HDC-2000 Series

Multi-format HD Camera System

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Digital HDVS

HDC-2000 Series – Heralds a New Era of HD Production

Sony introduces a powerful full-lineup solution for HD studio operations with the HDC-2000 System Camera Series in four models: Sony's full-featured flagship model, the HDC-2500; its basic model, the HDC-2400; the full-size studio model, the HDC-2000; and – to allow systems to be configured in a conventional triax-based infrastructure – the HDC-2550 triax-based portable camera.

For use in a wide range of shooting applications, Sony offers two types of camera control unit (CCU) for connection with these cameras: the HDCU-2000 full-rack-size CCU, and the HDCU-2500 half-rack-size CCU.

HDC-2000 Series cameras provide superior picture quality by incorporating a newly developed high-performance 2/3-inch CCD image sensor and a digital signal processor (DSP) with a 16-bit A/D converter.

In addition, the HDC-2000 Series incorporates a 3-Gbps high bitrate fiber transmission system as a standard feature.

With their innovative high performance and advanced operability, HDC-2000 Series cameras are outstanding acquisition tools for a broad range of HD production applications.

* Please refer to the table below for the supported formats for each camera head.

HDC-2500

HDC-2000

Studio Camera

HDC-2000
Optical-fiber interface
1080/50i, 1080/59.94i
1080/23.98p, 1080/24p, 1080/25p, 1080/29.97p
1080/50p, 1080/59.94p
720/50p, 720/59.94p
1080/100i*, 1080/119.88i*
720/100p*, 720/119.88p*

*Slow-motion 2x speed recording formats

Portable Cameras

HDC-2500
Optical-fiber interface
1080/50i, 1080/59.94i
1080/23.98p, 1080/24p,
1080/25p, 1080/29.97p
1080/50p, 1080/59.94p
720/50p, 720/59.94p
1080/100i*, 1080/119.88i*
720/100p*, 720/119.88p*

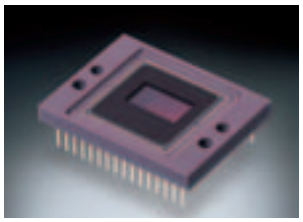
*Slow-motion 2x speed recording formats

HDC-2400
Optical-fiber interface
1080/50i, 1080/59.94i
720/50p, 720/59.94p

HDC-2550
Triax interface
1080/50i, 1080/59.94i
720/50p, 720/59.94p

Cutting-edge Technologies

Newly Developed Progressive CCD



At the heart of the outstanding picture performance of the HDC-2000 Series is a newly developed 2/3-inch type 2.2-megapixel* full-HD progressive CCD. Based on Sony's HAD sensor technology and the latest on-chip lens structure, this CCD offers a high sensitivity of F11 (1080/50i) or F10 (1080/59.94i) at 2,000 lx and a superior signal-to-noise ratio of -60 dB even without digital noise suppression. In addition to this performance, a wide variety of capturing formats including 1080/50i, 1080/59.94i, 1080/23.98p, 1080/24p, 1080/25p, and 1080/29.97p are available. What's more, this CCD can capture top-quality 1080/50p and 1080/59.94p images – a capability that also delivers the highest possible quality 720/50p and 720/59.94p image acquisition.
Double-speed acquisition for excellent slow-motion picture quality is available in the following modes: 1080/100i, 1080/119.88i, 720/100p, and 720/119.88p.

*Actual picture area

High-quality 16-bit A/D Conversion

HDC-2000 Series cameras incorporate a high-performance 16-bit A/D converter that enables images captured by the high-performance CCD to be processed with maximum precision. In particular, this high-resolution A/D conversion allows faithful reproduction of gradation in mid-to-dark-tone areas of the picture.

State-of-the-art DSP LSI

The newly developed DSP (Digital Signal Processing) LSI is at the heart of image processing in the HDC-2000 Series. This processor can accommodate up to 1080/50p and 1080/59.94p progressive formats and 16-bit resolution, maximizing the high-clarity images captured by the CCD. In addition, white balance, white shading, and flare are digitally corrected, allowing for stable image correction. Moreover, the new version of the Auto Lens Aberration Compensation (ALAC) function is incorporated to optimize lens performance, providing stunning picture quality by highly improved horizontal and vertical compensation.

Noise Suppression Function

The HDC-2000 Series has a Noise Suppression function which reduces the high-frequency noise elements in video signals by using Sony's advanced digital signal processing technology.

Excellent Slow-motion Picture Via Double-speed Acquisition*1

A Double-speed Acquisition function is available in 1080/100i, 1080/119.88i, 720/100p, or 720/119.88p mode to provide startlingly dramatic pictures with a SMPTE-standard fiber cable between the camera and the CCU.

*1 An optional HZC-DFR20 is required for the HDC-2400.

Network TRUNK Function*2

The Network TRUNK function (LAN port) allows for data transmission between the camera and the CCU at up to 1 Gbps. This allows for a multitude of new system configurations to be used with various IP-based products.

*2 Optional HKC-FB20 and HKC-CN20 side panels are required for the HDC-2550.

3-Gbps Optical Fiber Transmission

The HDC-2000, HDC-2400, and HDC-2500 cameras offer a 3-Gbps transmission capability as standard. This high-performance feature enables users to shoot in various capturing formats.
Each camera comes equipped with a SMPTE-standard optical fiber interface for connecting its associated HDCU-2000 or HDCU-2500 Camera Control Unit.
In addition to achieving exceptional quality, these cameras can transmit all-digital bi-directional video and audio signals, a control line, and a prompter line over extremely long distances – up to 4,000 meters (13,123 feet)* with the HDCU-2000, and 2,000 meters (6,562 feet)* with the HDCU-2500.

* When supplying power to the camera via optical fiber cable, maximum cable length depends on the camera system configuration, lens type, the size of the optical fiber cable, and the number of cable connectors.

HDC-2000

Great Operability

Ergonomic Design

The design of HDC-2000 Series cameras is based on over two decades of Sony's experience in manufacturing broadcast video cameras and camcorders, and provides a high level of operability. All control switches and connectors are in the most logical places for optimum functionality and ease of use. The low-profile body of HDC-2000 cameras minimizes the parallax between the optical axis of the camera head and the large viewfinder. The HDC-2400, HDC-2500, and HDC-2550 have a low-center-of-gravity design which allows the operator to carry the camera comfortably on their shoulder. A larger handle opening permits a wider angle of view for handheld camera operation. In addition, the shoulder pad of these cameras can be adjusted either forwards or backwards without using a screwdriver, so it's easy to move the camera to a well-balanced position.

Stylish and Robust Camera Body

HDC-2400, HDC-2500, and HDC-2550 cameras incorporate Carbon Fiber Reinforced Plastic (CFRP) in their outer panel to provide high rigidity within a stylish design.

Choice of Two Camera Control Systems

In a multi-camera configuration featuring the HDC-2000 Series, two types of camera control system can be used. One is where the CNU-700 Camera Command Network Unit is at the center of the configuration, while the other makes use of the LAN connection functionality of these systems. Both control systems allow communication between all devices in the configuration, including cameras, camera control units, remote controllers, and setup units.

Wide-band Triax Transmission (HDC-2550)

The HDC-2550 camera comes equipped with a widely used triax transmission capability supporting transmission up to 1,400 meters (4,593 feet)* with a ø14.5 mm triax cable or 1,000 meters (3,281 feet)* with a ø13.2 mm triax cable.

* When supplying power to the camera via triax cable, maximum cable length varies with the camera system configuration, lens type, the size of the triax cable, and the number of cable connectors.

Focus Assist Functions

For easier focusing on the viewfinder, two types of Focus Assist function are incorporated to the HDC-2000 Series: Viewfinder Detail and Focus Assist Indicator. To intuitively recognize a focusing point, users of the camera can add dedicated image-enhancing edge signals directly to the viewfinder as Viewfinder Detail. The Focus Assist Indicator is a helpful tool for manual focus adjustments, especially when shooting wide-angle views. An indicator is displayed at the bottom or other positions of the viewfinder frame, enabling users to make more accurate and fine focus adjustments.

Compact and Lightweight

HDC-2500 and HDC-2400 portable cameras are designed to be very compact and lightweight for a high level of mobility in the field. These cameras weigh approximately 4.5 kg (9 lb 15 oz).

Servo-controlled ND and CC Filters

HDC-2000, HDC-2500, and HDC-2550 cameras come equipped with dual optical filter wheel for ND (Neutral Density) and CC (Color Correction), while the HDC-2400 camera is equipped with a single optical filter wheel for ND. The filters can be remotely controlled from a RCP Series Remote Control Panel, MSU-1000/MSU-1500 Master Setup Unit, or RM-B170 Remote Control Unit, as well as locally controlled on the camera head.

Other Features

- Versatile output signal format
- USB storage of camera setup parameters
- Digital spirit-level indicator

HDLA-1500/HDLA-1505/HDLA-1507 – Maximizing Operability

As new requirements arise, Sony is continuously seeking to develop optimum solutions.
One example is the ever-increasing number of operations that combine a portable camera with a large lens, and in response to this Sony has developed highly sophisticated HDLA-1500 and HDLA-1505 Large Lens Adaptors to maximize the operability of HDC-2400, HDC-2500, and HDC-2550 cameras.
Generally, setting up a portable camera to a large lens adaptor can be a difficult task, especially fine-tuning the mechanical adjustments between each device. However, with the HDLA-1500 or HDLA-1505 Large Lens Adaptor, time-consuming adjustments, as well as wiring, are completely eliminated.
Another convenient peripheral for the portable cameras, the HDLA-1507 Large Viewfinder Adaptor, is also available, enabling a large viewfinder to be used.

Docking **3**
Close the rear cover.

Docking 1

Open the rear cover of the HDLA Series adaptor. There is no need to detach the viewfinder.

Unique Interlocking Mechanism for Simple Operation

HDLA-1500, HDLA-1505, and HDLA-1507 adaptors do not require any cable wiring. Utilizing an unprecedented interlocking mechanism, this solution passes the power, video, and control signals on directly from the portable cameras to the HDLA Series adaptor. This unique mechanism also allows the portable cameras to be attached and detached without removing large lenses. Furthermore, a lens can be removed even when the camera is mounted on the HDLA-1500 or HDLA-1505 adaptor. The interlocking mechanism therefore allows for astonishingly quick and smooth setup.

Low-profile Design

The low-profile design significantly improves the operator's view, as well as minimizes the parallax between the optical axis of the camera head and viewfinder.

Docking 2

Mount the portable camera and slide forward until you hear the locking click.

Creative Versatility

Digital Extender Function*

The Digital Extender function of the HDC-2000 Series enables images at the center of the shot to be digitally doubled in size. Unlike lens extenders, the Digital Extender function performs this capability without any loss in image sensitivity, which is commonly referred to as the F-drop phenomenon.

* Use of the Digital Extender function reduces image resolution by 50%.

Multi-matrix Function

The Multi-matrix function of these cameras allows color adjustments to be applied over the color range specified by the operator. The color spectrum is divided into 16 areas of adjustment, where the hue and/or saturation of each area can be modified. This function is especially useful when only the hue of certain colors needs to be adjusted for special-effects work.

Multi-matrix OFF

Multi-matrix ON

Simulated images

Adaptive-matrix Function

The newly developed Adaptive-matrix function performs appropriate color conversion by controlling specific color factors. This enables ideal color conversion for shooting even under excessively strong ambient lighting conditions such as live shooting under bright monochromatic blue light that would cause a conventional matrix function to exceed the color conversion range.

Natural Skin-tone Detail Function

The Natural Skin-tone Detail function allows users to control the tone of human skin by making certain areas smooth while keeping specific areas sharp. This function is particularly effective in maintaining eyebrows when human skin tone is touched up.

Natural Skin-tone Detail OFF

Natural Skin-tone Detail ON

Simulated images

Knee Saturation Function

Traditionally, shooting very bright portions of an object (such as key light conditions from a person's forehead) can reduce color saturation and change the hue in areas of highlight. The HDC-2000 Series of cameras adopts a Knee Saturation function, in which this "washed-out" effect on saturation and hue change is reduced to a minimum. This function provides far more natural color reproduction in highlighted areas.

Knee Saturation OFF

Knee Saturation ON

Simulated images

Low-key Saturation Function

With conventional cameras, low light areas can be subject to a reduction in saturation. This can result in under-saturated colors in those areas. The Low-key Saturation function on the HDC-2000 Series eliminates this problem by optimizing the amplification of color saturation in low light areas, providing more natural color reproduction.

Low-key Saturation OFF

Low-key Saturation ON

Selectable Gamma Table

The selectable gamma table provided with this camera series allows users to create a specific look for a picture by selecting from a choice of fixed gamma patterns.

Variable Black Gamma Function

The Variable Black Gamma function for the HDC-2000 Series allows for fine adjustment of tonal reproduction in areas of shadow. This feature can help bring out details from the dark parts of a picture without affecting mid-tones.

Standard Video Gamma

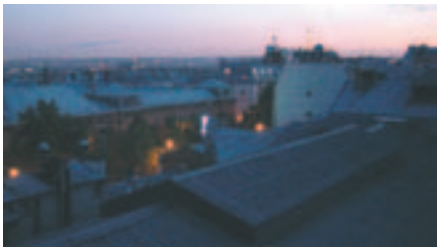
Variable Black Gamma ON

Simulated images

HyperGamma

HyperGamma is a set of transfer functions designed to provide powerful contrast handling by making maximum use of the capacity and wide dynamic range of the Power HAD™ CCD sensor.

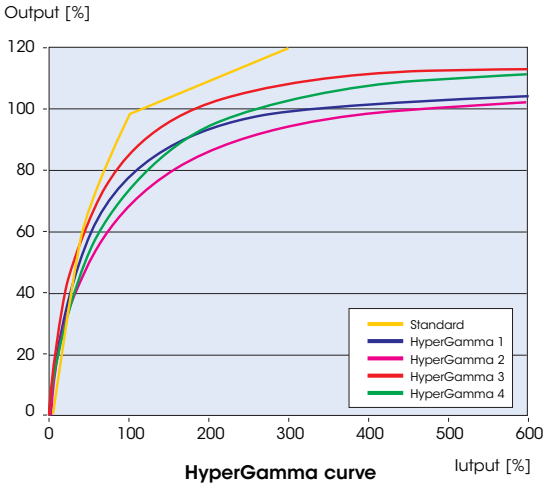
These functions are quickly accessed via the setup menu, and camera operators can select one curve from a choice of four that best suits their needs and conditions. For example, they can select to enhance natural reproduction in low-key areas, to achieve greater flexibility in wide dynamic scenes, and more.



Low Light Condition

High Contrast Scene

Simulated images



HyperGamma curve

Versatile System Components

The HDC-2000 Series of cameras is compatible with a variety of new and legacy peripherals including camera control units, remote controllers, command network units, and master setup units. This allows operators to flexibly configure a system according to their needs both in the studio and out in the field. Optional HDTX-100 and HDFX-100 triax adaptors are available for the HDC-2000, HDC-2400, and HDC-2500 optical fiber-based cameras to enable triax-based operation.

HDCU-2000 Full-size Camera Control Unit
HDCU-2500 Half-rack-size Camera Control Unit

The HDC-2000 Series can be configured with two types of camera control unit – the full-size HDCU-2000, and half-rack-size HDCU-2500. The optical fiber transmission system used in these units maintains the camera's high picture quality across cable runs of up to 4,000 meters (13,123 feet)* with the HDCU-2000, and up to 2,000 meters (6,562 feet)* with the HDCU-2500. Both models are equipped with a range of built-in interfaces such as 3G-SDI/HD-SDI/SD-SDI outputs, 3G-SDI/HD-SDI/SD-SDI/analog composite return inputs, and a down-converted analog composite monitor output. In addition, a variety of output interfaces are offered via optional boards, which can be installed in six slots on the HDCU-2000 and two slots on the HDCU-2500. Furthermore, the LAN interface (10BASE-T/100BASE-TX) that is built into both CCUs allows the camera to be controlled over a network.

Both the HDCU-2000 and HDCU-2500 CCU are equipped with menu buttons and indicators that show the status of optical transmission on the front panel, providing great operability.

* When supplying power to the camera via optical fiber cable, maximum cable length varies with the camera system configuration, lens type, viewfinder type, the size of the optical fiber cable, and the number of cable connectors.

Three types of interface expansion option are available for both CCUs: the HKCU-1001, HKCU-1003, and HKCU-2007.

- The HKCU-1001 SD Analog Interface Unit provides two analog NTSC or PAL VBS signal outputs, a PIX (picture monitor) output, and a WFM (waveform monitor) output.
- The HKCU-1003 Multi Interface Unit consists of three types of interface board and provides:
  - Two analog NTSC or PAL VBS signal outputs, a PIX output, and a WFM output (Board A)
  - A frame reference input, output to lock 2-3 pull-down sequence, a PIX output, and a WFM output (Board B)
  - Analog NTSC or PAL VBS and analog component R/G/B or Y/R-Y/B-Y outputs (Board C)
- The HKCU-2007 3G-SDI/HD-SDI Output Expansion Unit provides four 3G-SDI or HD-SDI outputs.

HDCU-2000

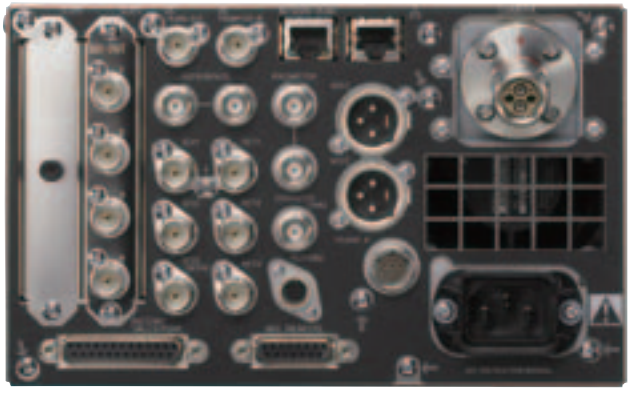
HDCU-2000

- Eight SDI outputs, including four 3G-SDI outputs
- Up to twelve additional 3G-SDI/HD-SDI outputs (with three optional HKCU-2007 boards)
- Four sets of 3G-SDI/HD-SDI/SD-SDI, and analog composite return video inputs
- Two-channel teleprompter inputs
- Built-in LAN interface (10Base-T/100Base-TX)
- Two-channel data trunk lines (RS-422A or RS-232C) for easy data transmission
- AES/EBU digital audio output
- Two-channel microphone outputs (two XLR connectors)
- High power supply allowing HDC2000 camera or HDC-2400/HDC-2500/HDC-2550 with HDLA-1500/HDLA-1505/HDLA-1507 operation

HDCU-2000 Rear Panel

HDCU-2500

- High power supply allowing HDC-2000 Series cameras to operate with the HDLA-1500/HDLA-1505/HDLA-1507
- Seven SDI outputs, including three 3G-SDI outputs
- Up to four additional 3G-SDI/HD-SDI outputs (with optional HKCU-2007 boards)
- Three 3G-SDI/HD-SDI/SD-SDI, or analog composite return video inputs
- One-channel teleprompter input
- Built-in LAN interface (10Base-T/100Base-TX)
- Two-channel data trunk line (RS-422A/RS-232C) for easy data transmission
- Two-channel microphone outputs (two XLR connectors)



HDCU-2500 Rear Panel

HDCU-2500

HKCU-1001
SD Analog Interface Unit

HKCU-1003
Multi Interface Unit

HKCU-2007
3G-SDI/HD-SDI Output Expansion Unit

Versatile System Components

MSU-1000/MSU-1500 Master Setup Unit

The MSU-1000/MSU-1500 Master Setup Unit is a central control panel used for the adjustment of camera parameters in a multi-camera system. The MSU-1000/MSU-1500 unit is connected to each camera control unit in the system via the CNU-700 Command Network Unit or a switching hub.

- Central control of camera parameters for the entire camera system
- Picture and waveform monitor switching
- Precise picture adjustment
- Built-in 6.5-inch* type LCD display for clear viewing of adjustment parameters during operation
- Memory Stick slot for storing/recalling files
- Built-in LAN interface (10Base-T/100Base-TX)

* Viewable area measured diagonally.

MSU-1000

MSU-1500

RCP-1000 Series Remote Control Panel

Five types of remote control panel are available: the RCP-1000, RCP-1001, RCP-1500, RCP-1501, and RCP-1530. A wide range of camera parameters can be controlled. The RCP-1500, RCP-1501, and RCP-1530 are equipped with various functions for fundamental camera operations, and offer a network interface capability, while the RCP-1000 and RCP-1001 are simple remote control panels that provide specific basic functions.

RCP-1000

RCP-1001

RCP-1500

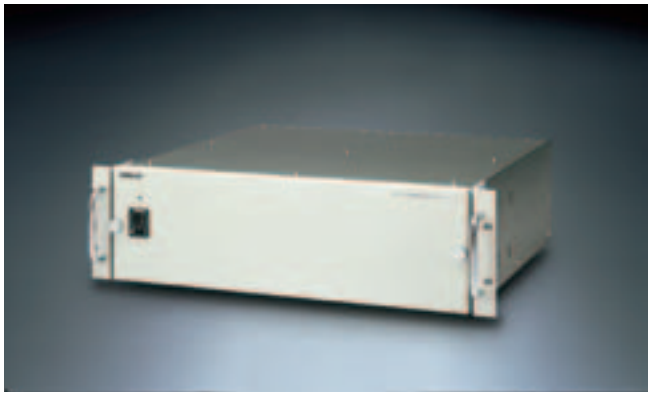
RCP-1501

RCP-1530

CNU-700 Camera Command Network Unit

The CNU-700 Camera Command Network Unit allows communication between all the units in the system, and provides the ability to assign CCUs, MSUs, RCPs, and HDC-2000 Series camera heads. A RISC-based microprocessor system provides high-speed transfer of command signals to the HDCU-2000 and HDCU-2500 Camera Control Unit for rapid response and reliable control. One CNU-700 unit can control six cameras, but can be expanded to control up to 12 cameras when fitted with an optional BKP-7930 Expansion Board.
Several CNU-700 units can be connected to the camera control network in a large system. The CNU-700 supports RCP assignment and an S-BUS interface*.

* Requires an optional BKP-7933 S-BUS Interface Board.



CNU-700

HZC-CSM10 Camera System Management Software*

The HZC-CSM10 is a Microsoft Windows-based Master Setup Unit (MSU) software application for controlling the camera system from a PC. It has similar features to a hardware-based MSU, offering camera control, optical level display, file management, remote control panel (RCP) assignment, and diagnosis. The HZC-CSM10 GUI controls any parameter of the system camera and enables visual setting lists. It acts as a software client to a master hardware MSU.

***System requirements**

Operating system:	Windows 7 (with Service Pack 1 installed)
Professional:	32-/64-bit, Ultimate: 32-/64-bit (The software cannot be installed on Windows Vista and Windows XP.)
CPU:	1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
Memory:	2 GB or more
Hard disk:	50 MB or more of free space

User Gamma*

User Gamma is another useful gamma feature, which allows for the creation of customized gamma curves. Users can edit gamma curves using the CVP File Editor** gamma creation software running on a Microsoft Windows PC, and then quickly load them onto HDC-2000 Series cameras via a USB memory stick or an MSU/RCP using Memory Stick Duo. The software has an easy-to-use GUI that allows the gamma curve to be visually edited simply by plotting the x and y values of each point of the curve.

* Optional HZC-UG444 software is required for the HDC-2400 and HDC-2550. An optional HKC-FB20 side panel is also required for the HDC-2550.
** Available via Sony's download site.

Versatile System Components

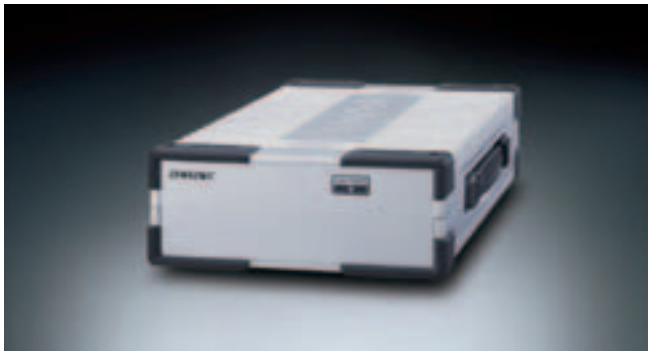
HDTX-100 HD Triax Adaptor (Camera side)
HDFX-100 HD Triax Adaptor (HDCU side)

The HDTX-100 and HDFX-100 HD Triax Adaptors are available to convert optical fiber transmission to widely used triax transmission. The HDTX-100 adaptor is used with HDC-2000, HDC-2400, and HDC-2500 cameras* to convert their camera output to triax, while the HDFX-100 adaptor is used with the HDCU-2000 and HDCU-2500 camera control units to receive triax signals from the camera side.

The triax-based system enables high-quality pictures to be transmitted from the cameras over long distances – up to 1400 meters (4,593 feet)** with a ø14.5 mm triax cable or 1,000 meters (3,281 feet)** with a ø13.2 mm triax cable. In addition, the HDTX-100 adaptor enables hybrid triax and optical fiber operation. In this case, longer cable runs of more than 2,000 meters (6,562 feet)** can be achieved with the HDC-2400 or HDC-2500 portable camera equipped with a portable lens and a small viewfinder.

* The HDC-2550 does not require the HDTX-100 unit because it is equipped with a triax output as standard.

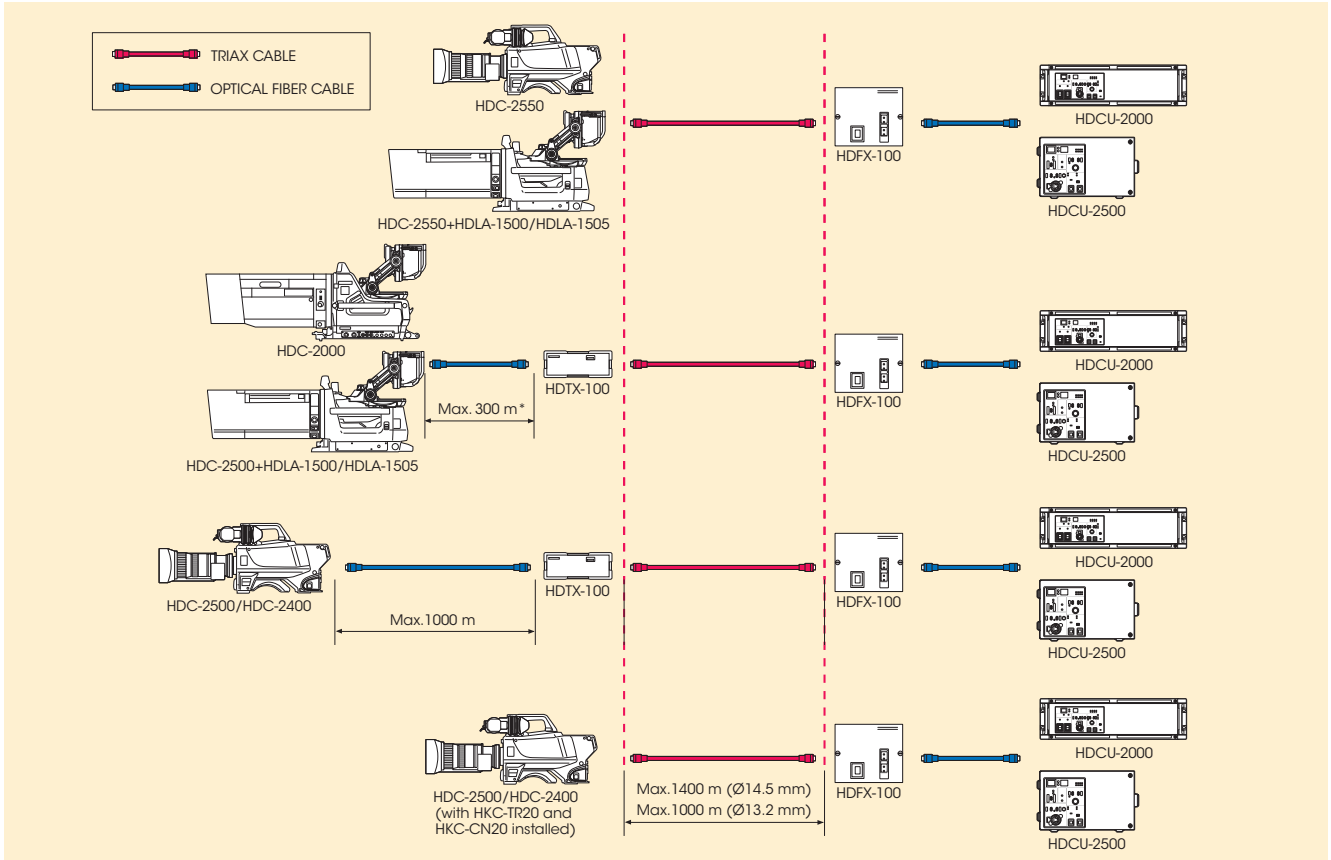
** When supplying power to the camera via optical fiber cable and/or triax cable, maximum cable length varies with the camera system configuration, lens type, viewfinder type, the size of the optical fiber cable and/or triax cable, and the number of cable connectors.



HDTX-100

HDFX-100

Triax and Optical Fiber Operation



* This distance may be reduced depending on the type of viewfinder and lens, such as high-power- consumption lens.

HDVF-EL70/75 OLED (Organic Light Emitting Diode) Viewfinder

The HDVF-EL70/75 is a new type of color viewfinder which uses a newly developed OLED (Organic Light Emitting Diode) display. This provides an unprecedented level of image performance such as high resolution, high contrast, and faithful color reproduction – especially for black. The OLED display also provides a wide color gamut, short response time, and wide viewing angle, which helps users to easily adjust the focus. Thanks to the OLED display's thin size, the HDVF-EL70/75 viewfinder is designed to be very compact, allowing for highly flexible viewing positions – from high to low and front to back.

Flexible Positioning Mechanism

HKC-T1500 CCD Block Extension Adaptor

The HKC-T1500 CCD Block Extension Adaptor is a unique accessory for HDC-2400, HDC-2500, and HDC-2550 portable cameras. It allows the CCD block to be extended from the camera body by up to 12.5 m (up to 50 m with an optional cable). More creative camera shooting angles can be achieved, along with the freedom to place the imaging assembly in areas where a full-size camera would be restricted. The HKC-T1500 adaptor expands the spectrum of HD camera applications to areas such as snorkel lenses, helicopter gimbal mounts, and mini jibs.

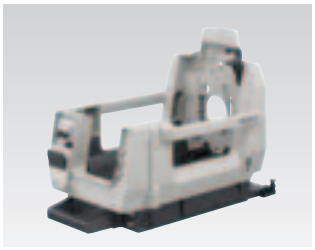
HKC-T1500 connected to the HDC-2500

Optional Accessories

MSU-1000
Master Setup Unit

MSU-1500
Master Setup Unit

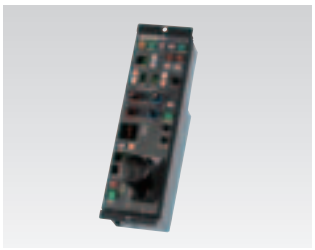
HDLA-1500
Large Lens Adaptor
(for attachment of
the HDVF-EL70/700A



HDLA-1505
Large Lens Adaptor
(for attachment of
the HDVF-EL75/C730W/550/C550W)

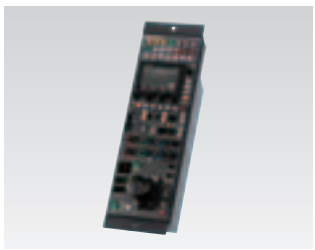
HDLA-1507
Large Viewfinder Adaptor
(for attachment of
the HDVF-EL70/700A)

RM-B170
Remote Control Unit

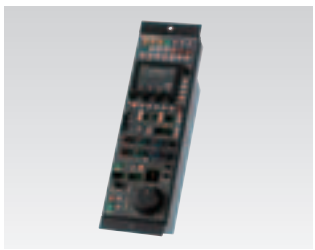


RCP-1000
Remote Control Panel

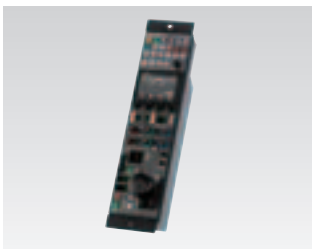
RCP-1001
Remote Control Panel



RCP-1500
Remote Control Panel



RCP-1501
Remote Control Panel



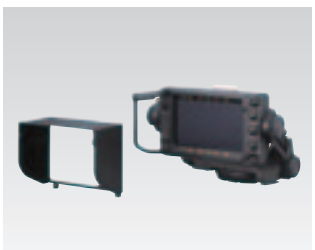
RCP-1530
Remote Control Panel

HDVF-20A
2.0-inch* CRT B/W Viewfinder

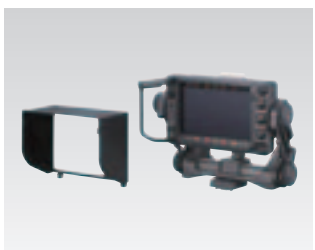
HDVF-200
2.0-inch* CRT B/W Viewfinder

HDVF-C35W
3.5-inch* LCD Color Viewfinder

HDVF-C30WR
2.7-inch* LCD Color Viewfinder



HDVF-EL70
7.4-inch Color HD Viewfinder



HDVF-EL75
7.4-inch Color HD Viewfinder

VFH-790
Outdoor Hood for HDVF-EL70/EL75

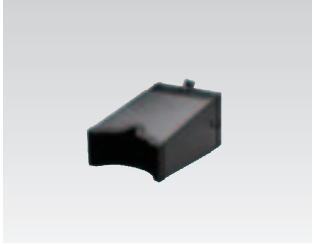
HDVF-C730W
6.3-inch* LCD Color Viewfinder

HDVF-700A
7.0-inch CRT B/W Viewfinder

* Viewable area measured diagonally

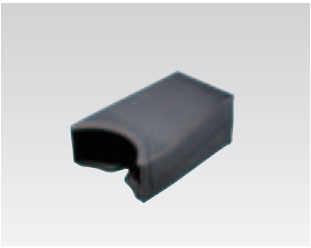
VFH-770
Outdoor Hood for
HDVF-700A/C730W

HDVF-550
Viewfinder
5.0-inch CRT B/W



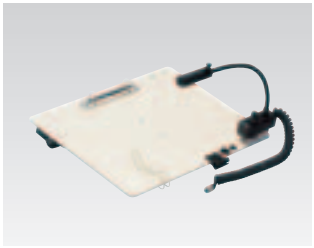
VFH-550
Outdoor Hood for HDVF-550

HDVF-C550W
5-inch LCD Color Viewfinder



VFH-570
Outdoor Hood for HDVF-C550W

BKW-401
Viewfinder Rotation Bracket

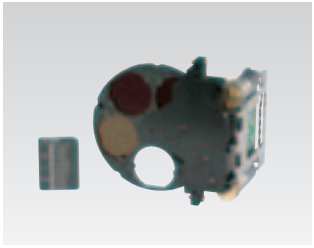


BKP-7911
Script Holder

CAC-6
Return Video Selector

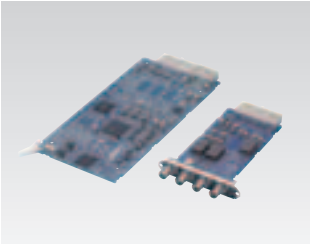
CAC-12
Mic Holder

VCT-14
Tripod Adaptor

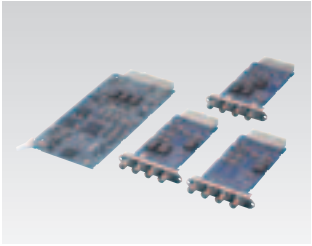


HKC-DF20
Dual-filter Unit for HDC-2400

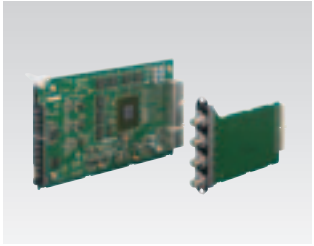
HKC-T1500
HD CCD Block Adaptor



HKCU-1001
SD Analog Interface Unit
(for HDCU-2000/HDCU-2500)



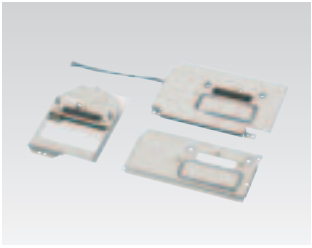
HKCU-1003
Multi Interface Unit
(for HDCU-2000/HDCU-2500)



HKCU-2007
3G-SDI/HD-SDI Expansion Unit
(for HDCU-2000/HDCU-2500)

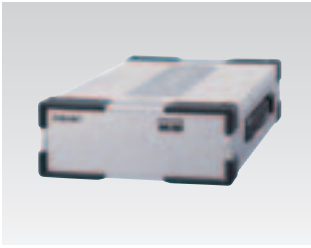
HKC-FB20
Optical Fiber Transmission
Adaptor

HKC-TR20
Triax Transmission Adaptor



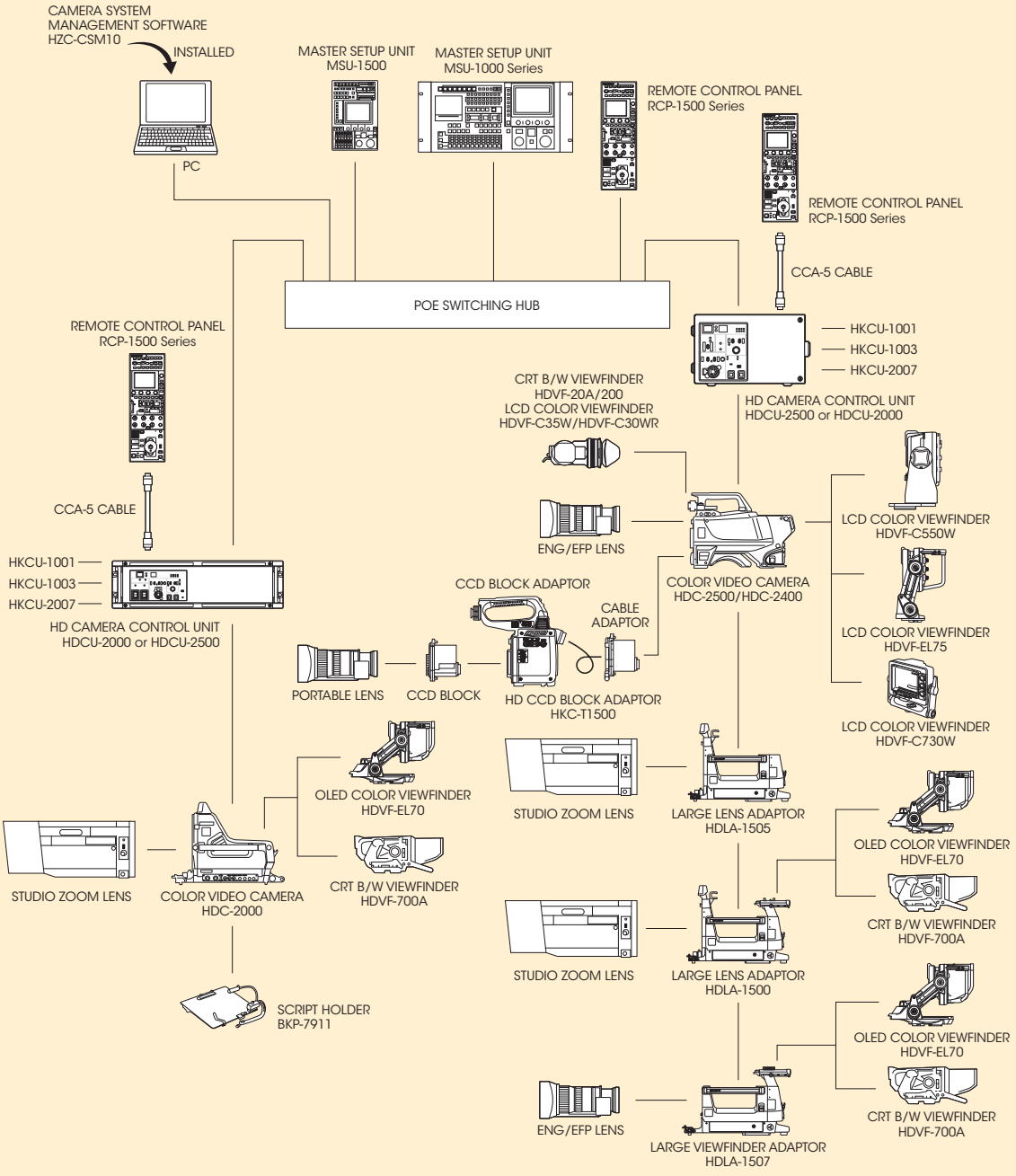
HKC-CN20
Side Panel Attachment Kit

HDFX-100
HD Triax Adaptor

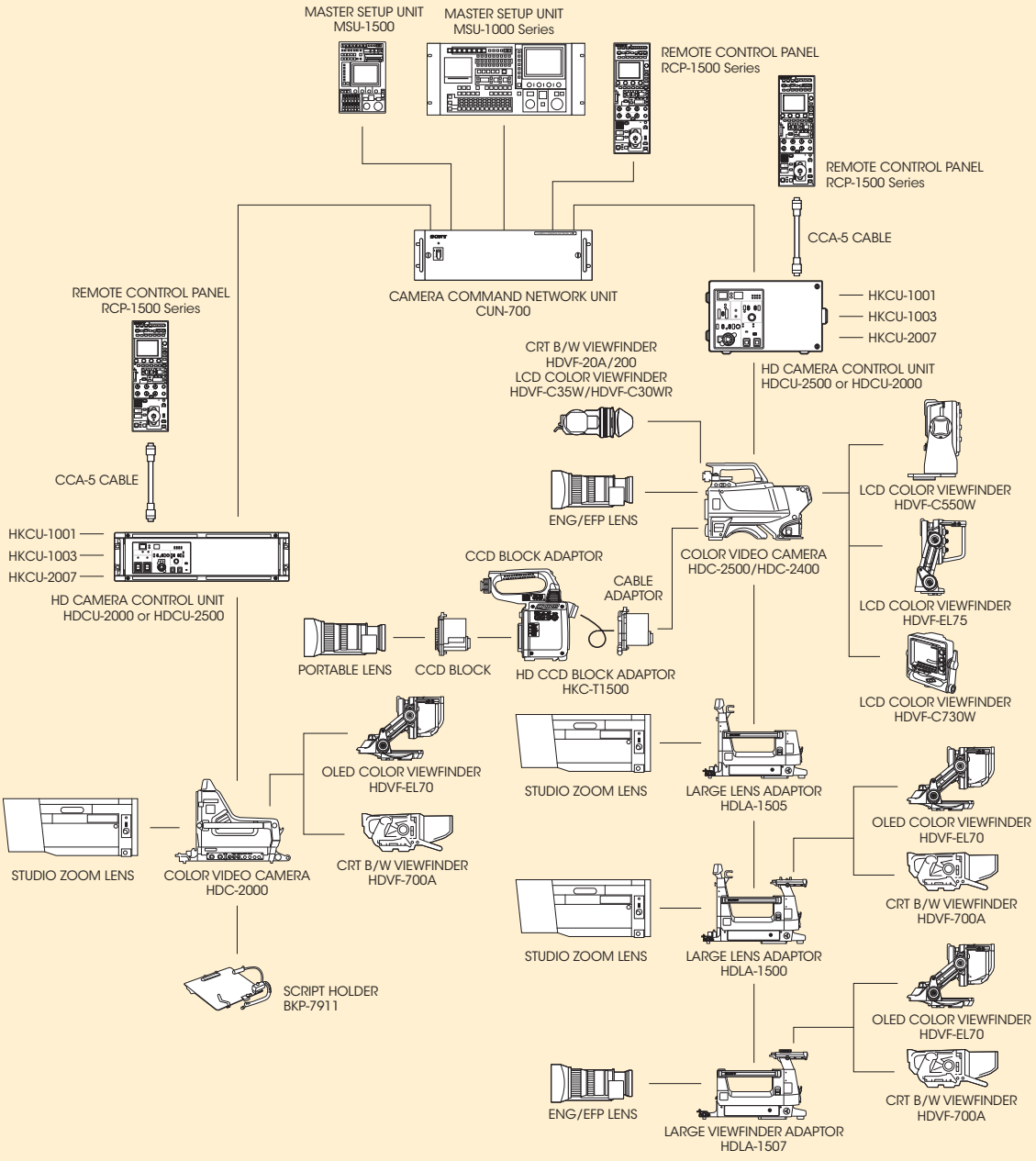


HDTX-100
HD Triax Adaptor

System Configuration with LAN Connection



System Configuration with Camera Network Unit Connection



Specifications

HDC-2000/HDC-2500/HDC-2400/HDC-2550 Specifications

		HDC-2000	HDC-2500	HDC-2400	HDC-2550
General					
Power requirements		240 V AC, 1.7 A (max.), 180 V DC, 0.9 A (max.), 12 V DC, 10 A (max.)	240 V AC, 1.4 A (max.), 180 V DC, 1.0 A (max.), 12 V DC, 7 A (max.)	240 V AC, 1.4 A (max.), 180 V DC, 1.0 A (max.), 12 V DC, 7 A (max.)	180 V DC, 1.0 A (max.), 12 V DC, 7 A (max.)
Operating temperature		-20 °C to +45 °C (-4 °F to +113 °F)			
Storage temperature		-20 °C to +60 °C (-4 °F to +140 °F)			
Mass		21 kg (46 lb 5 oz)	4.5 kg (9 lb 15 oz)	4.5 kg (9 lb 15 oz)	4.9 kg (10 lb 13 oz)
Camera					
Pickup device		3-chip 2/3-inch type CCD			
Effective picture elements (H x V)		1920 x 1080			
Signal format		1080/50i, 59.94i, 23.98p, 24p, 25p, 29.97p 1080/50p, 59.94p, 720/50p, 59.94p, 1080/100i, 119.88i, 720/100p,119.88p	1080/50i, 59.94i, 23.98p 24P,25p, 29.97p 1080/50p, 59.94p, 720/50p, 59.94p, 1080/100i, 119.88i, 720/100p, 119.88p	1080/50i,59.94i 720/50p, 59.94p	1080/50i, 59.94i 720/50p, 59.94p
Spectrum system		F1.4 prism			
Lens mount		Sony hanger mount	Sony bayonet mount		
Built-in filters	CC	A: CROSS, B: 3200K, C: 4300K, D: 6300K, E: 8000K	A: CROSS, B: 3200K, C: 4300K, D: 6300K, E: 8000K	Electrical (CC optical filters are available with optional HKC-DF20)	A: CROSS, B: 3200K, C: 4300K, D: 6300K, E: 8000K
	ND	1: CLEAR, 2: 1/4ND, 3: 1/8ND, 4: 1/16ND, 5: 1/64ND	1: CLEAR, 2: 1/4ND, 3: 1/8ND, 4: 1/16ND, 5: 1/64ND	1: CLEAR, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND, 5: CROSS	1: CLEAR, 2: 1/4ND, 3: 1/8ND, 4: 1/16ND, 5: 1/64ND
Sensitivity (at 2000 lx, 3200K, 89.9% reflectance)		F11 (1080/50i), F10 (1080/59.94i)			
Signal-to-noise ratio (1080i, typical)		-60 dB/-64 dB (w/NS max.)			
Horizontal resolution (1080i)		1000 TV lines (at center)			
Shutter speed selection		1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50i) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94i) 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (23.98p/24p) 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (25p) 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (29.97p) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50p) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94p)	1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50i) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94i) 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (23.98p/24p) 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (25p) 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (29.97p) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50p) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94p)	1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50i) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94i) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50p) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94p)	1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50i) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94i) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (50p) 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec (59.94p)
Modulation depth (1080i, typical)		Y: 50% at 27.5 MHz (800 TV lines with typical lens), Pb/Pr: 80% at 12 MHz			
Input/output connectors					
Audio input (CH1)		XLR-3-pin (female) (x1), mic or line selectable			
Audio input (CH2)		XLR-3-pin (female) (x1), AES/EBU or mic or line selectable			
Mic 1 input		—	XLR-3-pin (female) (x1)		
Return control input		6-pin (x1)			
Prompter output/Genlock input/Return input		—	BNC (x1), 1.0 Vp-p, 75 Ω		
Prompter 1		BNC (x1), 1.0 Vp-p, 75 Ω	—		
Prompter 2		BNC (x1), 1.0 Vp-p, 75 Ω			—
DC input		XLR-4-pin (x1), 10.5 to 17 V DC			
DC output		4-pin (x1), 10.5 to 17 V DC, 1.5 A (max.)	4-pin (x1), 10.5 to 17 V DC, 0.5 A (max.), 2-pin (x1), 10.5 to 17 V DC, 2.5 A (max.)		
Test output		BNC (x1), 1.0 Vp-p, 75 Ω			
SDI 1 output (with embedded audio)		BNC (x1) 3G-SDI, HD-SDI	BNC (x1) 3G-SDI, HD-SDI		—
SDI 2 output		BNC (x1) HD-SDI	BNC (x1) HD-SDI		—
SDI-MONI		BNC (x1) HD-SDI or SD-SDI selectable			
Earphone output		—	Stereo minijack (1)		
CCU		Electro-optical connector (x1)			—
HDFX		—			Triax connector (x1)
Tracker		10-pin (x1)			
Crane		12-pin (x1)			
Intercom 1		XLR-5-pin (female) (x1)			
Intercom 2		XLR-5-pin (female) (x1)			
Remote		8-pin (x1)			
Lens		36-pin (x1)	12-pin (x1)		
Viewfinder		D-sub 25-pin (x1)	20-pin (x1)		
Supplied accessories					
		Angle adjustment brackets (2), Front cover (1), Number plates for side panel (2 sets), Number plates for up-tally lamp (1 set), Cable clamp (2), Operation manual (1)	Operation manual (1), Cable clamp belt (1 set), Camera number label (1), Screws (+B3x8) (2)		

* 1080p/59.94 and 1080p/50 signals can be output only from the HDC-2000/HDC-2500 camera head in a stand-alone configuration.

MSU-1000/MSU-1500 Specifications

	MSU-1000	MSU-1500
General		
Power requirements	100 to 240 V AC, 50/60 Hz	
Current consumption	0.35 A	
Operating temperature	5 to 40 °C (41 to 104 °F)	
Maximum cable length	200 m (656 feet)	
Mass	4.6 kg (10 lb. 2 oz)	3.6 kg (7 lb. 15 oz)
Dimensions (W x H x D)	482 x 67 x 222 mm (19 x 2 3/4 x 8 3/4 inches)	204 x 354 x 67 mm (8 1/8 x 14 x 2 3/4 inches)
Inputs/outputs		
Remote	CCU/CNU: 8-pin (x1) AUX: 8-pin (x1)	
I/O port	50-pin (x1)	
Ethernet	8-pin RJ-45 (x1)	
AC input	3-pin (x1)	
DC IN	4-pin (x1)	

HDLA-1500/HDLA-1505/HDLA-1507 Specifications

	HDLA-1500	HDLA-1505	HDLA-1507
General			
Power requirement	240 V AC (max. 1.2 A)/180 V DC (max. 0.65 A), 12 V DC (max. 9 A)		
Operating temperature	-20 °C to +45 °C (-4 °F to +113 °F)		
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)		
Mass	18.5 kg (40 lb 13 oz)	17.1 kg (37 lb 11 oz)	15.5 kg (34 lb 3 oz)
Input/output connector			
Lens	36-pin (x1)		–
DC IN	XLR-4-pin (male) (x1), 10.5 to 17 V DC		
DC OUT	4-pin (x1), 10.5 to 17 V DC, max 1.5 A		
	XLR-4-pin (female) (x1), 10.5 to 17 V DC, max 5.0 A		
VF	D-sub 25-pin (x1)	–	D-sub 25-pin (x1)

HDCU-2000/HDCU-2500 Specifications

	HDCU-2000	HDCU-2500
General		
Power supply	100 V AC, 120 V AC, or 220 to 240 V AC, 50/60 Hz	100 to 240 V AC, 50/60 Hz
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)	-10 °C to +40 °C (+14 °F to +104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Mass	17.5 kg (38 lb 9 0z)	6.7 kg (14 lb 12 oz)
Input/output connectors		
Camera	Optical fiber connector (x1), 240 V AC power supply	Optical fiber connector (x1), 180 V AC power supply
Intercom/Tally/PGM	D-sub 25-pin (x1) INCOM (PROD/ENG): 4W/RTS/CC, 0 dB PGM: 2 systems, 0/-20 dB TALLY (R, G, Y)	
RCP/CNU	8-pin (x1)	
Trunk A	12-pin (x1)	
Trunk line	D-sub 9-pin (female) (x1), RS-232C	–
Ethernet	RJ-45 (x1), 10 BASE-T/ 100 BASE-TX	
NETWORK TRUNK	RJ-45 (x1)	
I/O port	D-sub 15-pin (female) (x1)	–
Input connectors		
Return input	[SDI RET IN] BNC (x4) 3G-SDI: SMPTE 424M/425M Level-B, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 1.485 Gbps/1.4835Gbps SD-SDI: SMPTE 259M, 270 Mbps [VBS RET IN] BNC (x4) analog signal, 1.0 V p-p, 75 Ω	BNC (x3) VBS: 1.0 Vp-p, 75 Ω 3G-SDI: SMPTE 424M/425M Level-B, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 270 Mbps
Reference input	BNC (x2), loop-through output HD: SMPTE-274M, tri-level sync, 0.6 Vp-p, 75 Ω SD: Black burst (NTSC: 0.286 Vp-p, 75 Ω/PAL: 0.3 Vp-p, 75 Ω) or NTSC 10F-BB	
Prompter input	BNC (x4), loop-through output (2-ch), analog signal, 1.0 Vp-p, 75 Ω	BNC (x2), loop-through output (2-ch), analog signal, 1.0 Vp-p, 75 Ω
Mic remote	D-sub 15-pin (x1)	
HD PROMPTERIN	BNC (x1) SMPTE 292M, 75 Ω, 1.485 Gbps/1.4835 Gbps	
Output connectors		
AUDIO OUT CH1,CH2	XLR-3-pin (male) (x2), 0 dBu/-20 dBu/+4 dBu	
AES/EBU	BNC (x1)	–
Character output	BNC (x1), VBS, 1.0 Vp-p, 75 Ω, character ON/OFF selectable	–
Character/Sync output	–	BNC (x1), HD sync/SD sync/Character selectable HD sync: BTA S001A, tri-level sync, 0.6 Vp-p, 75 Ω SD sync: composite sync, 0.3 Vp-p, 75 Ω Character: VBS, 1.0 Vp-p, 75 Ω, character ON/OFF selectable
WF remote	D-sub 15-pin (female) (x1)	–
3G-SDI/HD-SDI output	BNC (x2) 3G-SDI: SMPTE 424M/425M Level-B,0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps BNC (x2) 3G-SDI: SMPTE 424M/425M Level-B,0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI and character ON/OFF selectable	BNC (x2) 3G-SDI: SMPTE 424M/425M Level-B,0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps BNC (x1) 3G-SDI: SMPTE 424M/425M Level-B,0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI and character ON/OFF selectable
HD-SDI/SD-SDI output	BNC (x2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mbps BNC (x2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mbps HD-SDI/SD-SDI and character ON/OFF selectable	BNC (x2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mbps BNC (x2) HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mbps HD-SDI/SD-SDI and character ON/OFF selectable
Sync out	BNC (x1), HD sync/SD sync selectable HD: BTA S001A, tri-level sync, 0.6 Vp-p, 75 Ω SD: composite sync, 0.3 Vp-p, 75 Ω	–
HD TRUNK OUT	BNC (x1) BTA: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps (Available only when camera single link format is selected.)	

Optional Input/Output Boards

HKCU-1001 SD Analog Interface Unit	
VBS output	BNC (x2)
Analog composite monitor output	BNC: WF (x1), PIX (x1)
HKCU-1003 Multi Interface Unit	
VDA-A board: VBS I/F	
VBS output	BNC (x2)
Analog composite monitor output	BNC: WF (x1), PIX (x1)
VDA-B board: Frame rate I/F	
Frame reference input/output	BNC (1, loop-through), full pull-down sequence lock
Analog composite monitor output	BNC: WF (x1), PIX (x1)
VDA-C board: Sub I/F	
VBS output	BNC (x1)
Analog component output	BNC (x3), R/G/B or Y/R-Y/B-Y selectable
HKCU-2007 3G/HD SDI Output Expansion Unit	
3G-SDI/HD-SDI output	BNC (x2) 3G-SDI: SMPTE 424M/425M Level-B standard, 0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable BNC (x2) 3G-SDI: SMPTE 424M/425M Level-B standard, 0.8 Vp-p, 75 Ω, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable Character ON/OFF selectable (connectors 3/4)

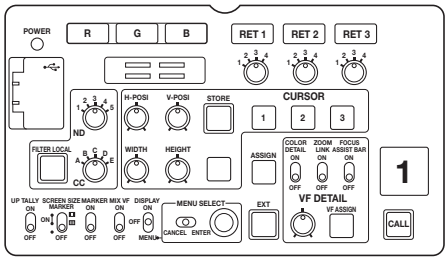
HKC-T1500 Specifications

General	
Power requirements for camera input	13.5 V DC to 17.0 V DC
Operating temperature	-20 °C to +45 °C (-4 °F to +113 °F)
Operating humidity	10% to 90% (no condensation)
Mass	Cable adapter: approx. 0.5 kg (1 lb 2 oz) CCD block adapter: approx. 1.9 kg (4 lb 3 oz) (with CCD block)
CCD block adaptor I/F	
Camera cable	55-pin multicore cable connector (male) (x1)
MIC IN	XLR-3-pin (female) (x1)
LENS	12-pin (x1)
VF	20-pin (x1)
Intercom	XLR-5-pin (female) (x1)
Cable adaptor I/F	
Camera cable	55-pin multicore cable connector (female) (x1)
MIC OUT	XLR-3-pin (male) (x1)
VF	20-pin (x1)
INCOM	XLR-5-pin (male) (x1)

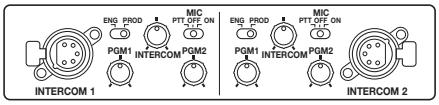
Control/Intercom Panels and Connectors

HDC-2000

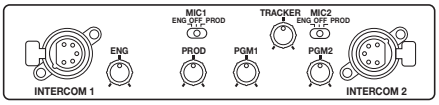
Control Panel



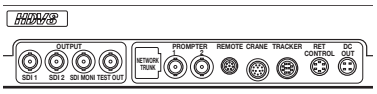
Intercom Panel (for 60 Hz countries)



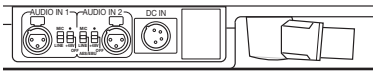
Intercom Panel (for 50 Hz countries)



Connectors



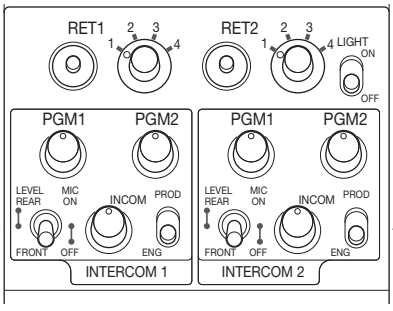
Inside Panel



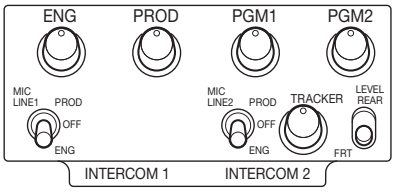
Outside Panel

HDC-2400/HDC-2500/HDC-2550

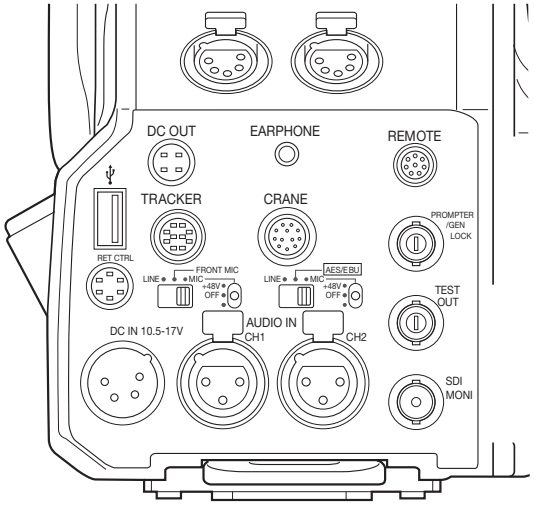
Control/Intercom Panel (for 60 Hz countries)



Control/Intercom Panel (for 50 Hz countries)



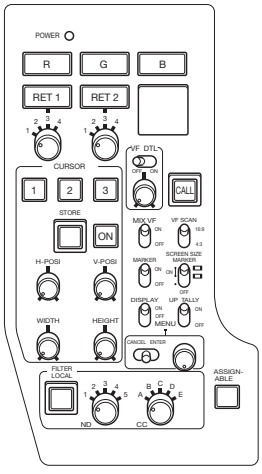
Connectors



HDLA-1500/HDLA-1505/HDLA-1507

DC OUT Connector

Control Panel



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