SONY

HDC-3300

HD Super Motion Color Camera

HDCU-3300

HD Super Motion Camera Control Unit

High Definition Video System

Digital HDVS®

HD Super Motion Color Camera HDC-3300

Since the launch of the BVP-3000 high-speed scanning camera in 1984, Sony has been continuously developing cameras that provide high-quality slow-motion image shooting, which are primarily used for sports coverage. Today, as television broadcasting evolves and moves steadily towards high definition (HD), there is now strong demand for a new breed of slow-motion camera system - one that offers even greater performance, as well as HD compatibility.

In response to this demand, Sony offers HDC-3300 Super Motion Camera and HDCU-3300 Camera Control Unit - its long-awaited HD slow-motion camera system.

Sony's cutting-edge technology enables the HDC-3300 to capture full-resolution 1920 x 1080 high-definition images at an amazing three times the normal frame rate (1080/180i, 1080/150i, 720/180P, or 720/150P). The HDC-3300 system is capable of transferring data at a rate of 10 Gb/s.

This high transfer rate enables superb-quality uncompressed wideband signals to be transferred from the camera head to the HDCU-3300 Camera Control Unit over distances up to 8,200 feet (2,500 meters).*

Furthermore, since its design is based on the proven HDC-1500 HD Multi-format Camera, the HDC-3300 Super Motion HD Camera offers the same array of functionalities, outstanding picture quality by 14-bit A/D converter, versatile multi-format capability, and high reliability as the HDC-1500, in addition to its slow-motion capability.

Another unique advantage of this camera is its ability to output full HD quality normal-speed images simultaneously with Super Motion image which is achieved thanks to a second signal-processing LSI (Large Scale Integration) that's dedicated to normal-speed capturing. This simultaneous output can be used as a conventional camera feed to the switcher, making the camera ideal for use in a variety of shooting opportunities.

With all these attractive features, the Sony HDC-3300 camera is the optimum solution to deliver slow-motion HD images of breathtaking quality.

* The distance depends on the conditions such as the number of cables used and configuration of the system.

Lens, viewfinder and microphone are optional.

Features

Three-times Normal Speed HD Signal Output

The HDC-3300 camera can output full-resolution 1920 x 1080 HD images at an outstanding three times the normal frame rate of 1080/180i (59.94i) and 1080/150i (50i), and 1280 x 720 HD images at three times the normal frame rate of 720/180P (59.94P) and 720/150P (50P).
The slow-motion image this camera captures is extremely high, and is enhanced by Sony's state-of-the-art techniques to minimize flickers that are typically seen on slow-motion images.

Long-distance Optical Fiber Transmission

The HDC-3300 camera allows captured data to be transferred as high-quality wideband signals to its companion HDCU-3300 Camera Control Unit up to 8200 feet (2500 meters)* at an amazingly high data rate of 10 Gb/s. This can be achieved only through an SMPTE standard optical fiber cable, giving users a practical, yet outstanding high-quality transmission system. The HDCU-3300 Camera Control Unit allows these signals to be recorded onto a compatible third-party server via three HD-SDI outputs.

* The distance depends on the conditions such as the number of cables used and configuration of the system.

High-quality Normal-speed HD Images

In addition to its high-quality, slow-motion images, the HDC-3300 camera also provides high-quality, normal-speed images - thanks to a signal-processing LSI that's dedicated to processing images in this way. Furthermore, the HDCU-3300 Camera Control Unit can output these normal-speed images for live transmission simultaneously with Super Motion images, allowing users to employ the HDC-3300 for both slow-motion and standard shooting purposes for increased versatility.

Flexible System Configuration

The HDC-3300 and HDCU-3300 camera system is compatible with other Sony broadcast camera peripherals including the RCP-700/920 series Remote Control Units, CNU-700 Camera Command Network Unit, and MSU-900/950 Master Setup Units. This enables the HDC-3300 and HDCU-3300 to be easily integrated into existing systems of other Sony cameras.
In addition to the conventional 700 protocol, an Ethernet interface (10Base-T/100Base-TX) is incorporated, allowing the HDC-3300 camera to be controlled over a network. What's more, the HDC-3300 camera is compatible with the HDLA1500 and HDLA1505 Large Lens Adaptors, which are quick and easy to install thanks to a unique design that does not require any cable wiring or time-consuming adjustment.

Ergonomic Design

The design of the HDC-3300 camera is based on the proven HDC-1500 Series Multi-format HD Portable Camera that 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-3300 minimizes the parallax between the optical axis of the camera head and the large viewfinder when the camera is attached to HDLA1500/HDLA1505 Large Lens Adaptors and the HDLA1507 Large Viewfinder Adaptor. In addition, the HDC-3300 is designed with a low center of gravity, allowing the operator to carry the camera comfortably on the shoulder. The shoulder pad of the HDC-3300 camera can be adjusted either forwards or backwards without using a screwdriver, so the camera can easily be moved to a well-balanced position.

Reliable Camera Head Operation

The HDC-3300 camera uses optimal design techniques to reduce heat generation within the camera body for comfortable operation.

HDCU-3300 HDC-3300

Creative Versatility

Knee Saturation

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-3300 adopts a knee saturation function, in which this "washed-out" effect on saturation and hue change is reduced to a minimum, and offers far more natural color reproduction in highlight areas.

Knee Saturation OFF

Knee Saturation ON

Simulated image

Low Key Saturation

With traditional video 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-3300 eliminates this problem by optimizing the amplification of color saturation at low light levels by boosting it to an optimized level, thus providing more natural color reproduction.

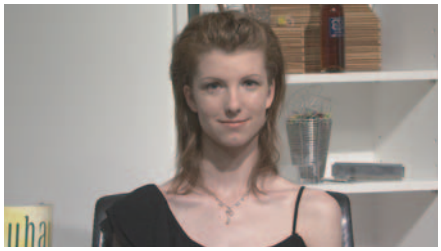
Low Key Saturation OFF

Low Key Saturation ON

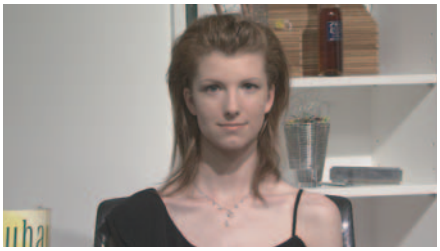
Simulated image

Triple Skin Tone Detail Control

The HDC-3300 comes equipped with a triple skin tone detail control function, which allows for independent detail control over three specified colors. This enhances the capability of skin tone detail correction - enabling one color selection to be used for reducing the detail level of skin color, and two other selections to be used for either increasing or decreasing the detail level of two other objects. This can be a powerful imaging tool not available in film shooting.



Skin Tone Detail OFF



Skin Tone Detail ON

Simulated image

Other Features of the HDC-3300

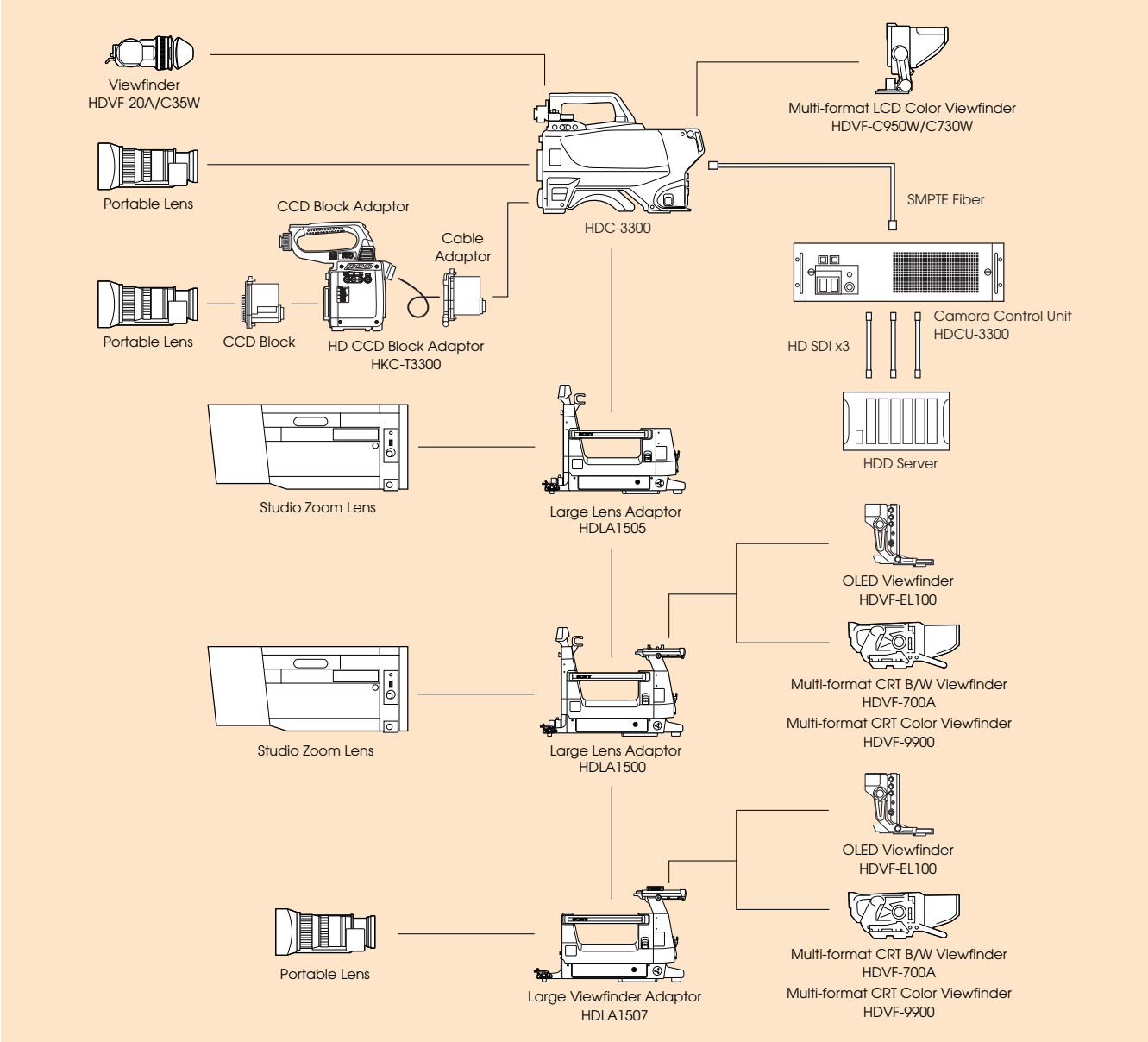
- Five assignable switches: one on the inside panel, and another four switches - RET1 (handle), RET1 (outside panel), INCOM1 (handle), and RET2 (front panel) - enable operators to assign frequently used functions
- Memory Stick™ /Memory Stick PRO™ media slot for saving and recalling camera setup files
- A wide range of viewfinder options: HDVF-20A, HDVF-C35W, HDVF-C950W, HDVF-C730W, HDVF-700A, HDVF-9900 and HDVF-EL100

HKC-T3300 CCD Block Extension Adaptor

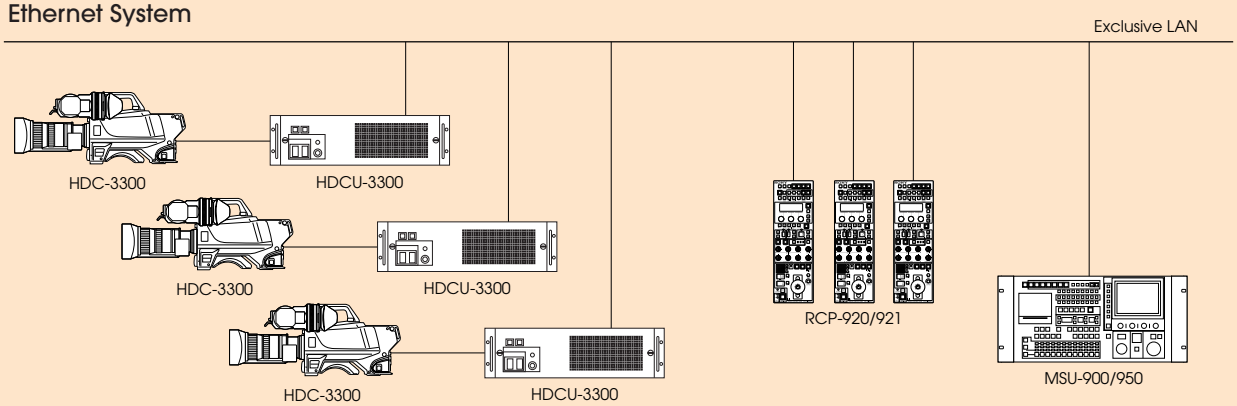
The HKC-T3300 CCD Block Extension Adapter is a unique accessory for HDC-3300 HD Super Motion Color Camera. It allows the CCD block to be extended from the camera body by up to 12.5 m. More creative camera shooting angles can be achieved, along with the freedom to place the imaging assembly in areas where a full-size camera would be restricted. The HKC-T3300 adaptor will expand the spectrum of HD Super Motion Color camera applications in area such as snorkel lenses, helicopter gimbal mounts, and mini jibs.

HKC-T3300 connected to the HDC-3300

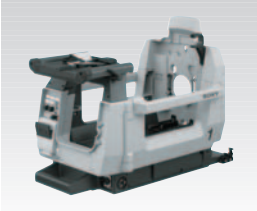
System Configurations



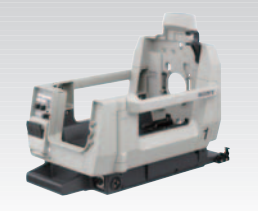
Ethernet System



Optional Accessories

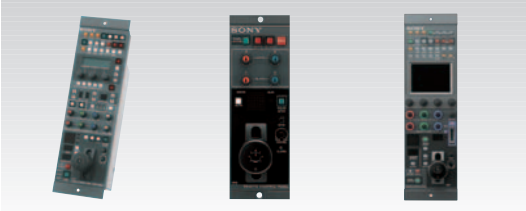


HDLA1500
Large Lens Adaptor
(for attachment of the HDVF-700A/9900/EL100)



HDLA1505
Large Lens Adaptor
(for attachment of the HDVF-C950W/C730W)

HDLA1507
Large Viewfinder Adaptor
(for attachment of the HDVF-700A/9900/EL100)



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)

RM-B750
Remote Control Unit

RM-B150
Remote Control Unit

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

HDVF-C35W
3.5-inch* LCD Color Viewfinder

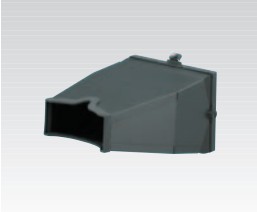
HDVF-C950W
9.0-inch LCD Color Viewfinder

HDVF-C730W
6.3-inch* LCD Color Viewfinder

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

HDVF-9900
9.0-inch CRT Color Viewfinder

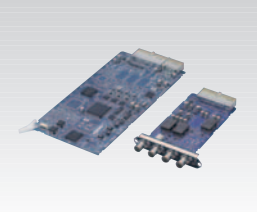
VFH-770
Outdoor Hood for
HDVF-700A/C730W



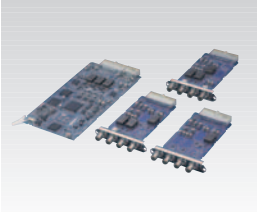
VFH-990
Outdoor Hood for HDVF-C950W

HDVF-EL100
OLED Viewfinder

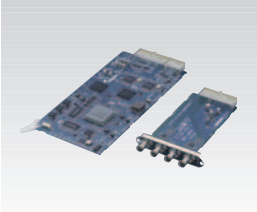
VCT-14
Tripod Adaptor



HKCU1001
SD Analog Interface Unit
(for HDCU-3300)



HKCU1003
Multi Interface Unit
(for HDCU-3300)



HKCU1005
HD-SDI/SD-SDI Expansion Unit
(for HDCU-3300)

BKW-401
Viewfinder Rotation Bracket

BKP-7911
Script Holder

CAC-6
Return Video Selector

CAC-12
Mic Holder

HKC-T3300
HD CCD Block Adaptor

* Viewable area measured diagonally

Specifications

HDC-3300 HD Super Motion Color Camera	
General	
Power requirements	AC 240 V, 1.4 A max., DC 12 V, 8.6 A max.
Operating temperature	-4 °F to +113 °F (-20 °C to +45 °C)
Storage temperature	-4 °F to +140 °F (-20 °C to +60 °C)
Weight	10 lb 9 oz (4.8 kg) (without VF and lens)
Dimensions (W x H x D)	6 1/8 x 7 7/8 x 13 3/4 inches (154 x 197 x 348 mm)
Camera section	
Pickup device	3-chip 2/3-inch type CCD
Effective picture elements	1920 (H) x 1080 (V)
Signal format	1920 x 1080 images: 1080/180i (59.94i), 1080/150i (50i) 1280 x 720 images: 720/180p (59.94p), 720/150p (50p)
Sensitivity	F7 (1080/180i)/F8 (1080/150i) at 2000 lx (3200K, 89.9% reflectance)
Signal-to-noise ratio (typical)*	54 dB (1x)/51 dB (3x)
Horizontal resolution*	1000 TV lines (at center)
Spectral system	F1.4 prism
Built-in filters	ND: 1: CLEAR, 2: 1/4ND, 3: 1/8ND, 4:1/16ND, 5: 1/64ND CC: A: CROSS, B: 3200K, C: 4300K, D: 6300K, D: 8000K
Signal inputs	
Mic input	XLR-3-pin x1 (female)
Audio input	CH1: XLR-3-pin x1 (female), MIC or LINE or FRONT MIC selectable CH2: XLR-3-pin x1 (female), AES/EBU or MIC or LINE selectable
Signal outputs	
HD-SDI/SD-SDI output**	BNC type x1, HD-SDI or SD-SDI, character on/off selectable
Test output	BNC type x1, VBS (SD) or VF: Y/R/G/B (HD) or HD-sync or SD-sync selectable
Other inputs/outputs	
CCU	Optical/electrical multi-connector (x1)
Intercom	XLR-5-pin x2 (female)
Prompter output	BNC type x2
DC input	XLR-4-pin x1, DC 10.5 to 17 V
DC output	4-pin x1, DC 10.5 to 17 V (max. 1.5 A)
Lens	12 pin x1
Viewfinder	20 pin x1
Earphone	Stereo mini-jack x1
Return control	6 pin x1
Remote	8 pin x1
Tracker	10 pin x1
Crane	12 pin x1
Supplied accessories	
	Operation manual (x1), Cable clamper (x1), Cable clamp band (x1), +B3x10 screws (x3), Switch label (x2)

* 1080/180i mode

** When the HDC-3300 camera is not connected to the HDCU-3300 camera control unit, the HD-SDI output signal is for maintenance purpose only.

Optional Input/Output Boards for HDCU-3300

HKCU1001 SD Analog Interface Unit	
VDA-A board	
VBS output	BNC type x2, 1.0 Vp-p, 75 Ω
PIX output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω
WF output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω

HKCU1003 Multi Interface Unit	
VDA-A board	
VBS output	BNC type x2, 1.0 Vp-p, 75 Ω
PIX output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω
WF output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω
VDA-B board	
Frame reference input	BNC type x1
Frame reference output	BNC type x1
PIX output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω
WF output	BNC type x1: VBS/R/G/B selectable, VBS: 1.0 Vp-p, 75 Ω

HKCU1005 HD/SD Expansion Unit	
HD-SDI/SD-SDI output	BNC type x4, HD-SDI/SD-SDI selectable (SDI output 3, 4: character on/off selectable) HD: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s, SD: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s

HDCU-3300 HD Super Motion Camera Control Unit	
General	
Power supply	AC 100/120/220 to 240 V, 50/60 Hz
Current consumption	max. 5.6 A
Operating temperature	+41 °F to +104 °F (+5 °C to +40 °C)
Storage temperature	-4 °F to +140 °F (-20 °C to +60 °C)
Weight	37 lb (16.8 kg)
Dimensions (W x H x D)	16 3/4 x 5 1/4 x 16 1/4 inches (424 x 133 x 410 mm) excluding projection
Signal inputs	
HD-SDI return input	BNC type x4, SMPTE 292M, 1.485/1.4835 Gb/s
SD-SDI return input	BNC type x4, SMPTE 259M, 270 Mb/s
VBS return input	BNC type x4
Reference input	BNC type x2 (1 connector for 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
Prompter input	BNC type x4 (2 connectors for loop-through output), analog NTSC/PAL/HD-Y, 1.0 Vp-p, 75 Ω
AC input	(x1), AC 100, 110 to 120, 220 to 240 V switchable
Signal outputs	
HD-SDI LINK A/B/C Super Motion output	BNC type x6, SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s Link A (x2), Link B (x2), Link C (x2)
HD-SDI output	BNC type x4, SMPTE 292M, 1.485/1.4835 Gb/s
SDI output	BNC type x4, HD-SDI/SD-SDI selectable (SDI output 3, 4: character on/off selectable) HD: SMPTE 292M, 0.8 Vp-p, 75 Ω, 1.485/1.4835 Gb/s SD: SMPTE 259M, 0.8 Vp-p, 75 Ω, 270 Mb/s
Sync output	BNC type 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
Character output	BNC type x1, VBS, 1.0 Vp-p, 75 Ω
AES/EBU output	BNC type x1, AES/EBU format, 20-bit/ 48 kHz
Mic output	XLR-3-pin x2 (male), 0/-20 dBs selectable
WF mode	4-pin x1
Other inputs/outputs	
CAMERA	Optical/electrical multi-connector x1, 10.692/10.681 Gb/s Serial digital x2, 240 V AC power supply
Intercom/Tally/PGM	D-sub 25-pin x1 Intercom (PD/ENG): 4W/RTS/CC, 0 dB Tally: R, G tally, 24 V power in/make contact PGM: 0/-20 dB selectable
RCP/CNU	8-pin x1, Sony Camera System-700 Control Protocol (for entire camera system control)
Ethernet	RJ-45 x1, 10BASE-T/100BASE-TX
Trunk A	12-pin x1
Trunk line	D-sub 9-pin x1 (female), RS-232C
Mic remote	D-sub 15-pin x1
Supplied accessories	
	Operation manual (x1), Number plates (1 set), Fuses (1 set)

HKC-T3300 Specifications

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

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