

**Panasonic**  
**CONNECT**

**AK-PLV100GSJ**  
4K Studio Camera

New Concept PL-mount Studio Camera



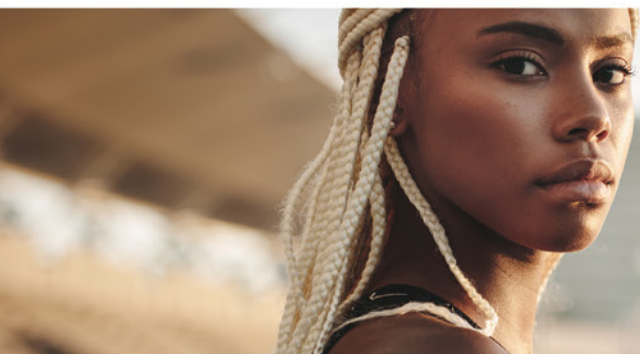
**4K**  
PROFESSIONAL  
**HDR**

**12GSDI**  
**ST 2110**

**Super35**

# 4K PL-mount Studio Camera with Shallow Depth of Field for Live Cinematic Video

As video picture quality continues to be improved, the market is demanding increasingly engaging and captivating coverage of live sports and other events. In response, Panasonic announces an all-new studio camera for live cinematic video—the AK-PLV100GSJ—a 4K PL-mount studio camera equipped with a 5.7K Super 35 mm image sensor for creating diverse video expressions with unprecedented freedom.



## For **Studio** Camera Users Inspiring cinematic video with shallow depth of field

Panasonic's new PL-mount 4K studio camera with a 5.7K Super 35 mm image sensor is powerfully expressive thanks to its shallow depth of field. It provides the visual beauty of a cinema camera without sacrificing studio-camera operability. What's more, it is fully compatible with Panasonic's AK-UCU600/HCU250 Camera Control Unit (CCU). Simply replace the camera head of an existing system with the AK-PLV100GSJ and start creating powerful cinematic live video.

## For **Cinema** Camera Users Simplified System for Live Cinematic Video

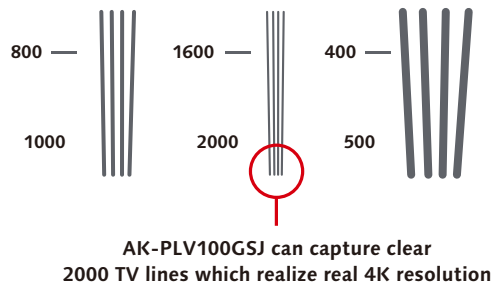
Live production with a cinema camera normally requires the addition of many external devices, resulting in time-consuming preparation and increased risk of operational breakdowns due to system complexity. AK-PLV100GSJ is a super35 image sensor camera with studio camera's capabilities which makes the simplest system and requires no accessories, just like a studio camera. In addition to it, AK-PLV100GSJ outputs 12G/3G directly from its camera head to eliminate the need for a CCU. Forget those large systems—simply show up with your AK-PLV100GSJ for cinematic-level live production!



# Diverse Functions for Cinematic Live

## 5.7K Super 35 mm Image Sensor

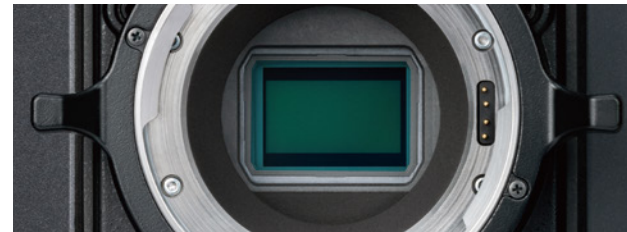
The AK-PLV100GSJ's Super 35 mm (24.60 mm x 12.97 mm) image sensor achieves breathtaking 5.7K resolution, delivering more than 5.4K pixels in 16:9, nearly double that of UHD. By starting with a higher native resolution, the 5.7K sensor achieves a higher resolving image when down-sampled to UHD/HD/720p. In addition, increased color information results in a finer, more accurate finished image.



## Dual Native ISO\*

The large-format Super 35 mm image sensor enables high-sensitivity shooting at F11 (59.94 Hz) or F12 (50 Hz). Dual Native ISO,\* first introduced in Panasonic's VariCam lineup of cinema cameras, is also supported to allow the image sensor to be read in a fundamentally different way, extracting more information without degrading the image quality. Switching from standard to high sensitivity produces almost no increase in noise or other artifacts. Dual Native ISO gives a greater ability to shoot in almost any lighting environment.

\* With 3Q CY2023 upgrade

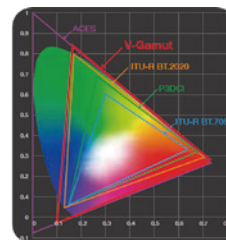
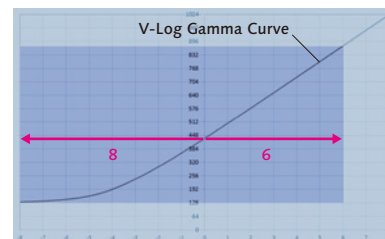


Super35

## 14-stop Dynamic Range and Rich Tones with V-Log\*

The ability to capture accurate colors and rich color tones is a must to create stunning image. AK-PLV100GSJ imports the renowned colorimetry of the VariCam lineup of cinema cameras. The AK-PLV100GSJ contains V-Log/V-Gamut capture to deliver high dynamic range and broad colors. V-Log\* delivers a very flat image whilst maintaining all of the color information within the image. This means that there is a greater level of play when the images are put through post-production processes. The Super 35 mm image sensor achieves a wide color gamut known as V-Gamut, which is a color space that is wider than BT.2020. Thanks to the wide dynamic range and color space, AK-PLV100GSJ also supports HDR shooting.

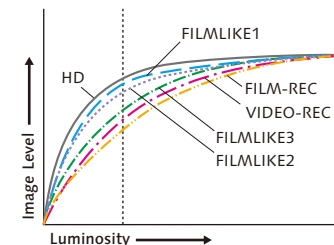
### 14 stop Wide Dynamic Range



\* With 3Q CY2023 upgrade

## FILM-REC Gamma

In addition to standard HD gamma, FILM-REC gamma with six curves (HD, FILMLIKE1, FILMLIKE2, FILMLIKE3, FILM-REC and VIDEO-REC) provides easy cinematic video production.



## Multiple Frame Rates

The frame rate can be switched seamlessly from 60fps to cinematic 24fps/30fps. The AK-PLV100GSJ also supports 59.94p over 60fps, 30fps and 24fps.

## Motorized ND Filter

A built-in optical ND filter provides to flexibly match lighting levels, including Clear, 1/4, 1/16, and 1/64. Remote operation makes switching extra easy.

# Support for Rich Expressions

## Digital Extender (2x)

The video image size is doubled by the digital signal processing circuit, enabling high-magnification shooting even with low-magnification lenses. Resolution is sufficient even if the video is magnified. Also, light intensity is not degraded, unlike when using extender lenses.



\* Images are simulated.

Digital extender ON

## Dynamic Range Stretch (DRS) Function

DRS suppresses blocked shadows and blown highlights automatically. For scenes with dark and bright areas, such as outside views taken from indoors, DRS minimizes blocked shadows, blown highlights and washed-out colors by using high-level gradation in dark, bright, and intermediate tones, enabling real-time video with a wide dynamic range.

Images showing DRS (Dynamic Range Stretch) effect



\* Images are simulated.

## Focus Assist Functions

Quick, accurate focusing is achieved with the 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 entire screen). Also, the Remote Operation Panel (ROP) can operate zoom and focus position while using a digital lens.

Focus assist function examples



MAG

## Skin Tone Detail Correction

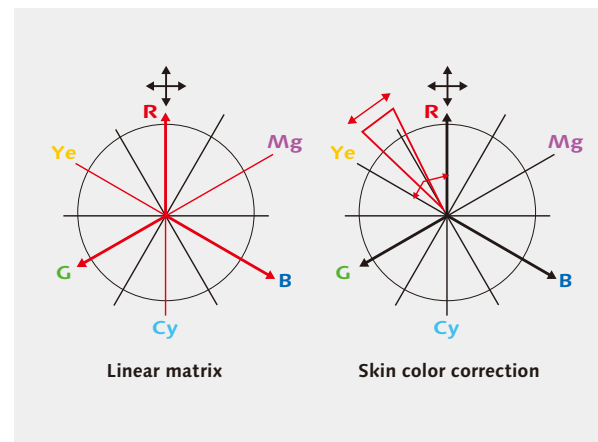
Skin wrinkles and blemishes are corrected to produce beautiful skin tones.



\* Images are simulated.

## Linear Matrix

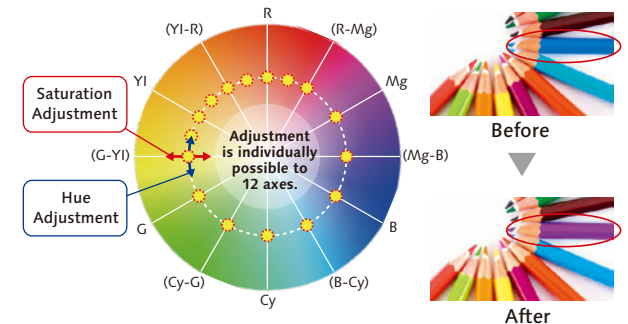
Color saturation and hue can each be adjusted precisely with the linear matrix.



## 12-Axis Color Correction

Color saturation and hue can be adjusted with 12-axis color correction, enabling creative video production with color matching when shooting with multiple cameras. In addition, independent skin-color adjustment enables fine color expression.

12-Axis Independent Color Correction Illustration



# Video Transmission for Live Operation

## Long-Distance Transmission

Convenient long-distance transmission of uncompressed video signals to a CCU via optical fiber is supported. Supplying power to the camera from the CCU enables transmission distances up to 2 km for the AK-UCU600 and 1.2 km for the AK-HCU250. Moreover, up to 10 km is possible when using an external power supply for the camera and general-purpose optical transmission equipment.\* In addition to a dedicated serial line, IP connection via LAN cable is supported for control between the CCU and the Remote Operation Panel (ROP).

\* Multiple connection cables can reduce transmission distances due to signal attenuation. Repeaters are recommended as appropriate.

## Video Transmission (TRUNK)

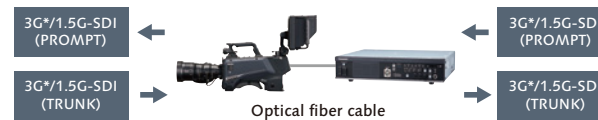
Video signals other than those from this unit can be transmitted between the camera and CCU via an optical cable, enabling the system to be upgraded flexibly as required.

### 3G\*/1.5G-SDI (CCU > camera) one line (internal FS):

For a prompter system, studio floor monitor, etc.

### 3G\*/1.5G-SDI (camera > CCU) one line (internal FS):

For outputting video from a handheld or PTZ camera in the studio, field, etc. to the CCU (system), including asynchronous video thanks to video input with frame synchronizer.



\* Only when connected to AK-HCU250.

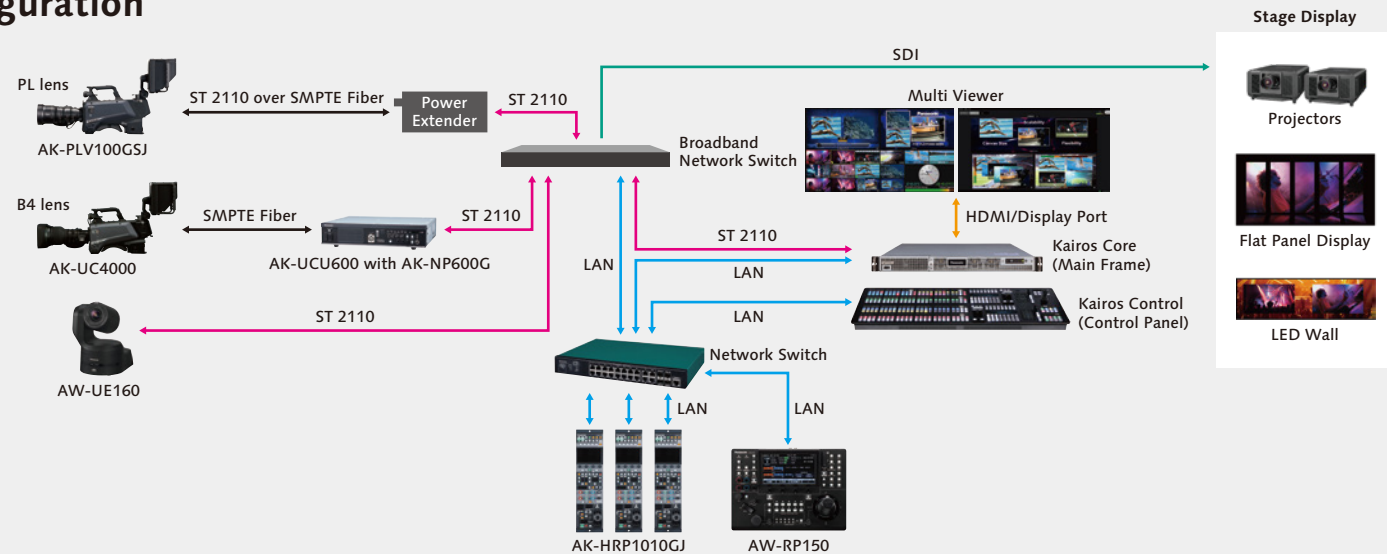
## Other Functions

- Color temperature display and adjustment (2,000K to 15,000K)
- Assignable user buttons of camera head and LCD viewfinder (4 on the AK-PLV100GSJ, 4 in AK-HVF100GJ and 3 in AK-HVF75GJ)
- Video adjustments and other camera settings savable/readable to SD memory card

## Example of System Configuration

### Efficient IP-based Operation for Immersive Live Streaming

Multiple cameras can be utilized to shoot from various angles, allowing video of the main subject shot with the AK-PLV100GSJ to be combined with other camera feeds for powerfully immersive live streaming. In addition, the ST 2110 system does not require a CCU, so IP-based live production can be achieved with a single camera. Also, Panasonic's IT/IP Platform "KAIROS" can be incorporated for remote live production.



# Flexible System Configuration

The AK-PLV100GSJ supports both IP and baseband operation and offer flexible system configuration according to the scene. It supports CCU input/output like a conventional studio camera, as well as SMPTE ST 2110\*1 input/output and 12G-SDI output directly from the camera head without a CCU. System configuration for live production can be as simple as adding the AK-PLV100GSJ to an existing studio camera system\*2 to realize cinematic video.

\*1: With 3Q CY2023 upgrade \*2: Camera Control Unit (CCU) AK-UCU600 or AK-HCU250

## IP OPERATION

In addition to uncompressed SMPTE ST 2110-20 HD, the ST 2110-22 JPEG-XS\* UHD is supported to compress data volume with almost no video degradation. Support for the latest standards ensures low latency 4K video transmission as well as compatibility with other IP systems.

\* With 3Q CY2023 upgrade

### Configuration 1: IP operation without CCU\*

The AK-PLV100GSJ provides direct SMPTE ST 2110 input/output from the camera head for low cost operation without a CCU. IP-based live production simply requires bringing the camera head to the site, without any need for a large system.

\* With 3Q CY2023 upgrade

Note: Compatible with ST 2110-10, ST 2110-20, ST 2110-21, ST 2110-22, and ST 2110-30 standards

Uncompressed	JPEG-XS	Redundant
3G (HD)	4K (UHD) / HD	—

### Configuration 2: IP operation with CCU

Connection to a CCU allows ST 2110-20 HD uncompressed output with redundancy. Compatibility with Panasonic's 2/3 type lens mount studio camera system equipment enables connection with the existing AK-UCU600 CCU\*. Simply replace the existing camera head with the AK-PLV100GSJ to create cinematic video.

Compatible devices: AK-UCU600PJ/EJ/PSJ/ESJ\*

\* Use requires the latest software version update and hardware updates are available upon request. For more details, please see "Support/PASS" on the following website

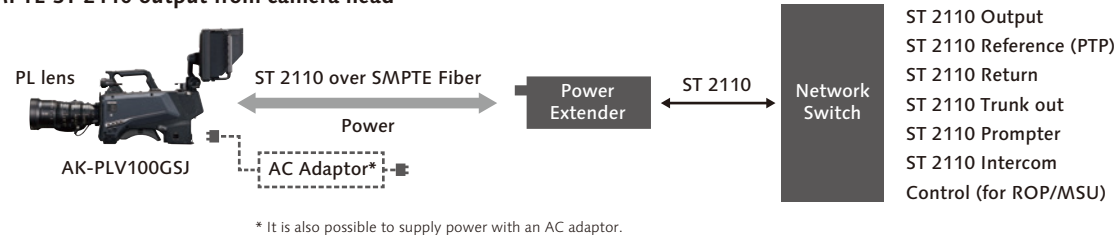
(<https://pro-av.panasonic.net/en/>). Requires IP/12G/3G Interface Kit AK-NP600G (paid option)

Note: Compatible with ST 2110-10, ST 2110-20, ST 2110-21, and ST 2110-30 standards

Uncompressed	JPEG-XS	Redundant
3G (HD)	—	√

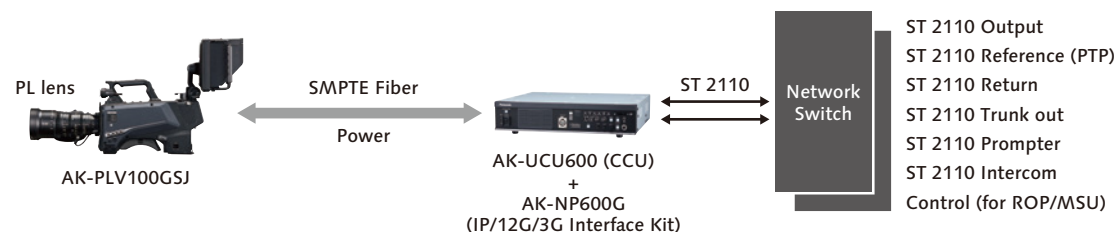
#### Low cost ST 2110 system

SMPTE ST 2110 output from camera head



#### Compatible with existing Studio Camera

SMPTE ST 2110 output from CCU using optional IP/12G/3G Interface Kit



## Operation Guide

	CCU	Baseband	SMPTE ST 2110		
			Uncompressed	JPEG-XS	Redundancy
Without CCU	None	12G-SDI	HD <sup>*1</sup>	4K(UHD)/HD <sup>*1</sup>	-
With CCU	AK-UCU600 <sup>*2</sup>	12G-SDI (CCU output)	HD	-	√
	AK-HCU250 <sup>*3</sup>	3G-SDI (CCU output)	-	-	-

\*1: With 3Q CY2023 upgrade

\*2: IP/12G/3G Interface Kit AK-NP600G (paid option) required for ST 2110 operation

\*3: 4K/12G-SDI Interface Kit AK-HUC01 (paid option) required for 12G-SDI support

## Compatible formats

	IP Output format	SDI Output format
CCU less	3840x2160/59.94p/50p/29.97p/25p/23.98p 1920x1080/59.94p/50p/59.94i/50i/29.97p/25p/23.98p	3840x2160/59.94p/50p/29.97p/25p/23.98p 1920x1080/59.94p/50p/59.94i/50i/29.97p/25p/23.98p over 59.94i 1280x720/59.94p/50p
AK-UCU600 + AK-NP600G	1920x1080/59.94p/50p/59.94i/50i 1280x720/59.94p/50p	3840x2160/59.94p/50p/29.97p/25p/23.98p 1920x1080/59.94p/50p/59.94i/50i/29.97p/25p/23.98p over 59.94i 1280x720/59.94p/50p
AK-HCU250 + AK-HUC01	-	3840x2160/59.94p/50p/29.97p/25p/23.98p 1920x1080/59.94p/50p/59.94i/50i/29.97p/25p/23.98p over 59.94i 1280x720/59.94p/50p

# BASEBAND OPERATION

The AK-PLV100GSJ can be easily added to an existing SDI system thanks to its compatibility with 12G-SDI, 3G-SDI and HD-SDI baseband video signals as well as support for both 4K (UHD) and HD. Return video input, intercom input/output and other systemic operations are possible.

## Configuration 1: Baseband Operation without CCU

The AK-PLV100GSJ camera head can directly output 12G-SDI as well as display input return video, enabling simple, flexible system construction for a wide array of use without a CCU.

12G-SDI	Return In	Intercom
√	√	-

## Configuration 2: Baseband Operation with CCU

Compatibility with Panasonic's 2/3 type lens mount studio camera system allows an existing CCU<sup>\*1</sup> (AK-UCU600 or AK-HCU250) to be used. Simply replace the existing camera head with the AK-PLV100GSJ to create cinematic video

Compatible devices: AK-UCU600PJ/EJ/PSJ/ESJ<sup>\*1</sup>  
AK-HCU250PJ/EJ/PSJ/ESJ/PTJ<sup>\*2</sup>

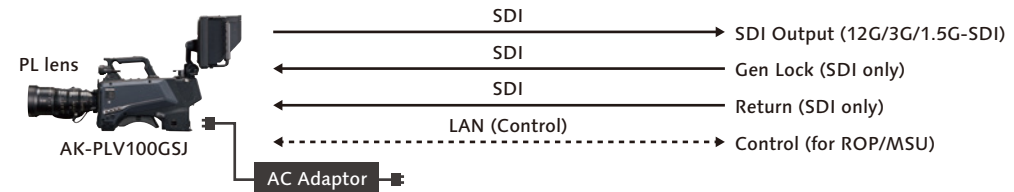
\*1: Use requires the latest software version update and hardware updates are available upon request. For more details, please see "Support/PASS" on the following website (<https://pro-av.panasonic.net/en/>)

\*2: Requires 4K/12G-SDI Interface Kit AK-HUC01 (paid option) for 4K output

12G-SDI	Return In	Intercom
√	√	√

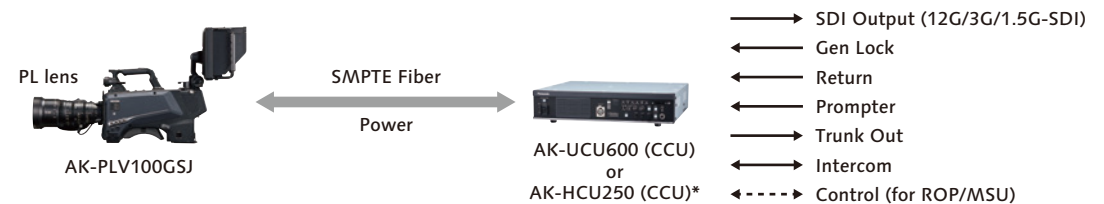
## Low cost & simple SDI system

### 12G-SDI output from camera head



## Compatible with existing Studio Camera

### 12G/3G/1.5G-SDI output from CCU



\* Requires 4K/12G-SDI Interface Kit AK-HUC01 (paid option) for 4K output

## Camera System

UHD 12G-SDI output included as standard, and optional support for SMPTE ST 2110.

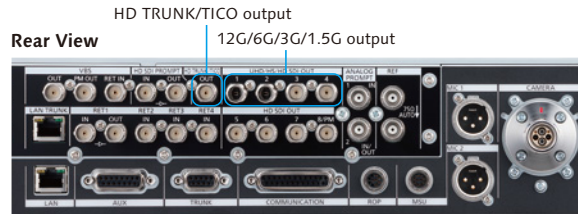
### AK-UCU600PSJ AK-UCU600ESJ

Camera Control Unit (CCU)  
(LEMO connector model)



Note: Use requires the latest software version update and hardware updates are available upon request. For more details, please see "Support/PASS" on the following website (<https://pro-av.panasonic.net/en/>).

- Equipped with two UHD 12G-SDI output lines. Two-sample interleave and square division supported with 3G-SDI Quad Link.
- TICO\* over SDI (4K over 3G-SDI) output supported (4K signal can be transmitted by a conventional 3G-SDI cable).
- Supports 1080p/i and 720p.
- HDR/SDR simultaneous output and HDR BT.2020/BT.709 simultaneous output supported.



\* A codec developed by intoPIX. Short for "Tiny Codec".

Low-cost construction of long-distance optical transmission camera systems with high image quality.

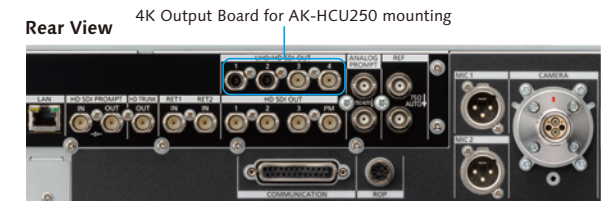
### AK-HCU250PSJ AK-HCU250ESJ

Camera Control Unit (CCU)  
(LEMO connector model)



Note: Use requires the latest software version update. For more details, please see "Support/PASS" on the following website (<https://pro-av.panasonic.net/en/>).

- Long-distance transmission between camera and CCU is possible.
- The compact, lightweight unit measures 2U in height and is rack-mountable.
- 12G-SDI and 3G-SDI Quad Link output supported with 4K upgrade\*.
- RET input (two SDI channels) supported.
- One intercom line and two audio lines.
- 3G trunk and 3G prompter circuit between camera and CCU.



\* An optional 4K/12G-SDI Interface Kit AK-HUC01 (sold separately) is required. For more details, please see Panasonic website (<https://pro-av.panasonic.net/en/products/ak-huc01/>).

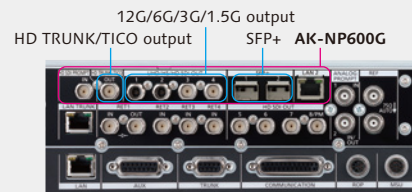
Optional IP kit for installation on the rear terminal of the AK-UCU600

### AK-NP600G IP/12G/3G Interface Kit



- SMPTE ST 2110 standard compliant
- Supported formats: 1080/59.94p, 50p, 59.94i, 50i, 720/59.94p, 50p

Note: SFP+ transceiver required.  
Operation-verified SFP Module: Finisar Corporation SFP+ Transceiver/FTLX1475D3BTL



\* Two 12G outputs or one 3G x 4 output and one TICO output in UHD mode. Four HD (3G/1.5G) outputs and two SFP+ (ST 2110) outputs are supported in HD mode. \* AK-NP600G (IP/12G/3G Interface Kit) does not support analog VBS input/output signals (OUT/PM OUT/RET IN). \* AK-PLV100GSJ (4K Studio Camera) and AK-UCU600 (Camera Control Unit) firmware upgrades are required to install AK-NP600G (IP/12G/3G Interface Kit). See "Support/PASS" on the Panasonic website for details (<https://pro-av.panasonic.net/en/>). \* Consult with your Panasonic dealer about AK-NP600G (IP/12G/3G Interface Kit) installation.





Compact operation panels that support IP control and PoE\*1 power supply.

**AK-HRP1010GJ**

Remote Operation Panel (ROP)

**AK-HRP1015GJ**

Remote Operation Panel (ROP)  
Not available in some areas.

- Camera serial control and IP control are possible. Panasonic 4K/HD Integrated Cameras are supported\*2.
- Equipped with joystick control lever. IRIS/PEDESTAL operation is possible.
- Equipped with scene file function.
- Equipped with SD memory card slot. Saving of user files and firmware version updates are supported.
- IP connection and PoE\*1 power supply are supported. The AK-HRP1015GJ is equipped with a robust LAN terminal connector.



AK-HRP1010GJ AK-HRP1015GJ

Up to 99 CCUs can be connected and controlled.

**AK-MSU1000GJ**

Master Setup Unit (MSU)



- IP connection: up to 99 / Serial connection: up to 6
- Equipped with 17.8 cm (7 inches) LCD menu touch panel.

Equipped with high-resolution 22.9 cm (9 inches) LCD panel.

**AK-HVF100GJ**

22.9 cm (9 inches) LCD Color Viewfinder



- Equipped with full HD (1920 x 1080) 22.9 cm (9 inches) color LCD panel.



\*1: Abbreviation of Power over Ethernet.

\*2: For information on 4K/HD Integrated Camera support, please refer to the Panasonic website ([https://pro-av.panasonic.net/en/products/compatibility\\_chart/](https://pro-av.panasonic.net/en/products/compatibility_chart/)).

Option

<p><b>AK-HVF75GJ</b> 17.8 cm (7 inches) LCD Color Viewfinder</p> 	<p><b>AJ-CVF70GJ</b> 1.78 cm (0.7 inches) Full HD OLED Color Viewfinder</p> 	<p><b>AJ-CVF50G</b> 38.1 mm (1.5 inches) Viewfinder</p> 	<p><b>AJ-CVF25GJ</b> 87.6 mm (3.45 inches) Electronic HD Color Viewfinder</p> 		
<p><b>SHAN-TM700</b> Tripod Adaptor</p> 	<p><b>AJ-MC700P</b> Microphone Kit (monaural)</p> 	<p><b>AJ-MH800G</b> Microphone Holder</p> 	<p><b>AJ-C10050G</b> Remote Control Cable (50 m / 164 ft)</p> 	<p><b>AW-PS551</b> AC Adaptor For AK-MSU1000GJ. Can not use for power supply to AK-PLV100GSJ.</p> 	<p><b>EasyIP Setup Tool Plus</b> Free Software</p>  <p><a href="https://pro-av.panasonic.net/en/software/easyip_plus/">https://pro-av.panasonic.net/en/software/easyip_plus/</a></p>

# Specifications

## 4K Studio Camera AK-PLV100GSJ

GENERAL	
Power Supply	DC 12 V (when using an external power supply), DC 190 V (when AK-HCU250PJ/HCU250PSJ/HCU250EJ/ HCU250ESJ is connected) AC 240 V, 50 Hz/60 Hz (when AK-UCU600PJ/ UCU600PSJ/UCU600EJ/UCU600ESJ is connected)
Power Consumption	82 W (maximum, when connecting to an external 12 V and including supply to an externally connected devices) 92 W (maximum, when AK-HCU250PJ/HCU250PSJ/ HCU250EJ/HCU250ESJ/UCU600PJ/UCU600PSJ/ UCU600EJ/UCU600ESJ is connected and including supply to an externally connected devices)
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. 4.2 kg (9.24 lbs.) (body only, excluding the accessories)
Dimensions (W x H x D)	Body only 151 mm x 267 mm x 389 mm (5-31/32 inches x 10-17/32 inches x 15-5/16 inches) (excluding protrusions)
Camera Unit	
Pickup Device	17.25 million pixels, 5.7K Super 35 mm sensor
Optical Filter	ND: Clear, 1/4, 1/16, 1/64
Lens Mount	35 mm PL-mount
Sensitivity	F11(59.94Hz)/F12(50Hz), 2000 lx, 3200 K, when white reflectivity is 89.9%
Horizontal Modulation	50% or above (27.5 MHz)
S/N	62 dB or above
Horizontal Resolution	HD: 1000 TV lines or above (center) 4K: 2000 TV lines or above (center)
Gain Switching	0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36
Shutter Speed	<ul style="list-style-type: none"> <li>• [59.94i]/[59.94p] mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [29.97p] 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</li> <li>• [23.98p] 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</li> <li>• [50i]/[50p] mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [25p] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> </ul>
System Format	3840 x 2160/59.94p/50p/29.97p/25p/23.98p 1920 x 1080/59.94p/50p/29.97p/25p/23.98p
Video Input/Output	
<SDI OUT 1> Terminal	BNC x 1, 12G/6G/3G/1.5G-SDI: 0.8 V [p-p], 75 Ω
<SDI OUT 2> Terminal	BNC x 1, 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω

<AUX> Terminal	BNC x 1, Functions as <GL/RET IN> terminal/<HD TRUNK> terminal/ <PROMPTER> terminal by switching the setting in the menu <GL/RET IN>: 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω <HD TRUNK>: 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω <PROMPTER>: VBS signal 1 V [p-p], 75 Ω
Audio Input/Output	
<MIC 2> Terminal	XLR x 1, 3-pin, female type <LINE>/<MIC>/<+48V> switchable <LINE>: 0 dBu <MIC>: -60 dBu, -40 dBu, or -20 dBu menu can be selected
<MIC> Terminal (front)	XLR x 1, 3-pin, female type <LINE>/<MIC>/<+48V> switchable <LINE>: 0 dBu <MIC>: -60 dBu, -40 dBu, or -20 dBu menu can be selected
Intercom	
<INTERCOM> Terminal	XLR x 1, 5-pin, female type
Other Input/Output	
<OPT FIBER> Terminal	Optical composite connector x 1
<LENS> Terminal	12-pin x 1
<VF> Terminal	20-pin x 1
<VF> Terminal (rear)	29-pin x 1
<DC IN> Terminal	XLR x 1, 4-pin, DC 12 V
<LAN> Terminal	RJ-45 x 1

## Camera Control Unit (CCU) AK-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 (19.6 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-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 <sup>*1</sup> ) Analog composite: 2 lines (1 line shared with picture monitor output <sup>*1</sup> )
HD TRUNK/TICO Output	HD-SDI: 1 line (HD TRUNK output) 3G/HD-SDI: 1 line (TICO output)

Return Input	3G-HD/HD/SD-SDI: 4 lines (RET1 input has active-through output) (internal FS) Analog composite: 1 line
Prompter Input	HD-SDI: 1 line (with active-through output) (internal FS) Analog composite: 2 lines (through output of 1 and input of 2 share the connector <sup>*1</sup> ) It is not terminated when the unit is turned OFF. No through output.
Reference Input	BB (black burst)/tri-level <sup>*2</sup> : 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 <sup>*1</sup> 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 <sup>*1</sup> ) Camera microphone gain setting input: 5-bit (photo-coupler input, terminal shared with WFM control <sup>*1</sup> ) Down-conversion system setting input: 2-bit (photo-coupler input)
TRUNK	RS-422 / RS-232C 2 lines <sup>*1</sup>
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 <sup>*3</sup> 1 line, 100BASE-TX, 1000BASE-T
LAN	Personal computer connection for distribution via the Web <sup>*3</sup> 1 line, 10BASE-T, 100BASE-TX (use a crossover cable when connecting directly with a personal computer)

\*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]

**IP/12G/3G Interface Kit AK-NP600G**

Dimensions (W x H x D)	Approx. 175.5 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 TRUNK/TICO OUT> Terminal: BNC x 1, 1.5G HD SDI when HD TRUNK, 3G/1.5G HD SDI when TICO: 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, 10GBASE-LR
	<SFP+ 2> Slot: SFP+ x 1, 10GBASE-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
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**Camera Control Unit (CCU) AK-HCU250PSJ/HCU250ESJ**

**GENERAL**

Power Supply	AK-HCU250PJ/HCU250PSJ : 100 V - 120 V AC, 50 Hz/60 Hz AK-HCU250EJ/HCU250ESJ : 100 V - 240 V AC, 50 Hz/60 Hz AK-HCU250PTJ: 100 V - 120 V AC, 50 Hz/60 Hz
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Current Consumption	3 A
Capacity for Supplying Power to a Camera	DC 190 V , 0.6 A (AK-HCU250PJ/HCU250PSJ/HCU250EJ/HCU250ESJ)
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	10% to 90% (no condensation)
Storage Temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Weight	Approx. 7.4 kg (16.28 lb) (main unit only)

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)
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**Basic Items**

System Format	1920 x 1080/59.94p/50p/29.97p/25p/23.98p • when using AK-HUC01: 3840 x 2160/59.94p/50p/29.97p/25p/23.98p
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**Image Input/Output Sections**

<HD SDI 1-3> Terminal	BNC x 3, 3G/1.5G-SDI: 0.8 V [p-p], 75Ω
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<HD SDI PM> Terminal	BNC x 1, 1.5G-SDI: 0.8 V [p-p], 75 Ω
<RET IN1-2> Terminal	BNC x 2 (internal FS), 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω
<HD SDI PROMPTER IN> Terminal	BNC x 1 (internal FS), 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω

<HD SDI PROMPTER OUT> Terminal	BNC x 1, 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω
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<HD TRUNK OUT> Terminal	BNC x 1, 3G/1.5G-SDI: 0.8 V [p-p], 75 Ω
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<REF> Terminal	BNC x 2, <Input> 3-value sync/1 V VBS signal [p-p], 75 Ω <Loop-through output> 3-value sync/1 V VBS signal [p-p], 75 Ω
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<ANALOG PROMPT IN> Terminal	BNC x 1, VBS signal: 1 V [p-p], 75 Ω
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<ANALOG PROMPT OUT> Terminal	BNC x 1, VBS signal: 1 V [p-p], 75 Ω
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**Audio Output Sections**

<MIC1-2> Terminal	XLR x 2, 3-pin male, 0 dBm/600 Ω
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**Intercom Section**

<INTERCOM> Terminal	XLR x 1, 5-pin female
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**Other Input/Output Sections**

<CAMERA> Terminal	Optical fiber multi connector x 1 AK-HCU250PJ/HCU250EJ: Tajimi Electronics Co., Ltd., AK-HCU250PSJ/HCU250ESJ: LEMO AK-HCU250PTJ: ST connector x 2
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<ROP> Terminal	10 pins x 2
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<COMMUNICATION> Terminal	25 pins x 1
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<LAN> Terminal	RJ45 x 1
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**Remote Operation Panel (ROP) AK-HRP1010GJ/HRP1015GJ**

**GENERAL**

Power Supply	AK-HRP1010GJ: 12 V DC (Power supply from camera/CCU: 10 V - 16 V DC), 42 V - 57 V DC (PoE power supply) AK-HRP1015GJ: 12 V DC (Power supply from camera: 10 V - 16 V DC), 42 V - 57 V DC (PoE power supply)
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Power Consumption	AK-HRP1010GJ: 0.9 A (Power supply from camera/CCU: 10 V - 16 V DC), 0.3 A (PoE power supply) AK-HRP1015GJ: 0.44 A (Power supply from camera: 10 V - 16 V DC), 0.11 A (PoE power supply)
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Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
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Humidity	90% or less
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Storage Temperature	-20 °C to 60 °C (-4 °F to 140 °F)
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Weight	AK-HRP1010GJ: Approx. 1.7 kg (3.75 lb) AK-HRP1015GJ: Approx. 1.5 kg (3.3 lb)
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Dimensions (W x H x D)	AK-HRP1010GJ: 102 mm x 385 mm x 113 mm (4 inches x 15-3/16 inches x 4-7/16 inches) AK-HRP1015GJ: 82 mm x 355 mm x 124.4 mm (3-1/4 inches x 14 inches x 4-7/8 inches)
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Camera/CCU Control	Control signals (camera, CCU control) Power supply 16 V DC (when CCU connected)*1, 12 V DC (when camera connected)*1
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Maximum Cable Length	When camera connected: 20 m (65.7 ft) When CCU connected: 50 m (164 ft)
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**Monitor**

LCD Monitor	AK-HRP1010GJ: LCD color monitor, touch panel support AK-HRP1015GJ: LCD color monitor
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**Input/Output Section**

<CCU> Connector	10-pin, male x 1
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<PREVIEW> Connector	9-pin, female x 1
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<LAN> Connector	AK-HRP1010GJ: RJ-45 x 1 AK-HRP1015GJ: RJ-45 x 1 (equipped with a robust LAN terminal connector)
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\*1: Can be provided from CCU

**Master Setup Unit (MSU) AK-MSU1000GJ**

Power Supply	12 V DC (DC input range: 10 V - 16 V DC), 42 V - 57 V DC (PoE+ power supply)
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Power Consumption	1.6 A (Power supply: 12 V DC), 0.6 A (PoE+ power supply)
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Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
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Humidity	90% or less
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Storage Temperature	-20 °C to 60 °C (-4 °F to 140 °F)
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Weight	Approx. 4.0 kg (8.82 lb)
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Dimensions (W x H x D)	482 mm x 222 mm x 81.5 mm (18-31/32 inches x 8-3/4 inches x 3-7/32 inches) (including mounting brackets and dial heights)
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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
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CCU Control	RS422 or IP
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Maximum Cable Length	When CCU is connected: 50 m (164 ft)
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Rear View

AK-PLV100GSJ



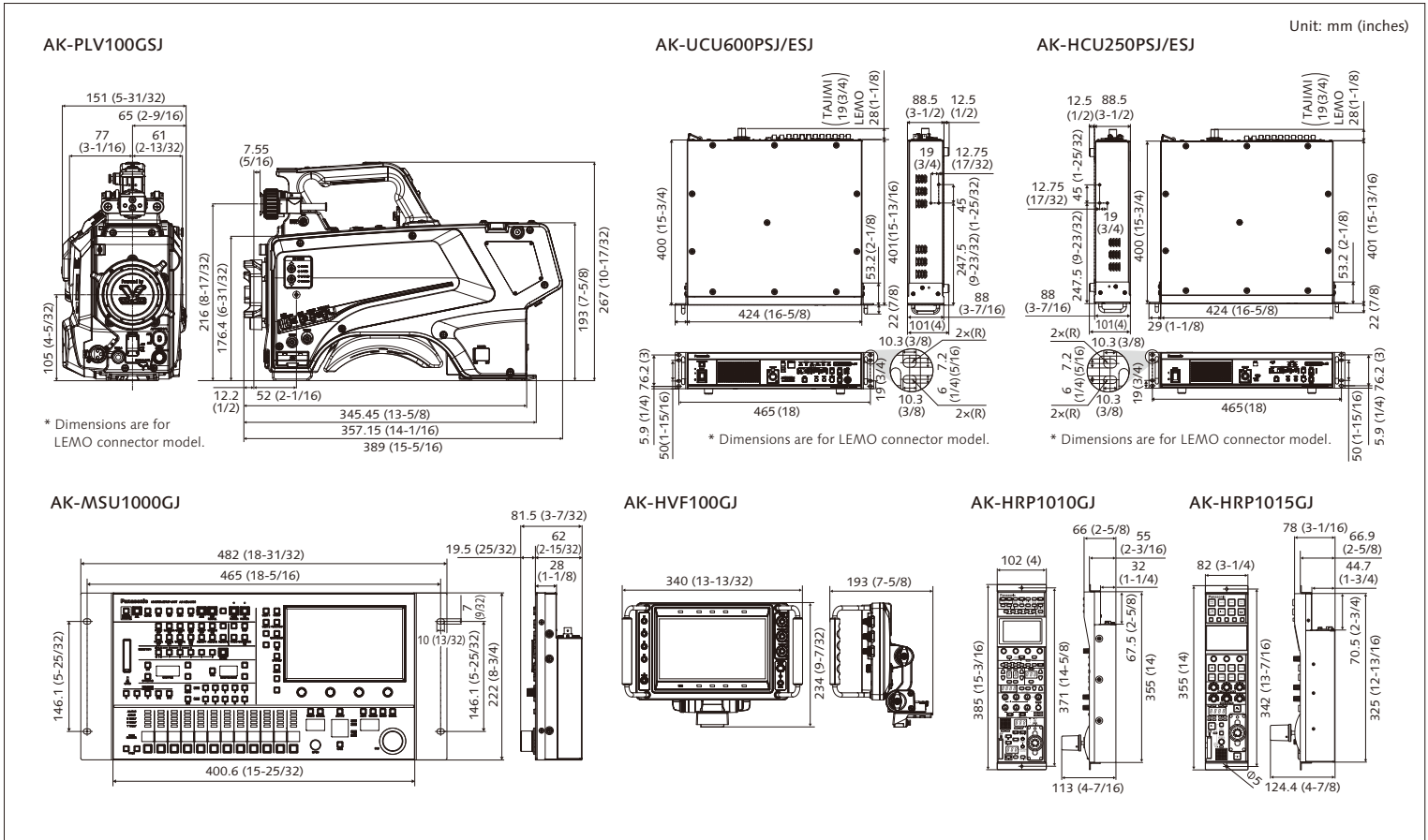
AK-HVF100GJ



AK-HRP1015GJ



Dimensions



AK-HRP1010GJ



AK-MSU1000GJ



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Factories of Panasonic Connect Co., Ltd. have received ISO14001:2015-the Environmental Management System certification. (Except for 3rd party's peripherals.)



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