

HD Remote Camera System Solutions

Panasonic's HD Remote Camera Lineup delivers
High-Quality HD Images for a wide range of applications
from Broadcasting to Business, Government and Education



Multi-Purpose Camera AK-HC1800G



Multi-Purpose Camera AK-HC1500G



HD Convertible Camera AW-HE870



HD Integrated Camera AW-HE120W/K



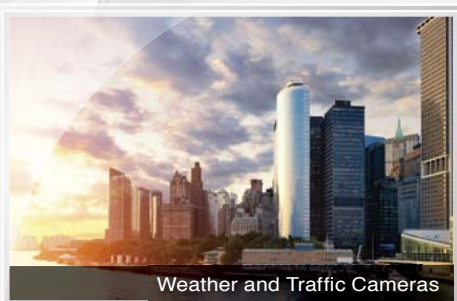
HD Integrated Camera AW-HE60S/H



HD Integrated Camera AW-HE2



Live Image Production with Panasonic



Advanced systems can be configured for high-speed, accurate image acquisition, such as live relays



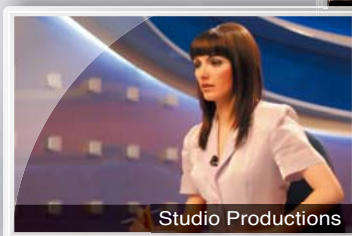
Multi-Purpose Camera
AK-HC1800G



HD Convertible Camera
AW-HE870



Indoor Pan-Tilt Head
AW-PH405

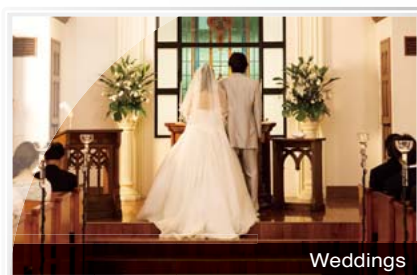
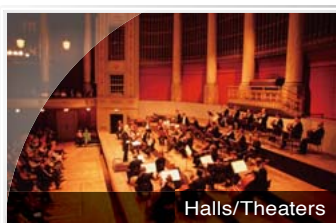


Ideal for producing cost-effective content for small studios and videoconferences while maintaining high image quality

High-Quality, Highly Functional HD Box Cameras for Versatile Indoor and Outdoor Use

Remote Camera Systems

Convenient for capturing images at concerts, weddings and more



HD Integrated Camera
AW-HE120W/K



HD Integrated Camera
AW-HE60S/H



HD Integrated Camera
AW-HE2



Device for Control/Monitoring via IP
(AW-HE60/HE2)



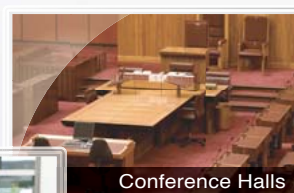
Remote Camera Controller
AW-RP120G



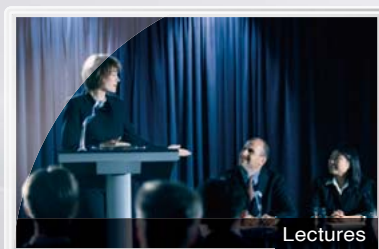
Remote Camera Controller
AW-RP50



Compact Live Switcher
AW-HS50



Ideal for use in small and medium-size events, such as conferences, lectures, and educational applications



**Compact, Integrated Units with IP Control Capability
for Easy Setup and Control in Various Location**

Featuring High-Quality 3CCD Sensors

A Compact HD Box Cameras Ideal for a Variety of Indoor and Outdoor Acquisitions



Multi-Purpose Camera

AK-HC1800G

2.2 mega pixels

(Lens not included)

2/3 type Lens Mount	2.2 M 3CCD	Cine Gamma	HD SDI output
Intelligent Function	DRS	Electronic Extender	60Hz/50Hz switchable

HD 1080/59.94i, 50i, 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF



Multi-Purpose Camera

AK-HC1500G

1 mega pixels

(Lens not included)

2/3 type Lens Mount	1.0 M 3CCD	Cine Gamma	Variable frame rate
HD SDI output	DRS	Electronic Extender	60Hz/50Hz switchable

HD 1080/60i, 59.94i, 50i, 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
720/60p, 59.94p, 50p

Optional
Boards



Down Converter Board
AK-HDC1500G

Output:
SD SDI (BNC × 1),
SD analog (VBS) (BNC × 1)



HD SDI Output Board
AK-HHD1500G

Output:
HD SDI (BNC × 1)
•Skin tone area zebra can be applied by using this optional board
•This model is not available in some areas.

System example

Sporting Events

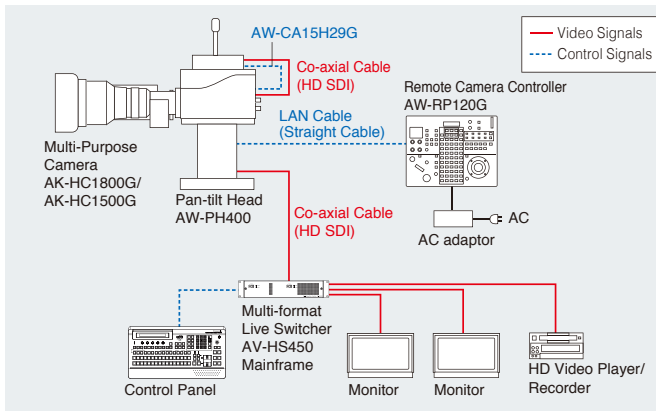
High speed and accurate camera operation for sports shooting

Key Points

- High speed (90 °/s) and accurate pan-tilt operation for sporting events

[Key Products]

AK-HC1800G AW-PH400 AV-HS450 AW-RP120G



* The AC Adaptor provided with the unit is not shown in the above figure.

Remote Studio System

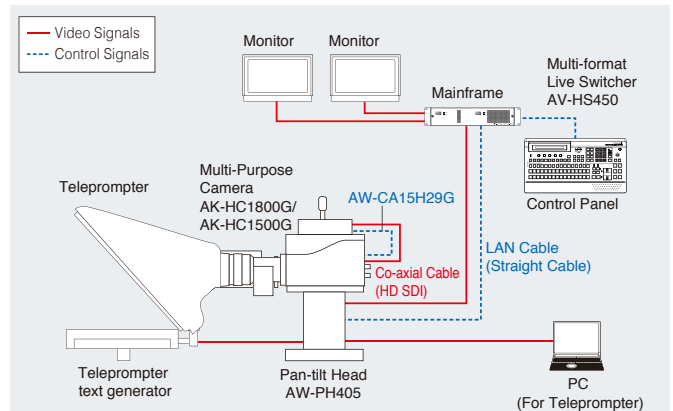
Content production at small, cost effective studios

Key Points

- Multi-format live switcher (AV-HS450) can control cameras/pan-tilt heads. In combination with a controller, you can control up to five cameras and pan-tilt heads.
- A teleprompter can be installed on the pan-tilt head (AW-PH405).
- Quiet pan-tilt motion is ideal for shooting in a quiet studio.

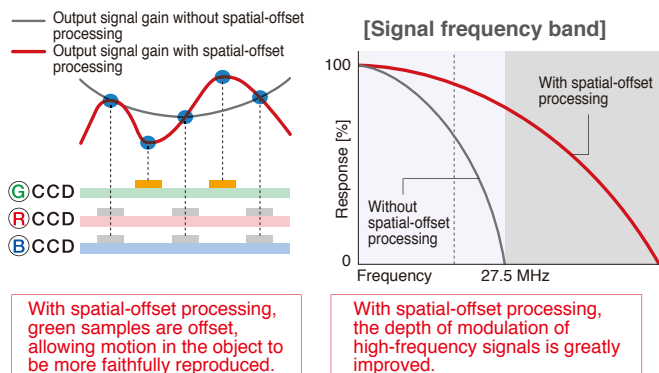
[Key Products]

AK-HC1800G AW-PH405 AV-HS450



Panasonic's CCD technology and signal processing produce high-quality.

The 2/3 type 3CCD system produces high-resolution HD images. Panasonic's single-channel transfer system and spatial-offset processing technologies improve modulation in high-frequency signal portions. This raises resolution and lowers moire to produce beautiful, highly detailed images. The AK-HC1800G is compatible with seven types of video formats, and the AK-HC1500G supports virtually all HD video formats in the world for versatile acquisition.



● CCD accumulative drive allows high sensitivity.

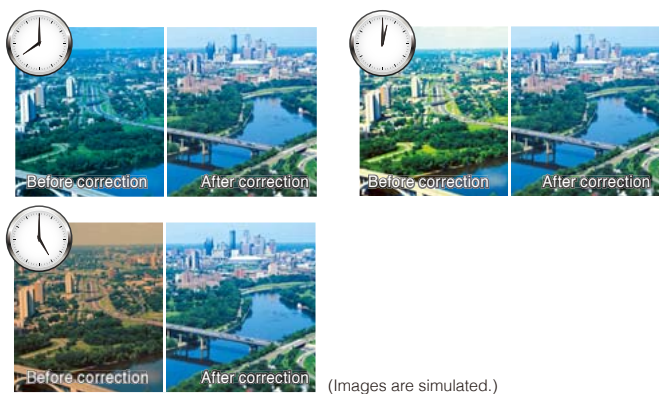
In addition to the conventional gain-up circuit, the AK-HC1500G and AK-HC1800G use CCD accumulation and horizontal/vertical addition to enable a gain increase of up to 72 dB (minimum illumination 0.015 lx).

Intelligent function significantly reduces time and effort for adjustment during remote video acquisition.

● AK-HC1800G only

● Auto Tracking White Balance Function

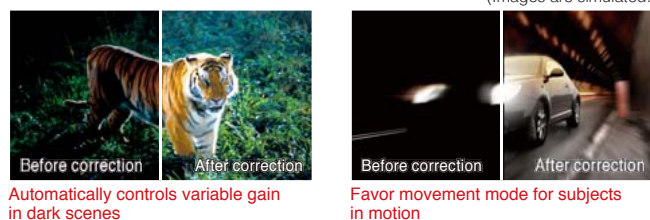
This function automatically adjusts the white balance as the color temperature gradually changes during outdoors shootings. Images can be automatically adjusted depending on the shooting subject or time.



● Automatic gain control (AGC)*

In addition to automatic iris control and continuous automatic variable gain control (-6 dB to 72 dB), AGC lets you choose between the normal mode, favor movement, favor clarity, and user setup mode.

(Images are simulated.)

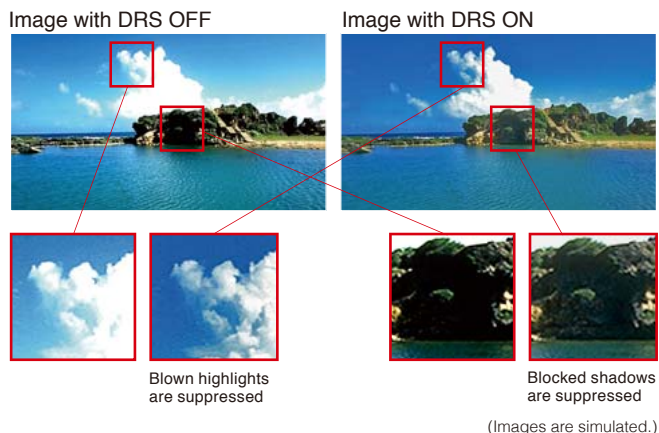


*Note: Conditions for AGC are as follows; (1) AGC can only function when the camera is used outdoors. (2) A photometry area excluding certain areas (i.e. sky) must be specified. (3) AGC will respond gradually, but it will perform quickly when the power is turned on or when the filter is changed. (4) AGC will stop when the pan-tilt or lens are in use.

Dynamic Range Stretch (DRS) automatically optimizes images that have a wide contrast range.

A gamma curve and knee slope are estimated to match the contrast of each pixel in real time. When dark, bright, and intermediate areas are all contained in the same scene, this function produces excellent gradation for each area and minimizes blocked shadows and blown highlights. The images of results are enhanced by a visually wider dynamic range.

● Images with the Dynamic Range Stretch (DRS) Effect



Features a Cine Gamma & Variable Frame Rate functions

● Variable Frame Rate function is available only with the AK-HC1500G.

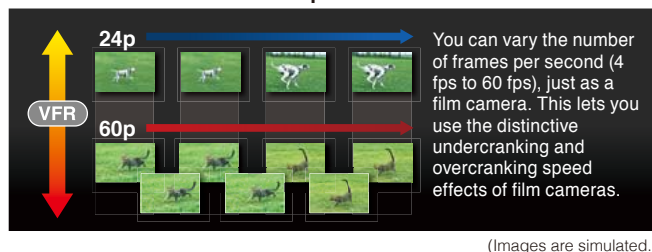
The AK-HC1800G/1500G come equipped with the cine gamma that reproduces cinematic expression with a film quality-like tone. In addition, the AK-HC1500G features a variable frame rate function that lets you set the number of frames shot per second, allowing for undercranking / overcranking for fast or slow motion effects.

● The Cine Gamma function captures image with a warm, film-like quality.

(Images are simulated.)



● The Variable Frame Rate function varies the number of frames shot per second.



Other features

● Equipped with rear slot for system expansion boards

Use of Down Converter board or HD SDI board enables system expansion.

● Electronic Extender (Digital Zoom) Function

The electronic extender enables 2x magnification.

HD/SD-compatible 2/3 type 3CCD camera HD Box Camera with HD/SD Multi-Formats

HD Convertible Camera

AW-HE870

(Lens not included)

2/3 type
Lens Mount

Progressive
3CCD

HD/SD

HD 1080/59.94i*, 50i*, 720/59.94p*, 50p*

SD 576/50i, 480/59.94i

* Optional card (AW-HHD870) is required.



Option
Card



HD/SD SDI output card
AW-HHD870

■ With this optional card, AW-HE870 supports HD/SD SDI outputs.

System example

HD Video Conference System

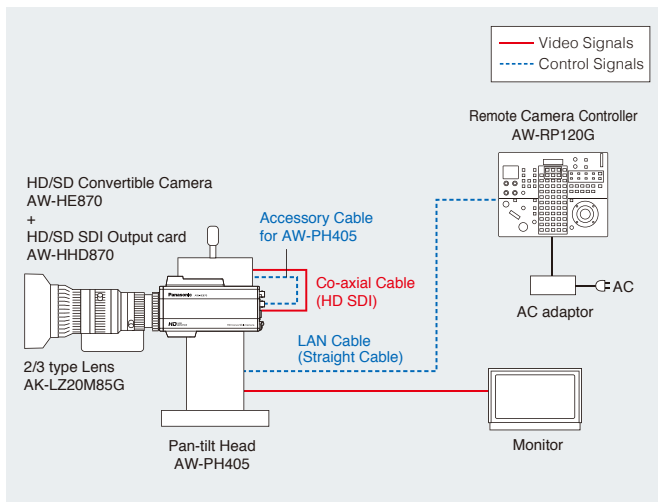
Quiet, accurate pan-tilt movement and high quality HD video images for video conference

■ Key Points

- Five cameras/pan-tilt heads with 50 preset positions can be controlled by one controller.
- High quality HD images can be provided.
- Maximum control distance is 1 000 m (control signal)

[Key Products]

AW-HE870 AW-PH405 AW-RP120G



* The AC Adaptor provided with the unit is not shown in the above figure.

The 2/3 type progressive 3CCD and high-performance DSP enable HD/SD multi-format signal output.

The 2/3 type progressive 3CCD and high-performance DSP with 14 bit A/D support 1080i, 720p, and 480i video formats. A down-converter is also built-in, so down-converted (SD) images can be output simultaneously when shooting in HD. The format can be switched to match the application, allowing to fit a wide variety of HD/SD systems.

Same operation and interface as Panasonic's conventional SD convertible camera series*1

AW-HE870 has the same operation and interfaces as Panasonic's conventional SD convertible camera series*1. The Panasonic current Pan/Tilt heads*2 and controllers*3 can be used with AW-HE870. It can be helpful for system transition from SD to HD.



A pan tilt head AW-PH405 and AW-HE870 combination.

*1 Some functions require different operations from the SD cameras.

*2 Compatible models: AW-PH360, PH400, PH405, PH650, AW-PH400 does not support analog HD video signals.

*3 Compatible models: AW-RP120G and AW-RP50 Some models may require a software update for use with the AW-HE870. Please contact your Panasonic representative for more details.

Other features

● HD/SD SDI output card (AW-HHD870) (Optional)

Installing the optional AW-HHD870 card enables the use of two HD/SD SDI outputs, as well as a Zoom-Focus control port.

● Provides HD component and SD composite outputs simultaneously*4

AW-HE870 can support mixed HD/SD systems.

*4 When Genlock input is used, only the signals of the selected output video format will be synchronized.

Optional Products (compatible with AK-HC1800G, AK-HC1500G, AW-HE870)

Indoor Pan-Tilt Head

AW-PH360



A cost effective compact pan-tilt head

- Pan angle: Approx. $\pm 150^\circ$ (Maximum Pan speed 30 °/s), Tilt angle: Approx. $\pm 95^\circ$ (Maximum Tilt speed 25 °/s)
- Quietness (Under NC30)
- Stop accuracy: under ± 3 arcminutes (0.05 °)
- Maximum 50 preset memories
- Tally light is included
- Maximum control distance: 1 000 m
- Featuring RS-232C interface
- MD lenses are supported
- Requires AC Adaptor AW-PS550.

Power supply	DC12 V
Power consumption	1.3 A (pan-tilt head only)
Weight	Approx. 3.5 kg (Approx. 7.7 lb)
Dimensions (WxHxD)	146 mm \times 245 mm \times 161.5 mm (5-3/4 inches \times 9-5/8 inches \times 6-3/8 inches) [excluding protrusions]
Maximum load	Approx. 4 kg (Approx. 8.8 lb)
Accessory	DC cable (Approx. 3 m), Camera cable (Approx. 0.6 m)

AW-PH405



A powerful indoor use pan-tilt head with max load 15 kg

- Pan range: Approx. $\pm 150^\circ$, Tilt range: Approx. $\pm 150^\circ$
- Maximum pan-tilt speed: 45 °/s
- Quietness: under NC35 (at 30 °/s)
- Stop accuracy: (± 3 arcminutes) (0.05 °)
- Maximum 50 preset memories
- Maximum control distance: 1 000 m
- Teleprompter output
- A removable tally light is included
- Both ENG lenses and MD lenses are supported
- AC adaptor built in (power cable (2 m) included)

Power supply	AC 120 V (60 Hz), AC 220 to 240 V (50 Hz)
Power consumption	120 W
Weight	Approx. 10 kg (Approx. 22.0 lb)
Dimensions (WxHxD)	319 mm \times 416 mm \times 168 mm (12-9/16 inches \times 16-3/8 inches \times 6-5/8 inches) [excluding protrusions]
Maximum load	Approx. 15 kg (Approx. 33.1 lb)
Accessory	Camera cable (Approx. 0.6 m)

AW-PH400



A quiet indoor use pan-tilt head with high speed pan/tilt movement

- Pan range: Approx. $\pm 200^\circ$, Tilt range: Approx. $\pm 150^\circ$
- Maximum pan/tilt speed: 90 °/s
- Stop accuracy: Under ± 30 arcseconds (0.008 °)
- Quietness: Under NC30 (at 30 °/s)
- Maximum 50 preset memories
- Special high speed protocol
- A removable tally light is included
- Maximum control distance: 500 m
(Maximum 1 500 m using the protocol converter AW-IF400G with remote camera controller AW-RP120G or AW-RP50)
- Both ENG lenses and MD lenses are acceptable
- AC adaptor built in (power cable (2 m) included)

Power supply	AC 120 V (60 Hz), AC 220 to 240 V (50/60 Hz)
Power consumption	145 W
Weight	Approx. 10.2 kg (Approx. 22.5 lb)
Dimensions (WxHxD)	315 mm \times 534 mm \times 188 mm (12-3/8 inches \times 21 inches \times 7-3/8 inches) [excluding protrusions]
Maximum load	Approx. 8 kg (Approx. 17.6 lb)
Accessory	Camera cable (Approx. 0.6 m)

Outdoor Pan-Tilt Head

AW-PH650



Waterproof design for stable shooting in a variety of weather conditions

- Pan range: Approx. $\pm 160^\circ$, Tilt range: Approx. 50° to Approx. -95° (Maximum Pan and Tilt speed 20 °/s)
- Quietness (Under NC40) (at 20 °/s)
- Stop accuracy: Under ± 5 arcminutes (0.08°)
- Maximum 50 preset memories
- Zoom pan-tilt function and heater wiper defroster function for the housing can also be controlled by the controller
- Maximum control distance: 1 000 m
- A camera housing, a AC adaptor and cables are included
- Both ENG lenses and MD lenses are supported

AC adaptor



Power supply	AC 120 V (60 Hz), AC 220 to 240 V (50 Hz)
Power consumption	120 W

●Housing

Weight	Approx. 18 kg (Approx. 39.7 lb)
Dimensions (WxHxD)	246 mm \times 314 mm \times 685 mm (9-11/16 inches \times 12-3/8 inches \times 26-15/16 inches) [excluding protrusions]

●Pan-tilt Head

Weight	Approx. 19 kg (Approx. 41.9 lb)
Dimensions (WxHxD)	237 mm \times 511 mm \times 213 mm (9-5/16 inches \times 20-1/8 inches \times 8-3/8 inches) [excluding protrusions]
Maximum load	Approx. 10 kg (Approx. 22.0 lb)
Accessory	Power cable: (Approx. 30 m) Multi cable: (Approx. 10 m) Camera cable: (Approx. 0.4 m)

●AC adaptor

Weight	Approx. 4.2 kg (Approx. 9.3 lb)
Dimensions (WxHxD)	200 mm \times 131 mm \times 280 mm (7-7/8 inches \times 5-3/16 inches \times 11-1/16 inches) [excluding protrusions]

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)
[excluding lens hood]
Dimensions (WxHxD): 114 mm \times 91 mm \times 170 mm
(4-1/2 inches \times 3-19/32 inches \times 6-11/16 inches)

Cables

Name	Model	Length	Remote Camera	Pan-Tilt Head	Controller	Note
Multi-interface Cable	AW-CA20T6G	1 m	AW-HE60S/H		AW-RP120G AW-RP50	Serial controll, Composite/Component Output
Cable for indoor pan-tilt head connection	AW-CA15H29G	0.7 m	AK-HC1800G AK-HC1500G	AW-PH360 AW-PH405 AW-PH400	AW-RP120G AW-RP50	Remote camera - Pan-Tilt Head connection ^{*1}
Pan-tilt cable kit	AW-CAK4H1G	0.7 m/ 3 m	AK-HC1800G AK-HC1500G	AW-PH360 AW-PH405 AW-PH400	AK-HRP150G ★	
Camera control cable	AW-CA50T8G	10 m	AW-HE870		AK-HPP200G	Direct connection with the AW-HE870 and AK-HRP200G

★Discontinued Products

^{*1} To connect the AW-HE870 with the AW-PH360/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.

Smart operation with IP control

An Integrated Pan-tilt HD/SD Camera for a Wide Range of Shooting Conditions

HD Integrated Camera

AW-HE120W/K

For indoor use

Full HD 3MOS	HD/SD	20x optical zoom	10x digital zoom
IP/Serial control	DRS	Turn-lock mounting mechanism	60Hz/50Hz switchable

HD	1080/59.94p (HDMI only), 59.94i, 50p (HDMI only), 50i, 720/59.94p, 50p,
SD	576/50p (HDMI only), 50i, 480/59.94p (HDMI only), 59.94i



AW-HE120W (White Model)
*Suspended (Hanging) style



HDMI
HIGH DEFINITION MULTIMEDIA INTERFACE

AW-HE120K (Black Model)
*Stand-alone (Desktop) style

Option



Wireless remote control
AW-RM50G

("AA", "R6" or "LR6"
battery x 2 are not included.)



Direct Ceiling Mount Bracket
WW-Q105

System example

HD/SD Camera System

Ideal for shooting in large places such as concert halls and government chambers

Key Points

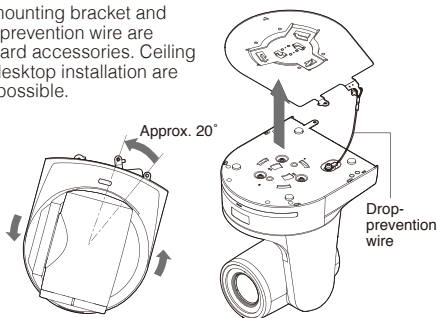
- Up to a hundred AW-HE120W/K units can be controlled by AW-RP120G via IP connections when using Ethernet hubs.

[Key Products]

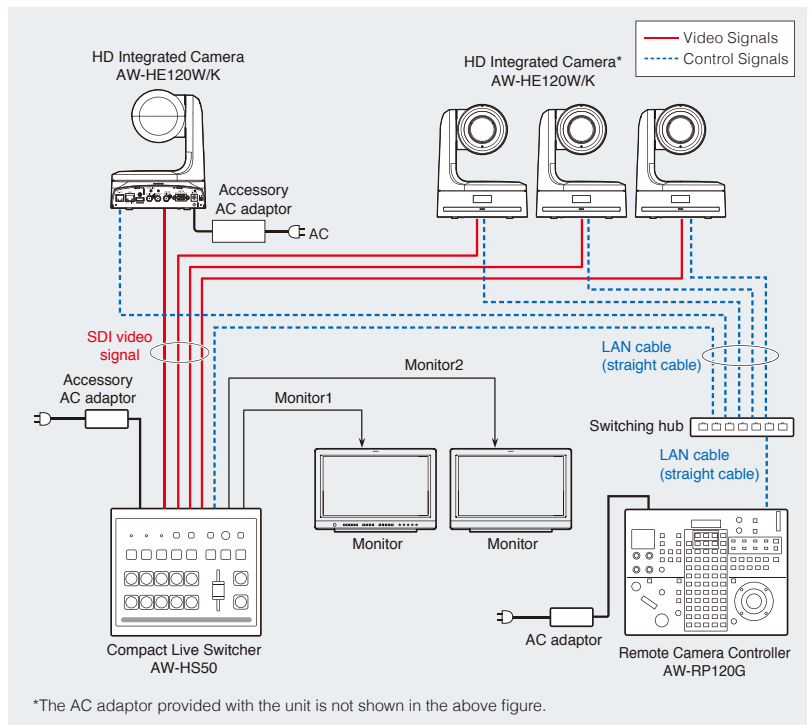
AW-HE120W/K AW-HS50 AW-RP120G

Optimal for both hanging and desktop installation.

The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible.



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



*The AC adaptor provided with the unit is not shown in the above figure.

Integrated Pan-tilt camera with a compact body and simple system configuration

Both SDI and HDMI are supported, and IP connection enables flexible system configuration, easy connection and settings. It can also be connected to current camera controllers. Both size and weight have been reduced by approximately 60 % compared to our previous model (the AW-HE100) to achieve a lightweight, compact body. With its sleek design and color variation, it blends with atmospheres in a variety of situations.



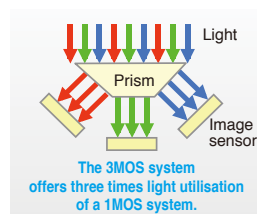
Compared with the previous AW-HE100 model

Shooting high-quality images with 1/3 type Full-HD "U.L.T." 3MOS image sensors

● Ultra Luminance Technology

High resolution and high image quality are produced by the newly developed 1/3 type 2.2 mega pixels "U.L.T." 3MOS sensors and digital signal processor (DSP).

The 3MOS System uses three MOS sensors to process the three primary colors (R, G, B) of light. (MOS = Metal Oxide Semiconductor)



A 20x optical zoom lens covers wide-angle to ultra telephoto shots.

In addition to a wide-angle design that features 32.13 mm (35 mm equivalent) at the wide end, the AW-HE120 has a 20x optical zoom lens and a 10x digital zoom power. This lets you shoot a wide variety of sharp and crisp images from wide angle to close up.

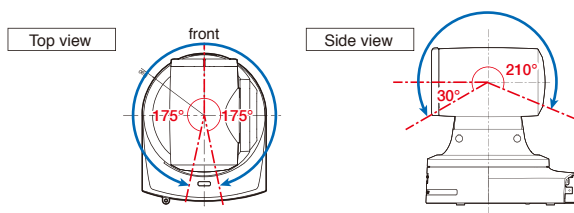


From wide angle to telescopic shots - the cameras deliver clear and crisp images for a wide range of applications. (Images are simulated.)

A wide range pan-tilt, high-speed control, and silent design apply for versatile operations.

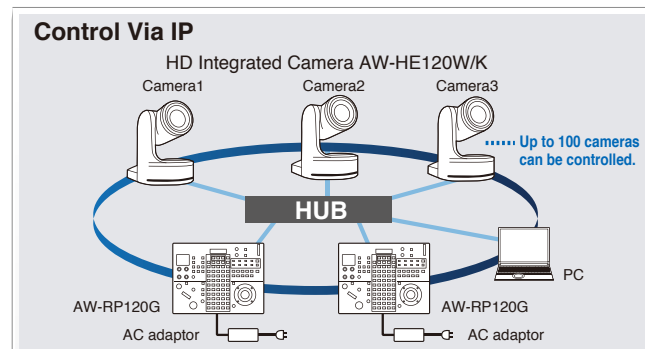
More smooth and natural movement is achieved for the pan-tilt operation. The pan-tilt head also allows a wide range* shooting, with a pan range of $\pm 175^\circ$ and a tilt range of -30° to 210° . The newly developed pan tilt drive provides high-speed operation at maximum 60 °/s, excellent response from remote control operation, and highly precise stop control. These features combine to accurately capture fast-action sports scenes with comfortable remote shooting. The noise level during operation is also very low, at NC35 or less, which is ideal for shooting in concert halls.

* Depending on the position of the pan and tilt, its own unit may be reflected in the image.



Supporting IP to simplify connection and setup, and ensures comfortable operation.

Up to 100 x AW-HE120W/K units can be controlled from an AW-RP120G, an AW-RP50 or a PC via switching hubs using the IP connection. IP connection also allows one AW-HE120W/K to be controlled simultaneously from up to five AW-RP120G and AW-RP50 units.



Dynamic Range Stretch (DRS) automatically optimizes images that have a wide contrast range.

A gamma curve and knee slope are estimated to match the contrast of each pixel in real time. When dark, bright, and intermediate areas are all contained in the same scene, this function produces excellent gradation for each area and minimizes blocked shadows and blown highlights. The images of results are enhanced by a visually wider dynamic range.



DRS OFF

With the iris expanded, this blown highlight appears on the blackboard



DRS OFF

With the iris contracted, a blocked shadow appears on the figure



DRS ON

Both highlights and shadows are clearly visible

(Images are simulated.)

Other features

● Setting camera menus with a PC

Camera menus can be set up via a web browser by connecting the AW-HE120W/K to a PC.

● Wireless remote controller for easy operation (option)

Up to 4 cameras can be controlled by an optional wireless remote controller (AW-RM50G). The basic operations and menu settings can be done by using the wireless remote controller.

● Simple connection and installation enable a flexible camera layout

IP control, a lightweight body, and the turn-lock mounting mechanism enable easy connection and mounting by a single person (indoor mounting only).

● Compact design for energy-saving

The compact, lightweight body realizes low power consumption and low cost operation of multiple cameras.

● Allows up to 100 pre-set memories per camera

● Four-position (Through, 1/4, 1/16, 1/64) ND filter

Full-HD Integrated Pan-Tilt HD/SD Camera Capable of IP Image Monitoring

HD Integrated Camera

For indoor use

AW-HE60S [SDI Model]

HD Integrated Camera

For indoor use

AW-HE60H [HDMI Model]

Full HD
MOS

18x
optical zoom

HD/SD

IP/Serial
control

DRS

Turn-lock
mounting
mechanism

Night
mode

IP
monitoring

HD

1080/59.94p¹, 59.94i, 50p¹, 50i, 29.97PsF, 25PsF,
720/59.94p, 50p

SD

576/50p², 50i, 480/59.94p², 59.94i

*1 AW-HE60H HDMI output only

*2 AW-HE60H only



Suspended (Hanging) style



Stand-alone (Desktop) style

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE
(AW-HE60H only)

Option



Wireless remote control
AW-RM50G

("AA", "R6" or "LR6"
battery x 2 are not included.)



Direct Ceiling Mount Bracket
WV-Q105

Multi-interface Cable **AW-CA20T6G**

System example

HD/SD Camera System

**For small or medium scale shooting,
such as education, business and
wedding applications**

Key Points

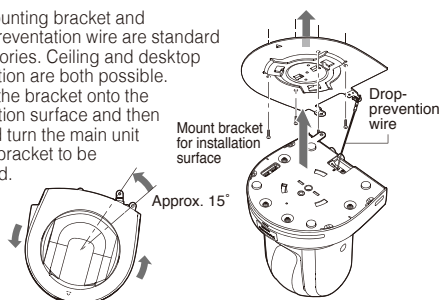
- Up to 100 x AW-HE60S units can be controlled by AW-RP50 via IP connections through Ethernet hubs.

[Key Products]

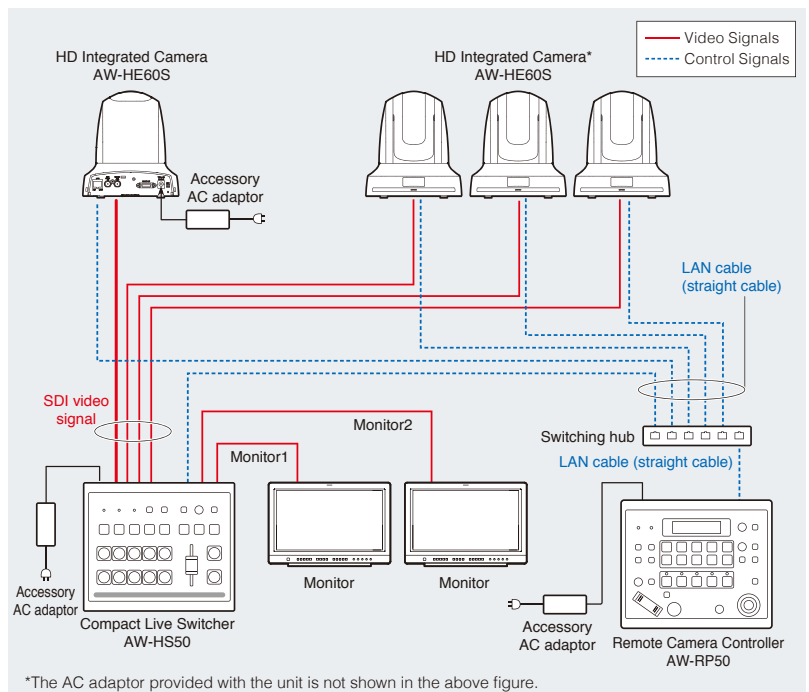
AW-HE60S AW-HS50 AW-RP50

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.



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



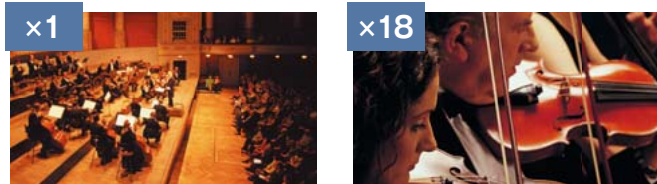
Camera, lens and pan-tilt in one compact, lightweight body

The lineup consists of two models, the AW-HE60S SDI model, which is optimal for content production, and the AW-HE60H HDMI model, which is ideal for image distribution in applications such as videoconferences. In addition to IP control, both models can be connected to existing controllers with serial control. An attractive form that blends with its surroundings and a cable cover that minimizes clutter allow shooting without adversely affecting the mood of the installation location.



1/3 type Full-HD MOS sensor and high-performance zoom lens

The cameras are equipped with the 1/3 type Full-HD MOS sensor and digital signal processor (DSP). Shooting clear, crisp HD video even in environments with less light (minimum illumination of up to 3 lx). In addition to the 18x optical zoom lens, the camera features a 10x digital zoom. This makes it possible to shoot a wide variety of sharp and crisp images, from wide angle to close up face.



From wide angle to telescopic shots - the cameras deliver clear and crisp images for a wide range of applications. (Images are simulated.)

Dynamic Range Stretch (DRS) automatically optimizes images that have a wide contrast range.

● Dynamic Range Stretch (DRS)

A gamma curve and knee slope are estimated to match the contrast of each pixel in real time. When dark, bright, and intermediate areas are all contained in the same scene, this function produces excellent gradation for each area and minimizes blocked shadows and blown highlights. The images of results are enhanced by a visually wider dynamic range.

● Hybrid (2D/3D) Noise Reduction

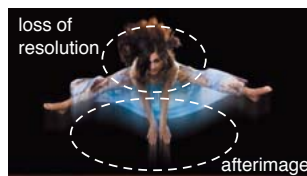
The Hybrid (2D/3D) Noise Reduction function also suppresses afterimages, even in difficult lighting conditions.



Without Noise Reduction
Some noise appear when gain control is turned up



The Hybrid (2D/3D) Noise Reduction
Clearer images in difficult conditions



3D Noise Reduction Alone
Afterimage and some loss of resolution appear

(Images are simulated.)

Equipped with Night mode for infrared shooting

When an optional infrared illuminator is used in conjunction with Night Mode, the camera can deliver high quality monochrome images in the dark.



(Images are simulated.)

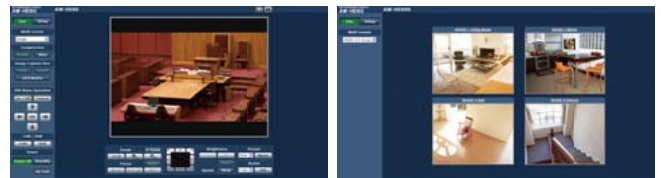
IP Control with Image monitoring

● IP control for easy connection and setup

IP connection allows control of up to 100 x AW-HE60S/H units from an AW-RP120G, AW-RP50 or a PC via switching hubs. IP connection also allows one AW-HE60S/H to be controlled simultaneously from up to five AW-RP120G and AW-RP50 units.

● IP image monitoring*1 supported

Features an image compression and IP image transmission LSI. The IP image output function*2 allows transmission of images from one camera to up to 14 terminals through IP networks.*3 When combined with IP control, the camera can be controlled from a distant location.



Live screen

Multi screen

*1 For more information, see page 18

*2 Video output and IP image output signals cannot be used simultaneously.

*3 The number varies depending on distribution settings.

Only one Android™ device can be connected to one camera.

Other features

● Pan-tilt mechanism for smooth movement

The pan range of $\pm 175^\circ$ and the tilt range of -30° to 90° cover a wide shooting area. The pan and tilt operate at a maximum speed of $90^\circ/\text{second}$ and respond quickly to remote control operation. They operate quietly at a sound level of NC35 or lower.

* Depending on the position of the pan and tilt, its own unit may be reflected in the images.

● Setting camera menus with a PC

Camera menus can be set up via a web browser by connecting the AW-HE60S/H to a PC.

● Wireless remote controller for easy operation (option)

Up to 4 cameras can be controlled by an optional wireless remote controller (AW-RM50G). The basic operations and menu settings can be done by using the wireless remote controller.

● Simple connection and installation enable a flexible camera layout.

IP control, a lightweight body, and the turn-lock mounting mechanism enable easy connection and mounting by a single person.

● Compact design for energy-saving

The compact, lightweight body realizes low power consumption and low cost operation of multiple cameras.

● Allows up to 100 pre-set memories per camera

Ultrawide-angle 95 °*1 horizontal viewing and Intelligent Zoom A Compact HD camera with built-in microphone convenient for P.O.V. (Point Of View) applications

HD Integrated Camera

AW-HE2

For indoor use

3.9M
MOS

2x
iA zoom

4x
digital zoom

HD/SD

DRS

IP
control

IP
monitoring

HD

1080/59.94p, 59.94i, 50p, 50i,
720/59.94p, 50p,

SD

576/50p, 480/59.94p

*1 18 mm in 35 mm equivalent



Suspended (Hanging) style



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Stand-alone (Desktop) style

Option



Wireless remote control
AW-RM50G

("AA", "R6" or "LR6"
battery x 2 are not included.)

System example

HD Camera System

Ideal for use in conference, event capturing, video monitoring and sports

Key Points

- Up to 100 x AW-HE2 units can be controlled by AW-RP50 via IP connections through Ethernet hubs.

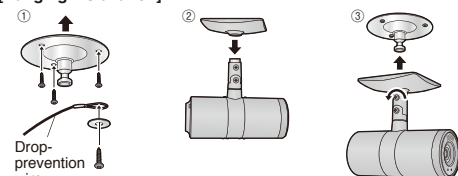
[Key Products]

AW-HE2 AW-HE120W/K AW-RP50

Optimal for both hanging and desktop installation.

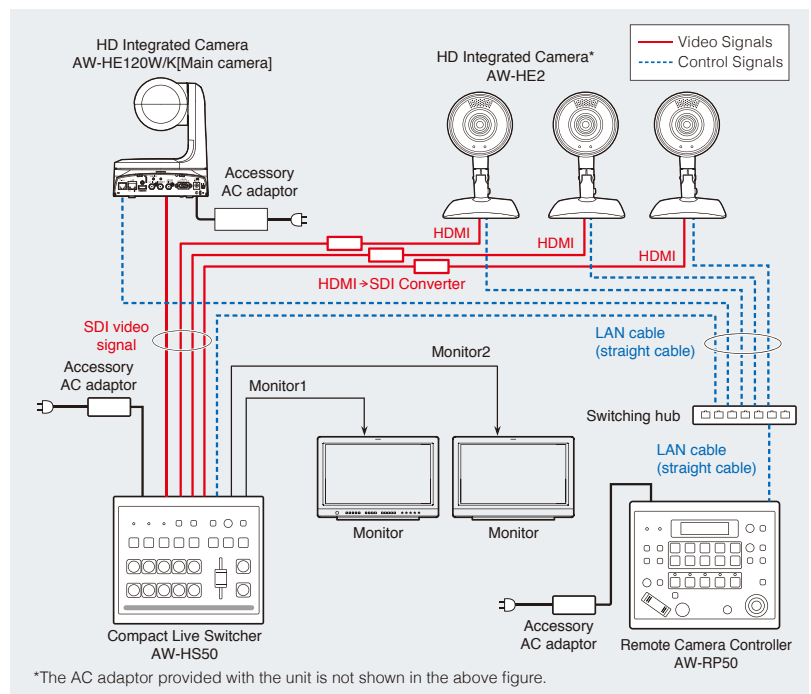
The mounting bracket and drop-prevention wire are standard accessories. Ceiling and desktop installation are both possible. Simply mount the bracket to the installation surface and secure the camera unit to the bracket using the horizontal fixing screws on the camera unit.

[Hanging Installation]



- Tightening torque: 1.176 N·m (12 kgf·cm)

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



*The AC adaptor provided with the unit is not shown in the above figure.

Ultra-compact body integrated with wide-angle lens, microphone, tally lamp and various interfaces

The camera unit is small, but comes equipped with an ultrawide-angle lens, microphone, tally lamp, HDMI and LAN terminals. This model is suitable for P.O.V. (point of view) applications and Internet broadcasting. It can also be used in a variety of other situations. The compact and lightweight body can be installed easily (indoor use) by one person.



Full-HD MOS, 95 °^{*1} ultrawide-angle lens, Intelligent zoom and digital pan-tilt for flexible image acquisition

Featuring a 1/4.37 type (effective size) 3.9 mega pixels MOS sensor and ultrawide-angle lens with 95 °^{*1} horizontal viewing angle.

The Intelligent Zoom enlarges the picture two times normal size while maintaining high image resolution. When combined with the digital zoom, images can be enlarged up to four times.^{*2} This model is suitable for a variety of image acquisition uses ranging from wide-area shooting to telephoto.



Ultra-wide shooting with a 95 ° horizontal viewing angle



High-quality zoom with Super Resolution technology

(Images are simulated.)

^{*1} 18 mm in 35 mm equivalent.

^{*2} Digital zoom increases magnification, but results in degradation of the image quality.

● Digital pan/tilt

When zooming, the image area chosen by the AW-RP120G^{*3} and AW-RP50^{*3} or wireless remote control can be moved within the shooting range.



The image in a frame can be freely moved while maintaining the zoom condition

(Images are simulated.)

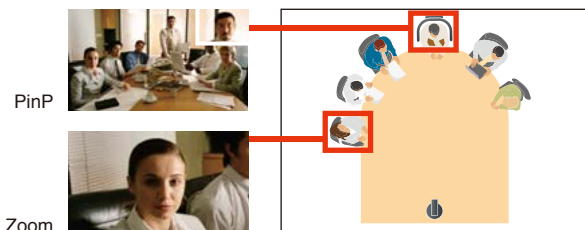
^{*3} In case controlling the AW-HE2 from the controller, it is possible to control only functions supported by the AW-HE2.

● PinP (Picture in Picture) mode

A specific area can be chosen from the shooting range and displayed. The PinP image position also can be changed and zooming.

● Preset memory

The Preset Memory function can store settings such as zoom magnification, brightness, PinP display, etc. (up to 9 settings). Settings can be easily accessed from the AW-RP120G^{*3}, AW-RP50^{*3} or wireless remote control.



(Images are simulated.)

Supporting IP to simplify connection and setup, and ensures comfortable operation.

● IP control for easy connection and setup

IP connection allows control of up to 100 x AW-HE2 units from an AW-RP120G^{*3}, AW-RP50^{*3} or a PC via a switching hub. IP connection also allows one AW-HE2 to be controlled simultaneously from up to five AW-RP120G and AW-RP50 units.

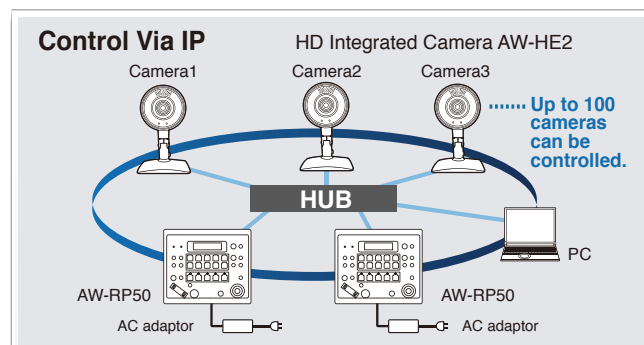
● IP image monitoring supported^{*4}

Features an image compression and IP transmission LSI. The IP image output function allows transmission of images from one camera to one terminal through IP networks. When combined with IP control, the camera can be controlled from a distant location.



Live screen

^{*4} For more information, see page 18



Other features

● Dynamic Range Stretch(DRS)

Minimizes blown highlights and blocked shadows to deliver clear images in a wide range of applications.

● Setting camera menus with a PC

Camera menus can be set up via a web browser by connecting the AW-HE2 to a PC.

● Wireless remote controller for easy operation (option)

Up to 4 cameras can be controlled by an optional wireless remote controller (AW-RM50G). The basic operations and menu settings can be done by using the wireless remote controller.

Optional Products

Remote Camera Controller

AW-RP120G

- AC adaptor (DC12 V) is required separately.

new



(Rear View)

IP Connection and Control of Up to 100 Remote Cameras. Highly Functional Remote Controller with New 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 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. Up to ten memory items can be stored for each camera.
- **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. This enables one-touch control of routine operations.
- **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.
- Settings can be backed up on a SD memory card. This also allows settings to be copied to other controllers.

Power supply	DC12 V/0.5 A (DC Input range: DC10 V to DC16 V)
Power consumption	6.0 W
Weight	Approx. 3.0 kg (Approx. 6.61 lb)
Dimensions (W x H x D)	Approx. 342 mm x 77 mm x 265 mm (Approx. 13-15/32 inches x 3-1/32 inches x 10-7/16 inches)[excluding protrusions]

- AC adaptor(DC12 V) is required separately.

Remote Camera Controller

AW-RP50



(Rear View)

Compact, easy-to-operate remote controller

- Up to 100 AW-HE60* and/or AW-HE120* and/or AW-HE2* units can be controlled by AW-RP50 via IP and Ethernet hubs
- Up to 5 cameras/pan-tilt heads can be controlled via serial connection
- Camera configuration and image quality can be adjusted by camera menu
- Up to 100 pre-set memories are available
- Compact panel design for easy control

Power supply	DC12 V \pm 10 % (AC adaptor provided)
Power consumption	0.5 A (With DC12 V)
Weight	Approx. 1.1 kg (Approx. 2.4 lb)
Dimensions (W x H x D)	210 mm x 67 mm x 177 mm (8-1/4 inches x 2-9/16 inches x 6-15/16 inches) [excluding protrusions]
Accessory	AC adaptor, Power cable

* When installing additional cameras, it is necessary to upgrade the version if the cameras were manufactured before October 2012. For more information, contact your dealer.

* See the system configuration chart on page 16 to confirm the applicable cameras and pan-tilt heads for the remote controller.

Remote Operation Panel AK-HRP200G

new



(Rear View)



- AC adaptor(DC12 V) is required separately when it controls remote camera directly.
- There is the case units require firmware upgrade.

For details, see "Support & Download" on the Panasonic website (<http://pro-av.panasonic.net/en/>).

Compact Remote Operation Panel Supporting IP Control

• Remote Operation of Studio Handy Camera and Remote Camera

The camera can be remotely operated via serial control or IP control. In addition to the AK-HC3800*1 Studio Handy Camera, it is also possible for Panasonic multipurpose cameras, HD convertible cameras, and 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*2 and lens file*2 can be saved an to a SD memory card. SD memory cards can also be used for firmware upgrades.*2

• IP Connection*3

A LAN terminal enables IP connection via Ethernet (RJ45 LAN cable).*3

*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.

Power supply	DC12 V
Power consumption	4.2 W
Weight	Approx. 1.3 kg (Approx. 2.87 lb)
Dimensions (W × H × D)	92 mm × 308 mm × 55 mm (3-5/8 inches × 12-1/8 inches × 2-3/16 inches)[excluding protrusions]

Compact Live Switcher AW-HS50



(Rear View)

A Compact and High Performance Live Switcher with Multi-View Capability

- 5 inputs and 3 outputs
IN: SDI × 4, DVI-D × 1
OUT: SDI × 3, DVI-D × 1
- HD/SD SDI and DVI-D input and output included
- MultiViewer display functionality comes installed as standard
- Audio level meter display function
- Bus transition functions
- Frame synchronizers on all inputs
- PinP, AUX Bus, Frame Store and Keyer functions also included

Power supply	DC12 V ±10 % (AC adaptor provided)
Power consumption	2.0 A (With DC12 V input)
Weight	Approx. 1.4 kg (Approx. 3.1 lb)
Dimensions (W × H × D)	210 mm × 67 mm × 177 mm (8-1/4 inches × 2-5/8 inches × 6-15/16 inches) [excluding protrusions]
Accessory	AC adaptor, Power cable

Protocol Converter AW-IF400G



(Rear View)

Enables various combinations, of a pan-tilt head and control panel

- Pan-tilt head (AW-PH400) can be controlled by controllers (AW-RP120G, AW-RP50)
- By using protocol converter AW-IF400G, control distance between pan-tilt head and controllers (AW-RP120G/AW-RP50) can be extended up to 1 500 m
- AC Adaptor is required separately

AC Adaptor AW-PS550



This AC adaptor is designed to be used with HD convertible cameras, multi-purpose cameras and their peripherals.

Power input	AC100 V to 240 V/1.3 A, 47-63 Hz
Power output	DC12 V/3.5 A, 42 W with over-current protect circuit
Weight	Approx. 0.3 kg (Approx. 0.7 lb)
Dimensions (W × H × D)	52 mm × 34.5 mm × 118 mm (2-1/16 inches × 1-3/8 inches × 4-5/8 inches) [excluding protrusions]
Accessories	Power cable × 1 DC cable with ø5.5 plug: Approx. 3 m × 1 DC cable with ø6.5 plug: Approx. 3 m × 1

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

* See the system configuration chart on page 16 to confirm the applicable cameras and pan-tilt heads for the remote controller.

This Versatile System Lineup Supports a Variety

Serial Control

HD Remote Camera

Multi-Purpose Camera

AK-HC1800G^{*4}

- 2/3 type 2.2 mega pixels 3CCD



Down converter Board
AK-HDC1500G



HD SDI Output Board
AK-HDC1500G

^{*} Not available in some areas

Multi-Purpose Camera

AK-HC1500G^{*4}

- 2/3 type 1 mega pixels 3CCD



2/3 type
20x HD Zoom Lens
AK-LZ20M85G

HD Convertible Camera

AW-HE870^{*4}

- 2/3 type 3CCD



SDI Output Card
AW-HHD870

HD Integrated Camera

AW-HE120W/K

- 1/3 type Full-HD 3MOS



HD Integrated Camera

AW-HE60S/H

- 1/3 type Full-HD MOS



Control cable: Local procurement^{*1}

Camera control cable
AW-CA50T8G

Multi-interface Cable
AW-CA20T6G

Pan-tilt Head

Indoor Pan-tilt Head

AW-PH360^{*3}

- Pan: Approx. $\pm 150^\circ$, Tilt: Approx. $\pm 95^\circ$
- Maximum pan speed (30 °/s) / Maximum tilt speed (25 °/s)
- Stop accuracy ± 3 arcminutes (0.05 °)
- Quietness: Under NC30 (at 30 °/s)
- Maximum load: Approx. 4 kg (Approx. 8.8 lb)



Max. 1 000 m

Indoor Pan-tilt Head

AW-PH405

- Pan: Approx. $\pm 150^\circ$, Tilt: Approx. $\pm 150^\circ$
- Maximum pan speed 45 °/s
- Stop accuracy ± 3 arcminutes (0.05 °)
- Quietness: Under NC35 (at 30 °/s)
- Maximum load: Approx. 15 kg (Approx. 33.1 lb)



Max. 1 000 m

Indoor Pan-tilt Head

AW-PH400

- Pan: Approx. $\pm 200^\circ$, Tilt: Approx. $\pm 150^\circ$
- Maximum pan speed 90 °/s (variable speed)
- Stop accuracy ± 30 arcseconds (0.008 °)
- Quietness: Under NC30 (at 30 °/s)
- Maximum load: Approx. 8 kg (Approx. 17.6 lb)



Max. 500 m

Outdoor Pan-tilt Head

AW-PH650

- Pan: Approx. $\pm 160^\circ$, Tilt: Approx. 50° to Approx. -95°
- Maximum pan speed 20 °/s
- Stop accuracy ± 5 arcminutes (0.08 °)
- Quietness: Under NC40 (at 20 °/s)
- Maximum load: Approx. 10 kg (Approx. 22 lb)
- Heater, wiper and defroster functions for the housing can be controlled by the controller



Max. 1 000 m

CAT5 Coupler

- Control Cable (LAN Cable/CAT-5 or faster)
- - - Control Cable
- Ethernet Cable (LAN Cable)

of Remote Acquiring.

IP Control

Controller

Remote Operation Panel AK-HRP200G^{*2*5}



- Detailed camera settings can be made by operating the ROP menu.
- Built-in SD memory card slot.

Up to 19 HD Integrated Camera units can be controlled via IP.

Remote Camera Controller AW-RP120G^{*3}



Remote Camera Controller AW-RP50^{*5}



- Maximum 100 preset positions
- Up to 5 cameras/pan-tilt heads may be controlled via serial connection.

Up to 100 HD Integrated Camera units can be controlled via IP.

HD Remote Camera

HD Integrated Camera AW-HE120W/K

- 1/3 type Full-HD 3MOS



HD Integrated Camera AW-HE60S/H

- 1/3 type Full-HD MOS



HD Integrated Camera AW-HE2

- 1/4.37 type 3.9 M MOS



- Cannot be controlled from the AK-HRP200G.

Compact Live Switcher AW-HS50

- 5 inputs and 3 outputs (SDI standard)



Connecting with the remote camera controller AW-RP120G/RP50 via IP, realizes efficient operation enabling display of camera setting information, acquisition of tally information, selection of bus images, and switching parameters can be realized.

* When connecting directly, please use a crossover cable. When connecting via hub/switch, please use a straight cable.

*1 The length of cable can be extended up to 1 000 m by using an external power supply. For details, please contact sales representative.

*2 AC Adaptor(DC12 V) is required separately when it controls remote cameras directly.

*3 AC Adaptor(DC12 V) is required separately.

*4 When the unit is used without a pan-tilt head, AC Adaptor(DC12 V) is required separately.

*5 There is a possibility of requiring software update. For details, please contact sales representative.

HUB

Protocol Converter AW-IF400G^{*3}



Supporting IP to simplify connection and setup, and ensures comfortable camera operation.

Remote Controller

Up to 19 units can be controlled via IP

Remote Operation Panel AK-HRP200G

- Detailed camera settings can be made by operating the ROP menu.
- Built-in SD memory card slot



Up to 100 units can be controlled via IP

Remote Camera Controller AW-RP120G



Remote Camera Controller AW-RP50

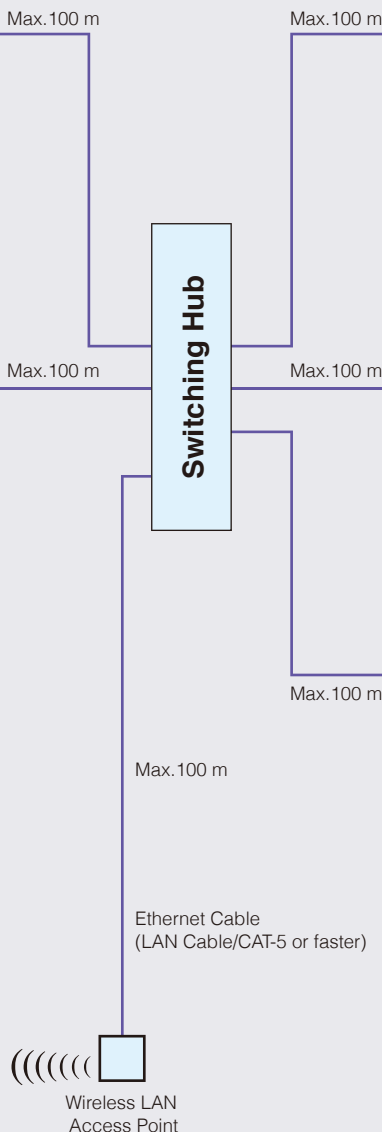


Control using web browser

- Operation and setting can be done web browser using.
- Displays live screens (AW-HE60S/H, HE2 only)



- IP images can be monitored on a mobile device (iPhone, iPad, Android). The camera can be remotely controlled. (AW-HE60S/H only)



HD Integrated Camera

HD Integrated Camera AW-HE120W/K

- 1/3 type Full-HD 3MOS



HD Integrated Camera AW-HE60S/H

- 1/3 type Full-HD MOS



HD Integrated Camera AW-HE2

- 1/4.37 type 3.9M MOS



- Cannot be controlled from the AK-HRP200G.

Direct camera control

Wireless remote control AW-RM50G

- Up to four units can be registered and switched for use.



* When connecting directly, please use a crossover cable.
When connecting via a hub/switch, please use a straight-through cable.

Web browser Operating Environment

	OS	Browser
PC	Microsoft Windows 7 Professional SP1 64bit/32bit ^{*1}	Internet Explorer 8.0/9.0 ^{*2}
	Microsoft Windows Vista Business SP2 32bit ^{*3}	Internet Explorer 7.0 ^{*3}
	Microsoft Windows XP Home Edition SP3 / Professional SP3 ^{*4}	Internet Explorer 6.0/8.0 ^{*2}
	Microsoft Windows 8 Pro 64bit/32bit ^{*5}	Internet Explorer 10 ^{*5}
Mac ^{*7}	Mac OS10.5 ^{*6}	Safari 5.0.6 ^{*6}
	Mac OS10.6	Safari 5.1.7
	Mac OS10.7	Safari 5.1.7(AW-HE60) / 6.0(AW-HE2)
	Mac OS10.8	Safari 6.0.2(AW-HE60) / 6.0(AW-HE2)

	OS	Browser
iPhone/iPad iPod touch	Apple iOS 5.1.1 / 6.0.1	
Android ^{*8}	Android OS	Standard browser

*1 Cannot be used in Windows XP compatibility mode.
*2 Cannot be used by the 64 bit version of Internet Explorer.
*3 AW-HE120W/K only
*4 Not supported by the Microsoft Windows XP Professional x64 Edition.
*5 There is the case units require firmware upgrade.
Please use Internet Explorer for the desktop.
(Internet Explorer in the Windows UI is not supported).
*6 AW-HE60SN/HN only
*7 AW-HE60SN/HN, AW-HE2 only
*8 Verification model: Panasonic TOUGH PAD FZ-A1

* For latest information on supported OS / browser, please refer to the "service and support" on the Panasonic Website(<http://pro-av.panasonic.net/>)

Specifications

	AK-HC1800G	AK-HC1500G
Power Requirements	DC 12V	
Power Consumption	17 W	
Operating Temperature	0°C to 40°C (32°F to 104°F)	
Storage Temperature	-20°C to 60°C (-4°F to 140°F)	
Weight	Approx.1.5 kg (Approx.3.3 lbs)	
Dimensions (W × H × D)	90 mm × 117 mm × 160 mm (3-9/16 inches × 4-5/8 inches × 6-5/16 inches) (excluding protrusions)	
Image Sensors	2/3 type 2.2 mega pixels IT, CCDx3	2/3 type 1.0 mega pixels IT, CCDx3
Total Number of Pixels	2 010(H)×1 120(V)	1 370 (H)×744 (V)
Effective Number of Pixels	1 920(H)×1 080(V)	1 280 (H)×720 (V)
Image Sensing Method	GBR Image sensing method	
Lens Mount	2/3 type bayonet mount	
Optical Prism	F1.4 prism	
Optical Filter	ND: CLEAR, 1/4, 1/16, 1/64	
M.T.F.	50 % (typ) (27.5 MHz)	
Gain	Maximum 72 dB by using gain up circuit, CCD accumulation and horizontal/vertical addition	
Output Format	1080/59.94i, 1080/50i, 1080/30PsF, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF	1080/60i, 1080/59.94i, 1080/50i, 1080/30PsF, 1080/29.97PsF, 1080/25PsF, 1080/24PsF, 1080/23.98PsF, 720/60p, 720/59.94p, 720/50p
S/N	60 dB (typ)	More than 54 dB
Sensitivity	F10: 2 000 lx, 3 200 K white reflection rate 89.9 % (1080/59.94i) F11: 2 000 lx, 3 200 K white reflection rate 89.9 % (1080/50i)	F10: 2 000 lx, 3 200 K white reflection rate 89.9 %
Minimum Illumination	0.015 lx (F1.4/68 dB)	
Video Output	HD SDI (BNCx1)	
SYNC input	SYNC input (GL input 3 value SYNC/BB)	
Camera Connector Control System	D-sub 15 pinx1 Asynchronous (EIA-422)	
Lens Connector 1	Iris control (HIROSE: HR10A-10R12SC)	
Lens Connector 2	Zoom/ Focus control (HIROSE: HR10A-10R12PC)	
Standard Accessories	Lens cap, Filter, Mounting screw for wire (Inch screw: 1/4-20UNC), Flat washer (Inch screw), Spring washer (Inch screw)	

Dimensions

(Front)		(Side)	
(Top)		(Bottom)	

Rear view

(for AK-HC1500G only)

DC+12 V
(only applies to AK-HC1500G)

• The photograph shows AK-HC1500G.

Zoom/focus connector

Pin No.	Signal
1	Focus control selection
2	Zoom control selection
3	GND
4	Forcible iris closing
5	Iris control
6	+Voltage
7	COM
8	Focus control
9	Zoom control
10	Iris control selection
11	COM +Voltage
12	COM -Voltage

Remote connector

	AK-HC1800G	AK-HC1500G
Pin No.	Signal	
1	GL GND	
2	NC	TC in
3	NC	
4	TX_N	
5	RX_N	
6	DC12 V	
7	GL in	
8	GND	
9	TX_P	
10	RX_P	
11	GND	
12	NC	TC GND
13	GND	
14	GND	
15	GND	

Specifications

AW-HE870N/E			
General	Power Requirements	DC 12 V	
	Power Consumption	18.5 W	
	Operating Temperature	-10°C to 45°C (14°F to 113°F) (Preheating is necessary for activation below 0°C)	
	Allowable Humidity Range	20 % to 90 %	
	Storage Temperature	-20°C to 60°C (-4°F to 140°F)	
	Weight	Approx. 1.2 kg (Approx. 2.65 lbs)	
	Dimensions (W × H × D)	83 mm × 104.5 mm × 192 mm (3-1/4 inches × 4-1/8 inches × 7-9/16 inches) (excluding protrusions)	
Camera	Image Sensors	2/3 type IT 3CCD	
	Lens Mount	2/3 type bayonet mount	
	Optical System	Dichroic prism optical system, F1.4	
	Gain Selection	-6 dB to 18 dB (1 dB in step), AGC	
	Electronic Shutter Speed	59.94 Hz	1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, ELC, Synchro-scan (61.19 Hz to 1466 Hz)
		50 Hz	1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, ELC, Synchro-scan (50.99 Hz to 1478 Hz)
	Color Bar	59.94 Hz	SMPTE
		50 Hz	FULL
	Output Format	59.94 Hz	1080/59.94i*, 720/59.94p*, 480/59.94i
		50 Hz	1080/50i*, 720/50p*, 576/50i
	Standard Illumination, Color Temperature	2 000 lx (F10, 3 200 K)	
Camera	Registration	0.05 % (Entire screen, excluding effects of lens)	
	White Balance	AWB A/B (R/B painting), ATW 3 200 K/5 600 K preset	
	Black Balance	Auto (R/B painting)	
	Synchronization System	Internal/External synchronization BB (BNC×1, D-sub 50 pin×1)	
	HD Format (Switched by menu)	Y/P _B /P _R	Y : 1.0 V[p-p]/75 Ω P _B /P _R : 0.7 V[p-p]/75 Ω (D-sub 50 pin×1)
		RGB	: 1.0 V[p-p]/75 Ω (D-sub 50 pin×1)
	Output Format	Continuous Output	59.94 Hz VIDEO OUT : 1.0 V[p-p]/75 Ω (BNC×1, D-sub 50 pin×1) Y/C Y : 1.0 V[p-p]/75 Ω C : 0.286 V[p-p]/75 Ω (burst) (D-sub 50 pin×1)
			50 Hz VIDEO OUT : 1.0 V[p-p]/75 Ω (BNC×1, D-sub 50 pin×1) Y/C Y : 1.0 V[p-p]/75 Ω C : 0.3 V[p-p]/75 Ω (burst) (D-sub 50 pin×1)
		Switched by menu	59.94 Hz Y/P _B /P _R Y : 1.0 V[p-p]/75 Ω P _B /P _R : 0.7 V[p-p]/75 Ω (D-sub 50 pin×1) RGB : 1.0 V[p-p]/75 Ω (D-sub 50 pin×1) Y/C Y : 1.0 V[p-p]/75 Ω C : 0.286 V[p-p]/75 Ω (burst) (D-sub 50 pin×1)
			50 Hz Y/P _B /P _R Y : 1.0 V[p-p]/75 Ω P _B /P _R : 0.525 V[p-p]/75 Ω (D-sub 50 pin×1) RGB : 1.0 V[p-p]/75 Ω (D-sub 50 pin×1) Y/C Y : 1.0 V[p-p]/75 Ω C : 0.3 V[p-p]/75 Ω (burst) (D-sub 50 pin×1)
	Input/Output Connector	VIDEO OUT	BNC×1
		GEN LOCK IN	BNC×1
		IRIS	12 pin round x1
		DC12 V	DC×1
		I/F REMOTE	D-sub 50 pin×1
	Standard Accessories	DC cable (3 m/9.84 ft), Mounting screw for wire (Inch screw: 1/4-20UNC), Flat washer (Inch screw), Spring washer (Inch screw)	

* Optional card (AW-HHD870) is required.

Dimensions

(Front)		(Side)	
(Top)		(Bottom)	

Rear view



Specifications

			AW-HE120WP/WE/KP/KE						
General	Power Requirements		DC 12 V (AC adaptor supplied)		Camera	Scene File		Scene1, Scene2, Scene3,Scene4	
	Power Consumption		1.75 A			Output Format	HD	1080/59.94p ^{*2} , 1080/59.94i, 1080/50p ^{*2} , 1080/50i, 720/59.94p, 720/50p	
	Operating Temperature		0°C to 40°C (32°F to 104°F)				SD	576/50p ^{*2} , 576/50i, 480/59.94p ^{*2} , 480/59.94i	
	Allowable Humidity Range		35 % to 90 % (no condensation)			Synchronization System		Internal/External synchronization (BBS/Tri-level sync)	
	Storage Temperature		-20°C to 50°C (-4°F to 122°F)		Input Connector		DC 12 V IN, G/L IN (BNC×1) ^{*3} *BBS (Black Burst Sync), tri-level sync supported		
	Weight		Approx.3.0 kg (Approx 6.61 lbs) (Including mount bracket)		Output Connector	HDMI		HDMI×1	
	Dimensions (W × H × D)		180 mm × 228 mm × 220 mm (7-3/32 inches × 8-31/32 inches × 8-21/32 inches) (excluding protrusions, cable cover, direct ceiling mount bracket)			HD/SD SDI OUT		BNC×1 Compliant with the SMPTE292M/SMPTE259M standards/75 Ω	
Image Sensors		1/3 type Full-HD 3MOS		VIDEO OUT		BNC×1 NTSC/PAL 1.0 V[p-p]/75 Ω			
Lens		Motorized 20x zoom, F1.6 to F3.4 (f=4.5 mm to 90 mm; 35 mm equivalent: 32.13 mm to 642.5 mm)		HD/SD ANALOG OUT		Y/Pb/Pr or R/G/B D-sub 15 pin x 1			
Camera	ND Filter		CLEAR, 1/4, 1/16, 1/64		Input/Output Connector	LAN		LAN connector for IP control (RJ-45)	
	Focus		Switching between auto and manual			RS-422		CONTROL IN RS422A (RJ-45)	
	Focus distance		Entire zooming range: 800 mm, Wide end: 400 mm		Pan-Tilt Mechanism	Pan/Tilt Operation Speed		MAX 60°/s	
	Color Separation Optical System		3MOS			Panning Range		±175°	
	Minimum Illumination		7 lx (50 IRE, F1.6, +18 dB)			Tilting Range		-30° to 210°	
	Horizontal Resolution		1 000 TV lines Typ (Center area)			Quietness		NC35	
	Gain Selection		Auto, 0 dB to 18 dB		Standard Accessories	Mount bracket for installation surface (Hanging ^{*4} / Desktop) Drop-prevention wire, Drop-prevention wire mounting screw (already attached to the unit), Bracket mounting screws (bind-head) M4 × 10 mm, Main unit mounting screw (with flat washer, spring washer) M3 × 6 mm, Cable cover, Power cable (1.8 m [5.9 ft]), AC adaptor			
	Frame Mix ^{*1}		0 dB, 6 dB, 12 dB, 18 dB, 24 dB						
	Electronic Shutter Speed	59.94 Hz	1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000						
		50 Hz	1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000						
	SynchroScan	59.94 Hz	60.17 Hz to 644.26 Hz						
		50 Hz	50.19 Hz to 537.13 Hz						
	Gamma		Off, Normal (Low, Mid, High), Cinema						
	White Balance		AWB A, AWB B, ATW, 3 200K, 5 600K						

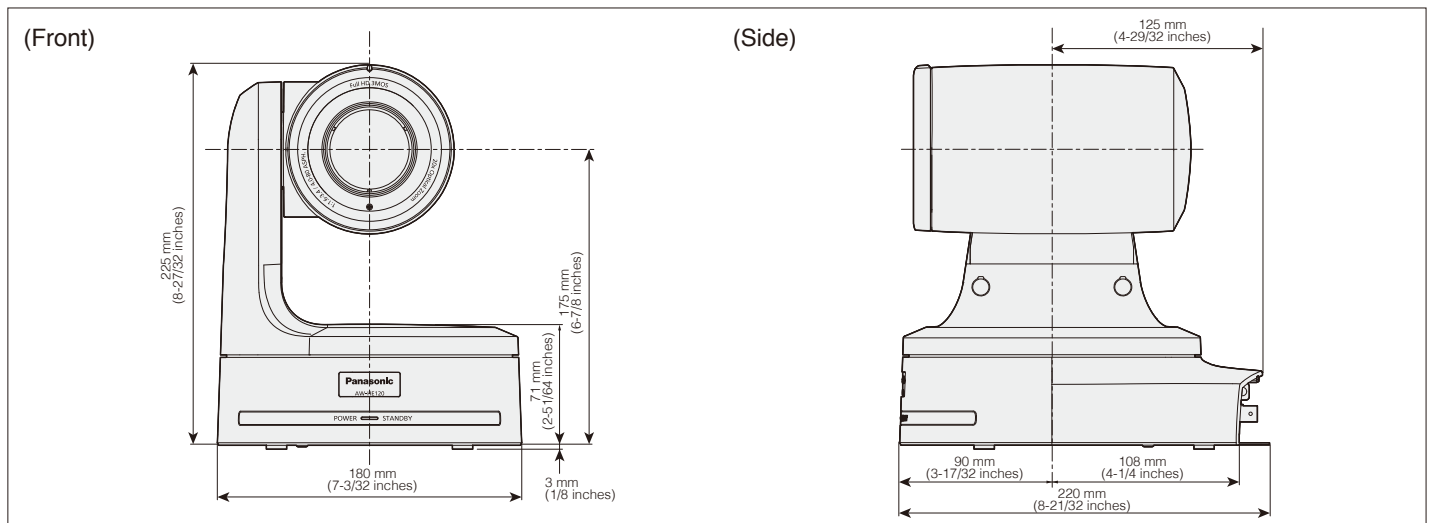
*1 Cannot be set when using 1080/59.94i nor 1080/50i formats.

*2 When 1080/59.94p, 1080/50p, 480/59.94p or 576/50p mode is selected, a Progressive signal is output to HDMI and an Interlace signal is output to SDI and analog component outputs.

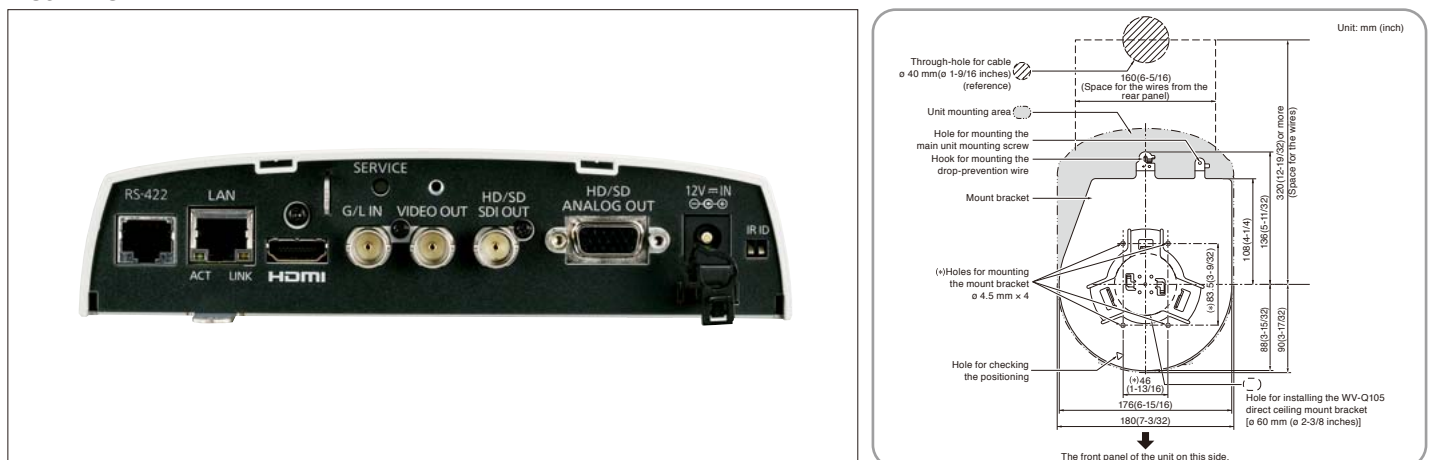
*3 Supports BBS (Black Burst Sync) and Tri-level Sync. BBS does not allow locking of the color subcarrier.

*4 To ensure more safety, AW-HE120WP/WE/KP/KE can be secured by using the direct ceiling mount bracket (WW-Q105).

Dimensions



Rear view

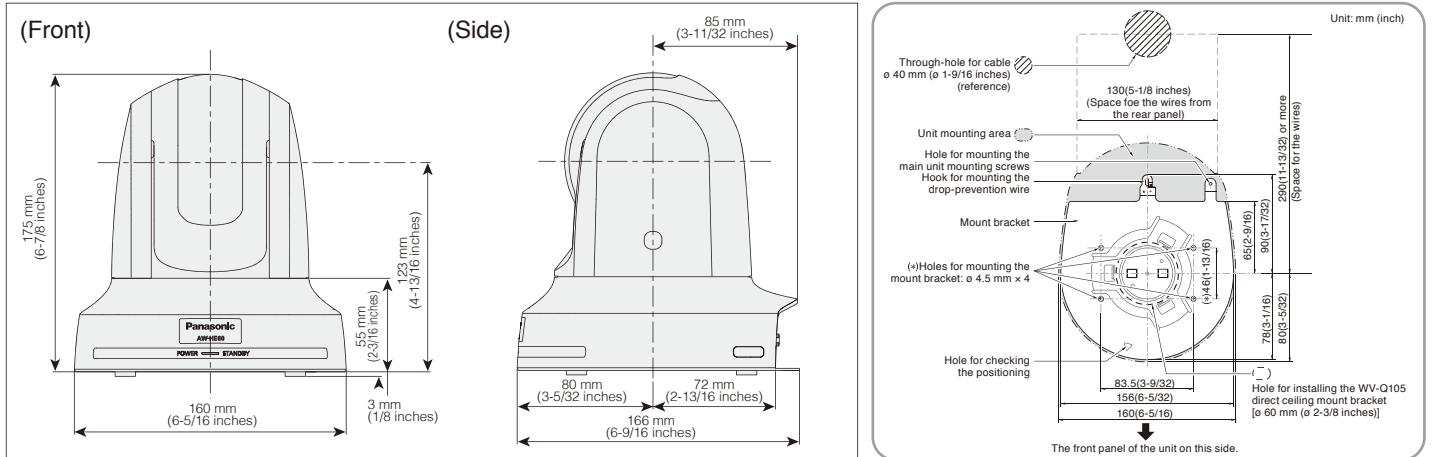


Specifications

			AW-HE60SN/SE/HN/HE							
General	Power Requirements		DC 12 V (AC adaptor supplied)		Camera	Scene File		FullAuto, Manual1, Manual2, Manual3		
	Power Consumption		1.3 A (AW-HE60H), 1.4 A (AW-HE60S)			Output Format	HD	1080/59.94p-1, 1080/59.94i, 1080/50p-1, 1080/50i, 1080/29.97PsF, 1080/25PsF, 720/59.94p, 720/50p		
	Operating Temperature		0°C to 40°C (32°F to 104°F)					SD	576/50p*1, 576/50i, 480/59.94p*1, 480/59.94i	
	Allowable Humidity Range		20 % to 90 % (no condensation)			Synchronization SystemScene	Internal synchronization (AW-HE60H), Internal/External synchronization (BBS) (AW-HE60S)			
	Storage Temperature		-20°C to 50°C (-4°F to 122°F)							
	Weight		Approx. 1.4 kg (Approx.3.1 lbs)							
Camera	Dimensions (W × H × D)		160 mm × 178 mm × 166 mm (6-5/16 inches × 7 inches × 6-9/16 inches) (excluding protrusions, cable cover, direct ceiling mount bracket)		Input Connector		DC 12 V IN, EXT SYNC IN (BNC) (AW-HE60S only) *BBS (Black Burst Sync) signal supported			
	Image Sensors		1/3 type Full-HD MOS		Output Connector	HDMI		HDMIx1 (AW-HE60H)		
	Lens		Motorized 18x zoom, F1.6 to F2.8 (f=4.7 mm to 84.6 mm; 35 mm equivalent: 36.9 mm to 664.5 mm)			SDI		BNCx1 Compliant with the SMPTE292M/SMPTE259M standards / 75 Ω (AW-HE60S)		
	Focus		Switching between auto and manual			Composite		MULTI-I/Fx1 1.0 V [p-p] / 75 Ω		
	Focus distance		Entire zooming range: 1.0 m (3.3 ft.), Wide end: 30 cm (0.98 ft.)			Y/P _B /P _R (HD/SD) ²	HD	MULTI-I/Fx1 Y: 1.0 V[p-p] / 75 Ω, P _B /P _R : 0.7 V[p-p] / 75 Ω		
	Color Separation Optical System		On-chip color filter system					SD	MULTI-I/Fx1 Y: 1.0 V[p-p] / 75 Ω, P _B /P _R : 0.7 V[p-p] / 75 Ω	
	Minimum Illumination		3 lx (50 IRE, F1.6, 36 dB)		Y: 1.0 V[p-p] / 75 Ω, P _B /P _R : 0.525 V[p-p] / 75 Ω					
	Horizontal Resolution		850 TV lines Typ (Center area)		Input/Output Connector		LAN		LAN connector for IP control (10BASE-T/100BASE-T, RJ-45)	
	Gain Selection		Auto, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB		RS-422		MULTI-I/Fx1 CONTROL IN RS422A*3			
	Frame Mix		0 dB, 6 dB, 12 dB, 18 dB		Pan-Tilt Mechanism	Pan/Tilt Operation Speed		MAX 90°/s		
	Electronic Shutter Speed		59.94 Hz			Panning Range		±175°		
	50 Hz		1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000			Tilting Range ⁴		90° to -30°		
	50 Hz		1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000			Quietness		NC35 (at normal speed), NC40 (at fastest speed when preset)		
	Synchro Scan		59.94 Hz		60.24 Hz to 646.21 Hz		Standard Accessories		Mount bracket for installation surface (Hanging*5/Desktop), Drop-prevention wire (already attached to the unit), Bracket mounting screws(bind-head) M4 × 10 mm, Main unit mounting screw (with flat washer, spring washer) M3 × 6 mm, Cable cover, Power cable (2 m[6.6 ft]), AC adaptor	
50 Hz		50.20 Hz to 538.51 Hz								
Gamma		Off, Normal (Low, Mid, High), Cinema								
White Balance		AWB A, AWB B, ATW								

*1 When 1080/59.94p or 1080/50p mode is selected, a progressive signal is output through HDMI OUT, and an interlace signal is output through analog component OUT and SDI OUT. When 480/59.94p or 576/50p mode is selected, a progressive signal is output through HDMI OUT (AW-HE60HN/HE only) and analog component OUT, and an interlace signal is output through SDI OUT (AW-HE60SN/SE only). When IP images distributed, component signals (480/59.94i, 576/50i) are not output through a multi-interface.
 *2 Y/Pb/Pr changes to 1080/720/SD depending on format setting. *3 Multi-interface Cable (AW-CA20T6G) is required. *4 The camera may be subject to external glare, depending on the pan and tilt position.
 *5 To ensure more safety, AW-HE60SN/SE/HN/HE can be secured by using the direct ceiling mount bracket (WV-Q105).

Dimensions



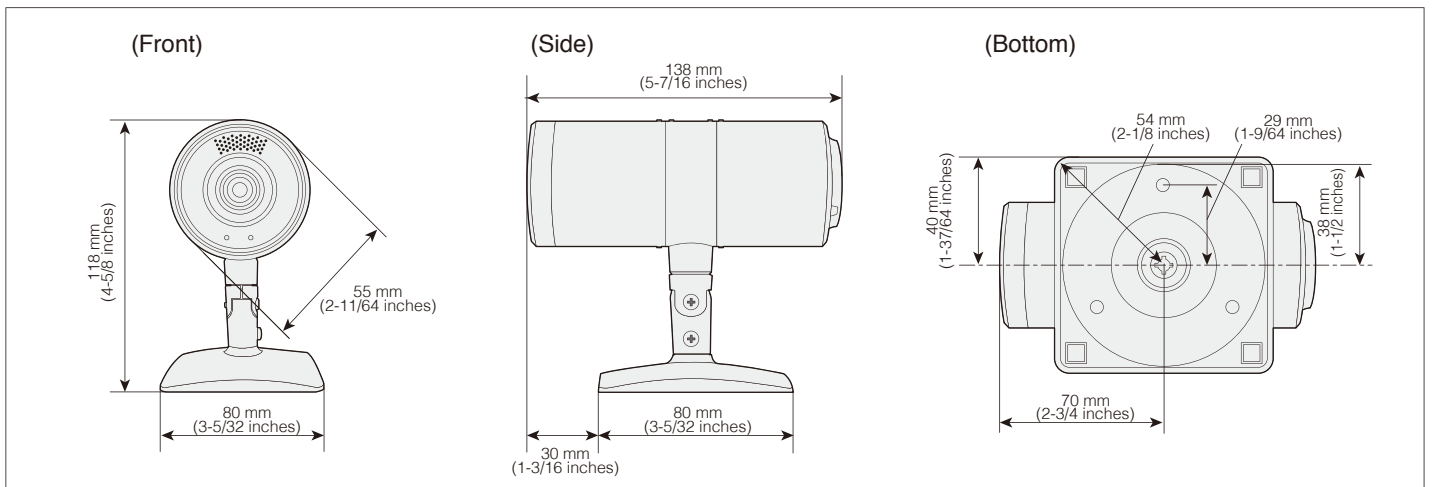
Rear view



Specifications

		AW-HE2P/E				
General	Power Requirements	DC 5.0 V (AC adaptor supplied)		Output Format	HD	1080/59.94p, 1080/59.94i, 1080/50p, 1080/50i, 720/59.94p, 720/50p
	Power Consumption	3.6 W			SD	576/50p, 480/59.94p
	Operating Temperature	0°C to 40°C (32°F to 104°F)		Synchronization System		Internal synchronization
	Allowable Humidity Range	-10 % to 80 % (no condensation)		Video Output Connector		HDMI x 1
	Storage Temperature	-10°C to 60°C (14°F to 140°F)		Audio Output Connector		HDMI x 1, Linear PCM
	Storage Humidity Range	0 % to 90 % (no condensation)				
	Weight	Approx.0.244 kg (Approx.0.538 lbs)				
	Dimensions (W x H x D)	80 mm x 118 mm x 138 mm (3-5/32 inches x 4-5/8 inches x 5-7/16 inches)		Network		10BASE-T, 100BASE-TX, RJ-45 Automatic recognition of straight/crossover cable Network output image: JPEG, 640x480 (640x360) or 320x240 (320x180), up to 30fps (16:9 video is transmitted in the Letter Box format).
Camera	Image Sensors	1/4.37 type MOS Effective pixels: Motion picture Approx.3.9 mega pixels				
	Lens	iA Approx.2x zoom, Digital Approx.4x zoom F2.0 (f=2.15 mm, 35 mm equivalent: 18 mm) Field of view: 95°(horizontal), 56°(vertical) Minimum focus distance: Approx.80 cm (25°C/77°F)		USB		Micro-B terminal x 1, Power supply function (power supplied from the USB terminal when there is no power provided from DC input terminal)
				Microphone		2 ch stereo
	Standard Illumination	1 400 lx		Pan-Tilt Mechanism	Panning Range	Approx. ±23°[iA Approx.2x zoom] Approx. ±35°[Digital Approx.4x zoom]
	Minimum Illumination	20 lx (1/60 in Auto mode)(AW-HE2P), 20 lx (1/50 in Auto mode)(AW-HE2E)			Tilting Range	Approx. ±14°[iA Approx.2x zoom] Approx. ±21°[Digital Approx.4x zoom]
	Horizontal Resolution	850 TV line Typ (Center area)				
	Electronic Shutter Speed	1/60 to 1/12000 (AW-HE2P), 1/50 to 1/12000 (AW-HE2E)		Standard Accessories		CD-ROM (Operating Instructions Basics, Operations and Setting), Drop-prevention wire, Drop-prevention wire mounting screw (with washer) M4 x 20 mm, pedestal, pedestal cover, pedestal mounting screws M4 x 20 mm, Cable Ties, Power cable, AC adaptor
	White Balance	ATW, AWB A, AWB B, Sunny, Cloudy, Indoor1, Indoor2, Fluorescent(TTL type)				

Dimensions



Rear view



Please refer to the latest Information, etc. at the following Panasonic web site.



<http://pro-av.panasonic.net/>

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JQA-0443



Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)