HDC-X300 Series
HD Multi-purpose Camera

THE NEW WAY OF BUSINESS™
Following the successful introduction of the HDC-X300*, Sony now adds the new HDC-X310*, extending its line of compact multi-purpose HD cameras.

The HDC-X300 and HDC-X310 incorporate three 1/2-inch type 1.5-mega pixel HD CCDs, which offer high resolution, high sensitivity, and high signal-to-noise characteristics. Packing this performance into an extremely compact chassis, these cameras offer advanced features such as progressive scan modes, slow shutter, and auto-focus capabilities. Convenient remote control is also available using the optional RM-B150/B750 Remote Control Unit or MSU-900/950 Remote Control Panels.

The HDC-X300 comes equipped with an HD-SDI output on its rear panel, and is the preferred choice for HD-exclusive operations. The HDC-X310, on the other hand, adds more interface and operational flexibility through the use of its associated HFU-X310 signal interface unit, connected via a fiber optical cable. This interface unit offers a variety of optional interface boards to cover a range of signal formats, including HD-SDI and SD-SDI, and HDV™ through the i.LINK™*2 interface, as well as computer XGA output.

Combined with their compact designs, suitable for both indoor and outdoor use, the Sony HDC-X300 and HDC-X310 cameras are the ideal choice for an extensive range of HD image acquisition applications - from large-screen displays, production, PoV (Point of View), studios, surveillance, image processing, microscopy, and much more.

*1 In this brochure, the HDC-X300 refers to both the HDC-X300 camera and HDC-X300K lens package, while the HDC-X310 refers to both the HDC-X310 camera and HDC-X310K lens package.

*2 i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connector. All products with an i.LINK connector may not communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connector for information on compatibility, operating conditions and proper connection. For information on any Sony device having an i.LINK connection contact your local Sony Sales office.
**SYSTEM EXAMPLES**

**Live event operation**

Remote control studio operation

Robotic system with optional RS-232C Pan/Tilt Control

Pan & Tilt System provided by Fujinon or Telemetrics

Pan & Tilt System

**APPLICATIONS**

A range of features and system flexibility make the HDC-X300 and HDC-X310 camera systems suitable for virtually any general application.

**Live Events**

When displayed on large projection systems, the high-clarity HD images captured by the HDC-X310 camera provide impressive viewing of live events. And by use of the Sony AWS-Gyn-Airchain Station™ Live Content Producer, these stunning images can be seamlessly integrated with an array of PC sources on the screen projection.

**News Studio**

In addition to camera settings, pan/tilt/zoom operations can be controlled remotely from third-party pan/tilt systems, allowing the HDC-X300/X310 cameras to be easily integrated into an automated news studio.

**Church Production**

Although the HDC-X300/X310 offers high-quality HD images, it is designed to be as compact as possible. This enables it to be installed discreetly in many locations such as houses of worship, halls, and conference rooms.

**Image Processing**

The HDC-X300/X310 system can capture high-resolution progressive images ideal for a range of image-processing applications such as microscopy and general inspections.

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- **HDC-X310**
- **HDCXPTZ/F**
- **HDC-X310 with Audio Mixer**
- **HFBK-XG1**
- **HFBK-HD1**
- **HFBK-SD1**
- **HFU-X310**
- **RM-B750**
- **BVM Monitor**
- **i.LINK (HDV) HVR-M25U**
- **Triax**
- **AWS-G500 Anycast Station™ Live Content Producer**
FEATURES

Superclear Picture Quality

Incorporating Sony’s innovative Advanced Frame Accumulators (AFA) technology, the HDC-X300/X310 can output progressive HD signals (2270p/2170p) for a clear, dust-free image. A dust-free signal is automatically converted from a 3270p (24-frame) to 2270p (30-frame) picture in addition to interlaced HD signals (1080p/1050p). Interface and progressive modes can be easily selected from the camera setup menu.

Progressive Mode

Incorporating Sony’s innovative Advanced Frame Accumulators (AFA) technology, the HDC-X300/X310 can output progressive HD signals (2270p/2170p) for a clear, dust-free image. A dust-free signal is automatically converted from a 3270p (24-frame) to 2270p (30-frame) picture in addition to interlaced HD signals (1080p/1050p). Interface and progressive modes can be easily selected from the camera setup menu.

Compact and Lightweight Design

The HDC-X300/X310 is designed to be compact and lightweight, making it ideal for use in space-constrained and awkward areas such as on a crane head or helicopter. The supplied tally unit can be easily detached from the camera body, allowing the camera to be installed in areas where bulky production HD cameras cannot be used. The tall 2 lb 10 oz (1.2 kg)* allows easy installation where bulky production HD cameras cannot be used.

Low-Shooting Interior

The HDC-X300/X310 is designed to be compact and lightweight, making it ideal for use in space-constrained and awkward areas such as on a crane head or helicopter. The supplied tally unit can be easily detached from the camera body, allowing the camera to be installed in areas where bulky production HD cameras cannot be used. The tall 2 lb 10 oz (1.2 kg)* allows easy installation where bulky production HD cameras cannot be used.

Auto-Focus Function*

While maintaining compatibility with interchangeable manual focus lenses, the HDC-X300/X310 comes packaged with a convenient auto-focus lens. Two auto-focus modes are available and can be selected from the supplied lens. One-puch auto-focus readjusts the focus each time the button is pressed, while auto-tracing focus automatically tracks the focus in a dynamic manner.

Flexible Image Controls

The HDC-X300/X310 offers two convenient functions for operating slow motion/variable frame-rate environments: a Slow Shutter mode and a Gain function. These functions are available in two modes - Slow Shutter ON (64 frames) and Slow Shutter OFF. When these functions are used together, the camera offers the camera control to sophisticated operations.

Interlace and progressive modes can be easily converted between 23.976PsF (59.94i) in 2-3 pull-down mode and 25PsF/29.97PsF, 2-3 pull-down to HD. The Gain function allows the camera to capture high-quality still images when synchronized with an external flash or function suited for photo-booth or document-scanning applications. The Gain function - which can be used separately or together - provides the operator with greater flexibility in depth of field and exposure control.

Optical ND Filter and Electronic CC Function

Optimum light and color control is readily achieved using the built-in optical neutral density (ND) filter wheel and electronic ND. Optical ND filters can be combined with electronic ND filters to create the ideal ND configuration. This allows the operator to control the ND levels in delicate situations, providing the operator with greater flexibility in depth of field and exposure control.

SYSTEM VERSATILITY

The HDC-X300/X310 is equipped with a range of interfaces such as HD-SDI input/output, XLR audio input, and tally inputs. It provides a 4-pin remote input to connect the RM-B750/B150, RCP-700 Series, or MSU-900/950. Optional accessories including 1000m SDI cables are available for all applications.

Low-Light Shooting

Incorporating three 1/2-inch type 1.5-mega pixel HD CCDs, the HDC-X300/X310 offers a low-noise image with gain to be boosted to +48 dB. When these functions are used together, the camera offers the camera control to sophisticated operations.

Remote Control Capability

The HKC-SV1 is a servo unit that allows the filters on the filter wheel to be ND and color temperature controlled from the RM-B750/B150. The HKC-SV1 is a servo unit that allows the filters on the filter wheel to be ND and color temperature controlled from the RM-B750/B150. The HKC-SV1 is a servo unit that allows the filters on the filter wheel to be ND and color temperature controlled from the RM-B750/B150.

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FEATURES

Incorporating Sony’s innovative Advanced Frame Accumulators (AFA) technology, the HDC-X300/X310 can output progressive HD signals (525PsF 525i) and a 525PsF interlaced signal from 525PsF 525i. In addition to interlaced HD signals (525PsF 525i), interlace and progressive modes can be flexibly selected from the camera setup menu.

Compact and Lightweight Design

The HDC-X300/X310 is designed to be compact and lightweight, making it ideal for use in space-constrained and awkward areas such as on a crane head or helicopter. The supplied tally unit can be easily detached from the camera body, ensuring the camera lens is not to be fiddled with, for example, a pan/tilt head or an underwater housing.

Auto-Focus Function*

While maintaining compatibility with interchangeable manual focus lenses, the HDC-X300/X310 comes packaged with a convenient auto-focus lens. Two auto-focus modes are available and can be selected on the supplied menu. On one auto-focus mode, the focus is automatically tracked, while another auto-focus mode allows the focus each time the button is pressed, maintaining focus in a dynamic manner.

Flexible Image Controls

The HDC-X300/X310 provides highly advanced image control functions such as: a "TruEye” feature, skin tone detail, and color temperature controls. These functions - previously available only on high-end studio cameras or camcorders - allow creative images to be produced with high clarity.

Trigger Function

Two types of trigger modes are available with the HDC-X300/X310, allowing synchronized operation with external equipment. The flash trigger mode allows the camera to capture a high-quality still image when synchronized with an external flash - a function suited for photojournalist or document-studio applications. Another trigger mode is the 23.976PsF progressive mode, the camera outputs a 2-3 pull-down trigger signal for frame locking to other HDC-X300/X310 cameras.

Remote Control Capability

The HDC-X300/X310 is compatible with the RM-850X500 Remote Control Unit, RCP 700 Series Remote Control Panel and MSU-900/950 Master Setup Unit. These remote controllers offer the complete range of control parameters that the HDC-X300/X310 provides, from basic control to sophisticated operations.

Optical ND Filter and Electronic CC Function

Optimum light and color control are easily achieved using the built-in optical neutral density (ND) filter wheel and electronic color correction (CC) filter control. In addition to the optical ND filter wheel, an electronic CC filter can be selected from the camera setup menu, providing the operator with greater flexibility in depth of field and exposure control.

SYSTEM VERSATILITY

The HDC-X300/X310 is equipped with a range of interdevices such as HD-SDI input/output, XDCAM gear, and tally inputs. It is capable of being used remotely in any environment. Digital data - including external sync, bi-directional RS-422A control, and camera control signals - can be transmitted between the HDC-X300/X310 and the HDC-X310 via an optical fiber cable. This cable can be up to several meters long, allowing the camera to be installed virtually anywhere required.

HFC-10M/30M/50M

Remote Control Capability

HFC-10M/30M/50M is equipped with a range of interdevices such as HD-SDI input/output, XDCAM gear, and tally inputs. It is capable of being used remotely in any environment. Digital data - including external sync, bi-directional RS-422A control, and camera control signals - can be transmitted between the HDC-X300/X310 and the HDC-X310 via an optical fiber cable. This cable can be up to several meters long, allowing the camera to be installed virtually anywhere required.

HFC-10M/30M/50M
FEATURES

Incorporating Sony’s innovative Advanced Frame Accumulators (AFA) technology, the HDC-X300/X310 can output progressive HD signals (23.976PsF, 24PsF) in addition to interlaced HD signals (59.94i, 60i). Interfaces and progressive modes can be easily selected from the camera setup menu.

**Compact and Lightweight Design**

The HDC-X300/X310 is designed to be compact and lightweight, making it ideal for use in low-light HD imaging applications, such as in large stadiums or concert venues. The camera’s compact design allows it to be easily mounted on cranes, helicopters, or other aerial platforms.

**Auto-Focus Function**

While maintaining compatibility with interchangeable manual focus lenses, the HDC-X300/X310 comes equipped with a new auto-focus lens. Two auto-focus modes are available and can be selected from the supplied lens.

**Flexible Image Controls**

The HDC-X300/X310 provides highly advanced image-control functions such as a TruEye feature, skin-tone detail, and color temperature controls. These functions are previously available only on high-end studio cameras at a cost. The camera features include a shooting option for low light sensitivity.

**Optical ND Filter and Electronic CC Function**

Optical and electronic ND filters are available with external hardware. The camera allows for control over ND filter selection, providing the operator with greater flexibility in depth of field and exposure control.

**SYSTEM VERSATILITY**

The HDC-X300/X310 is equipped with a range of interconnections such as HD-SDI, 3G-SDI, genlock, and tally inputs. It provides an 8-pin remote control port to connect the RM-B750/B150, RCP-750/751, or HD-SDI master setup.

**OPTIONAL ACCESSORIES**

The HDC-X300/X310 is available with a variety of options, including a range of tripod mounts, remote controllers, and additional lenses. The camera is designed to be versatile and can be adapted to a wide range of applications.
**SYSTEM EXAMPLES**

- Live event operation
- Remote control studio operation
- Robotic system with optional PM-2000 Pan & Tilt Controller
- HD small studio operation

**APPLICATIONS**

A range of features and system flexibility make the HDC-X300 and HDC-X310 camera systems suitable for virtually any general application. The following are typical examples:

- **News Studio**
  In addition to camera settings, pan/tilt/zoom operations can be controlled remotely from third-party pan/tilt systems, allowing the HDC-X300/X310 cameras to be easily integrated into an automated news studio.

- **Live Events**
  When displayed on large projection systems, the high-clarity HD images captured by the HDC-X310 camera provide impressive viewing of live events. And by use of the Sony AWS-G500 AnyCast Station™ Live Content Producer, these stunning images can be seamlessly integrated with an array of PC sources on the studio projection wall.

- **Church Production**
  Although the HDC-X300/X310 offers high-quality HD images, it is designed to be as compact as possible. This makes it easier to be installed discreetly in many locations such as houses of worship, halls, and conference rooms.

- **Image Processing**
  The HDC-X300/X310 camera can capture high-resolution progressive images ideal for a range of image-processing applications such as microscopy and general inspections.
SYSTEM EXAMPLES

Remote control studio operation

Robotic system with optional RS-232C** Pan & Tilt Control

HD small studio operation

Live event operation

Remote control studio operation

HD video capturing for medical/instrumentation

Field showing

APPLICATIONS

A range of features and system flexibility make the HDC-X300 and HDC-X310 camera systems suitable for virtually any general application. The following are typical examples:

News Studio

In addition to camera settings, pan/tilt/zoom operations can be controlled remotely from third-party pan/tilt systems, allowing the HDC-X300/X310 cameras to be easily integrated into an automated news studio.

Live Events

When displayed on large projection systems, the high-clarity HD images captured by the HDC-X300 cameras provide impressive viewing of live events. And by use of the Sony AWS-G500 AnyCast Station live Content Producer, these resulting images can be seamlessly integrated with an array of PC sources on the same projection system.

Church Production

Although the HDC-X300/X310 offers high-quality HD images, it is designed to be as compact as possible. This enables it to be installed discreetly in many locations such as houses of worship, halls, and conference rooms.

Image Processing

The HDC-X300/X310 system can capture high-resolution progressive images; ideal for a range of image-processing applications such as microscopy and general inspections.
**SPECIFICATIONS**

### General

**HDC-X300**
- **Power requirements**: DC 12 V
- **Power consumption**: 18 W (camera head only) 23.5 W (with the VCL-719BXS, HKC-SV1 Filter Servo Unit, and the RM-B750 Remote Control Unit connected)
- **Operating temperature**: -14 to +113 °F (-10 to +45 °C)
- **Storage temperature**: -4 to +140 °F (-20 to +60 °C)
- **Weight**: Approx. 2 lb 10 oz (1.2 kg) (camera head only) 3 lb 11 oz (1.7 kg) (including camera head, tally unit)

**HDC-X310**
- **Power requirements**: DC 12 V
- **Power consumption**: 19 W (camera head only) 24.5 W (with the VCL-719BXS, HKC-SV1 Filter Servo Unit, and the RM-B750 Remote Control Unit connected)
- **Operating temperature**: -14 to +113 °F (-10 to +45 °C)
- **Storage temperature**: -4 to +140 °F (-20 to +60 °C)
- **Weight**: Approx. 2 lb 13 oz (1.3 kg) (camera head only) 3 lb 15 oz (1.8 kg) (including camera head, tally unit)

### Camera

**Pickup device**: 3-chip 1/2-inch type 1.5-megapixel CCD
- **Effective picture elements (H x V)**: 1440 x 1080
- **Optical system**: F1.4 prism system
- **Built-in filters**: 1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
- **Lens mount**: Sony 1/2-inch bayonet mount
- **Signal system**: 1080/59.94i, 1080/50i
- **Scanning system**: 59.94i/23.976PsF/29.97PsF selectable at 59.94i 50i/25PsF selectable at 50i
- **Sync system**: Internal and External (3 state/VBS (BB))
- **Sensitivity (2000 lx, 89.9% reflectance)**: F10 (typical)
- **Minimum illumination**: 0.003 lx (F1.4, +48 dB gain, with slow shutter mode at 64 frame accumulation)
- **Gain selection**: -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42, 48 dB
- **Shutter speed**: 1/60 (50i mode), 1/100, 1/250, 1/500, 1/1000, 1/2000 s
- **Slow shutter**: 2, 3, 4, 5, 6, 7, 8, 16, 32, 64 frame
- **Clear scan**: 50 to 200 Hz (50i mode), 60 to 200 Hz (59.94i mode)
- **Smear level**: -120 dB (typical)
- **S/N ratio**: 52 dB (typical)
- **Geometric distortion**: Below measurable level (without lens)
- **Modulation depth at 21 MHz**: 40% (typical) (with HD SDI output)

### Signal inputs/outputs

- **Genlock**: BNC type (2), 3-level/2-level (VBS, VS)
- **Trigger**: BNC type (1), TTL level
- **Sync block**: 0.3 Vp-p (when terminated), 75 Ω, loop-through
- **HD SDI input**: BNC type (1) Conforming to SMPTE 292M
- **OFC**: Single mode, LC connectors (2), send/receive
- **Multi-connector**: 6-pin (1)
- **AC input**: 3-pin (1)

### Supplied accessories

- Operation manual (1), OFC cover (1), M3 x 4 screws (2), M4 x 4 screws (1), Multi-connector plug (1)

* Requires upgrading

### Dimensions

**HDC-X300**
- **Weight**: Approx. 4 lb 6 oz (2 kg)

**HDC-X310**
- **Weight**: Approx. 4 lb 3 oz (1.8 kg)

Unit: inches (mm)

**HDF-2910**
- **Power requirements**: AC 100 to 240 V, 50/60 Hz
- **Current consumption**: Max. 0.6 A
- **Operating temperature**: -41 to +104 °F (-5 to +45 °C)
- **Storage temperature**: -4 to +140 °F (-20 to +60 °C)

### Dimensions

**HDF-2910**
- **Maximum cable length**: Optical fiber cable (single mode): 3280 feet (1000 m)

### PIN ASSIGNMENT D-sub 15-pin

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<th>Pin number</th>
<th>R (X)/Y (X)</th>
<th>G (X)/Pb (X)</th>
<th>B (X)/Pr (X)</th>
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**HDF-2910**
- **Remote inputs/outputs**: 8-pin (1)
- **OFC**: Single mode, LC connectors (2), send/receive

**AC input**: 3-pin (1)

**Supplied accessories**: Operation manual (1), OFC cover (1), M3 x 4 screws (2), M4 x 4 screws (1), Multi-connector plug (1)

* Requires upgrading

**PIN ASSIGMENT 8 pin remote connector** (parts no: 1-766-848-11)

**RS-232C**: Output pins 1: TX 2: RX 7: GND

**HDC-X300 Rear Panel**

**HDC-X310 Rear Panel**