HD Studio Camera

AK-HC5000
AK-HVF100
AK-HBU500
AK-HC5000
AK-UCU500
AK-HRP1005
AK-HRP1000

Panasonic BUSINESS

HDR
Superior usability for HD video production at 720p, 1080i or 1080p with high speed shooting capability and 24p production

AK-HC5000 HD Studio Camera allows for superior 1080p video & 4x high-speed shooting for vivid imaging for capturing exciting moments in sports and events.
AK-HC5000
HD Studio Camera
AK-HC5000GJ (Tajimi connector model)
AK-HC5000GSJ (LEMO connector model)

The state-of-the-art 3MOS sensors from constantly evolving EFP/ENG production camcorders are now available in a studio camera

1080p 4x high-speed shooting included as standard function*1

The AK-HC5000 camera system has a high-speed shooting function that adds rich expressions to video content production. High speed shooting at up to 240 fps is achieved with four interleaved 1080p 3G SDI outputs, compatible with leading slow motion playback servers.

Newly developed 2/3-type MOS sensor

High-image-quality video production is realized with the newly developed 2/3-type MOS sensor. (See below chart for the supported video format.)

List of supported formats*2

<table>
<thead>
<tr>
<th></th>
<th>HD (3G-SDI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1080/59.94p, 50p, 59.94i, 50i, 23.98p over 59.94i, 29.97PsF, 25PsF, 23.98PsF, 720/59.94p, 50p</td>
</tr>
<tr>
<td>High-Speed (3G-SDI x 4)</td>
<td>1080/239.76p, 200p, 239.76i, 200i</td>
</tr>
<tr>
<td>SD</td>
<td>480/59.94i, 576/50i</td>
</tr>
</tbody>
</table>

*1: To obtain the 1/4 slow effect, a device to separately record 1080/239.76p, 200p is necessary.
*2: AK-UCU500 Camera Control Unit (CCU) outputs 4x HD/HD/SD video.

Control via serial or IP mode

CCU, Serial Mode

AK-HC5000GJ/JSJ
Optical Fiber
AK-UCU500
Serial Connection
AK-HRP1000GJ
AK-HRP10005GJ

CCU, IP Mode

AK-HC5000GJ/JSJ
Optical Fiber
AK-UCU500
IP Connection (PoE Hub)
AK-HRP1000GJ
AK-HRP1005GJ

AK-HC5000GJ/JSJ
Optical Fiber
AK-UCL5000

* Image is simulated.

* Lens and viewfinder are optional.
AK-HC5000 Key Features

■ High-quality video and excellent operability
With the AK-UCUS500 Camera Control Unit (CCU), uncompressed long-distance transmission of 4K/HD video signals via optical fiber is supported. The AK-HRP1000GJ/1005GJ Remote Operation Panel (ROP) is equipped with a color LCD display that provides excellent visibility. In combination, this system achieves high-quality video and excellent operability. 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*1 by providing a local power supply at the camera head and using general-purpose single mode optical fiber. Between the CCU and the ROP, in addition to a dedicated serial line, IP connection via LAN cable is also supported.

■ High sensitivity and low noise
The AK-HC5000 is equipped with a 2/3-type 3MOS sensor, and it also has two shooting modes to choose from. In High Sense Mode, it achieves F10 59.94p and F11 50p high sensitivity and low noise with an S/N ratio of 60 dB or higher.

■ Skew reduction realized through high-speed scans
Building on the knowhow accumulated in Panasonic’s ENG camera experience, the skewing characteristic of MOS sensors has been reduced by reading out the MOS sensor signal at high speed.

■ Dynamic Range Stretch (DRS) function*3
The DRS function automatically suppresses blocked shadows and blown highlights. When dark and bright areas are mixed in the same scene, such as when looking outside from indoors, DRS can maintain a high level of gradation expression in dark, bright, and intermediate tones, thereby minimizing blocked shadows, blown highlights, and washed out colors. This makes it possible to obtain visually wide dynamic range video in real time.

■ Selectable gamma curves
In addition to the Film Rec Gamma functions (V-REC, F-REC) supporting digital film production, you can select the Filmlike 1/2/3 modes. They produce natural gradations and rich color reproduction with a film-like quality.

■ HDR (High Dynamic Range) compatibility HDR
This mode enables the camera to apply an alternative optical electro transfer function (OETF) to selected camera outputs so that the camera can provide a high dynamic range (HDR) image for capable displays or function in a complete HDR live broadcast system. HDR displays use their increased brightness and contrast capabilities to take advantage of the cameras full dynamic range to deliver compelling high contrast images with very bright highlights.

■ Shockless gain
It is possible to smoothly transition the image changes that occur when gain is changed. In addition, with the 0.1 dB step master gain adjustment function, you can fine tune the adjustments to match the scene being shot.

■ Diverse color correction functions
In addition to EBU and NTSC preset color matrix, camera users can save two custom specified linear matrix tables, and additionally tune the saturation and hue individual colors with 12-pole color correction system. Specific skin tones can also be adjusted in addition to the primary secondary and tertiary colors in the 12-pole system.

■ Skin Tone Detail Correction
Tone down wrinkles and blemishes in on air personalities to beautifully shoot natural skin tones. While designed to soften skin tones the skin tone detail feature can be applied to any hue phase so it could likewise be used to soften areas of other colors (such as green grass). The skin tone detail feature can define three independent skin tone ranges to manage different light levels or different people on camera. Skin-tone-get feature finds a specific color in frame to simplify the set up process.

* Images are simulated.
*1: Adverse conditions, additional patching and longer runs will require repeater devices. *2: For software supporting Chromatic Aberration Compensation (CAC) file, please download from “Software download” on Panasonic website: http://pro-av.panasonic.net/en/ *3: Only when in HD mode.
Servo control ND / CC filters
The cameras are equipped with filters for a variety of shooting environments. [ND filters] CAP, Through, 1/4, 1/16, 1/64 [CC filters] Cross, 3200 K, 4300 K, 6300 K, Diffusion

Focus assist functions
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). Lenses with auto focus and focus assist capabilities are also supported*1.

Focus assist function examples

Camera standalone output formats
For camera head output (HD SDI 1/HD SDI 2), it is possible to select 1080p, 1080i, and 720p.

Extensive video and data transmission (TRUNK) functions
Since video and data can be transmitted between the camera and a Camera Control Unit (CCU) using optical fiber cable alone, system expansion to match operation conditions is possible.
- HD SDI (CCU→camera) two lines, VBS (CCU→camera) two lines: Can be used for monitoring with prompter, fixed return or camera (studio floor monitor), etc.
- HD SDI (camera→CCU) one line*: This line can be used to transmit an additional video signal of a handheld or remote camera to the studio. Since the camera video input is equipped with a frame synchronizer, asynchronous video signals can also be used.
- LAN (1000BaseT)*2 one line: To be used to control external devices and remote cameras by IP protocol. Transmission of streaming video is also supported.
- DATA (RS422A or RS232C) two lines: Can be used to transfer lens and pedestal position data in a virtual system.

Detailed settings and functions optimized for operability
- Color temperature display and adjustment function (2000 K to 15000 K variable).
- Transmission of up to 10,000 m possible using single fiber.\footnote{3}
- It is possible to save camera settings, such as video adjustments, on an SD memory card. Firmware version upgrades are also supported.
- A lens file function to save flare and shading values.
- Support for IP streaming and IP control.
- The NewTek Software “NewTek AutoLink for Panasonic PTZ”\footnote{4}, which is available on the Internet, allows Panasonic professional cameras equipped with IP streaming to be automatically detected from NewTek TriCaster and IP series Video Mix Engine on the network, enabling direct use of IP streaming from the cameras with these NewTek products.
- DC12 V 2.5 A and 1.0 A output as a standard feature. This can be used as a power source for large lenses, prompters, and sub-monitors.
- There are four user buttons (enabling function selection) on the camera head and four on the viewfinder. They support rapid shooting by the camera operator.

Intercom connection
With two independent intercom lines, in addition to Intercom 1 and Intercom 2 switching, an Intercom 1 and 2 mix mode has been added and can be selected to observe the situation. With the Intercom front/rear switch and front volume, it is possible to adjust the intercom audio level even when the camera is being used from the shoulder.

Intercom Operation Panel

New slanted-line design improves mobility and operability
The functional layout of controls improves ease of use and operator performance. The low profile body design, along with the low center of gravity, enhances right side visibility and comfort for the operator. The shoulder pad can be in a 24 mm range so you can increase shooting stability by adjusting the balance when lens weight changes.

\footnote{1}{For the compatible lenses, please contact the manufacturer.}
\footnote{2}{Cannot be utilized when the camera system is UHD(4K) and HD high-speed mode is used.}
\footnote{3}{Adverse conditions, additional patching and longer runs will require repeater devices.}
\footnote{4}{For more details, please visit the following website (http://pro-av.panasonic.net/en/products/newtek_autolink/).}
Camera System

AK-UCU500
Camera Control Unit (CCU)

The same AK-UCU500 supports both the AK-UC3000 4K capable camera and the AK-HC5000 HD high speed camera, as do the other main camera accessories, so production rental companies have flexibility in preparing a camera rental or fly-pack.

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
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)*2 : 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.
*HS MODE*2 : 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)

Rear View

AK-HRP1000GJ
AK-HRP1005GJ
Remote Operation Panel (ROP)

Expand operation scope with two size options: a full operation panel and a simplified panel. These compact operation panels also support PoE*3 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*3, 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.

*R1: When power is supplied from CCU.
*R2: When Connected with AK-HC5000 HD Studio Camera.
*R3: Abbreviation of Power over Ethernet.
AK-HVF100GJ
22.9 cm (9 inches) LCD Color Viewfinder

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 pixels
- 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

*1: When connected to AK-HC5000.

AK-MSU1000GJ
Master Setup Unit (MSU)

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
- 7-inch Touch Panel LCD
  - Video monitoring function
- HD SDI Input (Monitoring) (1080i)
- Power DC12 V (DC10 V – DC17 V) or PoE+ (via PoE+ Hub)

AK-HBU500GJ
Build-up Unit

Enables use of large studio-use lens.
### 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 Switchable
  - Not available in some areas.

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

- **AG-CVF10G**
  - 87.6 mm (3.45 inches) Color HD EVF
  - Open one way for LCD monitor viewing

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

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

- **AW-PS551**
  - AC Adaptor

- **AJ-C10050G**
  - Remote Control Cable
  - [50 m / 164 feet]

- **SHAN-TM700**
  - Tripod Adapter

### System Configuration

- **AJ-MC700P**
  - Microphone

- **AJ-CVF50G/HVF21KG**
  - HD EVF

- **2/3-type 4K or HD Lens**

- **Camera**
  - AK-HC500

- **SD memory card**

- **Optical fiber multi Cable**
  - Max. 2,000 m

- **AK-HVF1000J**
  - 22.9 cm (9 inches) LCD Color Viewfinder

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

- **SD memory card**

- **Triop Adapter**
  - SHAN-TM700

- **SD memory card**

- **Serial**
  - **AK-C10050G**
    - Remote Control Cable
  - **AK-MCU1000GJ**
    - Master Setup Unit

- **Camera Control Unit**

- **2/3-type 4K or HD Lens**

- **AJ-HBV5000GJ**
  - Build-up Unit

- **HD EVF**
  - AG-CVF10G
    - 87.6 mm (3.45 inches) Color HD EVF
    - Open one way for LCD monitor viewing
  - AG-CVF15G
    - 87.6 mm (3.45 inches) Color HD EVF
    - Open two ways for LCD monitor viewing
  - AJ-CVF50G
    - 38.1 mm (1.5 inches) HD EVF

- **Remote Operation Panel**

- **Serial**
  - **AK-HRF5000SU**
    - Remote Operation Panel
  - **AK-HRF1000SU**
    - Remote Operation Panel

- **Camera System**

*1: For software supporting Chromatic Aberration Compensation (CAC) file, please download from "Software download" on Panasonic website: http://pro-av.panasonic.net/en/

*2: A power cable is included with the AC Adaptor.

*3: Not available in some areas.

*4: With the use of a serial remote control cable AJ-C10050G, power for ROP is supplied from a CCU.

*5: When AK-MSU1000 is connected to AK-UCU500 via serial cable, AW-PS551 or PoE HUB is required.
## Specifications

### AK-HC5000GJ/HC5000GSJ

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td>DC 12 V (when using an external power supply)</td>
</tr>
<tr>
<td></td>
<td>AC 240 V, 50/60 Hz (when AK-UC500P/AK-UC500PS/AK-UC500SE is connected)</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>119 W (maximum, when connecting to an external 12 V)</td>
</tr>
<tr>
<td></td>
<td>including supply to an externally connected devices)</td>
</tr>
<tr>
<td></td>
<td>360 W (maximum, when AK-UC500P/AK-UC500PS/AK-UC500SE is connected)</td>
</tr>
<tr>
<td></td>
<td>including supply to an externally connected devices)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>–10 °C to 45 °C (14°F to 113°F)</td>
</tr>
<tr>
<td></td>
<td>(Preheating required under a temperature 0 °C (32 °F) or below)</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>Operating Humidity</strong></td>
<td>85% or less (relative humidity)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 4.4 kg (9.70 lbs.) (body only, excluding the accessories)</td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>Body only 151 mm x 267 mm x 371.5 mm</td>
</tr>
<tr>
<td></td>
<td>(5-31/32 inches x 10-17/32 inches x 14-21/32 inches) (excluding protrusions)</td>
</tr>
<tr>
<td><strong>Pickup Device</strong></td>
<td>2/3-type, 2.2 million pixels, MOS x 3</td>
</tr>
<tr>
<td><strong>Optical Filter</strong></td>
<td>CC: 3200 K, 4300 K, 6300 K, Cross, Diffusion</td>
</tr>
<tr>
<td></td>
<td>ND: CAP, Clear, 1/4, 1/16, 1/64</td>
</tr>
<tr>
<td><strong>Lens mount</strong></td>
<td>2/3-type bayonet</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>Two shooting modes</td>
</tr>
<tr>
<td></td>
<td>[HIGH SENS]: F11 (59.94 Hz)/F12 (50 Hz)</td>
</tr>
<tr>
<td></td>
<td>[NORMAL]: F8 (59.94 Hz)/F9 (50 Hz)</td>
</tr>
<tr>
<td></td>
<td>2000 lx, 3200 K, when white reflectivity is 89.9%</td>
</tr>
<tr>
<td><strong>Horizontal Resolution</strong></td>
<td>1000 TV lines or above (center)</td>
</tr>
<tr>
<td><strong>S/N</strong></td>
<td>60 dB or above</td>
</tr>
<tr>
<td><strong>Horizontal Modulation</strong></td>
<td>50% or above (27.5 MHz)</td>
</tr>
<tr>
<td><strong>Gain switching</strong></td>
<td>[NORMAL]: –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
</tr>
<tr>
<td></td>
<td>[HIGH SENS]: –6, –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36</td>
</tr>
<tr>
<td><strong>Shutter speed</strong></td>
<td>[59.94Hz]: [59.94Hz] mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000</td>
</tr>
<tr>
<td></td>
<td>[29.97p]: mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000</td>
</tr>
<tr>
<td></td>
<td>[23.98p]: mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000</td>
</tr>
<tr>
<td></td>
<td>[50i]: [50p] mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</td>
</tr>
<tr>
<td></td>
<td>[25p] 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>
<tr>
<td><strong>&lt;HD SDI1&gt; terminal</strong></td>
<td>BNC x 1</td>
</tr>
<tr>
<td></td>
<td>HD (3G/1.5G): 0.8 V [p-p], 75 Ω</td>
</tr>
<tr>
<td><strong>&lt;HD SDI2&gt; terminal</strong></td>
<td>BNC x 1</td>
</tr>
<tr>
<td></td>
<td>HD (3G/1.5G): 0.8 V [p-p], 75 Ω</td>
</tr>
<tr>
<td><strong>&lt;AUX&gt; terminal</strong></td>
<td>BNC x 1</td>
</tr>
<tr>
<td></td>
<td>Functions as &lt;HD TRUNK&gt; terminal by switching the setting in the menu</td>
</tr>
<tr>
<td></td>
<td>&lt;HD TRUNK&gt;: HD (1.5G)</td>
</tr>
<tr>
<td></td>
<td>&lt;PROMPTER2&gt;: VBS signal 1 V [p-p], 75 Ω</td>
</tr>
<tr>
<td><strong>&lt;G/L IN/PROMPTER OUT&gt; terminal</strong></td>
<td>BNC x 1</td>
</tr>
<tr>
<td></td>
<td>&lt;G/L IN&gt;: Tri-level SYNC or BB (black burst)</td>
</tr>
<tr>
<td></td>
<td>&lt;PROMPTER OUT&gt;: VBS signal 1 V [p-p], 75 Ω</td>
</tr>
<tr>
<td></td>
<td>Functions as &lt;G/L IN&gt; when standalone, and as</td>
</tr>
<tr>
<td></td>
<td>&lt;PROMPTER OUT&gt; when AK-UC500P/AK-UC500PS/AK-UC500SE is connected</td>
</tr>
<tr>
<td><strong>&lt;MIC 1&gt; terminal</strong></td>
<td>XLR x 1, 3-pin</td>
</tr>
<tr>
<td></td>
<td>&lt;LINE&gt;:/&lt;MIC&gt;/&lt;48V&gt; switchable For &lt;MIC&gt;,</td>
</tr>
<tr>
<td></td>
<td>&lt;FRONT&gt;:/&lt;REAR&gt; switchable</td>
</tr>
<tr>
<td></td>
<td>&lt;LINE&gt;: 0 dBu, +4 dBu menu selection available</td>
</tr>
<tr>
<td></td>
<td>&lt;MIC&gt;: –60 dBu, –40 dBu, or –20 dBu menu can be selected</td>
</tr>
<tr>
<td><strong>&lt;MIC 2&gt; terminal</strong></td>
<td>XLR x 1, 3-pin</td>
</tr>
<tr>
<td></td>
<td>&lt;LINE&gt;/:&lt;MIC&gt;/&lt;48V&gt; switchable For &lt;MIC&gt;,</td>
</tr>
<tr>
<td></td>
<td>&lt;FRONT&gt;:/&lt;REAR&gt; switchable</td>
</tr>
<tr>
<td></td>
<td>&lt;LINE&gt;: 0 dBu, +4 dBu menu selection available</td>
</tr>
<tr>
<td></td>
<td>&lt;MIC&gt;: –60 dBu, –40 dBu, or –20 dBu menu can be selected</td>
</tr>
</tbody>
</table>
**AK-MSCU1000GJ**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Power Supply</th>
<th>12 V DC (DC input power: 10 V - 16 V DC)</th>
<th>42 V - 57 V DC (PoE+ power supply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>1.6 A (Power)</td>
<td>0.6 A (PoE+ power)</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (4°F to 104°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>90% or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20°C to 60°C (4°F to 140°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 4.0 kg (8.82 lb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>482 mm x 222 mm x 81.5 mm (18-3/16 x 8-3/4 x 3-17/32 inches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment Functions</td>
<td>Scene file, ND filter, CC filter, Color temperature (COLOR TEMP), Master gain (MASTER GAIN), Shutter (SHUTTER), Master pedestal (MPED), Iris (IRIS), Camera selection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCU Control</td>
<td>RS-422 or IP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Cable Length</td>
<td>When CCU connected: 50 m (164 ft)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AK-HVF1000GJ**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Power Supply</th>
<th>DC 12 V (supplied from camera or XLR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>18 W</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 45°C (32°F to 113°F)</td>
<td></td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>10% - 85% (no condensation)</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20°C to 60°C (-4°F to 140°F)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 2.6 kg (5.73 lbs) (not including hood) / Approx. 3.0 kg (6.61 lbs) (including hood)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>340 mm x 234 mm x 213 mm (13-13/32 inches x 9-7/32 inches x 8-7/8 inches)</td>
<td></td>
</tr>
<tr>
<td>Display Panel</td>
<td>9.0 inches</td>
<td></td>
</tr>
<tr>
<td>Number of Pixels</td>
<td>1920 x 1080 (FHD)</td>
<td></td>
</tr>
<tr>
<td>Display Color</td>
<td>Approx. 16.77 million colors</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>&lt;POWER&gt; switch, &lt;MENU&gt; button, &lt;SELECT&gt; dial button, &lt;F1&gt;&lt;F2&gt;&lt;F3&gt;&lt;F4&gt; buttons, &lt;BRIGHT&gt; knob, &lt;CONTRAST&gt; knob, &lt;PEAKING&gt; knob, &lt;INPUT&gt; switch</td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td>Camera I/F connector (D-sub 29 pins x 1) / SDI IN connector / BNC x 1 / DC IN connector (XLR 4 pins x 1)</td>
<td></td>
</tr>
<tr>
<td>Supported Signal Format</td>
<td>SDI: 1080/59.94i, 1080/50p, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p</td>
<td></td>
</tr>
</tbody>
</table>

**AK-HBU500GJ**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Power Supply</th>
<th>12 V DC (when external power is supplied)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>70 W (when external power is supplied)</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-10°C to 45°C (14°F to 113°F)</td>
<td></td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>85% or less (relative humidity)</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20°C to 60°C (4°F to 140°F)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 12.8 kg (28.22 lb) (unit only)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>350 mm x 417 mm x 510 mm (13-13/32 inches x 20-1/16 inches x 20-1/16 inches)</td>
<td></td>
</tr>
<tr>
<td>Camera Number Display</td>
<td>1 to 15 (depending on system settings)</td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>70 W (when external power is supplied)</td>
<td></td>
</tr>
</tbody>
</table>

**AK-HRP1000GJ**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Power Supply</th>
<th>12 V DC (Power supply from camera: 10 V - 16 V DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>0.51 A (Power supply from camera: 10 V - 16 V DC)</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>90% or less</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20°C to 60°C (4°F to 140°F)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 1.7 kg (3.75 lb)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>102 mm x 345 mm x 113 mm (4 inches x 13-16/16 inches x 4-7/16 inches)</td>
<td></td>
</tr>
<tr>
<td>Camera/CCU Control</td>
<td>Control signals (camera, CCU control)</td>
<td></td>
</tr>
<tr>
<td>Maximum Cable Length</td>
<td>When camera connected: 20 m (65.7 ft)</td>
<td></td>
</tr>
</tbody>
</table>

**AK-MSCU1000GJ**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Power Supply</th>
<th>12 V DC (Power supply from camera: 10 V - 16 V DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>0.15 A (Power supply from camera: 10 V - 16 V DC)</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>90% or less</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20°C to 60°C (4°F to 140°F)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Appro. 1.5 kg (3.31 lb)</td>
<td></td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>12 mm x 355 mm x 124 mm (4 inches x 14-1/4 inches x 4-7/8 inches)</td>
<td></td>
</tr>
<tr>
<td>Camera/CCU Control</td>
<td>Control signals (camera, CCU control)</td>
<td></td>
</tr>
<tr>
<td>Maximum Cable Length</td>
<td>When camera connected: 50 m (164 ft)</td>
<td></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 [2160/23.98PsF], [2160/23.98PsF], [1080/23.98PsF], or [1080/23.98PsF].
4. Can be provided from CCU
Please refer to the latest Non-linear Compatibility Information, P2 Support, Download and Service Information, etc. at the following Panasonic web site.

Argentina
+54 11 4122 7200
Australia
+61 (0) 2 9491 7400
Brazil
+55 11 3889 4035
Canada
+1 905 624 5010
China
+86 10 6515 8828
Hong Kong
+852 2313 0888
Czech Republic
+420 (0) 903 447 757
Denmark
+45 43 20 08 57
Egypt
+20 2 2393 8151
Finland, Latvia, Lithuania, Estonia
+358 (9) 521 52 53
France
+33 (0) 1 47 91 64 00
Germany, Austria, Switzerland
+49 (0) 6103 313887
Greece
+30 210 96 92 300
Hungary
+36 (1) 382 60 60
India
+91 11 860 425 1860
Indonesia
+65 6277 7284
Iran
+98 21 2271 463
(Panasonic Office)+98 218879 1102
(Vida)+98 21 2271 463
Italy
+39 02 6788 367
Jordan
+962 6 5859801
Kazakhstan
+7 727 298 0891
Korea
+82 2 2106 6641
Kuwait
+96 522431385
Lebanon
+96 11 665557
Malaysia
+60 3 7809 7888
Mexico
+52 55 5488 1000
Mongolia
+976 70115577
Netherlands, Belgium
+31 73 640 2729
New Zealand
+64 9 272 0100
Norway
+47 67 91 78 00
Pakistan
+92 21 111 567 111
Palestine
+972 2 2988750
Panama
+507 229 2955
Panasonic
+65 6277 7284
Philippines
+65 6277 7284
Poland
+48 (22) 338 1100
Portugal
+351 21 425 77 04
Romania, Albania, Bulgaria, Macedonia
+40 (0) 739 164 387
Russia & CIS
+7 495 980 4206
Saudi Arabia
+966 (1) 4790 499
Singapore
+65 6277 7284
Slovak Republic, Croatia, Serbia, Bosnia,
Montenegro, Slovenia
+421 (0) 903 447 757
South Africa
+27 11 3131622
Spain
+34 (93) 425 93 00
Sweden
+46 (8) 680 26 41
Taiwan
+886 2 2227 6214
Thailand
+662 731 8888
Turkey
+90 216 579 3700
U.A.E. (for All Middle East)
+971 4 8862142
Ukraine
+380 44 4903437
U.K.
+44 (0) 1344 70 69 13
U.S.A.
+1 877 803 8492
Vietnam
+65 6277 7284