio (XLR 3-pin, 6 channels)
Power requirements	AC 100 to 120V/220 to 240V
Power consumption	Max. 400W
Dimensions	Approx. 423(W) × 88(H) × 450(D)mm (16 3/4 × 3 1/2 × 17 3/4 ″)
Weight	Approx. 12 Kg (26 lb 7 oz)
Supplied accessories	AC power cord (1) Multicore cable (HDCC-2) (1) Rack mount assembly (1) Maintenance manual (1)

OPTICAL FIBER CABLE (FC6-PA250/500)

Cable length	250m (FC6-PA250), 500m (FC6-PA500)
Fiber type	G.I type, 80/150μm diameter (internal/external)
Connector	Optical multi-connector
Optical fiber loss	Less than 4dB/Km
Dimensions	FC6-PA250 (with a reel): Approx. 520(W) × 680(H) × 440(D)mm (20 1/2 × 26 7/8 × 17 3/8 ″) FC6-PA500 (with a reel): Approx. 600(W) × 790(H) × 440(D)mm (23 5/8 × 31 1/8 × 17 3/8 ″)
Weight	FC6-PA250 (with a reel): 55 Kg (121 lb 4 oz) FC6-PA500 (with a reel): 85 Kg (187 lb 6 oz)

CABLE EXTENSION CONNECTOR (FC6E-PA10)

Connection loss	Less than 1dB
Dimensions	Approx. 36φ × 32mm (1 7/16 × 1 5/16 ″)
Weight	Approx. 150 g (5 oz)

POST PRODUCTION EQUIPMENT

SWITCHER (HDS-1000T)

Signal Standard	SMPTE 240M
Video input	VS × 7, RGB component
Title input	VS × 2, B/W
Program output	VS × 2, RGB component
Preview output	VS × 1, RGB component
Return video output	VS × 1, RGB component
Sync output	Tri-sync × 2, ±0.3Vp-p
Differential gain	Less than 2% at 50% APL
Frequency response	~20MHz ±0.3dB, ~30MHz $^{+0}_{-3.3}$ dB
Cross talk	−40dB at 30MHz
Path length deviation	Less than ±0.2dB
Power requirements	AC 100 to 120/220 to 240V, 160W
Dimensions	Approx. 450(W) × 150(H) × 420(D)mm (17 3/4 × 6 × 16 5/8 ″)
Weight	Approx. 13 kg (28 lb 11 oz)

TELOP CAMERA (HDST-1000T)

Signal Standard	SMPTE 240M
Resolution	750 TV lines
Pick up tube	Single 2/3 ″ MF Saticon
Auto gain control	0dB/+6dB/AGC
Frequency response	30Hz to 25MHz ±1dB
Lens mount	C mount

EBR SYSTEM

Input signal	RGB component
Gamma data	10 bits
Gamma data input	Sony SMC-70 Microcomputer and 3.5-inch microfloppy disk
Film size	35mm
Film type	Black and white fine grain positive Fuji 71337 or equivalent
Film transport	Intermittent claw pulldown with registration pin
Film recording system	RGB color frame (sequential)
Writing lines	2090 lines in effective picture area
Operation	Microcomputer aided

VTR SYSTEM

DIGITAL VTR (HDD-1000)

GENERAL		
Signal Standard	SMPTE 240M	
Power requirements	AC 100 to 120/220 to 240V ±10%, 50/60Hz	
Power consumption	550W	
Operating temperature	5°C to 35°C (41°F to 95°F)	
Storage temperature	−20°C to 60°C (−4°F to 140°F)	
Humidity	10% to 85% (non-condensing)	
Weight	Approx. 67 kg (147 lb 11 oz)	
Dimensions	Approx. 480(W) × 680(H) × 572(D)mm (19 × 26 7/8 × 22 5/8")	
Tracks	Video tracks: 8 Audio tracks: 8 CTL tracks: 1 T/C tracks: 1 Cue tracks: 1	
Tape speed	80.5cm/sec	
Writing speed (Relative speed)	51.5m/sec	
Recording time	63 min. with 11.75-inch reel	
Fast forward/Reverse speed	Approx. 5 minutes	
Recommended tapes	Sony's 1-inch High Density Tape or equivalent	
Reel size	NAB Standard, 6.5 to 11.75 inch reel	
Input/Output		
Audio	LINE INPUT	CUE: XLR 3-pin TIME CODE: XLR-3-pin
	LINE OUTPUT	CUE: XLR 3-pin TIME CODE: XLR 3-pin
	MONITOR OUT	R/L: XLR 3-pin HEADPHONES: Stereo
	TO PROCESSOR	CN-1: D-sub 50-pin
Video	TO PROCESSOR	CN-2: D-sub 50-pin CN-3: D-sub 50-pin
REMOTE	SERIAL REMOTE	REMOTE-1: for BVH-1000/1100 through BKH-2016 D-sub 15-pin REMOTE-2A IN: 9-pin remote REMOTE-2A OUT: 9-pin remote REMOTE-2B IN/OUT: 9-pin remote AUX: for external WFM select, D-sub 9-pin
	PARALLEL REMOTE	REMOTE-3: D-sub 50-pin

VIDEO (with HDDP-1000)	
Signal system	Y P_B P_R
Signal-to-noise ratio	Better than 56dB (full band, unweighted)
Quantization	8 bits
Sampling rate	74.25MHz
Bandwidth	DC to 30MHz 0 - 1.5dB (luminance) DC to 15MHz 0 - 1.5dB (chrominance)
K factor	Less than 1%, 2T pulse
Phase error of each component channel	Less than 3.5 nsec.

AUDIO	
Frequency response	20Hz to 20kHz $^{+0.5}_{-1.0}$ dB
Crosstalk (at 1kHz)	Less than −80dB (between any two channels)

VTR SIGNAL PROCESSOR (HDDP-1000)

GENERAL		
Power requirements	AC 100 to 120/220 to 240V ±10%, 50/60Hz	
Power consumption	1200W	
Operating temperature	5°C to 35°C (41°F to 95°F)	
Storage temperature	−20°C to 60°C (−4°F to 140°F)	
Humidity	10% to 85% (non-condensing)	
Weight	Approx. 100kg (220 lb)	
Dimensions	Approx. 482(W) × 650(H) × 630(D)mm (19 × 25 5/8 × 24 7/8")	
Input/Output		
Video	VIDEO IN	G/Y, B/P_B, R/P_R (BNC, 2 inputs) EXT SYNC (BNC, 1 input)
	VIDEO OUT	G/Y, B/P_B, R/P_R (BNC, 2 output) EXT SYNC (BNC, 2 outputs)
	MONITOR OUT	G/Y, B/P_B, R/P_R (BNC, 1 output) EXT SYNC (BNC, 1 output)
	WFM OUT	G/Y, B/P_B, R/P_R (BNC, 1 output) EXT SYNC (BNC, 1 output)
	TO VTR	CN-2: D-sub 50-pin CN-3: D-sub 50-pin
	DIGITAL VIDEO IN/OUT	DIGITAL VIDEO IN: D-sub 50-pin DIGITAL VIDEO OUT: D-sub 50-pin
Audio	ANALOG AUDIO IN	XLR 3-pin (8 channels)
	ANALOG AUDIO OUT	XLR 3-pin (8 channels)
	DIGITAL AUDIO IN	XLR 3-pin (4 channels)
	DIGITAL AUDIO OUT	XLR 3-pin (4 channels)
	DIGITAL AUDIO	PARALLEL IN: D-sub 15-pin
	DIGITAL AUDIO	PARALLEL OUT: D-sub 15-pin
	TO VTR	CN-1: D-sub 50-pin
	REMOTE	RS-232C

HD TAPES (HD-1D SERIES)

	HD-1D-33A	HD-1D-48A	HD-1D-63A
Reel size (inch)	10.5	10.5	11.75
Length m (feet)	1,620 (5,344)	2,330 (7,689)	3,080 (10,164)
Playing time* (min.)	33	48	63
Weight** kg	3.0 (6 lb 10 oz)	3.8 (8 lb 6 oz)	5.0 (11 lb)
Case type	Shipper case	Shipper case	Shipper case

*Tape speed = 80.5cm/sec.
**With case

VTR CONTROL UNIT (HDDR-1000)

Power requirements	AC100 to 240V ±10%, 50/60Hz
Power consumption	Approx. 25W max.
Dimensions	446(W) × 129(H) × 260(D)mm (17 5/8 × 5 1/8 × 10 1/4")
Weight	Approx. 6.5 kg (14 lb 5 oz)
Remote	
Serial remote	
REMOTE R	9-pin remote
REMOTE P	9-pin remote
AUX	D-sub 9-pin
Parallel remote	
REMOTE	D-sub 25-pin
Supplied accessory	Rack mount kits

AUDIO REMOTE CONTROL UNIT (HDDR-A1000)

Power requirements	AC 100 to 240V ±10%, 50/60Hz
Power consumption	Approx. 15W max.
Dimensions	424(W) × 84(H) × 123(D)mm (16 3/4 × 3 3/8 × 4 7/8")
Weight	Approx. 3 kg (6 lb 10 oz)
Remote	
HOST	D-sub 9-pin
ADDITION	D-sub 9-pin
SPARE for a custom made control unit	D-sub 25-pin
Supplied accessory	Rack mount kit

VIDEO REMOTE CONTROL UNIT (HDDR-V1000)

Power requirements	AC 100 to 240V ±10%, 50/60Hz
Power consumption	Approx. 10W max.
Dimensions	214(W) × 133(H) × 301(D)mm (8 1/2 × 5 1/4 × 11 7/8")
Weight	Approx. 3.5 kg (7 lb 11 oz)
Remote	
HOST	D-sub 9-pin
ADDITION	D-sub 9-pin
WFM out	D-sub 15-pin
SPARE for a custom made control unit	D-sub 25-pin
Supplied accessory	D-sub 15-pin cable

VIDEOCASSETTE RECORDER (HDV-10)

GENERAL

Power requirements	AC 100 to 120V/200 to 240V ±10% selectable, 50/60Hz
Power consumption	Max. 450W
Operating temperature	10°C to 35°C (50°F to 95°F)
Humidity	25% to 80%
Weight	Approx. 50 kg (110 lb 4 oz)
Dimensions	424(W) × 331(H) × 621(D)mm (16 3/4 × 13 1/8 × 24 1/2")
Recording format	UNIHI format
Tracks/channels	Video : 6 tracks/1 field Digital audio : 2 tracks Analog audio (cue): 1 track Time code : 1 track CTL : 1 track
Tape speed	119.7mm/sec.
Writing speed (Relative speed)	21.4m/sec.
Recording time	Max. 63 minutes
Cassette type	UNIHI videocassette
Servo look time	Within 2 sec. (stand by on start)
Load/unload time	Within 7 sec.
Fast forward/rewind time	Within 150 sec.

VIDEO

Video Bandwidth	Y : 20MHz P_B, P_R: 7 MHz (line sequential)
S/N ratio	Y : 37dB P_B, P_R: 43dB

AUDIO

Sampling frequency	48KHz
Quantization	16 bits/sample
Frequency response	DA 1-4: 20Hz to 20KHz + 0.5dB – 1.0dB CUE : 100Hz to 10KHz ± 3dB
S/N ratio (dynamic range)	DA 1-4: More than 90dB CUE : More than 45dB
Distortion	DA 1-4: Less than 0.05% CUE : Less than 2%
Crosstalk	Less than –80dB
Wow & flutter	DA 1-4: Below measurable limit CUE : Less than 0.2% (NAB unweighted)
Head room	DA 1-4: 18dB CUE : 9dB
Emphasis	T1 = 50μsec./T2 = 15μsec.

Input/Output signal

Video	
Input	
G, B, R/Y, P_B, P_R	1.0Vp-p, 75 ohms (loop-through)
Output	
G, B, R/Y, P_B, P_R	1.0Vp-p, 75 ohms, 2 channels
Monitor	1.0Vp-p, 75 ohms, (G, B, R) 1.0 Vp-p, 75 ohms (Y)
Audio	
Input	
Analog	
CH 1-4	–16dBm to +10dBm, balanced 150 ohms/600 ohms/10k ohms
CUE Line in	–16dBm to +16dBm, balanced 600 ohms or 10k ohms
Mic in	–60dBs, 3K ohms
Digital	
CH 1-4	AES/EBU format
Output	
Analog	
CH 1-4	+4dBm, balanced, 600 ohms
CUE	+4 dBm, balanced, 600 ohms
Monitor L/R	+4dBm, balanced, 600 ohms
Headphone	8 ohms, unbalanced
Digital	
CH 1-4	AES/EBU format
Time code	
Input	SMPTE/EBU time code, 600 ohms, balanced
Output	SMPTE/EBU time code, balanced
Remote	
Remote in	For RS-422 serial interface, D-sub 9-pin
Remote out	For RS-422 serial interface, D-sub 9-pin
Remote in/out	For RS-422 serial interface, D-sub 9-pin
RS-232C	For RS-232C interface, D-sub 25-pin

VIDEOCASSETTE TAPE (HCT-63)

Tape length	Approx. 465m (1926 ft.)
Tape width	12.65mm (1/2")
Recording time	63 min.
Weight	Approx. 497 g (1 lb 2 oz)
Dimensions	205(W) × 25(H) × 121.5(D)mm (8 1/8 × 1 × 4 7/8")

DIGITAL FRAME RECORDER (HDDF-500)

GENERAL	
Signal standard	SMPTE 240M 1125 line, 2:1 interlace, 60Hz 1035 active lines
Power requirements	AC 100 to 120V/220 to 240V ± 10%, 50/60Hz
Power consumption	400W max.
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	10% to 85% (non-condensing)
Weight	33 kg (72 lb 12 oz)
Dimension	424(W) × 241(H) × 555(D)mm (16 3/4 × 9 1/2 × 21 7/8")
VIDEO	
Sampling rate	74.25MHz in each G, B, R channel
Quantization	8 bit/sample
Capture	8 to 32 frames or 16 to 64 fields (G, B, R)
Display	Frame or field (selectable)
Memory content	1920(H) × 1040(V) pixels per frame (R, G, B) 2M byte per frame each channel
Frequency response	0 to 27MHz: ±0.5dB 0 to 30MHz: −1.5dB ±0.5dB
K factor	Less than 1% (HDTV 2T - 66ns HAD)
Tilt	Less than 1% (Horizontal and vertical)
S/N ratio	More than 56dB
Sync jitter	Less than 2ns
Input/Output signal	
Input	
Analog	G, B, R: 1Vp-p ± 2dB (75 ohm BNC per channel)
Digital	D-sub 25-pin (one per channel)
Reference	Composite video: 1Vp-p ± 3dB or Sync (Tri Level): ±0.3V (BNC, loop-through)
Output	
Analog	G, B, R: 1Vp-p (0.7Vp-p video into 75 ohm, ±0.3V Tri Level sync) (BNC, three outputs per channel)
Digital	D-sub 25-pin (one per channel)
Remote 1, 2	9-pin remote
Computer parallel interface	DRV-11WA (for Q bus system) DR-11W (for Unibus system)
Audio Processing	None
SCSI interface	ANSI × 3.131-1986, 50-pin shielded connector

VIDEODISC PLAYER (HDL-2000)

Signal standard	SMPTE 240M
Power requirements	AC 100 to 120V/220 to 240V (±10%)
Power consumption	350W
Video	
S/N	42dB (Y)
Bandwidth	20MHz (Y) 6MHz (C)
Audio	
Frequency bandwidth	20Hz to 20kHz (±1dB)
Harmonic distortion	Less than 0.05%
Dynamic range	90dB
Channel crosstalk	−80dB
Wow and flutter	Below measurable levels
Input/Output	
VIDEO OUT	G/Y, B/P_B, R/P_R (BNC, 2 outputs)
REF VIDEO IN	Loop-through BNC
AUDIO OUT	CH-1/CH-2 (XLR 3-pin, 2 channels)
REMOTE	RS-232C
SPARE	D-sub 9-pin
Weight	Approx. 35.2 kg (77 lb 10 oz)
Dimensions	Approx. 436(W) × 286(H) × 608(D)mm (6 rack units) (17 1/4 × 11 3/8 × 24")

NTSC DOWN-CONVERTER (HDN-2000)

Signal standard	SMPTE 240M/SONY sync
Power requirements	AC 100 to 120V/220 to 240V ±10% (50/60Hz ±5%)
Power consumption	800W
Inputs	
High definition video	SMPTE 240M (G/B/R)
NTSC sync	Black burst (through input)
Outputs	
NTSC composite	Based on EIA RS-170A (× 3)
NTSC component	G/B/R or Y/B-Y/R-Y
DUB/component	12-pin for Betacam VTRs
High definition video	Waveform, monitor (with cursor), sync
Dimensions	436(W) × 650(H) × 630(D)mm (17 1/4 × 25 5/8 × 24 7/8")
Weight	Approx. 95 kg (209 lb 7 oz)

SYNC CONVERTER (HDSC-1000)

Signal standard		SMPTE 240M/SONY sync TSUKUBA EXPO. sync
Power requirements		AC 100 to 120V (90 to 132V)/ 220 to 240V (198 to 264V) 50/60Hz
Power consumption		100W
Frequency characteristics		0 to 30MHz ±0.5dB
S/N		55dB
Inputs:	Video	Channels 1/2 (G/Y, B/P_B, R/P_R)
	Sync	Channels 1/2
Outputs:	Video (1/2)	Channels 1/2 (G/Y, B/P_B, R/P_R)
	Sync (1/2)	Channels 1/2
Weight		Approx. 9.5 kg (21 lb)
Dimensions		Approx. 424(W) × 88(H) × 516(D)mm (16 3/4 × 3 1/2 × 20 3/8")

DISPLAY SYSTEM

PROJECTION SYSTEM
HDIH-1200/1200M, HDIH-2000/2000M, HDIH-3000/3000M

	HDIH-1200/1200M, HDIH-2000/2000M, HDIH-3000/3000M	HDIR-550/550M
General		
Power requirements	AC 120V, 50/60Hz (HDIH-1200/2000/3000) AC 220 to 240V, 50/60Hz (HDIH-1200M/2000M/3000M)	AC 120V, 50/60Hz (HDIR-550) AC 220 to 240V, 50/60Hz (HDIR-550M)
Power consumption	Approx. 480W	Approx. 400W
Horizontal resolution	1000TV lines (at screen center)—HDTV input 700 TV lines (at screen center)—Composite video input	800TV lines (at screen center)—HDTV input 700TV lines (at screen center)—Composite video input
Vertical resolution	850TV lines (at screen center)—HDTV input	750TV lines (at screen center)—HDTV input
Horizontal frequency	15kHz to 35kHz	15kHz to 35kHz
Vertical frequency	50Hz to 120Hz	50Hz to 120Hz
Video bandwidth	30MHz	30MHz
Brightness	300 lumen (peak white) 130 lumen (all white)	200 ft-L (peak white) 50 ft-L (all white)
Input	G/Y, B/P_B, R/P_R, Sync/HD, VD (HDTV) x 2 lines: BNC, 75 ohm terminated Composite video: BNC, 75 ohm terminated Y/C: Din-4pin, 75 ohm terminated Control S: Mini-jack	G/Y, B/P_B, R/P_R, Sync/HD, VD (HDTV) x 2 lines: BNC, 75 ohm terminated Composite video: BNC, 75 ohm terminated Control S: Mini-jack
Operating temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Dimensions	743(W) x 402(H) x 998(D)mm ($29^3/_8 \times 15^7/_8 \times 39^3/_8$″)	1340(W) x 1815(H) x 990(D)mm ($52^7/_8 \times 71^5/_8 \times 39$″)
Weight	99 kg (218 lb 4 oz)	220 kg (446 lb 14 oz)
Optical		
Projection system	3 picture tubes, 3 lenses, horizontal in-line system	3 picture tubes, 3 lenses, horizontal in-line rear projection system
Picture tube	9″ high brightness, magnetic focus CRT Impre-cathode, LC^2 (Liquid Coupling and cooling) system	7″ high brightness, optical coupling and liquid cooling system
Lens	High performance HACC lens, Anti-reflection coating F1.24, f172mm (HDIH-1200/1200M) F1.25, f174mm (HDIH-2000/2000M) F1.25, f177mm (HDIH-3000/3000M)	High performance HACC lens, F1.1, f116mm, multi-coating
Projection size	100″ - 150″ diagonally (120″, factory set)—HDIH-1200/1200M 150″ - 220″ diagonally (200″, factory set)—HDIH-2000/2000M 220″ - 350″ diagonally (240″, factory set)—HDIH-3000/3000M	55″ diagonally
Screen	—	2 pieces type, black stripe coating
Optimum viewing angle	—	Horizontal: ±50°, Vertical: ±20°

COLOR MONITORS

	HDM-1230/1230E	HDM-1730/1730E	HDM-2830/2830E	HDM-3830/3830E
Picture tube	Super Fine Pitch Trinitron 0.26mm phosphor trio pitch 12-inch visible picture measured diagonally	Super Fine Pitch Trinitron 0.31mm phosphor trio pitch 17-inch visible picture measured diagonally	Super Fine Pitch Trinitron 0.35mm phosphor trio pitch 28-inch visible picture measured diagonally	Super Fine Pitch Trinitron 0.46mm phosphor trio pitch 38-inch visible picture measured diagonally
Picture height	151mm	217mm	349mm	477mm
Picture width	268mm	385mm	620mm	852mm
Aspect ratio	16 : 9	16 : 9	16 : 9	16 : 9
Resolution	Center: H 600 TV lines V 750 TV lines Corner: H 580 TV lines V 700 TV lines	Center: H 760 TV lines V 750 TV lines Corner: H 700 TV lines V 700 TV lines	Center: H 1000 TV lines V 750 TV lines Corner: H 950 TV lines V 750 TV lines	Center: H 1000 TV lines V 750 TV lines Corner: H 950 TV lines V 750 TV lines
Input/output				
Video	G, B, R/Y, P_B, P_R with loop-through (BNC × 6)	G, B, R/Y, P_B, P_R with loop-through (BNC × 6)	G, B, R/Y, P_B, P_R with loop-through (BNC × 6)	G, B, R/Y, P_B, P_R with loop-through (BNC × 6)
Sync	Tri-level sync, bi-level sync, or HD/VD	Tri-level sync, bi-level sync, or HD/VD	Tri-level sync, bi-level sync, or HD/VD	Tri-level sync, bi-level sync, or HD/VD
Remote	10-pin connector	10-pin connector	10-pin connector	10-pin connector
Frequency response	60Hz to 30MHz ±3dB	60Hz to 30MHz $^{+0}_{-3}$dB	60Hz to 30MHz $^{+0}_{-3}$dB	N
Linearity	DG: Less than 5%	DG: Less than 5%	DG: Less than 5%	DG: Less than 5%
Convergence	Center: Less than 0.3mm Corner: Less than 0.5mm	Center: Less than 0.4mm Corner: Less than 0.7mm	Center: Less than 0.5mm Corner: Less than 0.8mm	Center: Less than 0.7mm Corner: Less than 1.0mm
Color temperature	Preset mode: 6500K Manual mode: adjustable (6500K at ex-factory)	Preset mode: 6500K Manual mode: adjustable (6500K at ex-factory)	Preset mode: 6500K Manual mode: adjustable (6500K at ex-factory)	Preset mode: 6500K Manual mode: adjustable (6500K at ex-factory)
Power requirements	AC 100 to 120V, 220 to 240V ±10%, 50/60Hz	AC 100 to 120V, 220 to 240V ±10%, 50/60Hz	AC 100 to 120V, 220 to 240V ±10%, 50/60Hz	AC 100 to 120V, 220 to 240V ±10%, 50/60Hz
Power consumption	160W	230W	330W	350W
Operating temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Operating humidity	10% to 85% (non-condensing)	10% to 85% (non-condensing)	10% to 85% (non-condensing)	10% to 85% (non-condensing)
Dimensions	Approx. 480(W) × 284(H) × 512(D)mm (19 × 11 1/4 × 20 1/4″)	Approx. 480(W) × 456(H) × 628(D)mm (19 × 18 × 24 3/4″)	Approx. 754(W) × 615(H) × 677(D)mm (29 3/4 × 24 1/4 × 26 3/4″)	Approx. 1030(W) × 764(H) × 865(D)mm (40 5/8 × 30 1/8 × 34 1/8″)
Weight	Approx. 26Kg (57 lb 5 oz)	Approx. 43.2Kg (95 lb 4 oz)	Approx. 92Kg (202 lb 13 oz)	Approx. 184Kg (405 lb 8 oz)

SONY

High Definition Video System

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