

## HDC-3300R

Super Slow Motion three 2/3-inch Power HAD HD CCD sensors multi format HD system camera with fibre interface



### Overview

As television broadcasting evolves steadily towards High Definition (HD), there is a strong demand for a new breed of slow-motion camera systems - one that offers full HD performance. In response to this demand, Sony introduced the HDC-3300 Super Motion Camera and HDCU-3300 Camera Control Unit - its long-awaited HD slow-motion camera system. Today, it has evolved into the HDC-3300R - a next-generation model with stunning picture quality by enhanced S/N ratio, state-of-the-art features, and a host of new functions.

The HDC-3300R incorporates a newly developed CCD imager and DSP LSI, new functionality including "Viewfinder Detail" and "Focus Assist Indicator (FAI)" functions as well as giving higher sensitivity and better signal to noise (S/N) ratio - allowing it to achieve the ultimate in picture performance and enhanced operational flexibility.

Sony's cutting-edge technology enables the HDC-3300R to capture full-resolution 1920 x 1080 High Definition images at an amazing three times the normal frame rate. The CCU connects to the camera via optical fibre with digital data for perfect HD images over runs of up to 2500 metres.

The HDC-3300R camera is based on the proven HDC-1500R HD multi-format camera, and therefore offers the same functionality,

including outstanding, and reliability, as well as its slow-motion capability.

In addition to its high-quality, slow-motion images, the HDC-3300R camera also provides real-time, normal-speed images thanks to a dedicated signal-processing LSI. This output is available simultaneously with the Super Motion output, allowing users to employ the HDC-3300R for both slow-motion and standard shooting purposes for increased versatility.

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

## **The ultimate in High Definition Slow-Motion capture**

The HDC-3300R Super Motion system allows the viewer to analyse fast moving action at one third of the normal speed, but with the enhanced resolution of HD video for astonishing detail. Even better than being there.

## **HDC Family Member**

The Super Motion system uses the same Fibre Optic connection and system infrastructure as the existing HDC range for seamless integration in a multi-camera studio or OB vehicles and for maximum versatility. The camera is based on the same digital processing architecture, including 16bit A/D conversion for state of the art performance.

## **Simultaneous normal speed and Slow-Motion operation**

The HDC-3300R can be used for real-time operation and Super Motion capture at the same time. This is simpler, less expensive and more user friendly than a two camera solution, especially for Sports and Outside Broadcast applications.

## **Ergonomic Design**

The design of the HDC-3300R is based on over two decades of Sony 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 and are positioned for optimum functionality and ease of use. The HDC-3300R's low centre of gravity design allows the operator to carry the camera comfortably on the shoulder. In addition, the shoulder pad of the HDC-3300R can be adjusted either forwards or backwards without using a screwdriver, so the camera can easily be moved to a well-balanced position.

### **New CCD and DSP provides even greater picture performance**

The use of a new, state-of-the-art CCD sensor ensures high quality images even at low light level. The high sensitivity of F9 at 2000 lux, together with a signal-to-noise ratio of 56 dB combine to deliver unprecedented picture quality.

### **Multi-format operation**

The HDC-3300R can operate in a wide variety of capturing modes, including 1080 24/25/30/50/60P. Furthermore, the CCD can capture 1080 50/60P images, which can be down sampled to deliver the highest quality 720 50/60P pictures.

### **Built-in down-converter in the camera head for stand-alone use**

The camera provides two HD SDI outputs and one digitally down-converted SDI or analogue composite output. In addition, viewfinder signals with characters can be output from the SDI output connector, giving camera operators additional convenience. Furthermore, when using 24P operation, the built-in 2-3 pull-down function of the HDC-3300R enables 60i down-converted SD signals to be output on a standard SD monitor - a capability that also minimises the flickers that generally occur on the viewfinder.

### **Sophisticated large lens adaptor design with one-touch, cable-free docking**

The HDLA-1500 large lens adaptor includes a unique mechanism which allows the HDC-3300R to be quickly and easily attached and detached without removing the large lens. No additional cable connections are necessary between the camera and adaptor, thanks to a novel "hot shoe" system.

### **Transparent digital fibre optic transmission**

The HDC-3300R provides a fully digital transmission link to the base station. Using SMPTE standard hybrid fibre/copper cable, this allows completely transparent transmission of full bandwidth video and audio signals over cable length of up to 3000 metres. This ensures optimum quality HD signals can be delivered into any production environment.

## Features

### **Three times capture speed**

Three-times Normal Speed HD Image capture, so Slow-Motion playback is smoother and can be slower than the two-times systems from other manufacturers. The HDC3300R camera captures full-resolution 1920 x 1080 HD images at an outstanding three times the normal frame rate: 180i (59.94i) , 150i (50i) and 1280 x 720 HD images at three times the normal frame rate: 180p (59.94p) and 150p (50p). This ensures superb slow-motion playback at all the HD frame-rate standards.

### **Long-distance Optical Fibre Transmission**

The HDC3300R camera uses a high speed version of the SMPTE Hybrid Optical Fibre to send 3 x the standard frame rate to the HDCU-3300R CCU. There is no analogue triax signal degradation even on runs of up to 2500 metres. The HDCU-3300R acts as a conventional CCU and formats the high speed data via three HD-SDI outputs to a compatible third-party server.

### **High-quality Normal-speed HD Images**

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In addition to its high-quality, slow-motion images, the HDC-3300R camera also provides real-time, normal-speed images thanks to a dedicated signal-processing LSI. Furthermore, this output is available simultaneously with the Super Motion output, allowing users to employ the HDC-3300R for both slow-motion and standard shooting purposes for increased versatility.

### Flexible System Configuration

The HDC-3300R and HDCU-3300R system is compatible with other Sony system camera peripherals including the RCP-700 series remote controllers.

### Reliable Camera Head Operation

The HDC-3300R camera uses optimal design techniques to reduce power consumption and heat generation within the camera body for comfortable operation and high reliability.

## Specifications

General	
Power requirements	AC 240 V, 1.4 A max. DC 12 V, 8.6 A max.
Operation temperature	-20°C to +45°C (-4°F to +113°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Mass	Approx. 4.8 kg (10 lb 9 oz) (without VF and lens)
Dimensions (W x H x D)	154 x 197 x 348 mm (6 1/8 x 7 7/8 x 13 3/4 inches)

## Camera section

Pickup device	3-chip 2/3-inch type CCD
Effective picture elements (H x V)	1920 x 1080
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	F8(1080/180i)/F9(1080/150i) at 2000 lx
Signal-to-noise ratio	x1: -56 dB/-64 dB (at NS MAX mode), x3: -52 dB/-60 dB (at NS MAX mode)
Horizontal resolution	1000 TV lines (at center) at 1080/180i mode
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, E: 8000K
Analog To Digital conversion	16bit

## Signal inputs

Mic input	XLR-3-pin, female (x1)
Audio input	CH1: XLR-3-pin, female (x1), MIC or LINE or FRONT MIC selectable CH2: XLR-3-pin, female (x1), AES/EBU or MIC or LINE selectable

## Signal outputs

	BNC type (x1), HD-SDI or SD-SDI, character on/off selectable
HD-SDI/SD-SDI output(**)	**When the HDC3300 camera is not connected to the HDCU3300 camera control unit, the HD-SDI output signal is for maintenance purpose only.
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)
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Intercom	XLR-5-pin, female (x2)
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

Cable clamp belt
Switch label 1
Switch label 2
Operation Manual



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## **HDLA- 3505**

Large Lens Adaptor

## Gallery

