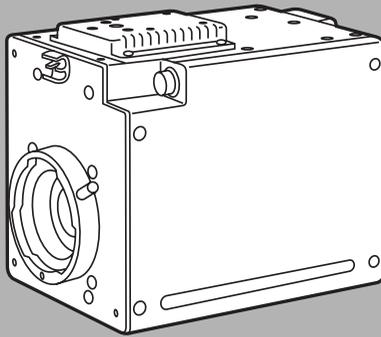


# Operating Instructions

1080i Multi-purpose  
Digital Camera

AK-HC910P



**Panasonic**<sup>®</sup>

Before attempting to connect, operate or adjust this product, please read these instructions completely.

# For Your Safety



## CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,  
DO NOT REMOVE COVER (OR BACK).  
NO USER SERVICEABLE PARTS INSIDE.  
REFER TO SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

.....For CANADA.....

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

## FCC Note:

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## WARNING:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

## CAUTION:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

The serial number of this product may be found on the bottom of the unit.

 indicates safety information.

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Thank you very much for purchasing the multi-purpose digital camera.

## Preface

---

This camera employs new 2/3" 2.2 million-pixel FIT CCD [1920(H)×1080(V)], realizing a compact light-weight system including the optical system.

Also, the newly developed CCD having an FIT configuration suited for higher picture quality and the development of low-noise, high-speed amplifiers have enabled the realization of high sensitivity, high S/N ratio, and wide dynamic range.

With the newly developed digital signal processing LSI mounted on the camera head, it performs signal processing such as GAMMA, KNEE and DTL matrix, and CCD flaw correction based on a new system, intending to improve the maneuverability with multifunction, high-quality, and high stability peculiar to a digital system.

Making the best use of the features of a small-sized self-contained camera, it is accommodated in the camera housing and able to provide high-quality HD pictures as an multi-purpose digital camera.

## Features

---

### **New 2/3" 2.2 million-pixel CCD is employed.**

**[1920(H) × 1080(V)]**

- 2.2 million-pixel CCD is 2/3" size, being compact and light-weight.

### **The camera section is equipped with a high picture quality digital signal processing LSI.**

- 10 Bit, 74 MHz high picture quality digital processing after the process circuit.
- New type CCD flaw correcting function.
- High reliability, multi-function, and improvement of maneuverability are realized.
- Max. +48 dB gain-up is possible. (Memory addition, CCD pixel addition mode included)

### **Performance improvement by new-generation FIT**

- High sensitivity, wide dynamic range and low smear are realized by CCD most suited for high-quality pictures.
- High response and high resolution are realized by driving H-CCD at 74 MHz.

### **Multiple functions**

- Multi-function DTL such as high-luminance DTL and skin DTL.
- Two HD-SDI output lines.

# Precautions

---

## DON'TS

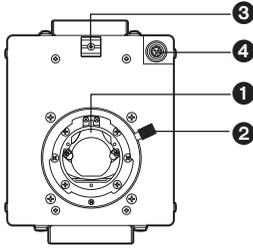
- Do not attempt to disassemble the camera or other units. In order to prevent electric shock, do not remove screws or covers. There are no user-serviceable parts inside.
- Do not abuse the camera. Avoid striking, shaking, etc. The camera contains sensitive components which could be damaged by improper handling or storage.
- Do not let the lens remain uncapped when the camera is not use. If the lens is not installed, do not leave the lens mount hole uncovered.
- Do not touch the surface of the lens or prism.
- Do not use strong or abrasive detergents when cleaning the camera body.
- Do not aim the camera toward the sun, no matter whether it is turned on or not.
- Do not expose the camera to rain or moisture, and do not try to operate the equipment in wet conditions. Do not operate the camera if it becomes wet.
- Do not operate the camera outdoors during a lightning storm.
- Do not use the camera in an extreme environment where high temperatures or high humidity exist.
- Do not leave the camera turned on when not in use. Do not unnecessarily turn the camera power on and off repeatedly. Do not block the ventilation slots.
- Do not cover the port otherwise block ventilation during operation. Internal heat buildup can cause a fire.

## DO'S

- Refer any servicing to qualified service personnel.
- Handle the camera with care.
- Protect the precision made lens by placing the lens cap over when the camera is not in use. If the lens is not installed, protect the surface of the prism by placing the body cap into the lens mount hole.
- Use a mild blower or lens cleaning tissue designed for coated lenses, to clean the surface of the lens or prism in the event that it should become dirty.
- Use a dry cloth to clean the camera if it is dirty. In case the dirt is hard to remove, use mild detergent and wipe gently.
- Use caution when operating the camera in the vicinity of spot lights or bright lights, as well as light reflecting objects and surfaces.
- Take immediate action if ever the camera should become wet. Turn the power off and have the unit checked by an authorized service facility.
- Follow normal safety precaution to avoid personal injury.
- Use the camera in an environment where the temperature is within 32°F to +104°F (0°C to +40°C), and the relative humidity is within 30% to 90% (no condensation).
- Always turn the power off when the camera is not going to be used. Operate the camera only when there is adequate ventilation.
- **Cooling fan**  
There is internally provided a cooling fan. Since the cooling fan is a consumable part, replace it after about 50,000 hours of operation.  
(Be sure to ask the dealer for the replacement.)

# Major Operating Controls and Their Functions

## Front Panel



### 1 Lens Mount

2/3" standard bayonet type (B4 mount) lens is installed.

### 2 Lens Fixing Ring Knob

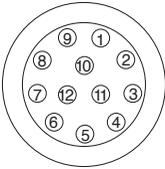
Lens is fixed by turning the knob counterclockwise.

### 3 Cable Clamp

Used to clamp the lens cable.

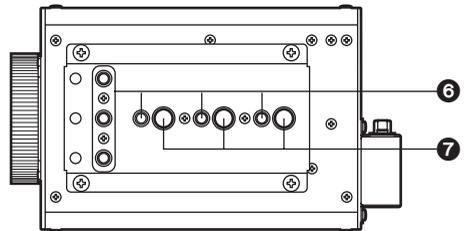
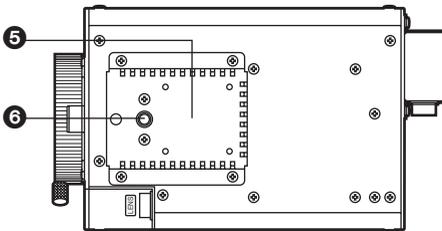
### 4 Lens Connector [LENS]

Used to connect the camera cables of the lens.



Pin No.	Signal	Pin No.	Signal
1	Return control	7	Iris follow
2	VTR-S/S	8	Iris auto selection
3	UNREG GND	9	--
4	Iris manual selection	10	--
5	Iris control	11	--
6	UNREG 12V	12	NC

## Top and Bottom Panels



### 5 Cooling Fan

- Do not block or obstruct the ventilation during operation. It may otherwise cause internal heating or fire.
- The life of this fan is approximately 50,000 hours (at room temp. 25°C). Replace the fan as needed.  
(When the room temperature is higher than 35°C, replace the fan earlier.)  
Be sure to ask the dealer for the replacement.

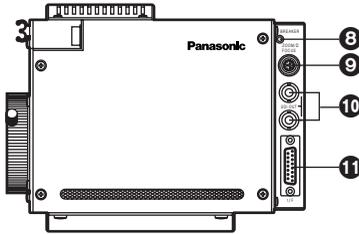
# Major Operating Controls and Their Functions

## 6 Camera mounting hole (1/4-20UNC)

## 7 Camera mounting hole (3/8-16UNC)

The screw holes can be used to secure the camera for installing it on camera housing, and when using a pan/tilt head or a tripod.

## Side Panel

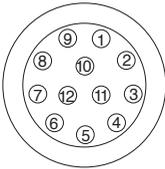


## 8 Breaker [BREAKER]

If the breaker is operated due to over-current or the like, check the cause and eliminate the trouble, then press the breaker button.

## 9 Zoom/Focus Connector [ZOOM/FOCUS]

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

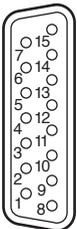


Pin No.	Signal	Pin No.	Signal
1	Focus control selection	7	COM
2	Zoom control selection	8	Focus control
3	GND	9	Zoom control
4	Forcible iris closing	10	Iris control selection
5	Iris control	11	COM +Voltage
6	+Voltage	12	COM -Voltage

## 10 SDI Output Connectors [SDI OUT 1, 2]

SDI signal output is given by two lines.

## 11 Interface Connector [I/F]



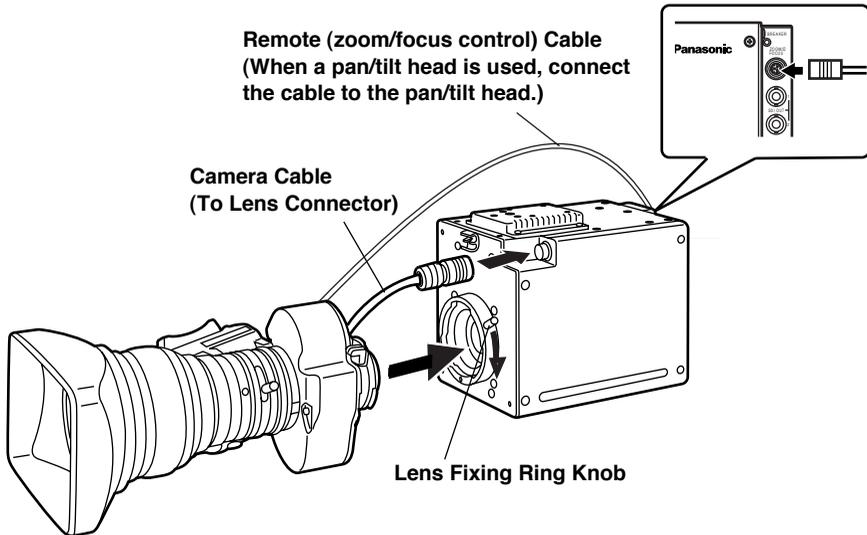
Pin No.	Signal	Pin No.	Signal
1	Y signal output	8	Y signal GND
2	Pb signal output	9	Pb signal GND
3	Pr signal output	10	Pr signal GND
4	Sync signal input	11	Sync signal GND
5	DC 12V	12	DC GND
6	Frame GND	13	TXD (C)
7	TXD (H)	14	RXD (H)
		15	RXD (C)

TXD: Data from Camera to remote controller

RXD: Data from remote controller to camera

## How to set the lens

- Standard 2/3" bayonet type (B4 mount) lens of any makers can be used\*.
- ① Turn the lens fixing ring knob counterclockwise to remove the lens mount cap.
  - ② Set the lens in place, and turn the lens fixing ring knob clockwise to precisely fix the lens.
  - ③ Connect the lens cable to the lens connector.
  - ④ Connect the remote (zoom/focus control) cable to the zoom/focus connector on the rear panel.
- \* Note that there are some lenses uncontrollable with respect to zoom, focus function.



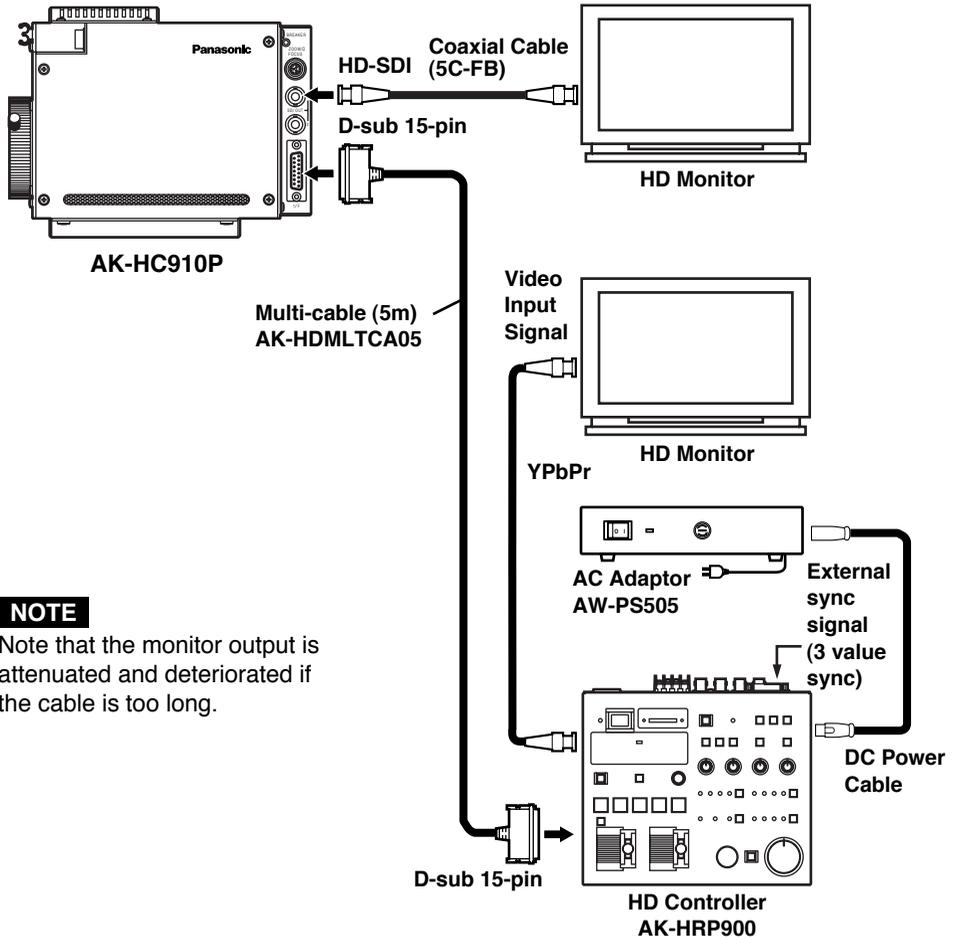
## How to install on the camera housing, pan/tilt head, tripod, etc.

- ① Precisely set the camera on the camera housing, pan/tilt head, tripod, etc. by using the camera set-screw hole (1/4-20UNC, 3/8-16UNC).
- ② When mounting the camera on a pan/tilt head, be sure to use proper tools and make sure that there is no fear of falling off.

# How to Set Up the System (Connection)

## ■ Connection of remote control box

- Use multi-cable for the connection of HD controller AK-HRP900 and this unit.

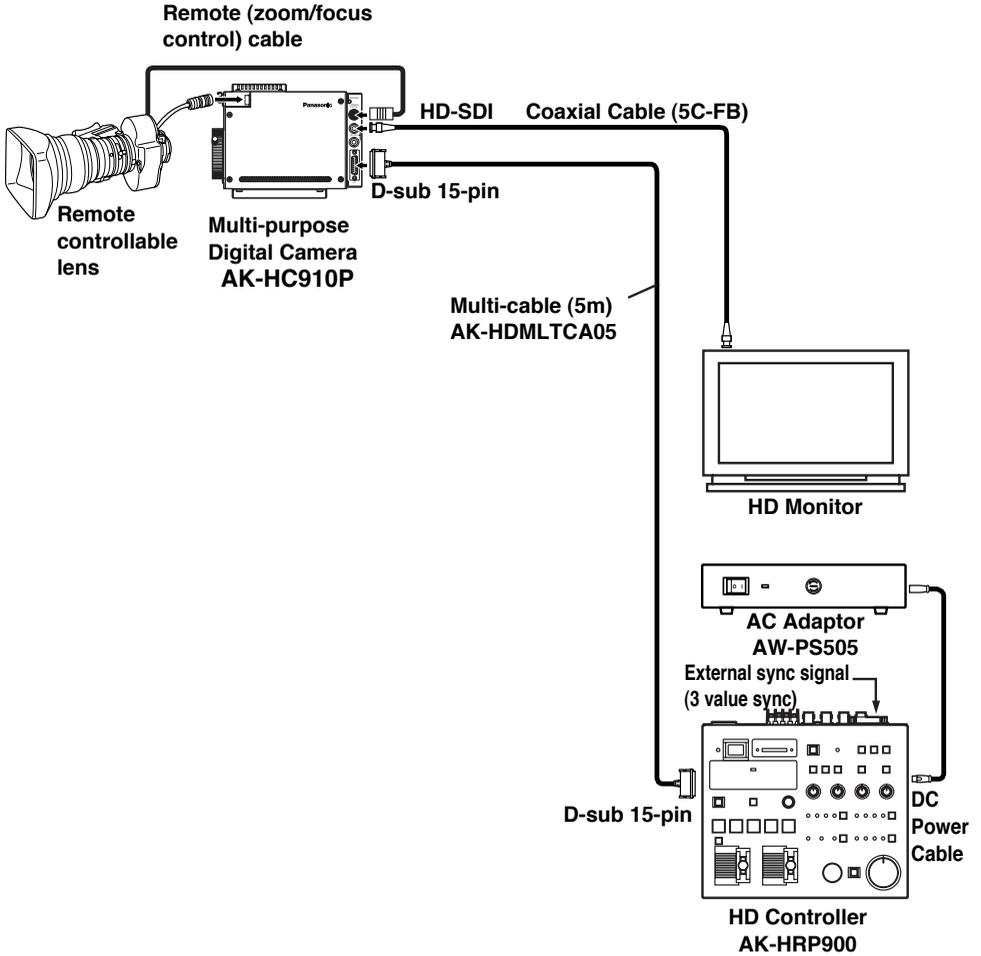


### NOTE

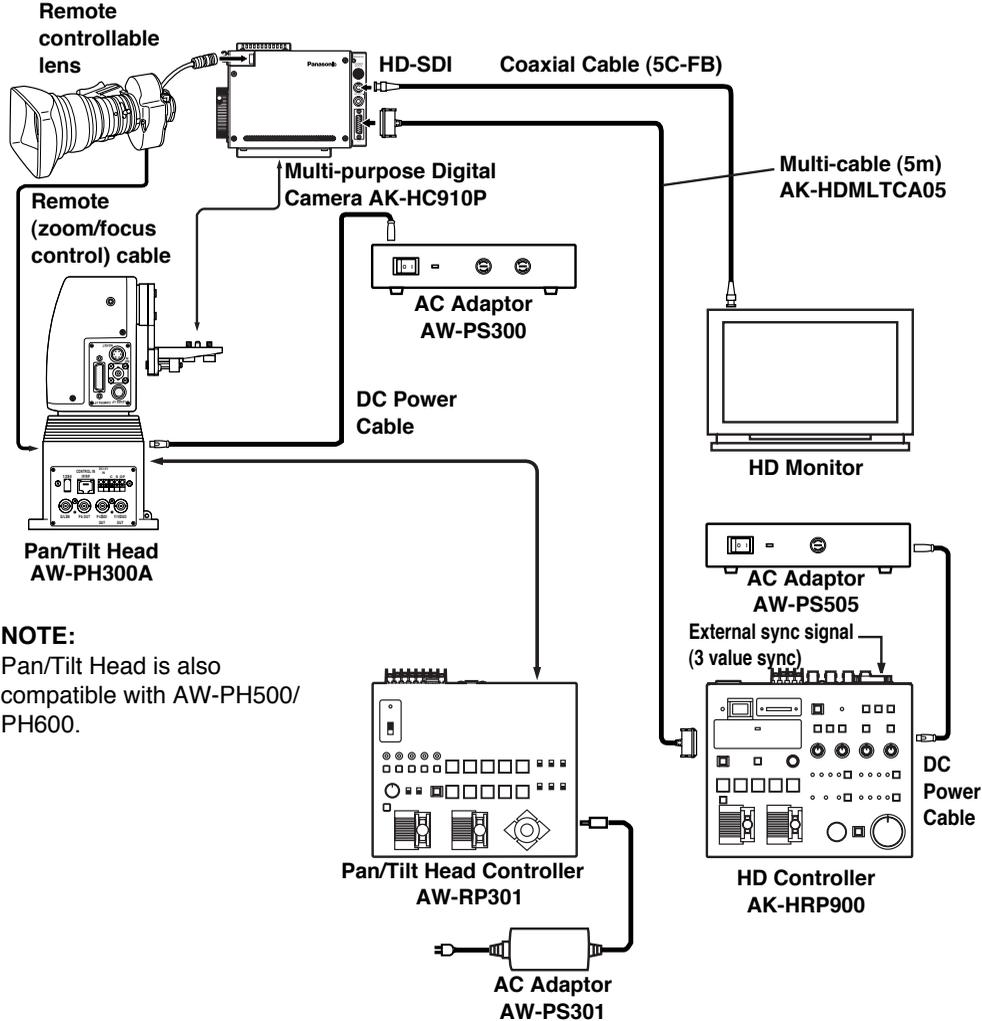
Note that the monitor output is attenuated and deteriorated if the cable is too long.

- ① Before connecting the cables, be sure to set the Power Switch of AC Adaptor and HD Controller to OFF.
- ② Connect the multi-cable to the interface connector of the camera, and the opposite side to HD Controller.
- ③ Set the AC Adaptor Power Switch to ON, and the HD Controller Power Switch to ON, then the camera can be controlled.
- ④ After shooting, set the HD Controller Power Switch to OFF, and the AC Adaptor Power Switch to OFF.

# Multi-purpose Digital Camera Control System Configuration 1



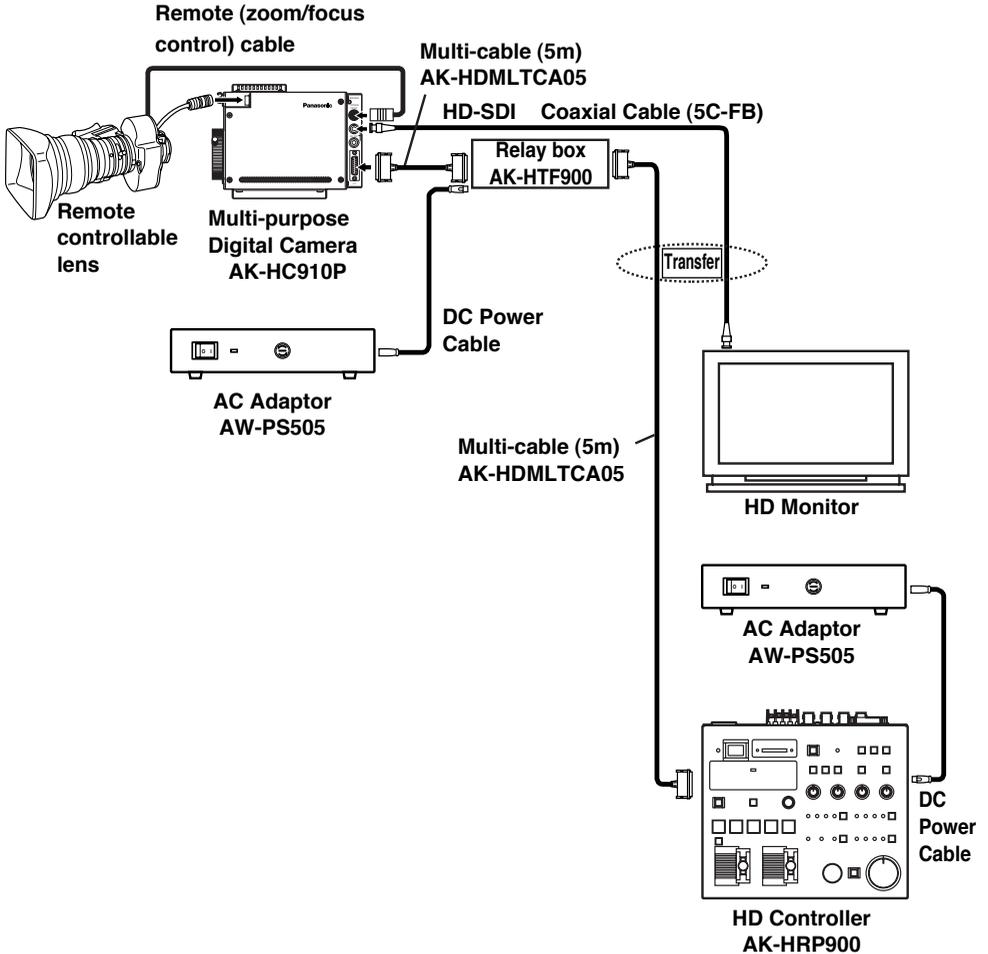
# Multi-purpose Digital Camera Pan/Tilt Head Compatible System Configuration 1



**NOTE:**  
Pan/Tilt Head is also compatible with AW-PH500/PH600.

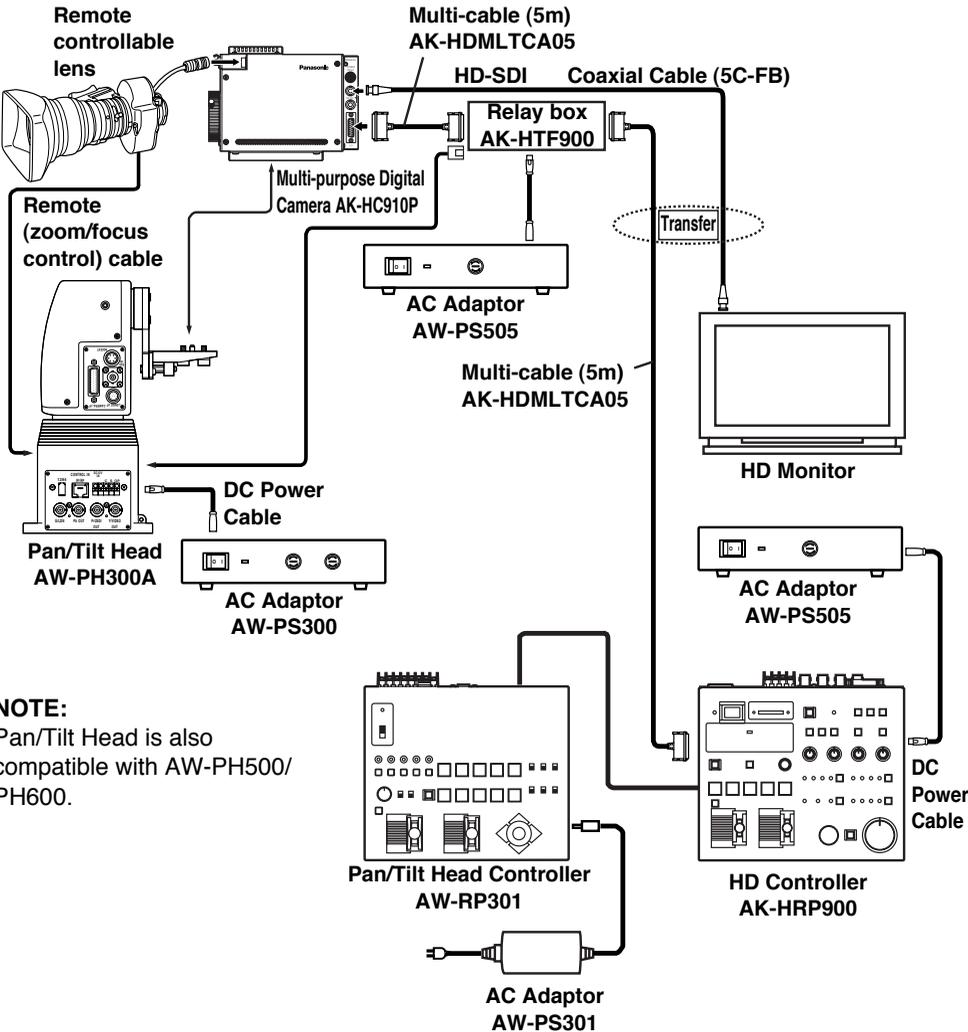
# Multi-purpose Digital Camera Control System Configuration 2

## (System for remotely monitoring picture control)



# Multi-purpose Digital Camera Pan/Tilt Head Compatible System Configuration 2

(System for remotely monitoring picture control)



# Operation Procedure

---

**1** Turn on the power of each equipment.

**2** Properly adjust the light for the object.

**3** Adjust the flange back of the lens, the iris and the focus.

- Flange back must be adjusted when the camera is used for the first time or after replacement of the lens.

**4** Adjust the white balance.

- This adjustment is needed when the camera is used for the first time or after leaving unused for a long time.
- The adjustment is necessary when the lighting condition or brightness is changed.
- After adjusting the white balance once, re-adjustment is not needed under the same condition.

**5** Adjust the black balance.

- This adjustment is needed when the camera is used for the first time or after leaving unused for a long time.
- The adjustment is necessary when the ambient temperature is greatly changed or at the change of season.
- After adjusting the black balance once, re-adjustment is not needed under the same condition.

**6** Start shooting.

(After shooting, be sure to turn off the power of each equipment connected.)

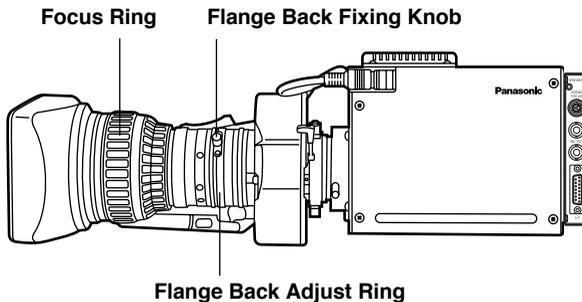
# How to Adjust

## ■ Flange back adjustment (for zoom lens)

The adjustment is to adjust the focus in all the range from the maximum zoom to the widest angle of the zoom lens.

- ① Shoot a dark object to open the iris.
- ② Adjust the distance from the object to 6.6 ft. (2 m) at least, then loosen the flange back fixing knob of the lens.
- ③ Set the lens to the maximum zoom and adjust the focus by turning the focus ring.
- ④ Set the lens to the widest angle and adjust the focus by turning the flange back adjust ring.
- ⑤ Repeat adjusting the focus ring and flange back adjust ring until the focus is adjusted within the zooming range.

After finishing the adjustment, tighten the flange back fixing knob.

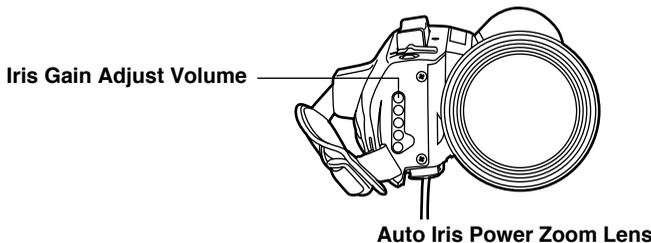


## ■ Lens iris gain volume adjustment

• Iris gain adjust hole (G or S) is provided at front of the lens housing. Adjust the iris according to the following procedure by using a screwdriver.

- ① Set the iris select switch of the lens to A "AUTO" side.
- ② Turn the iris gain adjust volume to maximize the gain in such extent that no hunting takes place.

\* Iris PEAK/AVE of camera menu can also be used for the adjustment.



# How to Adjust

## White balance adjustment

Adjust the white balance after shooting a white object by at least 50% of the screen.

**NOTE:** If the white signal level is over 100% or less than 50%, the white balance may not be normally adjusted.

## Color temperature and while balance adjustment (reference)

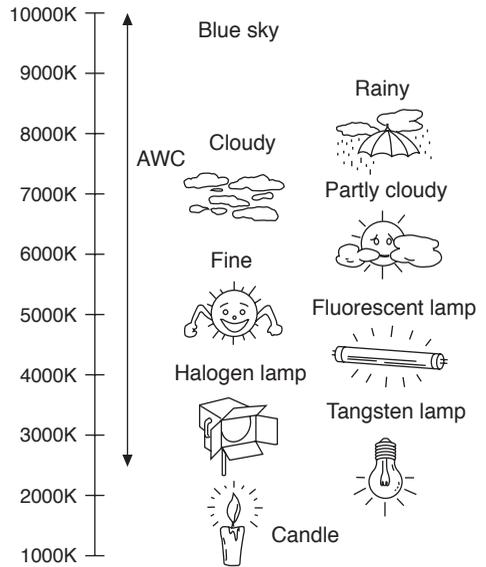
When carbon is burnt, it develops various colors of light depending on the temperature. Natural light can be specified by color temperature reflecting to the color developed when carbon is burnt.

The light of 3,200K (K=Kelvin,  $-273^{\circ}\text{C}$  equals to absolute zero temperature 0K) represents the same value (color) as what develops when carbon is burnt at 3,200K ( $2,927^{\circ}\text{C}$ ). The relationship between the color temperature of the light source and weather condition is indicated in the right figure. Let's study the difference of shooting an indoor object from shooting one outdoors. Studios are usually lighted with incandescent lamps and the color temperature of a white object in a studio is around 3,200K. The color temperature of a white object outdoors is around 6,500K. The former may look a little yellowish while the latter appears

somewhat bluish when they are shot by a camera. However, the human eye does not recognize color differences among these objects even under different ambient lighting conditions, because of their adaptability to light.

The video camera reproduces color differences with high fidelity and the color of an object somewhat different from what appears to the human eye.

Therefore, there is a need to adjust the white balance in order to correct differences between color temperatures.



Color temperature values

### NOTE

Color temperature outdoors may vary depending on weather conditions.

# How to Adjust

---

## ■ Black balance adjustment

- Adjust it with the lens closed.  
When the motor drive lens is controlled from the camera, adjusting the black balance causes the lens to be automatically closed.

## ■ Gen lock adjustment

When multiple cameras are used or the camera is combined with other equipment, it is necessary to adjust the phase for phase matching by external synchronization.

### • Horizontal phase adjustment

Observe the waveforms of externally synchronizing signal input (black burst signal) and video signal output by a two-phenomenon oscilloscope, and make the horizontal phase according to the camera menu.

#### Adjustment with H.PHASE of SETTING menu

- ① Roughly adjust the synchronizing signal input and video signal output phases by H.PHASE-COARSE.
- ② Finely adjust the synchronizing signal input and video signal output phases by H.PHASE-FINE.

```
--**H.PHASE**  
  
H.PHASE-COARSE      :03  
H.PHASE-FINE        :40
```

H.Phase adjustment is executed by the HD Controller AK-HRP900.

# Setting of Menu Items

---

## ■ Configuration of menu display screen

```
USER MENU
-1.MAINTENANCE
 2.SETTING
 3.CAM ID
 4.FILE MENU
```

**USER MENU**



**Maintenance menu**

```
-*MAINTENANCE*
 1.BLACK SHADING
 2.PED,GAMMA,FLARE
 3.KNEE,WHITE CLIP
 4.R/E GAIN
 5.DTL
 6.GAIN,AUTO IRIS
 7.S.GAIN 1
 8.S.GAIN 2
 9.S.GAIN 3
10.MATRIX
11.COLOR CORRECTION1
12.COLOR CORRECTION2
```



**Using condition setting menu**

```
-**SETTING**
 1.MODE
 2.SHUTTER
 3.H.PHASE
```



**Camera ID setting menu**

```
**CAM ID**
  |
ID:AKHC900
```



**File managing & renewing menu**

```
*FILE MENU*
-FILE           :USER1
 (DATA REP     :PRESET)
SAVE FILE?     :USER1
SAVE           :
```

# Setting of Menu Items

---

## ■ USER menu (Initial screen)

```
USER MENU  
  
-1.MAINTENANCE  
 2.SETTING  
 3.CAM ID  
 4.FILE MENU
```

The readout data at start of power supply is the data just before cutting off the power supply, and the operation is started with the data.

### 1. MAINTENANCE

It sets various adjusting data.

### 2. SETTING

It sets various modes.

### 3. CAM ID

It sets the camera ID.

### 4. FILE MENU

It executes file loading and saving, and makes the basic setting of data display.

Menu operation is executed by the HD Controller AK-HRP900.

# Setting of Menu Items

---

## 1 Maintenance menu

```
--*MAINTENANCE*  
  
1.BLACK SHADING  
2.PED,GAMMA,FLARE  
3.KNEE,WHITE CLIP  
4.R/B GAIN  
5.DTL  
6.GAIN,AUTO IRIS  
7.S.GAIN 1  
8.S.GAIN 2  
9.S.GAIN 3  
10.MATRIX  
11.COLOR CORRECTION1  
12.COLOR CORRECTION2
```

- Move the cursor (arrow mark) to the item to be adjusted and press the MENU key, then it enters the adjustment menu thereunder.
- Move the cursor to MAINTENANCE and press the MENU key, then it returns to USER MENU.

```
--*BLACK SHADING*  
  
DETECTION  
CORRECT (DIG) :ON  
CORRECT (ANA) :ON
```

### 1 Black shading correction menu

- When MENU key is pressed at DETECTION, (BLK-SHD:ACTIVE) appears, then the lens is automatically stopped down and ABB operation is executed.
- When CORRECT (DIG) is turned ON, horizontal and vertical shading correction is automatically executed. When it is turned OFF, the current value is maintained.
- Move the cursor to “BLACK SHADING” and press the MENU key, then it returns to MAINTENANCE MENU.
- When CORRECT (ANA) is set to ON, vertical shading correction (SAW tooth) is automatically corrected.

#### Note:

It takes about 90 sec. until completion of black shading correction.

# Setting of Menu Items

---

## 1 Maintenance menu

```
--**PED, GAMMA, FLARE**
```

```
M PED           :+027
R PED           :+000
B PED           :+000
M GAMMA         :0.45
R GAMMA         :+00
B GAMMA         :+00
R FLARE         :010
G FLARE         :000
B FLARE         :017
GAMMA           :ON
FLARE           :ON
```

## 2 Pedestal, gamma, flare adjustment menu

**M PED:** Master pedestal can be adjusted only by turning the control panel VR.

The R, G, B pedestal can be totally adjusted.

**R, B PED:** R, B pedestal adjustment. Besides the master pedestal adjustment, R, B pedestal can be independently adjusted. It is not related to DATA REF. The numeral display after normal ending of ABB is "0" for both of R, B.

**M GAMMA:** Master gamma adjustment. The R, G, B gamma can be totally adjusted.

**R, B GAMMA:** R, B gamma adjustment. Besides the master gamma adjustment, R, B gamma can be independently adjusted.

**R FLARE:** R flare adjustment

**G FLARE:** G flare adjustment

**B FLARE:** B flare adjustment

**GAMMA:** Gamma ON/OFF setting

**FLARE:** Flare ON/OFF setting

# Setting of Menu Items

---

## 1 Maintenance menu

```
--**KNEE,WHITE CLIP**
```

```
M KNEE POINT      :95.00%
R KNEE POINT      :+00.00%
B KNEE POINT      :+00.00%
M KNEE SLOPE      :95.00%
R KNEE SLOPE      :+000
B KNEE SLOPE      :+000
A.KNEE POINT      :95.00%
A.KNEE LVL        :108
WHITE CLIP LVL    :109%
KNEE              :MANU
WHITE CLIP        :ON
```

## 3 Knee&white clip adjustment menu

**M KNEE POINT:** Master knee point adjustment.

G, B, R knee point can be totally adjusted.

**R, B KNEE POINT:** R, B knee point adjustment.

Besides the master knee point adjustment, R, B knee point can be independently adjusted.

**M KNEE SLOPE:** Master knee slope adjustment.

G, B, R knee slope can be totally adjusted.

**R, B KNEE SLOPE:** R, B knee slope adjustment.

Besides the master knee slope adjustment, R, B knee slope can be independently adjusted.

**A. KNEE POINT:** Auto knee point setting. Knee point in auto knee mode is set.

**A. KNEE LVL:** Auto knee level.

**WHITE CLIP LVL:** White clip level adjustment.

Video level with white clipped is set.

**KNEE:** KNEE mode (OFF/MANU/AUTO)

OFF: Knee function is turned OFF.

MANU: Knee function is adjustable with menu.

AUTO: Auto knee function is executed.

**WHITE CLIP:** White clip operation setting.

With it ON, white clip is effective.

# Setting of Menu Items

---

## 1 Maintenance menu

```
---R/B GAIN---  
  
R GAIN           :+000  
B GAIN           :+000
```

```
---DTL---  
  
DTL               :ON  
TOTAL DTL LVL    :+00  
H DTL LVL        :11  
CRISP            :02  
LVL DEPENDENT    :2  
PEEK FREQUENCY   :10  
KNEE APERTURE    :ON  
KNEE APA.LVL     :10  
SLIM DTL         :OFF  
DTL (+)          :+00  
DTL (-)          :+00  
DTL CLIP         :0  
DTL SOURCE       :(B+G)/2
```

### 4 Gain adjustment menu

The gain of R, B GAIN is adjusted. The difference from the state of being white-balanced can be adjusted.

- The numeral value displayed after normal ending of AWB is "0" for both of R, B.

### 5 Detail adjustment menu

**DTL:** Setting of valid/invalid of detail function.

**TOTAL DTL LVL:** Horizontal and vertical detail level adjustment.

**H DTL LVL:** Horizontal DTL component is adjusted independently of DTL adjusted by TOTAL DTL.

**CRISP:** It functions to eliminate slight detail component and to reduce the noise level.

**LVL DEPENDENT:** It suppresses the detail of low brightness level. The brightness level to be suppressed is adjusted here.

**PEAK FREQUENCY:** It lifts up the detail component, and selects the central frequency.

**KNEE APERTURE:** It functions to emphasize the detail component of the portion with knee applied.

**KNEE APA.LVL:** It sets the degree of knee aperture.

**SLIM DTL:** It validates the function of slimming the portion where the detail is thick and emphasized.

# Setting of Menu Items

## 1 Maintenance menu

--\*\*DTL\*\*

DTL	:ON
TOTAL DTL LVL	:+00
H DTL LVL	:11
CRISP	:02
LVL DEPENDENT	:2
PEEK FREQUENCY	:10
KNEE APERTURE	:ON
KNEE APA.LVL	:10
SLIM DTL	:OFF
DTL(+)	:+00
DTL(-)	:+00
DTL CLIP	:0
DTL SOURCE	:(B+G)/2

--\*\*GAIN,AUTO IRIS\*\*

LOW GAIN	:0dB
MID GAIN	:9dB
HIGH GAIN	:18dB
A.IRIS LVL	:082
A.IRIS PEAK/AVG	:075
A.IRIS WINDOW	:NORM1
IRIS MODE	:LENS
IRIS GAIN	:06

## 5 Detail adjustment menu (continued from previous page)

**DTL (+):** Setting of DTL at the edge in positive direction.

**DTL (-):** Setting of DTL at the edge in negative direction.

**DTL CLIP:** Setting of clip level of DTL edge.

**DTL SOURCE:** Setting of video source [G, R, (3G+R)/4, (2G+R+B)/4, (G+B/2)] to create the detail.

## 6 Master gain, auto iris setting menu

**LOW GAIN:** LOW setting of master gain.

**MID GAIN:** MID setting of master gain.

**HIGH GAIN:** HIGH setting of master gain.

- The above GAIN setting is able to set -6 to +18 dB in 3 dB step.

**A.IRIS LVL:** Setting of the intended convergence level of auto iris.

**A.IRIS PEAK/AVG:** Setting of the detection ratio of peak value and average value of the quantity of light when auto iris is operated.

**A.IRIS WINDOW:** Setting of the detecting position of auto iris.

**IRIS MODE:** Auto iris mode setting: (LENS/CAM).

**IRIS GAIN:** Iris loop gain adjustment.

# Setting of Menu Items

---

## 1 Maintenance menu

```
---S GAIN 1**

*TOTAL GAIN           :42dB
ANLG GAIN             :36dB
PIX MIX              :06dB
H DTL LVL            :00
CRISP                 :0
LEVEL DEPENDENT      :5
PEAK FREQUENCY       :2
M GAMMA              :0.45
MASTER PED OFFSET    :-043
R PED OFFSET          :-046
B PED OFFSET          :-045
```

(Super gain 1, 2, 3 are same menu.)

## 7 Super gain, Detail, Pedestal-offset level setting menu

**TOTAL GAIN:** Total gain in analog, pixel addition, and memory addition is displayed.

**ANLG GAIN:** Gain setting in analog.

**PIX MIX:** Gain setting in horizontal pixel addition. Capable of setting 0/6 dB.

**H DTL LVL:** DTL level setting of super gain.

**CRISP:** Setting the function of reducing noise level of super gain. It is invalid when DTL level is "0".

**LEVEL DEPENDENT:** Setting of DTL suppression at low lighting intensity of super gain.

**PEAK FREQUENCY:** Setting of DTL boost frequency of super gain.

**M GAMMA:** Gain setting in super gain. Capable of setting 0/6 dB.

**MASTER PED OFFSET:** Setting of master pedestal offset of super gain 1.

**R PED OFFSET:** Setting of R pedestal offset of super gain.

**B PED OFFSET:** Setting of B pedestal offset of super gain.

# Setting of Menu Items

---

## 1 Maintenance menu

```
- < MATRIX >

MATRIX TABLE      :A
MATRIX R-G         :+00
MATRIX R-B         :+00
MATRIX G-R         :+00
MATRIX G-B         :+00
MATRIX B-R         :+00
MATRIX B-G         :+00
```

```
- < COLOR CORRECTION1 >

          SAT   PHASE
R         +00   +00
Mg        +00   +00
B         +00   +00
Cy        +00   +00
G         +00   +00
Yl        +00   +00
```

```
- < COLOR CORRECTION2 >

          SAT   PHASE
R - Mg    +00   +00
Mg - B    +00   +00
B - Cy    +00   +00
Cy - G    +00   +00
G - Yl    +00   +00
Yl - R    +00   +00
```

## 8 Matrix menu

Selection of table A, B or OFF.  
Adjustment of gain of each color.

## 9 Color correction 1 menu

Adjustment of gain (saturation) and  
phase of each color.

## 10 Color correction 2 menu

Adjustment of gain and phase of matrix.

# Setting of Menu Items

---

## 2 Setting menu

```
--**SETTING**
```

```
1.MODE  
2.SHUTTER  
3.H.PHASE
```

Menu for various settings.

```
--**MODE**
```

```
BLACK STRETCH      :OFF  
D5600K             :OFF  
CABLE COMPE       :0m  
SUP GAIN           :OFF  
CAM ID            :BAR  
CAM ID POSI       :0  
MATRIX TABLE     :OFF  
COLOR CORRECTION  :OFF  
STATUS            :ON
```

### 1 Camera mode setting menu

**BLACK STRETCH:** Setting of the function of expanding low-brightness analog video level.  
It is set by ON/OFF.

**D5600K:** It is able to make color temperature correction of about 5600 degrees of electric color temperature correcting file.  
It is set by ON/OFF.

**CABLE COMPE:** Setting of video cable compensation. It is able to set 0/25/50m.

**SUP GAIN:** It sets OFF/1/2/3 of MAX GAIN.

**CAM ID:** Setting of camera ID display.  
It is set by OFF/BAR/ON.  
In BAR setting, CAM ID is displayed only in BAR mode.

# Setting of Menu Items

## 2 Setting menu

---\*\*MODE\*\*

BLACK STRETCH	:OFF
D5600K	:OFF
CABLE COMPE	:0m
SUP GAIN	:OFF
CAM ID	:BAR
CAM ID POSI	:0
MATRIX TABLE	:OFF
COLOR CORRECTION	:OFF
STATUS	:ON

---\*\*SHUTTER\*\*

SHUTTER MODE	:OFF
SHUTTER SPEED	:1/100
SYNCHRO SCAN	:75.1

---\*\*H. PHASE\*\*

H. PHASE-COARSE	:09
H. PHASE-FINE	:40

### 1 Camera mode setting menu (continued from previous page)

**CAM ID POSI:** It sets the display position of camera ID.

0: top left, 1: top right, 2: down left, 3: down right.

**MATRIX TABLE:** It sets A, B or OFF of Matrix table.

**COLOR CORRECTION:** Setting of matrix ON/OFF.

**STATUS:** It sets displaying/not displaying the status when AWB/ABB is executed.

### 2 Electronic shutter setting menu

**SHUTTER MODE:** It selects the shutter operation. ON/SYNCHRO/OFF can be selected.

ON → Setting of normal discrete shutter speed.

SYNCHRO → Setting of synchro scan mode.

**SHUTTER SPEED:** Setting of normal shutter speed.

**SYNCHRO SCAN:** Setting of synchro scan mode.

Shutter speeds of 60 Hz to 120 Hz can be continuously changed.

### 3 Horizontal phase adjustment menu for external reference signal

**H.PHASE-COARSE:** It is able to set the horizontal phase in  $15\mu$  step.

**H.PHASE-FINE:** Setting of 1-step fine adjustment in the above phase adjustment.

# Setting of Menu Items

---

## 3 Camera ID setting menu

```
**CAM ID**
      |
ID:AKHC900
```

## 4 File managing and renewing menu

```
*FILE MENU*

-FILE           :USER1
SAVE FILE?     :USER1
SAVE           :
```

```
*FILE MENU*

FILE           :USER1
SAVE FILE?     :USER1
SAVE           :
```

### File operation menu

**█** : blinking display.

- ① The file selected by FILE is loaded.  
It can be selected from [PRESET/USER1 / USER2 /CURRENT].  
When desired to return to the previous data after loading other file, select "CURRENT".

# Setting of Menu Items

---

## 4 File managing and renewing menu

```
*FILE MENU

FILE                :USER1
-SAVE FILE?        :USER1
SAVE                :
```

```
*FILE MENU*

FILE                :USER1
SAVE FILE?         :USER1
SAVE IN USER1.OK?
-YES
NO
```

```
*FILE MENU*

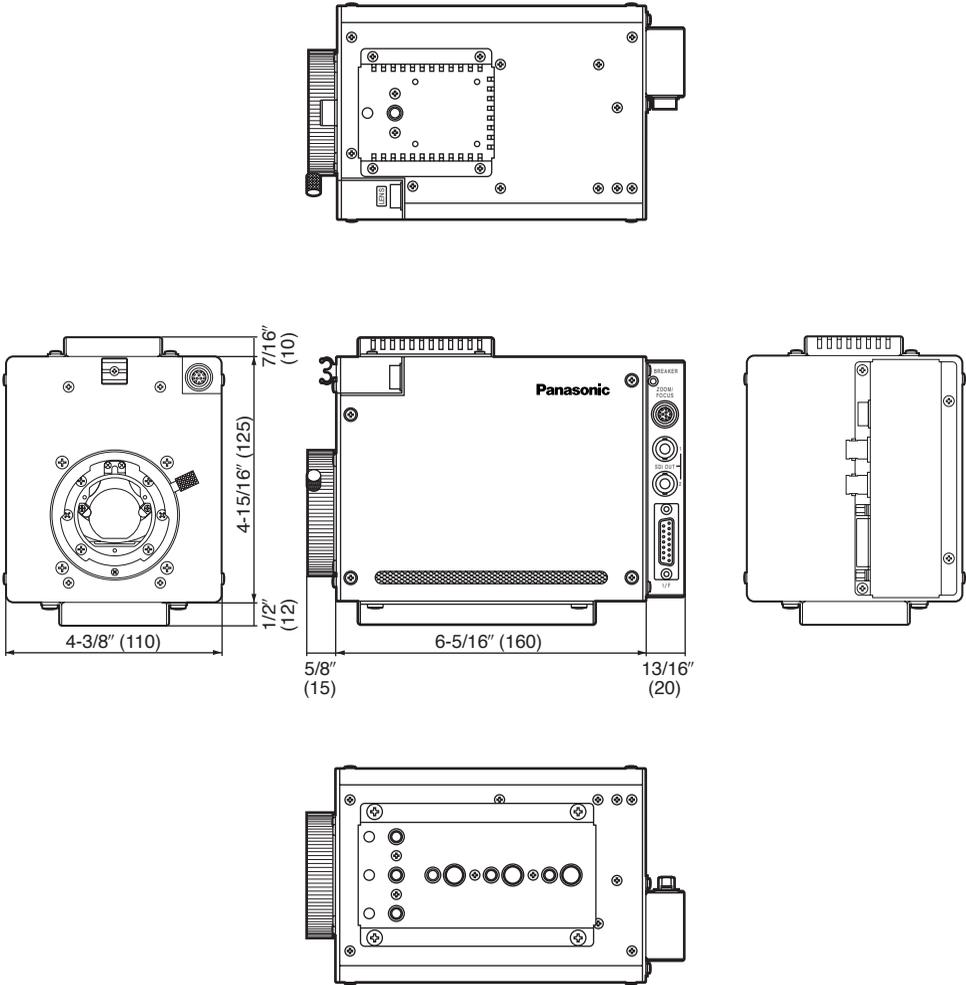
FILE                :USER1
SAVE FILE?         :USER1
SAVE IN USER1.OK?
SAVE COMPLETE
```

### File operation menu (continued from previous page)

- ② When saving the current data, two files (USER1 /USER2) can be saved. Select the file by "SAVE FILE?" Select "USER1" and move the cursor to SAVE and press the MENU key, then the item menu is displayed.
- ③ SAVE IN USER1. OK?  
"YES" and "NO" are displayed. Move the cursor from "NO" to "YES" and check that "YES" blinks.
- ④ When the menu key is pressed, "SAVE COMPLETE" appears, then "SAVE" of the file is completed.

# Outside Dimension Diagram

( ): mm



# Specifications & Accessories

---

## ■ Specifications

Supply voltage:	DC 12V (supplied from D-SUB 15 pins)
Power consumption:	22 W

 indicates safety information.

Image pickup device:	2/3" 2.2 million-pixel FIT CCD×3
System:	GBR image pickup system
Resolving optical system:	F1.4 prism
Optical filter:	CC: clear, 4300K, 6300K, cross ND: 100%, 25%, 6.3%, 3.2%
Lens mount:	Bayonet type
Output spec.:	SMPTE 292M
Sensitivity:	F10, 2000lx, 3200K, white reflection rate 89.9%
S/N:	54 dB (Y signal → 30 MHz)
Horizontal frequency:	33.716 kHz (1125 lines/frame)
Vertical frequency:	59.94 Hz (interlace)
Ambient temp. for operation:	0°C to +40°C
Ambient temp. for storage:	-20°C to +60°C
Weight:	Approx. 4.07 lbs (1.85 kg)
Dimensions:	4-3/8" (W)×5-13/16" (H) ×7-1/8" (D) 110×147×180 mm

## Input/output signal

Video output:	Y, PB, PR, each 75 ohm output (signal band → 30 MHz)
SYNC input:	SYNC input (GL input 3 value SYNC)
Camera connector:	D-SUB 15-pin connector seat (JAE: DAU-15PF-FO)
Control system:	Synchronous (RS422, 38.4Kbps)
HD-SDI:	BNC 2 system
Lens connector 1:	Iris control (HIROSE: HR10A-10R 12SC)
Lens connector 2:	Zoom, focus control (HIROSE: HR10A-10R12PC)

## ■ Accessories

- Lens cap (1)
- Instruction manual (1)

Weight and dimensions shown are approximate.  
Specifications are subject to change without notice.







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