**Integrated pan-tilt 4K cameras able to output 4K video via HDMI, USB, and IP transmission**

- In addition to HDMI, SDI and USB output, production quality 4K/full HD video output via IP transmission is supported.
- With the four-drive lens system, three zoom lenses and one focus lens are driven independently and simultaneously.
- With PoE+*, power can be supplied via LAN cable so installation costs can be reduced.
- Supports remote camera control using an IP control browser. It can be operated from not only a PC but also a MAC or mobile terminals.
- For SDI/HDMI output, 2160/29.97p (HDMI only), 2160/25p (HDMI only), 1080/59.94p, 29.97p, 59.94i, 29.97PsF, 1080/50p, 25p, 50i, 25PsF, 720/59.94p, and 50p video formats are supported.
- Equipped with 1/2.86-type full HD 3MOS sensors and DSP (Digital Signal Processor). Achieves high sensitivity, a high S/N ratio and high resolution through the use of advanced video processing.
- Optical Image Stabilization System (OIS) and 1.4x Digital Extender Zoom.
- Independent Color Correction Function with 12-axis Color + 3-axis Skin Tone and Color Temperature Adjustment Mode.
- Shoot clearer video with Hybrid Digital Noise Reduction (Hybrid DNR).
- Equipped with Night Mode for infrared shooting.
- The Freeze During Preset function enables to freeze the video during preset playback.
- The Freeze During Preset function enables to freeze the video during preset playback.
- The AW-HE130W/K is a NDI I HX compatible model. It enables high-quality video to be encoded and transmitted in real-time and input signals to be directly sent to a switcher without the need for an IP decoder.
- The AW-HE130W/K can be upgraded to NDI I HX by purchasing a license*2.

---

**Integrated pan-tilt full-HD cameras supporting IP transmission output of full HD images**

- In addition to HD-SDI and HDMI output, IP transmission of full-HD video output and multi-streaming output are supported.
- Transmit IP video without a separate encoder reduces cost and simplifies installation.
- With PoE+*, power can be supplied via LAN cable so installation costs can be reduced.
- Supports remote camera control using an IP control browser. It can be operated from not only a PC but also a MAC or mobile terminals.
- Supports HD/SD multi-format including 1080/29.97p*, 25p*, and 23.98p*.
- Equipped with 1/2.86-type full HD 3MOS sensors and DSP (Digital Signal Processor). Achieves high sensitivity, a high S/N ratio and high resolution through the use of advanced video processing.
- Optical Image Stabilization System (OIS) and 1.4x Digital Extender Zoom.
- Independent Color Correction Function with 12-axis Color + 3-axis Skin Tone and Color Temperature Adjustment Mode.
- Shoot clearer video with Hybrid Digital Noise Reduction (Hybrid DNR).
- Equipped with Night Mode for infrared shooting.
- The Freeze During Preset function enables to freeze the video during preset playback.
- The AW-HN130W/K is a NDI I HX compatible model. It enables high-quality video to be encoded and transmitted in real-time and input signals to be directly sent to a switcher without the need for an IP decoder.
- The AW-HN130W/K can be upgraded to NDI I HX by purchasing a license*2.
Integrated pan-tilt full-HD cameras with excellent operability and installation flexibility

- In addition to HD-SDI (AW-HE40SW/SK) and HDMI (AW-HE40HW/HK, AW-HN40HW/HK) output, IP transmission full HD video output and multistreaming output are supported.
- With PoE+, power can be supplied via LAN cable so installation costs can be reduced.
- Supports remote camera control using an IP control browser. It can be operated from not only a PC but also a MAC or mobile terminals.
- Supports 1080/59.94p (HDMI model only), 29.97p, 29.97PsF, 1080/50p (HDMI model only), 25p, 50i, 25PsF, 720/59.94p, and 50p video formats.
- High Dynamic Range (HDR) mode corrects for halation and black defects.
- Shooting in low-light conditions is possible using Night Mode, which supports automatic switching.
- With i.Zoom, the AW-HE40 series and AW-HN40HW/HK can zoom up to 40x while maintaining high resolution.
- The Freeze During Preset function enables to freeze the video during preset playback.
- In addition, using an IP network, it is possible to externally control recording start/stop and transmit recorded files to an FTP server.
- The AW-HN40HW/HK is a NDIIHX compatible model. It enables high-quality video to be encoded and transmitted in real-time and input signals to be directly sent to a switcher without the need for an IP decoder.
- The AW-HE40 series can be upgraded to NDIIHX by purchasing a license*2.

<table>
<thead>
<tr>
<th>Option</th>
<th>Wireless remote control</th>
<th>Direct Ceiling Mount Bracket</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AW-RM50G</td>
<td>WV-Q105A</td>
</tr>
<tr>
<td></td>
<td>(AA, &quot;R6&quot; or &quot;LR6&quot; battery x 2 are not included)</td>
<td>*For AW-UE70W/K, AW-UN70W/K, AW-HE130W/K, AW-HN130W/K, AW-HE40 series, AW-HN40W/K, AW-HE38W/HK and AW-HN38W/HK</td>
</tr>
</tbody>
</table>

*1: Abbreviation of Power over Ethernet Plus. *2: NDIIHX can be upgraded by purchasing a license from the Panasonic website (https://pro-av.panasonic.net/en/ndihx_support/). The following models require a software upgrade: AW-UE70W/K models with software version 1.37 or earlier/AW-HE130W/K models with software version 2.22 or earlier/AW-HE40 series models with software version 1.67 or earlier/AW-HE38W/HK models with software version 1.67 or earlier. Contact your local Panasonic vendor for further information. *3: Native output. *4: Over 59.94i.

Full HD camera with integrated pan-tilt for lectures, meetings and a wide variety of applications.

- In addition to HDMI output, IP transmission of full-HD video output and multistreaming output are supported.
- With PoE+, power can be supplied via LAN cable so installation costs can be reduced.
- Supports remote camera control using an IP control browser. It can be operated from not only a PC but also a MAC or mobile terminals.
- High Dynamic Range (HDR) mode corrects for halation and black defects.
- Shooting in low-light conditions is possible using Night Mode, which supports automatic switching.
- With i.Zoom, the AW-HE38HW/HK and AW-HN38HW/HK can zoom up to 30x while maintaining high resolution.
- The Freeze During Preset function enables to freeze the video during preset playback.
- In addition, using an IP network, it is possible to externally control recording start/stop and transmit recorded files to an FTP server.
- The AW-HN38HW/HK is a NDIIHX compatible model. It enables high-quality video to be encoded and transmitted in real-time and input signals to be directly sent to a switcher without the need for an IP decoder.
- The AW-HE38HW/HK can be upgraded to NDIIHX by purchasing a license*2.
Full-HD Outdoor Integrated Camera

AW-HR140

- 1/2.86-type 3MOS
- 20x optical zoom
- Digital zoom
- DSP
- D.I.S.S.
- PoE++
- IP control
- HD image IP transmission
- Up to 100 presets
- Audio Input

Outdoor integrated pan-tilt full HD camera with high sensitivity, high S/N ratio, and high resolution

- In addition to HD-SDI output, IP transmission full HD video output and multi-streaming output are supported.
- With PoE++*1, power can be supplied via LAN cable so installation costs can be reduced.
- Supports 1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 1080/29.97p*2, 1080/25p, 1080/23.98p*3, 1080/29.97PsF, 1080/25PsF, 1080/23.98PsF, 720/59.94p, and 720/50p video formats.
- Equipped with 1/2.86-type full HD 3MOS sensors and DSP (Digital Signal Processor). Achieves high sensitivity, a high S/N ratio and high resolution through the use of advanced video processing.
- Dynamic Image Stabilizing System (D.I.S.S.) simultaneously reduces both large, slow swings and small, quick vibrations.
- Equipped with intelligent automatic adjustment functions for white balance, gain, etc.
- Equipped with a newly developed haze reduction function.
- Oval shape reduces air resistance and tough aerodynamic form resists adhering of snow and dirt.
- IP65 water and dust resistance, wipers as standard equipment, and salt-resistant paint support installation in severe environments.
- Shooting in low-light conditions supported using Night Mode.
- Freeze During Preset function enables freezing of the video during preset playback.

Control Assist Camera

AW-HEA10W  AW-HEA10K

Wireless control from iPad*4 for pan, tilt and zoom of an 4K/HD Integrated Camera*5

- AW-HEA10W/K Control Assist Camera and 4K/HD Integrated Camera*5 used in combination.
- 95° wide-angle view is captured by the Control Assist Camera and displayed on an iPad*4.
- Tapping the desired area of the 95° wide-angle image displayed on the iPad*4 to turn the 4K/HD Integrated Camera*5 to capture the tapped position.
- Thus, controlling, panning, tilting and zooming the 4K/HD Integrated Camera*5 are simple and intuitive.
- Allows up to 9 presets.
- Allows up to 100 sets of Control Assist Camera and 4K/HD Integrated Camera can be connected to an iPad.
- With PoE support, power can be supplied via LAN cable.
- By changing the mounting surface, desktop and hanging installation are both supported.

[Basic system and operations]

Download the free “PTZ Cntrl”*4 app for iPad and install it to enable wireless control of the camera from the iPad.

*1: Abbreviation of Power over Ethernet Plus. Conforms to IEEE802.3bt (Draft ver. 2.0). *2: Native output. *3: Over 59.94i. *4: An iPad (sold separately) and a wireless AP (sold separately) are required. Please install the iPad application “PTZ Cntrl” (free). For details, please visit Panasonic AW-HEA10W/K website (https://pro-av.panasonic.net/en/sales_o/camera/aw-hea10/).
PTZ Control Center
Controls multiple PTZ cameras from PC
• Centralized management of multiple PTZ cameras
• Pan/Tilt/Zoom by button slider, or a touch on a screen
• Camera preset buttons with thumbnails (Register/Recall/Delete of up to 9 points)
• Camera picture quality adjustment
• Simultaneous control of multiple cameras (Focus/Iris/Gain/White balance/Shutter/ND Filter)
• Camera SD recording Start/Stop (Only for cameras that support SD card recording)
• Limits functions by administrator authentication
• Copies setting data between multiple PC
• Automatic camera discovery and network setting

Supported Cameras:

PTZ Virtual USB Driver
Software that converts PTZ camera on your network into Super Web cam
• Able to use PTZ cameras on the network as USB cameras
• Up to 5 cameras can be registered
• Automatic camera discovery and network setting

Supported Cameras:

360-degree Live Camera
AW-360B10GJ (360-degree Live Camera Base Unit) AW-360C10GJ (360-degree Live Camera Head)

360-degree uncompressed video
4K output (2:1 Equirectangular format)
• This system can stitch video from 4 cameras by itself without external equipment and output 360-degree video in 2:1 equirectangular format.
• Outputs natural images through “real-time active stitching capability” which detects an object at the seam, and adjusts stitching position constantly.
• By combinational AE/ATW of each cameras depending on shooting condition, it can adjust light and color totally.
• Outputs 4K/30p uncompressed high definition video with very low latency.
• Flexible operation thanks to easy installation and uninstallation at a shooting site.
• Capable of monitoring and configuration remotely with a PC via network. Control from iPad in Wi-Fi environment is also possible.
• We will offer high-reliability shooting for professional use such as prevention of unexpected cable removal.

<System Example>

<Notes on Power Supply>
360-degrees Live Camera Base Unit AW-360B10GJ does not include AC adaptor. Please prepare a 4 pin XLR 12 V adaptor that can provide the rated power consumption (43.4 W) of the unit.
Clear, Sharp Video with Auto Tracking of Speaker

**Auto Tracking Software Key**

**AW-SF100**

**AW-SF200**

- **2 Additional Licenses**
- **3 Additional Licenses**


- High-performance "motion detection" and high-accuracy "facial recognition" are used. Highly precise automatic tracking with few breaks is possible regardless of where the person is facing, such as when a lecturer is writing on a blackboard.
- An easy-to-understand GUI is employed to enable intuitive setting tasks.
- IP-based software is employed with operation via IP connection, so cameras can be set up in a classroom and operated remotely.
- The software can be set for use as a web application too, enabling control via tablet or smartphone as well as PC.
- Install on a PC* and connect to a Panasonic remote camera.
- AW-SF100 allows a single PTZ camera to be controlled on either a stand-alone or web application version.
- AW-SF200 enables simultaneous auto tracking and centralized control of multiple cameras.*

*4: 4K acquisition is possible only when connected to the AG-UCK20GJ Compact Camera Head. 4K refers to UHD (3840 x 2160) resolution. The maximum resolution in 4K shooting mode via HDMI/SDI output is FHD (1920 x 1080) 59.94i/50i.

**Software key usage examples**

**AW-SF100**

With auto tracking, full-time manual tracking is not necessary. Auto tracking remote camera can record dynamic video with simple operations.

**Video editing and Camera control**

**AW-SF200**

Simultaneous auto tracking and centralized control of multiple cameras are possible. A server and simplified operations enable efficient lecture capture in multiple classrooms.

**Connection Example**

**P2 Streaming Server**

Remote camera video streaming via a network and SDI output; streaming receiver enables smooth operation on PC screen

- Equipped with original QoS to achieve stable streaming.
- GUI enables intuitive operation.
- Extensive input/output for flexible support.

* Remote Cameras do not support QoS.

"New POVCAM" with a Compact, Lightweight, Free-Shooting Design and IP Network Linking Capability

- A compact, lightweight, free-style shooting system inheriting the features of the 1st-generation POVCAM.
- Network operation for IP control and IP streaming.
- Acquisition of high-quality FHD (1920 x 1080) 59.94p/50p/23.98p images and high-resolution 4K (UHD (3840 x 2160)) 29.97p/23.98p/25p images is supported.
- Equipped with Double SD Memory Card Slots (SDXC supported) enabling Relay Recording with two SD memory cards. Extended recording is possible and can be used for backup recording.

- [Related Products]
### Application 01:
**Parliament / Conference Room**

Quick capture of speakers using extensive preset camera positions

Efficient camera control is possible by defining 4K/HD Integrated Camera positions in advance. Combining this with PTZ Control Center enables quick camera work with only few shooting staff.

### Application 02:
**Event / HoW**

Sophisticated image production combining high-performance cameras and switchers

By installing the optimum camera for each scene, it is possible to capture all the scenes. Richly varied shooting is possible through the control of multiple types of cameras using the Remote Camera Controller AW-RP120G and Remote Operation Panel (ROP) such as AK-HRP200G.
**Application 03:**

**Lecture Capture**

*Flexible lecture recording and streaming with a Lecture Capturing System*

Install a high-image-quality HD Integrated Camera such as the AW-HE130 to capture the delicate nuances of the instructor as well as the overall atmosphere of the lecture room. With a flexible link to an IP-based lecture capturing system, it is possible to perform everything from recording to distribution.

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**Application 04:**

**Telepresence**

*An extensive lineup of units that can be used as TV conferencing cameras*

For TV conferencing cameras, customers can select from an extensive lineup that includes the compact and high-image-quality HD Integrated Camera such as the AW-HE38 which can capture all participants in the frame. Shoot video optimized for conference room size and meeting purpose.
Application 05:
Information program (weather camera)

Produce vivid weather information programs with outdoor installation in severe environments

The high-sensitivity, high-S/N ratio, and high-resolution AW-HR140 Full-HD Outdoor Integrated Camera can be installed on the roof and operated with a controller inside the station. It will shoot low-vibration clear video in severe weather conditions. With water and dust resistance and wipers as standard equipment, it will provide reliable information even during tsunami and typhoon situations when shooting is difficult.

* For AK-UB300GJ, please prepare AC adaptors 12 V (DC) with more than 60 W.

Application 06:
4K Studio

High-image-quality studio shooting with Studio Handy Cameras and Multi Purpose Cameras supporting 4K output

Utilize two types of 4K cameras for shooting situations such as music programs employing vivid lighting effects. By using 4K Studio Camera such as AK-UC4000 along with an AK-UB300GJ 4K Multi Purpose Camera with a pan-tilt mount, it is possible to build a 4K studio setup that will also handle remote camera control.

* For AK-UB300GJ, please prepare AC adaptors 12 V (DC) with more than 60 W.
Application 07: Web Conferencing & Webinars

**USB functionality for web conferencing and web seminar with high quality video**

The AW-HE40, AW-HE38, and AW-UE70 offer USB functionality using a standard USB Video Class driver to interface with most industry web conferencing and webinar software systems. This allows for a high quality 1080p video & audio via USB from a professional camera to interface with easy-to-use software web conferencing and webinar solutions.

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Application 08: Live Streaming

A camera compatible with NDI I HX can be connected to the AV-HLC100 Live Production Center to easily build a system suitable for live streaming. A single AV-HLC100 unit enables camera control, switching, and audio mixing. The AV-HLC100 also enables captured video to be directly uploaded to live streaming services such as YouTube Live and Facebook Live, and can be connected to Skype TX to insert live video from remote locations into a broadcast.
4K / HD Integrated Camera IP / Serial connection diagram

As of April, 2018

IP Connection Diagram

4K/HD Remote Camera

- 4K Integrated Camera AW-UE70W/K*
- HD Integrated Camera AW-HE130W/K*
- HD Integrated Camera AW-HE40SW/SK/HW/HK*
- HD Integrated Camera AW-HE40SW/SK/HW/HK*
- HD Integrated Camera AW-HE40SW/SK/HW/HK*
- HD Integrated Camera AW-HE40SW/SK/HW/HK*
- Control Assist Camera AW-HEA10W/K*
- Full-HD Outdoor Integrated Camera AW-HR140*

Controller

Remote Operation Panel AK-HRP200G*

Remote Camera Controller AW-RP120G*4
AW-RP50*4

Wireless AP

Auto Tracking Software*

PTZ Control Center (Free Software)

HUB

Control from a Web browser
- Operations and settings are possible from the Web browser screen of a PC or tablet.
- IP video display

Wireless AP

LAN cable of Cat5e or higher*6

Optional Cable AW-CA15H29G*2

Control cable procured locally

in door Pan-Tilt Head AW-PH400

Protocol Converter AW-IF4000

Remote Operation Panel*6
AK-HRP200G
AK-HRP1000GJ
AK-HRP1005GJ

Remote Camera Controller AW-RP120G*5
AW-RP50*5

Commercially available controller supporting standard protocols

LAN cable of Cat5e or higher (RS-422 connection)
control cable
Mini DIN cable*6
(RS-232C connection)

*1: When connected to a hub that supports PoE+, the provided AC adaptor is not required.
*2: When connected to a hub that supports PoE+/PoE+, the provided AC adaptor is not required.
*4: The AW-HEA10W/K is not supported. Depending on the camera to be operated, this unit may require a software upgrade. For details, please contact the sales representative.
*5: An Apple iPad (sold separately) is required for use.
*6: When connecting AW-HE130W/K directly, please use a crossover cable. When connecting via a hub (switching hub), please use a straight cable.
*8: AW-HR140 PoE++ conforms to IEEE802.3bt (Draft ver. 2.0).

Serial Connection Diagram

4K Multi-Purpose Camera AK-UB3000GJ*

Optional Cable AW-CA15H29G*2

indoor Pan-Tilt Head AW-PH400

Controller

Remote Operation Panel*6
AK-HRP200G
AK-HRP1000GJ
AK-HRP1005GJ

Remote Camera Controller AW-RP120G*5
AW-RP50*5

Optional Cable AW-CA15H29G*2

4K Integrated Camera AW-UE70W/K*

HD Integrated Camera AW-HE130W/K*

HD Integrated Camera AW-HE40SW/SK/HW/HK*

Full-HD Outdoor Integrated Camera AW-HR140

* The 4K/HD remote camera and controller serial port RS422 can connect to only one device per port. AW-RP120G and AW-RP50 have 5 ports each. Controller supporting standard protocol serial port RS-232C can connect to maximum seven remote cameras with Daisy Chain connection.

*1: For AK-UB3000GJ, please prepare AC adaptors 12 V(DC) with more than 60 W.
*2: AW-CA15H29G is not required when a remote operation panel (ROP) is directly connected to AK-UB3000GJ.
*3: Unit cannot be simultaneously controlled with an RS-422 connection and an RS-232C connection.
*4: When using a Remote Operation Panel (ROP), an additional AC adaptor or PoE hub may be required depending on the type of ROP.
*6: There are limitations on the connection methods and the functions that can be controlled. For details, please contact the sales representative.
**4K Integrated Camera**

<table>
<thead>
<tr>
<th>Appearance</th>
<th>4K Integrated Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>AW-UE70W/K, AW-UN70W/K</td>
</tr>
</tbody>
</table>

### General

- **Lens / Pan Tilt System**
  - Control
- **Power Requirements**
  - Video Output Connector: BNC (HD-SDI)  x 2
  - Power: DC 12 V (AC Adaptor supplied), DC 12 V to 21.8 V, (HW/HK model)
  - Lens / Pan Tilt System: BNC (HD-SDI)  x 1 (HW/HK model)
  - HDMI: 10Base-T/100Base-TX, RJ-45
  - USB: USB Mini-B port

### Camera

- **Image Sensors**
  - AW-HR140: 1/2.86 type Full-HD 3MOS
  - AW-HN130W/K, AW-HN40HW/HK only: 1/2.3-type MOS
  - AW-HE130W/K, AW-HN130W/K, AW-HE40SW/SK/HW/HK, AW-HN40HW/HK: 1/2.3-type MOS
  - AW-UE70W/K, AW-UN70W/K: 1/2.8 type Full-HD 3MOS

- **Horizontal Resolution**
  - AW-HE130W/K, AW-HN130W/K, AW-HE40SW/SK/HW/HK, AW-HN40HW/HK: 36.2° (wide) to 1.9° (tele)
  - AW-UE70W/K, AW-UN70W/K, AW-HN130W/K, AW-HE40SW/SK/HW/HK, AW-HN40HW/HK: 36.2° (wide) to 1.9° (tele)

- **Focus**
  - Auto, Off, 6 dB, 12 dB, 18 dB, 24 dB

### System

- **LAN with built-in NDI|HX**
  - Video Output: 3G-SDI
  - HDMI: 3G-SDI
  - USB: 3G-SDI
  - Remote Input/Output Connector: LAN

- **Audio Input/Output**
  - RS-232C

### Note

1. Excluding protrusions, cable cover, mount bracket
2. When OIS is Off/Mode1. *3: Image Stabilizer OFF *4: "Auto" is available when "Scene" setting is "Full Auto" *5: Depending on the pan or tilt position, the camera may be reflected in the image. *6: This product is compatible with NDI|HX technology of NewTek, Inc. *7: Picture quality is lower with the digital zoom.
<table>
<thead>
<tr>
<th>HD Integrated Camera</th>
<th>Full-HD Outdoor Integrated Camera</th>
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</thead>
<tbody>
<tr>
<td>AW-HE40SW/SK/HW/HK, AW-HN40HW/HK</td>
<td>AW-HE38HW/HK, AW-HN38HW/HK</td>
</tr>
<tr>
<td>AW-HR140</td>
<td></td>
</tr>
</tbody>
</table>

### Lens / Pan Tilt System
- **Serial / IP / IR**
  - DC 12 V (AC Adaptor supplied), DC42 V to 5.7 V (PoE+ power supply)
  - 1.2 A (AC adaptor supplied)
  - 0.4 A (PoE+ power supply)
  - DC 12 V to 21.8 V, DC42 V to 57 V (PoE+ power supply)**
  - Approx. 1.5 kg (3.3 lb)
  - 160 mm x 186 mm x 166 mm
  - Approx. 9.0 kg (19.8 lb)

### Remote Camera System
- **Model No.**
  - AW-HN40HW/HK, AW-HN38HW/HK, AW-HR140

### Remote Camera System
- **Remote Input/Output**
  - **Video Output**
  - **Field of View**
    - **Pan/Tilt Operation Speed**
    - **Video Output Connector**
    - **LAN with built-in NDI|HX**
    - **Synchronization System**
    - **Minimum Illumination**
    - **Digital Extender Zoom**
    - **Horizontal Resolution**
    - **Lens / Pan Tilt System**
    - **Power Consumption**
    - **Audio Input/Output**
    - **Focus Distance**
    - **Appearance**
    - **NH Filter**
    - **Control**
    - **Weight**
    - **Focus**
    - **Lens**
    - **S/N**
    - **USB**
    - **Composite**
    - **HD-SDI**
    - **3G-SDI**
    - **Diagonal**
    - **Vertical**
    - **Horizontal**
    - **RS-232C**
    - **RS-422**
    - **LAN**

### 1/2.3 type MOS
- **1/2.6 type Full-HD 3MOS**
- **Optical 30x zoom, Digital zoom 16x**
  - i.Zoom 40x, F1.6 to F4.7
  - [f=4.3 mm (11/64 inches) to 129 mm (5-5/64 inches); 35 mm (1/8 inches) equivalent: 31.6 mm (1/128 inches) to 962.0 mm (37/76 inches)]
  - 6.1° (wide) to 2.1° (tele)**
  - 37.0° (wide) to 1.1° (tele)**
  - 68.7° (wide) to 2.4° (tele)**
  - 1.4x

### 1/2.8 type Full-HD 3MOS
- **Optical 22x zoom, Digital zoom 16x**
  - i.Zoom 30x, F1.6 to F4.3
  - [f=4.3 mm (11/64 inches) to 94.6 mm (3-23/32 inches); 35 mm (1/8 inches) equivalent: 31.6 mm (1/128 inches) to 107.0 mm (27/49 inches)]
  - 6.1° (wide) to 2.9° (tele)**
  - 37.0° (wide) to 1.6° (tele)**
  - 68.7° (wide) to 3.3° (tele)**

### Control
- **Auto/Manual**
  - Entire zoom range: 1200 mm
  - Wide end: 100 mm

### Power Consumption
- **DC 12 V (AC Adaptor supplied), DC42 V to 5.7 V (PoE+ power supply)**
- **Approx. 1.5 kg (3.3 lb)**
- **160 mm x 186 mm x 166 mm**
- **Approx. 9.0 kg (19.8 lb)**

### Performance
- **Maximum speed during preset: 300°/s**
- **Maximum speed during manual: 90°/s**
- **642.5 mm**

### Physical Specifications
- **Model No.**
  - AW-HN40HW/HK, AW-HN38HW/HK, AW-HR140

### Audio Input/Output
- **Audio Input/Output**
- **Focus Distance**
- **Appearance**
- **S/N**
- **USB**
- **Composite**
- **HD-SDI**
- **3G-SDI**
- **Diagonal**
- **Vertical**
- **Horizontal**
- **RS-232C**
- **RS-422**
- **LAN**
- **As of April, 2018**

### Auto Detection Function
- **Internal**
- **External**
- **Internal/External synchronization (BBS/Tri-level sync)**

### Equipment
- **10BASE-T/100BASE-TX, RJ-45**
- **10BASE-T/100BASE-TX, RJ-45**
- **Mini DIN 8-pin (IN), Mini DIN 8-pin (OUT)**
- **MiniXLR (Line Input)**

### Model Comparison
- **AW-HN40HW/HK only**
- **AW-HN38HW/HK only**
- **SW/SK model**
- **HW/HK model**
- **BNC (HD-SDI) x 1 (SW/SK model)**
- **HDMI x 1 (HW/HK model)**
- **USB Mini-B port**
- **HDMI x 1**
- **USB Mini-B port**
- **BNC (HD-SDI) x 2**

### Notes
- **60°/s: NC45 or less**
- **60°/s: NC40 or less**
- **60 °/s or more**
- **60 °/s: NC45 or less**
- **−**
- **−**
- **−**
- **−**

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**As of April, 2018**

**Studio Camera System**

**Remote Camera System**

**Live Switcher**

**35**
## 4K / HD Integrated Camera Output Format/ Function Comparison

<table>
<thead>
<tr>
<th>Model No.</th>
<th>4K Integrated Camera</th>
<th>HD Integrated Camera</th>
<th>Full-HD Outdoor Integrated Camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW-UE70W/K</td>
<td>AW-UE70W/K</td>
<td>AW-HE130W/K</td>
<td>AW-HE130W/K</td>
</tr>
<tr>
<td>AW-UN70W/K</td>
<td>AW-HN130W/K</td>
<td>AW-HN40HW/HK</td>
<td>AW-HN38HW/HK</td>
</tr>
<tr>
<td>AW-HE40 series</td>
<td>AW-HE40 series</td>
<td>AW-HE38HW/HK</td>
<td>AW-HR140</td>
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</tbody>
</table>

### Output Signal Format

<table>
<thead>
<tr>
<th>Signal Format</th>
<th>AW-UE70W/K</th>
<th>AW-UN70W/K</th>
<th>AW-HE130W/K</th>
<th>AW-HN130W/K</th>
<th>AW-HN40HW/HK</th>
<th>AW-HN38HW/HK</th>
<th>AW-HR140</th>
</tr>
</thead>
<tbody>
<tr>
<td>2160/29.97p, 25p</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1080/59.94p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/29.97p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/23.98p</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/50p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/25p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/59.94i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/50i</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>1080/29.97PsF</td>
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<td>✓</td>
<td>✓</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>1080/23.98PsF</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>720/59.94p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>720/50p</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>576/50p</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>576/50i</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>480/59.94p</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>480/59.94i</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

### Function

- **CineGamma**: ✓
- **DRS**: ✓
- **Hybrid DNR**: ✓
- **HDR mode**: (Combine Images) ✓
- **Optical Image Stabilization (OIS)**: ✓
- **Dynamic Image Stabilizing System (D.I.S.S.)**: —
- **Digital Image Stabilization**: ✓
- **Digital Extender Zoom**: ✓
- **Independent Color Correction Function**: 16-axis Color, 12-axis Color, 3-axis Skin Tone
- **Color Temperature Adjustment Mode**: ✓
- **Scene files**: 4 files
- **Freeze During Preset function**: ✓
- **Night mode**: ✓
- **IP control**: ✓
- **IP video monitoring**: ✓
- **HD video output via IP transmission**: H.264 4K/Full HD, Motion JPEG 4K/Full HD
- **PoE**: PoE+, PoE+
- **Wireless Remote Control**: Up to 4
- **Fan-less design**: ✓
- **Color variations**: Black/white
- **USB Video Class 1.0**: ✓
- **Audio Input**: ✓

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*1: Native output *2: Over 59.94i *3: For 1080/25PsF, there are cases where 50i is displayed on the monitor. *4: A 'P' signal is output as HDMI output, an 'I' signal is output as SDI and an analog output for output formats of 480/59.94p(i) and 576/50p(i). *5: USB only. *6: Conforms to IEEE802.3bt (Draft ver. 2.0).
**AW-RP120G**

- **Power supply**: DC12 V ±10 % (AC Input range: DC10 V to DC16 V)
- **Power consumption**: 6.0 W
- **Dimensions (W x H x D)**: Approx. 342 mm x 77 mm x 265 mm
- **Weight**: Approx. 3.0 kg (Approx. 6.61 lb)
- **Power consumption**: 0.5 A (With DC12 V)
- **Up to 100 remote cameras can be connected and controlled via a switching hub.**
- **Automatic IP allocation simplifies the configuration of large-scale systems.**
- **In addition, it allows five AW-RP120G controllers to simultaneously control one remote camera.**
- **Serial control compatibility**: Up to five remote cameras can be connected and controlled. Also compatible with existing systems, and an RS232C port enables external control.
- **Linkage with AW-HS50**: IP connection allows linking with an AW-HS50 Compact Live Switcher, for a highly efficient operating environment.
- **Newly designed control panel**: Features a pan/tilt joystick, seesaw zoom lever, focus dial, and iris dial. A special speed adjustment dial is provided for each of the pan/tilt, zoom, and focus functions.
- **Tracing memory**: The remote camera operations (pan, tilt, zoom, focus, iris, and white balance modes) can be memorized and recalled.
- **Preset memory**: Up to 100 camera angle settings (pan, tilt, zoom operation) can be registered and retrieved for each camera to greatly simplify a variety of camera controls.
- **Preset batch retrieval function**: By creating groups of any desired preset memories (up to four groups), multiple camera angle settings (up to ten cameras) can be retrieved in a single batch.
- **Camera Image Quality Adjustment**: Equipped with an AWB button for automatic white balance, and an ABB button for automatic black balance. Dedicated dials allow pedestal and gain adjustment for Rch and Bch. Colors can also be easily adjusted by manual control.
- **Direct Selection Buttons**: Ten camera selection buttons are provided. Also, numerical buttons from 1 to 50 and a page button enable quick recall of 100 preset memories and 10 tracing memories.
- **SD Memory Card**: Settings can be backed up on a SD memory card. This also allows settings to be copied to other controllers.

**Highly Functional Remote Controller with Joystick and Other Operating Enhancements.**

- **IP connection**: Up to 100 remote cameras can be connected and controlled via a switching hub. Automatic IP allocation simplifies the configuration of large-scale systems. In addition, it allows five AW-RP120G controllers to simultaneously control one remote camera.
- **Serial control compatibility**: Up to five remote cameras can be connected and controlled. Also compatible with existing systems, and an RS232C port enables external control.
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- **SD Memory Card**: Settings can be backed up on a SD memory card. This also allows settings to be copied to other controllers.

**Remote Camera Controller**

**AW-RP50**

- **Power supply**: DC12 V ±10 % (AC Input range: DC10 V to DC16 V)
- **Power consumption**: 0.5 A (With DC12 V)
- **Dimensions (W x H x D)**: 210 mm x 67 mm x 177 mm
- **Weight**: Approx. 1.1 kg (Approx. 2.4 lb)
- **Accessories**: AC adaptor, Power cable

**Compact, easy-to-operate remote controller**

- **IP Control**: Up to 100 remote camera units can be controlled by AW-RP50 via IP and Ethernet hubs.
- **Multi-Control**: Up to 5 AW-RP50 can simultaneously control one remote camera unit.
- **Serial Control**: Up to 5 cameras/pan-tilt heads can be controlled via serial connection.
- **AW-HS50 Link**: Linkage with AW-HS50 is available via IP connection, which enables smoother operation.
- **Preset Memory**: Up to 100 preset memories can be set and recalled.

**Remote Operation Panel**

**AK-HRP200G**

- **Power supply**: DC12 V
- **Power consumption**: 4.2 W
- **Dimensions (W x H x D)**: 92 mm x 308 mm x 55 mm
- **Weight**: Approx. 1.3 kg (Approx. 2.87 lb)

**Compact operation panel also compatible with Studio Handy Cameras**

- **Remote Operation**: The camera can be remotely operated via serial control or IP control. In addition to the AK-HC3800** Studio Handy Camera, it is also possible for Panasonic Multi-purpose Cameras, HD Convertible Cameras, and 4K/HD Integrated Cameras.
- **Compact 6U Size**: The unit is compact, with a width of 92 mm and a 6U height suitable for easy rack mounting.
- **ROP Menu/Camera Menu Setting**: The menu can be displayed on a monitor connected to the Camera Control Unit, so detailed camera settings can be made by operating the Remote Operation Panel.
- **Joystick Control Lever**: The joystick control lever enables fine manual iris/pedestal adjustment.
- **SD Memory Card Slot**: Scene files, user files*, and lens file* can be saved on to a SD memory card. SD memory cards can also be used for firmware upgrades.
- **IP Connection**: A LAN terminal enables IP connection via Ethernet (RU45 LAN cable).

*1: When power is supplied from the Camera Control Unit.  *2: Only Studio Handy Camera can handle.
*3: External power supply (DC 12 V) required when LAN cable is used.
Remote Camera System Optional Products

Live Production Center

**AV-HLC100**  
An all-in-one switcher that connects with Panasonic PTZ cameras compatible with NDI | HX to provide camera control, video signal transmission, and audio mixing. The AV-HLC100 also enables direct video broadcasting to live streaming services such as YouTube Live and Facebook Live.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>DC 19 V (AC adaptor provided)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>110 W</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 6.05 kg (13.34 lbs)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>427 mm x 93 mm x 278 mm (16.8 inches x 3.67 inches x 10.96 inches) (excluding protrusions)</td>
</tr>
</tbody>
</table>

**Protocol Converter**

**AW-IF400G**  
Enables various pan-tilt head and control panel combinations. Using the AW-RP120G/RP50, the AW-PH400 indoor pan-tilt head can be operated. The maximum operation distance can be extended to 1,500 m.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>DC10.8 V to DC16 V</td>
</tr>
<tr>
<td>Power consumption</td>
<td>1.5 W</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 0.4 kg (Approx. 0.88 lb)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>145 mm x 30 mm x 85 mm (5-11/16 inches x 1-3/16 inches x 3-3/8 inches) (excluding protrusions)</td>
</tr>
</tbody>
</table>

**AC Adaptor**

**AW-PS551**  
This AC adaptor is designed to be used with Multi-Purpose Cameras, and their peripherals. [For AW-RP120G, AK-HRP200G, AW-HS50]

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power input</td>
<td>AC100 V to 240 V/1.2 A, 50/60 Hz</td>
</tr>
<tr>
<td>Power output</td>
<td>DC12 V/3.0 A</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 260 g (0.57 lb)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>57 mm x 37 mm x 115 mm (2-1/4 inches x 1-7/16 inches x 4-1/2 inches) (excluding protrusions)</td>
</tr>
<tr>
<td>Accessory</td>
<td>Power cable, DC cable with ø5.5 plug: Approx. 3 m x 1</td>
</tr>
</tbody>
</table>

Compact Live Switcher

**AW-HS50**  
A compact Live Switcher with multi-view capability, this unit has 5 inputs and 3 outputs as standard along with frame synchronizers on all inputs. *For details, please see page 61, 74.*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>DC12 V ±10 % (AC adaptor provided)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>2.0 A (With DC12 V input)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 1.4 kg (Approx. 3.08 lb)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>210 mm x 67 mm x 177 mm (8-1/4 inches x 2-5/8 inches x 6-15/16 inches) (excluding protrusions)</td>
</tr>
<tr>
<td>Accessory</td>
<td>AC adapter, Power cable</td>
</tr>
</tbody>
</table>
### Operation-verified 3rd party devices: PoE+ compatible hub/injector list

<table>
<thead>
<tr>
<th>GeoVision</th>
<th>[NETGEAR, Inc.]</th>
<th>Allied Telesis</th>
</tr>
</thead>
</table>
| PoE Adapter
GV-P901   | ProSAFE® 8-Port 10/100/1000 PoE Smart Switch with 2 Gigabit SFP Ports GS510TP | Gigabit PoE+ Injector AT-6101GP |
| *Operation-verified on Mar/2017* | *Operation-verified on Sep/2015* | *Operation-verified on Sep/2015* |

*GeoVision Inc.*
(TEL) +886-2-8797-8376  (Email) sales@geovision.com.tw

*NETGEAR, Inc.*
http://www.netgear.com/home/contact-us/

*Allied Telesis*
(North America) http://alliedtelesis.com/contact  (Asia/Pacific) sales-singapore@alliedtelesis.com  (EMEA) Customer_info@alliedtelesis.com  (Central & South America) Customer_info@alliedtelesis.com

Panasonic does not guarantee the quality, performance, or the operation of the 3rd party devices.

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### Compatibility Overview for Remote Cameras/ Pan-tilt Heads* and Remote Camera Controller

<table>
<thead>
<tr>
<th></th>
<th>AW-RP120G</th>
<th>AW-RPS0</th>
<th>AV-HLC100</th>
<th>AK-HRP200G</th>
<th>AK-HRP1000GJ/AK-HRP1005GJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K Multi Purpose Camera</td>
<td>AK-UB300GJ</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>4K Integrated Camera</td>
<td>AW-UE70W/K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AW-UN70W/K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HD Integrated Camera</td>
<td>AW-HE130W/K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AW-HN130W/K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AW-HE40SW/SK/HW/K</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AW-HN40HW/HK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td></td>
<td>AW-HE38HW/HK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AW-HN38HW/HK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Full HD Outdoor Integrated Camera</td>
<td>AW-HR140</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pan-Tilt Head</td>
<td>AW-PH400</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>AW-PH650</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*1: Controllable items vary depending on the model.  *2: requires AW-IF400G
<table>
<thead>
<tr>
<th>AW-UE70W/K</th>
<th>AW-UN70W/K</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td><strong>General</strong></td>
</tr>
<tr>
<td>Power Requirements</td>
<td>DC 12 V (Supplied AC adaptor) DC 42 V to 57 V (PoE+ power supply)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>1.3 A (Supplied AC adaptor) 0.5 A (PoE+ power supply)</td>
</tr>
<tr>
<td>Ambient Operating Temperature</td>
<td>0 °C to 40 °C (32 °F to 104 °F)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>–20 °C to 50 °C (–4 °F to 122 °F)</td>
</tr>
<tr>
<td>Allowable Humidity Ranges</td>
<td>20 % to 90 % (no condensation)</td>
</tr>
<tr>
<td>Mass</td>
<td>Approx. 1.5 kg (3.30 lb)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>160 mm x 186 mm x 179 mm (6-5/16 inches x 7-41/128 inches x 7-3/64 inches) [excluding protrusions, direct ceiling mount bracket]</td>
</tr>
<tr>
<td>Controller Supported**1</td>
<td>AW-RP50, AW-RP120G, AK-HPR200G</td>
</tr>
<tr>
<td><strong>Camera Unit</strong></td>
<td><strong>Camera Unit</strong></td>
</tr>
<tr>
<td>Imaging Sensors</td>
<td>1/2.3-type MOS</td>
</tr>
<tr>
<td>Lens</td>
<td>Optical 20x zoom, F1.8 to F3.6 [f=4.08 mm (5/32 inches) to 81.6 mm (3-7/32 inches); 35 mm (1-3/8 inches) equivalent; 29.5 mm (1-5/32 inches) to 612.0 mm (24-3/32 inches)]</td>
</tr>
<tr>
<td>Focus</td>
<td>Switching between auto and manual</td>
</tr>
<tr>
<td>Focus distance</td>
<td>Entire zooming range: 1.5 m (4.92 ft) Wide end: 10 cm (0.33 ft)</td>
</tr>
<tr>
<td>Color separation optical system</td>
<td>On-chip color filter system</td>
</tr>
<tr>
<td><strong>Minimum Illumination</strong></td>
<td><strong>Minimum Illumination</strong></td>
</tr>
<tr>
<td>59.94 Hz</td>
<td>0.7 lx (50IRE, F1.8, 48 dB, 1/30 with accumulation) 0.35 lx (50IRE, F1.8, 48 dB, 1/30 with accumulation) [Frame Mix 6 dB]</td>
</tr>
<tr>
<td>50 Hz</td>
<td>0.7 lx (50IRE, F1.8, 48 dB, 1/30 with accumulation) 0.35 lx (50IRE, F1.8, 48 dB, 1/25 with accumulation) [Frame Mix 6 dB]</td>
</tr>
<tr>
<td>Horizontal Resolution</td>
<td>4K: 1300 TV lines Typ (Center area) HD: 1000 TV lines Typ (Center area)</td>
</tr>
<tr>
<td>Gain Selection**2</td>
<td>Auto, 0 dB to 48 dB (3 dB step)</td>
</tr>
<tr>
<td>Frame Mix**3</td>
<td>Auto, Off, 6 dB, 12 dB, 18 dB, 24 dB</td>
</tr>
<tr>
<td><strong>ND filter</strong></td>
<td><strong>ND filter</strong></td>
</tr>
<tr>
<td></td>
<td>Auto*, Through, 1/4, 1/16, 1/64</td>
</tr>
<tr>
<td><strong>Electronic Shutter Speed</strong></td>
<td><strong>Electronic Shutter Speed</strong></td>
</tr>
<tr>
<td>During Auto</td>
<td>1/60 to 1/2000 [59.94 Hz] 1/50 to 1/2000 [50 Hz]</td>
</tr>
<tr>
<td>During Manual</td>
<td>1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [59.94 Hz] 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [50 Hz]</td>
</tr>
<tr>
<td><strong>Synchro Scan</strong></td>
<td><strong>Synchro Scan</strong></td>
</tr>
<tr>
<td>59.94 Hz</td>
<td>59.94 Hz to 660.09 Hz (255 step)</td>
</tr>
<tr>
<td>50 Hz</td>
<td>50.00 Hz to 570.12 Hz (255 step)</td>
</tr>
<tr>
<td>Gamma</td>
<td>Off, Normal (Low, Mid, High), Cinema</td>
</tr>
<tr>
<td>White Balance</td>
<td>ATW, AWB A, AWB B, ATW, 3200K,5600K, VAR (2400K to 9900K)</td>
</tr>
<tr>
<td>Chroma Amount Variability</td>
<td>±3 step</td>
</tr>
<tr>
<td>Scene File</td>
<td>Full Auto, Manual1, Manual2, Manual3</td>
</tr>
<tr>
<td>Synchronization System</td>
<td>Synchronization System</td>
</tr>
<tr>
<td></td>
<td>Internal synchronization/External synchronization (BBS, Tri-level sync)</td>
</tr>
<tr>
<td>Image Stabilization</td>
<td>Optical (FHD, 4K)/4-axis hybrid image stabilizer (FHD) for stable</td>
</tr>
</tbody>
</table>

**Input**

| **Power** | DC 12 V IN, PoE+ (IEEE802.3at standard) |
| **MIC/LINE Input** | Stereo mini-jack (3.5 mm) |
| | Input impedance: Approx. 2 kΩ (unbalanced) [Mic input] Supported microphones: Stereo mic [plug-in power, on/off switching via menu] |
| | Supplied voltage: 2.5 V ± 0.5 V |
| | Mic input level: –60 dB ± 3 dBV (0 dB=1VPp, 1 kHz) [Line input] Input level: –10 dB ± 3 dBV |
| **G/L IN** | BBS (Black Burst Sync) signal and tri-level sync supported (BNC x 1) |

**Output**

| **Video Output** | HDMI connector |
| | • HDCP is not supported. • VIERA Link is not supported. |
| **Input/Output Connector** | 3G/HD-SDI OUT |
| | Compliant with the SMPTE424/SMPTE292M standards/75 Ω (BNC x 1) |

**Input/Output**

| **LAN** | LAN connector for IP control (RJ-45) Equipped with straight/crossover cable auto detection function |
| **RS-232C** | Mini DIN 8-pin (IN) Mini DIN 8-pin (OUT) |
| **RS-422** | CONTROL IN RS422A (RJ-45) |
| **USB** | Mini-B port |
| **SD Card** | microSD card slot |

**USB connection** * This may vary depending on the operating environment.

**Video output** | USB Video Class Ver1.0

**Video compression format** | Motion JPEG

**Resolution** | 3840 x 2160, 2010 x 1080, 1280 x 720, 640 x 360

**Frame rate** | max 30 fps (59.94 Hz) max 25 fps (50 Hz)

**Audio output** | USB Audio Class Ver1.0

**Audio compression format** | Linear PCM, 48 kHz, 16-bit, 2 channels

**Transfer modes (JPG)** | 3840 x 2160 59.94 Hz: 5fps, 50 Hz: 5fps
| 1920 x 1080/1280 x 720/640 x 360 59.94 Hz: 30fps/15fps/5fps, 50 Hz: 25fps/12.5fps/5fps

**Supported models** | Devices standardly equipped with a USB 2.0 compatible port

**Pan-tilt Head Unit**

| **Installation Method** | Stand-alone (Desktop) or suspended (Hanging)*4 |
| **Pan/tilt Operation Speed** | Maximum speed during preset: 300°/s Maximum speed during manual: 90°/s |
| **Panning Range** | ±175° |
| **Tilting Range** | –30° to 90°*5 |
| **Quietness** | During preset: NC40 or less During manual: NC35 or less |

**Camera/pan-tilt head control**

| **IP connecting cable** | • When connecting through a PoE+ hub: LAN cable** (category 5e or above), max. 100 m (328 ft) • When a PoE+ hub is not used: LAN cable** (category 5 or above) max.100 m (328 ft) |
| **AW protocol connecting cable** | LAN cable** (category 5 or above, straight cable), max. 1000 m (3280 ft) |
| **Standard protocol connecting cable** | Mini DIN 8-pin cable, male

* This may vary depending on the operating environment.

*4 This supports a link of maximum 1000 m (3280 ft) max. 1000 m (3280 ft)

*5 This does not support an external device, such as an external pan-tilt head unit, for switch between auto and manual

*6 This may vary depending on the operating environment.

*7 This supports a link of maximum 1000 m (3280 ft) max. 1000 m (3280 ft)

*8 This supports a link of maximum 1000 m (3280 ft) max. 1000 m (3280 ft)
Remote Camera System – Specifications

SD card recording
- MPEG-4 AVC file standard compliant (.MP4)
- AAC-LC (48 kHz, 16 bit, 2 ch, 128 kbps)

Video compression format
- MPEG-4 AVC/H.264 High Profile

Audio compression format
- AAC-LC (48 kHz, 16 bit, 2 ch, 128 kbps)

Rear View
- 3840 x 2160, 1920 x 1080, 1280 x 720, 640 x 360, 320 x 180
- JPEG image display
- MPEG-4 AVC file standard compliant (.MP4)

Bottom View
- Dimensions:
  - Hole for mounting the main unit mounting screw: ø 4.5 x 4
  - Mount bracket: ß 40(ø1-3/16)
  - Status display lamp: ø 8.5 (3-1/8)

Network
- Transfer modes:
  - JPEG: 3840 x 2160, 1920 x 1080
  - H264: 1920 x 1080/25p
- Recording format / Bit rate:
  - 59.94 Hz
    - 3840 x 2160/29,97p (Up to 72 Mbps), 1920 x 1080/59,94p (Up to 15 Mbps)
    - Average 4 Mbps/Average 2 Mbps/Average 1 Mbps
    - 1280 x 720/25p, 640 x 360/25p
    - Average 4 Mbps/Average 2 Mbps/Average 1 Mbps
  - 50 Hz
    - 3840 x 2160/25p (Up to 72 Mbps), 1920 x 1080/50p (Up to 15 Mbps)
    - Average 10 Mbps/Average 6 Mbps/Average 4 Mbps
    - Average 2 Mbps/Average 1 Mbps

Dimensions

Unit: mm (inches)

**Remote Camera System**

**Studio Camera System**

**Unit: mm (inches)**

**Ceiling Installation View**

Optimal for both hanging and desktop installation.

The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible. Mount the bracket onto the installation surface and then put and turn the main unit on the bracket to be installed.

- Hole for checking the positioning
- Hole for installing the WV-Q105A direct ceiling mount bracket [ø 60 (ø 2-3/8)]
- Hole for checking the positioning
- Through-hole for cable: ø 40(ø1-3/16) (reference)

- Status display lamp
- Drop-prevention wire
- Approx. 15°

- *The mounting bracket for discontinued AW-HE50 and AW-HE60 and current AW-HE40 series, AW-HN40HW/HK, AW-HE38HW/HK and AW-HN38HW/HK can also be used.

* Wiring, mounting, and removal must be done by a qualified technician. To ensure safety, consult with the dealer from whom you purchased the system.

* For “Terminal Pin Configuration”, see page 43.

* 1: It may be necessary to upgrade the version of the controller so that the controller will support the unit.
* 2: During Auto, 6 dB to 48 dB (6 dB step) are available for AGC Max Gain setting.
* 3: During Auto, 0 dB, 6 dB, 12 dB and 18 dB are available for Auto F.Mix Max Gain setting.
* 4: “Auto” is available when “Scene” setting is “Full Auto”.
* 5: To ensure safety, the unit must be secured using the mount bracket supplied.
* 6: Depending on the pan or tilt position, the camera may be reflected in the image.
* 7: Use of an STP (shielded twisted pair) cable is recommended.
* 8: The frame rate may be lower than the setting depending on the operating conditions.
* 9: When the image resolution is “3840x2160”, “640x360” or “320x180”, 60fps or 50fps cannot be selected for the frame rate.
* 10: To ensure more safety, AW-UE20K/W can be secured by using the direct ceiling mount bracket (WV-Q105A).

*For information on “Output Signal Format”, see page 36.

As of April, 2018
**AW-HE130W/K**  AW-HN130W/K

### General

- **Power Requirements**: DC 12 V (AC adaptor supplied) DC 42 - 57 V (PoE+ power supply) 1.8 A (AC adaptor supplied) 0.6 A (PoE+ power supply)
- **Ambient Operating Temperature**: 0 °C to 40 °C (32 °F to 104 °F)
- **Allowable Humidity Ranges**: 20 % to 90 % (no condensation)
- **Storage Temperature**: –20 °C to 50 °C (–4 °F to 122 °F)
- **Mass**: Approx. 3.1 kg (6.83 lb) [Including mount bracket]
- **Dimensions (W x H x D)**: 180 mm x 228 mm x 234 mm (7-3/32 inches x 9 inches x 9-3/16 inches) (excluding protrusions, cable cover, direct ceiling mount bracket)
- **Controller Supported**: AW-RP120G, AW-RP50, AK-HRP200G

### Camera Unit

- **Imaging Sensors**: 1/2.86-type Full-HD 3MOS
- **Lens**: Optical 20 zoom, F1.6 to F3.4 (f=4.5 mm to 90 mm; 35 mm equivalent: 32.13 mm to 642.5 mm)
- **Focus**: Switching between auto and manual
- **Focus Distance**: Entire zooming range: 800 mm (2.62 ft) Wide end: 400 mm (1.31 ft)
- **Color Separation Optical System**: 3MOS
- **Minimum Illumination**: 2 lx (50 IRE, F1.6, 36 dB)
- **Horizontal Resolution**: 1000 TV lines Typ (Center area)
- **Gain Selection**: Auto, 0 dB to 36 dB
- **Frame Mix**: 0 dB, 6 dB, 12 dB, 18 dB, 24 dB

#### Electronic Shutter Speed

<table>
<thead>
<tr>
<th>Mode</th>
<th>59.94p/59.94i</th>
<th>29.97p</th>
<th>23.98p</th>
<th>50p/50i</th>
<th>25p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1000</td>
<td>1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000</td>
<td>1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000</td>
<td>1/24, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000</td>
<td>1/16, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000</td>
<td>1/25, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000</td>
</tr>
</tbody>
</table>

- **Syncro Scan**: 59.94 Hz 60.15 Hz to 642.21 Hz 50 Hz 50.15 Hz to 535.71 Hz
- **Gamma**: HD, SD, FILM LIKE 1, FILM LIKE 2, FILM LIKE 3 0.30 to 0.75 (Manual setting)
- **Chroma Amount Variability**: OFF, –99 % to 40 %
- **Scene File**: Scene 1, Scene 2, Scene 3, Scene 4

### Synchronization System

- **Input Connector**: DC 12 V IN, G/L IN (BNC)
  - BBS (Black Burst Sync), tri-level sync supported
  - Locking to a color subcarrier is not possible with BBS, PoE+ (IEEE802.3at standard)

### Input

- **Input Connector**: DC 12 V IN, G/L IN (BNC)
  - BBS (Black Burst Sync), tri-level sync supported
  - Locking to a color subcarrier is not possible with BBS, PoE+ (IEEE802.3at standard)

### Output

- **Video output**: HDMI connector
  - HDCP is not supported.
  - Viera Link is not supported.

- **Input/Output connector**: LAN connector for IP control (RJ-45), PoE+ RS-422 CONTROL IN RS-422A (RU-45)

- **MIC/LINE input**: 3.5 mm stereo mini jack
  - Input impedance: High impedance
  - During MIC input
  - Supported mic: Stereo mic (plug-in power, on/off switching via menu)
  - Supply voltage: 2.5 V ± 0.5 V
  - Mic input sensitivity: Approx. ±40 dBV ± 3 dBV
  - During LINE input
  - Input level: Approx. ±10 dBV ±3 dBV

### Pan-tilt Head Unit

- **Installation Method**: Stand-alone (Desktop) or suspended (Hanging)*
- **Camera/Pan-tilt Head Control**: IP connecting cable
  - When connecting through a PoE+ hub: LAN cable* (category 5e or above, straight cable), max. 100 m (328 ft)
  - When a PoE+ hub is not used:
    - LAN cable* (category 5 or above, crossover cable) max. 100 m (328 ft)
  - RP connecting Cable
    - LAN cable* (category 5 or above, straight cable), max. 1000 m (3280 ft)
    - RS-422A, AW series protocol

- **Pan-tilt Operation Speed**: 0.08°/s to 60°/s
- **Panning Range**: ±175°
- **Tilting Range**: –30° to 210°
- **Quietness**: NC35 or less

### Standard Accessories

- Mount bracket for installation surface (Hanging* / Desktop): 1, Drop-prevention wire: 1, Drop-prevention wire mounting screw (comes attached to the unit): 1, Bracket mounting screws (bind-head) M4 x 10 mm: 4, Main unit mounting screw (with flat washer, spring washer) M3 x 6 mm: 1, Cable cover: 1, Power cable: 1, AC adaptor: 1, CD-ROM

---

*1: It may be necessary to upgrade the version of the controller in order to support the unit. For details on upgrading, visit the support page on the following website (https://pro-av.panasonic.net/).

*2: This cannot be configured when the format is 1080/29.97p, 1080/23.98p, 1080/29.97PsF, 1080/23.98PsF, 1080/25p, or 1080/25PsF.

*3: To ensure safety, IP connecting cable must be used. *4: Use of an STP (shielded twisted pair) cable is recommended. *5: Depending on the pan or tilt position, the camera may be reflected in the image. *6: To ensure more safety, AW-HE130W/K can be secured by using the direct ceiling mount bracket (WV-Q105A).

---

*For information on "Output Signal Format", see page 36.
Remote Camera System – Specifications

As of April, 2018

Dimensions

Unit: mm [inches]

RS-422 Connector <RS-422>

This RS-422 connector (RJ45) is connected when exercising serial control over the unit from an external device. Use a cable with the following specifications for the connection to this connector. The tally lamp can be lit by shorting the TALLY signal (pin 2) with GND (pin 1).

- Do not apply a voltage to the TALLY signal pin.

LAN cable* (category 5 or above, straight cable), max. 1000 m (3280 ft)
*a use of an STP (shielded twisted pair) cable is recommended.

Pin Configuration


<table>
<thead>
<tr>
<th>Pin NO.</th>
<th>Signal</th>
<th>Pin NO.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>5</td>
<td>TXD+</td>
</tr>
<tr>
<td>2</td>
<td>TALLY</td>
<td>6</td>
<td>RXD+</td>
</tr>
<tr>
<td>3</td>
<td>RXD−</td>
<td>7</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>TXD−</td>
<td>8</td>
<td>—</td>
</tr>
</tbody>
</table>

RS-232C Connectors <RS-232C IN/OUT>

Connects to an RS-232C cable.

RS-232C IN  RS-232C OUT

<table>
<thead>
<tr>
<th>Pin NO.</th>
<th>Signal</th>
<th>Pin NO.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTR_IN</td>
<td>1</td>
<td>DTR_OUT</td>
</tr>
<tr>
<td>2</td>
<td>DSR_IN</td>
<td>2</td>
<td>DSR_OUT</td>
</tr>
<tr>
<td>3</td>
<td>TXD_IN</td>
<td>3</td>
<td>TXD_OUT</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>RXD_IN</td>
<td>5</td>
<td>RXD_OUT</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>IR OUT R</td>
<td>7</td>
<td>NC</td>
</tr>
<tr>
<td>8</td>
<td>IR OUT L</td>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>

Bottom View

Unit: mm [inches]

Ceiling Installation View

Optimal for both hanging and desktop installation.

The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible. Mount the bracket onto the installation surface and then put and turn the main unit on the bracket to be installed.

- AW-HE120W/K installation mount bracket can be used. The mounting bracket for HE130 differs from that of discontinued AW-HE50 and AW-HE60 and current AW-UE70W/K, AW-UN70W/K, AW-HE40 Series, AW-HN40HW/HK, AW-HE38HW/HK and AW-HN38HW/HK.
- Wiring, mounting, and removal must be done by a qualified technician. To ensure safety, consult with the dealer from whom you purchased the system.

* Wiring, mounting, and removal must be done by a qualified technician. To ensure safety, consult with the dealer from whom you purchased the system.
## AW-HE40SW/SK/HW/HK
### AW-HN40HW/HK

#### General

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40SW/SK/HW/HK</th>
<th>AW-HN40HW/HK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Requirements</strong></td>
<td>DC 12 V (Supplied AC adaptor)</td>
<td>DC 12 V IN, PoE+ (IEEE802.3at standard)</td>
</tr>
<tr>
<td><strong>Current Consumption</strong></td>
<td>1.2 A (Supplied AC adaptor)</td>
<td>Stereo mini-jack (4.5 mm) Input impedance: Approx. 2 kΩ (unbalanced)</td>
</tr>
<tr>
<td></td>
<td>0.4 A (PoE+ power supply)</td>
<td>[Mic input] • Supported microphones: Stereo mic (plug-in power, on/off switching via menu)</td>
</tr>
<tr>
<td><strong>Ambient Operating Temperature</strong></td>
<td>0 °C to 40 °C (32 °F to 104 °F)</td>
<td>[Supplied voltage: 2.5 V ± 0.5 V]</td>
</tr>
<tr>
<td><strong>Allowable Humidity Ranges</strong></td>
<td>20 % to 90 % (no condensation)</td>
<td>[Mic input level: -60 dBV ± 3 dBV]</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>–20 °C to 50 °C (–4 °F to 122 °F)</td>
<td>[Line input level: –10 dBV ± 3 dBV]</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>Approx. 1.5 kg (3.30 lb)</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>160 mm x 186 mm x 166 mm (6-5/16 inches x 7-11/32 inches x 6-17/32 inches) (excluding protrusions, direct ceiling mount bracket)</td>
<td></td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>AW-HE40HW / AW-HE40SW / AW-HN40HW: Pearl white</td>
<td>AW-HE40SW, AW-HE40SK / AW-HN40HK: Metallic black</td>
</tr>
<tr>
<td><strong>Controller Supported</strong></td>
<td>AV-RP50, AV-RP120G, AK-HRP200G</td>
<td></td>
</tr>
</tbody>
</table>

#### Camera Unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40SW/SK/HW/HK</th>
<th>AW-HN40HW/HK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Imaging Sensors</strong></td>
<td>1/2.3-type MOS</td>
<td></td>
</tr>
<tr>
<td><strong>Lens</strong></td>
<td>Optical 30x zoom, F1.6 to F4.7, f=4.3 mm (11/64 inches) to 129 mm (5-3/4 inches); 35 mm (1-3/8 inches) equivalent: 31.6 mm (1-31/128 inches) to 962.0 mm (37-7/8 inches)</td>
<td></td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Switching between auto and manual</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Distance</strong></td>
<td>Entire zooming range: 1.2 m (3.94 ft) Wide end: 10 cm (0.33 ft)</td>
<td></td>
</tr>
<tr>
<td><strong>Color Separation Optical System</strong></td>
<td>On-chip color filter system</td>
<td></td>
</tr>
<tr>
<td><strong>Minimum Illumination</strong></td>
<td>59.94 Hz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.7 lx (50 IRE, F1.6, 48 dB, /80 without accumulation)</td>
<td>HDMI connector</td>
</tr>
<tr>
<td></td>
<td>0.35 lx (50 IRE, F1.6, 48 dB, 1/30 with accumulation [Frame Mix 6 dB])</td>
<td>• HDCP is not supported.</td>
</tr>
<tr>
<td><strong>Horizontal Resolution</strong></td>
<td>1000 TV lines Typ (Center area)</td>
<td>• Viera Link is not supported.</td>
</tr>
<tr>
<td><strong>Gain Selection</strong></td>
<td>Auto, 0 dB to 48 dB (3 dB step)</td>
<td>Compliant with the SMPTE292M standards/75 (BNC x 1)</td>
</tr>
<tr>
<td><strong>Frame Mix</strong></td>
<td>Auto, Off, 6 dB, 12 dB, 18 dB, 24 dB</td>
<td></td>
</tr>
</tbody>
</table>

#### Input

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Output</strong></td>
<td>HDMI connector</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• HDCP is not supported.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Viera Link is not supported.</td>
<td></td>
</tr>
<tr>
<td><strong>RS-232C</strong></td>
<td>Mini DIN 8-pin (IN)</td>
<td></td>
</tr>
<tr>
<td><strong>RS-422</strong></td>
<td>CONTROL IN RS422A (RS-45)</td>
<td></td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>Mini-B port (Used for maintenance)</td>
<td></td>
</tr>
<tr>
<td><strong>SD Card</strong></td>
<td>microSD card slot (Used for maintenance)</td>
<td></td>
</tr>
</tbody>
</table>

#### USB connection

* This may vary depending on the operating environment.

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAN connector</strong></td>
<td>USB Video Class Ver1.0</td>
<td></td>
</tr>
<tr>
<td><strong>Video output</strong></td>
<td>USB Video compression format</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motion JPEG</td>
<td></td>
</tr>
<tr>
<td><strong>Video compression format</strong></td>
<td>Resolution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1920 x 1080, 1280 x 720, 640 x 360</td>
<td></td>
</tr>
<tr>
<td><strong>Frame rate</strong></td>
<td>max 30 fps (System frequency 59.94 Hz)</td>
<td>max 25 fps (System frequency 50 Hz)</td>
</tr>
<tr>
<td><strong>Audio output</strong></td>
<td>USB Audio Class Ver1.0</td>
<td></td>
</tr>
<tr>
<td><strong>Audio compression format</strong></td>
<td>Linear PCM, 48 kHz, 16-bit, 2 channels</td>
<td></td>
</tr>
</tbody>
</table>

#### Input/Output

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supported models</strong></td>
<td>Devices standardly equipped with a USB 2.0 compatible port</td>
<td></td>
</tr>
</tbody>
</table>

#### Pan-tilt Head Unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Installation Method</strong></td>
<td>Stand-alone (Desktop) or suspended (Hanging)**</td>
<td></td>
</tr>
<tr>
<td><strong>Pan-tilt Operation Speed</strong></td>
<td>Maximum speed during preset: 300°/s</td>
<td>Maximum speed during manual: 90°/s</td>
</tr>
<tr>
<td><strong>Panning Range</strong></td>
<td>±175°</td>
<td></td>
</tr>
<tr>
<td><strong>Tilting Range</strong></td>
<td>–30° to 90°**</td>
<td></td>
</tr>
</tbody>
</table>

#### Quietness

* During preset: NCA40 or less
* During manual: NCA35 or less

#### Camera/Pan-tilt Head Control

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE40S</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When connecting through a PoE+ hub</strong>: LAN cable** (category 5e or above), max. 100 m (328 ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>When a PoE+ hub is not used</strong>: LAN cable** (category 5 or above) max.100 m (328 ft)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note

- **AW protocol connecting cable**: Mini DIN 8-pin cable, male
### Remote Camera System – Specifications

**As of April, 2018**

#### Studio Camera System

- **Live Switcher**

#### Ceiling Installation View

- **Mount bracket for installation surface (Hanging**\(^*1\)**/Desktop): 1, Drop-prevention wire mounting screw (already attached to the unit): 1, Bracket mounting screws (bind-head) M4 x 10 mm: 4, Main unit mounting screw (with flat washer, spring washer) M3 x 6 mm: 1, Power cable (1.8 m [5.9 ft]): 1, AC adaptor: 1, CD-ROM

### Network

- **Supported protocol**
  - **IPv4**: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTCP, FTP, DHCP, DNS, NTP, IGMP, UPnP, ICMP, ARP, RTSPoverTCP, RTSPoverHTTP, SSL[TLS], MultiCast/UniCast
  - **IPv6**: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTCP, FTP, DHCPv6, DNS, NTP, ICMPv6(MLD), RTSPoverTCP, RTSPoverHTTP, SSL[TLS], MultiCast/UniCast

### i-OS, Android support

- JPEG image display

### SD card type

- micro SDHC (4 GB to 32 GB), micro SDXC (64 GB to 128 GB), Speed class 10 or higher

### System frequency

- 59.94 Hz/50 Hz

### Video compression format

- MPEG-4 AVC/H.264 High Profile

### Audio compression format

- AAC-LC (48 kHz, 16 bit, 2 ch, 128 kbps)

### Audio output

- USB Audio Class Ver1.0

### SD card recording

- MPEG-4 AVC file standard compliant (.MP4)

### Recording format

- 1920 x 1080/59.94p, 1920 x 1080/50p, 1920 x 1080/29.97p, 1920 x 1080/25p, 1280 x 720/59.94p, 1280 x 720/50p, 1280 x 720/29.97p, 1280 x 720/25p

### Dimensions

**Unit: mm (inches)**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>JPEG</th>
<th>H.264</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VGA (640 x 360), QVGA (320 x 180) ma x.30 fps</td>
<td>1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 ma.30 fps</td>
</tr>
<tr>
<td></td>
<td>H.264</td>
<td>1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 ma.60 fps</td>
</tr>
</tbody>
</table>

*For information on “Output Signal Format”, see page 36.

---

**Dimensions**

**Unit: mm (inches)**

**Bottom View**

- Through-hole for cable ø 40 mm (ø 1-9/16 inches) \(^*1\)
- Hole for mounting the main unit mounting screws
- Hook for mounting the drop-prevention wire
- Unit mounting area
- Mount bracket
- Holes for mounting the mount bracket: ø 4.5 mm x 4
- Hole for checking the positioning

**Rear View**

**AW-HE40SW**

**AW-HE40HW / AW-HN40HW**

***For “Terminal Pin Configuration”, see page 43.***
### AW-HE38HW/HK  
**AW-HN38HW/HK**

**General**

<table>
<thead>
<tr>
<th>Specification</th>
<th>AW-HE38HW/HK</th>
<th>AW-HN38HW/HK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power requirements</strong></td>
<td>DC 12 V (Supplied AC adaptor)</td>
<td>DC 42 V to 57 V (PoE+ power supply)</td>
</tr>
<tr>
<td><strong>Current consumption</strong></td>
<td>1.2 A (Supplied AC adaptor)</td>
<td>0.4 A (PoE+ power supply)</td>
</tr>
<tr>
<td><strong>Ambient operating temperature</strong></td>
<td>0 °C to 40 °C (32 °F to 104 °F)</td>
<td></td>
</tr>
<tr>
<td><strong>Allowable humidity ranges</strong></td>
<td>20 % to 90 % (no condensation)</td>
<td></td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>Approx. 1.5 kg (3.30 lb)</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>160 mm x 168 mm x 166 mm (6-5/16 inches x 7-41/128 inches x 6-17/32 inches) [excluding protrusions, direct ceiling mount bracket]</td>
<td>160 mm x 168 mm x 166 mm (6-5/16 inches x 7-41/128 inches x 6-17/32 inches) [excluding protrusions, direct ceiling mount bracket]</td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>[AW-HE38HW/AW-HN38HW] Pearl white, [AW-HE38HK/AW-HN38HK] Metallic black</td>
<td></td>
</tr>
<tr>
<td><strong>Controller supported</strong></td>
<td>AW-RP50, AW-RP120G, AK-HPR200G</td>
<td></td>
</tr>
<tr>
<td><strong>Camera unit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Imaging sensors</strong></td>
<td>1/2.3-type MOS</td>
<td></td>
</tr>
<tr>
<td><strong>Lens</strong></td>
<td>AW-HE38HW/HK : Motorized 22x zoom, F1.6 to F4.3 (f=4.3 mm (1/164 inches) to 94.6 mm (3-23/32 inches); 35 mm (1-3/8 inches) equivalent: 31.6 mm (1-31/128 inches) to 705.0 mm (27-49/64 inches))</td>
<td>AW-HN38HW/HK : Motorized 22x zoom, F1.6 to F4.3 (f=4.3 mm (1/164 inches) to 94.6 mm (3-23/32 inches); 35 mm (1-3/8 inches) equivalent: 31.6 mm (1-31/128 inches) to 705.0 mm (27-49/64 inches))</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Switching between auto and manual</td>
<td></td>
</tr>
<tr>
<td><strong>Focus distance</strong></td>
<td>Entire zooming range: 1.2 m (3.94 ft) Wide end: 10 cm (0.33 ft)</td>
<td></td>
</tr>
<tr>
<td><strong>Color separation optical system</strong></td>
<td>On-chip color filter system</td>
<td></td>
</tr>
<tr>
<td><strong>Minimum illumination 59.94 Hz</strong></td>
<td>0.7 lx (50 IRE, F1.6, 48 dB,1/60 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB,1/30 with accumulation [Frame Mix 6 dB])</td>
<td>0.7 lx (50 IRE, F1.6, 48 dB,1/60 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB,1/30 with accumulation [Frame Mix 6 dB])</td>
</tr>
<tr>
<td><strong>Minimum illumination 50 Hz</strong></td>
<td>0.7 lx (50 IRE, F1.6, 48 dB,1/50 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB,1/25 with accumulation [Frame Mix 6 dB])</td>
<td>0.7 lx (50 IRE, F1.6, 48 dB,1/50 without accumulation) 0.35 lx (50 IRE, F1.6, 48 dB,1/25 with accumulation [Frame Mix 6 dB])</td>
</tr>
<tr>
<td><strong>Horizontal resolution</strong></td>
<td>1000 TV lines Typ (Center area)</td>
<td></td>
</tr>
<tr>
<td><strong>Gain selection</strong></td>
<td>Auto, 0 dB to 48 dB (3 dB step)</td>
<td></td>
</tr>
<tr>
<td><strong>Frame mix</strong></td>
<td>Auto, Off, 6 dB, 12 dB, 18 dB, 24 dB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>During Auto 1/60 to 1/2000 [59.94 Hz] 1/50 to 1/2000 [50 Hz]</td>
<td>During Auto 1/60 to 1/2000 [59.94 Hz] 1/50 to 1/2000 [50 Hz]</td>
</tr>
<tr>
<td></td>
<td>During Manual 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [59.94 Hz] 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [50 Hz]</td>
<td>During Manual 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [50 Hz]</td>
</tr>
<tr>
<td><strong>Synchro scan</strong></td>
<td>59.94 Hz : 59.94 Hz to 660.09 Hz 50 Hz : 50.00 Hz to 570.12 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Gamma</strong></td>
<td>Off, Normal (Low, Mid, High), Cinema</td>
<td></td>
</tr>
<tr>
<td><strong>White balance</strong></td>
<td>AWB A, AWB B, ATW, 3200K,5600K, VAR (2400K to 9900K)</td>
<td></td>
</tr>
<tr>
<td><strong>Chroma amount variability</strong></td>
<td>±3 step</td>
<td></td>
</tr>
<tr>
<td><strong>Scene file</strong></td>
<td>Full Auto, Manual1, Manual2, Manual3</td>
<td></td>
</tr>
<tr>
<td><strong>Output format</strong></td>
<td>HD 1080:59.94p/50p 1080:59.94i/50i 1080:29.97p/25p 1080:29.97Pef/2SPS 720:59.94p/50p</td>
<td></td>
</tr>
<tr>
<td><strong>Synchronization system</strong></td>
<td>Internal synchronization</td>
<td></td>
</tr>
</tbody>
</table>

**INPUT**

<table>
<thead>
<tr>
<th>Power</th>
<th>DC 12 V IN, PoE+ (IEEE802.3at standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mic/line input</strong></td>
<td>Stereo mini-jack (63.5 mm)</td>
</tr>
<tr>
<td></td>
<td>Input impedance: Approx. 2 kΩ (unbalanced) [Mic input]</td>
</tr>
</tbody>
</table>

**OUTPUT**

<table>
<thead>
<tr>
<th>Output Video</th>
<th>HDMI (HDMI connector)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* HDCP is not supported. * VIERA Link is not supported.</td>
</tr>
</tbody>
</table>

**INPUT/OUTPUT**

<table>
<thead>
<tr>
<th>Input/Output connector</th>
<th>LAN (LAN connector for IP control (RI-J45 equipped with straight/crossover cable auto detection function)  * AW-HE38HK/AW-HN38HK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RS-232C Mini DIN 8-pin (IN) Mini DIN 8-pin (OUT)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RS-422C CONTROL IN RS422A (RI-J45)</td>
<td></td>
</tr>
<tr>
<td><strong>USB</strong></td>
<td>Mini-B port</td>
<td></td>
</tr>
<tr>
<td><strong>SD card</strong></td>
<td>microSD card slot</td>
<td></td>
</tr>
</tbody>
</table>

**USB connection** * This may vary depending on the operating environment.

**Video output** | USB Video Class Ver1.0

**Video compression format** | Motion JPEG

**Resolution** | 1920 x 1080, 1280 x 720, 640 x 360

**Frame rate** | max 30 fps (System frequency 59.94 Hz) max 25 fps (System frequency 50 Hz)

**Audio output** | USB Audio Class Ver1.0

**Audio compression format** | Linear PCM, 48 kHz, 16-bit, 2 channels

**Supported models** | Devices standardly equipped with a USB 2.0 compatible port

**Pan-tilt head unit**

<table>
<thead>
<tr>
<th>Installation method</th>
<th>Stand-alone (Desktop) or suspended (Hanging)**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pan/tilt operation speed</strong></td>
<td>Maximum speed during preset: 300°/s Maximum speed during manual: 90°/s</td>
</tr>
<tr>
<td><strong>Panning range</strong></td>
<td>±175°</td>
</tr>
<tr>
<td><strong>Tilting range</strong></td>
<td>–30° to 90°**</td>
</tr>
<tr>
<td><strong>Quietness</strong></td>
<td>During preset: NC40 or less During manual: NC35 or less</td>
</tr>
</tbody>
</table>

**Camera/pan-tilt head control**

<table>
<thead>
<tr>
<th>IP connecting cable</th>
<th>When connecting through a hub: LAN cable** (category 5 or above), max. 100 m (328 ft) When using a PoE+ hub: LAN cable** (category 5e or above), max. 100 m (328 ft) When a hub is not used: LAN cable** (category 5 or above), max. 100 m (328 ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AV protocol connecting cable</strong></td>
<td>LAN cable** (category 5 or above, straight cable), max. 1000 m (3280 ft)</td>
</tr>
<tr>
<td><strong>Standard protocol connecting cable</strong></td>
<td>Mini DIN 8-pin cable, male</td>
</tr>
<tr>
<td>SD card recording</td>
<td>micro SDHC (4 GB to 32 GB), micro SDXC (64 GB to 128 GB), Speed class 10 or higher</td>
</tr>
<tr>
<td><strong>System frequency</strong></td>
<td>59.94 Hz/50 Hz</td>
</tr>
</tbody>
</table>
Remote Camera System – Specifications

As of April, 2018

Video compression format
MPEG-4 AVC/H.264 High Profile

Audio compression format
AAC-LC (48 kHz, 16 bit, 2 ch, 128 kbps)

SD card recording
MPEG-4 AVC file standard compliant (.MP4)

Recording format
1920 x 1080/59.94p, 1920 x 1080/50p, 1920 x 1080/29.97p, 1920 x 1080/25p, 1280 x 720/59.94p, 1280 x 720/50p, 1280 x 720/29.97p, 1280 x 720/25p

Network

Resolution

JPEG
VGA (640 x 360), QVGA (320 x 180) max.30 fps
1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 max.30 fps

H.264
1920 x 1080, 1280 x 720, 640 x 360, 320 x 180 max.60 fps

Supported protocol
IPv4
TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTPI/RTPC, FTP, DHCP, DNS, NTP, IGMP, UPnP, ICMP, ARP, RTSPoverTCP, RTSPoverHTTP, SSL(TLS), MultiCast/UniCast

IPv6
TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTPI/RTPC, FTP, DHCPv6, DNS, NTP, ICMPv6(MLD), RTSPoverTCP, RTSPoverHTTP, SSLv6(TLS), MultiCast/UniCast

iOS, Android support
JPEG image display

Standard Accessories
Mount bracket for installation surface (Hanging*7 / Desktop): 1
Drop-prevention wire (already attached to the unit): 1
Bracket mounting screws (bind-head) M4 x 10 mm: 4
Main unit mounting screw (with flat washer, spring washer) M3 x 6 mm: 1
Power cable (1.5 m [4.92 ft]):[AW-HE38HW/HKPJ]:1, [AW-HE38HW/HKEJ]:3, [AW-HE38HW/HKPC]:1
AC adaptor: 1

*1: It may be necessary to upgrade the version of the controller so that the controller will support the unit. *2: During Auto, 6 dB to 48 dB (6 dB step) are available for AGC Max Gain setting. *3: During Auto, 0 dB, 6 dB, 12 dB and 18 dB are available for Auto F.Mix Max Gain setting. *4: To ensure safety, the unit must be secured using the mount bracket supplied. *5: Depending on the pan or tilt position, the camera may be reflected in the image. *6: Use of an STP (shielded twisted pair) cable is recommended. *7: To ensure more safety, AW-HE38HW/HK can be secured by using the direct ceiling mount bracket (WV-Q105A).

Dimensions

Unit: mm (inches)

Bottom View

Through-hole for cable ø 40 mm (ø 1-9/16 inches) (reference)
Hole for mounting the main unit mounting screws
Hook for mounting the drop-prevention wire
Unit mounting area
Mount bracket
I-Holes for mounting the mount bracket: ø 4.5 mm x 4
Hole for checking the positioning

The front panel of the unit on this side.

Ceiling Installation View

Optimal for both hanging and desktop installation.
The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible. Mount the bracket onto the installation surface and then put and turn the main unit on the bracket to be installed.

* The mounting bracket for discontinued AW-HE50 and AW-HE60 and current AW-UE70W/K, AW-UN70W/K, AW-HE40 series and AW-HN40HW/HK can also be used.

* Wiring, mounting, and removal must be done by a qualified technician. To ensure safety, consult with the dealer from whom you purchased the system.

* For "Terminal Pin Configuration", see page 43.
AW-HR140

General

Power Requirements: DC 12 V to 21.8 V (DC IN connector), DC 42 V to 57 V (PoE++ power supply)
Current Consumption: 3.1 A to 5.5 A (DC IN connector), 1.2 A (PoE++ power supply)
Ambient Operating Temperature: -15 °C to 45 °C (5 °F to 113 °F) (preheating is required when -5 °C (23 °F) or less)
Ambient Operating Humidity: 10% to 100% (no condensation)
Storage Temperature: -20 °C to 55 °C (-4 °F to 131 °F)
Storage Humidity: 10% to 95% (no condensation)
Mass: Approx. 9.0 kg (19.84 lb)
Dimensions (W x H x D): 250 mm x 357 mm x 397 mm (10-5/32 inches x 14-1/16 inches x 15-5/8 inches) (including protrusions and cable cover)
Finish: Silver, salt resistant coating
Waterproof and Dust Proof: IP65 compliant
Maximum Permissible Wind Speed: 15 m/sec: Operates normally, 50 m/sec: Operation possible, 60 m/sec: No damage
Wiper: Installed as standard
Heater: Installed as standard
Defroster: Installed as standard
Controller supported: AW-RP120G, AW-RPS50, AK-HRP200G
It may be necessary to upgrade the version of the controller in order to support the unit. For details on upgrading, visit the support page on the following website. (https://pro-av.panasonic.net/)

Camera Unit

Imaging Sensors: 1/2.86-type Full-HD 3MOS
Lens: Optical 20x zoom/10x digital zoom, F1.6 to F3.4 (f=4.5 mm to 90 mm; 35 mm equivalent: 32.13 mm to 642.5 mm)
Focus: Switching between auto and manual
Focus Distance: Entire zooming range: 800 mm (2.62 ft) Wide wide: 400 mm (1.31 ft)
Color Separation Optical System: 3MOS
Minimum Illumination: 2 lx (50 IRE, F1.6, 36 dB, without accumulation)
Horizontal Resolution: 1000 TV lines Typ (Center area)
Gain Selection: Auto, 0 dB to 42 dB (1 dB steps) 37 dB to 42 dB is Super Gain Mode
Frame Mix: 0 dB, 6 dB, 12 dB, 18 dB, 24 dB
• This cannot be configured when the format is 1080/29.97p, 1080/23.98p, 1080/29.97PsF, 1080/23.98PsF, 1080/25p, or 1080/25PsF.
• When [Iris Mode] or [Focus Mode] is set to [Auto], this cannot be set to 18 dB or 24 dB.
Electronic Shutter Speed: 59.94p / 59.94i
59.94p / 59.94i
1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
29.97p
1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
23.98p
1/24, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
50p / 50i
1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
25p
1/25, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
Synchro Scan: 59.94 Hz
50 Hz
60.15 Hz to 642.21 Hz (255 steps)
Gamma: HD, FILMIKE1, FILMIKE2, FILMIKE3 0.30 to 0.75 (Manual setting)
Chroma Amount Variability: OFF, –99% to 40%
Scene File: Scene1, Scene2, Scene3, Scene4
Intelligent Functions: Auto function for each of accumulation, gain, iris, electronic shutter, ND, and ATW

Synchronization System

Synchronization System: Internal/External synchronization (BBS/Tri-level sync)

Input Impedance: High impedance

Line Input Audio: 2 channels, XLR balanced input
Input Signal Level: +4 dBu/0 dBu/–20 dBu (selectable in menu)
Volume Variable Range: –40 dB to +12 dB (can be changed in 1 dB steps in the menu)

Output

- 4 channels, superimposed over SDI output
- Embedded audio output level:
- Sampling frequency: 48 kHz (synchronized to video)
- Quantization bit rate: 24-bit (LPCM)
- Audio compression format [IP]: G.719, AAC-LC [High quality]

Input

Input Connector: 12V IN
G/L IN
Audio input: XLR connector
- mini XLR connector (line input)
  - #1: INPUT1 Common, #2: INPUT1 HOT, #3: INPUT1 COLD, #4: INPUT2 Common, #5: INPUT2 HOT, #6: INPUT2 COLD

Output

Output Connector: 3G/HD–SDI OUT
SMPTE424/SMPTES292 standards
- 75 Ω (BNC x 2)
- OSD output is possible from the SDI OUT 1/PM connector but not from the SDI OUT 2 connector.

Input/Output

Input/Output Connector: LAN
LAN connector for IP control/video output/Audio output/
PoE++ power supply
PoE++ (IEEE802.3bt Draft ver.2.0 standard)

RS–422 CONTROL IN RS–422A
EXT
#1: DC GND, #2: HOT, #3: COLD, #4: 12V–OUT

Pan/Tilt Head Unit

Installation Method: Stand-alone (Desktop) or suspended (Hanging)
To ensure safety, the unit must be secured using the mount bracket supplied.

Camera/ Pan–tilt Head Control: IP connecting cable
LAN cable* (category 5 or above, straight cable)
• When connecting through a PoE++ hub: LAN cable* (category 5 above, straight cable) max. 100 m (328 ft)

Pan/Tilt Operation Speed: Maximum speed 60°/s or higher

Panning Range: 175°
• For suspended installations, the positions of the pins that determine the movement range must be changed.

Tilting Range:
–30° to 210°
• Depending on the pan or tilt position, the camera may be reflected in the image.
• For suspended installations, the positions of the pins that determine the movement range must be changed.

Quietness: 60°/s (NC45 or less)
Vibration Correction: D.I.S.S. (Dynamic Image Stabilizing System)

Standard Accessories

Hexagonal bolt M8 x 30 mm: 4, M8 washer: 4, Narrow spring: 4, Cable cover: 1, Washer nozzle mount bracket: 1, Drop-prevention wire: 1, Drop-prevention wire: 1, Hexagonal bolt M8 x 30 mm: 4, M8 washer: 4, Spring washer: 4, Cable cover: 1, Vibration Correction: 1

*1: Use of an STP (shielded twisted pair) cable is recommended.
• When connecting directly to a controller without an Ethernet hub, use a cross cable.

*Specifications are subject to change without notice.

For information on "Output Signal Format", see page 36.
Remote Camera System – Specifications

As of April, 2018

Studio Camera System
Remote Camera System
Live Switcher

Dimensions
Unit: mm(inches)

(Front)

(Side)

(Bottom)

Pin Configuration

RS-422 Connector <RS-422>
This RS-422 connector (RJ45) is connected when exercising serial control over the unit from an external device. Use a cable with the following specifications for the connection to this connector. The tally lamp can be lit by shorting the TALLY signal (pin 2) with GND (pin 1).
- Do not apply a voltage to the TALLY signal pin.

LAN cable* (category 5 or above, straight cable), max. 1000 m (3280 ft)
* Use of an STP (shielded twisted pair) cable is recommended.

Pin Configuration

<table>
<thead>
<tr>
<th>Pin NO.</th>
<th>Signal</th>
<th>Pin NO.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
<td>5</td>
<td>TXD+</td>
</tr>
<tr>
<td>2</td>
<td>TALLY</td>
<td>6</td>
<td>RXD+</td>
</tr>
<tr>
<td>3</td>
<td>RXD−</td>
<td>7</td>
<td>−</td>
</tr>
<tr>
<td>4</td>
<td>TXD−</td>
<td>8</td>
<td>−</td>
</tr>
</tbody>
</table>

12 V IN Connector
Output connector for washer control and DC 12 V

<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>−</td>
</tr>
<tr>
<td>3</td>
<td>−</td>
</tr>
<tr>
<td>4</td>
<td>+12V</td>
</tr>
</tbody>
</table>

EXT Connector [EXIT]
Output connector for washer control and DC 12 V

<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>Hot</td>
</tr>
<tr>
<td>3</td>
<td>Cold</td>
</tr>
<tr>
<td>4</td>
<td>DC 12V OUT</td>
</tr>
</tbody>
</table>

Mounting the camera to the installation surface
When fixing directly to the installation surface
Pass the cables through the bottom wiring hole or side wiring hole before putting the camera down on the installation surface.

Mounting the camera to the installation surface
When fixing directly to the installation surface
Pass the cables through the bottom wiring hole or side wiring hole before putting the camera down on the installation surface.

Unit mounting bolt x4 (supplied accessory)
Spring washer and flat washer, x4 of each (supplied accessory)

HR10A-7R-4SC (73) (Hirose Electric Co.)

Audio IN Connector [AUDIO IN]
External audio (LINE) input connector

<table>
<thead>
<tr>
<th>Pin NO.</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INPUT1 Common</td>
</tr>
<tr>
<td>2</td>
<td>INPUT1 Hot</td>
</tr>
<tr>
<td>3</td>
<td>INPUT1 Cold</td>
</tr>
<tr>
<td>4</td>
<td>INPUT2 Common</td>
</tr>
<tr>
<td>5</td>
<td>INPUT2 Hot</td>
</tr>
<tr>
<td>6</td>
<td>INPUT2 Cold</td>
</tr>
</tbody>
</table>

Amphenol LTW TECHNOLOGY CO., LTD.
Remote Camera System – Specifications & Dimensions

AW-HEA10W/K

General

<table>
<thead>
<tr>
<th>Power Requirements</th>
<th>5.0 V DC (when using AC adaptor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>44 - 57 V DC (PoE power supply)</td>
</tr>
<tr>
<td></td>
<td>0.86 A (when using AC adaptor)</td>
</tr>
<tr>
<td></td>
<td>0.14 A (PoE power supply)</td>
</tr>
<tr>
<td>Allowable Operating Temperature</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Allowable Relative Humidity</td>
<td>10% to 80% (no condensation)</td>
</tr>
<tr>
<td>Unit Weight</td>
<td>Approx. 0.9 kg (1.98 lb)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>183 mm x 65 mm x 225 mm (7-3/16 inches x 2-9/16 inches x 8-7/8 inches)</td>
</tr>
</tbody>
</table>

Camera Unit

| Image Sensor                        | 1/2.33 type MOS solid-state image sensor (Effective size of image sensor: 1/4.37 type) |
|                                     | Total pixels: Approx. 15.3 million Effective pixels |
|                                     | Video: Approx. 3.91 million (16:9) |
| Lens                                | F2.0 (f = 2.15 mm) 35 mm equivalent; Approx. 18.0 mm (16:9) |
|                                     | Field of view: 95° (horizontal), 56° (vertical) [When zoom is 1x] |
| Shutter Speed                       | 1/60 to 1/12000 |
| White Balance                       | ATW, Sunny, Cloudy, Indoor1, Indoor2, AWB A, AWB B |
| Standard Illumination               | 1,400 lx |
| Minimum Illumination                | Approx. 20 lx (1/60 in auto mode) |

Input/Output Connector

| HDMI                                 | HDMI connector |
|                                     | • HDCP is not supported. • Viera Link is not supported. |
| Network                              | 10BASE-T/100BASE-TX, RJ-45 connector, Automatic recognition of straight/crossover cable |
| USB                                  | Mini-B (for maintenance) |
| SD Memory Card                       | microSD card slot (for maintenance) |

PTZ Ctrl Compatible Devices and Operating Systems

- Supported devices: iPad
- Supported operating systems: iOS 8.1

Standard Accessories

- Mounting bracket A (for mounting this unit): 1
- Mounting bracket B (for securing this unit, for AW-HE130): 2
- Mounting bracket C (for AW-HE40): 1
- Drop-prevention wire: 1
- Drop-prevention wire mounting screw M4 x 8 mm: 1
- Bracket mounting screws A M4 x 10 mm: 8
- Bracket mounting screws B M3 x 6 mm: 4
- AC adaptor: 1
- Power cable: 1

Dimensions

Unit: mm (inches)

- **(Front)**
- **(Side)**
- **(Bottom)**

Rear View
Bottom View

Ceiling Installation View

Optimal for both hanging and desktop installation.
The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible. Mount the bracket onto the installation surface and then put and turn the main unit on the bracket to be installed.

Mount the Unit

Mount the HD Integrated Camera


* Wiring, mounting, and removal must be done by a qualified technician. To ensure safety, consult with the dealer from whom you purchased the system.
**AW-360C10GJ [360-degree Live Camera Head]**

**General**
- **Power Requirements**: DC 12 V (power supplied by the AW-360B10GJ Base Unit)
- **Power Consumption**: 43.4 W
- **Operating Temperature**: 0 °C to 40 °C (32 °F to 104 °F)
- **Operating Humidity**: 10% to 80% (no condensation)
- **Storage Temperature**: -10 °C to 60 °C (14 °F to 140 °F)
- **Storage Humidity**: 30% to 80%
- **Weight**: Approx. 1.55 kg (3.42 lb)
- **Dimensions (W x H x D)**: 210 mm x 55 mm x 200 mm (8-9/32 inches x 2-3/16 inches x 7-7/8 inches) (excluding protrusions and lens caps)

**Camera Unit**
- **Image Sensors**: 1/2.3-type MOS x 4
- **Total Number of Pixels**: 12.76 megapixels x 4
- **Lens**: Fixed focal length Super Fisheye x 4
- **F-number**: F2.4
- **Focal Length**: f=1.83 mm
- **Focus Distance**: Approx. 0.5 m (19-11/16 inches) to ∞
- **White Balance**: Auto, Manual, WB set
- **Exposure**: Auto, Manual, WB set
- **Camera Unit For White Balance**: Auto, Manual, WB set
- **Minimum Illumination**: 6 lx (30 dB, 1/30, when setting NTSC in Capture Mode)
- **Input / Output**:
  - **Card**: SD card, micro SD card slot x 4 (for firmware update)
  - **Video Output**: CAM1 OUT, CAM2 OUT, CAM3 OUT, CAM4 OUT terminals (connecting to AW-360B10GJ)
  - **Audio Output**: CAM1 OUT, CAM2 OUT, CAM3 OUT, CAM4 OUT terminals (LPCM) (connecting to AW-360B10GJ)
  - **External Terminals Connector**: 20 pins dedicated interface (connecting to AW-360B10GJ)

**AW-360B10GJ [360-degree Live Camera Base Unit]**

**General**
- **Power Requirements**: DC 12 V (11.5 V to 17 V)
- **Power Consumption**: 43.4 W (when connecting to the AW-360 Camera Head) (including the power consumption of the Camera Head)
- **Operating Temperature**: 0 °C to 40 °C (32 °F to 104 °F)
- **Operating Humidity**: 10% to 80% (no condensation)
- **Storage Temperature**: -10 °C to 60 °C (14 °F to 140 °F)
- **Storage Humidity**: 30% to 80%
- **Weight**: Approx. 1.55 kg (3.42 lb)
- **Dimensions (W x H x D)**: 210 mm x 55 mm x 200 mm (8-9/32 inches x 2-3/16 inches x 7-7/8 inches) (excluding protrusions and lens caps)

**Stitching Functions**
- **Stitching Format**: 2:1 Equirectangular
- **Minimum Stitching Distance**: Approx. 1 m (3-15/16 inches)

**Shooting Functions**
- **White Balance**: Auto, Manual, WB set
- **Exposure**: Auto, Manual, WB set
- **Camera Unit For White Balance**: Auto, Manual, WB set
- **Minimum Illumination**: 6 lx (30 dB, 1/30, when setting NTSC in Capture Mode)
- **Input / Output**:
  - **Card**: SD card, micro SD card slot x 4 (for firmware update)
  - **Video Output**: CAM1 OUT, CAM2 OUT, CAM3 OUT, CAM4 OUT terminals (connecting to AW-360B10GJ)
  - **Audio Output**: CAM1 OUT, CAM2 OUT, CAM3 OUT, CAM4 OUT terminals (LPCM) (connecting to AW-360B10GJ)
  - **External Terminals Connector**: 20 pins dedicated interface (connecting to AW-360B10GJ)

**Digital Video**
- **External Output Video Signal**: 8 bit RGB

**Digital Audio**
- **External Output Audio Video Signal**: 48 kHz/16 bit 2 ch

**Input / Output**:
- **Input**: CAM1 IN, CAM2 IN, CAM3 IN, CAM4 IN terminals (connecting to AW-360C10GJ)
- **Output**: VIDEO OUT terminal
  - Output format:
    - 2160/29.97p/25.00p
    - 1080/59.94p/50.00p/29.97p/25.00p

**Network**
- **Video Compression Format**: Motion JPEG
- **Transfer Modes**:
  - **Resolution**: MJPEG 1240 x 620, 15 fps, 5 fps, 12.5 fps, 5 fps
  - **Transfer Modes**: MJPEG 1240 x 620, 15 fps, 5 fps, 12.5 fps, 5 fps
  - **Frame rate configured in this mode may drop depending on use conditions.

**Standard Protocols**
- **IPv4**: TCP/IP, UDP/IP, HTTP, HTTPS*, DHCP, DNS, SSL/TLS*
  - *Not supported for iPad.

**IP Connecting Cable**
- **LAN cable* (Category 5 or above), max.100 m**
  - *STP (Shielded Twisted Pair) is recommended.

**Dimensions**
- **Unit**: mm(inches)

**AW-360C10GJ**

**AW-360B10GJ**
### Computer Requirements

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU</strong></td>
<td>When using 1080/60p [59.94Hz] and 1080/50p [59.94Hz]; Intel® Core™ i7 3.4 GHz or higher recommended Other than above: Intel® Core™ 2 DUO 2.4 GHz or more</td>
<td>When using 1080/60p [59.94Hz] and 1080/50p [50Hz]; Intel® Core™ i7 3.4 GHz or higher recommended Other than above: Intel® Core™ 2 Duo 2.4 GHz or higher recommended</td>
<td>Intel® Core™ 2 DUO 2.4 GHz or more</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Network Function</strong></td>
<td>10BASE-T or 100BASE-TX</td>
<td></td>
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<tr>
<td><strong>Image Display</strong></td>
<td>Resolution: 1024 x 768 pixels or more Color generation: True Color 24-bit or more</td>
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</tr>
</tbody>
</table>

#### Supported Operating Systems and Web Browsers

**For Windows**
- Microsoft® Windows® 8.1 Pro (64-bit / 32-bit)™ 
- Microsoft® Windows® 8 Pro (64-bit / 32-bit)™ 
- Microsoft® Windows® 7 Professional SP1 (64-bit / 32-bit)™
- Windows® Internet Explorer® 11.0 / 10.0™ / 9.0™ / 8.0™
- Microsoft® Windows® 8.1 Pro (64-bit / 32-bit)™
- Microsoft® Windows® 8 Pro (64-bit / 32-bit)™
- Microsoft® Windows® 7 Professional SP1 (64-bit / 32-bit)™
- Windows® Internet Explorer® 11.0 / 10.0™ / 9.0™ / 8.0™
- Microsoft® Windows® 10 Pro (64-bit / 32-bit)™
- Microsoft® Windows® 8.1 Pro (64-bit / 32-bit)™
- Microsoft® Windows® 8 Pro (64-bit / 32-bit)™
- Microsoft® Windows® 7 Professional SP1 (64-bit / 32-bit)™
- Windows® Internet Explorer® 11.0 / 10.0™ / 9.0™ / 8.0™

**For Mac**
- Mac OS X 10.8
- Safari 6.2
- Mac OS X 10.9
- Safari 7.1
- Mac OS X 10.10
- Safari 8.0
- Mac OS X 10.9
- Safari 7.0.2
- Mac OS X 10.8
- Safari 6.1.2
- Mac OS X 10.7
- Safari 6.1.2
- Mac OS X 10.10
- Safari 8.0
- Mac OS X 10.11
- Safari 9.0
- Mac OS X 10.10
- Safari 8.0.4
- Mac OS X 10.9
- Safari 7.0.2
- Mac OS X 10.8
- Safari 6.1.2
- Mac OS X 10.8
- Safari 6.0
- Mac OS X 10.7
- Safari 6.0
- Mac OS X 10.6
- Safari 5.1.7

**For iPhone, iPad, iPod touch**
- iOS 8.3 Standard browser
- iOS 7.1 Standard web browsers
- iOS 8.3 Standard browser
- iOS Standard browser

**For Android**
- Android OS 4.4 Standard browser
- Android OS Standard web browsers
- Android OS 4.4 Standard browser
- Android OS Standard web browsers

In addition, a CD-ROM drive (to use the operating instructions and various types of software), Adobe® Reader® (to view the operating instructions on the CD-ROM), and a mouse or equivalent pointing device are necessary.

*1: Use the desktop version of Internet Explorer. Internet Explorer for Windows UI is not supported.*
*2: Windows® XP compatibility mode is not supported.*
*3: The 64-bit version of Internet Explorer® is not supported.*
*4: Use of the supported applications may display on the iPad possible.*

* Microsoft®, Windows®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10 and Internet Explorer® are either registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.* Apple, Mac, OS X, iPhone, iPod Touch, iPad, and Safari are registered trademarks of Apple Inc., in the United States and other countries. * Android™ is a trademark of Google Inc.*
Multi-Purpose Camera

4K Multi Purpose Camera

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 a newly developed 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.

Option Boards

12G Output Board
AK-UH12D2
- Output: UHD: 2 outputs (12G) or 1 output (3G x 4)
- HD: 2 outputs

3G TICO UHD Output Board
AK-UTS03G
- Output: UHD: 2 outputs (TICO)
- HD: 2 outputs

3G TICO & 12G to Quad 3G SDI Converter
AK-UGB01G
This unit converts the signal from 3G TICO UHD Output Board to 3G x 4. It also converts 12G-SDI signal to 3G x 4.
- Input: 1 input (12G or TICO)
- Output: 1 output (3G x 4)
  - Square Division / 2 Sample Interleave (Level A or B)

Rear View

[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-moire 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.

<table>
<thead>
<tr>
<th>Video signals</th>
<th>Control signals</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K Multi Purpose Camera AK-UB300GJ</td>
<td>AW-CA15H29G*1</td>
</tr>
<tr>
<td>Pan-Tilt Head AW-PH400</td>
<td>PoE HUB</td>
</tr>
<tr>
<td>AC adaptor (60 W or more is recommended)</td>
<td>Remote Operation Panel (ROP) AK-HRP1000GJ or AK-HRP1005GJ</td>
</tr>
<tr>
<td>Protocol Converter AW-IF400G</td>
<td></td>
</tr>
<tr>
<td>Co-axial Cable x 4</td>
<td>Remote Camera Controller AW-RP120G or AW-RP50</td>
</tr>
<tr>
<td>2ME Live Switcher AV-HS6000</td>
<td>Monitor</td>
</tr>
<tr>
<td>* Control Panel (AV-HS600C2)</td>
<td>Monitor</td>
</tr>
<tr>
<td>AC adaptor</td>
<td>Recording Media</td>
</tr>
</tbody>
</table>

*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><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="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. 22.6 lb)</td>
<td>Pan-tilt Head: Approx. 19 kg (Approx. 41.9 lb) Housing: Approx. 18 kg (Approx. 39.7 lb) AC adapter: Approx. 4.2 kg (Approx. 9.3 lb)</td>
</tr>
<tr>
<td>Dimensions (W x H x D) (pan-tilt head only, excluding protrusions)</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 (9-1/16 inches x 20-1/8 inches x 8-3/8 inches) Housing: 246 mm x 314 mm x 685 mm (9-1/16 inches x 12-3/8 inches x 26-15/16 inches) AC adapter: 200 mm x 131 mm x 280 mm (7-1/8 inches x 5-3/16 inches x 11-1/16 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>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-RP120G/AW-RP50)</td>
<td>1500 m (when using the protocol converter AW-IF4000*)</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>Teleprompter 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 adapter</td>
</tr>
</tbody>
</table>

*When using AW-PH400 and AW-PH650 with AK-UB300GJ, please contact your regional dealer. *For more details, see Remote Camera System Optional Products on page 37.

### 2/3 type Lens

**20x HD Zoom Lens**

**AK-LZ20M85G**
- Focal length: 8.5 mm-170 mm (F1.8-F2.7)
- Weight: Approx. 1.41 kg (Approx. 3.1 lb)
- Dimensions (W x H x D): 114 mm x 91 mm x 170 mm (4-1/2 inches x 3-19/32 inches x 6-11/16 inches)

### Cable

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Length</th>
<th>Remote Camera</th>
<th>Pan-Tilt Head</th>
<th>Controller</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable for Indoor Pan-Tilt Head Connection</td>
<td>AW-CA1SH295</td>
<td>0.7 m</td>
<td>AW-UB300GJ</td>
<td>AW-PH400*</td>
<td>AW-6P01G</td>
<td>Remote camera - Pan-Tilt Head connection*</td>
</tr>
<tr>
<td>Remote Camera - Pan-Tilt Head Connection</td>
<td>AW-UB300GJ</td>
<td>0.7 m</td>
<td>AW-HC1000G*</td>
<td>AW-PH400*</td>
<td>AW-6P01G</td>
<td>Remote camera - Pan-Tilt Head connection*</td>
</tr>
</tbody>
</table>

*1: To connect the AW-HE870 with the AW-PH300/AW-PH405/AW-PH400/AW-PH650 pan-tilt head, or to connect the AK-HC1500G/AK-HC1800G with the AW-PH650 pan-tilt head, use the camera cable that comes with each pan-tilt Head.

*Limited Stock  ★Discontinued Products
Remote Camera System – Specifications & Dimensions

**AK-UB300GJ**

**General**

<table>
<thead>
<tr>
<th>Power</th>
<th>DC12 V (DC11 V to 17 V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption</td>
<td>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)</td>
</tr>
<tr>
<td>Ambient 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>Ambient Operating Humidity</td>
<td>85% or less (relative humidity)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 1.6 kg (3.53 lbs.) (body only)</td>
</tr>
<tr>
<td>Dimensions (W x H x D) (excluding protrusions)</td>
<td>78.2 (3-3/32) x 110 (4-11/32) x 140 (5-17/32) mm</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>44.5 (1-25/32) x 117 (4-5/8) x 48 (1-29/32) mm (Front)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>140 (5-17/32) x 65 (2-9/16) x 24.5 (31/32) mm (Side)</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>110 (4-11/32) x 160 (6-5/16) x 24.5 (31/32) mm (Bottom)</td>
</tr>
</tbody>
</table>

**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 | • [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, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds |
| | • [23.98p] mode: 1/48, 1/50, 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds |
| | • [50i]/[50p] mode: 1/60, 1/100, 1/250, 1/500, 1/1000, 1/1500, 1/2000 seconds |
| | • [25p] mode: 1/48, 1/50, 1/60, 1/96, 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 | • [59.94i]/[59.94p] mode: 1/61.7 to 1/6130 seconds |
| | • [29.97p] mode: 1/30.9 to 1/2600 seconds |
| | • [23.98p] 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 |

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

**Power**

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)

**Sensitivity**

Normal: F6 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i)/F7 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)

High Sensor: 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**

HD: 1000 TV lines or above (center)

**Output format**

| UHD | 3840 x 2160/60p, 3840 x 2160/59.94p, 3840 x 2160/29.97p, 3840 x 2160/23.98psF, 3840 x 2160/50p, 3840 x 2160/25p, 3840 x 2160/25psF |
| UHD_CROP | 1080/59.94p_CROP, 1080/59.94i_CROP, 1080/50p_CROP, 1080/50i_CROP |
| HD | 1080/60p, 1080/59.94p, 1080/59.94i, 1080/50p, 1080/50i, 1080/25pF, 720/60p, 720/59.94p, 720/50p |

**Shutter Speed**

3 deg to 359.5 deg [can be set in 0.5 deg steps]

**Shutter Open Angle**

3 deg to 359.5 deg [can be set in 0.5 deg steps]

**Dimensions**

Unit: mm (inches)

(Front) 78.2 (3-3/32) x 110 (4-11/32) x 140 (5-17/32) mm

(Side) 48 (1-29/32) x 12 (1/2) x 20 (3/32) mm

(Top) 20 (13/16) x 10 (5/32) x 10 (3/16) mm

(Bottom) 20 (13/16) x 55 (2-9/16) x 3-1/4-20UNC (Tapped Hole for Tripod)
**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.

**IRIS connector**

- Used to connect the IRIS control cables of the lens.

**Zoom/focus connector**

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

**IF connector**

- D02-M1155AG-20L9E (Japan Aviation Electronics Industry)

<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>

* Use the external power supply with correct polarity.

*As of April, 2018*

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**Rear View**

The rear view of the remote camera system showing various connectors and buttons.