SONY

HDC-1000 Series

Multi-format HD Camera System

Digital HDVS

Sony HDC-1000 Series - Heralds a New Era of HD Production

HDC-1000

HDC-1500

Studio Camera

HDC-1000
Optical-fiber interface
1080/50i, 59.94i
1080/23.98P, 24P, 25P, 29.97P
1080/50P*, 59.94P*
720/50P, 59.94P

Portable Camera

HDC-1550
Triax interface
1080/50i, 59.94i
1080/23.98P, 24P, 25P, 29.97P
720/50P, 59.94P

HDC-1500
Optical-fiber interface
1080/50i, 59.94i
1080/23.98P, 24P, 25P, 29.97P
1080/50P*, 59.94P*
720/50P, 59.94P

HDC-1450
Triax interface
1080/59.94i (for 60 Hz countries)
720/59.94P (for 60 Hz countries)
1080/50i (for 50 Hz countries)
720/50P (for 50 Hz countries)

* 1080/59.94P and 1080/50P signals can be output only from the HDC-1000/HDC-1500 camera head in a stand-alone configuration.

Since introducing its first model, Sony has continually enhanced its line of high-definition cameras, in support of emerging DTV agendas around the world.
Its flagship HDC-900 Series, introduced in 2000, has presented a comprehensive and cost-effective path into studio, OB van, and field-based HD productions, due to its multiple format capability, stunning picture performance, and system flexibility.

Pursuing the ultimate HD system for today and for tomorrow, Sony sets another milestone in the history of multi-format HD camera systems - the HDC-1000 Series - offering a broader choice of interlace and progressive formats, much greater picture quality, and enhanced operational flexibility.

The HDC-1000 Series consists of five camera heads, two large lens adaptors, one large viewfinder adaptor, two CCUs (Camera Control Units), and a range of peripherals.
The cameras incorporate a newly developed CCD imager and DSP LSI - two key devices that allow them to achieve ultimate picture performance in a variety of scanning modes. The CCD used in this series of cameras can accommodate all existing interlace and progressive scan formats ranging from 1080/50i and 1080/59.94i to 1080/24P*. It can also capture stunning 1080/59.94P** and 1080/50P** images - as well as delivering the highest-possible quality 720/50P and 720/59.94P image creation*.

Such high image quality is supported by these camera's convenient peripherals, which make installation and operation of an HDC-1000 system very smooth.
The HDLA-1500/HDLA-1505 Large Lens Adaptor incorporates a totally new interlocking mechanism, which allows a large lens to be attached/detached from the portable camera in just a matter of seconds - relieving operators from lengthy mechanical adjustments.
The HDCU-1000/HDCU-1500 Camera Control Unit uses an optical fiber connection between the HDC-1000/HDC-1400/HDC-1500 camera for top-quality signal transmission and longer cable runs. In addition to a broad range of signal outputs, both CCUs come equipped with an Ethernet interface (10Base-T/100Base-TX) for control over a standard TCP/IP network.
What's more, the HDC-1450/HDC-1550 Triax-based Portable Camera, and the HDTX-100 and HDFX-100 Triax Adaptors which provide conversion between optical fiber and triax, allow systems to be configured around conventional triax-based infrastructures.
Another powerful option, the HDVF-EL100 OLED (Organic Light Emitting Diode) Viewfinder, has been recently introduced, providing an impressively high contrast, faithful color reproduction, and much more.
With its innovative performance, operability, and system flexibility, Sony's HDC-1000 Series will certainly become the mainstream acquisition tool to open unlimited possibilities in a broad range of HD production applications.

* Please refer to the table given below for the supported formats by each camera head.
** 1080/59.94P and 1080/50P signals can be output only from the HDC-1000/HDC-1500 camera head in a stand-alone configuration.

Large Lens/Viewfinder Adaptor

HDC-1400
Optical-fiber interface
1080/59.94i (for 60 Hz countries)
720/59.94P (for 60 Hz countries)
1080/50i (for 50 Hz countries)
720/50P (for 50 Hz countries)

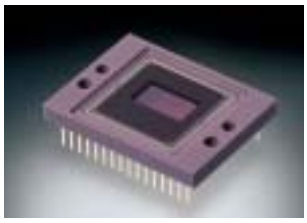
HDLA-1500
(for HDVF-700A/9900/EL100)

HDLA-1505
(for HDVF-C950W/C730W)

HDLA-1507
(for HDVF-700A/9900/EL100)

Cutting-edge Technologies

Newly Developed Progressive CCD



At the heart of the outstanding picture performance of the HDC-1000 Series of cameras is a newly developed 2/3-inch type 2.2-megapixel HD CCD. Based on Sony's HAD sensor technology and the latest on-chip lens structure, this CCD offers a high sensitivity of F10 at 2,000 lx and an excellent signal-to-noise ratio of 54 dB (typical). In addition to this performance, a wide variety of capturing modes 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 1080/59.94P* and 1080/50P* images - a capability that also offers the highest-possible quality 720/50P and 720/59.94P image acquisition**.

* 1080/59.94P and 1080/50P signals can be output only from the HDC-1000/HDC-1500 camera head in a stand-alone configuration.
** The HDC-1400/HDC-1450 supports 1080/59.94i and 720/59.94P formats for 60 Hz countries and 1080/50i and 720/50i for 50 Hz countries, respectively.

High-quality 14-bit A/D Conversion

The HDC-1000 Series of cameras incorporates a high-performance 14-bit A/D converter that enables images captured by the high-performance CCDs to be processed with maximum precision. In particular, this high-resolution A/D conversion allows the gradation in mid-to-dark-tone areas of the picture to be faithfully reproduced. Thanks to the 14-bit A/D converter, pre-knee signal compression at highlight areas can be eliminated and the camera can clearly reproduce a high-luminance subject at a 600% dynamic range.

State-of-the-art DSP LSI

The newly developed DSP (Digital Signal Processing) LSI "Visual Image Processor" is the heart of the image-processing device for the HDC-1000 Series of cameras. By adopting the latest 0.11 µm design rule, this processor can accommodate up to 1080/59.94 and 1080/50 progressive formats and 14-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.

Noise Suppression Function

The HDC-1000 Series of cameras has a "Noise Suppression" function, which reduces the high-frequency noise elements in video signals by using Sony's advanced digital signal processing technology.

Great Operability

Ergonomic Design

The design of the HDC-1000 Series of 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 the HDC-1000 camera minimizes the parallax between the optical axis of the camera head and the large viewfinder, while the HDC-1400/HDC-1450/HDC-1500/HDC-1550's low-center-of-gravity design allows the operator to carry the camera comfortably on the shoulder. In addition, the shoulder pad of these cameras can be adjusted either forwards or backwards without using a screwdriver, so the camera can easily be moved to a well-balanced position.

HDC-1500

Optical Fiber Digital Transmission (HDC-1000/HDC-1400/HDC-1500)

The HDC-1000/HDC-1400/HDC-1500 camera comes equipped with an SMPTE standard optical fiber interface for connecting its associated HDCU-1000/HDCU-1500 Camera Control Unit.

In addition to its exceptional quality, the camera can transmit all-digital bi-directional video and audio signals, one control line, and a prompter line over extremely long distances _ up to 3000 meters (9843 feet)* with the HDCU-1000 and 1800 meters (5906 feet)* with the HDCU-1500.

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

HDC-1000

Choice of Two Camera Control Systems

In a multi-camera configuration featuring the HDC-1000 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 Ethernet functionality of the systems - a new and powerful feature that also provides a path to the future. Both control systems allow communication between all the devices in the configuration, including cameras, camera control units, remote controllers, and setup units.

Wide-band Triax Transmission (HDC-1550/HDC-1450)

The HDC-1450/HDC-1550 camera comes equipped with a widely used triax transmission interface. This enables the camera to transmit bi-directional video and audio signals, and one control line to the HDCU-1000/HDCU-1500 Camera Control Unit via the HDFX-100 unit over long distances - up to 1400 meters (4593 feet)* with a ø14.5 mm triax cable or 1000 meters (3281 feet)* with a ø13.2 mm triax cable.

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

Compact and Lightweight

HDC-1550/HDC-1500/HDC-1400 portable cameras are designed to be very compact and lightweight for a high level of mobility in the field. The HDC-1400/HDC-1500 and HDC-1450/HDC-1550 cameras weigh approximately 4.5 kg (9 lb 15 oz) and 4.9 kg (10 lb 13 oz), respectively.

Versatile Interfaces

The HDC-1000/HDC-1500 camera and the HDC-1400/HDC-1450/HDC-1550 camera provide two HD-SDI outputs and one HD-SDI output, respectively, as well as one digitally down-converted SD-SDI or analog composite output. In addition, viewfinder signals with characters can be output from the SD-SDI output connector, giving camera operators additional convenience. For 24P* operation, the built-in 2-3 pull-down function of the cameras enables 59.94i down-converted SD signals to be output on a standard SD monitor. Furthermore, RGB 4:4:4 output is available with the addition of the optional HZC-UG444 software.

* The HDC-1400/HDC-1450 does not support 1080/23.98P and 1080/24P formats.

Memory Stick Storage of Camera Setup Parameters

The HDC-1000 Series is capable of saving and recalling setup parameters such as scene files, reference files, and lens files via Memory Stick™ /Memory Stick PRO™ media. This allows users to effectively manage camera parameters for individual scenes, plus the specific camera-setup preferences of individual operators, such as viewfinder indicator settings.

Servo-controlled ND and CC Filters

The HDC-1000/HDC-1500/HDC-1550 camera comes equipped with dual optical filters for ND (Neutral Density) and CC (Color Correction), while the HDC-1400/HDC-1450 camera is equipped with a single optical filter for ND. The filters can be remotely controlled from an RCP Series Remote Control Panel, MSU-900/950 Master Setup Unit, or RM-B750/B150 Remote Control Unit, as well as locally controlled on the camera head.

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

Responding to the ever-increasing requirement of operations that combine a portable camera with a large lens, Sony is continuously seeking the optimum solution. The result is highly sophisticated HDLA-1500 and HDLA-1505 Large Lens Adaptors, which are designed to maximize operability of the HDC-1400/ HDC-1450/HDC-1500/HDC-1550 camera. 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.
With the HDLA-1500/HDLA-1505 Large Lens Adaptor, time-consuming adjustments, as well as wiring, are absolutely eliminated.
Another convenient peripheral for the portable cameras, the HDLA-1507 Large Viewfinder Adaptor, is also available, enabling a large viewfinder to be used with the portable camera.

HDLA-1500

Docking 3
Close the rear cover. Turn the handle of the camera and then slide the viewfinder forward.

Docking 1

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

Docking 2

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

HDLA-1500 with HDVF-7700

HDLA-1505 with HDVF-C730W

HDLA-1507 with HDVF-9900

Totally New Interlocking Mechanism

The HDLA-1500/HDLA-1505/HDLA-1507 adaptor does not require any cable wirings. Utilizing a newly developed interlocking mechanism, the power, video, and control signals are passed 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 the large lens. Furthermore, the lens can be removed even when the camera is mounted on the HDLA-1500/HDLA-1505 adaptor. The interlocking mechanism allows for an astonishingly quick and smooth setup.

Low-profile Design

Together with the low-profile design of the portable camera, the viewfinder position of the HDLA-1500 is 45 mm lower than the previous model. This 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.

Creative Versatility

Digital Extender*

The Digital Extender function of the HDC-1000 Series of cameras** 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 often referred to as the "F drop" phenomenon.

* Use of the digital extender function will reduce the resolution of the image by half.
** The HDC-1400/HDC-1450 does not support the digital extender function.

Multi-matrix

The Multi-matrix function of the HDC-1000 Series of 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

Triple Skin Tone Detail Correction

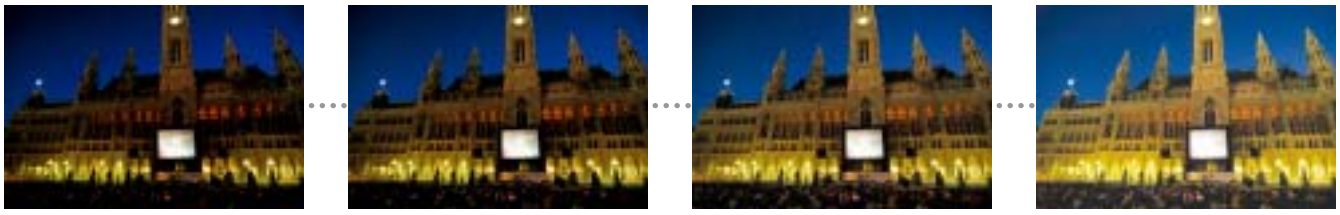
Skin Tone Detail Correction controls the detail level of those objects in a scene with specific color tones. The HDC-1000 Series of cameras allows detail to be set independently for each of three separate color ranges. These colors are not limited to skin tones, but can be set for any color. Detail may be increased or decreased relative to the normal level.

Skin Tone Detail OFF

Skin Tone Detail ON

Master White Gain

The Master White Gain function of the HDC-1000 Series of cameras enables stepless adjustment of gain levels.
This makes it possible to adjust the gain level more precisely compared to conventional stepwise adjustment.



Simulated images

Knee Saturation

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 highlight areas. The HDC-1000 Series of cameras adopts a Knee Saturation function, in which this "washed-out" effect on saturation and hue change is reduced to a minimum, and far more natural color reproduction in highlight areas is achieved.

Knee Suturation OFF

Knee Suturation ON

Simulated images

Low-key Saturation

With conventional cameras, low light areas can be subject to a reduction in saturation. This can result in colors in those areas being "washed-out". The Low-key Saturation function on the HDC-1000 Series of cameras eliminates this problem by optimizing the amplification of color saturation at low light levels, providing more natural color reproduction.

Low-key Saturation OFF

Low-key Saturation ON

Selectable Gamma Table

The selectable gamma table provided with the HDC-1000 Series of cameras allows users to create a specific look for a picture by selecting from a choice of fixed gamma patterns.

Variable Black Gamma

The Variable Black Gamma function for the HDC-1000 Series of cameras allows for fine adjustment of tonal reproduction in the shadow area. This feature can help to bring out details from the dark parts of the picture without affecting mid-tones while maintaining the absolute black level.

Standard Video Gamma

Variable Black Gamma ON

Simulated images

Enhanced Gamma Features

In addition to artistic and skillful lighting, in-camera gamma setting plays an important role in dealing with contrast range and giving a specific "look" to an image. In order to meet a broad array of customer demands, the HDC-1000 Series of cameras offers the following flexible gamma options to faithfully reproduce the desired "look" of an image.

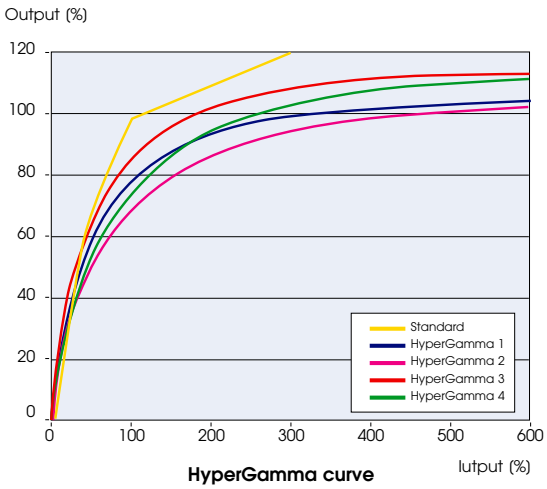
HyperGamma

HyperGamma is a set of new 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 set-up 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

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 the HDC-1000 Series of cameras via a Memory Stick media card. 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.

Versatile System Components

The HDC-1000 Series of cameras is compatible with a variety of peripherals including camera control units, remote controllers, command network units, and master setup units. This allows operators to flexibly configure the system according to their needs both in the studio and out in the field. Optional triax adaptors are available for the HDC-1000/HDC-1400/HDC-1500 optical fiber-based camera to enable triax-based operation.

HDCU-1000 Full-size Camera Control Unit
HDCU-1500 Half-rack-size Camera Control Unit

The HDC-1000 Series of cameras can be configured with two types of camera control unit - the full-size HDCU-1000 and half-rack-size HDCU-1500. The optical fiber transmission system used in these units maintains the high picture quality of the camera across cable runs of up to 3000 meters (9843 feet)* with the HDCU-1000 and up to 1800 meters (5906 feet)* with the HDCU-1500. Both models are equipped with a range of built-in interfaces such as HD-SDI/SD-SDI outputs, HD-SDI/SDSDI/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 four slots on the HDCU-1000 and two slots on the HDCU-1500. Furthermore, the Ethernet interface (10Base-T/100Base-TX) that is built into both CCUs allows the camera to be controlled over a network.

* When supplying power to the camera via the optical fiber cable, the 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 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-1005 HD/SD Output Expansion Unit provides four HD-SDI or SD-SDI outputs

HDCU-1000

HDCU-1000

- Eight HD-SDI or SD-SDI outputs
- Up to eight additional HD-SDI or SD-SDI outputs (with two optional HKCU-1005 boards)
- Four sets of HD-SDI, SD-SDI, and analog composite return video inputs
- Two-channel teleprompter inputs
- Built-in Ethernet 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 HDC-1000 camera or HDC-1400/HDC-1450/HDC-1500/HDC-1550 with HDLA-1500/HDLA-1505/HDLA-1507 operation

HDCU-1000 Rear Panel

Versatile System Components

HDCU-1500

- High power supply allowing HDC-1000 Series cameras to operate with HDLA-1500/HDLA-1505/HDLA-1507
- Three HD-SDI or SD-SDI outputs
- Up to eight additional HD-SDI or SD-SDI outputs (requires two optional HKCU-1005 boards)
- Three HD-SDI, SD-SDI, or analog composite return video inputs
- RM-B750 Remote Control Unit attach capability on the front panel
- One-channel teleprompter input
- Built-in Ethernet 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-1500 Rear Panel

HDCU-1500

HKCU-1001
SD Analog Interface Unit

HKCU-1003
Multi Interface Unit

HKCU-1005
HD-SDI/SD-SDI Expansion Unit

RM-B750 Remote Control Unit

The RM-B750 Remote Control Unit has been designed to offer a highly mobile and fully controllable camera system in the field. The RM-B750 can be connected directly to the HDC-1000 Series of cameras or attached to the half-rack-size HDCU-1500 Camera Control Unit. The combination of an LCD touch-panel screen and direct push buttons enables full parameter adjustment of the camera to be controlled. For further operational convenience, the RM-B750 has a Memory Stick media card slot so that various setup parameters can be stored and recalled.

RM-B750

The RM-B750 attached to the HDCU-1500

MSU-900/950 Master Setup Unit

The MSU-900/950 Master Setup Unit is a central control panel used for the adjustment of camera parameters in a multi-camera system. The MSU-900/950 unit is connected to each camera control unit in the system via the CNU-700 Command Network Unit or an Ethernet network 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 Ethernet interface (10Base-T/100Base-TX)

* Viewable area measured diagonally

MSU-900

MSU-950

RCP Series Remote Control Panel

Four types of Remote Control Panel - the RCP-750, RCP-751, RCP-920, and RCP-921 - are available, providing a wide range of camera parameter controls. The RCP-750/751 offers in-depth menu-based controls, while the RCP-920/ 921 allows direct and quick control of various parameters using dedicated buttons on the panel.

RCP-920 RCP-921 RCP-750 RCP-751

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-1000 Series camera heads. A RISC-based microprocessor system provides high-speed transfer of command signals to the HDCU-1000/HDCU-1500 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 S-BUS interface*.

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

CNU-700

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 the widely used triax transmission. The HDTX-100 adaptor is used with the HDC-1000/HDC-1400/HDC-1500 camera* to convert their camera output to triax, while the HDFX-100 adaptor is used with the HDCU-1000/HDCU-1500 camera control unit 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 (4593 feet)** with a ø14.5 mm triax cable or 1000 meters (3281 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 2000 meters (6562 feet)** can be achieved with the HDC-1400/HDC-1500 portable camera that is equipped with a portable lens and a small viewfinder.

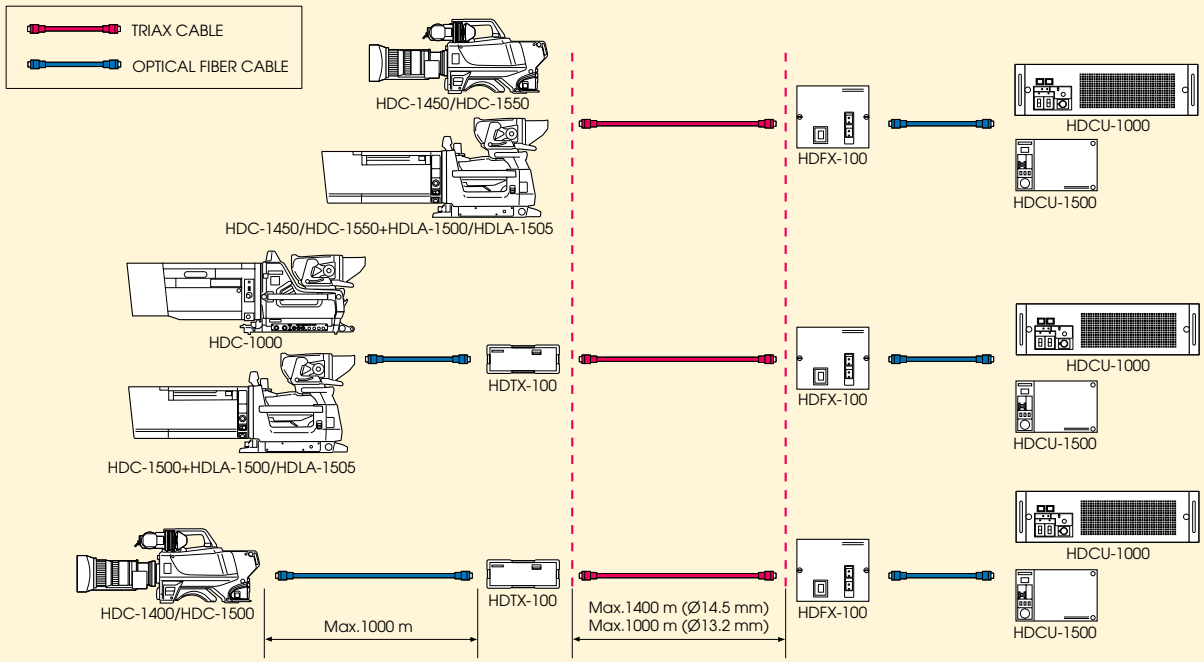
* The HDC-1450/HDC-1550 does not require the HDTX-100 unit because it is equipped with a triax output as standard.

** When supplying power to the camera via the optical fiber cable and/or triax cable, the 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



HDVF-EL100 OLED
(Organic Light Emitting Diode) Viewfinder

The HDVF-EL100 is a new type of color viewfinder, which uses a newly developed OLED (Organic Light Emitting Diode) display that 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, a fast response time, and a wide viewing angle, which helps users to easily adjust the focus.

Thanks to the OLED display's thin size, the HDVF-EL100 viewfinder is designed with a unique mechanism for camera mounting. This allows highly flexible viewing positions - from high to low and front to back. The OLED viewfinder can even be positioned on the axis of the lens, just posterior to the camera.

Back position

Center position

Front position

HKC-T1500 CCD Block Extension Adaptor

The HKC-T1500 CCD Block Extension Adaptor is a unique accessory for HDC-1400/HDC-1450/HDC-1500/HDC-1550 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-1500

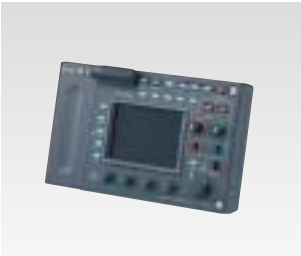
Optional Accessories

HDLA-1500
Large Lens Adaptor
(for attachment of the HDVF-700A/9900/EL100)

HDLA-1505
Large Lens Adaptor
(for attachment of the HDVF-C950W/C730W)

HDLA-1507
Large Viewfinder Adaptor
(for attachment of the HDVF-700A/9900/EL100)

RM-B150
Remote Control Unit



RM-B750
Remote Control Unit

RCP-920/921
Remote Control Panel
(Photo shows RCP-920)

RCP-700/701
Remote Control Panel
(Photo shows RCP-700)

RCP-750/751
Remote Control Panel
(Photo shows RCP-750)

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-C950W
9.0-inch* LCD Color Viewfinder

VFH-990
Outdoor Hood for HDVF-C950W

HDVF-C730W
6.3-inch* LCD Color Viewfinder

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

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

* Viewable area measured diagonally

HDVF-9900
9.0-inch CRT Color Viewfinder

HDVF-EL100
OLED Viewfinder

BKW-401
Viewfinder Rotation Bracket

BKP-7911
Script Holder

CAC-6
Return Video Selector

CAC-12
Mic Holder

VCT-14
Tripod Adaptor

HKC-DF14
Dual-filter Unit for
HDC-1400/HDC-1450

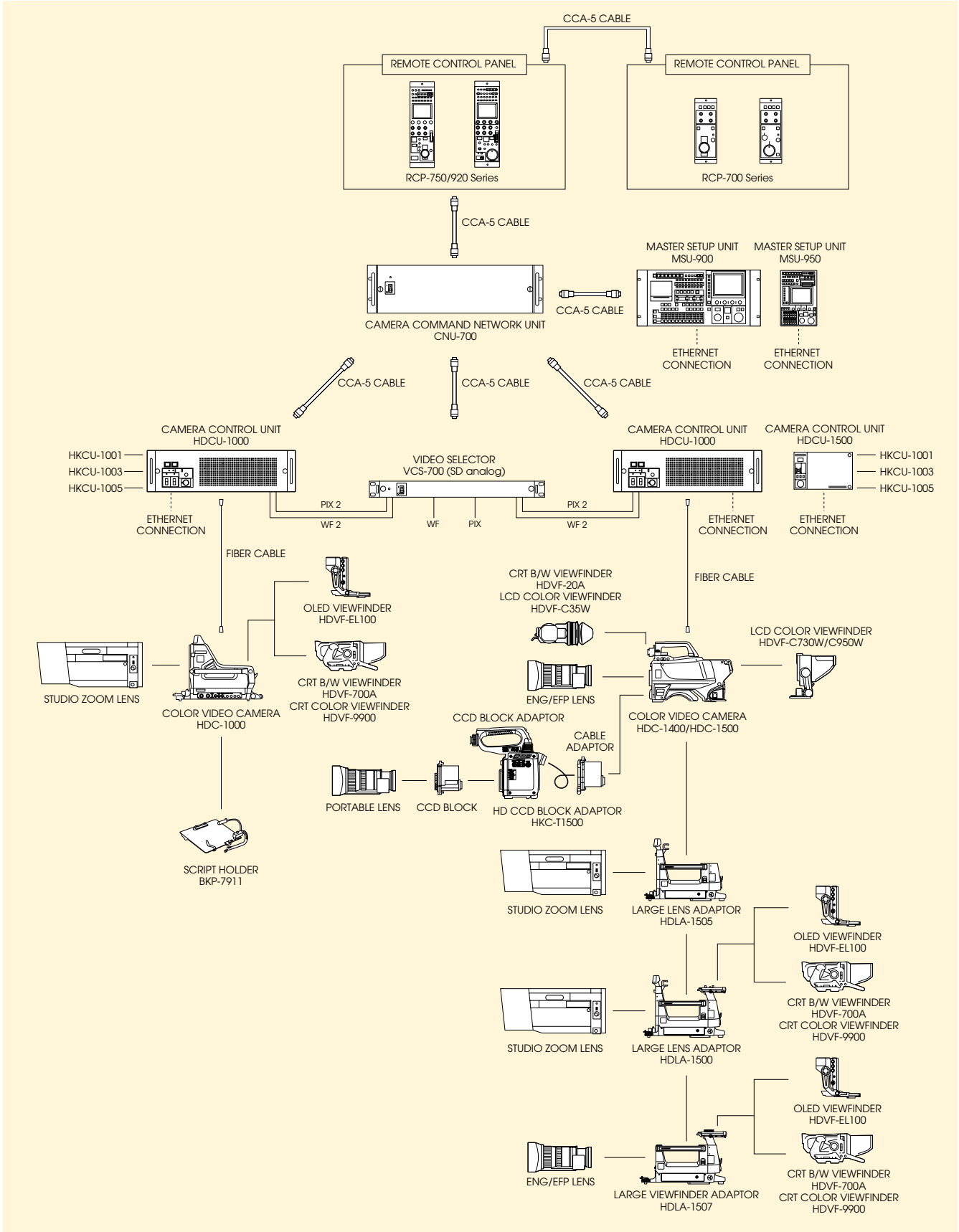
HKC-T1500
HD CCD Block Adaptor

HKCU-1001
SD Analog Interface Unit
(for HDCU-1000/1500)

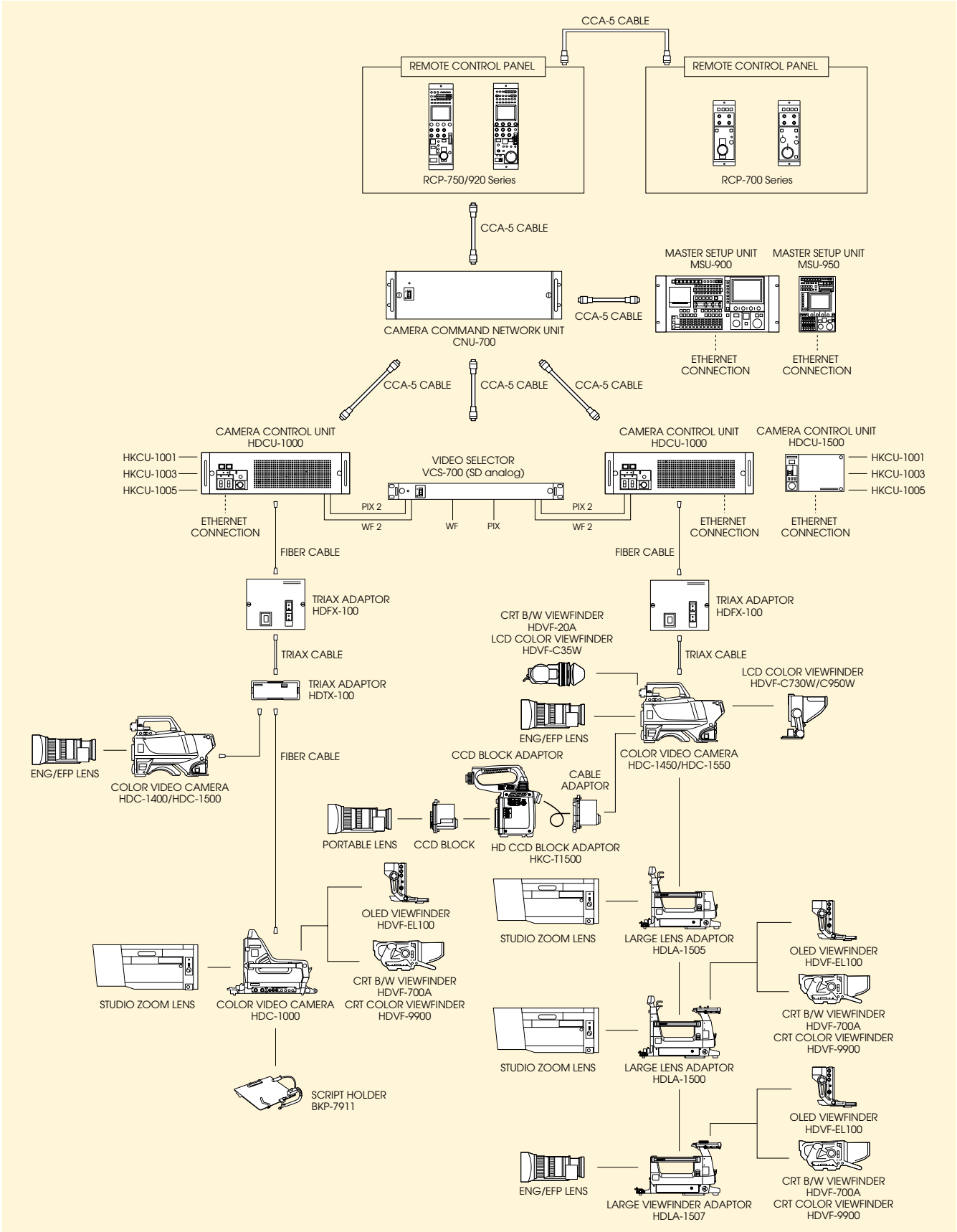
HKCU-1003
Multi Interface Unit
(for HDCU-1000/1500)

HKCU-1005
HD-SDI/SD-SDI Expansion Unit
(for HDCU-1000/1500)

System Configuration for Optical Fiber Operation



System Configuration for Triax Operation



Specifications

HDC-1000/1400/1450/1500/1550 Specifications

		HDC-1000	HDC-1400	HDC-1450	HDC-1500	HDC-1550
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.)	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)	4.9 kg (10 lb 13 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, 29.97P50P, 59.94P 1080/50P*, 59.94P* 720/50P, 59.94P	1080/59.94i, 720/59.94P (for 60-Hz countries) 1080/50i, 720/50P (for 50-Hz countries)		1080/50i, 59.94i, 23.98P, 24P,25P, 29.97P50P, 59.94P 1080/50P*, 59.94P* 720/50P, 59.94P	1080/50i, 59.94i, 23.98P, 24P, 25P, 29.97P 720/50P, 59.94P
Spectrum system		F1.4 prism system				
Lens mount		Sony hanger mount	Sony bayonet mount			
Built-in filters	CC	A: CROSS, B: 3200K, C: 4300K, D: 6300K, E: 8000K	Electrical**		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: 1/16ND, 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)		F10 (1080/59.94i), F11(1080/50i)				
Signal-to-noise ratio (1080i, typical)		54 dB/62dB (w/NS max.)				
Horizontal resolution (1080i)		1000 TV lines (at center)				
Registration		Within 0.02% (all zones, without lens)				
Shutter speed selection		1/100, 1/125, 1/250, 1/500, 1/1000, 2/2000 s (1080/59.94i) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 s (1080/50i)	1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 s (for 1080/59.94i, 60-Hz countries) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 s (for 1080/50i, 50-Hz countries)		1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 s (1080/59.94i) 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 s (1080/50i)	
Modulation depth (1080i, typical)		Y: 45% at 27.5 MHz (800 TV lines with typical lens), Pb/Pr: 80% at 12 MHz				
Input/output connectors						
Audio input (CH1)		XLR-3-31 type (male) (1), mic or line selectable	XLR-3-pin (female) (1), mic or line selectable			
Audio input (CH2)		XLR-3-31 type (male) (1), AES/EBU or mic or line selectable	XLR-3-pin (female) (1), AES/EBU or mic or line selectable	XLR-3-pin (female) (1), mic or line selectable	XLR-3-pin (female) (1), AES/EBU or mic or line selectable	XLR-3-pin (female) (1), mic or line selectable
Mic 1 input		—	XLR-3-pin (female) (1)			
Return control input		6-pin (1)				
Prompter output/Genlock input/Return input		—			BNC type (1), 1.0 Vp-p, 75 Ω	
Prompter		—	BNC type (1), 1.0 Vp-p, 75 Ω		—	
Prompter 1		BNC type (1), 1.0 Vp-p, 75 Ω	—			
Prompter 2		BNC type (1), 1.0 Vp-p, 75 Ω	—		BNC type (1), 1.0 Vp-p, 75 Ω	—
DC input		XLR-4-pin (1), 10.5 to 17 V DC				
DC output		4-pin (1), 10.5 to 17.5 V DC, 500 mA (max.)				
Test output		BNC type (1), 1.0 Vp-p, 75 Ω				
SDI 1 output		BNC type (2) HD-SDI	—		BNC type (2) HD-SDI	—
SDI 2 output		BNC type (2) HD-SDI or SD-SDI selectable (without embedded audio)	—		BNC type (2) HD-SDI or SD-SDI selectable (without embedded audio)	—
SDI output		—	BNC type (1) HD-SDI or SD-SDI selectable (without embedded audio)		—	BNC type (1) HD-SDI or SD-SDI selectable (without embedded audio)
Earphone output		—	Stereo minijack (1)			
CCU		Electro-optical connector (1)		—	Electro-optical connector (1)	—
HDCU/HDFX		—		Triax connector (1)	—	Triax connector (1)
Tracker		10-pin (1)				
Crane		12-pin (1)				
Intercom 1		XLR-5-pin (female) (1)				
Intercom 2		XLR-5-pin (female) (1)				
Remote		8-pin (1)				
Lens		36-pin (1)	12-pin (1)			
Viewfinder		D-sub 25-pin (1)	20-pin (1)			
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), Switch label 1, 2 (1 each)			

* 1080/59.94P and 1080/50P signals can be output only from the HDC-1000/HDC-1500 camera head in a stand-alone configuration.
** CC optical filters are available with optimal HKC-DFL14.

MSU-900/950 Specifications

	MSU-900	MSU-950
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	4.5 kg (9 lb 14 oz)	3.7 kg (8 lb 2 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 (1) AUX: 8-pin (1)	
I/O port	50-pin (1)	
Ethernet	6-pin (1)	
AC input	3-pin (1)	

HDLA-1500/1505/1507 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		–
DC IN	XLR-4-pin (1), 10.5 to 17 V DC		
DC OUT	4-pin (1), 10.5 to 17 V DC, max. 1.5 A		
VF	D-sub 25-pin (1)	–	D-sub 25-pin (1)

HDCU-1000/1500 Specifications

	HDCU-1000	HDCU-1500
General		
Power supply	100 V or 120 V 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	14.8 kg (32 lb 10 oz)	6.5 kg (14 lb 5 oz)
Input/output connectors		
Camera	Optical fiber connector (1), 1.485/1.4835 Gb/s Serial Digital x2, 240 V AC power supply	Optical fiber connector (1), 1.485/1.4835 Gb/s Serial Digital x2, 180 V AC power supply
Intercom/Tally/PGM	D-sub 25-pin (1) INCOM (PD/ENG): 4W/RTS/CC, 0 dB PGM: 2 systems, 0/-20 dB TALLY (R, G)	
RCP/CNU	8-pin (1)	
Trunk A	12-pin (1)	
Trunk line	D-sub 9-pin (female) (1), RS-232C/422	–
Ethernet	RJ-45 (1), 10Base-T/100Base-TX	
I/O port	D-sub 15-pin (female) (1)	–
Input connectors		
AC input	(1), 100, 110 to 120, 220 to 240 V AC	(1), 100 to 240 V AC
Return input	BNC type (4), HD-SDI: SMPTE 292M, 1.485/1.4835 Gb/s BNC type (4), SD-SDI: SMPTE 259M, 270 Mb/s VBS: 1.0 Vp-p, 75 Ω	BNC type (3), HD-SDI/SD-SDI/VBS selectable VBS: 1.0 Vp-p, 75 Ω HD-SDI: SMPTE 292M, 1.485/1.4835 Gb/s SD-SDI: SMPTE 259M, 270 Mb/s
Reference input	BNC type (2), 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 type (4), loop-through output (2-ch), analog signal, 1.0 Vp-p, 75 Ω	BNC type (2), loop-through output (2-ch), analog signal, 1.0 Vp-p, 75 Ω
Mic remote	D-sub 15-pin (1)	
Output connectors		
Mic output	XLR-3-pin (male) (2), 0/-20 dBs	
AES/EBU	BNC type (1)	–
Character output	BNC type (1), VBS, 1.0 Vp-p, 75 Ω, character ON/OFF selectable	–
Character/Sync output	–	BNC type (1), 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) (1)	–
HD-SDI/SD-SDI output	BNC type (4), HD-SDI/SD-SDI selectable HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s	BNC type (2), HD-SDI/SD-SDI selectable HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s
HD-SDI/SD-SDI monitor output	BNC type (4), HD-SDI/SD-SDI, and character ON/OFF selectable HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s	BNC type (1), HD-SDI/SD-SDI, and character ON/OFF selectable HD-SDI: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s SD-SDI: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s
Sync out	BNC type (1), 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	–
WF mode	4-pin (2)	

Optional input/output boards

HKCU-1001 SD Analog Interface Unit	
VBS output	BNC type (2)
Analog composite monitor output	BNC type: WF (1), PIX (1)
HKCU-1003 Multi Interface Unit	
VDA-A board: VBS I/F	
VBS output	BNC type (2)
Analog composite monitor output	BNC type: WF (1), PIX (1)
VDA-B board: Frame rate I/F	
Frame reference input/output	BNC type (1, loop-through), full pull-down sequence lock
Analog composite monitor output	BNC type: WF (1), PIX (1)
VDA-C board: Sub I/F	
VBS output	BNC type (1)
Analog component output	BNC type (3), R/G/B or Y/R-Y/B-Y selectable
HKCU-1005 HD/SD Expansion Unit	
HD SDI/SD SDI output	BNC type (2)
HD SDI/SD SDI monitor output	BNC type (2), charactor on/off selectable

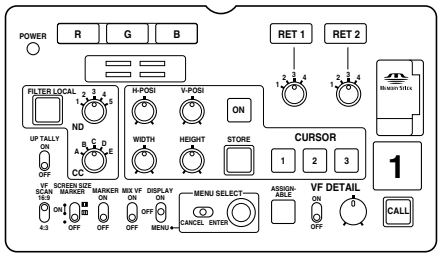
HKC-T1500 Specifications

General	
Power requirements for camera input	13.5 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)
MIC IN	XLR-3-pin (female) (1)
LENS	12-pin (1)
VF	20-pin (1)
Intercom	XLR-5-pin (female) (1)
Cable adaptor I/F	
Camera cable	55-pin multicore cable connector (female)
MIC OUT	XLR-3-pin (male) (1)
VF	20-pin (1)
INCOM	XLR-5-pin (male) (1)

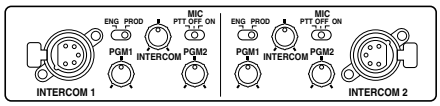
Control/Intercom Panels and Connectors

HDC-1000

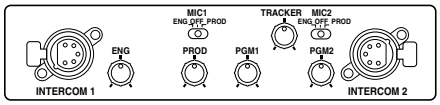
Control Panel



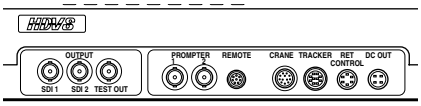
Intercom Panel (for 60 Hz countries)



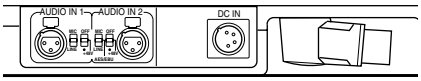
Intercom Panel (for 50 Hz countries)



Connectors



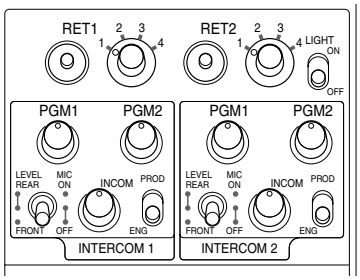
Inside Panel



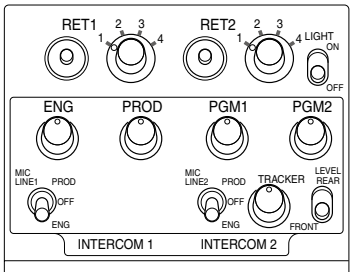
Outside Panel

HDC-1550/HDC-1500/HDC-1450/HDC-1400

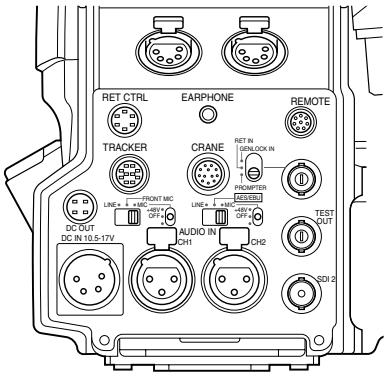
Control/Intercom Panel (for 60 Hz countries)



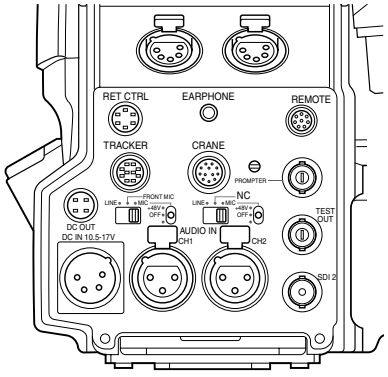
Control/Intercom Panel (for 50 Hz countries)



HDC-1550/HDC-1500 Connectors



HDC-1450/HDC-1400 Connectors



SONY

Distributed by

MK10202V5OHB08MAR