

SONY[®]

High Definition Video System

HDVS

HDC-700A/HDC-750A



HDC-700A



HDC-750A

HDC-700A/HDC-750A

For more than a decade, Sony has established its position as a pioneer in development of the High Definition Video System (HDVS[®]) including cameras, switchers, routers, VTRs and camcorders. Today our productivity for HDVS is second to none as we now proudly introduce an innovative camera system—the HDC-700A and HDC-750A for the new digital video broadcast era.

Sony High Definition Color Video Camera

Recently, there has been a growing tendency toward the advanced digital video broadcast service on a worldwide basis, which accepts high picture and sound quality as "HDTV". Sony has carefully considered this fact in designing the new generation HD camera, and realized true multi-purpose video camera to match the various broadcasting formats. Several points required with the new HD camera in the coming broadcast scene include:

- Easy-to-use, same as existing color video cameras
- Easy-to-integrate into conventional systems
- As cost-effective as daily equipment

The HDC-700A/750A follows the body design of the existing Sony BVP-900/700/500 cameras. Switches and connectors are located in the same position on both the HDC and BVP, so operators accustomed to using Sony's camera will immediately find the HDC-700A/750A familiar and easy to use.

For integration, Sony's conventional panels and peripherals can be used with HDC-700A/750A, such as MSU, CNU and RCPs. Contemporary menu control systems and user-friendly auto setups are also inherited.

And for prices, initial cost is cut down to almost same level as conventional camera equipment. Now high definition camera system is no more than a prize beyond the reach, it's not just for superior application like cinematography shooting.



In these times of DTV uncertainty, potential camera buyers need to carefully examine their own requirements. Make the right decision. Sony HDC-700A/750A is worth investing for coming digital video broadcasting era.



Multi-purpose

In phase with the multi-purpose concept, this system features various signal interfaces. The HDCU-700A camera control unit features a high performance downconverter with the latest Sony technologies. It converts 1125 signals to 525 signals, which are defined as SMPTE-292M and 259M (ITU-R601). For 1125 signals, analog Y/P_B/P_R signal (defined as SMPTE-240M) can be input and output alternatively. And for 525 signals, digital and analog composite signals can also be output from HDCU-700A. In the coming new digital broadcast service era, the standard format is



confusing on a worldwide basis. But that is the very reason why Sony HDC-700A/750A is the best choice to invest for future facilities. With its multi-purpose signal interfaces, the HDC-700A/750A can easily integrated into conventional systems and easily adjusted to each broadcasting format.



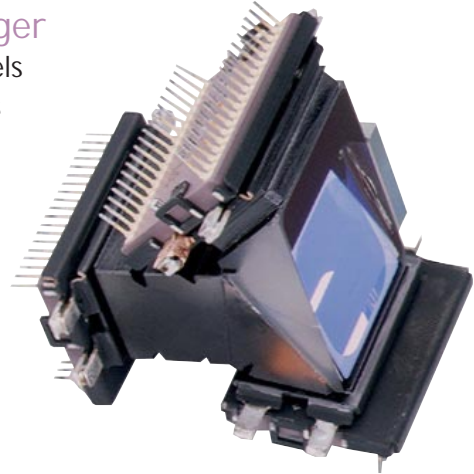
High Picture Performance

1080 Lines with New Solid-state Imager

Equipped with newly developed two million pixels FIT CCD imager, the HDC-700A/750A achieves 1080 of active lines per frame.

High Sensitivity

The newly developed two million pixel 2/3-inch FIT CCD provides excellent picture quality. For sensitivity, it achieves F8.0 at 2000 lux.



Excellent Signal-to-noise Ratio

The synergistic effect between the CCD sensor structure and the advanced support electronic circuitry enables the HDC-700A/750A to deliver a high luminance S/N ratio of 54 dB (1125 output)/60dB (525 component output).

High Resolution

A total two million picture elements assures a high horizontal luminance resolution of 1000 TV lines.

Smear Reduction

In the HDC-700A/750A, the combination of FIT charge transfer technique and the CCD sensor reduces the vertical smear to a remarkable level of -125 dB.

Wide Dynamic Range

Up to 600 % is achieved with HDC-700A/750A.

HD lens or Conventional 2/3-inch lens Mountable

Either an HD lens or conventional 2/3" lens can be mounted allowing the conventional lens now being used everyday on all Sony 525 cameras and camcorders to be used with the HDC-700A/750A for an easier migration to DTV.

Enhanced Operation

1125/525 Compatible

It is not only integrated into 1125 system but also integrated into conventional 525 environment alternatively. Its 525 output enables integration in both component and composite system or both digital and analog system. When shooting as the 1125 equipment, the aspect ratio can be changed within three modes on monitors—squeeze, edge crop or letterbox. Its simultaneous 1125/525-output capability even realizes the dual system using the 1125 switcher and 525 switcher alternatively. The possibility of simulcast program is lying before you.

Variable Speed Electronic Shutter

This function makes it possible to capture clear and blur-free image of fast moving objects. Shutter speed can be selected as 1/100, 1/125, 1/250, 1/500, 1/1000 and 1/2000 seconds.

Super Enhanced Vertical Definition System

With HDC-700A/750A, an optional innovative technique involving the vertical shutter mechanism can be applied, allowing it to approach the vertical enhancement capability of the frame integration mode. With Super EVS in use, the charges accumulated in the adjacent lines used in pairs are not simply added before readout. Only a small amount of the charges collected in one of the adjacent lines is added to the entire amount of the charges accumulated in the related line. This result in enhanced vertical resolution with no line flicker or picture blur.

Auto Setup Function

The HDC-700A/750A inherits a familiar auto setup system of the other successive cameras, which execute adjustment of the camera based on a test signal from a built-in signal generator. Thanks to the stability of CCD images, this camera provides more accurate and reliable auto setup.



Camera Adapter — HDCA-750A

Equipped with an Optical fiber cable interface for use with the HDCU-700A Camera Control Unit. High picture quality transfer and accurate color reproduction are provided through Y/P_R-Y/P_B-Y transmission with its transferring matrix circuit, which is newly defined as ITU-R701.



Camera Control Unit — HDCU-700A

Multiple Video Inputs and Outputs

The HDCU-700A has four sets of HD SDI (High Definition Serial Digital Interface) signal inputs and outputs, and four sets of digitally down converted SDI* (Serial Digital Interface) inputs and outputs. Adding the HKCU-701A optional NTSC encoder board provides the NTSC composite SDI, NTSC analog component input/output. Further, addition of an optional HKCU-702 HD analog interface allows HD analog signal input/output which is defined as SMPTE-240M.

*This model has not been adjusted to the PAL signal standard.

Dual Image Enhancers and Color Compensation Capability

Both the 1125 and 525 outputs each have their own independent image enhancers and color compensation capability, to ensure optimal picture quality and picture matching within the separate domains of coming high definition digital broadcasting and conventional broadcast service (if this is required).

Optical Digital Transmission

The HDCU-700A can be connected to a camera using an optical fiber cable (two single-mode optical fiber lines, two power lines, and two control lines) for the transmission of digitized video, audio and control signals. By connecting together 250-meter (820 feet) optical fiber cables, an extremely high-quality all-digital audio/visual signal can be transmitted up to a maximum of 3000 meters (1.86 miles). The maximum length of the supplying power to the camera varies with the camera system configuration and with the size of optical fiber cable.

Safety-oriented Power Supply

As safety is a major design concept for the HDCU-700A series, a low voltage is supplied at first, when the power of the HDCU-700A is turned on. Only after it has been verified when an appropriate camera is attached, the normal power supply is activated. The power is not supplied unless a camera is connected via an optoelectric cable. Also, the HDCU-700A is equipped with an alarm indicator to warn of open or short circuits in the cable.

Internal Down Converter

1125 signals can be converted to 525 component SDI signals using the built-in superlative down converter, when the system is operating at a 59.94 Hz field frequency. The output signal aspect ratio may be set to 4:3 or 16:9 (squeeze, edge crop or letterbox can be selected). The down converter has image enhancement, gamma control and color correction features to facilitate picture matching to existing NTSC cameras which can be externally controlled.

Internal Up Converter

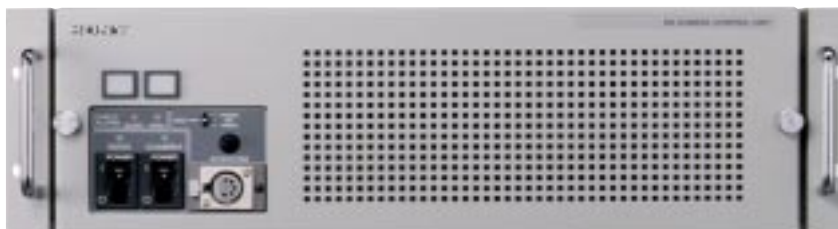
A built-in up converter allows monitoring of 525 return video signal from HD viewfinder of camera head for camera operator's convenience. The aspect ratio of the return video signal can be set to 4:3 or 16:9 (squeeze, edge crop or letterbox can be selected).

External Reference Signals

The HDCU-700A can be locked to an external reference signal. Either 1125 tri-level sync signal (according to SMPTE 240M), a 525 sync or black burst signal can be used as the reference signal.

Wide Range of Audio Functions

The HDCU-700A has connectors for two-channel microphone outputs, a digital audio output, and a program audio input. Further, the HDCU-700A can use an intercom system with two independent channels, and supports two-wire, four-wire and CLEAR-COM[®] intercom systems.



Control System

The HDC-700A/750A system is fully compatible with Sony's conventional camera command network system.

The Master Setup Unit—MSU-700

The MSU-700 is the centralized technical control position for a multi-camera system. It has been designed to provide comprehensive, wide ranging, technical supervision and alignment of a complex camera system from a single centralized panel. If it is desirable in a large program origination complex to extend this supervision to more than one control location (for example, separate operational and engineering/maintenance control centers) then a number of MSU-700 panels can access the entire camera system. To exercise maximum flexibility in controlling a multi-camera system, the MSU-700 is designed to work in conjunction with the Command Network Unit CNU-700/500. However, if a simplified system is desired, the MSU-700 can also operate by itself. The MSU-700 panel provides rapid, finger-tip access to all controls relating to the smooth functioning of an operational system, including:

- Technical alignment controls for the entire camera chain
- Picture and waveform monitor switching
- System configuration
- Control data filing



The Camera Command Network Unit—CNU-700/500

The CNU-700/500 Camera Command Network Unit is designed as the technical "nerve center" of a Star Shape Network System. Through the CNU-700/500, control signal can be transferred at innovative speed, by employing an RISC-based microprocessor chip in itself.

Thus camera head can be controlled in real-time and instant response is enabled. And all units connected to the CNU-700/500 can easily communicate with each other via this unit.



The Video Selector — VCS-700

With the combination of VCS-700 and CNU-700/500, picture and waveform monitoring video signals of each camera can be handled*.

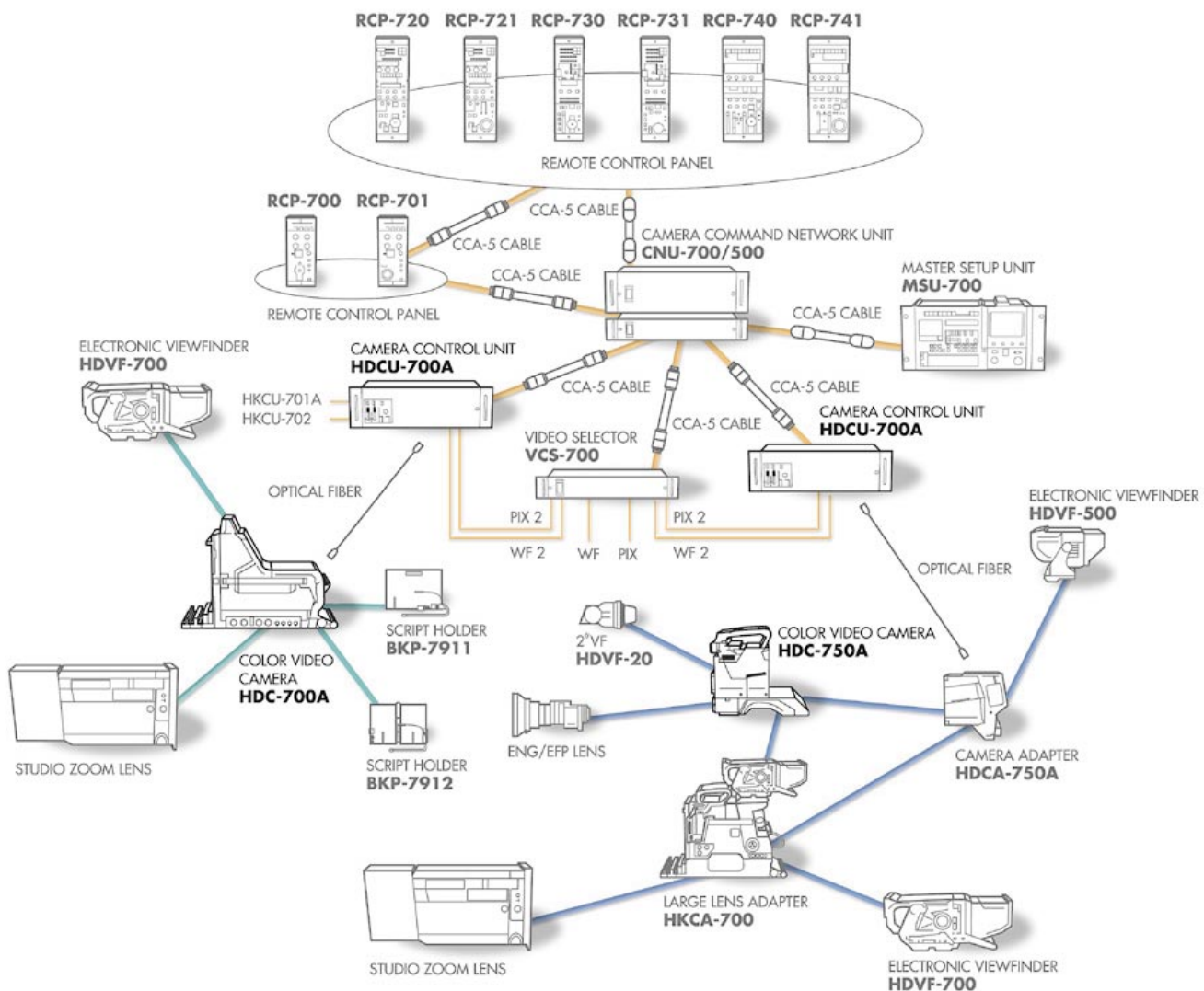
*SDI monitoring. It is used for NTSC system. HDS-V3232 is required for HD SDI monitoring.



The Remote Control Panels — RCP-700 series

The RCP-700 Series of Remote Control Panels consists of four ranges, from basic to advanced production control to meet individual user's needs. Each range includes both joystick type (e.g. RCP-xx0) and dial control type (e.g. RCP-xx1).

System Configuration



Specifications

HDC-700A

Input connectors

Audio in:	XLR-3-31 type (female x2), phantom +48 V, line
Reference in:	BNC type (x1)
DC in:	XLR-4-pin type (male x1)
Return control:	6-pin

Output connectors

Test out:	BNC type, 1.0 Vp-p, 75Ω
Prompter out:	BNC type, 1.0 Vp-p, 75Ω, input/output
Video out:	BNC type, 1.0 Vp-p, 75Ω
Viewfinder connector:	D-sub 25-pin
DC out:	4-pin, 5 W/12 VDC
Intercom:	XLR-5-pin (x2) input/output
AC utility out:	Max. 200 VA

Input/output connectors

CCU:	Optical fiber connector
Lens:	36-pin
VTR:	CCZ type, 26-pin
Tracker:	10-pin
Remote:	8-pin (for RCP-700series)

Recommended equipment

HDCU-700, HD Camera control unit
MSU-700, Master setup unit / RM-B150, Remote control unit
RCP-741/740/731/730/721/720/701/700,
Remote control panel / VCS-700, Video selector
CNU-700/500, Camera command network unit

HDCA-750A

General

Operating temperature:	-20 °C to +45 °C (-4 °F to +113 °F)
Storage temperature:	-20 °C to +50 °C (-4 °F to +122 °F)
Mass:	Approx. 2.7 kg (5 lb. 15 oz)
External dimensions:	133(W) x 213(H) x 192(D) mm (5 1/4 x 8 1/2 x 7 7/8 inches)

Connectors

MIC in:	XLR-3-31 type (male x2), 600Ω, balanced, phantom +48 V
DC in:	XLR-4-pin type (male x1), 10.5 to 17 VDC
DC out:	4-pin, 10.5 to 17 V, Max. 200 mA
GENLOCK/PROMPTER out:	BNC type, 1.0 Vp-p, 75Ω
Reference in:	BNC type, 1.0 Vp-p, 75Ω
Return control:	6-pin
Earphone:	Minijack, 8Ω
SERIAL OUT:	BNC type
Camera I/F:	68-pin
VTR:	CCZ type, 26-pin
CCU:	Optical fiber connector
INCOM/PGM:	2 CH, Headset XLR-5-pin
RCP:	8-pin (Female x1)
Tracker:	10-pin
INCOM 1 and 2:	XLR-5-pin type
VF:	12-pin
EXTERNAL I/O:	50-pin (for HKCA-700)

HDC-750A

Input connectors

MIC 1:	XLR-3-31 type (female x2), phantom +48 V
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Output connectors

Test out:	BNC type, 1.0 Vp-p, 75Ω
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Input/output connectors

Viewfinder I/F:	20-pin
Lens:	12-pin
Camera adapter I/F:	136-pin (68-pin x2)
Remote:	8-pin (for RCP-700 series)

Recommended equipment

HDCU-700, HD Camera control unit / MSU-700, Master setup unit
RCP-741/740/731/730/721/720/701/700,
Remote control panel
RM-B150, Remote control unit / VCS-700, Video selector
CNU-700/500, Camera command network unit

HDCU-700A

General

Power supply:	AC 100/110-120/220-240 V, 50/60 Hz
Current consumption:	5 A (at 100 VAC, entire system active)
Operating temperature:	+5 °C to +40 °C (+41 °F to +104 °F)
Storage temperature:	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions (W/H/D):	424 x 133 x 460 mm (16 3/4 x 5 1/4 x 18 1/8 inches)
Mass (Approx.):	20 kg (44 lb. 1 oz)

Input connectors

HD serial return input:	BNC type (x4), SMPTE 292M
HD reference input:	BNC type (x1), with loop-through, SMPTE-240M, tri-level sync, 0.6 Vp-p, 75Ω
Prompter in:	BNC type (x1), with loop-through, SMPTE-292M analog signal, 1.0 Vp-p, 75Ω
SD serial return input:	BNC type (x4), SMPTE-259M, 0.8 Vp-p, 75Ω, 143 or 270 Mbps bit rate
SD reference in:	BNC type (x1), with loop-through, composite SYNC/BB/VBS

Output connectors

MIC out:	XLR-3-31 type (female x2), 0 dBs/-20 dBs
DIGITAL AUDIO out:	BNC type (x1), AES/EBU format
CHARACTER out:	BNC type (x1), 525 black and white, 210 mVp-p (characters), 300mV (sync)
HD SERIAL out:	BNC type (x3), SMPTE-292M, 0.8Vp-p, 75Ω, 1.5Gbps bit rate
HD SERIAL MONI out:	BNC type (x4), SMPTE-259M, 0.8 Vp-p, 75Ω, 143 or 270 Mbps bit rate

Input/output connectors

INCOM/TALLY/PGM:	19-pin composite connector INCOM-4W, 2 systems (PD/ENG), 0 dB PGM, 2 systems, 0 dB/-20 dB TALLY (R, G) TALLY contact
TRUNK LINE:	D-sub 9-pin (female x1), RS-232C for CHU transmission

Supplied accessories

HDC-700A

Angle adjustment fitting (x2) / Front cover (x1)
 Number plate: for up tally (x1)
 for side panel (x2)
 for rear panel (x1)
 Belt for cable clamp (x2) / Microphone connector (female, x1)
 Operation manual (x1)

HDC-750A

Shoulder strap (x1) / VCT-14, Tripod adapter (x1)
 EX-512, Extension board (x1) / Operation manual (x1)
 Maintenance manual (x1)

HDCA-750A

BKP-L551, Battery adapter (x1) / Battery spacer (x1)
 Battery attachment accessories (x1) / +B2.6 x 5 Screw (x1)
 CN-1292 board, MIC connector (x2) / Precision screw (x1)
 Guard (x1) / M4 x 6 Allen screws (x3) / Operation manual (x1)
 M4 x 16 Allen screws (x2) / Maintenance manual (x1)

HDCU-700A

AC power cord (x1) / Plug holder for the AC power cord (x1)
 Number plate (x1 set) / Operation manual (x1)
 Maintenance manual (x1)

Optional accessories

HDC-700A

HDVF-700, 7-inch HD B/W viewfinder
 VFH-770, 7-inch viewfinder sport hood for HDVF-700

HDC-750A

HDCA-750A, HD Camera Adapter
 HKCA-700, Large lens adapter
 HDVF-20, 2-inch B/W viewfinder
 HDVF-500, 5-inch B/W viewfinder
 VFH-550, 5-inch viewfinder sport hood for HDVF-500
 HDVF-700, 7-inch B/W viewfinder (for HKCA-700)
 VFH-770, 7-inch viewfinder sport hood for HDVF-700
 BKW-L401, Viewfinder rotation bracket

HDCA-750A

CAC-6, Return video selector

HDCU-700A

FC2-PD250, Optical fiber cable (250 m)
 FC2-PD50, Optical fiber cable (50m)
 HKCU-701A, NTSC encoder board
 HKCU-702, HD analog interface board
 Extension board

	HDC-700A	HDC-750A
Pickup device	3-chip 2/3-inch FIT CCD (16:9)	
Picture elements	Two million pixels	
Spectrum system	F1.4 prism system	
Color filter-A	Cross	Cross
Color filter-B	3200 K	3200 K
Color filter-C	4300 K	4300 K
Color filter-D	6300 K	6300 K
Color filter-E	8000 K	—
ND filter-1	Clear	Clear
ND filter-2	1/4 ND	1/4 ND
ND filter-3	1/8 ND	1/16 ND
ND filter-4	1/16 ND	1/64 ND
ND filter-5	1/64 ND	—
Servo filter unit	Yes	Yes
Sensitivity	F8.0 at 2000 lx (3200 K, 89.9 % reflectance)	
Minimum illumination	16 lx (F1.4, +12 dB gain up)	
Signal to Noise ratio	54 dB (1125 output)/60 dB (525 output)	
Horizontal resolution	1,080 TVL	
Geometric distortion	Within 0.02 % all zones (w/o lens)	
Shutter speed selection	1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 s	
Gain selection	-3, 0 +3, +6, +12 dB	
Clear scan selection	60.1 ~ 7000 Hz	
Extended clear scan	30.4 ~ 58.3 Hz	
Modulation depth	45 % at 800 TVL (27.5 MHz/1125 mode) 70 % at 400 TVL (5 MHz/525 mode)	
Smear level	-125 dB	
Frequency response	Within 0 +/-0.5 dB(10 ~ 25 MHz) Within 0 +/-1.0 dB(25 ~ 30 MHz)	
Lens mount	Sony hanger mount	Sony bayonet mount
Mass (Approx.)	20 kg (44 lb. 9 oz)	5.9 kg (13 lb.)
Dimensions	368 x 381 x 442 mm	138 x 302 x 360 mm
(Approx.) (W/H/D)	(14 1/2 x 15 x 17 1/2 inches)	(5 1/2 x 12 x 14 1/4 inches)
Operating temperature	-20 °C to + 45 °C (-4 °F to +113 °F)	
Storage temperature	-20 °C to + 50 °C (-4 °F to +122 °F)	

Optional accessories



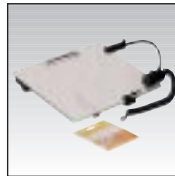
7-inch Electronic
B/W Viewfinder
HDVF-700



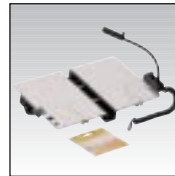
5-inch Electronic
B/W Viewfinder
HDVF-500



2-inch 16:9
B/W Viewfinder
HDVF-20



Script Holder
BKP-7911



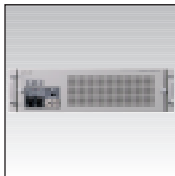
Script Holder
BKP-7912



Return Video Selector
CAC-6



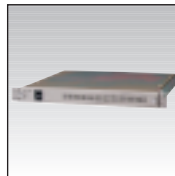
Mic Holder
CAC-12



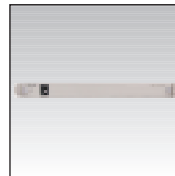
HD Camera Control Unit
HDCU-700A



Camera Command
Network Unit
CNU-700



Camera Command
Network Unit
CNU-500



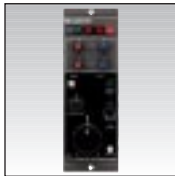
Video Selector
VCS-700



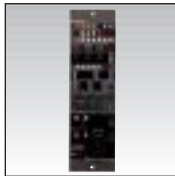
Remote Control Unit
RM-B150



Remote Control Panel
RCP-700



Remote Control Panel
RCP-701



Remote Control Panel
RCP-720



Remote Control Panel
RCP-721



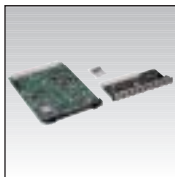
Remote Control Panel
RCP-740



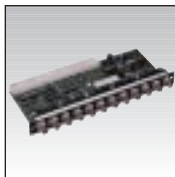
Remote Control Panel
RCP-741



Large Lens Adapter
HKCA-700



Digital Rate Converter
HKCU-701A



HD Analog Interface Board
HKCU-702



7-inch viewfinder
Sports Hood
VFH-770



5-inch viewfinder
Sports Hood
VFH-550

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