

Panasonic
ideas for life

AK-HC3800

Studio Handy Camera

AK-HC3800G (Tajimi connector model)
AK-HC3800GS (LEMO connector model)



A Studio and EFP Camera System for Broadcast Use That Delivers High-End Image Quality and Enables Long-Distance Optical Fiber Transmission at Low Cost.

This cost-effective HD camera system with optical fiber transmission capability meets the high-end TV program production needs of broadcast studios.

The newly developed AK-HC3800 Studio Handy Camera is equipped with a high-sensitivity, high-quality 2/3-type 2.2-megapixel 3CCD and a new high-precision 16 bit A/D image processing circuit. The advanced digital functions such as Chromatic Aberration Compensation (CAC), Digital Extender, Film Rec Gamma, Dynamic Range Stretch (DRS)

and etc. realize high image quality and versatile operations. By using the AK-HC3800 together with the AK-HCU200 Camera Control Unit, AK-HRP200G Remote Operation Panel and AK-HVF70G 17.8 cm (7 inches) LCD Color Viewfinder, an optical fiber transmission studio camera system that achieves high image quality, uncompressed and long-distance transmission, can be configured at a low cost. The camera and camera control unit can be connected for long-distance transmission of video signals over approximately 1,200 m (1,312 yards) when power is supplied from the camera control unit. The camera control unit and remote operation panel are connected by a dedicated cable. A LAN cable can also be used in the future for an IP connection of these units.* Overall, the system is easy to use and operate, and offers excellent cost-performance.

* To be supported from the spring of 2013.

* The photo shows a system example of the AK-HC3800GS (LEMO connector model).
* For studio zoom lens use, the lens support devices recommended by each lens manufacturer are required. The AK-HBU3500 build-up unit is not supported.



AK-HC3800

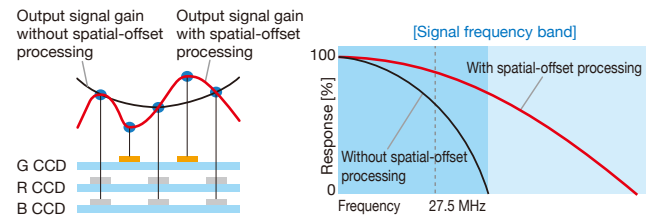
Studio Handy Camera

AK-HC3800G (Tajimi connector model)
AK-HC3800GS (LEMO connector model)



High Quality Images Achieved by a Newly Developed DSP.
Advanced Digital Technology Allows Compact, Lightweight Lenses to meet Studio Production Needs.

3CCD with High Sensitivity, Low Noise and Low Smear
The 2/3-type 2.2-megapixel 3CCD enables the standard sensitivity of F11 (2,000 lx/59.94 Hz) which is one of the highest sensitivity in this range of cameras. A high S/N ratio of 60 dB (at 59.94 Hz) produces high quality images with low noise and low smear. Panasonic's single-channel transfer system and spatial-offset processing technologies also improve signal modulation depth and reduce moire.



With spatial-offset processing, green samples are offset, allowing change in the object to be more faithfully reproduced.

With spatial-offset processing, the depth of modulation of high-frequency signals is greatly improved.

New High-Performance DSP Provides 16 bit A/D, 38 bit Processing

HD images are digitized with 74 MHz sampling and 16 bit A/D conversion. Full 38 bit processing within the DSP produces highly detailed, high quality images.



High-Performance DSP

50 Hz/59.94 Hz Switchable
HD recording is switchable between 1080/50i (50 Hz) and 1080/59.94i (59.94Hz) for worldwide production use.

Chromatic Aberration Compensation (CAC)

This exclusive technology sets up a conversation between lens and camera which allows for a highly sophisticated algorithm to be deployed that will automatically compensate the registration error that is caused mainly by lens chromatic aberration, and minimize the circumjacent blur.
* When a CAC-compatible lens is used.

Simulation Showing the CAC (Chromatic Aberration Compensation) Effect



Full screen CAC OFF CAC ON

Digital Extender (2x)

This function expands the image by 2x in the digital signal processing circuit, allowing powerful shooting even with a low-magnification lens. HD images retain their superior resolution even with zooming, and — unlike when a lens extender is used — brightness is not reduced.

Film Rec Gamma and Scan Reverse Functions

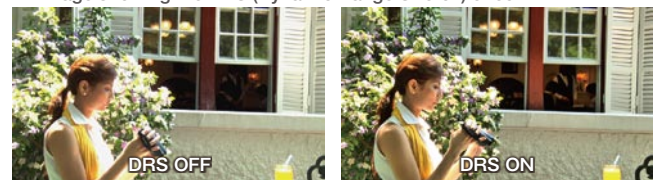
Selectable gamma curves are included in the DSP circuit. The Film Rec mode produces the kind of film tone that you get with

Panasonic VARICAM models. The Scan Reverse function cancels the image inversion that happens when using a Canon or Angenieux HD lens adaptor, and the AK-HC3800 supports interchangeable lenses for film cameras.

Dynamic Range Stretch (DRS)

The DRS function automatically suppresses blocked shadows and blown highlights. A gamma curve and knee slope are estimated to match the contrast of each pixel, and applied in real time. When dark, bright, and intermediate shades are all contained in the same scene, this produces excellent gradation for each shade. The images that result are enhanced by a visually wide dynamic range.

An image showing the DRS (Dynamic Range Stretch) effect.



While suppressing washed out colors such as those when shooting garden greenery, it also reduces blocked shadows in dark areas when recording people indoors.

Other Advanced Digital Functions

- Selectable EBU or NTSC preset matrix
- 12-axis color correction, linear matrix, and other color correction functions
- A skin tone detail function with two skin tone settings
- A lens file function (for up to 32 files) to save flare and shading values.
- Camera settings, such as VF settings, can be saved on an SD memory card. SD memory cards can also be used for firmware upgrades.



Rearpanel and Connector

AK-HCU200

Camera Control Unit (CCU)

AK-HCU200P/HCU200E (Tajimi connector model)
AK-HCU200PS/HCU200ES (LEMO connector model)

Allows a High-Quality, Uncompressed, Long-Distance Optical Fiber Transmission Camera System to Be Configured at Low Cost

High-Definition, Long-Distance, Optical Digital Transmission

By connecting the Camera Control Unit (CCU) and the AK-HC3800 Studio Handy Camera by optical fiber cable, uncompressed digital signals can be transmitted with high quality. The cable between the camera and the CCU can be extended up to approximately 1,200 m (1,312 yards).*1

HD Multi-Format Supported

HD multi-format*2 support includes 1080/59.94i, 1080/50i, 720/59.94p*2, and 720/50p.*2

Prompter Supported

Two SDI channels and one VBS channel are provided for RET input, and prompter input (analog video signal input) is included as standard. Prompt signals input to the Camera Control Unit (CCU) can be output from the prompter terminal on the camera side.

HD/SD Simultaneous Operation

Two SDI OUT and two SDI OUT (PM) lines are provided. In addition to HD video signal output, SD downconverted video signal output (SDI, analog composite) comes as standard. SD monitoring is also possible.

Bar ID Display Output

Text can be superimposed onto the color bar output signal. Displaying the video source and other information in this way is convenient during system set-up and standby.

SD Memory Cards Supported

The SD memory card slot allows CCU setting data to be saved on an SD memory card. Firmware updates can also be handled by SD memory card.

2U Rack Mounting Size

The 2U height of this compact, lightweight unit allows 2U rack mounting.

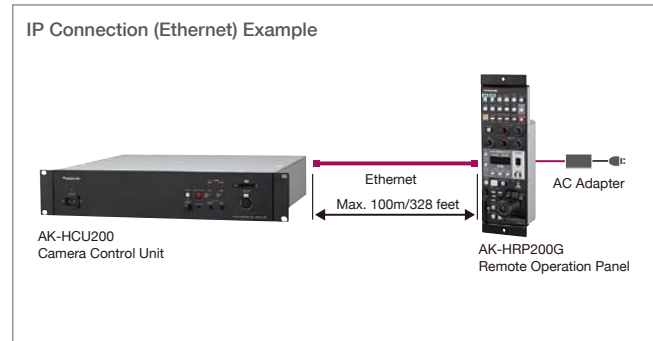
Setting Up CCU with a PC

When connecting CCU and PC via Ethernet, the CCU set up menu can be displayed and changed on web browser of the PC.

IP Connection (Ethernet) Supported*2

A LAN terminal enables IP connection via Ethernet (RJ45 LAN cable).*2

*1: When power is supplied from the camera control unit.
*2: To be supported from the spring of 2013.



Front Panel of AK-HCU200



Rear Panel of AK-HCU200PS/HCU200ES (LEMO connector model)

AK-HRP200G

Remote Operation Panel (ROP)

Compact Operation Panel
Capable of Supporting IP Control*1

Remote Operation of a Studio Handy Camera

The camera can be remotely operated via serial control or IP control.*1 In addition to the AK-HC3800*2 Studio Handy Camera, remote operation is also possible for Panasonic multipurpose cameras, HD compatible cameras, and HD integrated cameras.*1

Compact 6U Size

The unit is compact, with a width of 92 mm and a 6U height for easy rack mounting.

ROP Menu Setting

The menu can be displayed on a monitor connected to the Camera Control Unit, so detailed camera settings can be made by operating the Remote Operation Panel.

Joystick Control Lever

The joystick control lever enables fine manual iris/pedestal operation.

SD Memory Card Slot

Scene files and user files can be saved with the SD memory card slot. SD memory cards can also be used for firmware upgrades.

IP Connection (Ethernet) Supported*3

A LAN terminal enables IP connection via Ethernet (RJ45 LAN cable).*1*3

*1: To be supported from the spring of 2013.
*2: When power is supplied from the camera control unit.
*3: External power supply (DC 12 V) required when LAN cable is used.



AK-HVF70G

17.8 cm (7 inch) LCD Color Viewfinder

Light Weight, Low Power Consumption, and
High Resolution Plus Versatile Assist Functions

LCD Viewfinder with Light Weight and Low Power Consumption

The compact, lightweight viewfinder weighs only about 1.6 kg (3.5 lb) (excluding hood, hood weights approx. 200 g (0.44 lb)). Thanks to the LCD panel, the power consumption is only 10W.

High-Resolution WSVGA Monitor

This high-resolution, 17.8 cm (7 inches) color LCD panel displays 1024 x 600-pixel (WSVGA) images. Its wide viewing angle extends to 130 degrees vertically and 160 degrees horizontally (contrast > 10:1). Displays approximately 16,200,000 colors.

Focus Assist Functions

The Focus-in-Red function emphasizes the image parts that are in focus by marking their edges in red, and the Pixel-to-Pixel function displays an enlarged image without resizing.

Tilt/Pan

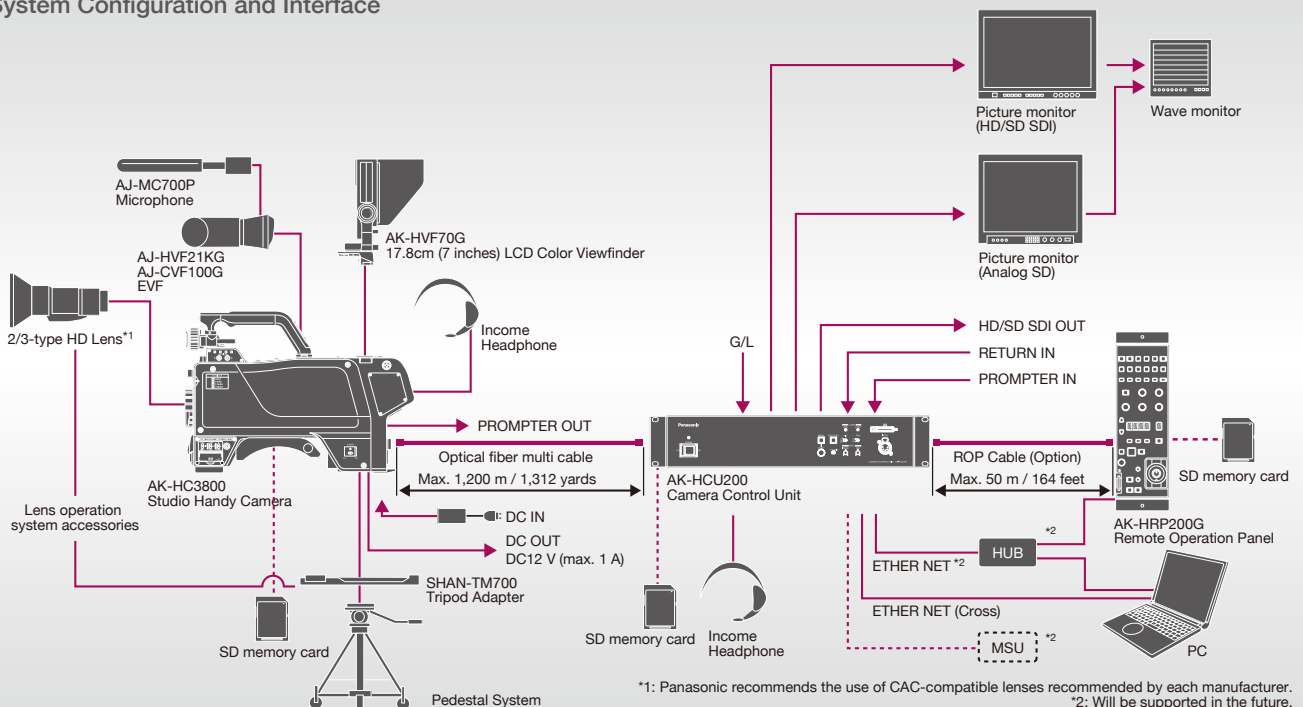
Mounted on the AK-HC3800, the viewfinder can be tilted upward as far as 90 degrees, downward 60 degrees, and panned horizontally 90 degrees.

Other Specifications

- Three function switches can be allocated to various functions.
- Contrast, bright, peaking adjustment dials
- Tally lamps (front/rear)



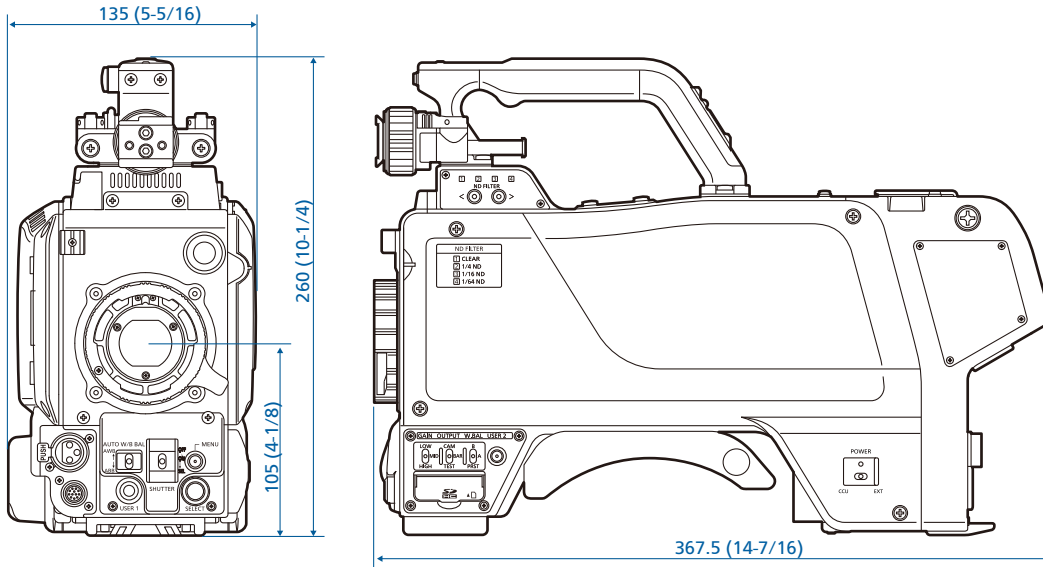
System Configuration and Interface



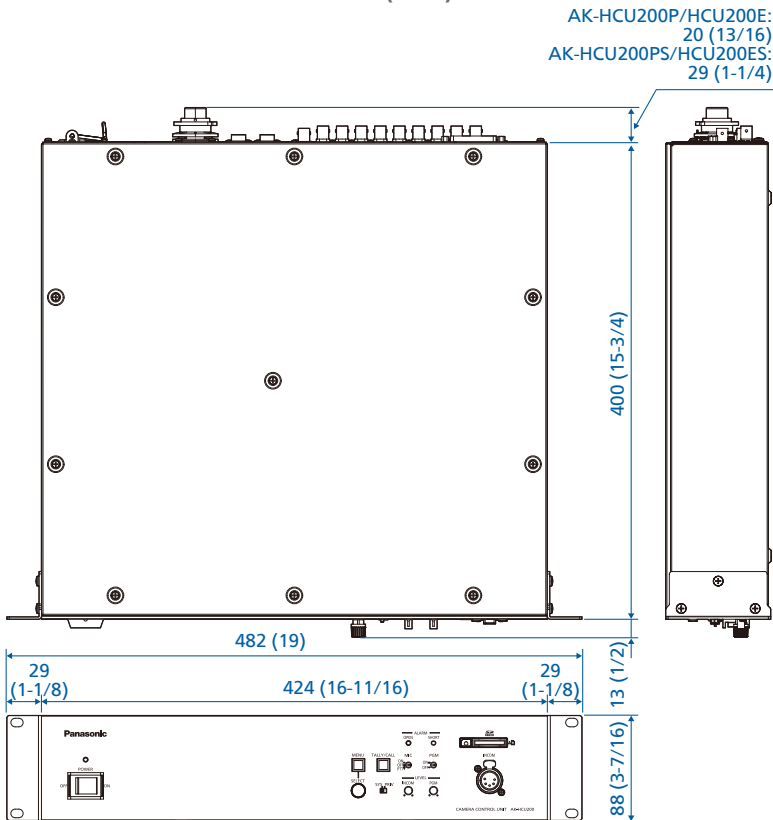
*1: Panasonic recommends the use of CAC-compatible lenses recommended by each manufacturer.
*2: Will be supported in the future.

Dimensions Unit: mm (inches)

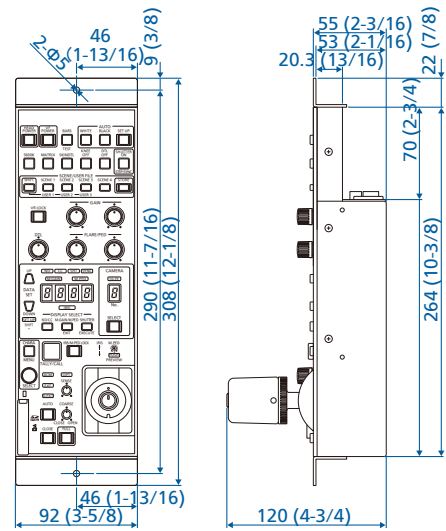
AK-HC3800 Studio Handy Camera



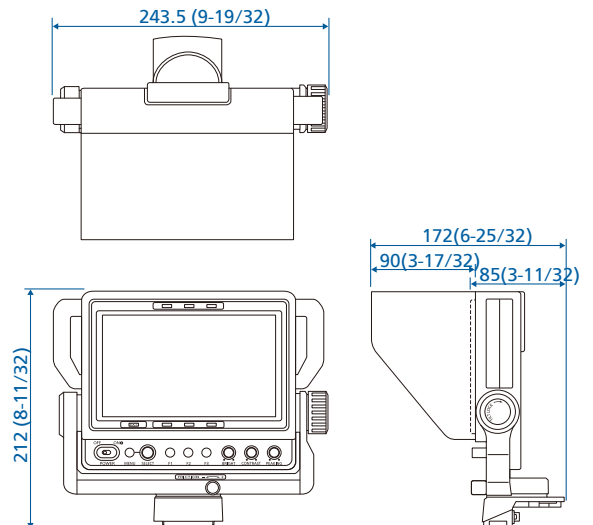
AK-HCU200 Camera Control Unit (CCU)



AK-HRP200G Remote Operation Panel (ROP)



AK-HVF70G 17.8 cm (7 inch) LCD Color Viewfinder



Specifications

As of November, 2012

AK-HC3800 Studio Handy Camera

Power Supply:	12 V DC (during external power supply operation) 190 V DC (when CCU is connected)
Power Consumption:	25 W (during external power supply operation, camera only) 53 W (maximum power during external power supply operation when maximum power supplied for each output connector while all accessories are connected) 60 W (maximum power when CCU is connected and maximum power supplied for each output connector while all accessories are connected)
Operating Temperature:	-10 °C to 45 °C (14°F to 113°F) Preheating required at temperatures below 0°C (32°F)
Storage Temperature:	-20 °C to 60 °C (-4°F to 140°F)
Operating Humidity:	10 % to 85 % (no condensation)
Weight:	Approx. 3.7 kg (approx. 8.16 lb)
Dimensions (W x H x D):	135 mm x 260 mm x 367.5 mm (5-5/16 inches x 10-1/4 inches x 14-7/16 inches) excluding protrusions
Pickup Device:	2/3-type 2.2 million pixel IT, CCD x 3
System:	GBR pickup system
Color Separation Optical system:	f/1.4 prism
Optical Filter:	ND: Clear, 1/4, 1/16, 1/64
Lens Mount:	Bayonet type
Output standard:	SMPTE 292M
Sensitivity:	F11 (59.94 Hz) F12 (50 Hz)
Horizontal Resolution:	1100 TV lines
S/N:	60 dB or higher
Horizontal Frequency:	33.716 kHz, 1125 line frame (59.94 Hz) 28.125 kHz, 1125 line frame (50 Hz)
Vertical Frequency:	59.94 Hz or 50 Hz, interlace
MIC Input:	-60 dBu to 4 dBu (XLR 3-pin female x 2) Gain selected by camera menu
Intercom:	XLR 5-pin female x 1 Input: -60 dBu to -20 dBu Output: 100 mW max.
HD SDI Output:	BNC x 2 (HD SDI 1/HD SDI 2) HD signal = 0.8 V [p-p], 75 Ω The HD SDI 2 signal output can be added to the regular images using the camera menu item setting and switched to the VF or RET image output.
Prompter Output:	BNC x 1, VBS signal = 1.0 V [p-p], 75 Ω
DC OUT:	12 V, MAX. 1A
RET CONTROL Terminal:	Round 6 pin x 1
VF:	Round 20 pin x 1, D-Sub 29 pin x 1
Power Switching:	CCU, OFF, EXT
USER 1/2/3:	Functions specified by menu items can be assigned to the switch.
RET A/B Selection:	For selecting the return signal
RET/PTT Switching:	RET, PPT
Gain Selection*1:	LOW, MID, HIGH
Output Selection*1:	CAM, BAR, TEST
White Balance Mode*1:	A, B, preset
Shutter Speed Selection*1:	1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000
Intercom:	MIC ON/OFF, receiving level, or PGM level
MIC Setting:	MIC power, MIC gain, MIC1 selection

*1: When the CCU is connected, the selection functions cannot be used. Control is performed from the ROP.

AK-HCU200 Camera Control Unit (CCU)

Power Supply:	100 V to 240 V AC, 50/60 Hz
Power Consumption:	170 W (Without CAMERA connected: 32 W)
Capacity for Supplying Power to a Camera:	190 V DC, 0.6 A
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 90 % (no condensation)
Dimensions (W x H x D):	424 mm x 88 mm x 400 mm (16-11/16 inches x 3-7/16 inches x 15-3/4 inches) Excluding protrusions
Weight:	Approx. 6.6 kg (approx. 14.6 lb)
Video Output:	HD SDI/SD SDI: 4 lines (2 lines shared with picture monitor output*2) Analog composite: 1 line (1 line shared with picture monitor output*2)
Return Input:	HD SDI/SD SDI: 2 lines (switched depending on the setting) VBS: 1 line
Prompter Input:	1 line, Analog composite
Reference Input:	1 line (1 loop-through line) Black burst/tri-level*3
Microphone Output:	2 lines (XLR, 3-pin, male), 0 dBm/600 Ω
Intercom:	XLR, 5-pin, female Input: -55 dBu to -10 dBu Output: 100 mW (max.)
COMMUNICATION:	Intercom input/output: 2 lines (1/2*3) (0 dBm, 600 Ω, RTS/4W*3) PGM: 1 line, input (0 dBm/600 Ω) Tally input: Red, Green, 1 input each
ROP interface:	RS-422, 1 line, 12 V output
MSU interface:	RS-422, 1 line, GPI for control
LAN port:	1 line (10Base-T/100Base-TX, RJ45, crossover cable, category 5 or above) For computer connection

*2: Depending on the setting, only one of them can be selected at one time.

*3: The black burst signal and tri-level sync signal of the reference input are recognized automatically.

AK-HRP200G Remote Operation Panel (ROP)

Power Supply:	12 V DC
Power Consumption:	4.2 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Operating Humidity:	90 % or less
Dimensions (W x H x D):	92 mm x 308 mm x 55 mm (3-5/8 inches x 12-1/8 inches x 2-3/16 inches) excluding protrusions
Weight:	Approx. 1.3 kg (approx. 2.87lb)
CCU Control:	<ul style="list-style-type: none"> Control signals (camera, CCU control) Power supply (12 V DC)**4 Tally control signal
PREVIEW control:	Contact output
Maximum cable length:	50 m (164 ft)

*4: Can be provided from CCU or AC adapter

AK-HVF70G 17.8 cm (7 inch) LCD Color Viewfinder

Power Supply:	DC 12 V (supplied by the camera)
Power Consumption:	10 W
Operating Temperature:	0 °C to 45 °C (32 °F to 113 °F)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Operating Humidity:	10% to 85% (no condensation)
Dimensions (W x H x D):	243.5 mm x 212 mm x 172 mm (9-19/32 inches x 8-11/32 inches x 6-25/32 inches) (with hood attached) 243.5 mm x 212 mm x 85 mm (9-19/32 inches x 8-11/32 inches x 3-11/32 inches) (without hood)
Weight:	Approx. 1.6 kg (approx. 3.53 lb) (without hood)
Panel Size:	177.8 mm (7.0 inches)
Number of Pixels:	1024 x 600 (WSVGA)
Display Colors:	Approx. 16,200,000 colors
Operation Panel:	POWER switch x 1, MENU button x 1 SELECT dial x1, Function buttons x 3 Picture adjusting knobs x 3 ([BRIGHT]), [CONTRAST], [PEAKING])
Connectors:	Camera I/F connector (D-Sub 29-pin x 1)

Weight and dimensions are approximate.
Specifications are subject to change without notice.



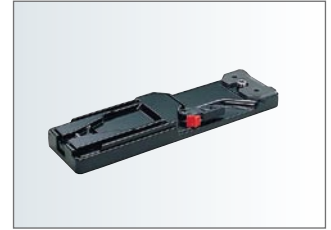
AJ-HVF21KG
50.8 mm (2 inches) HD EVF



AJ-CVF100G
25.4 mm (1 inch) HD Color EVF



AJ-MC700
Microphone Kit



SHAN-TM700
Tripod Adapter

AJ-C10050G
Remote Control Cable
(50 meters / 164 feet)

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JQA-0443



Factories of Business Solutions Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)