SONY

Explore a different viewpoint.

Multi-purpose Cameras

BRC-300P
BRC-H700
HDC-X300/K
HDC-X310/K
HFU-X310

www.sonybiz.net/media

Remote

multi-purpose

cameras

Explore a different

From natural history and documentaries to sports, live events and reality shows, television viewers are demanding a more exciting, more involving on-screen experience.

Searching for an ever-wider palette of creative options, programme makers are looking for new ways to captivate audiences with a unique Point of View that stands out from the crowd.

Opening up a new world of High Definition and Standard Definition shooting possibilities, the Sony range of remote multi-purpose cameras gives broadcasters greater flexibility than ever before. Without the size and bulk of a full-sized camera – and its operator – it's easier to pick the perfect Point of View that suits your creative vision. Grab a grandstand view from the roof of a sports stadium or concert hall. See animals close up in their natural habitat. Go where no camera has ever been before – and give your viewing audience a unique experience that's like no other.

There's a range of compact, feature-packed Sony multi-purpose cameras to suit all your Standard Definition and High Definition acquisition requirements. Compact and lightweight but without sacrificing imaging performance or advanced features, Sony multi-purpose cameras are the ideal choice in any situation. Mounted on a crane or in a plane or helicopter, they're the perfect choice to capture stunning wide-area images.

Their discreet size and remote operation also makes Sony multi-purpose cameras the ideal option when you don't want your presence to interfere with what's happening on the other side of the camera lens. Catch more intimate, revealing reactions from reality show contestants. Get closer to wildlife and natural subjects without them knowing you're even there.

**Isn't it time to give your production
a new viewpoint?**

viewpoint

A new world of exciting applications

Sony multi-purpose cameras are suitable for a wide range of applications where you need to acquire High Definition or Standard Definition pictures with maximum creative freedom and operational flexibility.

STUDIO PRODUCTION

Remote cameras are an integral part of today's automated news studios and other production environments. Adjustment of pan/tilt/zoom can be controlled via a range of systems.

WILDLIFE AND NATURAL HISTORY

Get nearer to natural subjects in their own habitat and capture images that would be impossible for a human camera operator to obtain.

AERIAL PHOTOGRAPHY

Mounted in a helicopter, light aircraft or on a crane, a remote camera affords breathtaking aerial views without the weight penalty of a full-sized camera and operator.

POINT OF VIEW

See the big picture with a clear view of what's happening in an operating theatre, lecture room, concert hall or sports stadium. As a permanently installed weather-cam, this multi-purpose camera provides broadcast-quality pictures round the clock from a fixed viewpoint.

SPORTS

Positioned behind the goal-mouth or at the track-side, a compact camera offers a perfect close-up view of the action without distracting athletes and judges.

LIVE EVENTS, CONFERENCES AND CORPORATE PRESENTATIONS

More businesses are demanding a high-quality acquisition solution for corporate events and live presentations. Pictures from a remotely controlled camera can be presented to audiences for projection, recording or streaming via the web. Sony multi-purpose cameras are an ideal partner for the Sony AWS-G500 Anycast Station™ Live Content Producer that allows high-clarity HD images to be seamlessly integrated with PC and other sources for big-screen projection.

REALITY PROGRAMMES

Multi-purpose cameras are an integral part of today's reality programmes, Controlled remotely, they can provide a superb quality close-up view of what's happening without disturbing contestants.

BRC-300P

FEATURES

Superb Picture Quality with a Mega Pixels 3CCD

The BRC-300P incorporates three 1/4.7-type Advanced HAD™ CCD sensors with a total of 1,070,000 pixels allowing the camera to deliver outstanding picture quality with high-resolution and accurate colour reproduction. The BRC-300P produces low-noise images and is ideal in low-illuminated shooting environments or when shooting dark subjects.

Precision 16:9 Technology

The BRC-300P captures images in both 4:3 and 16:9 aspect ratios and, with its 3CCD technology, is able to achieve a wide angle of view in 16:9 mode. Due to the greater number of pixels used in the 16:9 aspect ratio, the BRC-300P generates extremely high-resolution images when compared to conventional cameras.

High-Performance Sony Pan/Tilt/Zoom Mechanism

The BRC-300P covers a wide shooting range with its highly accurate Pan/Tilt mechanism. It has one of the widest ranges in its class: a pan range of 340 degrees and a tilt range of 120 degrees. The 340-degree pan range is covered in 8 seconds, while the 120-degree tilt range is covered in 4.5 seconds. The BRC-300P captures not only fast-moving objects, but also slow-moving objects without rocking vibration. What's more, the BRC-300P incorporates a 12x optical auto-focus zoom lens, allowing for a zoom capability of up to 48x when used in combination with its 4x digital zoom.

RS-232C/RS-422 Remote Control (VISCA protocol)

The BRC-300P can be controlled by external devices such as the optional RM-BR300 Remote Control Unit thanks to the well-known Sony VISCA protocol. All local controls such as Pan/Tilt/Zoom, camera settings and six presets are easily accessed, while up to seven cameras can be daisy-chained and controlled by the RM-BR300 Remote Control Unit.

RM-BR300
Control Panel

Supplied IR Remote
Commander Unit

System Configuration

SHORT-DISTANCE OPERATION

BRBK-301 Component/RGB
BRBK-302 SDI

BRC-300P

Composite
Video/S-Video

RS-232C/
RS-422

RM-BR300

Video
Cassette
Recorder

Monitor

LONG-DISTANCE OPERATION

BRBK-303

BRC-300P

CCFC-M100

BRU-300P

BRBK-301 Component/RGB
BRBK-302 SDI

Composite
Video/S-Video

RS-232C/
RS-422

RM-BR300

Video
Cassette
Recorder

Monitor
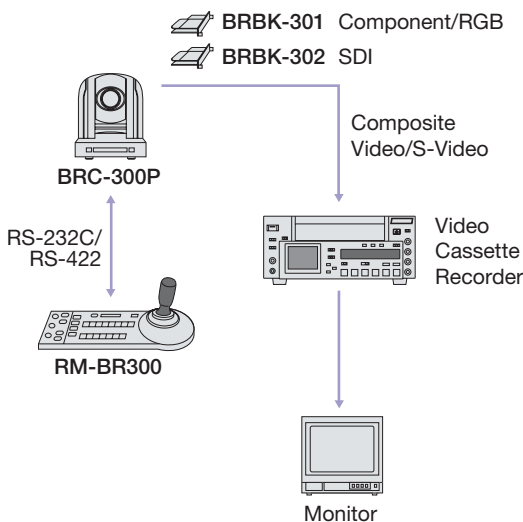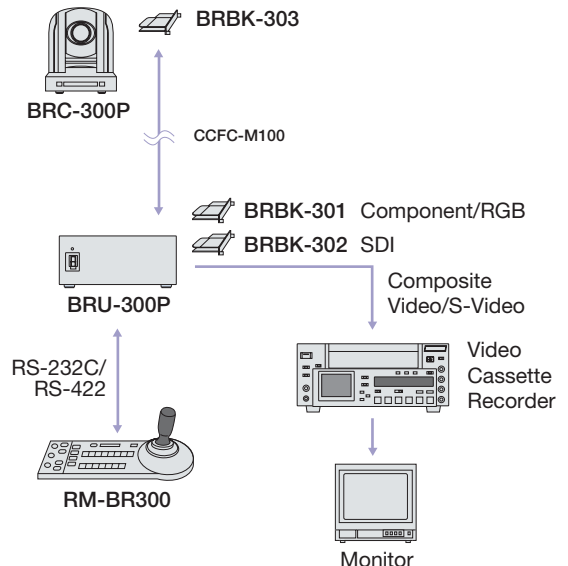
Versatile Video Outputs

The BRC-300P can be used with a range of versatile optional interface cards that allow for flexible analogue and digital system configurations. Choose from the following interface cards for a solution that meets your individual requirements:

■ **BRBK-301**[*1] Analogue RGB/Component
■ **BRBK-302**[*1] SDI

Thanks to these convenient options, the BRC-300P truly functions as an all-in-one, compact robotic camera.

*1 Can be installed into the both BRC-300P and BRU-300P.

Ceiling or Desktop Mount Installation

Thanks to Sony's Image Flip functions, the BRC-300P can be ceiling-mounted using the supplied ceiling mount kit or can also be used on your desktop.

Six Presets

Various camera settings such as Pan/Tilt/Zoom and focus can be preset in up to six presets per camera.

Multi-function IR Remote Commander® Unit

Basic camera settings such as Pan/Tilt/Zoom functions and six preset patterns can be controlled from the supplied IR Remote Commander.

Easy-to-use and Ergonomically-designed Remote Control Unit

All camera settings including the Pan/Tilt/Zoom function and six preset patterns can be controlled from the optional RM-BR300 Remote Control Unit. The ergonomic joystick design and feature-rich control panel provide superb operability in various remote-shooting applications.

Optical Multiplex Unit

With the optional BRBK-303 Optical Multiplex Card and the optional BRU-300P Optical Multiplex Unit, uncompressed digital data including external sync and camera control can be transmitted via the BRU-300P Optical Multiplex Unit. With only a single cable connection required between the camera and the optical multiplex unit, the system is extremely easy to install. The maximum cable length between these units is 500 metres – allowing multiple cameras to be located virtually anywhere you want.

What's more, the BRU-300P Optical Multiplex Unit is equipped with two built-in card slots identical to the ones found in the BRC-300P camera allowing for flexible analogue and digital system configurations.

BRBK-302
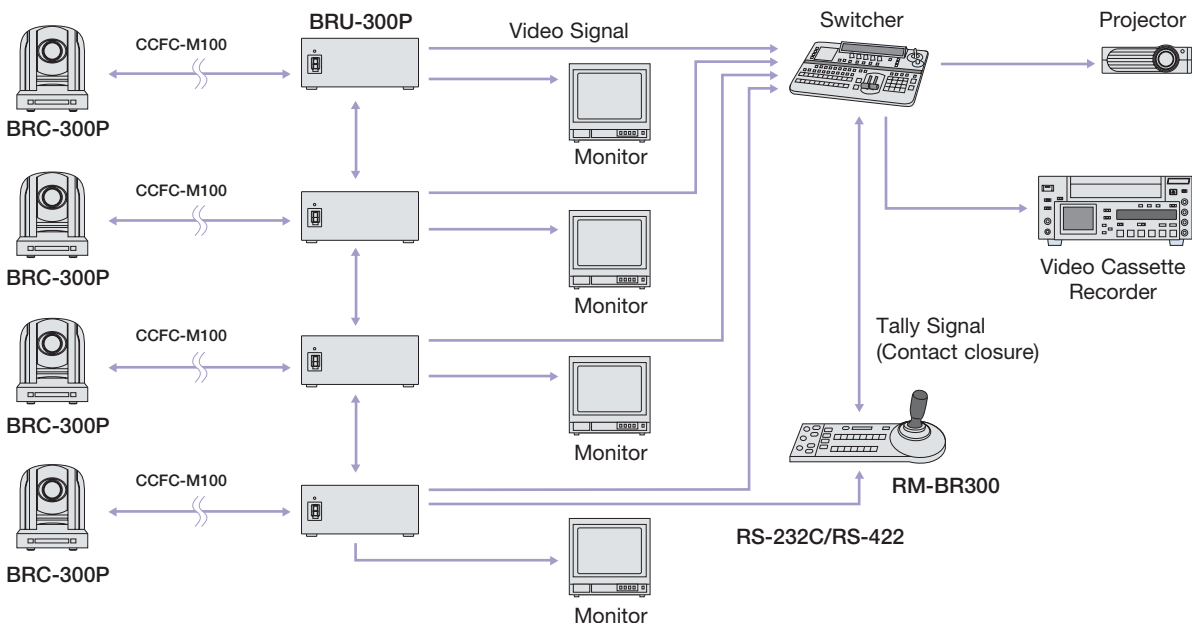Optional Board mounted on BRC-300P (rear)

BRBK-301 / BRBK-302
Optional Boards mounted on BRU-300P (rear)

MULTIPLE-CAMERA OPERATION FROM A REMOTE LOCATION

BRC-H700

FEATURES

Superb Picture Quality – Three 1.07 Megapixel HD CCDs

The BRC-H700 incorporates three 1/3-inch type HD CCD sensors with a total of 1,070,000 effective pixels each, resulting in outstanding picture quality with high resolution. It also delivers accurate colour reproduction, and is ideal in low-light shooting environments.

High-Performance Pan/Tilt/Zoom Mechanism

The BRC-H700 covers a wide shooting range with its highly accurate Pan/Tilt mechanism. It has a very wide pan range of 340 degrees and a tilt range of 120 degrees. Both pan and tilt speeds are variable within the range of 0.25 to 60 degrees per second. This enables the BRC-H700 to capture not only fast-moving objects, but also slow-moving objects without rocking vibration. What's more, the BRC-H700 incorporates a 12x optical auto-focus zoom lens, allowing for a zoom capability of up to 48x when used in combination with its 4x digital zoom.

RS-232C/RS-422 Remote Control (VISCA protocol)

The BRC-H700 can be controlled by external devices such as the optional RM-BR300 Remote Control Unit thanks to Sony's well-known VISCA protocol. All local controls such as Pan/Tilt/Zoom, camera settings, and sixteen presets can be easily accessed, and up to seven cameras can be daisy-chained and controlled by a single RM-BR300 Remote Control Unit.

Flexible Installation – Ceiling Mount or Flat Surface

Because the BRC-H700 has an "Image Flip" function, the unit can either be mounted on a ceiling using the supplied ceiling mount kit or placed on a flat surface to meet your installation and space requirements.

Sixteen Presets

Various camera settings such as Pan/Tilt/Zoom and focus can be configured for up to sixteen presets per camera.

BRU-H700
HD Optical Multiplex Unit

RM-BR300
Control Panel

Supplied IR Remote
Commander Unit

System Configuration

SHORT-DISTANCE OPERATION

Analogue RGB/Component
- HFBK-HD1
- HFBK-SD1
- HFBK-XG1
- HFBK-TS1

BRC-H700
Audio Line IN — Mic
RS-232C/RS-422
Monitor
Projector
Recorder
RM-BR300
PC

LONG-DISTANCE OPERATION

BRBK-H700
BRC-H700
Audio Line IN — Mic

Optical Fibre Cable — CCFC-M100HG

Analogue RGB/Component
- HFBK-HD1
- HFBK-SD1
- HFBK-XG1
- HFBK-TS1

Projector
Recorder
PC

BRU-H700
RS-232C/RS-422
Monitor
RM-BR300

Versatile Video Outputs

The BRC-H700 is supplied with a D-sub 15-pin RGB/YPbPr interface. The unit can also accept a range of versatile optional interface cards that allow for flexible analogue and digital system configurations. Choose from the following interface cards to configure a solution that meets your individual requirements:

- **HFBK-HD1*** HD-SDI, HD Analogue RGB/Component
- **HFBK-SD1*** Down Converted Analogue RGB, Analogue Component, Analogue Composite, SD-SDI
- **HFBK-XG1*** WXGA, XGA (Letter Box, Crop), VGA (Letter Box, Crop)
- **HFBK-TS1*** i.LINK for use with HDV systems

Thanks to these convenient option cards, the BRC-H700 truly functions as an all-in-one, compact robotic camera.

* Can be installed in both the BRC-H700 and BRU-H700.

Multi-function IR Remote Commander™ Unit

Basic camera settings, such as the Pan/Tilt/Zoom functions and six preset patterns, can be controlled from the supplied IR Remote Commander unit.

Easy-to-use and Ergonomically Designed Remote Control Unit

All camera settings, including the Pan/Tilt/Zoom functions and sixteen preset patterns, can be controlled from the optional RM-BR300 Remote Control Unit. The ergonomic joystick design and feature-rich control panel provide superb operability in various remote-shooting applications.

Optical Multiplex Unit

Uncompressed digital data including external sync, camera control and audio signals can be transmitted via the optional BRU-H700 HD Optical Multiplex Unit with the BRBK-H700 HD Optical Multiplex Card installed. With only a single cable connection between the camera and the HD Optical Multiplex Unit, the system is extremely easy to install. The maximum cable length between these units is 1,000 metres – allowing multiple cameras to be located virtually anywhere you want. What's more, the BRU-H700 HD Optical Multiplex Unit is equipped with two built-in card slots, each identical to the one found in the BRC-H700 camera, allowing for flexible analogue and digital system configurations.

BRBK-H700 rear panel
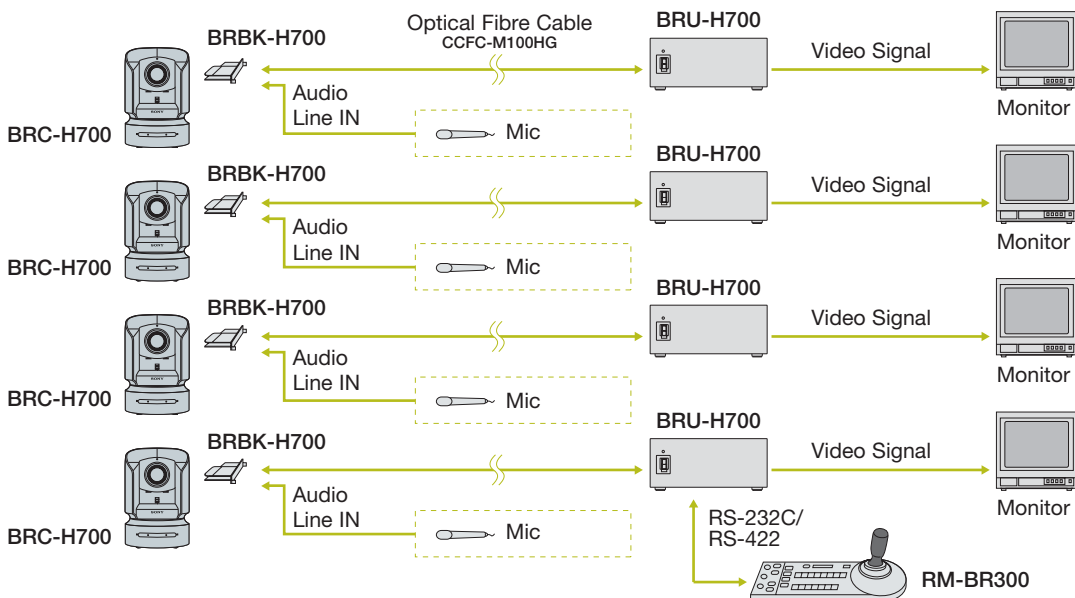Optional Board mounted on BRC-H700 (rear)

HFBK-HDI/HFBK-SDI
Optional Boards mounted on BRU-H700 (rear)

MULTIPLE-CAMERA OPERATION FROM A REMOTE LOCATION

HDC-X300K
HDC-X300
HDC-X310K
HDC-X310
HFU-X310

Superb Picture Quality

Incorporating three 1/2-inch type 1.5-mega pixel HD CCDs, the HDC-X300/X310 offers outstanding-quality images with a low smear level of -120 dB and a high signal-to-noise ratio of 52 dB.

Progressive Mode

Incorporating Sony's innovative Advanced Frame Accumulation (AFA) technology, the HDC-X300/X310 can output progressive HD signals (25PsF/29.97PsF), 2-3 pull down-converted signal from 23.976PsF (59.94i) in addition to interlaced HD signals (50i/59.94i). Interlace and progressive modes can be easily selected from the camera setup menu.

- 50i output mode: 50i or 25PsF selectable
- 59.94i output mode: 59.94i/29.97PsF/ 23.976PsF (with built-in 2-3 pull-down function) selectable

Compact and Lightweight Design

The HDC-X300/X310 is designed to be compact and lightweight, making it ideal for capturing HD-quality images at locations and from angles where bulky production HD cameras cannot be installed. This compact camera weighs only 1.2 kg (2 lb 10 oz)*, allowing easy installation 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, minimising the camera size to be fitted in, for example, a pan/tilt head or an underwater housing.

* HDC-X300

Low-Light Shooting

The HDC-X300/X310 offers two convenient functions for capturing clear images in low-light environments – a Slow Shutter mode and a Gain function – which can be used separately or together. The Slow Shutter mode allows the charge accumulation period of the CCD (typically 1/60 or 1/50 second) to be extended up to approximately two seconds (64 frames). The Gain function allows the camera gain to be boosted to +48 dB. When these functions are used together, the camera offers a stunning minimum illumination of 0.003 lx.

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 lens. One-push auto-focus readjusts the focus each time the button is pressed, while auto-tracing focus automatically tracks the focus in a dynamic manner.

* Auto-focus function is only available when using the focus servo lens VCL-719BXS included in the HDC-X300K/X310K package.

HDC-X300/X310
with included tally unit, optional HKC-SV1
and connected with an HFU-X310

HDC-X300/X310
Filter Wheel

HDC-X300/X310
with an optional
HKC-SV1 attached

Low Light Shooting

Slow Shutter Off

Slow Shutter On
(64 frames)

Flexible Image Controls

The HDC-X300/X310 provides highly advanced image-control functions such as matrix, a TruEye™ feature, skin-tone detail, and colour 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 synchronised operation with external equipment. The flash trigger input mode allows the camera to capture a high-quality still image when synchronized with an external flash – a function suited for photo-booth or document-stand applications. Another trigger mode is the 23.976PsF frame lock mode. When the HDC-X300/X310 is set to 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-B150/B750 Remote Control Unit, RCP-700 Series Remote Control Panel and MSU-900/950 Master Setup Unit. These remote controllers cover the complete range of control parameters that the HDC-X300/X310 provides, from basic camera control to sophisticated operations.

Optical ND Filter and Electronic CC Function

Optimum light and colour control is easily achieved using the built-in optical Neutral Density (ND) filter wheel and electronic Colour Correction (CC) function. The HDC-X300/X310 uses electronic colour correction to eliminate the need for optical colour correction filters. This allows all filters on the filter wheel to be ND types, providing the operator with greater flexibility in depth of field and exposure control.

HKC-SV1 Servo Filter Unit

The HKC-SV1 is a servo unit that allows the optical ND filters of the HDC-X300/X310 to be controlled remotely from the RM-B750/B150 Remote Control Unit, RCP-700 Series Remote Control Panel or MSU-900/950 Master Setup Unit.

SYSTEM VERSATILITY

HFU-X310 Camera Interface Unit

The HFU-X310 Interface Unit is a 2U-high, half-rack-wide unit that accepts signals from the HDC-X300/X310 camera and converts them to a variety of signal formats. When the HFU-X310 unit is connected to the HDC-X310 camera via a fibre optical cable[*1], digital data – including external sync and camera control signals – can be transmitted between the two devices. This cable can be up to 1000 metres (3280 feet) long, which allows the camera to be installed virtually anywhere required. When it is connected to the HDC-X300 camera via an HD-SDI interface, video signals can be transmitted between the interface unit and camera at a distance of up to 100 metres (328 feet)[*2].

This HFU-X310 interface unit is equipped with SD/HD genlock, tally inputs, plus an 8-pin serial remote input to connect the RM-B750/B150, RCP-700 Series, or MSU-900/950 control unit. Output interfaces including HD-SDI, SD-SDI, computer XGA, and i.LINK (HDV) are offered via optional boards that are installed in the two slots located on the unit's rear panel.

HDV Recording

The HFU-X310 Interface Unit with the optional HFBK-TS1 board installed provides the output of an HDV stream that can be transferred to Sony HDV recording decks and camcorders such as HVR-M10, HVR-Z1, and HVR-A1 via its i.LINK port. This allows signals captured by the HDC-X300/X310 cameras to be recorded in the HDV format on these recorders, making it possible to establish a compact and cost-effective HD recording system.

The HFU-X310 Interface Unit can also accept HD-SDI signals from devices other than HDC-X300 cameras, enabling the HFU-X310 with the HFBK-TS1 board to be used as a converter between HD-SDI devices and HDV devices[*3].

*1 A single mode fibre cable with LC connector is required for the connection between the HDC-X310 and HFU-X310.
*2 For camera control, remote controllers such as the RM-B750/B150, RCP-700 Series, or MSU-900/950 must be connected directly to the rear panel of the HDC-X300 camera.
*3 The HFU-X310 unit does not accept audio signals and timecode embedded in HD-SDI signals. However, audio signals can be transferred to HDV devices together with video signals by connecting the HD-SDI device's audio output to the analogue audio input connectors on the HFBK-TS1 board. The dip switch on the HFBK-TS1 board would adjust the audio delay such that the embedded audio would match the video coming out from the 6-pin i.LINK as MPEG-TS stream.

HDV recording

HDC-X300/X310 rear panels
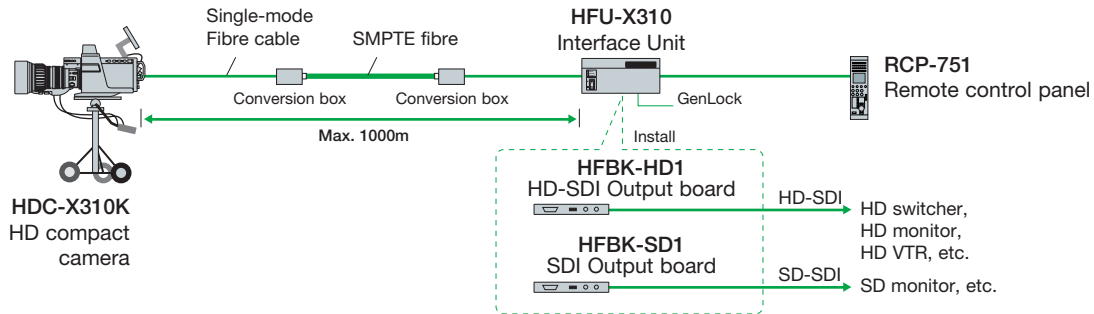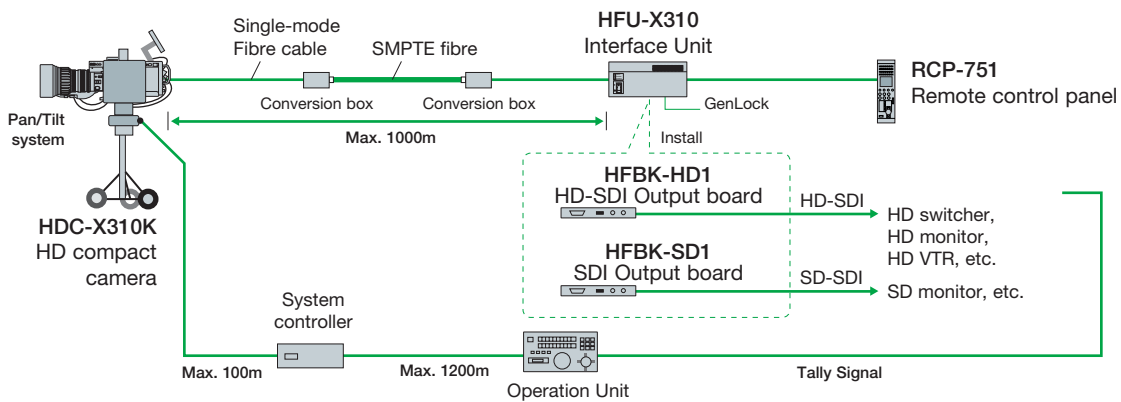
HDC-X300

HDC-X310

System Configuration
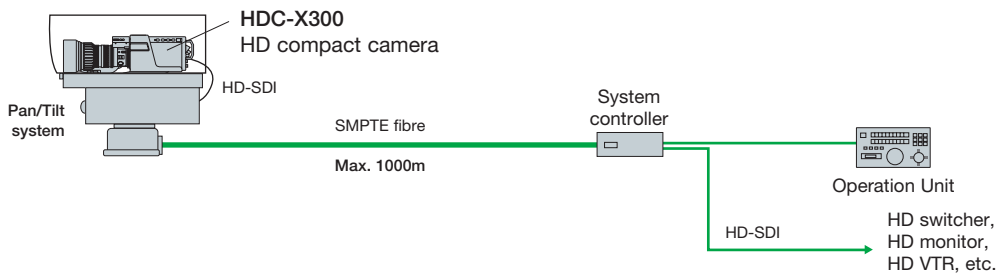
HD STUDIO OPERATION

Operation using a tripod

Single-mode Fibre cable

SMPTE fibre

HFU-X310
Interface Unit

RCP-751
Remote control panel

Conversion box   Conversion box

GenLock

Max. 1000m

Install

HDC-X310K
HD compact camera

HFBK-HD1
HD-SDI Output board

HD-SDI

HD switcher,
HD monitor,
HD VTR, etc.

HFBK-SD1
SDI Output board

SD-SDI

SD monitor, etc.

Operation using a tripod and pan/tilt systems

Single-mode Fibre cable

SMPTE fibre

HFU-X310
Interface Unit

RCP-751
Remote control panel

Conversion box   Conversion box

GenLock

Max. 1000m

Install

Pan/Tilt system

HDC-X310K
HD compact camera

HFBK-HD1
HD-SDI Output board

HD-SDI

HD switcher,
HD monitor,
HD VTR, etc.

HFBK-SD1
SDI Output board

SD-SDI

SD monitor, etc.

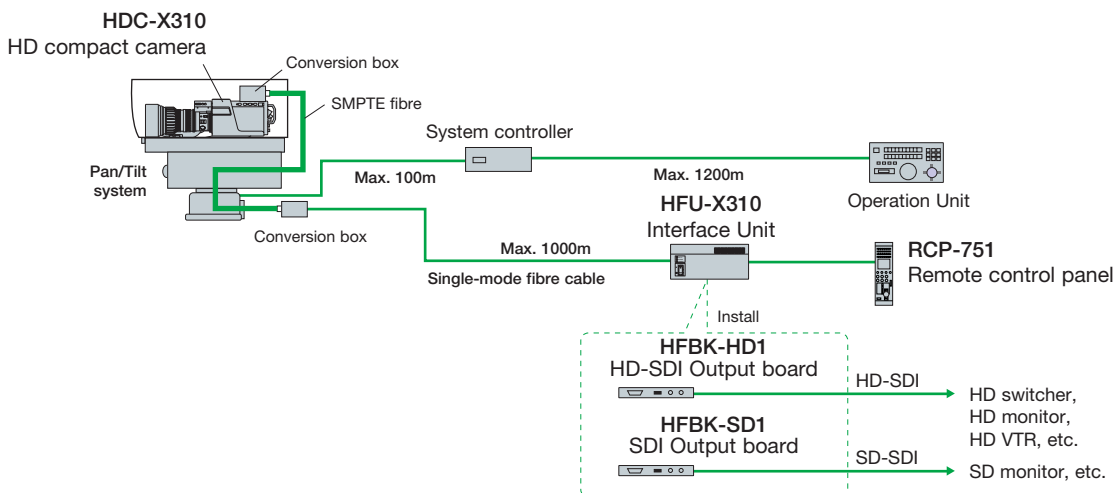System controller

Max. 100m   **Max. 1200m**

Operation Unit

Tally Signal

CAMERA SYSTEM FOR LONG-DISTANCE TRANSMISSION
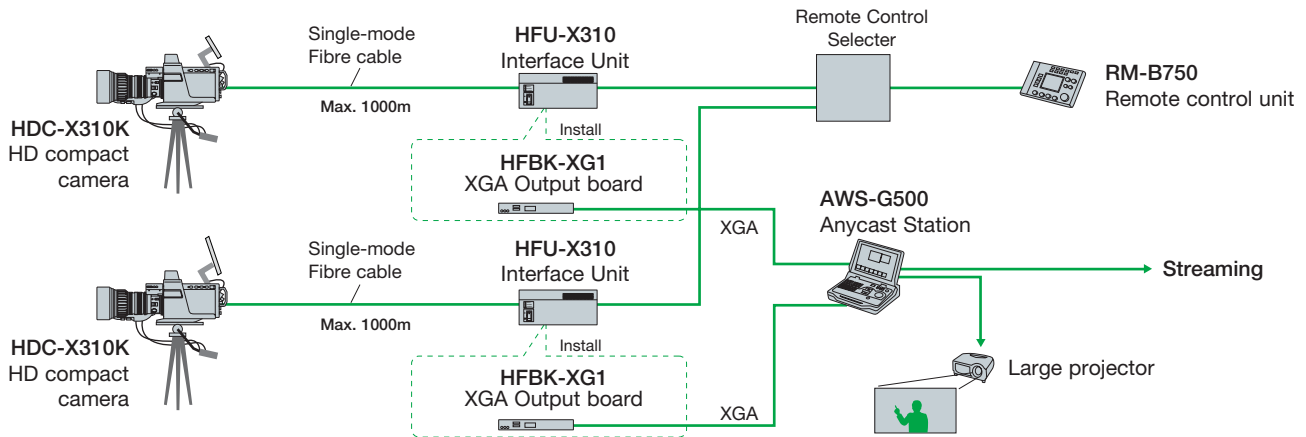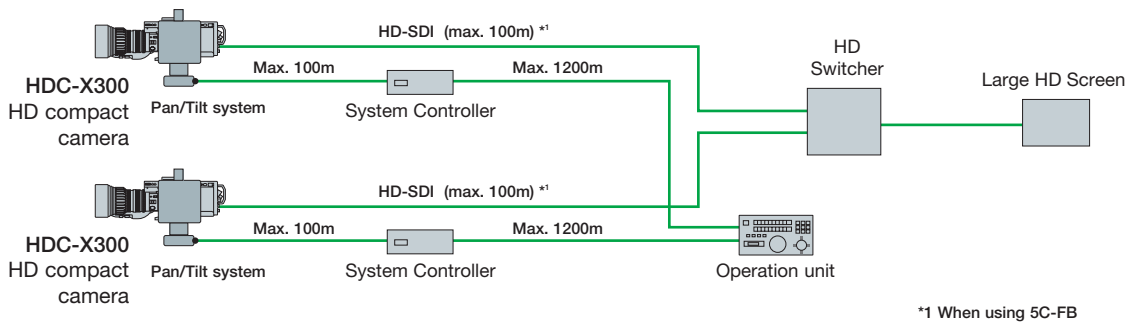(e.g. fixed-point observation, weather surveillance)

Pan/Tilt system 1

HDC-X300
HD compact camera

Pan/Tilt system

HD-SDI

SMPTE fibre

Max. 1000m

System controller

Operation Unit

HD-SDI

HD switcher,
HD monitor,
HD VTR, etc.

Pan/Tilt system 2

HDC-X310
HD compact camera

Conversion box

SMPTE fibre

System controller

Pan/Tilt system

Max. 100m   **Max. 1200m**

Operation Unit

Conversion box

Max. 1000m

HFU-X310
Interface Unit

RCP-751
Remote control panel

Single-mode fibre cable

Install

HFBK-HD1
HD-SDI Output board

HD-SDI

HD switcher,
HD monitor,
HD VTR, etc.

HFBK-SD1
SDI Output board

SD-SDI

SD monitor, etc.

LIVE EVENT OPERATION

Used with Anycast Station

HDC-X310K HD compact camera

Single-mode Fibre cable — Max. 1000m

HFU-X310 Interface Unit

Install

HFBK-XG1 XGA Output board

HDC-X310K HD compact camera

Single-mode Fibre cable — Max. 1000m

HFU-X310 Interface Unit

Install

HFBK-XG1 XGA Output board

XGA

XGA

Remote Control Selecter

RM-B750 Remote control unit

AWS-G500 Anycast Station

Streaming

Large projector

Used with HD switcher

HDC-X300 HD compact camera — Pan/Tilt system

HD-SDI (max. 100m) *1

Max. 100m — System Controller — Max. 1200m

HDC-X300 HD compact camera — Pan/Tilt system

HD-SDI (max. 100m) *1

Max. 100m — System Controller — Max. 1200m

HD Switcher

Large HD Screen

Operation unit

*1 When using 5C-FB

HD CAMERA SYSTEM FOR LARGE VENUES
(e.g. classroom, conference halls)

HDC-X300K HD compact camera

RGB/YP$_B$P$_R$ → HD projector, HD monitor, HD VTR, etc.

HD-SDI (Max. 100m)*1

HFU-X310 Interface unit

Install

HFBK-SD1 SDI Output board — SDI → SD monitor, etc.

HFBK-XG1 XGA Output board — XGA → XGA Projector

*1 When using 5C-FB

HD MEDICAL RECORDING

Microscope system

RGB/YP$_B$P$_R$

HD-SDI

HDC-X300 HD compact camera

Max. 100m*1

Max. 50m

LMD-1950MD LCD Monitor

RM-B750 Remote control unit

Install

HD-SDI Input board

PC

*1 When using 5C-FB

Operating theatre system

Ceiling — Max. 1000m

Single-mode fibre cable

HDC-X310 HD compact camera

HFBK-HD1 HD-SDI Output board — SDI

HFBK-TS1 i.LINK (HDV) Output board — i.LINK (HDV)

HFU-X310 Interface Unit

RM-B750 Remote unit

LMD-1950MD LCD Monitor

HVR-M10E HDV recorder

Wall

Accessories

BRBK-301
BRC-300P
Analogue/RGB Component Card

BRBK-302
BRC-300P
SDI Card

BRBK-303
BRC-300P
Optical Multiplex Card

BRBK-304
BRC-300P
DV Output Card

BRBK-H700
BRC-H700
HD Optical Multiplex Card With Audio IN (RCA pin)

HFBK-HD1
BRC-H700 • BRU-H700 • HFU-X310
HD-SDI Output Board

HFBK-SD1
BRC-H700 • BRU-H700 • HFU-X310
SDI Output Board

HFBK-TS1
BRC-H700 • BRU-H700 • HFU-X310
i.LINK (HDV) Output Board

HFBK-XG1
BRC-H700 • BRU-H700 • HFU-X310
XGA Output Board

HFU-X310
HDC-X300/K • HDC-X310/K
Optical Fibre Interface Unit

HKC-SV1
HDC-X300/K • HDC-X310/K
Filter Servo Unit

BRU-300P
BRC-300P
Optical Multiplex Unit

BRU-H700
BRC-H700
HD Optical Multiplex Unit

MSU-900
HDC-X300/K • HDC-X310/K
Master Setup Unit

MSU-950
HDC-X300/K • HDC-X310/K
Master Setup Unit

RCP-750/751
HDC-X300/K • HDC-X310/K
Remote Control Panel

RM-B150
HDC-X300/K • HDC-X310/K
Remote Control Unit

RM-B750
HDC-X300/K • HDC-X310/K
Remote Control Unit

RM-BR300
BRC-300P • BRC-H700
Remote Control Unit

CCFC-M100HG
BRC-H700 • BRU-H700 (1000 metres max.)
BRC-300P • BRU-300P (600 metres max.)
HD Optical Fibre Cable

CCFC-M100
BRC-300P • BRU-300P (500 metres max.)
Optical Fibre Cable

CCMC-9DS
BRC-300P • BRC-H700 • HFBK-SD1
RGB/Component, Y/C Cable (9-pin D-sub)

CCXC-9DBS
BRC-300P • BRC-H700 • HFBK-SD1
RGB/Component, VBS Cable (9-pin D-sub)

VCL-0737W
BRC-300P
Wide Conversion Lens

VCT-U14
HDC-X300/K • HDC-X310/K
Tripod Adaptor
Requires A-8279-993-A V-shoe adaptor and K4x8
screw (x4)

HFU-X310 rear panel with optional boards

BRU-300P rear panel

RM-BR300 rear panel

BRU-H700 rear panel

Specifications

BRC-300P 3CCD Colour Video Camera

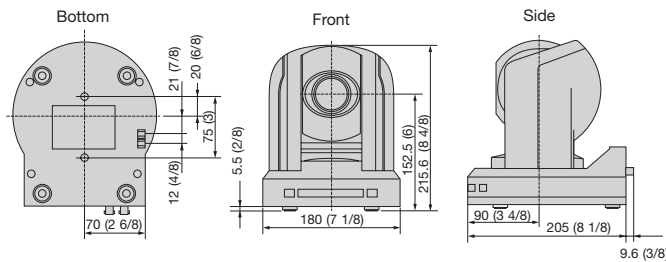|	
Image device	Three 1/4.7 type IT Advanced HAD CCDs, 1,070,000 pixels (gross)
CCD effective pixels	4:3 mode, 960 (H) x 720 (V) 16:9 mode 1,152 (H) x 648 (V)
Effective pixels	752 (H) x 582 (V)
Signal system	PAL
Horizontal resolution	4:3 mode: 600 TV lines
Sync systems	Internal/External
Lens	12x optical zoom, 48x with digital zoom
Focal length	f = 3.6 to 43.2 mm (F1.6 to F2.8)
Horizontal viewing angle	4:3 mode: 3.3 (Tele end) to 37.8 degrees (Wide end) 16:9 mode: 4.0 (Tele end) to 45.4 degrees (Wide end)
Minimum object distance	300 mm (Wide end), 800 mm (Tele end)
Pan/Tilt angle	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)
Pan/Tilt speed	0.25 to 60 degrees/s (Pan/Tilt)
Minimum illumination	7 lx at F1.6
S/N ratio	50 dB
Shutter speed	1/10000 to 1/3 s
Gain	Auto/Manual (-3 to 18 dB, 3 dB steps) switchable
White balance	Auto, Indoor, Outdoor, One-push WB, Manual
Preset positioning	6 positions
Analogue output	VBS (BNC), Y/C (4pin Mini DIN)
Camera control interface	RS-232C (VISCA protocol) / RS-422 (VISCA protocol)
Back-light compensation	On / Off
Operating temperature	0 to 40 degrees (32 to 104 °F)
Storage temperature	-20 to 60 degrees (-4 to 140 °F)
Power requirement	DC 12 V
Power consumption	21.6 W (without optional card)
Dimensions (W x D x H)	180 x 205 x 211 mm (7 1/8 x 8 1/8 x 8 3/8 inches)
Mass	2.7 kg (5 lb 15 oz)
Supplied accessories	AC adaptor (1), IR remote commander (1), Terminal connector (1), AC adaptor cable (1), Ceiling bracket (2), Operating instructions (1)

BRU-300P Optical Multiplex Unit

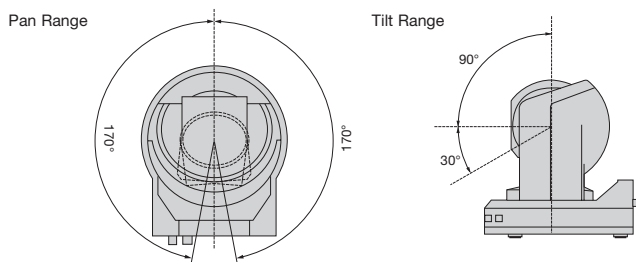|	
Optical fibre	Multi mode, LC-type connector
Video output	VBS (BNC), Y/C (4-pin Mini DIN)
Camera control interface	RS-232C (VISCA protocol) / RS-422 (VISCA protocol)
Sync systems	Internal/External
Card slots	2 slots: Analogue RGB-Component card / SDI card
Operating temperature	0 to 40 degrees (32 to 104 °F)
Storage temperature	-20 to 60 degrees (-4 to 140 °F)
Power requirements	AC 220 to 240 V, 50/60 Hz
Power consumption	9 W (without optional cards)
Dimensions (WxHxD)	212 x 88 x 233 mm (8 3/8 x 3 1/2 x 9 1/4 inches)
Mass	2.7 kg (5 lb 15 oz)
Supplied accessories	AC power cable (1), Terminal connector (1), RS-232C cable (3 m, 8-pin Mini DIN) (1), Operating instructions (1)

RM-BR300 Remote Control Unit

Camera control interface	RS-232C (VISCA protocol) / RS-422 (VISCA protocol)
External control	Contact closure
Power requirement	DC 10.8 to 13.2 V
Power consumption	2.4 W
Dimensions (WxHxD)	391.3 x 185 x 145.9 mm (15 1/2 x 7 3/8 x 5 3/4 inches)
Mass	950 g (2 lb 1 oz)
Supplied accessories	AC adaptor (1), AC power cable (1), RS-232C cable (3 m, 8-pin Mini Din) (1), Terminal connector(2), Operating instructions (1)

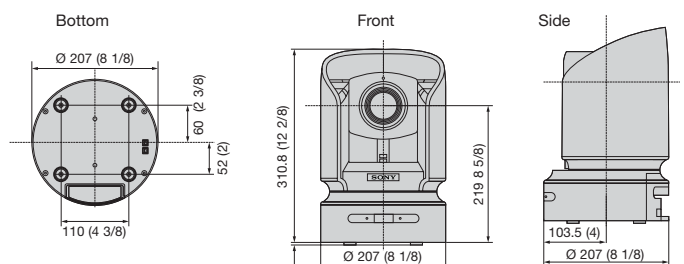## BRC-300P Dimensions (Unit: mm)

BRC-300P Pan/Tilt Range

BRC-H700 HD 3CCD Colour Video Camera

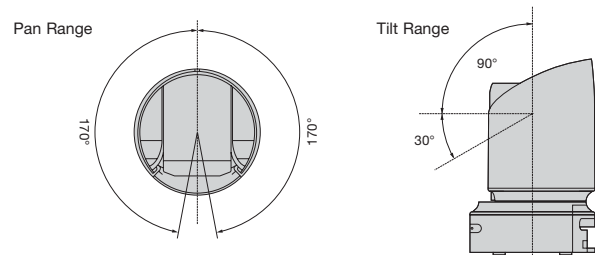|	
Image device	Three 1/3 type IT CCDs
Total picture elements	Approx. 1.12 Megapixels
Effective picture elements	Approx. 1.07 Megapixels
Signal systems	1080/59.94i, 1080/50i (switchable)
Lens	12x optical zoom, 48x with digital zoom Carl Seiss Vario-Sonnar T*®
Focal length	f=4.5 to 54.0 mm (F1.6 to F2.8)
Minimum object distance	800 mm (Tele end)
Horizontal viewing angle without Image Stabilization	5.5 degrees (Tele) to 60.3 degrees (Wide)
Vertical viewing angle without Image Stabilization	3.1 degrees (Tele) to 36.2 degrees (Wide)
Focus system	Auto/Manual
Pan/Tilt angle	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)
Pan/Tilt speed	0.25 to 60 degrees/s (Pan/Tilt)
Minimum illumination	6 lx (50 IRE, F1.6)
S/N ratio	50 dB
Shutter speed	1/10,000 to 1/59.94 (1/50) s
Gain	Auto/Manual (0 to 18 dB and Hyper Gain)
White balance	Auto, Indoor, Outdoor, One-push WB, Manual
Optical Image Stabilizer	On/Off
Image flip	On/Off
ND filter	Off/ND1/ND2
Preset positioning	16 positions
Video output (Built-in)	Analogue RGB, Analogue Y/Pb/Pr
Video output (With optional card(s))	HFBK-HD1: HD-SDI HFBK-SD1: Down converted SD (RGB, Y/Cb/Cr, Y/C, Composite, SDI x2) HFBK-XG1: WXGA, XGA, VGA HFBK-TS1: HDV
Camera control interface	RS-232C/RS-422 (VISCA protocol)
Backlight compensation	On/Off
Operating temperature	0 to 40 degrees (32 to 104 °F)
Storage temperature	-20 to 60 degrees (-4 to 140 °F)
Power requirements	DC 12 V
Power consumption	Max. 24 W (without optional card)
Dimensions (Diameter x H)	207 x 315.8 mm (8 1/4 x 12 1/2 inches)
Mass	4.5 kg (9 lb 15 oz)
Supplied accessories	IR Remote Commander Unit (1), RS-422 terminal block connector (1), AC adaptor (1), AC power cable (1), Ceiling bracket (2), Wire rope, Mounting screws, Operating instructions (1)

BRU-H700 HD Optical Multiplex Unit

Optical fibre connector	Multi mode, LC-type Fibre Connector
Video output (Built-in)	Analogue RGB, Analogue Y/Pb/Pr
Video output (With optional card : slot x2)	HFBK-HD1: HD-SDI, HFBK-SD1: Down converted SD (RGB, Y/Cb/Cr, Y/C, Composite, SDI x2) HFBK-XG1: WXGA, XGA, VGA, HFBK-TS1: HDV
Camera control interface	RS-232C/RS-422 (VISCA protocol)
Sync systems	Internal/External
Multiple connection	Up to 7 Units
Operating temperature	0 to 40 degrees (32 to 104 °F)
Storage temperature	-20 to 60 degrees (-4 to 140 °F)
Power requirements	59.94 i : AC 100 to 120 V (50/60 Hz) 50 i : AC 220 to 240 V (50/60 Hz)
Power consumption	Max. 10 W (without optional cards)
Dimentions (WxHxD)	210 (W) x 240 (D) x 86 (H) mm (8 3/8 x 9 1/2 x 3 1/2 inches)
Mass	2.7 kg (5 1b 15 oz)
Supplied accessories	AC power cable (1), RS-422 terminal block connector (1), RS-232C cable (1), Operating instructions (1)

BRC-H700 Dimensions (Unit: mm)

BRC-H700 Pan/Tilt Range

HDC-X300 / HDC-X310

	HDC-X300	HDC-X310
General		
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)	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	-10 to +45 °C (+14 to +113 °F)	
Storage temperature	-20 to +60 °C (-4 to +140 °F)	
Mass	Approx. 1.2 kg (2 lb 10 oz) (camera head only) Approx. 1.7 kg (3 lb 11 oz) (including camera head, tally unit)	Approx. 1.3 kg (2 lb 13 oz) (camera head only) Approx. 1.8 kg (3 lb 15 oz) (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		
Genlock video	BNC type (1), 3-level/2-level (VBS, VS)	
Trigger	BNC type (1), TTL level	
Signal outputs		
HD SDI	BNC type (1), 0.8 Vp-p ±10%, 75 Ω	–
Video	HD D-sub 15-pin (1) Y/Pr/Pb: 1.0 Vp-p, 75 Ω R/G/B: 1.0 Vp-p, 75 Ω HD/VD: TTL level (3 Vp-p) Sync: 0.6 Vp-p, 75 Ω	
Tally	Mini-jack (1)	
Other inputs/outputs		
OFC	–	Single mode, LC optical connectors (2)
Remote	8-pin (1)	
Lens	14-pin (1)	
DC input	DC jack (1)	

VCL-719BXS (supplied with the HDC-X300K/X310K)

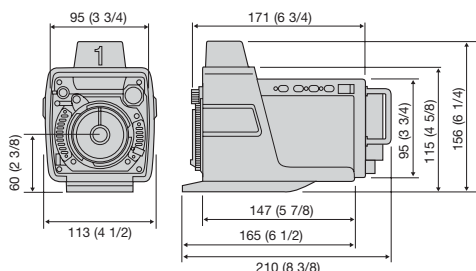|	
Focal length	6.7 to 127 mm
Zoom	Manual or power selectable
Zoom ratio	x19
Maximum aperture	1:1.6, 1:2.1 (at telephoto end)
Aperture	Manual or automatic selectable
Focusing range	Infinity to 5 cm
Filter attachment threads	82 mm dia. 0.75 mm pitch
Mounting	Sony 1/2-inch bayonet mount
Mass	1.34 kg (2 lb 13 oz) including lens foot

Supplied accessories

Operation manual (1), AC adaptor (1), AC cable (1), Tally unit (1), Number plate (1), Lens mount cap (1), VCL-719BXS focus servo lens (1, HDC-X300K/X310K only)

HDC-X300/X310 Dimensions (Unit: mm)

HDC-X300

95 (3 3/4) · 171 (6 3/4) · 60 (2 3/8) · 95 (3 3/4) · 115 (4 5/8) · 156 (6 1/4) · 113 (4 1/2) · 147 (5 7/8) · 165 (6 1/2) · 197 (7 7/8)

HDC-X310

95 (3 3/4) · 171 (6 3/4) · 60 (2 3/8) · 95 (3 3/4) · 115 (4 5/8) · 156 (6 1/4) · 113 (4 1/2) · 147 (5 7/8) · 165 (6 1/2) · 210 (8 3/8)
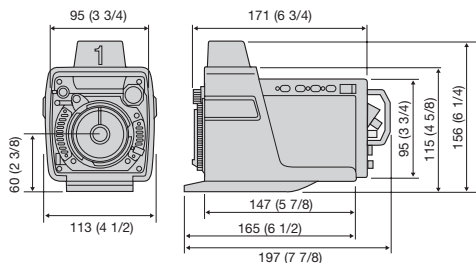
HFU-X310

General	
Power requirements	AC 100 to 240 V, 50/60 Hz
Current consumption	Max. 0.6 A
Operating temperature	+5 to +40 °C (+41 to +104 °F)
Storage temperature	-20 to +60 °C (-4 to +140 °F)
Maximum cable length	Optical fibre cable (single mode): 1000 m (3280 feet)
Dimensions (W x H x D)	200 x 88 x 215 mm (7 7/8 x 3 1/2 x 8 1/2 inches) without projection
Mass	Approx. 2 kg (4 lb 6 oz)
Signal inputs/outputs	
Remote	8-pin (1)
Genlock	BNC type (2), 3-level/2-level (VBS, VS) 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)
Number of optional board slots	2
Supplied accessories	Operation manual (1), OFC cover (1), M3 x 4 screws (2), M4 x 4 screws (1), Multi-connector plug (1)

Optional Output Boards

HFBK-HD1 HD-SDI Output Board

HD-SDI output	BNC type (2)
Analogue HD monitor output	15-pin type (1), RGB or YPbPr

HFBK-SD1 SD-SDI Output Board

SD-SDI output	BNC type (1)
Analogue composite output	BNC type (1)
Analogue monitor output	D-sub 9-pin type (1), VBS, YPbPr or RGB

HFBK-XG1 XGA Output Board

VGA output	15-pin type (1) WXGA, XGA or VGA resolution selectable

HFBK-TS1 i.LINK (HDV) Output Board

i.LINK (HDV) output	i.LINK 6-pin type (1) (without power supply)
Audio input	RCA analogue audio input (2, L/R)

PIN Assignment D-sub 15-pin

Signal	Pin number		Signal	Pin number
❶	R (X)/Pr (X)		❽	B (G)/Pb (G)
❷	G (X)/Y (X)		❾	NC
❸	B (X)/Pb (X)		❿	GND
❹	NC		⓫	NC
❺	GND		⓬	NC
❻	R (G)/Pr (G)		⓭	HD
			⓮	VD/SYNC
			⓯	NC

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