8K Multi-Purpose Camera

8K ROI (Region of Interest) Camera Capable of Providing Four Different HD Videos from 8K Image

- Features an 8K full-size CMOS image sensor.
- Up to four separate HD videos can be cropped from a high-resolution, wide-angle 8K image, and each cropped image can be panned, tilted and zoomed individually.
- Automatic wide-angle distortion correction function removes, in real time, distortion of images cropped from the periphery, thus realizing natural-looking images.
- Cropping frames position can be preset.
- Up to eight 8K Multi-Purpose Camera units can be linked for cropping a maximum of 32 different HD videos.
- A recommended remote controller can be used for the pan, tilt and zoom control of cropped images.
- Remote Operation Panel (optional, AK-HRP1000GJ*/HRP1005GJ*) can be used for the adjustment of camera image quality.
- Framing Control Software*2 features an easy-to-use GUI operation.
- The compact, lightweight, Multi-Purpose Camera allows space-saving, flexible setup at any desired angle.

8K ROI Camera System
(scheduled for release in July 2019)

8K Multi Purpose Camera
AK-SHB800GJ (LC connector model) NEW
AK-SHB800PSJ (ST connector model) NEW

Image Processing Unit
AK-SHU800EJ (LC connector model) NEW
AK-SHU800PSJ (ST connector model) NEW

Software Key
AK-SFC101 NEW

Single 8K ROI camera serves as four HD cameras to improve operational efficiency and reduce operating costs in live event and sports application.

![Diagram of 8K ROI Camera System](image)

Four HD videos can be cropped from within an 8K image.

ROI stands for Region of Interest. An 8K ROI camera can be set with a maximum of four crop areas to obtain an HD image from each of the crop areas. Pan, tilt and zoom operations can be used on each crop area, so a single 8K ROI camera serves as four HD cameras. It improves acquisition efficiency in live and sports application. The 8K ROI camera contributes to the reduction of camera setup, relocation and transport costs. It also eliminates the need to take up audience seats for the setup of multiple cameras.

![Application example of the 8K ROI camera system (1 camera, live stage recording)](image)
## AK-SHB800GJ / AK-SHB800PSJ

### General
- **Power**: DC12 V (DC11 V - 17 V)
- **Weight**: Approx. 4.0 kg (8.82 lbs)
- **Dimensions (W x H x D)**: 180 mm x 190 mm x 177 mm (7-1/8 inches x 7-1/2 inches x 7 inches) (excluding protrusions)
- **Sensor**: Full size, MOS x 1
- **Lens Mount**: EF
- **ND Filter**: CLEAR, 1/4, 1/16, 1/64
- **Function**: ROI, HDR (HLG), BT.2020 supported

### AK-SHU800EJ / AK-SHU800PSJ

### General
- **Power**: AC 100 V - 240 V, 50 Hz/60 Hz
- **Weight**: Approx. 14 kg (30.86 lbs)
- **Dimensions (W x H x D)**: 424 mm x 130 mm x 401 mm (16-3/4 inches x 5-1/8 inches x 15-13/16 inches) (3U rack mount size, excluding protrusions)
- **Output Format**: 59.94 Hz: 4320/59.94p, 2160/59.94p, 1080/59.94p, 1080 (crop)/59.94p, 1080/59.94i, 720/59.94p, 720 (crop)/59.94p
  - 50 Hz: 4320/50p, 2160/50p, 1080/50p, 1080 (crop)/50p, 1080/50i, 720/50p, 720 (crop)/50p

### Linkage of multi-camera/multi-angle crop frames

A multiple of 8K Multi-Purpose Camera units (maximum of 8 units) can be connected and operated as one integrated system. By setting one crop area in the main frame and linking it to other crop areas, pan, tilt and zoom on the multiple crop images operate in link with the panning, tilting and zooming on the main frame. This allows improving operational efficiency in multi-camera/multi-angle recording or broadcasting.

### Automatic real-time correction of wide-angle distortion

This function automatically corrects, in real time, wide-angle distortion of images cropped from the image periphery away from the center image. This results in natural-looking videos as if the camera images were individually panned or tilted.

### Sample images after automatic wide-angle distortion correction

![Sample images after automatic wide-angle distortion correction](image)

*The pictures are images for explaining functions.

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**Optional Accessories**

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

* Compatibility scheduled to be provided from October 2019.

See page 12 for details.

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**AK-SHU800 Rear Panel**

* This picture is for LC connector model. There are other versions for ST connector model.
AK-UB300GJ

4K Multi Purpose Camera supporting simultaneous output in UHD and HD and equipped with a 2/3 type lens mount

- Two sensitivity modes can be selected (high sensitivity mode/standard mode).
- Equipped with cropping function for selecting up to three setting areas and capturing the desired locations.
- Equipped with haze reduction function.
- Transmission with a single cable is possible when an existing output board (3G x 4) is replaced with a 12G or 3G TICO UHD output board.
- Equipped with 4K focus assist function and HD cropping marker.
- Equipped with flash band compensation function and scan reverse function.
- Equipped with a wide range of color correction functions (linear matrix, 12-axis color correction, skin color correction, etc.).
- Dynamic Range Stretch (DRS) automatically optimizes contrast.
- The knee/black gamma functions for HDR video enable contrast adjustment of light areas, dark areas, and everything in-between.
- In addition to selecting HDR/SDR output for UHD, HDR and SDR can be both output at the same time for HD. Simultaneous broadcasting is also supported.

* TALLY lights can only be controlled by IP control.

[Multi Purpose Camera Application Examples]

Application :
Sports Broadcasting

High speed and accurate camera operation for sports shooting

The AK-UB300GJ Multi-Purpose Camera for high-resolution and low-moiré shooting and the AW-PH400 indoor pan-tilt head for high speed (90°/s) and accurate pan-tilt movement powerfully backs up skillful camerawork required for sports broadcasting.

*1: AW-CA15H29G is not required when a remote operation panel (ROP) is directly connected to AK-UB300GJ.
* Some functions are restricted when AW-PH400 Pan-Tilt Head is connected.
### Pan-Tilt Head

<table>
<thead>
<tr>
<th>Model No.</th>
<th>AW-PH400</th>
<th>AW-PH650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Power supply / Power consumption</td>
<td>AC 120 V (60 Hz), AC 220 to 240 V (50/60 Hz) / 145 W</td>
<td>AC 120 V (60 Hz), AC 220 to 240 V (50 Hz) / 120 W</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 10.2 kg (Approx. 22.5 lb)</td>
<td>Pan-tilt Head: Approx. 19 kg (Approx. 41.9 lb) Housing: Approx. 18 kg (Approx. 39.7 lb) AC adaptor: Approx. 4.2 kg (Approx. 9.3 lb)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>315 mm x 534 mm x 188 mm (12-3/8 inches x 21 inches x 7-3/8 inches)</td>
<td>Pan-tilt Head: 237 mm x 511 mm x 213 mm (9-5/16 inches x 20-1/8 inches x 8-3/8 inches) Housing: 246 mm x 314 mm x 685 mm (9-11/16 inches x 12-3/8 inches x 26-15/16 inches) AC adaptor: 200 mm x 131 mm x 280 mm (7-7/8 inches x 5-3/16 inches x 11-1/6 inches)</td>
</tr>
<tr>
<td>Maximum load (including with a camera, a lens and a teleprompter)</td>
<td>Approx. 8 kg (Approx. 17.6 lb)</td>
<td>Approx. 10 kg (Approx. 22.0 lb)</td>
</tr>
<tr>
<td>Pan/tilt angle (maximum pan/tilt speed)</td>
<td>Pan: Approx. ±200 ° (90°/s) Tilt: Approx. ±150 ° (90°/s)</td>
<td>Pan: Approx. ±180 ° (20°/s) Tilt: Approx. ±50 ° to Approx. -155 ° (20°/s)</td>
</tr>
<tr>
<td>Stop accuracy</td>
<td>under ±30 arcseconds (0.008°)</td>
<td>under ±5 arcminutes (0.08°)</td>
</tr>
<tr>
<td>Quietness</td>
<td>under NC30 (at 30°/s)</td>
<td>under NC40 (at 20°/s)</td>
</tr>
<tr>
<td>Maximum control distance (when using AW-RP50)</td>
<td>1500 m</td>
<td>1000 m</td>
</tr>
<tr>
<td>Interface RS232C</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maximum preset memories</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Applicable lens</td>
<td>ENG lenses, MD lenses</td>
<td>ENG lenses, MD lenses</td>
</tr>
<tr>
<td>Tally light</td>
<td>Standard equipment (removable)</td>
<td>-</td>
</tr>
<tr>
<td>Telemprompter output</td>
<td>Standard equipment</td>
<td>-</td>
</tr>
<tr>
<td>Accessory</td>
<td>Camera cable (Approx. 0.6 m)</td>
<td>Multi cable (Approx. 10 m) Camera cable (Approx. 0.4 m) Camera housing</td>
</tr>
<tr>
<td>AC Adaptor/Power Cable</td>
<td>AC adaptor built in (power cable (2 m included))</td>
<td>AC adaptor DC power cable (Approx. 30 m)</td>
</tr>
</tbody>
</table>

*When using AW-PH400 and AW-PH650 with AK-UB300GJ, please contact your regional dealer.*

### Protocol Converter

**AW-IF400G**

Using the AW-RP50, the AW-PH400 indoor pan-tilt head can be operated. The maximum operation distance can be extended to 1,500 m.

- **Power supply:** DC10.8 V to DC16 V
- **Power consumption:** 1.5 W
- **Weight:** Approx. 0.4 kg (Approx. 0.88 lb)
- **Dimensions (W x H x D):** 145 mm x 30 mm x 85 mm (5-11/16 inches x 1-3/8 inches x 3-3/8 inches) (excluding protrusions)

### Cable

**Cable for Indoor Pan-Tilt Head Connection**

**AW-CA15H29G**

- **Length:** 0.7 m
- **Supported Camera:** AK-UB300GJ
- **Supported Pan-Tilt Head:** AW-PH400
- **Supported Controller:** AW-RP50

### Optional Products

<table>
<thead>
<tr>
<th>Remote Camera Controller</th>
<th>Remote Operation Panel (ROP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW-RP50</td>
<td>AK-HRP1000GJ</td>
</tr>
<tr>
<td>Remote Operation Panel (ROP)</td>
<td>AK-HRP1005GJ</td>
</tr>
<tr>
<td>AK-HRP200G</td>
<td></td>
</tr>
</tbody>
</table>
AK-UB300GJ

General

Power
DC12 V (DC11 V to 17 V)

Power Consumption
40 W (body only, when 3G-SDI x 4 is output)
60 W (maximum power when all accessories are connected and each output terminal is outputting at maximum)

Ambient Operating Temperature
−10 °C to 45 °C (14 °F to 113 °F)
(Preheating required under a temperature 0 °C [32 °F] or below)

Storage Temperature
−20 °C to 60 °C (−4 °F to 140 °F)

Ambient Operating Humidity
85% or less (relative humidity)

Weight
Approx. 1.6 kg (3.53 lbs.) (body only)

Dimensions (W x H x D)
Body only 110 mm x 140 mm x 160 mm
(4-11/32 inches x 5-17/32 inches x 6-5/16 inches)
(excluding protrusions)

Camera Unit

Pickup Device
11 million pixels, MOS x 1

Lens Mount
2/3-type bayonet

ND filter
CLEAR, 1/4, 1/16, 1/64

Gain
−6, −3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36 dB

Total Gain
Selectable from 6, 12, 18, 24 dB

Shutter Speed
[
[60p][59.94i][59.94p] mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds
[29.97p] mode: 1/48, 1/50, 1/60, 1/86, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds
[23.88p] mode: 1/48, 1/50, 1/60, 1/86, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds
[50i][50p] mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds
[25p] mode: 1/48, 1/50, 1/60, 1/86, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds
180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg

Synchro Scan Shutter
[
[60p][59.94i][59.94p] mode: 1/61.7 to 1/6130 seconds
[29.97p] mode: 1/30.9 to 1/2600 seconds
[23.88p] mode: 1/24.7 to 1/2880 seconds
[50i][50p] mode: 1/51.5 to 1/6250 seconds
[25p] mode: 1/25.7 to 1/3130 seconds

Shutter Open Angle
3 deg to 359.5 deg (can be set in 0.5 deg steps)

Sensitivity
[NORMAL]: F6 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i)/F7 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)
[HIGH SENS]: F10 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i)/F11 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)

Minimum Subject Brightness
Approx. 0.01 lx (50%, F1.4, +36 dB [gain], +24 dB (total gain), 29.97p/59.94 Hz, 25p/50 Hz)

Image S/N
60 dB (standard) ([DNR] = [ON])

Horizontal Resolution
UDH: 1000 TV lines or above (center)
UHD: 1800 TV lines or above (center)

Output format
UHD
3840 x 2160/50p, 3840 x 2160/59.94p, 3840 x 2160/25p, 3840 x 2160/25.97p, 3840 x 2160/23.98p, 3840 x 2160/23.98PsF, 3840 x 2160/25p, 3840 x 2160/25.97p, 3840 x 2160/23.98p

HD
1080/60p, 1080/59.94p, 1080/59.94i, 1080/50p, 1080/50i, 1080/59.94p, 1080/23.98PsF, 1080/23.98p (over 59.94i), 1080/59.94i, 1080/50p, 1080/50i, 1080/59.94p, 1080/23.98PsF, 1080/23.98p

Video Input/Output

[HD-SDI OUT 1] Terminal
BNC x 1  3G/1.5G HD-SDI: 0.8 V [p-p], 75 Ω

[HD-SDI OUT 2] Terminal
BNC x 1  1.5G HD-SDI: 0.8 V [p-p], 75 Ω

[ULTRA HD-SDI OUT 1] Terminal
BNC x 1  3G/1.5G HD-SDI: 0.8 V [p-p], 75 Ω

[ULTRA HD-SDI OUT 2] Terminal
BNC x 1  3G/1.5G HD-SDI: 0.8 V [p-p], 75 Ω

[ULTRA HD-SDI OUT 3] Terminal
BNC x 1  3G/1.5G HD-SDI: 0.8 V [p-p], 75 Ω

[ULTRA HD-SDI OUT 4] Terminal
BNC x 1  3G/1.5G HD-SDI: 0.8 V [p-p], 75 Ω

Other Input/Output

[G/L IN] Terminal
BNC x 1, 1.0 V [p-p], 75 Ω

[I/P] Terminal
D-SUB x 1, 15-pin

[TALLY OUT] Terminal
4-pin x 1

[IRIS] Terminal
12-pin x 1

[ZOOM/FOCUS] Terminal
12-pin x 1

[LAN] Terminal
100BASE-TX/10BASE-T

[DC IN] Terminal
XLR x 1, 4-pin, DC12 V (DC11 V – 17 V)

Dimensions

Unit: mm (inches)

(Front)

78.2 (3-3/32)
110 (4-11/32)

(Side)

48 (1-29/32)

(Top)

3-1/4-20UNC (Tapped Hole for Tripod)

(Bottom)

3-1/4-20UNC (Tapped Hole for Tripod)

20 (1-3/16)

[14x26]26
### Pin Configuration

**DC IN connector**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UNREG GND</td>
</tr>
<tr>
<td>2</td>
<td>Not used</td>
</tr>
<tr>
<td>3</td>
<td>Not used</td>
</tr>
<tr>
<td>4</td>
<td>+12 V</td>
</tr>
</tbody>
</table>

**Tally output connector**

The R tally and G tally signals are output from this connector.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>R TALLY (open collector)</td>
</tr>
<tr>
<td>3</td>
<td>G TALLY (open collector)</td>
</tr>
<tr>
<td>4</td>
<td>UNREG+12 V (max. 0.5 A)</td>
</tr>
</tbody>
</table>

**IRIS connector**

Used to connect the IRIS control cables of the lens.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Return control</td>
</tr>
<tr>
<td>2</td>
<td>REC-START/STOP</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>Iris manual switching</td>
</tr>
<tr>
<td>5</td>
<td>Iris control</td>
</tr>
<tr>
<td>6</td>
<td>UNREG +12 V (max. 0.75 A)</td>
</tr>
<tr>
<td>7</td>
<td>IRIS-POSI</td>
</tr>
<tr>
<td>8</td>
<td>IRIS-G-MAX</td>
</tr>
<tr>
<td>9</td>
<td>EXT-POSI</td>
</tr>
<tr>
<td>10</td>
<td>Zoom position information</td>
</tr>
<tr>
<td>11</td>
<td>LENS-RXD</td>
</tr>
<tr>
<td>12</td>
<td>LENS-TXD</td>
</tr>
</tbody>
</table>

**Zoom/focus connector**

Used to connect the Zoom/focus control cables of the lens.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Focus control switching</td>
</tr>
<tr>
<td>2</td>
<td>Zoom control switching</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>Not used</td>
</tr>
<tr>
<td>5</td>
<td>Not used</td>
</tr>
<tr>
<td>6</td>
<td>Not used</td>
</tr>
<tr>
<td>7</td>
<td>Not used</td>
</tr>
<tr>
<td>8</td>
<td>Focus control</td>
</tr>
<tr>
<td>9</td>
<td>Zoom control</td>
</tr>
<tr>
<td>10</td>
<td>Not used</td>
</tr>
<tr>
<td>11</td>
<td>COM+V voltage</td>
</tr>
<tr>
<td>12</td>
<td>COM-V voltage</td>
</tr>
</tbody>
</table>

* Use the external power supply with correct polarity.

**IF connector**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>Not used</td>
</tr>
<tr>
<td>3</td>
<td>Not used</td>
</tr>
<tr>
<td>4</td>
<td>TX_N (EIA422)/TXD (EIA232) output</td>
</tr>
<tr>
<td>5</td>
<td>RX_N (EIA422)/RXD (EIA232) input</td>
</tr>
<tr>
<td>6</td>
<td>Not used</td>
</tr>
<tr>
<td>7</td>
<td>G/L signal input</td>
</tr>
<tr>
<td>8</td>
<td>Not used</td>
</tr>
<tr>
<td>9</td>
<td>TX_P (EIA422) output</td>
</tr>
<tr>
<td>10</td>
<td>RX_P (EIA422) input</td>
</tr>
<tr>
<td>11</td>
<td>GND</td>
</tr>
<tr>
<td>12</td>
<td>Not used</td>
</tr>
<tr>
<td>13</td>
<td>GND</td>
</tr>
<tr>
<td>14</td>
<td>GND</td>
</tr>
<tr>
<td>15</td>
<td>GND</td>
</tr>
</tbody>
</table>

**Rear View**

[Image of Rear View]

- **HR10A-7R-4SC (73) (Hirose Electric Co.)**
- **HR10A-10R-12SC (71) (Hirose Electric Co.)**
- **HA16RA-4P(77) (Hirose Electric Co.)**
- **D02-M15SAG-20L9E (Japan Aviation Electronics Industry)**
- **HR10A-10R-12PC (71) (Hirose Electric Co.)**