4K Studio Camera

AK-UC4000GJ (Tajimi connector model)
AK-UC4000GSJ (LEMO connector model)

A 4K studio camera with high video quality. Compatible with a 2/3 lens mount and contains a newly developed large 4.4K sensor.

- Includes a newly developed large 4.4K image sensor. Sampling exceeding 4K is used to achieve a resolution of 2000 TV lines.
- High-speed capture at 1080p, 1080i and 720p is available for sports and other active settings.*1
- Uncompressed long-distance transmission of UHD/HD video signals via optical fiber, using the AK-UCU600 Camera Control Unit (CCU).
- In cases where power is supplied by the CCU, it is possible to transmit at a long distance of up to approx. 2,000 m between the camera and the CCU. The distance can be extended up to 10,000 m*2 by providing a local power supply at the camera head and using a general-purpose single mode optical fiber.
- Two shooting modes can be selected. In High Sense Mode, it is possible to obtain an S/N ratio of 62 dB*3 or higher while also achieving F10 high sensitivity.
- The camera’s normal and low skew scanning speeds are around 1/2 and 1/3 of those on a standard camera (1/60 of a second) respectively, and enable reduced skew.

*1: When in HD Hi-Speed mode. *2: Signal deterioration may cause the transmission distance to become shorter when connecting optical fiber in multiple locations. Repeater devices may be required, depending on the conditions. *3: During HD output. *4: Functions in combination with a CAC compatible lens. For information on software that supports CAC files, see software download page of the Panasonic website (https://pro-av.panasonic.net/en/).

System Configuration
Camera Control Unit (CCU)

AK-UCU600PJ/UCU600EJ (Tajimi connector model)
AK-UCU600PSJ/UCU600ESJ (LEMO connector model)

*Can also be used with the AK-UC3000GJ/UC3000GSJ.

The CCU supports not only UHD and HD simultaneous output, but also enables high-speed output*1 up to 240p in HD mode to be performed simultaneously with standard (1x) output, while still having a compact size.

- Contains a dual UHD 12G-SDI system, and supports 3G-SDI Quad Link with quadrant or two-sample interleave.
- Optical fiber transmission of uncompressed video signals over a distance of approx. 2,000 m between camera and CCU*2.
- The compact, lightweight unit measures 2U in height and is rack-mountable.
- Supports IP streaming (100 Base-T).
- SD memory card can be used for saving user files and updating firmware versions.
- Dual uncompressed 12G-SDI output.
- Supports TICO*3 over SDI (4K over 3G-SDI) output (4K signal can be transferred by a conventional 3G-SDI cable).
- Supports 1080p/i and 720p. In addition to standard output, high-speed output*1 at 2x, 3x or 4x can be selected according to the specifications of the server.
- Supports HDR/SDR simultaneous output and HDR BT.2020/BT.709 simultaneous output.
- 12G-SDI output and TICO*3 over SDI (4K over 3G-SDI) output are compatible with the AK-UC3000.
- Equip the IP/12G/3G Interface Kit AK-NP600G (optional accessory) for SMPTE ST2110 support.

**Supported formats**

<table>
<thead>
<tr>
<th>Format Type</th>
<th>Supported Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHD</td>
<td>3840x2160/59.94p, 50p, 29.97p, 25p, 23.98p, 29.97PsF, 25PsF, 23.98PsF, 23.98PsF &amp; over 59.94i</td>
</tr>
<tr>
<td>HD</td>
<td>1080/59.94p, 50p, 59.94i, 50i, 23.98p over 59.94i, 29.97PsF, 23PsF, 23.98PsF &amp; over 59.94i, 720/59.94p, 50p</td>
</tr>
<tr>
<td>HD High Speed*1</td>
<td>1080/59.94p-240fps, 180fps, 120fps, 1080/50p-200fps, 150fps, 100fps, 1080/59.94i-240fps, 180fps, 120fps, 1080/50i-200fps, 150fps, 100fps, 720/59.94p-240fps, 180fps, 120fps, 720/50p-200fps, 150fps, 100fps</td>
</tr>
</tbody>
</table>

*1: When Connected with AK-UC4000 4K Studio Camera. When in HD Hi-Speed mode.
*2: When power is supplied from CCU.
*3: A codec developed by intoPIX. Stands for “Tiny Codec”.

AK-UCU600 Rear View
AK-UC4000GJ/UC4000GSJ

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td><strong>Unit: mm (inches)</strong></td>
</tr>
<tr>
<td>DC 12 V (when using an external power supply)</td>
<td>267 (10-17/32) x 193 (7-5/8) x 323.6 (12-3/4)</td>
</tr>
<tr>
<td>AC 240 V, 50 Hz/60 Hz (when connecting to an AK-UCU600PJ/AK-UCU600EJ/AK-UCU600PSJ/AK-UCU600ESJ)</td>
<td>7.5 (5/16) x 65 (2-9/16) x 86 (3-13/32)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td></td>
</tr>
<tr>
<td>119 W (maximum for the camera only, when connecting to an external 12 V)</td>
<td>371.5 (14-21/32) x 335.3 (13-7/32) x 48 (1-7/8)</td>
</tr>
<tr>
<td>360 W (when connecting to an AK-UCU600PJ/AK-UCU600EJ/AK-UCU600PSJ/AK-UCU600ESJ)</td>
<td>176.7 (6-31/32) x 216 (8-13/16) x 105 (4-5/32)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>–10 °C to 45 °C (14 °F to 113 °F)</td>
<td></td>
</tr>
<tr>
<td>(Preheating required under a temperature 0 °C (32 °F) or below)</td>
<td></td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>–20 °C to 60 °C (–4 °F to 140 °F)</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Humidity</strong></td>
<td></td>
</tr>
<tr>
<td>85% or less (relative humidity)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td></td>
</tr>
<tr>
<td>Approx. 4.5 kg (9.90 lb) (body only)</td>
<td></td>
</tr>
<tr>
<td><strong>Pickup Device</strong></td>
<td></td>
</tr>
<tr>
<td>11.14 million pixels, MOS x 1</td>
<td></td>
</tr>
<tr>
<td><strong>Optical Filter</strong></td>
<td></td>
</tr>
<tr>
<td>CC: 3200 K, 4300 K, 6300 K, Cross, Diffusion</td>
<td>151 mm x 267 mm x 371.5 mm</td>
</tr>
<tr>
<td>ND: CAP, Clear, 1/4, 1/16, 1/64</td>
<td>(excluding protrusions)</td>
</tr>
<tr>
<td><strong>Lens mount</strong></td>
<td></td>
</tr>
<tr>
<td>2/3-type bayonet</td>
<td></td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td></td>
</tr>
<tr>
<td>Two shooting modes</td>
<td></td>
</tr>
<tr>
<td>[HIGH SENS]: F10 (59.94 Hz/11 (50 Hz)</td>
<td></td>
</tr>
<tr>
<td>[NORMAL]: F6 (59.94 Hz)/F7 (50 Hz)</td>
<td></td>
</tr>
<tr>
<td>2000 lx, 3200 K, when white reflectivity is 89.9%</td>
<td></td>
</tr>
<tr>
<td><strong>Horizontal Resolution</strong></td>
<td></td>
</tr>
<tr>
<td>4K: 2000 TV lines or above (center)</td>
<td></td>
</tr>
<tr>
<td>AK-UCU600PJ/AK-UCU600EJ/AK-UCU600PSJ/ AK-UCU600ESJ output</td>
<td></td>
</tr>
<tr>
<td>HD: 1000 TV lines or above (center)</td>
<td></td>
</tr>
<tr>
<td><strong>S/N</strong></td>
<td></td>
</tr>
<tr>
<td>62 dB or above</td>
<td></td>
</tr>
<tr>
<td><strong>Horizontal Modulation</strong></td>
<td></td>
</tr>
<tr>
<td>50% or above (27.5 MHz)</td>
<td></td>
</tr>
<tr>
<td><strong>Gain switching</strong></td>
<td></td>
</tr>
<tr>
<td>[NORMAL]: –4, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
<td></td>
</tr>
<tr>
<td>[HIGH SENS]: –6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
<td></td>
</tr>
<tr>
<td><strong>Shutter speed</strong></td>
<td></td>
</tr>
<tr>
<td>59.49°/59.49°: mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1500, 1/2000</td>
<td></td>
</tr>
<tr>
<td>29.97°: mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
<td></td>
</tr>
<tr>
<td>23.98°: mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
<td></td>
</tr>
<tr>
<td>50°/50°: mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
<td></td>
</tr>
<tr>
<td>25°: mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
<td></td>
</tr>
<tr>
<td>[HIGH SENS]: –6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;HD-SDI1&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>BNC x 1</td>
<td></td>
</tr>
<tr>
<td>3G/1.5G-SDI: 0.8 V [p-p], 75 Ω</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;HD-SDI2&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>BNC x 1</td>
<td></td>
</tr>
<tr>
<td>3G/1.5G-SDI: 0.8 V [p-p], 75 Ω</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;AUX&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>3-pin female</td>
<td></td>
</tr>
<tr>
<td>[MIC] x 1</td>
<td></td>
</tr>
<tr>
<td>3-pin female</td>
<td></td>
</tr>
<tr>
<td>Switchable</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;MIC&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>Switchable</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;MIC 1&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>3-pin female</td>
<td></td>
</tr>
<tr>
<td>Switchable</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;MIC 2&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>3-pin female</td>
<td></td>
</tr>
<tr>
<td>Switchable</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;MIC terminal (front)&gt;</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>Switchable</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;INTERCOM1&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>5-pin female</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;INTERCOM2&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>5-pin female</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;EARPHONE&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>Stereo mini jack x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;OPT FIBER&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>Optical composite connector x 1, Tajimi/LEMO</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;LENS&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>12-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;VF&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>20-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;Vf&gt; terminal (rear)&gt;</strong></td>
<td></td>
</tr>
<tr>
<td>29-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;DC IN&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>XLR x 1</td>
<td></td>
</tr>
<tr>
<td>4-pin, DC 12 V</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;DC OUT 12 V 1 A&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>4-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;RET CTRL&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>6-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;EXT I/O&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>20-pin x 1</td>
<td></td>
</tr>
<tr>
<td>12 DC 12 V 0.5 A</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;REMOTE&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>10-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;TRUNK&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>12-pin x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;DC OUT&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>2-pin x 1</td>
<td></td>
</tr>
<tr>
<td>12 DC 12 V 2.5 A</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;LAN&gt; terminal</strong></td>
<td></td>
</tr>
<tr>
<td>RJ-45 x 1</td>
<td></td>
</tr>
<tr>
<td><strong>&lt;USB2.0&gt; terminal (host)&gt;</strong></td>
<td></td>
</tr>
<tr>
<td>Type A connector, DC 5 V 0.5 A</td>
<td></td>
</tr>
<tr>
<td>Build-up terminal</td>
<td></td>
</tr>
<tr>
<td>20-pin x 1</td>
<td></td>
</tr>
</tbody>
</table>
AK-UCU600PJ/UCU600EJ/UCU600PSJ/UCU600ESJ

Power Supply
- AK-UCU600PJ/AK-UCU600PSJ: 100 V - 120 V AC, 50 Hz/60 Hz
- AK-UCU600EJ/AK-UCU600ESJ: 100 V - 240 V AC, 50 Hz/60 Hz

Power Consumption
- 500 W (Without camera connected: 90 W)

Capacity for Supplying Power to a Camera
240 V AC (tolerance: ±5%), 1.46 A, 50 Hz/60 Hz

Operating Temperature
- 0 °C to 40 °C (32 °F to 104 °F)

Humidity
- 10% to 90% (no condensation)

Weight
- Approx. 8.9 kg (19.8 lb)

Dimensions (W x H x D)
- 424.4 mm x 88.5 mm x 401.0 mm (16-3/8 inches x 3-7/16 inches x 15-13/16 inches) (excluding protrusions)

Video Output
- 3G/HD-SDI: 5 lines (embedded audio is supported only for HD signals) 12G/6G/3G/HD-SDI: 2 lines HD-SDI: 1 line (shared with picture monitor output\(^\star\))
- Analog composite: 2 lines (1 line shared with picture monitor output\(^\star\)) for details on output formats, see "Supported formats" on page 5.

HD TRUNK/TICO Output
- HD-SDI: 1 line (HD TRUNK output)
- 3G/HD-SDI: 1 line (TICO output)

Return Input
- 3G/HD/SDI-SDI: 4 lines (REIT input has active-through output)
- Analog composite: 1 line

Prompter Input
- HD-SDI: 1 line (with active-through output)
- Analog composite: 2 lines (through output of 1 and input of 2 share the connector\(^\star\))
- It is not terminated when the unit is turned OFF. No through output.

Reference Input
- BB (black burst) / tri-level\(^\star\): 1 line
- (automatic termination, connect to upper connector; BB signal and tri-level signal automatically recognized, with loop-through output)

Microphone Output
- 0 dBm/600 Ω, 2 lines (XLR, 3-pin, male)

Communication
- Intercom input/output (ENG / PROD, 0 dBm, 600 Ω (4 W) / 1 V [p-p], 200 Ω (RTS), 4 W / RTS / CLRCOM): 2 lines\(^*\)
- PGM input (0 dBm/600 Ω): 2 lines
- Tally input (red, green, yellow): 1 input each

AUX
- WFM control
- 6-bit (open collector output, terminal shared with camera microphone gain setting\(^*\))
- Camera microphone gain setting input
- 5-bit (photo-coupler input, terminal shared with WFM control\(^*\))
- Down-conversion system setting input 2-bit (photo-coupler input)

TRUNK
- RS-232C
- 2 lines\(^*\)

FRONT ROP
- RS-422
- 1 line, 16 V DC output (only one of this and REAR ROP can be selected at one time via the menu or the [ROP FRONT/REAR] selection switch on the front panel)

REAR ROP
- RS-422
- 1 line, 16 V DC output (only one of this and FRONT ROP can be selected at one time via the menu or the [ROP FRONT/REAR] selection switch on the front panel)

MSU
- RS-422
- 1 line, GPI for control

LAN TRUNK
- LAN connection with camera side via an optical cable\(^*\)
- 1 line, 100BASE-TX, 1000BASE-T

LAN
- Personal computer connection for distribution via the Web\(^*\)
- 1 line, 10BASE-T, 100BASE-TX (use a crossover cable when connecting directly with a personal computer)

AK-NP600G

Dimensions (W x H x D)
- Approx. 17.55 mm x 28.8 mm x 138.5 mm (6-29/32 inches x 1-1/8 inches x 5-7/16 inches)

Weight
- Approx. 284 g (0.63 lbs) (including radiator fins)

Operating Temperature
- 0 °C to 40 °C (32 °F to 104 °F)

Humidity
- 10% to 90% (no condensation)

Input/Output Section
- <UHD/HS/HD SDI OUT1> terminal BNC x 1, 12G/6G/3G/1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <UHD/HS/HD SDI OUT2> terminal BNC x 1, 12G/6G/3G/1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <UHD/HS/HD SDI OUT3> terminal BNC x 1, 3G/1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <UHD/HS/HD SDI OUT4> terminal BNC x 1, 3G/1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <HD SDI PROMPT IN> terminal BNC x 1, 1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <SFP+ 1> slot SFP+ x 1, 12G/6G/3G/1.5G HD SDI: 0.8 V [p-p], 75 Ω
- <SFP+ 2> slot SFP+ x 1, 100BASE-LR
- <LAN2> terminal RJ-45 x 1

Bundled Items
- Pillar (M3 x H20) x 1
- Options rear panel x 1
- Power cable x 1
- Heat-transfer sheet x 1
- Gaskets x 2

* Dimensions are for LEMO connector model.
Equipped with a large-format 4K sensor, this camera produces highly expressive 4K video with rich gradation in addition to supporting simultaneous HD/SD.

- The 2/3 lens can be used for the large 4K sensor without an external adapter. This new acquisition method maximizes the effectiveness of incident light to ensure a high dynamic range.
- Supports both UHD output and HD/SD output.*1
- Two shooting modes can be selected. In High Sense Mode, it is possible to obtain an S/N ratio of 60 dB or higher while also achieving F10 high sensitivity.

List of supported formats

<table>
<thead>
<tr>
<th>Format</th>
<th>3G-SDI</th>
<th>4K-SDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHD</td>
<td>3840x2160/59.94p, 50p, 29.97p, 25p, 23.938p, 29.97PsF, 25PsF, 23.938PsF</td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>1080/59.94p, 50p, 59.94i, 50i, 23.938p over 59.94i, 29.97PsF, 25PsF, 23.938PsF, 720/59.94p, 50p</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>480/59.94i, 576/50i</td>
<td></td>
</tr>
</tbody>
</table>

*1: AK-UCU500 Camera Control Unit (CCU) outputs UHD/HD/SD video.

- Supports 1080p 4x high-speed capture.*2
- Includes 2/3 3MOS sensors and enables two shooting modes to be selected. The high-speed mode provides F11 high sensitivity and low noise with an S/N ratio of 60 dB or more.

Feature common to both the AK-UC3000 and AK-HC5000

- In cases where power is supplied by the CCU, it is possible to transmit at a long distance of up to approx. 2,000 m between the camera and the CCU. The distance can be extended up to 10,000 m*4 by providing a local power supply at the camera head and using a general-purpose single mode optical fiber.
- Includes a CAC (Chromatic Aberration Compensation) function.*5
- Includes a function for reducing skew with high-speed scanning.
- Includes a DRS (Dynamic Range Stretcher) function*6 that automatically reduces blackout and blown-out highlights.
- Adopts a selectable gamma function that provides FILMLEKE1 to FILMLEKE3 in addition to the Cinegamma function (V-REC/F-REC).
- Supports HDR (High Dynamic Range).
- Includes a shockless gain function that supports 0.1 dB step master gain adjustment to smoothly change the video when the gain is adjusted.
- Includes an EBU/NTSC preset color matrix, 12-pole color correction and linear matrix correction to enable fine adjustment of the saturation and hue of individual colors.
- Includes skin tone detail correction.
- Includes ND filters (CAP, Through, 1/4, 1/16, 1/64).
- Includes CC filters (Cross, 3200 K, 4300 K, 6300 K, Diffusion).
- Quick and accurate focusing is supported with focus assist functions such as Focus Bar (indicates focus level), Focus-in-Red (uses color to indicate areas in focus), MAG (magnifies central portion), and Square (shows focus status of screen as a whole).
- For camera head output (HD-SDI 1/HD-SDI 2), 1080i, 1080p, 720p can be selected.
- Video and data can be transmitted between the camera and a Camera Control Unit (CCU) using optical fiber cable alone.
- Two independent intercom lines are included and can be switched.
- Compatibility ensured for Camera Control Unit (CCU) AK-UCU600PJ/UCU600EJ/UCU600PSJ/UCU600ESJ.

*4: Signal deterioration may cause the transmission distance to become shorter when connecting optical fiber in multiple locations. Repeater devices may be required, depending on the conditions.
*5: Functions in combination with a CAC compatible lens. For information on software that supports CAC files, see software download page of the Panasonic website (https://pro-av.panasonic.net/en/).
*6: For the AK-UC3000/UC3000GJ, only when in HD mode.
System Configuration

AK-UC3000/AK-HC5000 Rear View

Camera Control Unit (CCU)

AK-UCU500PJ/AK-UCU500EU (Tajimi connector model)
AK-UCU500PSJ/AK-UCU500ESJ (LEMO connector model)

The CCU supports both 4K and HD formats by just changing the camera head. It enables a high-quality, long-distance optical fiber transmission camera system to be configured with less cost.

- Optical fiber transmission of uncompressed video signals over a distance of approx. 2,000 m between camera and CCU*1.
- The compact, lightweight unit measures 2U in height and is rack-mountable.
- Supported formats
  - UHD (3G-SDI x 4)*2: 3840 x 2160/59.94p, 50p, 29.97p, 25p, 23.98p, 29.97PsF, 25PsF, 23.98PsF
  - HD (3G-SDI): 1080/59.94p, 50p, 59.94i, 50i, 23.98p over 59.94i, 29.97PsF, 25PsF, 23.98PsF, 720/59.94p, 50p
  - HD High Speed (3G-SDI x 4)*3: 1080/239.76p, 200p, 239.76i, 200i
  - SD: 480/59.94i, 576/50i
- Supports IP streaming (100 Base-T).
- SD memory card can be used for saving user files and updating firmware versions.
- Input/output
  - SDI OUT x 7, SDI OUT (PM) x 1, VBS x 1, etc.
  - 4K MODE*: SDI OUT x 4 (4K), SDI OUT x 3, SDI OUT (PM) x 1, VBS x 1, VBS (PM) x 1
  - HS MODE*: SDI OUT x 4 (HS), SDI OUT x 3, SDI OUT (PM) x 1, VBS x 1, VBS (PM) x 1
  - RET Input (SDI: 4ch, VBS: 1ch) etc.
  - LAN-TRUNK (100/1000BASE-T)
  - PROMPT Input (SDI: 1ch, ANALOG: 2ch)

AK-UCU500 Rear View

Camera Control Unit (CCU)

*1: When power is supplied from CCU.
*2: When Connected with AK-UC3000 4K Studio Camera.
*3: When Connected with AK-HC5000 HD Studio Camera.
### AK-UC3000GJ/UC3000GSJ/AK-HC5000GJ/HC5000GSJ

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>DC 12 V (when using an external power supply) AC 240 V, 50 Hz/60 Hz (when AK-UCUS050PJ/AK-UCUS050ESJ/AK-UCUS050PS/AK-UCUS050ESJ is connected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>119 W (maximum, when connecting to an external 12 V and including supply to an externally connected devices) 360 W (maximum, when AK-UCUS050PJ/AK-UCUS050ESJ/AK-UCUS050PS/AK-UCUS050ESJ is connected and including supply to an externally connected devices)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>–10 °C to 45 °C (14°F to 113°F) (Preheating required under a temperature 0 °C (32 °F) or below)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>–20 °C to 60 °C (–4°F to 140°F)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>85% or less (relative humidity)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 4.4 kg (9.70 lbs.) (body only, excluding the accessories)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>Body only 151 mm x 267 mm x 371.5 mm (5-31/32 inches x 10-17/32 inches x 14-21/32 inches) (excluding protrusions)</td>
</tr>
<tr>
<td>Pickup Device</td>
<td>AK-UCUS000: 11 million pixels, CMOS x 1 AK-HCUS000: 2/3-type, 2.2 million pixels, MOS x 3</td>
</tr>
<tr>
<td>Optical Filter</td>
<td>CC: 3200 K, 4300 K, 6300 K, Cross, Diffusion ND: CAP, Clear, 1/4, 1/16, 1/64</td>
</tr>
<tr>
<td>Lens mount</td>
<td>2/3-type bayonet</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Two shooting modes AK-UC3000: [HIGH SENS]: F10 (59.94 Hz)/F11 (50 Hz) [NORMAL]: F6 (59.94 Hz)/F7 (50 Hz) 2000 lx, 3200 K, when white reflectivity is 89.9% AK-HC5000: [HIGH SENS]: F11 (59.94 Hz)/F12 (50 Hz) [NORMAL]: F8 (59.94 Hz)/F9 (50 Hz) 2000 lx, 3200 K, when white reflectivity is 89.9%</td>
</tr>
<tr>
<td>Horizontal Resolution</td>
<td>AK-UC3000GJ/UC3000GSJ/AK-HC5000GJ/HC5000GSJ 4K: 1800 TV lines or above (center, AK-UCU500PJ/AK-UCU500PSJ/AK-UCU500EJ/AK-UCU500ESJ output) HD: 1000 TV lines or above (center)</td>
</tr>
<tr>
<td>S/N</td>
<td>60 dB or above</td>
</tr>
<tr>
<td>Horizontal Modulation</td>
<td>50% or above (27.5 MHz)</td>
</tr>
<tr>
<td>Gain switching</td>
<td>AK-UC3000: [NORMAL]: –6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36 [HIGH SENS]: –6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36 AK-HC5000: [NORMAL]: –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36 [HIGH SENS]: –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
</tr>
<tr>
<td>Shutter speed</td>
<td>[59.94Hz]/[59.94Hz] mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 [29.97Hz] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 [23.98Hz] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 [50Hz]/[50Hz] mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 [25Hz] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
</tr>
</tbody>
</table>

**Dimensions**

<table>
<thead>
<tr>
<th>AK-UC3000GJ/UC3000GSJ/AK-HC5000GJ/HC5000GSJ</th>
</tr>
</thead>
</table>

*Dimensions above are for the AK-UC3000.*
### Power Supply
AK-UCU500PJ/AK-UCU500EJ/AK-UCU500PSJ/AK-UCU500ESJ: 100 V - 120 V AC, 50 Hz/60 Hz
AK-UCU500PJ/AK-UCU500EJ/AK-UCU500PSJ/AK-UCU500ESJ: 100 V - 240 V AC, 50 Hz/60 Hz

### Power Consumption
500 W (Without camera connected: 70 W)

### Capacity for Supplying Power to a Camera
240 V AC (tolerance: 5%), 1.46 A , 50 Hz/60 Hz

### Operating Temperature
0°C to 40°C (32°F to 104°F)

### Humidity
10% to 90% (no condensation)

### Weight
Approx. 8.8 kg (19.4 lb)

### Dimensions (W x H x D)
424 mm x 88 mm x 401 mm (16-5/8 inches x 3-7/16 inches x 15-13/16 inches) (excluding protrusions)

### Video Output
- 3G/HD/SD-SDI: 7 lines (embedded audio is supported only for HD signals)
- HD/SD-SDI: 1 line (shared with picture monitor output*1; embedded audio is supported only for HD signals)
- Analog composite: 2 lines (1 line shared with picture monitor output*)

### HD TRUNK Output
HD-SDI: 1 line (cannot be used in UHD/HS mode)

### Return Input
- 3G-HD/HD/SD-SDI: 4 lines (RET1 input has active-through output)
- Analog composite: 1 line

### Prompter Input
- HD-SDI: 1 line (with active-through output)
- Analog composite: 2 lines (through output of 1 and input of 2 share the connector*)
  - It is not terminated when the unit is turned OFF. No through output.

### Reference Input
- BB (black burst) / tri-level*2: 1 line
  - (automatic termination, connect to upper connector; BB signal and tri-level signal automatically recognized, with loop-through output)

### Microphone Output
0 dBm/600 Ω, 2 lines (XLR, 3-pin, male)

### Communication
- Intercom input/output [ENG / PROD, 0 dBm, 600 Ω (4 W) / 1 V [p-p], 200 Ω (RTS), 4 W / RTS / CLR/COM] : 2 lines**
- PGM input (0 dBm/800 Ω) : 2 lines
- Tally input (red, green, yellow) : 1 input each

### AUX
- WFPM control
- 6-bit (open collector output, terminal shared with camera microphone gain setting**)
- Camera microphone gain setting input
- 5-bit (photo-coupler input, terminal shared with WFM control**)
- Down-conversion system setting input 2-bit (photo-coupler input)

### TRUNK
- RS-422 / RS-232C
- 2 lines**

### FRONT ROP
- RS-422
- 1 line, 16 V DC output (only one of this and REAR ROP can be selected at one time via the menu or the [ROP FRONT/REAR] selection switch on the front panel)

### REAR ROP
- RS-422
- 1 line, 16 V DC output (only one of this and FRONT ROP can be selected at one time via the menu or the [ROP FRONT/REAR] selection switch on the front panel)

### MSU
- RS-422
- 1 line, GPI for control

### LAN TRUNK
- LAN connection with camera side via an optical cable**: 1 line, 100BASE-T, 1000BASE-T

### LAN
- Personal computer connection for distribution via the Web**: 1 line, 10BASE-T, 100BASE-TX (use a crossover cable when connecting directly with a personal computer)

---

### Dimensions

<table>
<thead>
<tr>
<th>Unit: mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AK-UCU500PJ/AK-UCU500EJ/AK-UCU500PSJ/AK-UCU500ESJ</strong></td>
</tr>
</tbody>
</table>

---

*1: Depending on the setting, only one of them can be selected at one time.
*2: The BB (black burst) signal and tri-level sync signal of the reference input are recognized automatically.
*3: IP video cannot be transmitted when [CCU MODE] is set to [2160/23.98p], [2160/23.98PsF], [1080/23.98p], or [1080/23.98PsF].
Remote Operation Panel (ROP)

AK-HRP1000GJ
AK-HRP1005GJ

Expand operation scope with two size options: a full operation panel and a simplified panel. These compact operation panels also support PoE*1 and IP control.

- Two models: 1/4 rack size (AK-HRP1000GJ) and 1/5 rack size (AK-HRP1005GJ).
- LCD panels with enhanced visibility.
  - AK-HRP1000GJ: 8.9 cm (3.5 inches) (VGA)
  - AK-HRP1005GJ: 8.1 cm (3.2 inches) (VGA)
- Camera serial control and IP control (RJ45 LAN cable) are possible.
- Supports PoE*1, which can supply power via LAN cable (CAT5e or faster).
- Functions for studio camera scene file registration and retrieval.
- Equipped with SD memory card slot for saving user files, scene file and updating firmware versions.

Master Setup Unit (MSU)

AK-MSU1000GJ

Controls up to 99 CCU units via IP

- IP and serial connections supported.
  - IP connection: Up to 99 units
  - Serial connection: Up to six units
- 17.8 cm (7 inches) Touch Panel LCD Video monitoring function
- HD-SDI Input (Monitoring) (1080i)
- Power DC12 V (DC10 V - DC16 V) or PoE+*1 (via PoE+ Hub)

AK-HRP1000GJ/HRP1005GJ Rear View

AK-MSU1000GJ Rear View

*1: Abbreviation of Power over Ethernet.

*The firmware version 4.50 or later is required to use the AK-HRP1000GJ/1005GJ remote operation panel and the AK-MSU1000GJ master setup unit with the AK-UC4000 studio camera and the AK-UCU600 camera control unit.
As of March, 2019

**22.9 cm (9 inches) LCD Color Viewfinder**

AK-HVF100GJ  
*Equipped with newly designed tilt mechanism and extensive functions such as focus assist and external video input.*

- High-resolution 22.9 cm (9 inches) color LCD panel displays full HD 1920 x 1080 pixel
- Focus assist functions (Focus-in-Red, Focus Bar*)
- Detail depends on zoom ratio*
- External HD-SDI (3G-SDI) input
- External DC input (+12 V DC)
- Four assignable function buttons
- Contrast, brightness, and peaking are adjustable
- Pan, tilt, and lift structure used

---

**Build-up Unit**

AK-HBU500GJ  
*Enables use of large studio-use lens.*

- Smooth camera mounting/removal possible
- Precise optical axis (horizontal/vertical) adjustment structure
- Rear control panel equivalent to that of a large camera
- DC OUT 12V 7.5 A (XLR4-pin)/DC OUT 1.5 A (4-pin)

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**Other accessories**

- **AJ-CVF50G**
  38.1 mm (1.5 inches) HD EVF

- **AJ-HVF21KG**
  50.8 mm (2 inches) HD EVF
  59.94 Hz/50 Hz Switcachable
  Not available in some areas.

- **AG-CVF15G**
  87.6 mm (3.45 inches) Color HD EVF
  Open two ways for LCD monitor viewing

- **AK-HVF70G**
  17.8 cm (7 inches) LCD Color Viewfinder

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

- **AJ-MC700P**
  Microphone Kit (monaural)

- **AW-PS551**
  AC Adaptor

- **SHAN-TM700**
  Tripod Adaptor

---

*1: When connected to AK-UC4000, AK-UC3000 or AK-UC5000.

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**Rear View**

**Rear control panel**
4K/HD Studio Camera System Specifications & Dimensions

**AK-HRP1000GJ/HRP1005GJ**

<table>
<thead>
<tr>
<th>AK-HRP1000GJ</th>
<th>AK-HRP1005GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td>12 V DC (Power supply from camera: 10 V - 16 V DC)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>0.51 A (Power supply from camera: 10 V - 16 V DC)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>0 °C to 40 °C (32 °F to 104 °F)</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>90% or less</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>-20 °C to 60 °C (−4 °F to 140 °F)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 1.7 kg (3.57 lb)</td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>102 mm x 385 mm x 113 mm (4 inches x 15-3/16 inches x 4-7/16 inches)</td>
</tr>
</tbody>
</table>

**Camera/CCU Control**

- Control signals (camera, CCU control)
- Power supply 16 V DC (when CCU is connected)*1

**Maximum Cable Length**

- When camera connected: 20 m (65.7 ft)
- When CCU is connected: 50 m (164 ft)

*1: Can be provided from CCU

**AK-MSU1000GJ**

<table>
<thead>
<tr>
<th>AK-MSU1000GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
</tr>
</tbody>
</table>

**Adjustment Functions**

- Scene file, ND filter, CC filter, Color temperature (COLOR TEMP), Master gain (MASTER GAIN), Shutter (SHUTTER), Master pedestal (MPED), Iris (IRIS), Camera selection

**CCU Control**

- RS422 or IP

**Maximum Cable Length**

- When CCU is connected: 50 m (164 ft)

**AK-HVF100GJ**

<table>
<thead>
<tr>
<th>AK-HVF100GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
</tr>
<tr>
<td><strong>Operating Humidity</strong></td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
</tr>
<tr>
<td><strong>Display Panel</strong></td>
</tr>
<tr>
<td><strong>Number of Pixels</strong></td>
</tr>
<tr>
<td><strong>Display Color</strong></td>
</tr>
<tr>
<td><strong>Operation</strong></td>
</tr>
<tr>
<td><strong>Connector</strong></td>
</tr>
<tr>
<td>**SDI IN connector (BNC x 1) **</td>
</tr>
<tr>
<td><strong>Supported Signal Format</strong></td>
</tr>
<tr>
<td>**SDI: 1080/59.94p, 1080i/50i, 720/59.94p, 720/50p **</td>
</tr>
</tbody>
</table>

**AK-HBU500GJ**

<table>
<thead>
<tr>
<th>AK-HBU500GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
</tr>
<tr>
<td><strong>Operating Humidity Range</strong></td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
</tr>
<tr>
<td><strong>Camera Number Display</strong></td>
</tr>
<tr>
<td><strong>LENS I/F Connector</strong></td>
</tr>
<tr>
<td><strong>CAMERA I/F Connector</strong></td>
</tr>
<tr>
<td><strong>[DC IN] Connector</strong></td>
</tr>
<tr>
<td><strong>[DC OUT 12 V 1.5 A]</strong></td>
</tr>
<tr>
<td><strong>[DC OUT 12 V 7.5 A]</strong></td>
</tr>
</tbody>
</table>

*1: Can be provided from CCU
Dimensions

Unit: mm (inches)

- **AK-HRP1000GJ**
  - Dimensions:
    - 102 (4)
    - 66 (2-5/8)
    - 55 (2-3/16)
    - 31.9 (1-1/4)
    - 67.5 (2-5/8)
    - 385 (15-3/16)
    - 371 (14-5/8)

- **AK-HRP1005GJ**
  - Dimensions:
    - 82 (3-1/4)
    - 44.7 (1-3/4)
    - 70.5 (2-3/4)
    - 325 (12-13/16)
    - 124.4 (4-7/8)

- **AK-MSU1000GJ**
  - Dimensions:
    - 482 (18-31/32)
    - 465 (18-5/16)
    - 193 (7-5/8)
    - 400.6 (15-25/32)

- **AK-HBU500GJ**
  - Dimensions:
    - 234 (9-7/32)
    - 340 (13-13/32)
    - 193 (7-5/8)

- **AK-HVF100GJ**
  - Dimensions:
    - 340 (13-13/32)
    - 193 (7-5/8)

As of March, 2019
**Studio Camera System**

**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.

- The 2/3 type 2.2 megapixel 3CCD enables the standard sensitivity of F12 (2,000 lx/50 Hz) and F11 (2,000 lx/59.94 Hz) which is one of the highest sensitivity in this range of cameras.
- High-Performance DSP Provides 16 bit A/D, 38 bit Processing.
- For HD, supporting 1080/59.94i, 1080/50i, 1080/23.98p (over 59.94i), 25p (over 50i) and 1080/29.97p (over 59.94i) video format are supported as standard. In addition, 720/59.94p, 720/50p and 1080/23.98PsF video format can also be supported when selected on CCU.
- Chromatic Aberration Compensation (CAC).
  *When a CAC-compatible lens is used.
- 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.
- 12-axis color correction, linear matrix, and other color correction functions.
- Skin Tone Detail Correction separately reduces the sharpness of two types of color gamut to help tone down wrinkles and dull areas for more beautiful, natural textures. The function can be applied to the entire hue phase (360°), enabling the sharpness of all colors, not just skin tones, to be reduced.
- Selectable gamma curves are included in the DSP circuit. The Film Rec mode produces film tone.

**System Configuration and Interface**

- 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.
- Various information, including the color temperature setting, is displayed in the viewfinder.

**Rear View**

- Scan reverse function is featured.
- The Dynamic Range Stretch (DRS) function automatically suppresses blocked shadows and blown highlights. A gamma curve and knee slope are applied to match the contrast of each pixel and corrected in real time to maintain excellent gradation for each shade even when a single scene contains dark, bright and intermediate shades.
- ND filter: Clear, 1/4, 1/16, 1/64
- Selectable EBU or NTSC preset matrix.
- Connect the camera to a CCU using multi-mode optical fiber cable to enable high resolution video and multiple signals to be transmitted between the camera and the CCU up to a distance of approximately 1,200 m.
- 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.
- Various information, including the color temperature setting, is displayed in the viewfinder.
As of March, 2019

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. The cable between the camera and the CCU can be extended up to approximately 1,200 m.
- The AK-HCU200 is 59.94 Hz/50 Hz switchable, and supports 1080/59.94i, 1080/50i, 1080/29.97PsF,* 1080/25PsF,* 1080/23.98PsF,* 720/59.94p, and 720/50p HD Multi-formats.
- Two SDI channels and one VBS channel are provided for RET input, and prompter input (analog video signal input) is included as standard.
- Four SDI OUT lines are provided (two support PM output). In addition to HD video output, SD downconverted video signal output (SDI, analog composite) comes as standard.
- Multiple AK-HRP200G Remote Operation Panels and up to 19 AK-HCU200 Camera Control Units can be routed through a hub with IP connection.
- The AK-HP935A Remote Operation Panel or AK-MSU935A Master Setup Unit can also be used for serial remote control of the AK-HCU200 Camera Control Unit.*2
- Setting up CCU with a PC.
- The camera number and other text can be superimposed onto the color bar output signal.
- The SD memory card slot allows CCU setting data to be saved on an SD memory card.
- The 2U height of this compact, lightweight unit allows 2U rack mounting.

Remote Operation Panel (ROP)
AK-HRP200G
A Compact Operation Panel for Serial Connection and for Controlling up to 19 Cameras with IP Connection

- The AK-HRP200G supports both serial (1:1) and IP connection.* IP connection enables up to 19 cameras to be controlled by a single Remote Operation Panel.
- Five connection modes are provided: CCU Serial, CCU IP, Remote Camera Serial, Remote Camera IP and Camera Recorder IP.
- 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.
- The joystick control lever enables fine manual iris/ pedestal operation.
- Scene files and user files can be saved on an SD memory card.
- The unit is compact, with a width of 92 mm and a 6U height for easy rack mounting.

Rear View

17.8 cm (7 inch) LCD Color Viewfinder
AK-HVF70G
Light Weight, Low Power Consumption, and High Resolution Plus Focus Assist Functions

- 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.
- This high-resolution, 17.8 cm (7 inches) color LCD panel displays 1024 pixel 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.
- 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.

**AK-HC3800G/AK-HC3800GS Common Options**

AJ-CVF50G
38.1 mm (1.5 inches) HD EVF

AJ-MC700P
Microphone Kit (monaural)

AJ-HVF21KG
50.8 mm (2 inches) HD EVF
59.94 Hz/50 Hz Switchable
Not available in some areas.

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

AK-HVF100GJ
22.9 cm (9 inches) LCD Color Viewfinder
*External power supply is required when connected to AK-HC3800G/GS.

SHAN-TM700
Tripod Adaptor

*1: The 1080/29.97PsF, 1080/25PsF and 1080/23.98PsF formats must be selected at the camera. *2: Only functions that are supported by the CCU can be controlled by the AK-MSU935A or AK-HP935A. *3: External power supply (DC 12 V) required when LAN cable is used. Power is supplied by the Camera Control Unit in serial connection.
Master Setup Unit (MSU)

AK-MSU935A

With a large LCD control panel, the MSU can adjust all of the camera’s parameters, serving up to 12 camera systems.

- Master control of precise camera settings for the entire camera system (up to 12 camera systems)
- Switch between external monitor and waveform monitor.
- Large-scale (16-cm/6.3-inch) LCD display
- SD Memory Card slot for storing/retrieving three user references, eight scene files, and sixteen lens files.

Remote Operation Panel (ROP)

AK-HRP935A

The 1/4 rack size Remote Operation Panel can easily adjust camera parameters.

- Full control of camera settings
- 1/4 rack size Remote Operation Panel

* Optional AC Adaptor is required.
## AK-HC3800G/HC3800GS

### 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, and 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)

### 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 (60 Hz)

### Horizontal Resolution
- 1100 TV lines

### S/N
- 60 dB or higher

### Output Format
- 1080/59.94, 1080/50, 1080/23.98p[over 59.94p], 25p[over 50i], 1080/29.97p[over 59.94i], 720/59.49p**, 720/50p**, 1080/23.98PsF, 1080/50PsF

### 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

### 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, PTT

### Output Selection
- CAM, BAR, TEST

### White Balance Mode
- A, B, preset

### Shutter Speed Selection
- 1/48 (23.98p), 1/60 (23.98p, 29.97p), 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000
- 1/50 (25p), 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000

### Intercom MIC ON/OFF, receiving level, or PGM level

### MIC Setting
- MIC power, MIC gain, MIC1 selection

### Dimensions Unit: mm(inches)

<table>
<thead>
<tr>
<th>AK-HC3800G/HC3800GS</th>
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<tr>
<td></td>
<td>367.5 (14-7/16)</td>
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*1: The 720/59.94p, 720/50P and 1080/23.98PsF formats must be selected at the CCU.

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

*3: When IP connection, 1080/29.97P, 1080/29.97PsF, 720/59.94p, and 720/50p format are used, you may need to update AK-HC3800 firmware. For details, see the Panasonic website. https://pro-av.panasonic.net/
### Studio Camera System Specifications & Dimensions

#### AK-HCU200P/E/PS/ES
- **Power Supply**: 100 V to 240 V AC, 50Hz/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)
- **Weight**: Approx. 6.6 kg (approx. 14.6 lb)
- **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
- **Video Output**: HD-SDI/SD-SDI: 4 lines (2 lines shared with picture monitor output*)
- **Output Format**: 1080/59.94i, 1080/50i, 1080/29.97PsF*, 1080/25PsF*, 1080/23.98PsF*, 720/59.94p, 720/50p
- **Return Input**: HD-SDI/SD-SDI: 2 lines (switched depending on the setting)
- **Microphone Output**: 2 lines (XLR, 3-pin, male), 0 dBm/600 Ω
- **Intercom**: XLR, 5-pin, female
- **Power Supply**: 100 V to 240 V AC, 50Hz/60 Hz
- **Power Consumption**: 170 W (Without CAMERA connected: 32 W)
- **Operating Temperature**: 0 °C to 40 °C (32 °F to 104 °F)
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- **Return Input**: HD-SDI/SD-SDI: 2 lines (switched depending on the setting)
- **Microphone Output**: 2 lines (XLR, 3-pin, male), 0 dBm/600 Ω
- **Intercom**: XLR, 5-pin, female

#### AK-HRP935A
- **Power Supply**: DC 12 V (DC 10V to 17V) (supplied from CCU)
- **Power Consumption**: Approx. 6 W
- **Operating Temperature**: 0 °C to 40 °C (32 °F to 104 °F)
- **Operating Humidity**: Less than 80 %
- **Weight**: Approx. 1.85 kg (Approx. 4.1 lb)
- **Dimensions (W x H x D)**: 92 mm x 419 mm x 55 mm (3-5/8 inches x 16-1/2 inches x 2-3/16 inches) excluding protrusions
- **CCU Control**: Control signals (camera, CCU control)
- **Camera (CCU) connection**: Control up to 12 cameras
- **Maximum Cable Length**: 50 m (164 ft)

#### AK-HVF70G
- **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**: 90 % or less
- **Weight**: Approx. 1.6 kg (approx. 3.53 lb) (without hood)
- **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)
- **Panel Size**: 177.8 mm (7.0 inches)
- **Number of Pixels**: 1024 pixel x 600 pixel (WSVGA)
- **Display Colors**: Approx. 16,200,000 colors
- **Operation Panel**: POWER switch x 1, MENU button x 1, SELECT dial x 1, Function buttons x 3
- **Connectors**: Camera I/F connector (D-Sub 29-pin x 1)

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

Unit: mm (inches)

AK-HVF70G

AK-HRV200G

AK-HCU200P/E/PS/ES

AK-MSU935A

AK-HRP935A

AK-HRP200G