

# Panasonic<sup>®</sup>

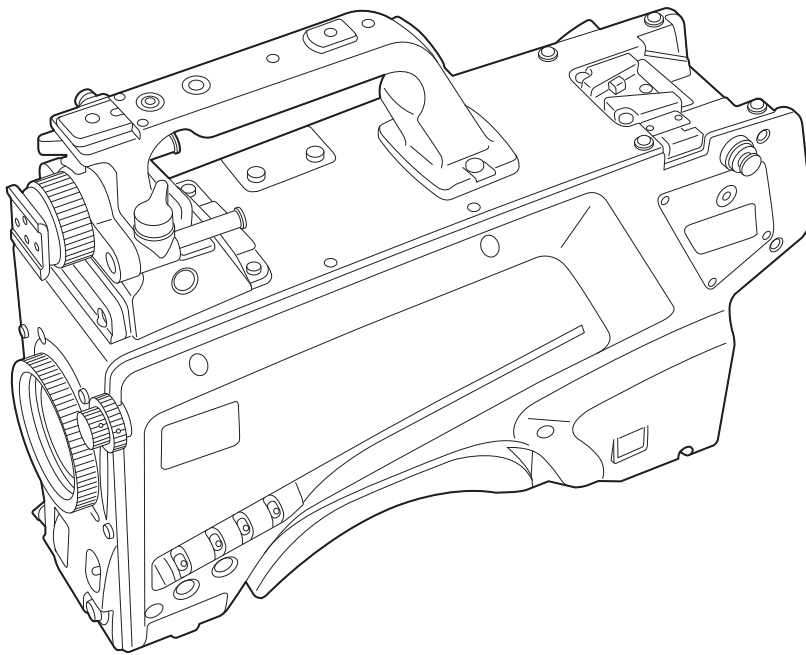
## Operating Instructions

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Studio Handy Camera

Model No. **AK-HC5000G**

Model No. **AK-HC5000GS**





Before operating this product, please read the instructions carefully and save this manual for future use.  
Before using this product, be sure to read "Read this first!" (pages 2 to 6).

# Read this first!

 indicates safety information.

	<b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK</b> <b>DO NOT OPEN</b>	
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 (servicing) instructions in the literature accompanying the appliance.

**WARNING:**  
This equipment must be earthed.  
To ensure safe operation, make sure that the optical cable is securely connected to an earthed CCU when in use. The fact that the equipment operates satisfactorily does not imply that the power point is earthed or that the installation is completely safe. For your safety, if you are in any doubt about the effective earthing of the power point, please consult a qualified electrician.

**WARNING:**

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

**WARNING:**  
Always keep memory cards (optional accessory) or accessories (camera number sheet, camera hanger and screw) out of the reach of babies and small children.

**CAUTION:**  
Do not remove panel covers by unscrewing. To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside. Refer servicing to qualified service personnel.

**CAUTION:**  
In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

**CAUTION:**  
The optical cable shall remain readily operable. To completely disconnect this equipment from the power supply, disconnect the optical cable from the equipment.

**CAUTION:**  
To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

**CAUTION:**  
Excessive sound pressure from earphones and headphones can cause hearing loss.

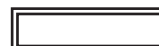
**CAUTION:**  
Invisible Laser radiation is emitted from the Optical fiber connector when this product is turned on. Don't look into directly into the Optical fiber connector of this product.

**CAUTION:**  
Do not jar, swing, or shake the unit by its handle while another accessory is attached. Due to the added weight, any strong jolt to the handle may damage the unit or result in personal injury.

**CAUTION:**  
Do not lift the unit by its handle while the tripod is attached. When the tripod is attached, its weight will also affect the unit's handle, possibly causing the handle to break and hurting the user. To carry the unit while the tripod is attached, take hold of the tripod.

**CAUTION:**  
Do not leave the unit in direct contact with the skin for long periods of time when in use. Low temperature burn injuries may be suffered if the high temperature parts of this unit are in direct contact with the skin for long periods of time. When using the equipment for long periods of time, make use of the tripod.

**CAUTION:**  
A coin type battery is installed inside of the unit. Do not store the unit in temperatures over 60 °C (140 °F). Do not leave the unit in an automobile exposed to direct sunlight for a long period of time with doors and windows closed.



indicates safety information.

**CAUTION:**

This product uses a semiconductor laser system and is a Class 1 Laser Product complies with Radiation Performance Standards, 21CFR SUBCHAPTER J.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Don't make any modifications.

Don't repair by yourself.

Refer servicing to qualified personnel.

**FCC NOTICE (USA)**

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:**

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.

**FCC Warning:**

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

**NOTIFICATION (Canada)**

CAN ICES-3 (A)/NMB-3(A)

# IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



S3125A

## EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS

### 1. Applicable standards and operating environment

The apparatus is compliant with:

- standards EN55103-1 and EN55103-2, and
- electromagnetic environments E1, E2, E3 and E4.

### 2. Pre-requisite conditions to achieving compliance with the above standards

#### <1> Peripheral equipment to be connected to the apparatus and special connecting cables

- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

#### <2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.

- Video signal connecting cables  
Use double-shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).  
Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables  
If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU.  
Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables  
Use shielded cables, which provide quality performance for high-frequency applications, such as connecting cables for IEEE1394 or USB.
- When connecting to the HDMI signal terminal, use multilayer shielded cables, which provide quality performance for high-frequency applications.
- When connecting to the DVI signal terminal, use a cable with a ferrite core.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

### 3. Performance level

The performance level of the apparatus is equivalent to or better than the performance level required by these standards.

However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

AEEE Yönetmeliğine Uygundur.

AEEE Complies with Directive of Turkey.

Manufactured by: Panasonic Corporation, Osaka, Japan

Importer's name and address of pursuant to EU rules:

**Panasonic Marketing Europe GmbH**

**Panasonic Testing Centre**

Winsbergring 15, 22525 Hamburg, Germany

Декларація про Відповідність  
Вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в  
електричному та електронному обладнанні  
(затвердженого Постановою №1057 Кабінету Міністрів України)

Виріб відповідає вимогам Технічного Регламенту Обмеження Використання деяких Небезпечних Речовин в електричному та електронному обладнанні (ТР ОВНР).

Вміст небезпечних речовин у випадках, не обумовлених в Додатку №2 ТР ОВНР, :

1. свинець (Pb) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
2. кадмій (Cd) – не перевищує 0,01 % ваги речовини або в концентрації до 100 частин на мільйон;
3. ртуть (Hg) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
4. шестивалентний хром (Cr<sup>6+</sup>) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
5. полібромбіфеноли (PBВВ) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон;
6. полібромдефенілові ефіри (PBDE) – не перевищує 0,1 % ваги речовини або в концентрації до 1000 частин на мільйон.

## TO REMOVE BATTERY

### Main Power Battery (Ni-Cd / Ni-MH / Li-ion Battery)

- To detach the battery, please proceed in the reverse order of the installation method described in this manual.
- If a battery made by any other manufacturer is to be used, check the Operating Instructions accompanying the battery.

### Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

### Battery recycling symbol (valid only in Taiwan)

臺灣限定的廢電池回收標識。



廢電池請回收

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## How to read this document

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### ■ Illustrations

- Illustrations of the camera, menu screens, and other items, may vary from the actual products.
- Screenshots are used according to guidelines provided by Microsoft Corporation.

### ■ Conventions used in this manual

- Words and phrases in [ ] brackets indicate content displayed in the viewfinder or monitor.
- Words and phrases in < > brackets indicate design text used on this camera, such as button names.

### ■ Reference pages

- Reference pages in this document are indicated by (page 00).

### ■ Terminology

- Microsoft® Windows® 7 Professional SP1 32/64-bit is referred to as Windows 7.
- Microsoft® Windows® 8 Professional 32/64-bit is referred to as Windows 8.
- Microsoft® Windows® 8.1 Professional 32/64-bit is referred to as Windows 8.1.
- Windows® Internet Explorer® 8.0, Windows® Internet Explorer® 9.0, Windows® Internet Explorer® 10.0, and Windows® Internet Explorer® 11.0 are referred to as Internet Explorer.
- SD memory cards, SDHC memory cards, and SDXC memory cards are referred to as “SD memory cards”.
- The Camera Control Unit is referred to as “CCU”.
- The Remote Operation Panel is referred to as “ROP”.

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# Chapter 1 **Overview**

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Before using the camera, read this chapter.

## Before using the camera

### ■ Connecting to CCU

- Connect this camera to a designated CCU that is properly grounded.

### ■ Use appropriate lighting when shooting to capture images with clear color

- To make the color of images clear, use appropriate lighting for shooting.
- Colors may not be reproduced correctly under fluorescent lighting. Select appropriate lighting as necessary.
- Use the ND filter in excessively bright locations.

### ■ Turn off the power before connecting or disconnecting the cables

- Turn off the power of the devices before connecting or disconnecting the cables.

### ■ Handling of the camera

- Do not drop or add strong impact or vibration to the camera. Doing so may lead to failure.

### ■ Do not touch optical system parts

- The optical system parts are the “life” of the camera. Do not touch the optical systems on occasions such as when the lens is removed. In the event that dust has adhered, use a blower for cameras or lens cleaning paper to gently remove the dust.

### ■ Do not shoot images toward sunlight or a laser beam

- Shooting toward sunlight or a laser beam for a long period of time may result in damage of the MOS.


### ■ When using the camera in rain or snow, or on a beach or shore

- Use a rain cover (optional), etc. to prevent water from splashing on or entering the camera.

### ■ Humidity and dust

- The internal parts of the camera are more easily damaged in humid and dusty locations. Avoid such locations.
- Cover the terminals that are not in use with their protective caps.

### ■ Temperature range for use

- Using the camera under the following conditions may have negative effects on the image quality or internal parts of the camera.  
Cold places where the temperature is  $-10^{\circ}\text{C}$  ( $14^{\circ}\text{F}$ ) or below  
Hot places where the temperature is  $45^{\circ}\text{C}$  ( $113^{\circ}\text{F}$ ) or above
- Preheating is required in a low-temperature environment. Confirm  is not lit before using the camera.

### ■ Cleaning

- Turn off the power and clean the camera with a dry cloth. If the dust cannot be removed with a dry cloth, try soaking the cloth with kitchen detergent to gently wipe off the dust.
- Use lens cleaning paper (for use with glasses or cameras) when cleaning the lens.

### ■ Optical fiber connector

- The transmission and reception conditions of optical signals will deteriorate when the optical fiber connector has become dirty. Be sure to clean the connector. (page 22)

### ■ Cooling fan

- The camera has an internal cooling fan.
- The cooling fan is a consumable supply. Replace it after approximately 50,000 hours of use. Be sure to contact your dealer for the replacement.

### ■ Peripheral devices and software

- The software of the peripheral devices (CCU and ROP) that are connected to AK-HC5000G/AK-HC5000GS may require upgrading.
- For details, contact your dealer.

### ■ Consult your dealer for internal cleaning of the camera approximately once a year.

- Continued use of the camera with build-up of dust inside may result in a fire or failure.

### ■ Information on software used with this product

- This product includes GNU General Public License (GPL) and GNU Lesser General Public License (LGPL) licensed software, and the customer is entitled to obtain, modify, or redistribute the source code for the software.

This product includes MIT Licensed software.

This product includes BSD Licensed software.

For details on obtaining the source codes, visit the following website.

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

However, do not contact Panasonic for questions regarding obtained source codes.

## Notes

### Required environment for computer

Use a host computer that satisfies the following requirements.

#### ■ CPU

Intel® Core™ 2 DUO 2.4 GHz or above recommended

#### ■ Memory

- Windows
  - 1 GB or above
  - 2 GB or above for Microsoft® Windows® 8.1/Microsoft® Windows® 8/Microsoft® Windows® 7 64-bit
- Mac
  - 2 GB or above

#### ■ Network function

10BASE-T or 100BASE-TX

1 port

#### ■ Image display function

Resolution: 1024×768 pixels or above

Color: True Color 24-bit or above

#### ■ Supported OS and web browsers

- Windows
  - Microsoft® Windows® 8.1 Professional 64-bit/32-bit\*1
  - Windows® Internet Explorer® 11.0\*1\*3
  - Microsoft® Windows® 8 Professional 64-bit/32-bit\*1
  - Windows® Internet Explorer® 10.0\*1\*3
  - Microsoft® Windows® 7 Professional SP1 64-bit/32-bit\*2
  - Windows® Internet Explorer® 11.0/10.0/9.0/8.0\*3

\*1 Use Internet Explorer for desktop. (Internet Explorer for Windows UI is not supported.)

\*2 The Windows® XP compatibility mode cannot be used.

\*3 Internet Explorer® 64-bit cannot be used.
- Mac
  - OS X 10.10 Safari 8.0.4
  - OS X 10.9 Safari 7.0.2
  - OS X 10.8 Safari 6.1.2

### Disclaimer

In any case, Panasonic will not liable for any of the following:

- Incidental, special, or consequential damage or harm caused directly or indirectly in regard to the camera
- Trouble or malfunctions caused by the misuse or careless use of a user
- Disassembly, repair, or modification of the camera performed by a user
- Inconvenience, damage, or harm arising from the inability to display images as a result of any reason or cause including failure or malfunction of the camera
- Malfunctions arising from a system that has been combined with a third party device or any inconvenience, damage, or harm caused as a result thereof
- Inconvenience, damage, or harm caused by such as improper installation or any reason other than a defect of the camera
- Any loss of stored information due to any reason
- Any damage or claim regarding loss or leakage of image data or setting data saved in the camera, memory card, or computer

### Notes regarding network

This camera is provided with functions which are used upon connecting to a network.

When the camera is used while connected to a network, there are the following potential risks.

- Leakage or disclosure of information via the camera
- Manipulation of the camera by a malicious third party
- Interference or interruption of the camera caused by a malicious third party

To prevent such risks, users are responsible for implementing sufficient network security measures inclusive of the following.

- Use the camera over a network where safety is ensured with the installation of a firewall, etc.
- When the camera is used in a system to which a computer is connected, be sure to perform regular checks or detections for computer viruses and malware.

In addition, be sure to observe the following precaution.

- Do not install the camera or cables in a place where they may easily be damaged.

## SD memory card

With this camera, use SD memory cards that conform to the SD standard, SDHC standard, or SDXC standard.

Be sure to use this camera to format the SD memory cards.

SD memory cards having the following capacities can be used with this camera.

- SD: 2 GB
- SDHC: 4 GB to 32 GB
- SDXC: 64 GB

Visit the support desk available on the following website for the latest information not included in the Operating Instructions.

([http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e))

Observe the following precautions in regard to use and storage of the camera.

- Avoid high temperatures and humidity.
- Avoid exposure to water.
- Avoid static electricity.

## Using the camera in a system

An example of a standard system consisting of the Studio Handy Camera (AK-HC5000G/AK-HC5000GS) and peripheral devices is as follows. For details on the connected devices, refer to the Operating Instructions of each device.

### Basic configuration devices

The basic system configuration includes the lens, Studio Handy Camera, viewfinder, Camera Control Unit (CCU), and Remote Operation Panel (ROP).

Part name	Part No.	Remark
2-inch HD viewfinder	AJ-HVF21KG	This is the viewfinder for Studio Handy Camera.
3.45-inch color viewfinder	AG-CVF10G AG-CVF15G	—
9-inch LCD viewfinder	AK-HVF100G	This is the LCD viewfinder for Studio Handy Camera.
Lens	FUJINON/CANON	—
Camera Control Unit (CCU)	AK-UCU500P/AK-UCU500PS/AK-UCU500E/ AK-UCU500ES	This is the camera control unit for Studio Handy Camera. It is connected to Studio Handy Camera using an optical fiber multi cable. Do not connect anything other than AK-UCU500P/ AK-UCU500PS/AK-UCU500E/AK-UCU500ES.
Remote Operation Panel (ROP)	AK-HRP1000G AK-HRP1005G	This is connected to the CCU using the ROP cable to remotely control the camera, CCU, and lens.

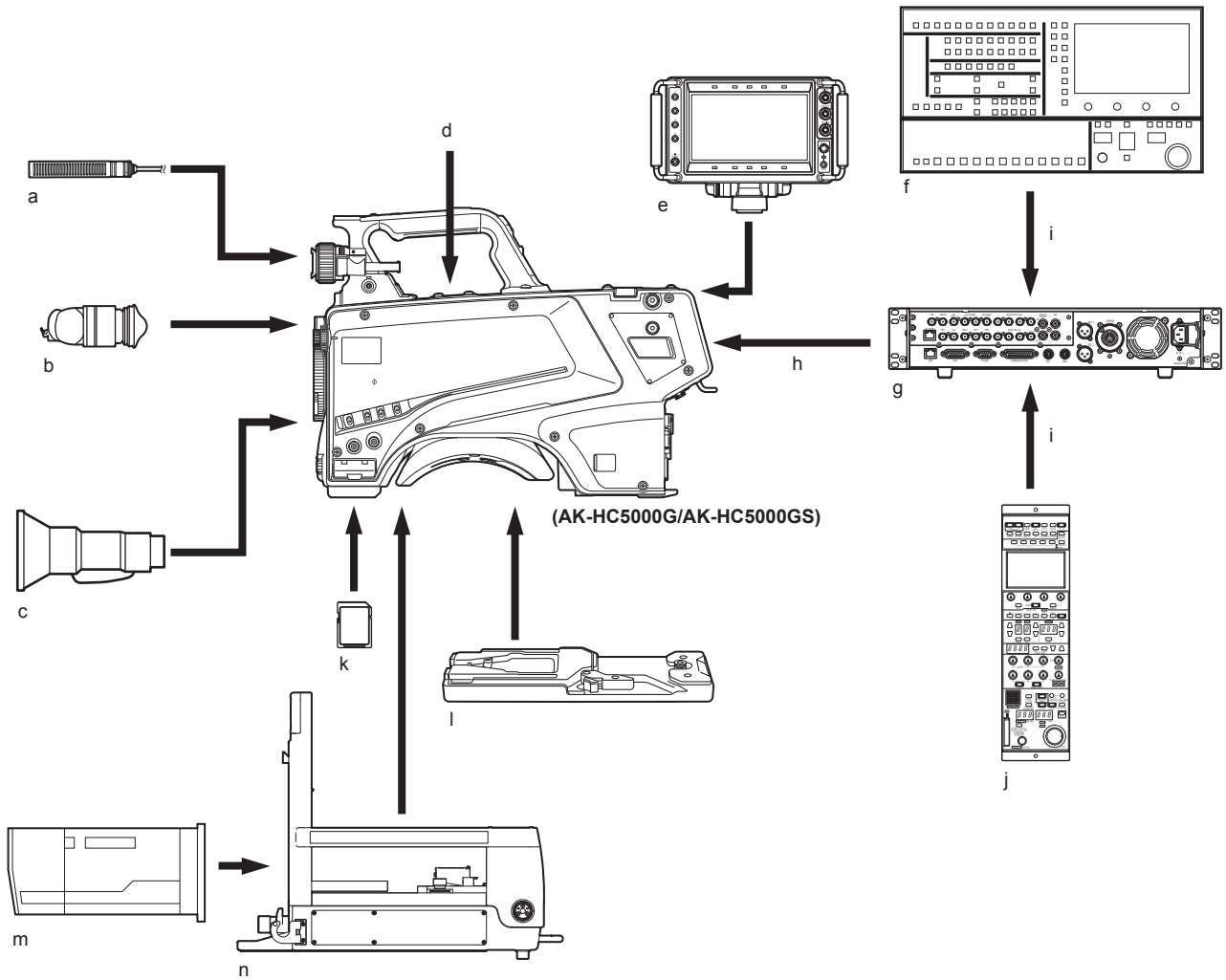
### Expanded configuration devices

The following devices can also be used in addition to the basic configuration devices.

Part name	Part No.	Remark
Microphone kit	AJ-MC700P AG-MC200G	"Connecting a microphone" (page 33)
Microphone holder	AJ-MH800G	"Connecting a microphone" (page 33)
SD memory card*	Visit the support desk on the website*	"SD memory card slot" (page 20)
Master setup unit	AK-MSU1000GJ	Scheduled for sales in near future. The master setup unit is not necessary if multiple cameras are not to be controlled.
Build-up Unit	AK-HBU500G	This allows to mount large lens to the Studio Handy Camera, allowing an equivalent operation as the large camera. Do not connect anything other than AK-HBU500G.
Tripod adaptor	SHAN-TM700	"Tripod mount" (page 18)

\* Visit the support desk available on the following website for the latest information on SD memory cards not included in the Operating Instructions.  
<http://pro-av.panasonic.net/>

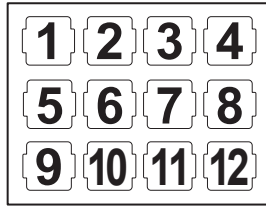
System block diagram



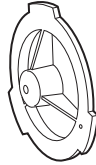
- a: Microphone kit
- b: 3.45-inch color viewfinder/2-inch HD viewfinder
- c: Handy lens
- d: Microphone holder
- e: 9-inch LCD viewfinder
- f: Master setup unit
- g: Camera Control Unit (CCU)
- h: Optical fiber multi cable
- i: ROP cable
- j: Remote Operation Panel (ROP)
- k: SD memory card
- l: Tripod adaptor
- m: Large lens
- n: Build-up Unit

## Accessories

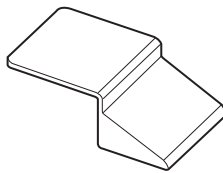
Camera number sheet (1 to 12)



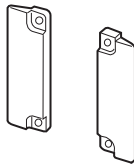
Mount cap (already attached to the product)



D-sub connector cover (already attached to the product)



Camera hanger (x 2)



Screw (M3 × 8 mm) (x 4)



### NOTE

- Properly dispose of the packaging materials after unboxing the product.
- The camera hangers and screws are used to attach to the Build-up Unit (AK-HBU500G). Store them carefully.

## Working frequency setting

When the camera is shipped, the working frequency is not set. Before using the camera for the first time, follow the steps below to set the working frequency.



Fig. 1

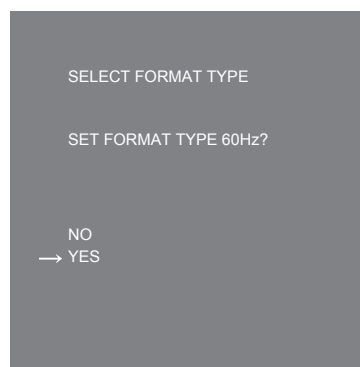


Fig. 2

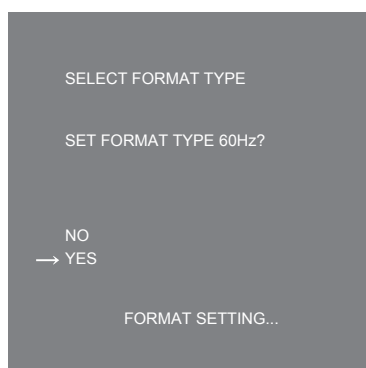


Fig. 3

- 1** Attach a viewfinder (page 28) or connect a monitor to the <HD SDI2> terminal (page 24).
- 2** Connect the DC power supply.  
It will comply with the working frequency of the CCU when connected to the CCU.
- 3** Set the <POWER> switch to <ON>.  
The [SELECT FORMAT TYPE] screen is displayed.
- 4** Turn the <SELECT> dial button to move the cursor (arrow) to the frequency to set. (Fig. 1)
- 5** Press the <SELECT> dial button.  
The confirmation screen is displayed.
- 6** Move the cursor (arrow) to [YES] and press the <SELECT> dial button. (Fig. 2)  
[FORMAT SETTING...] will flash. (Fig. 3)  
The setting is completed when [FORMAT SETTING...] is turned off.  
This screen is not displayed again when the power is turned on next and subsequently once this is set.
- 7** Set the <POWER> switch to <OFF>.
- 8** Set the <POWER> switch to <ON>.

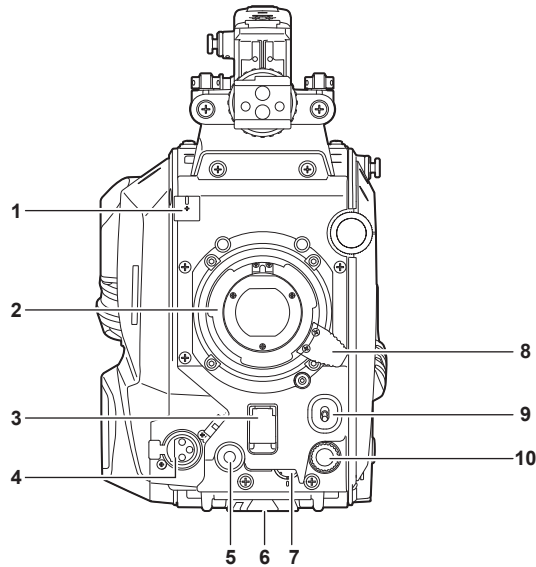


## Chapter 2 **Description of Parts**

---

This chapter describes the names of the parts, functions, and operations of this camera.

## Front side



### 1 Lens cable/microphone cable clamp

Used for securing the lens and microphone cables.

### 2 Lens mount (Bayonet type)

This is where the lens is mounted.

### 3 <SHUTTER> switch

This is the electronic shutter switch.

<OFF>: Disables the electronic shutter.

<ON>: Enables the electronic shutter.

<SEL>: Switches the shutter speed within the preset range.

This switch cannot be used when the CCU or ROP is connected to the camera.

### 4 <MIC> terminal (front)

Used to connect the microphone (optional).

When using, set the switch on the rear side as follows.

- <LINE/MIC/+48V> selector switch (<MIC 1>): <MIC> or <+48V> (when using a phantom microphone)
- <FRONT>/<REAR> switch (<MIC 1>): <FRONT>

### 5 <USER 1> button

A user-selected function can be assigned to this button. Pressing the button performs the assigned function.

### 6 Tripod mount

Used to attach the tripod adaptor SHAN-TM700 (optional) when mounting the camera on a tripod.

### 7 <INCOM LEVEL> dial (front)

Used to adjust the volume level of the intercom according to the settings of <REAR>/<INC1 FRONT>/<INC2 FRONT> on the rear side.

- <REAR>: Cannot adjust the volume level.
- <INC1 FRONT>: Adjusts the volume level of the intercom 1.
- <INC2 FRONT>: Adjusts the volume level of the intercom 2.

### 8 Lens lever

After the lens is mounted on the lens mount, this lever can be tightened to secure the lens.

### 9 <AUTO W/B BAL> switch

<AWB>: Automatically adjusts the white balance. When the white balance is automatically adjusted with the <WHITE BAL> switch on the side of the camera set to the <A> or <B> position, the white balance is adjusted in several seconds and the adjusted value is stored in the memory.

<ABB>: Automatically adjusts the black balance.

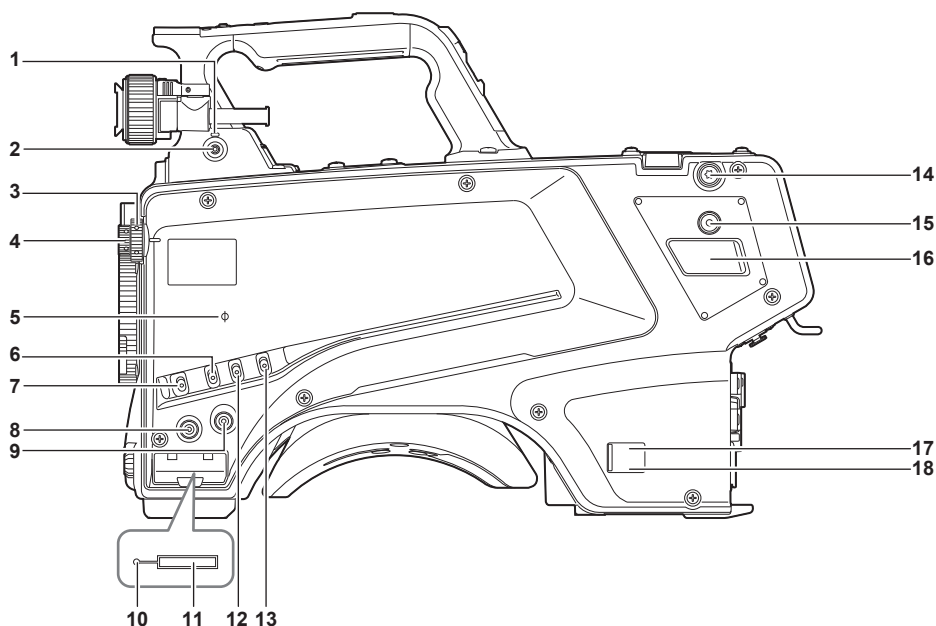
The operation performed when the CCU or ROP is connected to the camera can be set from [MAIN MENU] → [SWITCH MODE] → [W/B BAL SETTING].

### 10 <SELECT> dial button

Turning the <SELECT> dial button while the menu screen is displayed moves the cursor to a setting item. The menu setting can be confirmed by pressing the <SELECT> dial button.

For details on operations, refer to "Menu operations" (page 38).

## Left side



- 1 <LOCAL> lamp**  
While this lamp is lit, the <ND> filter and <CC> filter can be adjusted manually.
- 2 <FILTER LOCAL> switch**  
This switch sets whether to adjust the <ND> filter and <CC> filter manually or remotely.
- 3 <CC> filter dial**  
This dial selects the filter to suit the color temperature of the subject.  
<A><3200K>: Sets the color temperature to 3200 K.  
<B><4300K>: Sets the color temperature to 4300 K.  
<C><6300K>: Sets the color temperature to 6300 K.  
<D><CROSS>: Sets the cross filter.  
<E><DF0>: Sets the diffusion filter.

 **NOTE**

- Do not turn the <CC> filter dial when the <LOCAL> lamp is off.

- 4 <ND> filter dial**  
This dial selects the filter to suit the brightness of the subject.  
<1><CAP>: Shuts out light from entering the MOS sensor.  
<2><CLEAR>: Does not use the ND filter.  
<3><1/4ND>: Reduces the amount of light entering the MOS sensor to 1/4.  
<4><1/16ND>: Reduces the amount of light entering the MOS sensor to 1/16.  
<5><1/64ND>: Reduces the amount of light entering the MOS sensor to 1/64.

 **NOTE**

- Do not turn the <ND> filter dial when the <LOCAL> lamp is off.

- 5 <φ> mark**  
Indicates the focal plane of the MOS sensor.  
Use this mark as a reference to accurately measure the focal distance from the subject.
- 6 <GAIN> switch**  
Switches the gain for the camera image. (<L>, <M>, <H>)  
The gain can be configured with the CCU.  
This switch cannot be used when the CCU or ROP is connected to the camera.
- 7 <DISP/MODE CHK> switch**  
This is a spring switch which can be used to check the shooting status etc.  
• Push this switch towards <OFF> to hide all displays except for the operation status display of the viewfinder, frame display such as an area, marker, and safety zone.  
• Push this switch towards <CHK> to display in the viewfinder the setting status for shooting functions, and the list of functions assigned to the <USER 1>/<USER 2>/<USER 3>/<USER 4> buttons, etc. Pushing the switch towards <CHK> again while information is being displayed switches the display to the next information page. The mode check information display disappears after approximately three seconds.
- 8 <MENU> button**  
Press this button to display the camera's [MAIN MENU] screen.  
Press the button again to return to the original image.
- 9 <USER 2> button**  
A user-selected function can be assigned to this button. Pressing the button performs the assigned function.
- 10 Busy (active status indicator) lamp**  
Indicates the active status of the SD memory card and lights up when the card is active.

 **NOTE**

- Do not remove or insert the card while this lamp is lit. Doing so may damage the SD memory card.

**11 SD memory card slot**

This is the insertion slot for the SD memory card (optional).

An SD memory card is used for saving/loading the setting menus of the camera, loading CAC files, updating the software, etc.

For details, refer to “Data” (page 36).

**12 <OUTPUT> switch**

Switches video output (<CAM>, <BARS>, <TEST>).

This switch cannot be used when the CCU or ROP is connected to the camera.

**13 <WHITE BAL> switch**

Selects the white balance memory. Data can be recorded to <A> or <B>.

**<PRST>**: The white balance configured in [MAIN MENU] → [PAINT] → [COLOR TEMP SETTING] is set.

This switch cannot be used when the CCU or ROP is connected to the camera.

**14 Shoulder strap fittings**

Used to attach the shoulder strap.

**15 <USER 4> button**

A user-selected function can be assigned to this button. Pressing the button performs the assigned function.

**16 <DC OUT 12V 2.5A> terminal**

This terminal is a DC 12 V output terminal. It provides a maximum current of 2.5 A.

If the current exceeds the rating, the current will be cut off intermittently.

 **NOTE**

- Immediately disconnect external equipment if the power supply to external equipment is cut off intermittently. Failure to do so may lead to a malfunction.
- When connecting external equipment, first fully check the polarities and current consumption. Failure to do so may lead to a malfunction.

**17 Power indicator lamp**

Lights up in green when power is supplied to the camera.

**ON (green)**: The camera power is on

**ON (red)**: The camera power is off while the camera is connected to the CCU which is turned on

**OFF**: The camera power is off with the CCU not connected, or the camera is connected to the CCU which is turned off

**18 <POWER> switch**

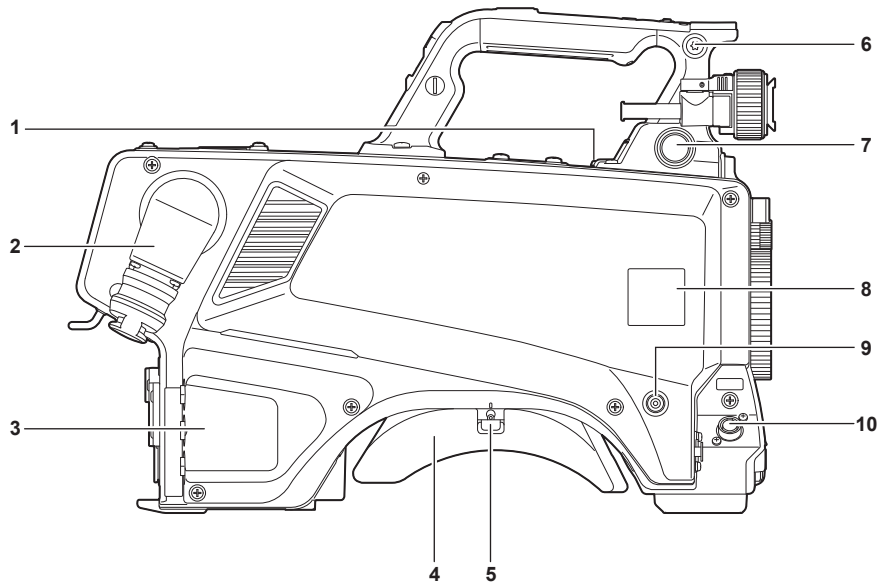
Selects the camera power input, or turns off the power.

**<CCU>**: When the camera is connected to the CCU, this switch turns on the power with the power supplied from the CCU.

**<EXT>**: When an external DC power supply is connected to the camera, this switch turns on the power with the power supplied from the external power supply.

**Center position**: Turns off the power.

## Right side



**1 <USB2.0> terminal (host)**

Used to connect the USB 2.0 cable.

**NOTE**

• Use a double-shielded cable when connecting a cable to the <USB2.0> terminal.

**2 <OPT FIBER> terminal**

Used to connect with the CCU using the optical fiber multi cable. When the terminal is not in use, attach the dust cap.

**3 <LAN> terminal**

Used to connect the LAN cable (100BASE-TX/1000BASE-T).

**NOTE**

• Use a shielded cable when connecting a cable to the <LAN> terminal.

**4 Shoulder pad**

Reduces the burden on the shoulder when the camera is carried on your shoulder.

**5 Slide lock release lever**

Releases this lever when changing the shoulder pad position.

**6 Shoulder strap fittings**

Used to attach the shoulder strap.

**7 <VF> terminal**

Used to connect the plug of the viewfinder.

**8 Camera number sheet holder**

Attach the supplied camera number sheet.

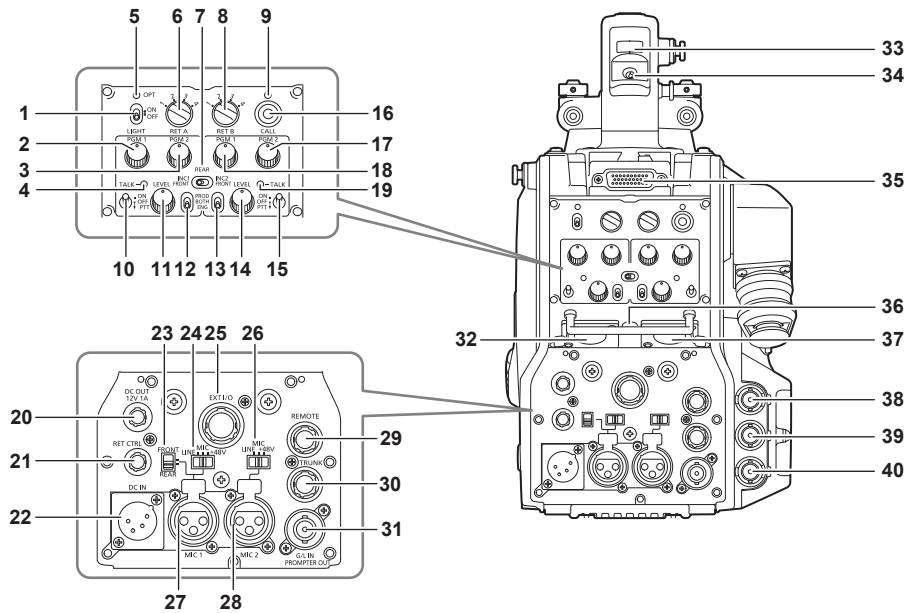
**9 <USER 3> button**

A user-selected function can be assigned to this button. Pressing the button performs the assigned function.

**10 <LENS> terminal**

Used to connect the lens cable.

## Rear side



**1 <LIGHT> switch**

Used to turn the back panel lamp on/off.

**2 <PGM1> dial (<INTERCOM1>)**

Used to adjust the level of the audio or mixing ratio set from [MAIN MENU] → [INTERCOM SETTING] → [LEVEL/PGM1/PGM2 VR SETTING] → [INTERCOM1 PGM1 VR].

**3 <PGM2> dial (<INTERCOM1>)**

Used to adjust the level of the audio or mixing ratio set from [MAIN MENU] → [INTERCOM SETTING] → [LEVEL/PGM1/PGM2 VR SETTING] → [INTERCOM1 PGM2 VR].

**4 <TALK> lamp (<INTERCOM1>)**

Lights up when the <TALK> switch (<INTERCOM1>) is enabled.

**5 <OPT> lamp**

Indicates the camera's optical signal reception status.

**Normal:** Lit in green

**Error:** Lit in red



**NOTE**

- When an error has occurred, turn off the power of this camera and the CCU, and then clean the optical fiber connector. If the error persists, immediately turn off the power, and contact your dealer.

**6 <RET A> switch**

Used to switch the type of the return A image.

**7 <REAR>/<INC1 FRONT>/<INC2 FRONT> switch**

Used to switch the receiving target of the intercom.

- **<REAR>:** Adjusts the volume level of the intercom using the <LEVEL> dials of <INTERCOM1> and <INTERCOM2> on the rear side.

- **<INC1 FRONT>:** Adjusts the volume level of the intercom 1 using the <INCOM LEVEL> dial (front).

- **<INC2 FRONT>:** Adjusts the volume level of the intercom 2 using the <INCOM LEVEL> dial (front).

**8 <RET B> switch**

Used to switch the type of the return B image.

**9 <CALL> lamp**

Lights up in green when the call switch is pressed from the ROP or CCU.

The lamp will flash in the following cases.

- When the <POWER> switch is set to <EXT>:

If the camera detects that the total current consumption including external DC output exceeds the rating, the lamp will flash in red.

If the camera detects that external DC output exceeds the rating, the lamp will flash in orange.

- When the <POWER> switch is set to <CCU>:

If the camera detects that the voltage supplied from the CCU is lower than the rating, the lamp will flash in red.

If the camera detects that external DC output exceeds the rating, the lamp will flash in orange.



**NOTE**

- The voltage supplied from the CCU will change depending on the total power consumption which includes the following conditions.

Length of an optical fiber multi cable and the power consumption of the camera which includes the DC output

Attaching AK-HBU500G

**10 <TALK> switch (<INTERCOM1>)**

This switch is the <ON>/<OFF>/<PTT> selector switch of the intercom microphone connected to the <INTERCOM1> terminal.

Pushes the switch towards <ON>/<PTT> to turn on the microphone.

**11 <LEVEL> dial (<INTERCOM1>)**

Used to adjust the volume level of the intercom 1 when the mixing function of the intercom connected to the <INTERCOM1> terminal and the PGM is enabled. The mixing function of the intercom and the PGM can be enabled/disabled from [MAIN MENU] → [INTERCOM SETTING] → [INTERCOM1] → [INCOM1 RECEIVE CH1 SETTING] → [PGM1 MIX]/[PGM2 MIX].

**12 <PROD>/<BOTH>/<ENG> switch (<INTERCOM1>)**

Used to switch the call destination of the intercom connected to the <INTERCOM1> terminal.

**13 <PROD>/<BOTH>/<ENG> switch (<INTERCOM2>)**

Used to switch the call destination of the intercom connected to the <INTERCOM2> terminal.

**14 <LEVEL> dial (<INTERCOM2>)**

Used to adjust the volume level of the intercom 2 when the mixing function of the intercom connected to the <INTERCOM2> terminal and the PGM is enabled. The mixing function of the intercom and the PGM can be enabled/disabled from [MAIN MENU] → [INTERCOM SETTING] → [INTERCOM2] → [INCOM2 RECEIVE CH1 SETTING] → [PGM1 MIX]/[PGM2 MIX].

**15 <TALK> switch (<INTERCOM2>)**

This switch is the <ON>/<OFF>/<PTT> selector switch of the intercom microphone connected to the <INTERCOM2> terminal. Pushes the switch towards <ON>/<PTT> to turn on the microphone.

**16 <CALL> switch**

While this switch is pressed, the call lamps on the ROP and CCU are lit and the ROP buzzer sounds. (When the ROP buzzer setting is enabled)



**NOTE**

- If the <CALL> switch is pressed when the camera is operating with an external DC power source, the ROP call lamp does not light up.

**17 <PGM2> dial (<INTERCOM2>)**

Used to adjust the level of the audio or mixing ratio set from [MAIN MENU] → [INTERCOM SETTING] → [LEVEL/PGM1/PGM2 VR SETTING] → [INTERCOM2 PGM2 VR].

**18 <PGM1> dial (<INTERCOM2>)**

Used to adjust the level of the audio or mixing ratio set from [MAIN MENU] → [INTERCOM SETTING] → [LEVEL/PGM1/PGM2 VR SETTING] → [INTERCOM2 PGM1 VR].

**19 <TALK> lamp (<INTERCOM2>)**

This lamp is lit when the <TALK> switch (<INTERCOM2>) is enabled.

**20 <DC OUT 12V 1A> terminal**

This terminal is a DC 12 V output terminal. It provides a maximum current of 1.0 A. If the current exceeds the rating, the current will be cut off. Additionally, R and G tally signals are output. (Open collector type)



**NOTE**

- Immediately disconnect external equipment if the power supply to external equipment is cut off intermittently. Failure to do so may lead to a malfunction.
- When connecting external equipment, first fully check the polarities and current consumption. Failure to do so may lead to a malfunction.

**21 <RET CTRL> terminal**

This is the external control terminal. This terminal controls the on/off of the external return control switches 1, 2, 3 and the intercom microphone 1, 2. The return signal can be assigned from [MAIN MENU] → [RETURN SETTING] → [RETURN SELECT] → [RETURN C].

**22 <DC IN> terminal**

This is an input terminal for the external DC power supply. Connect an external DC power supply to this terminal. (DC 10.8 V to 17 V)

**23 <FRONT>/<REAR> selector switch**

Used to switch the microphone input signal of <MIC 1> to the front microphone or the rear microphone.

<FRONT>: Front microphone

<REAR>: Rear microphone

**24 <LINE/MIC/+48V> selector switch (<MIC 1>)**

Used to switch the audio input signal of the audio channel 1.

<LINE>: When connecting audio equipment with the line input

<MIC>: When connecting an external microphone

<+48V>: When supplying 48 V power to the microphone

**25 <EXT I/O> terminal**

This is the external input and output terminal.

**26 <LINE/MIC/+48V> selector switch (<MIC 2>)**

Used to switch the audio input signal of the audio channel 2

<LINE>: When connecting audio equipment with the line input

<MIC>: When connecting an external microphone

<+48V>: When supplying 48 V power to the microphone

**27 <MIC 1> terminal**

This terminal is used to connect audio equipment or a microphone.

The power for the microphone is supplied via this terminal, enabling use of a phantom powered (48 V) microphone. Turn the power off when connecting a microphone, and then configure the settings to suit the microphone after connecting the microphone.

**28 <MIC 2> terminal**

Used to connect audio equipment or a microphone.

The power for the microphone is supplied via this terminal, enabling use of a phantom powered (48 V) microphone. Turn the power off when connecting a microphone, and then configure the settings to suit the microphone after connecting the microphone.

**29 <REMOTE> terminal**

Used to connect the remote control unit (optional) which can control some of the functions.

**30 <TRUNK> terminal**

This is an input/output terminal for the CCU trunk data (RS-422 × 2 or RS-232C × 2).  
Set this in [MAIN MENU] → [IN/OUT SELECT] → [TRUNK1]/[TRUNK2].

**31 <G/L IN/PROMPTER OUT> terminal**

This is the input terminal for genlock signals. The prompter video input from the CCU is output from this terminal.  
When the camera is used standalone, this terminal works as the genlock input. When connecting with the CCU, this terminal works as the prompter output.

 **NOTE**

- Genlock can be applied to following signals when [MAIN MENU] → [SYSTEM MODE] → [FORMAT] is set to [1080/23.98p].
  - HD-Y signal of 1080/23.98p or 1080/23.98PsF
  - Composite signal
- Genlock can be applied to following signals when it is set to anything other than to [1080/23.98p].
  - HD-Y signal of 1080/59.94i or 1080/50i
  - Composite signal

**32 <INTERCOM1> terminal**

Used to connect the intercom or headset plug.

**33 Back tally lamp**

Lights up when the tally signal is supplied.

**R tally signal:** Lit in red

**G tally signal:** Lit in green

**R and G tally signals at the same time:** Lit in red

**34 Back tally lamp selector switch**

Used to switch the back tally lamp to on/off.

**35 Rear viewfinder terminal**

Used to connect the 9-inch LCD viewfinder AK-HVF100G.  
This D-sub connector is used for the viewfinder interface.

 **NOTE**

- AK-HVF70G can also be connected to this terminal.

**36 <EARPHONE> terminal**

Used to connect the plug of a set of earphones.

Configures the audio output from [MAIN MENU] → [INTERCOM SETTING] → [EAR PHONES SETTING] → [LCH OUTPUT SELECT]/[RCH OUTPUT SELECT].

**37 <INTERCOM2> terminal**

Used to connect the intercom or headset plug.

**38 <HD SDI1> terminal (BNC)**

**[CAM]:** Outputs camera images.

**[HD PROMPT]:** Outputs HD prompter video images.

Configure the output images in [MAIN MENU] → [IN/OUT SELECT] → [HD-SDI1 OUT].

 **NOTE**

- Use a cable that is 5C-FB or above.
- [HD PROMPT] can be selected only when the camera is connected to the CCU.

**39 <HD SDI2> terminal (BNC)**

**[CAM]:** Outputs camera images.

**[VF]:** Outputs viewfinder images.

**[RET]:** Outputs return images.

**[RET1]/[RET2]/[RET3]/[RET4]:** Outputs the selected images.

Configure the output images in [MAIN MENU] → [IN/OUT SELECT] → [HD-SDI2 OUT].

 **NOTE**

- Use a cable that is 5C-FB or above.
- [RET] and [RET1]/[RET2]/[RET3]/[RET4] can be selected only when the camera is connected to the CCU.

**40 <AUX> terminal**

This is the external device connecting terminal.

**[PMT2 OUT]:** Outputs prompter 2 video images.

**[HD TRUNK]:** HD trunk input

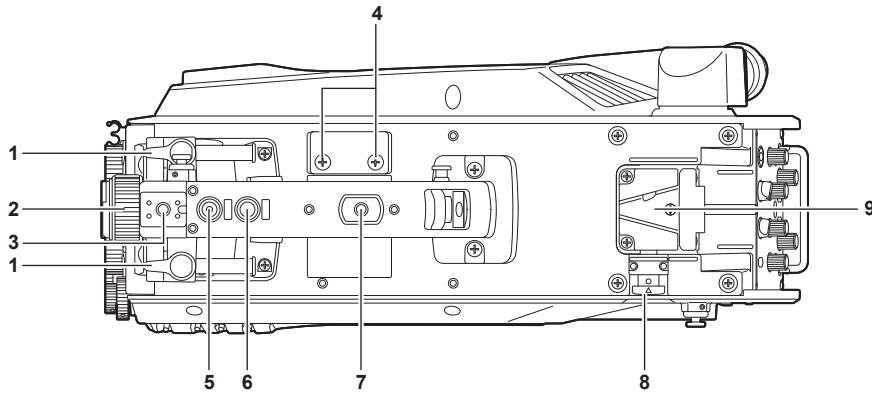
Set this from [MAIN MENU] → [IN/OUT SELECT] → [AUX I/O].

 **NOTE**

- Use a cable that is 5C-FB or above.
- The HD trunk input cannot be selected when [MAIN MENU] → [SYSTEM MODE] → [FORMAT] is set to [1080/50p-200fps] or [1080/59.94p-240fps].
- If the HD trunk input is selected, only 1080/59.94i input is available when an input signal is 59.94 Hz; only 1080/50i input is available when an input signal is 50 Hz.



## Upper side



### 1 Viewfinder front/back positioning lever

To adjust the front/back position of the viewfinder, loosen this lever and slide the viewfinder forwards or backwards to adjust the viewfinder to a position that enables easy viewing. After adjusting the viewfinder, turn the lever towards <LOCK> to lock the position.

### 2 Viewfinder left-right positioning ring

To adjust the left/right position of the viewfinder, loosen this lever and slide the viewfinder to the left or right to adjust the viewfinder to a position that enables easy viewing. Tighten the lever to clamp the viewfinder in place after adjusting.

### 3 Light shoe

Used to mount a video light, etc.

### 4 Microphone holder holes

Used to mount a microphone.

### 5 <PTT> switch

Used to switch the intercom microphone on/off. The function can be changed in [MAIN MENU] → [SWITCH MODE] → [USER SWITCH] → [GRIP PTT].

### 6 <RET> switch

Used to switch to the return A signal. The function can be changed in [MAIN MENU] → [SWITCH MODE] → [USER SWITCH] → [GRIP RET].

### 7 Accessory mounting hole

Used to attach accessories. This hole is used only for the purpose of attaching accessories.

#### • Mounting hole size

- 1/4-20 UNC (screw length 13 mm or shorter)

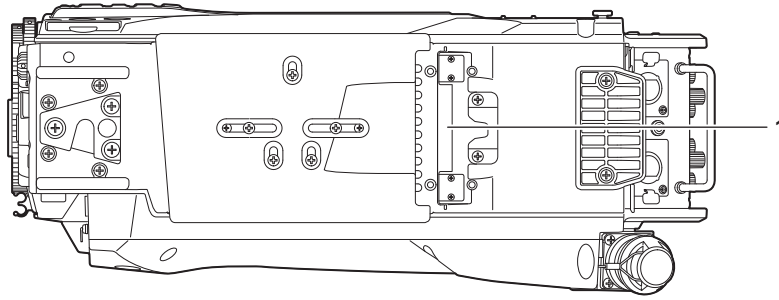
### 8 Lock release button

Used to release the lock of the V-groove.

### 9 V-groove

Used to attach the rear viewfinder.

## Bottom side



**1 Build-up terminal**

Used to connect the Build-up Unit AK-HBU500G (optional).

## Chapter 3 **Preparation**

---

Follow the procedures described in this chapter to mount the accessories before using the camera.

## Attaching the viewfinder

Attach the viewfinder (optional).

### Attaching the viewfinder

HD viewfinder AJ-HVF21KG (optional) can be used with this camera.

For details on handling the HD viewfinder, refer to the Operating Instructions of the viewfinder.

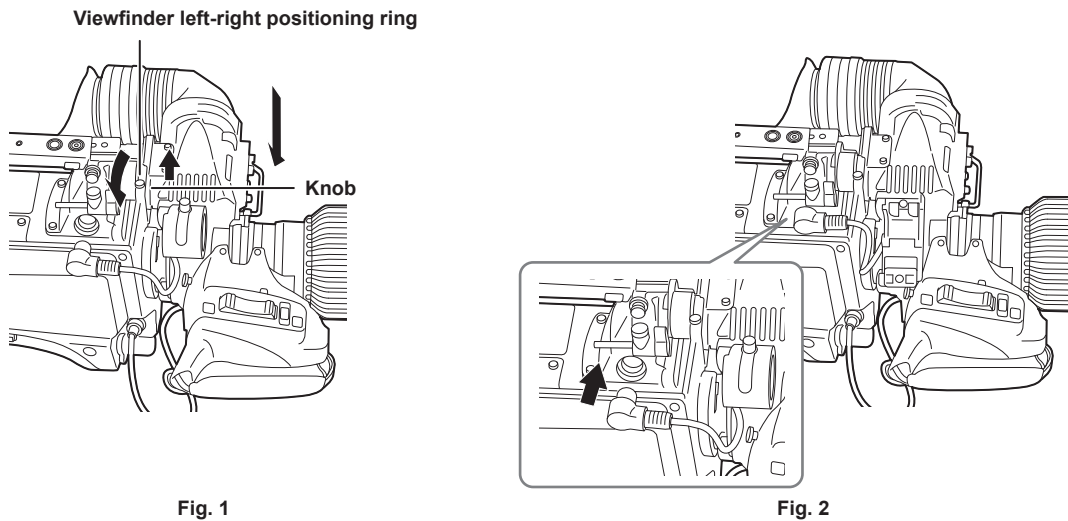


Fig. 1

Fig. 2

- 1** Set the <POWER> switch to <OFF>.
- 2** Pull up the knob on the mounting plate and slide the plate to attach the viewfinder. (Fig. 1)
- 3** Securely tighten the viewfinder left-right positioning ring. (Fig. 1)
- 4** Connect the plug to the <VF> terminal. (Fig. 2)

#### NOTE

- When connecting the plug to the <VF> terminal, confirm that the plug is fully inserted in the terminal.

### Removing the viewfinder

- 1** Set the <POWER> switch to <OFF>.
- 2** Remove the plug from the <VF> terminal.
- 3** Loosen the viewfinder clamping dial and then pull up the knob on the mounting plate.
- 4** Slide the viewfinder along the plate to remove it from the plate.

## Attaching the rear viewfinder

LCD viewfinder AK-HVF100G (optional) can be used with this camera.

For details on handling the LCD viewfinder, refer to the Operating Instructions of the viewfinder.

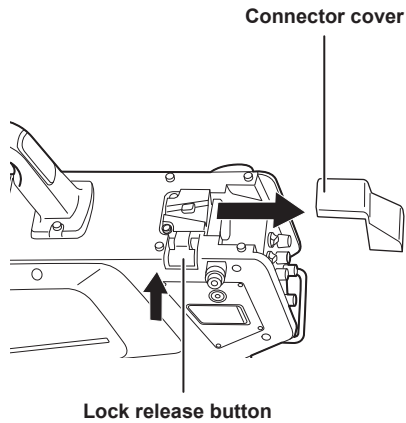


Fig. 1

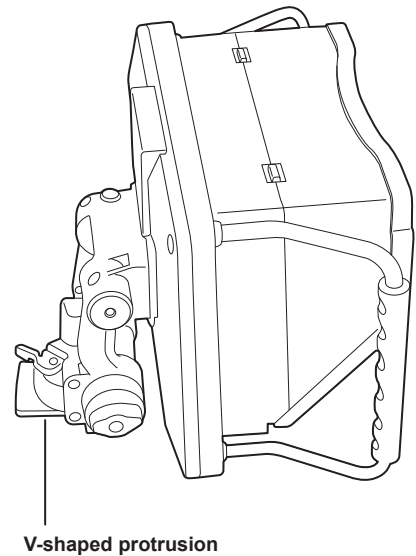
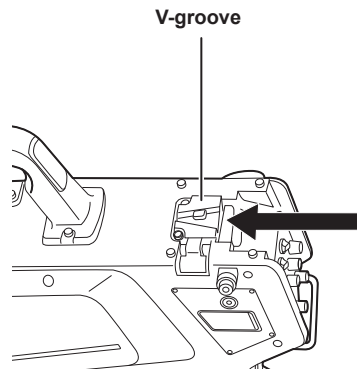


Fig. 2

- 1** Turn off the power of the camera and the LCD viewfinder.
- 2** Press the lock release button and remove the connector cover. (Fig. 1)
- 3** Align the V-shaped protrusion of the LCD viewfinder with the V-shaped groove on the camera and slide it in until the lock is engaged. (Fig. 2)

### NOTE

- When attaching the viewfinder, refrain from holding the hood of the LCD viewfinder.

## Removing the rear viewfinder

- 1** Turn off the power of the camera and the LCD viewfinder.
- 2** While pressing the lock release button, slide off the LCD viewfinder.

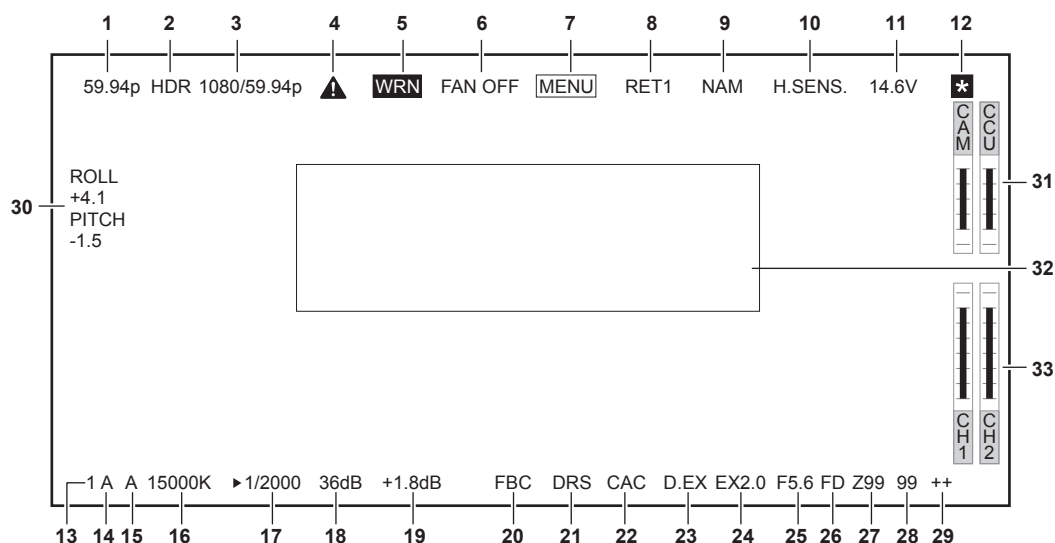
### NOTE

- When removing the viewfinder, refrain from holding the hood of the LCD viewfinder.

## On-screen displays of the viewfinder

Studio Handy Camera settings and messages indicating operating statuses appear on the viewfinder screen.

All items that can be displayed are located as follows.



### 1 Camera mode display

Indicates the camera image mode.

- [59.94p]
- [50p]
- [29.97p]
- [23.98p]
- [25p]

### 2 HDR mode display

Displayed when the format is HDR.

### 3 System mode display

Indicates the system frequency.

- [1080/59.94p]
- [1080/50p]
- [1080/29.97p]
- [1080/25p]
- [1080/23.98p]
- [1080/59.94p-240fps]
- [1080/50p-200fps]

### 4 Warning display (preheating)

Displayed when the device is being preheated at startup due to low temperature inside the device.

### 5 Warning display (device)

Displayed when there is an abnormality with the condition of the device.

- The fan stops abnormally.
- Internal temperature becomes high.
- DC output supply goes over. (Combined total of each output)
- There is a problem with the light reception level.

The display cannot be hidden.

### 6 Warning display (fan stopped)

Displayed when the fan is stopped.

[MAIN MENU] → [MAINTENANCE] → [FAN SETTING] → [FAN] → [FAN MODE] → [OFF] is set.

### 7 Warning display (menu display)

Displays the camera menu in the CCU. The menu cannot be operated from the camera.

### 8 Return ID display

Displays the return ID of the current return output number.

The ID (character string) set in [MAIN MENU] → [RETURN SETTING] → [RETURN1 ID] to [RETURN4 ID] is displayed.

The following return IDs (character strings) are set in factory settings.

- [RET1] (When [RETURN1] is output)
- [RET2] (When [RETURN2] is output)
- [RET3] (When [RETURN3] is output)
- [RET4] (When [RETURN4] is output)

### 9 Monitor output signal display

Indicates the signal type that is output to the monitor screen.

Configures the signal settings from [MAIN MENU] → [IN/OUT SELECT] → [VF OUT].

- [R]

- [G]
- [B]
- [Y/C]
- [NAM]

**10 High-sensitivity mode display**

Displayed when [MAIN MENU] → [SYSTEM MODE] → [SHOOTING MODE] → [HIGH SENS] is set.

**11 Voltage display**

Indicates the voltage coming in from the power supply.

**12 Focus assist magnification display**

The focus assist magnification display function is displayed while active.

**13 ND filter display**

Indicates the selected ND filter value.

- [1]
- [2]
- [3]
- [4]
- [5]

**14 CC filter display**

Indicates the selected CC filter value.

- [A]
- [B]
- [C]
- [D]
- [E]

**15 <WHITE BAL> switch position display**

Indicates the selected switch position.

- [A]: When the <WHITE BAL> switch is set to <A>
- [B]: When the <WHITE BAL> switch is set to <B>
- [P]: When the <WHITE BAL> switch is set to <PRST>

**16 Color temperature display**

Indicates the color temperature that is set on the camera.

This can be either the memory value when automatic white balance is performed or the value configured in the menu.

**17 Shutter speed display**

Indicates the shutter speed in accordance with each setting.

When [MAIN MENU] → [SWITCH MODE] → [SHUTTER SPEED] → [SHUTTER SW] → [ON] is set, and also [MAIN MENU] → [SWITCH MODE] → [SHUTTER SPEED] → [SHUTTER MODE] → [SHUTTER] is set

- [1/48] (in [23.98p] mode only)
- [1/50] (in [25p] mode only)
- [1/60] (in [50i]/[50p]/[29.97p]/[25p]/[23.98p] mode only)
- [1/100]
- [1/120] (in [59.94i]/[59.94p]/[29.97p]/[23.98p] mode only)
- [1/125]
- [1/250]
- [1/500]
- [1/1000]
- [1/1500]
- [1/2000]

When [MAIN MENU] → [SWITCH MODE] → [SHUTTER SPEED] → [SHUTTER SW] → [ON] is set, and also [MAIN MENU] → [SWITCH MODE] → [SHUTTER SPEED] → [SHUTTER MODE] → [SYNCHRO] is set

- [61.7Hz] to [6130Hz] (in [59.94i]/[59.94p] mode only)
- [51.5Hz] to [6250Hz] (in [50i]/[50p] mode only)
- [30.9Hz] to [2600Hz] (in [29.97p] mode only)
- [25.7Hz] to [3130Hz] (in [25p] mode only)
- [24.7Hz] to [2880Hz] (in [23.98p] mode only)
- [240Hz] to [6130Hz] (in [240fps] mode only)
- [200Hz] to [6250Hz] (in [200fps] mode only)

When [MAIN MENU] → [SWITCH MODE] → [SHUTTER SPEED] → [SHUTTER SW] → [OFF] is set

- [SH.OFF]

**18 Master gain display**

Indicates the value set in [MAIN MENU] → [SWITCH MODE] → [GAIN SETTING] → [LOW GAIN]/[MID GAIN]/[HIGH GAIN].

- [-6dB] to [36dB]

**19 Offset gain display**

Indicates the value set in [MAIN MENU] → [SWITCH MODE] → [GAIN SETTING] → [OFFSET LOW GAIN]/[OFFSET MID GAIN]/[OFFSET HIGH GAIN].

- [-2.9dB] to [+2.9dB]

**20 Flash band compensation display**

Displayed when the flash band compensation function is active.

**21 Dynamic range stretcher display**

Displayed when the dynamic range stretcher function is active.

**22 Chromatic aberration compensation display**

Displayed when the chromatic aberration compensation function is active.

**23 Digital extender display**

Displayed when the digital extender is being used.

**24 Lens extender display**

Displayed when the lens extender is being used.

**25 Iris display**

Indicates the iris setting value (F value) or [OPEN]/[CLOSE]. The F value is an approximate value. [NC] is displayed when the lens cable is not connected.

**26 F drop display**

Displayed when the F drop has occurred.



**NOTE**

- The display may not be supported depending on the lens model. For details, consult the lens manufacturer.

**27 Zoom position display**

Indicates the zoom position.

- [Z00] to [Z99]



**NOTE**

- The zoom position is displayed when using a lens having a zoom position output.

**28 Focus position display**

Indicates the focus position.

- [00] to [99]



**NOTE**

- The focus position is displayed when using a lens having a focus position output.

**29 Focus information display**

Displays the focus information of the focus.



**NOTE**

- This is displayed only when an auto focus lens with the function to return the focus information is mounted.

**30 Level gauge display**

Displays the tilt of the camera in horizontal direction or vertical direction.

**31 Optical level display**

Indicates the level of the optical signals the camera will receive.

**32 Camera warning and information display area**

Displays a message indicating the occurrence of an error, the camera settings, the progress made in the adjustments, or the adjustment results for about three seconds.

**33 Audio input channel and level meter**

Indicates the audio level of the <MIC 1> terminal (audio input 1) and <MIC 2> terminal (audio input 2).



## Connecting a microphone

### When mounting a microphone on the viewfinder (optional) for use

A microphone such as microphone kit AJ-MC700P (optional) can be mounted on the viewfinder.

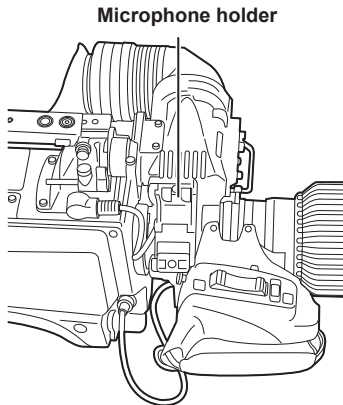


Fig. 1

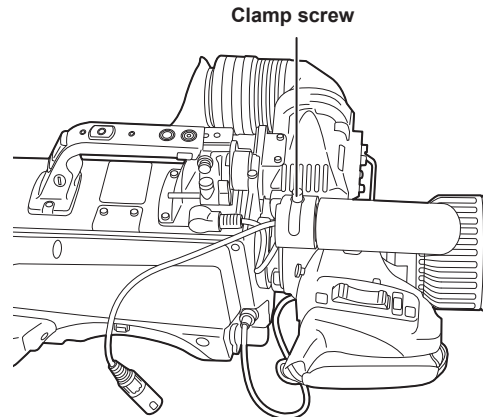
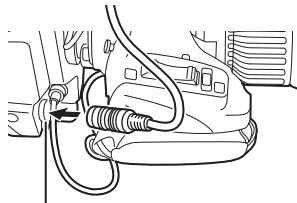


Fig. 2



<MIC 1> terminal

Fig. 3

- 1** Open the microphone holder. (Fig. 1)
- 2** Mount the microphone and tighten the clamp screw. (Fig. 2)
- 3** Insert the microphone cable into the cable clamp and connect it to the <MIC 1> terminal (front). (Fig. 3)
- 4** Set the <FRONT>/<REAR> switch (<MIC 1>) to <FRONT>.
- 5** Set the <LINE/MIC/+48V> selector switch (<MIC 1>) to <MIC> or <+48V>.

When mounting a microphone holder (optional) for use

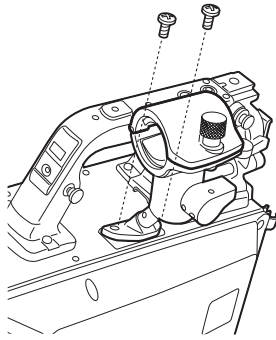


Fig. 1

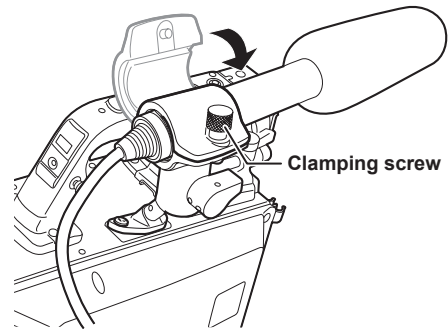


Fig. 2

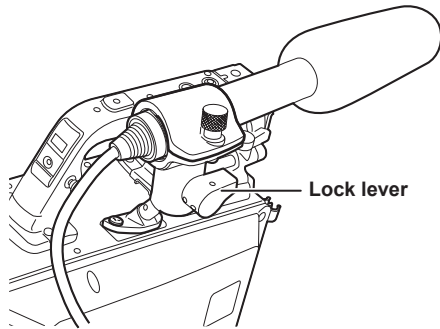


Fig. 3

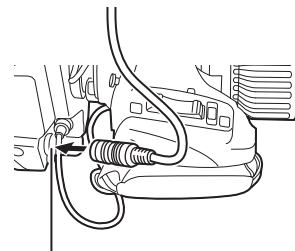
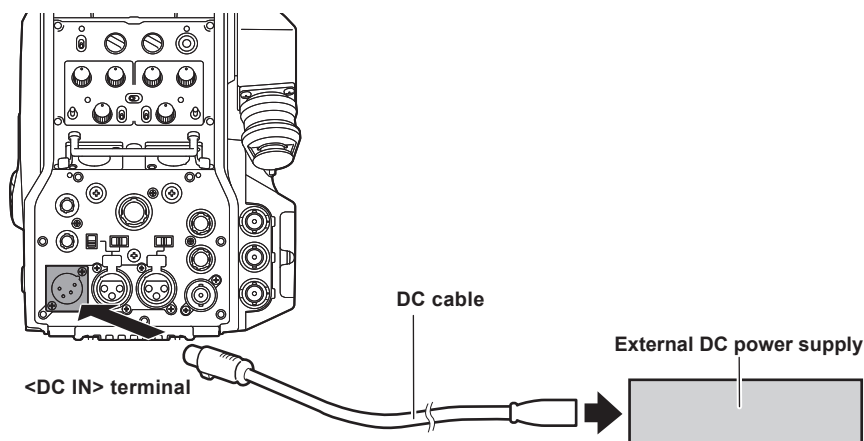


Fig. 4

- 1** Remove the screws on the microphone holder mounting position and mount the microphone holder AJ-MH800G (optional). (Fig. 1)
- 2** Mount the microphone and tighten the clamping screw. (Fig. 2)
- 3** Loosen the lock lever, adjust the angle of the microphone, and then tighten the lock lever. (Fig. 3)
- 4** Insert the microphone cable into the cable clamp and connect it to the <MIC 1> terminal (front). (Fig. 4)
- 5** Set the <FRONT>/<REAR> switch (<MIC 1>) to <FRONT>.
- 6** Set the <LINE/MIC/+48V> selector switch (<MIC 1>) to <MIC> or <+48V>.

## Using external DC power supply



- 1** Connect the external DC power supply to the <DC IN> terminal on the camera.
- 2** Turn on the <POWER> switch of the external DC power supply (if the external DC power supply has a <POWER> switch).
- 3** Set the <POWER> switch of the camera to <EXT>.

### ■ External DC power supply

Connect after making sure that the output voltage of the external DC power supply is compatible with the rated voltage of the camera.

Select an output amperage for the external DC power supply with a margin above the total amperage of the connected devices.

The total amperage of connected devices can be calculated with the following formula.

Total power consumption ÷ voltage

When the power of the camera is turned on, inrush current is generated. An insufficient power supply when turning on the power may lead to failure. It is recommended that you use an external DC power supply that can assure double the capacity of the total power consumption of the camera and connected devices (such as viewfinder) that are turned on by the interlock when the power of the camera is turned on. For the DC cable, use a dual-core shielded cable of AWG18 (nominal cross section area 0.824 mm<sup>2</sup>) or thicker.

- Check the pin alignment of the DC output terminal of the external DC power supply and the <DC IN> terminal on the camera, and make sure to correctly connect the polarity.

Mistakenly connecting the +12 V power supply to the GND terminal may result in a fire or failure.

DC IN	
1	UNREG GND
2	Not used
3	Not used
4	+12 V
HA16RA-4P(77) (Hirose Electric Co.)	

The diagram shows a circular connector with four pins labeled 1, 2, 3, and 4. Pins 1 and 4 are marked with a plus sign (+) to indicate polarity.

### NOTE

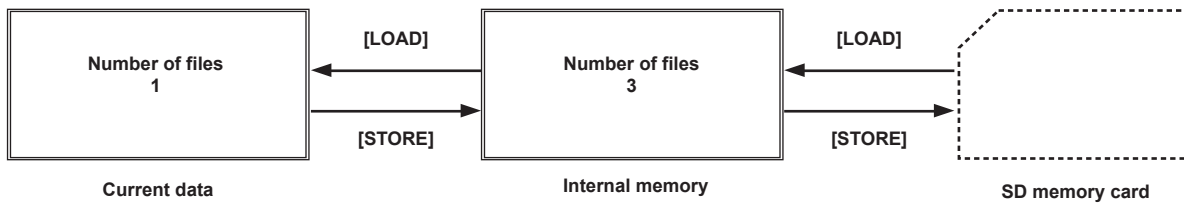
- When using external DC power supply, be sure to turn on the <POWER> switch of the external DC power supply, and then set the <POWER> switch of the camera to <EXT>. Performing these operations in the opposite order may lead to failure due to the output voltage of the external DC power supply rising too slowly.
- Even when the camera is connected to the CCU, operation from the CCU and ROP can be performed with the external DC power supply. The performance is affected by the extended distance between this camera and the CCU.
- When the camera is connected to the CCU while the external DC power supply is used, perform the following.
  - Use the optical fiber multi cable to connect to the CCU.
  - Set [MAIN MENU] → [SYSTEM MODE] → [CABLE CONNECTION] to [FIBER].

# Data

The following shows the data handled in the camera.

Managed system component	Name	Quantity	Description
Camera	User file	1 - 3	These files contain equipment configuration data held by the camera, set in [MAIN MENU]. The data is managed by the camera. It can be saved or loaded by [MAIN MENU] → [FILE] → [USER FILE].
	Lens file	1 - 32	These files contain data used by video engineers to correct characteristics specific to each lens. The data is managed by the camera. It can be saved or loaded by [MAIN MENU] → [MAINTENANCE] → [LENS FILE ADJUST].
	CAC file	1 - 32	These files contain chromatic aberration compensation data specific to the lens. The data is managed by the camera. It can be loaded from a memory card by [MAIN MENU] → [FILE] → [CAC FILE].
	Scene file	1 - 8	These files which contain data for creating pictures are handled mainly by video engineers. The data is managed by the camera. It can be loaded by [MAIN MENU] → [FILE] → [SCENE FILE].
	Operation file	1	These files which contain operation data are handled mainly by camera operators. The data is managed by the camera. It can be saved or loaded by [MAIN MENU] → [FILE] → [SD CARD] using a memory card.
	Reference file	1 - 3	These files contain data excluding the operation data from the equipment configuration data. The data is managed by the camera. It can be saved or loaded by [MAIN MENU] → [FILE] → [REFERENCE FILE].

## User file

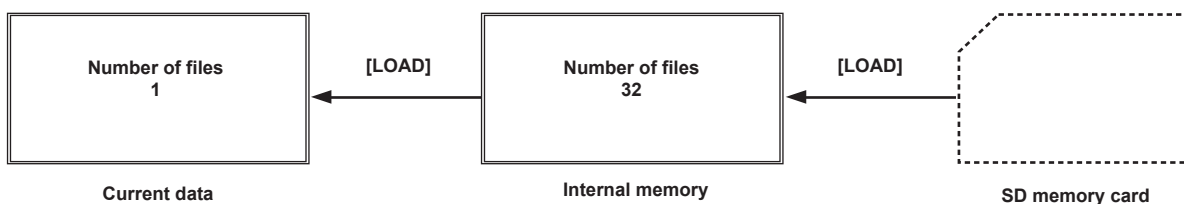


### ■ Loading

The operation data can be loaded to the actual operating area from the memory card inserted into the memory card slot on the camera by [MAIN MENU] → [FILE] → [SD CARD].

The operation data in the actual operating area can also be saved to the memory card.

## CAC file



### ■ Loading

CAC files can be loaded to the internal memory from the memory card inserted into the memory card slot on the camera by [MAIN MENU] → [FILE] → [CAC FILE].

CAC file has a name specific to each lens and it can be downloaded from the website.

You can check the CAC compatible lenses guaranteed for use with this camera on the Panasonic website. You can also obtain a CAC file from the support desk on the Panasonic website.

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

### ■ Accessing

The file is selected automatically according to the lens and accessed in the actual operating area.

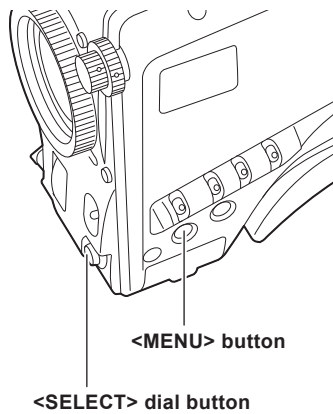
## Chapter 4 **Menu Operations**

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This chapter describes how to operate the camera menus and the structure and details of the setting menu.

# Menu operations

## Basic operations



MAIN MENU (1/2)

- DISPLAY SETUP
- SWITCH MODE
- RETURN SETTING
- INTERCOM SETTING
- MIC SETTING
- PAINT
- SYSTEM MODE
- IN/OUT SELECT
- AUTO SET UP

Fig. 1

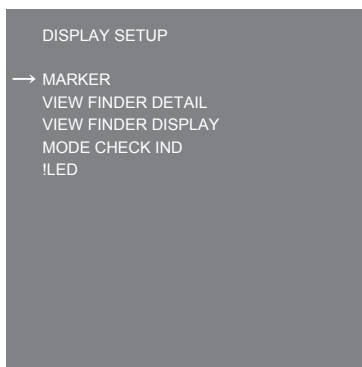


Fig. 2



Fig. 3

### 1 Press the <MENU> button.

The [MAIN MENU] screen of the camera is displayed on the viewfinder or monitor. (Fig. 1)

### 2 Turn the <SELECT> dial button to select an item.

### 3 Press the <SELECT> dial button.

The menu of the selected item is accessed. (Fig. 2)

### 4 Turn the <SELECT> dial button to select a menu item to configure.

### 5 Press the <SELECT> dial button.

The setting of the item indicated by the arrow flashes. (Fig. 3)

### 6 Turn the <SELECT> dial button and change the setting.

### 7 Press the <SELECT> dial button.

The setting is confirmed.

Pressing the <MENU> button to exit the menu screen also reflects the setting.

Entering characters

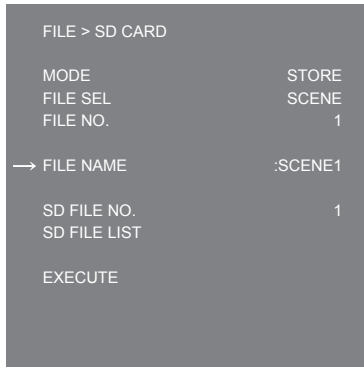


Fig. 1

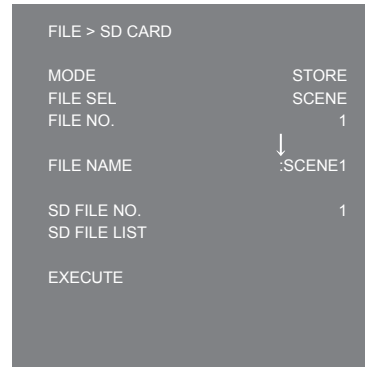


Fig. 2

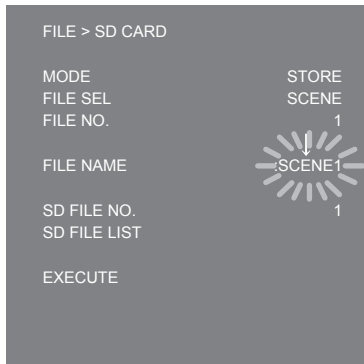


Fig. 3

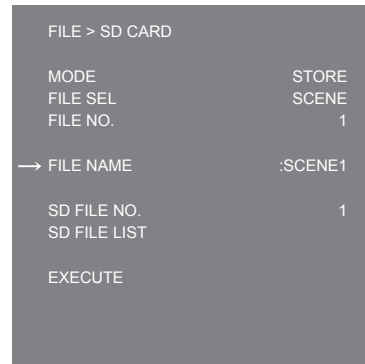


Fig. 4

**1 Press the <SELECT> dial button.**

The cursor changes to a downward arrow which appears over the colon (:). (Fig. 1, Fig. 2)

**2 Turn the <SELECT> dial button to move the arrow to the character to be changed.**

**3 Press the <SELECT> dial button.**

The character to be changed flashes. (Fig. 3)

**4 Turn the <SELECT> dial button and change the character.**

**5 Press the <SELECT> dial button.**

The setting is confirmed.  
Perform the same operation for all characters to be changed.

**6 Turn the <SELECT> dial button to move the downward arrow cursor over the colon (:).**

**7 Press the <SELECT> dial button.**

The cursor changes to a horizontal arrow and another item can be selected. (Fig. 4)

## Menu configuration

### [MAIN MENU]

[DISPLAY SETUP]	Configures the settings for the details to be displayed in the viewfinder.
[SWITCH MODE]	Configures the function assigned to the switch.
[RETURN SETTING]	Configures the return switch and return signal name.
[INTERCOM SETTING]	Configures the details such as gain, etc. of each intercom.
[MIC SETTING]	Configures the audio settings.
[PAINT]	Configures the image settings.
[SYSTEM MODE]	Configures the system frequency and shooting mode.
[IN/OUT SELECT]	Configures the operation mode of the external input/output and each connection.
[AUTO SET UP]	Configures continuous adjustment of gamma, black balance, and white balance.
[NETWORK SETUP]	Configures the settings for the network.
[FILE]	Performs operations regarding handling of scene files and SD memory card.
[MAINTENANCE]	Adjusts the CAC and lens files.
[DIAGNOSTIC]	Displays the firmware version and energized time of the unit.



## Menu list

**S**: Can be saved and loaded as a scene file data.

**U**: Can be saved and loaded as a user file data.

**O**: Can be saved and loaded as an operation file data.

**R**: Can be saved and loaded as a reference file data.

### [DISPLAY SETUP]

#### [MARKER]

Item	Description of settings
[FOCUS ASSIST SW] <b>UO</b>	Enables/disables the focus assist switch. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[FOCUS ASSIST MODE] — <b>UO</b>	Sets whether to cancel the focus assist by the switch or by the duration of time. <b>[SW], [INSTANT]</b> • Factory setting: [SW]
[CANCEL TIME] <b>UO</b>	Sets the duration of time before cancelling the focus assist when [INSTANT] is selected. <b>[1sec], [3sec], [5sec], [10sec], [20sec]</b> • Factory setting: [5sec]
[FOCUS ASSIST] —	Displays the type of the focus assist.
[IN RED SW] <b>UO</b>	Enables/disables the IN RED switch. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[IN RED COLOR] <b>UO</b>	Sets the color for IN RED. <b>[RED], [GREEN], [BLUE], [WHITE]</b> • Factory setting: [RED]
[SQUARE SW] <b>UO</b>	Enables/disables the SQUARE switch. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[SQUARE COLOR] <b>UO</b>	Sets the color for the SQUARE. <b>[RED], [GREEN]</b> • Factory setting: [GREEN]
[BAR SW] <b>UO</b>	Enables/disables the BAR switch. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[MAG SW] <b>UO</b>	Enables/disables the magnification display function. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[ZEBRA] — <b>UO</b>	Enables/disables the luminance zebra. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[ZEBRA1 LEVEL] <b>UO</b>	Sets the level of the luminance zebra 1. <b>[0%]...[109%]</b> • Factory setting: [80%]
[ZEBRA2 LEVEL] <b>UO</b>	Sets the level of the luminance zebra 2. <b>[0%]...[109%]</b> • Factory setting: [100%]
[ZEBRA PATTERN] <b>UO</b>	Sets the pattern of the luminance zebra. <b>[1], [1+2], [SPOT]</b> • Factory setting: [1]
[FRAME LEVEL SWITCH] — <b>UO</b>	Shows/hides the level display outside the frame marker. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[FRAME LEVEL] <b>UO</b>	Sets the level to be displayed outside the frame marker. <b>[0]...[31]</b> • Factory setting: [31]
[FRAME MARK SWITCH] <b>UO</b>	Shows/hides the frame marker. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[FRAME SIG] <b>UO</b>	Sets the aspect ratio of the frame marker. <b>[4:3], [13:9], [14:9], [15:9], [16:9], [CINEMA], [VISTA]</b> • Factory setting: [4:3]
[SAFETY MARK1 SWITCH] <b>UO</b>	Shows/hides the safety marker 1. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[SAFETY MARK1] <b>UO</b>	Sets the aspect ratio of safety marker 1. <b>[16:9], [15:9], [14:9], [13:9], [4:3]</b> • Factory setting: [16:9]
[SAFETY AREA1] <b>UO</b>	Sets the size of safety area 1. <b>[80%]...[100%]</b> • Factory setting: [80%]

Chapter 4 Menu Operations — Menu list

Item	Description of settings
[SAFETY MARK2 SWITCH] UO	Shows/hides the safety marker 2. [OFF], [ON] • Factory setting: [OFF]
[SAFETY MARK2] UO	Sets the aspect ratio of safety marker 2. [16:9], [15:9], [14:9], [13:9], [4:3] • Factory setting: [4:3]
[SAFETY AREA2] UO	Sets the size of safety marker 2. [80%]...[100%] • Factory setting: [93%]
[EFFECTIVE AREA MARK] UO	Shows/hides the effective area marker. [OFF], [ON] • Factory setting: [OFF]
[PF LENS AREA MARK] UO	Shows/hides the auto focus area marker of the PF lens. [OFF], [AUTO] • Factory setting: [OFF]
[CENTER MARK]	— UO
[CENTER MARK SELECT] UO	Shows/hides the center marker. [OFF], [ON] • Factory setting: [OFF]
[LINE WIDTH] UO	Sets the size of the center marker. [1]...[8] • Factory setting: [1]
[MARKER LEVEL] UO	Sets the thickness of the center marker frame. [1]...[3] • Factory setting: [2]
[MARKER LEVEL] UO	Sets the brightness of the markers and on-screen display. [50%]...[100%] • Factory setting: [100%]
[USER BOX]	— UO
[MEMORY SELECT] UO	Shows/hides the user box. [OFF], [ON] • Factory setting: [OFF]
[H POSITION] UO	Configures the memory of the user box. [1], [2], [3] • Factory setting: [1]
[H OFFSET] UO	Adjusts the horizontal position of the user box. [- 50]...[50] • Factory setting: [0]
[V POSITION] UO	Finely adjusts the horizontal offset of the user box. [- 10]...[10] • Factory setting: [0]
[V OFFSET] UO	Adjusts the vertical position of the user box. [- 50]...[50] • Factory setting: [0]
[WIDTH] UO	Finely adjusts the vertical offset of the user box. [- 10]...[10] • Factory setting: [0]
[HEIGHT] UO	Adjusts the width of the user box. [0]...[100] • Factory setting: [50]
[BOX/CROSS] UO	Adjusts the height of the user box. [0]...[100] • Factory setting: [50]
[EFFECT MEMORY1] UO	Sets the shape of the user box. [BOX], [CROSS] • Factory setting: [BOX]
[EFFECT MEMORY2] UO	Configures the valid memory of the user box. [OFF], [ON] • Factory setting: [OFF]
[EFFECT MEMORY3] UO	Configures the valid memory of the user box. [OFF], [ON] • Factory setting: [OFF]

[VIEW FINDER DETAIL]

Item	Description of settings
[VIEW FINDER DETAIL] UO	Adjusts the details of the viewfinder. [0]...[23] • Factory setting: [7]
[ZOOM LINK] UO	Enables/disables the details of the zoom-interlocked viewfinder. [OFF], [ON] • Factory setting: [OFF]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[ZOOM LINK LEVEL] U O	Adjusts the detail level of the zoom-interlocked viewfinder. [1]...[5] • Factory setting: [3]
[RETURN SIGNAL]	
[HD PEAK FREQUENCY] U O	Adjusts the peak frequency of the return signal. [LOW], [MID], [HIGH] • Factory setting: [LOW]
[HD OFFSET GAIN] U O	Adjusts the detail offset gain of the return signal. [0]...[5] • Factory setting: [0]
[HD CRISP] U O	Adjusts the detail crisp level of the return signal. [0]...[63] • Factory setting: [0]

### [VIEW FINDER DISPLAY]

Item	Description of settings
[F NUMBER] U O	Shows/hides the iris display (F value). [OFF], [ON] • Factory setting: [OFF] This is displayed when you use a lens that outputs position information.
[ZOOM] U O	Shows/hides the zoom position display. [OFF], [ON] • Factory setting: [OFF] This is displayed when you use a lens that outputs position information.
[FOCUS] U O	Shows/hides the focus position display. [OFF], [ON] • Factory setting: [OFF] This is displayed when you use a lens that outputs position information.
[FOCUS CONDITION] U O	Shows/hides the focus information display. [OFF], [ON] • Factory setting: [OFF]
[EXTENDER] U O	Shows/hides the extender display. [OFF], [ON] • Factory setting: [OFF]
[FILTER] U O	Shows/hides the filter position display. [OFF], [ON] • Factory setting: [OFF]
[MASTER GAIN] U O	Shows/hides the master gain display. [OFF], [ON] • Factory setting: [OFF]
[OFFSET GAIN] U O	Shows/hides the offset gain display. [OFF], [ON] • Factory setting: [OFF]
[SHUTTER] U O	Shows/hides the electronic shutter display. [OFF], [ON] • Factory setting: [OFF]
[AUDIO LEVEL] U O	Shows/hides the audio level (level meter) display. [OFF], [ON] • Factory setting: [OFF]
[DIGITAL EXTENDER] U O	Shows/hides the digital extender display. [OFF], [ON] • Factory setting: [OFF]
[WHITE CHANNEL] U O	Shows/hides the white balance memory display. [OFF], [ON] • Factory setting: [OFF]
[DRS] U O	Shows/hides the dynamic range stretcher display. [OFF], [ON] • Factory setting: [OFF]
[CAC] U O	Shows/hides the chromatic aberration compensation (CAC) display. [OFF], [ON] • Factory setting: [OFF]
[OPT LEVEL] U O	Shows/hides the display of the level of the optical signal received by the camera. [OFF], [ON] • Factory setting: [OFF]
[RETURN SELECT] U O	Shows/hides the return ID display. [OFF], [ON] • Factory setting: [OFF]
[STATUS] U O	Shows/hides the display appearing when functions are selected. [OFF], [ON] • Factory setting: [OFF]
[STATUS(AUTO)] U O	Shows/hides the display appearing when AWB/ABB/ASU are activated or deactivated. [OFF], [ON] • Factory setting: [OFF]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[SENSOR RATE] U O	Shows/hides the sensor imaging rate display. [OFF], [ON] • Factory setting: [OFF]
[VOLTAGE] U O	Shows/hides the power supply display. [OFF], [ON] • Factory setting: [OFF]
[SYSTEM MODE] U O	Shows/hides the system frequency/resolution display. [OFF], [ON] • Factory setting: [OFF]
[FAN OFF] U O	Shows/hides the status display when the fan is off. [OFF], [ON] • Factory setting: [OFF]
[MONI OUT SIGNAL] U O	Shows/hides the monitor output signal type display. [OFF], [ON] • Factory setting: [OFF]
[COLOR TEMP] U O	Shows/hides the color temperature display. [OFF], [ON] • Factory setting: [OFF]
[FBC] U O	Shows/hides the flash band compensation display. [OFF], [ON] • Factory setting: [OFF]
[SHOOTING MODE] U O	Shows/hides the sensitivity mode display. [OFF], [ON] • Factory setting: [OFF]
[LEVEL GAUGE] U O	Shows/hides the level gauge display. [OFF], [ON] • Factory setting: [OFF]
[MAG] U O	Shows/hides the status display when the focus assist magnification display function is enabled. [OFF], [ON] • Factory setting: [ON]
[MENU DISP WARNING] U O	Shows/hides the menu warning display. [OFF], [ON] • Factory setting: [ON]
[F DROP ADJUST] U O	Shows/hides the F drop display. [OFF], [ON] • Factory setting: [OFF]
[HDR] U O	Shows/hides the HDR display. [OFF], [ON] • Factory setting: [OFF]
[CHARACTER SIZE] U O	Selects the character size for display on the viewfinder. [LARGE], [SMALL] • Factory setting: [SMALL]
[DISPLAY TYPE] U O	Selects the black frame mode for display on the viewfinder. [NORMAL], [FRAME] • Factory setting: [NORMAL]

### [MODE CHECK IND]

Item	Description of settings
[AUDIO] U O	Shows/hides the [AUDIO] screen during the mode check. [OFF], [ON] • Factory setting: [ON]
[USER SW STATUS] U O	Shows/hides the [USER SW STATUS] screen during the mode check. [OFF], [ON] • Factory setting: [ON]
[!LED] U O	Shows/hides the [!LED] screen during the mode check. [OFF], [ON] • Factory setting: [ON]
[SDI OUT] U O	Shows/hides the [SDI OUT] screen during the mode check. [OFF], [ON] • Factory setting: [ON]
[CAC] U O	Shows/hides the [CAC] screen during the mode check. [OFF], [ON] • Factory setting: [ON]

### [!LED]

For items whose setting is [ON], the LED in the viewfinder (▲) lights up when the operating status of the camera becomes irregular.

Item	Description of settings
[GAMMA OFF] U O	Shows/hides the status display when gamma is disabled. [OFF], [ON] • Factory setting: [OFF]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[SHUTTER] U O	Shows/hides the status display when the electronic shutter is enabled. [OFF], [ON] • Factory setting: [OFF]
[EXTENDER] U O	Shows/hides the status display when the lens extender is enabled. [OFF], [ON] • Factory setting: [OFF]
[FAN OFF] U O	Shows/hides the status display when the fan is off. [OFF], [ON] • Factory setting: [OFF]
[MASTER GAIN] U O	Shows/hides the status display when the gain is other than 0 dB. [OFF], [ON] • Factory setting: [OFF]
[BLACK GAMMA] U O	Shows/hides the status display when the black gamma is enabled. [OFF], [ON] • Factory setting: [OFF]

### [SWITCH MODE]

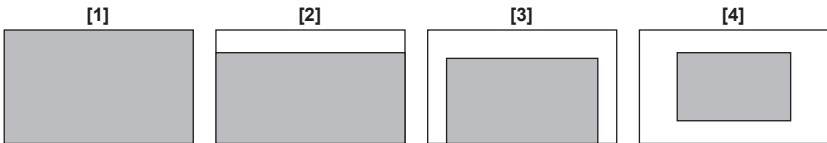
#### [USER SWITCH]

Item	Description of settings
[GRIP RET] U O	Selects the grip <RET> switch function. [A], [B], [C], [PTT] • Factory setting: [A]
[GRIP PTT] U O	Selects the grip <PTT> switch function. [PTT], [A], [B], [C] • Factory setting: [PTT]
[LENS VTR] U O	Selects the <VTR> switch function of the handy lens. [A], [B], [C], [PTT], [D.EXT], [INH] • Factory setting: [B]
[LENS RET1] U O	Selects the <RET1> switch function of the standard lens. [A], [B], [C] • Factory setting: [A]
[LENS RET2] U O	Selects the <RET2> switch function of the standard lens. [A], [B], [C] • Factory setting: [B]
[EXTERNAL RET1] U O	Selects the function of external return control switch 1. [A], [B], [C], [D.EXT] • Factory setting: [A]
[EXTERNAL RET2] U O	Selects the function of external return control switch 2. [A], [B], [C], [D.EXT] • Factory setting: [B]
[EXTERNAL RET3] U O	Selects the function of external return control switch 3. [A], [B], [C], [D.EXT] • Factory setting: [B]
[USER SWITCH1] U O	Selects the function of the <USER 1> switch. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [D.EXT], [C.TEMP], [ASSIST], [CALL], [LVL GAUGE RESET] • Factory setting: [RETURN A]
[USER SWITCH2] U O	Selects the function of the <USER 2> switch. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [D.EXT], [C.TEMP], [ASSIST], [CALL], [LVL GAUGE RESET] • Factory setting: [PTT]
[USER SWITCH3] U O	Selects the function of the <USER 3> switch. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [D.EXT], [C.TEMP], [ASSIST], [CALL], [LVL GAUGE RESET] • Factory setting: [PTT]
[USER SWITCH4] U O	Selects the function of the <USER 4> switch. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [D.EXT], [C.TEMP], [ASSIST], [CALL], [LVL GAUGE RESET] • Factory setting: [PTT]
[USER B/U SWITCH1] U O	Selects the function of the user switch 1 on the Build-up Unit. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [LENS EXT], [D.EXT], [C.TEMP], [CENTER], [ASSIST], [LVL GAUGE RESET] • Factory setting: [LENS EXT]
[USER B/U SWITCH2] U O	Selects the function of the user switch 2 on the Build-up Unit. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [LENS EXT], [D.EXT], [C.TEMP], [CENTER], [ASSIST], [LVL GAUGE RESET] • Factory setting: [CENTER]
[USER B/U SWITCH3] U O	Selects the function of the user switch 3 on the Build-up Unit. [RETURN A], [RETURN B], [RETURN C], [PTT], [DISP], [MARK OFF], [LENS EXT], [D.EXT], [C.TEMP], [CENTER], [ASSIST], [LVL GAUGE RESET] • Factory setting: [PTT]

**[GAIN SETTING]**

Item	Description of settings
[LOW GAIN] U S O R	Sets the amount of gain increase when <L> is selected for the <GAIN> switch. [-6dB]...[36dB] When [MAIN MENU] → [SYSTEM MODE] → [SHOOTING MODE] → [NORMAL] is set: [-3dB]...[36dB] • Factory setting: [0dB]
[OFFSET LOW GAIN] U S O R	Sets the offset from [LOW GAIN]. [-2.9dB]...[+2.9dB] (0.1 dB step) • Factory setting: [0.0dB]
[MID GAIN] U S O R	Sets the amount of gain increase when <M> is selected for the <GAIN> switch. [-6dB]...[36dB] When [MAIN MENU] → [SYSTEM MODE] → [SHOOTING MODE] → [NORMAL] is set: [-3dB]...[36dB] • Factory setting: [9dB]
[OFFSET MID GAIN] U S O R	Sets the offset from [MID GAIN]. [-2.9dB]...[+2.9dB] (0.1 dB step) • Factory setting: [0.0dB]
[HIGH GAIN] U S O R	Sets the amount of gain increase when <H> is selected for the <GAIN> switch. [-6dB]...[36dB] When [MAIN MENU] → [SYSTEM MODE] → [SHOOTING MODE] → [NORMAL] is set: [-3dB]...[36dB] • Factory setting: [18dB]
[OFFSET HIGH GAIN] U S O R	Sets the offset from [HIGH GAIN]. [-2.9dB]...[+2.9dB] (0.1 dB step) • Factory setting: [0.0dB]

**[IRIS]**

Item	Description of settings
[AUTO IRIS] U O	Enables/disables the auto iris mode. [OFF], [ON] • Factory setting: [ON] (when the camera is used standalone), [OFF] (others)
[WINDOW SELECT] U O	Sets the photometric range. [1]...[4] The image of window will be as follows.  • Factory setting: [1]
[IRIS LEVEL] U O	Adjusts the target value (brightness) of the auto iris. [0]...[100] • Factory setting: [50]
[PEAK RATIO] U O	Sets the ratio of the peak value and average value of auto iris photometry. [0]...[100] • Factory setting: [50]
[IRIS RANGE] U O	Sets the fine adjustment range of the auto iris level using the iris adjustment joystick. [NORMAL], [(3/4)], [(2/4)], [(1/4)] • Factory setting: [NORMAL]
[IRIS SPEED] U O	Sets the auto iris speed. [1]...[25] • Factory setting: [15]
[IRIS GAIN] U O	Switches whether to adjust auto iris photometry speed adjustment with the iris gain volume of the lens or from the menu. Normally, set this to [LENS] and make adjustments with the iris volume of the lens. [LENS], [CAM] • Factory setting: [LENS]
[LENS EXT COMP SW] U O	Sets the ALC compensation when the lens extender is enabled. [OFF], [ON] • Factory setting: [OFF]
[EXTENDER1] U O	Sets the magnification of lens extender 1. [NONE], [0.1]...[9.9] • Factory setting: [2.0]
[LENS EXT COMP LEVEL] U O	Sets the iris compensation level when lens extender 1 is enabled. [-100]...[+100] • Factory setting: [0]
[EXTENDER2] U O	Sets the magnification of lens extender 2. [NONE], [0.1]...[9.9] • Factory setting: [NONE]

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Item	Description of settings
[LENS EXT COMP LEVEL] U O	Sets the iris compensation level when lens extender 2 is enabled. [-100]...[+100] • Factory setting: [0]
[EXTENDER3] U O	Sets the magnification of lens extender 3. [NONE], [0.1]...[9.9] • Factory setting: [NONE]
[LENS EXT COMP LEVEL] U O	Sets the iris compensation level when lens extender 3 is enabled. [-100]...[+100] • Factory setting: [0]
[EXTENDER4] U O	Sets the magnification of lens extender 4. [NONE], [0.1]...[9.9] • Factory setting: [NONE]
[LENS EXT COMP LEVEL] U O	Sets the iris compensation level when lens extender 4 is enabled. [-100]...[+100] • Factory setting: [0]

### [FBC SETTING]

Item	Description of settings
[FBC] U O	Enables/disables the flash band compensation. [OFF], [ON] • Factory setting: [OFF]

### [W/B BAL SETTING]

Item	Description of settings
[W/B BAL SW] U O	Sets the conditions for activating the white balance switch. [NORMAL]: Enables the switch only when the camera is operated individually. [ALWAYS]: Always enables the switch. • Factory setting: [NORMAL]
[ABB SW MODE] U O	Sets the switch of the black balance. [NORMAL], [PTT] • Factory setting: [NORMAL]
[ABB SET MODE] U O	Sets the operation mode of the black balance. This cannot be set in HDR mode. [MODE1], [MODE2] • Factory setting: [MODE1]
[AWB SET MODE] U O	Sets the operation mode of the automatic white balance. [MODE1], [MODE2] • Factory setting: [MODE1]

### [SHUTTER SPEED]

Item	Description of settings
[SHUTTER SW] U S R	Enables/disables the shutter function. [OFF]: Disables the shutter. [ON]: Enables the shutter speed with [SHUTTER SPEED]/[SYNCHRO SCAN]. • Factory setting: [OFF]
[SHUTTER MODE] U S R	Selects the operation mode of the shutter. [SHUTTER]: Sets the shutter speed to that configured for [SHUTTER SPEED]. [SYNCHRO]: Sets the shutter speed to that configured for [SYNCHRO SCAN]. • Factory setting: [SHUTTER]
[SHUTTER SPEED] U S R	Sets the shutter speed when [SHUTTER MODE] is [SHUTTER]. [59.94i]/[59.94p] mode: [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] [50i]/[50p] mode: [1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] [29.97p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] [25p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] [23.98p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/100] [200fps]/[240fps] mode: [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/250]

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Item	Description of settings
[SYNCHRO SCAN] <b>U S R</b>	Sets the shutter speed when [SHUTTER MODE] is [SYNCHRO]. [59.94i]/[59.94p] mode: <b>[61.7Hz]...[6130Hz]</b> • Factory setting: [61.7Hz] [50i]/[50p] mode: <b>[51.5Hz]...[6250Hz]</b> [29.97p] mode: <b>[30.9Hz]...[2600Hz]</b> [25p] mode: <b>[25.7Hz]...[3130Hz]</b> [23.98p] mode: <b>[24.7Hz]...[2880Hz]</b> [240fps] mode: <b>[240Hz]...[6130Hz]</b> • Factory setting: [240Hz] [200fps] mode: <b>[200Hz]...[6250Hz]</b> • Factory setting: [200Hz]

### [SHUTTER SELECT]

Item	Description of settings
[SHUTTER OFF BY ROP] <b>U R</b>	Selects whether to enable the shutter mode from ROP. <b>[ENABLE], [DISABLE]</b> • Factory setting: [DISABLE]
[POSITION1] <b>U S R</b>	Sets the shutter speed of [POSITION1]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/100] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/60] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/60] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/50] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/48] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]
[POSITION2] <b>U S R</b>	Sets the shutter speed of [POSITION2]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/120] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/100] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/120] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/100] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/120] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]



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Item	Description of settings
[POSITION3] <b>USR</b>	Sets the shutter speed of [POSITION3]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/125] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/125] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/125] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/125] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/125] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]
[POSITION4] <b>USR</b>	Sets the shutter speed of [POSITION4]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]
[POSITION5] <b>USR</b>	Sets the shutter speed of [POSITION5]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/500] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/500] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/500] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/500] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/500] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]
[POSITION6] <b>USR</b>	Sets the shutter speed of [POSITION6]. [59.94i]/[59.94p] mode: <b>[1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/1000] [50i]/[50p] mode: <b>[1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/1000] [29.97p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/1000] [25p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/1000] [23.98p] mode: <b>[1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/1000] [200fps]/[240fps] mode: <b>[1/250], [1/500], [1/1000], [1/1500], [1/2000]</b> • Factory setting: [1/250]

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Item	Description of settings
[POSITION7] U S R	Sets the shutter speed of [POSITION7]. [59.94i]/[59.94p] mode: [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/1500] [50i]/[50p] mode: [1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/1500] [29.97p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/1500] [25p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/1500] [23.98p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/1500] [200fps]/[240fps] mode: [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/250]
[POSITION8] U S R	Sets the shutter speed of [POSITION8]. [59.94i]/[59.94p] mode: [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/2000] [50i]/[50p] mode: [1/60], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/2000] [29.97p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/2000] [25p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/2000] [23.98p] mode: [1/48], [1/50], [1/60], [1/96], [1/100], [1/120], [1/125], [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/2000] [200fps]/[240fps] mode: [1/250], [1/500], [1/1000], [1/1500], [1/2000] • Factory setting: [1/250]

[SHUTTER POSITION]

Item	Description of settings
[POSITION1] U O	Enables/disables the [POSITION1] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION2] U O	Enables/disables the [POSITION2] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION3] U O	Enables/disables the [POSITION3] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION4] U O	Enables/disables the [POSITION4] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION5] U O	Enables/disables the [POSITION5] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION6] U O	Enables/disables the [POSITION6] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION7] U O	Enables/disables the [POSITION7] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[POSITION8] U O	Enables/disables the [POSITION8] settings of the shutter position. [OFF], [ON] • Factory setting: [ON]
[SHUTTER SELECT BY ROP] U O	Selects whether the shutter operation of ROP follows the [POSITION1] to [POSITION8] settings. [FULL], [SELECT] • Factory setting: [SELECT]

**[RETURN SETTING]**

Item	Description of settings
[RETURN MODE] U O	Sets the operation mode of the <RET> switch. [NORM], [TOGGLE], [BOX] • Factory setting: [NORM]
[RETURN SELECT]      [RETURN C] U O	Sets the function assigned to return C. [RETURN1], [RETURN2], [RETURN3], [RETURN4] • Factory setting: [RETURN1]
[RETURN1 ID] U O	Sets the name of return video 1. (5 characters or less) • Factory setting: [RET1.]
[RETURN2 ID] U O	Sets the name of return video 2. (5 characters or less) • Factory setting: [RET2.]
[RETURN3 ID] U O	Sets the name of return video 3. (5 characters or less) • Factory setting: [RET3.]
[RETURN4 ID] U O	Sets the name of return video 4. (5 characters or less) • Factory setting: [RET4.]

**[INTERCOM SETTING]****[INTERCOM1]**

Item	Description of settings
[INCOM1 TALK SETTING]      [MIC TYPE] U O	Selects the type of the intercom 1 microphone. [DYN]: Dynamic type [ECM]: Condenser type [CBN]: Carbon type • Factory setting: [DYN]
[MIC POWER] U O	Sets the on/off for the power supply to the intercom 1 microphone. [OFF], [ON] • Factory setting: [OFF]
[MIC GAIN] U O	Sets the volume of the intercom 1 microphone. [-12dB]...[12dB] • Factory setting: [0dB]
[SIDE TONE] U O	Sets the volume of the intercom 1 microphone side tone. [OFF], [-36dB]...[0dB] (3 dB step) • Factory setting: [-6dB]
[INCOM1 TO CCU] U O	Sets whether to transmit the intercom 1 microphone audio to the CCU. [OFF], [ON] • Factory setting: [ON]
[INCOM1 RECEIVE SETTING]      [OUTPUT GAIN] U O	Sets the gain of the intercom 1 audio output. [NORMAL], [BOOST] • Factory setting: [NORMAL]
[OUTPUT CH] U O	Sets the allocation of the intercom 1 audio output. [CH1/CH2], [CH2/CH1] • Factory setting: [CH1/CH2]
[INCOM1 RECEIVE CH1 SETTING]      [PGM1 MIX] U O	Sets whether to mix the PGM1 signal with the intercom 1 CH1 output. [OFF], [ON] • Factory setting: [ON]
[PGM2 MIX] U O	Sets whether to mix the PGM2 signal with the intercom 1 CH1 output. [OFF], [ON] • Factory setting: [ON]
[CRANE INCOM MIX] U O	Sets whether to mix the crane intercom signal with the intercom 1 CH1 output. [OFF], [ON] • Factory setting: [OFF]
[INCOM2 MIX] ([CLEAR COM MIX]) U O	Sets whether to mix the intercom 2 signal (CLEAR COM signal for the Clear-Com option) with the intercom 1 CH1 output. [OFF], [ON] • Factory setting: [OFF]
[INCOM1 RECEIVE CH2 SETTING]      [ENG MIX] U O	Sets whether to mix the ENG signal with the intercom 1 CH2 output. [OFF], [ON] • Factory setting: [OFF]
[PROD MIX] U O	Sets whether to mix the PROD signal with the intercom 1 CH2 output. [OFF], [ON] • Factory setting: [OFF]
[PGM1 MIX] U O	Sets whether to mix the PGM1 signal with the intercom 1 CH2 output. [OFF], [ON] • Factory setting: [ON]
[PGM2 MIX] U O	Sets whether to mix the PGM2 signal with the intercom 1 CH2 output. [OFF], [ON] • Factory setting: [ON]

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Item	Description of settings
[CRANE INCOM MIX] U <input type="radio"/>	Sets whether to mix the crane intercom signal with the intercom 1 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[INCOM2 MIX] ([CLEAR COM MIX]) U <input type="radio"/>	Sets whether to mix the intercom 2 signal (CLEAR COM signal for the Clear-Com option) with the intercom 1 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]

### [INTERCOM2]

This item is not displayed when Clear-Com is connected.

Item	Description of settings	
[INCOM2 TALK SETTING]	[MIC TYPE] U <input type="radio"/>	Selects the type of the intercom 2 microphone. <b>[DYN]</b> : Dynamic type <b>[ECM]</b> : Condenser type <b>[CBN]</b> : Carbon type • Factory setting: [DYN]
	[MIC POWER] U <input type="radio"/>	Sets the on/off for the power supply to the intercom 2 microphone. <b>[OFF], [ON]</b> • Factory setting: [OFF]
	[MIC GAIN] U <input type="radio"/>	Sets the volume of the intercom 2 microphone. <b>[-12dB]...[+12dB]</b> • Factory setting: [0dB]
	[SIDE TONE] U <input type="radio"/>	Sets the volume of the intercom 2 microphone side tone. <b>[OFF], [-36dB]...[0dB]</b> • Factory setting: [-6dB]
	[INCOM2 TO CCU] U <input type="radio"/>	Sets whether to transmit the intercom 2 microphone audio to the CCU. <b>[OFF], [ON]</b> • Factory setting: [ON]
[INCOM2 RECEIVE SETTING]	[OUTPUT GAIN] U <input type="radio"/>	Sets the gain of the intercom 2 audio output. <b>[NORMAL], [BOOST]</b> • Factory setting: [NORMAL]
	[OUTPUT CH] U <input type="radio"/>	Sets the allocation of the intercom 2 audio output. <b>[CH1/CH2], [CH2/CH1]</b> • Factory setting: [CH1/CH2]
[INCOM2 RECEIVE CH1 SETTING]	[PGM1 MIX] U <input type="radio"/>	Sets whether to mix the PGM1 signal with the intercom 2 CH1 output. <b>[OFF], [ON]</b> • Factory setting: [ON]
	[PGM2 MIX] U <input type="radio"/>	Sets whether to mix the PGM2 signal with the intercom 2 CH1 output. <b>[OFF], [ON]</b> • Factory setting: [ON]
	[CRANE INCOM MIX] U <input type="radio"/>	Sets whether to mix the crane intercom signal with the intercom 2 CH1 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
	[INCOM1 MIX] U <input type="radio"/>	Sets whether to mix the intercom 1 signal with the intercom 2 CH1 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[INCOM2 RECEIVE CH2 SETTING]	[ENG MIX] U <input type="radio"/>	Sets whether to mix the ENG signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
	[PROD MIX] U <input type="radio"/>	Sets whether to mix the PROD signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
	[PGM1 MIX] U <input type="radio"/>	Sets whether to mix the PGM1 signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [ON]
	[PGM2 MIX] U <input type="radio"/>	Sets whether to mix the PGM2 signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [ON]
	[CRANE INCOM MIX] U <input type="radio"/>	Sets whether to mix the crane intercom signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]
	[INCOM1 MIX] U <input type="radio"/>	Sets whether to mix the intercom 1 signal with the intercom 2 CH2 output. <b>[OFF], [ON]</b> • Factory setting: [OFF]

### [STANDBY INTERCOM]

Item	Description of settings	
[STBY INCOM SETTING]	[INPUT LEVEL] U <input type="radio"/>	Sets the input signal level of the stand-by intercom. <b>[-36dB]...[+12dB]</b> • Factory setting: [0dB]

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Item	Description of settings
[OUTPUT LEVEL] U <input type="radio"/>	Sets the output signal level of the stand-by intercom. [-36dB]...[+12dB] • Factory setting: [0dB]
[CANCEL LEVEL] U <input type="radio"/>	Sets the input/output cancel signal level of the stand-by intercom. [-20.0dB]...[+20.0dB] (0.5 dB step) • Factory setting: [0.0dB]
[STBY INCOM ON/OFF] U <input type="radio"/>	Enables/disables the stand-by intercom. [OFF], [ON] • Factory setting: [ON]

### [CRANE INTERCOM]

Item	Description of settings
[CRANE INCOM SETTING]	
[INPUT LEVEL] U <input type="radio"/>	Sets the input volume of the crane intercom (connected to the <EXT I/O> terminal). [-36dB]...[+12dB] • Factory setting: [0dB]
[OUTPUT LEVEL] U <input type="radio"/>	Sets the output volume of the crane intercom (connected to the <EXT I/O> terminal). [-36dB]...[+12dB] • Factory setting: [0dB]
[SIDE TONE] U <input type="radio"/>	Sets the side tone volume of the crane intercom (connected to the <EXT I/O> terminal). [OFF], [-36dB]...[0dB] (3 dB step) • Factory setting: [-6dB]
[ENG/PROD] U <input type="radio"/>	Sets the line input of the crane intercom audio. [ENG], [PROD], [BOTH] • Factory setting: [ENG]
[CRANE TO CCU] U <input type="radio"/>	Sets whether to output the crane intercom audio to the CCU. [OFF], [ON] • Factory setting: [OFF]
[CRANE INCOM OUTPUT SETTING]	
[PGM1 MIX] U <input type="radio"/>	Sets whether to mix the PGM1 signal with the crane intercom output. [OFF], [ON] • Factory setting: [ON]
[PGM2 MIX] U <input type="radio"/>	Sets whether to mix the PGM2 signal with the crane intercom output. [OFF], [ON] • Factory setting: [ON]
[INCOM1 MIX] U <input type="radio"/>	Sets whether to mix the intercom 1 signal with the crane intercom output. [OFF], [ON] • Factory setting: [OFF]
[INCOM2 MIX] ([CLEAR COM MIX]) U <input type="radio"/>	Sets whether to mix the intercom 2 signal (CLEAR COM signal for Clear-Com option) with the crane intercom output. [OFF], [ON] • Factory setting: [OFF]

### [CLEAR COM]

This item is not displayed when intercom 2 is connected.

Item	Description of settings
[CLEAR COM SETTING]	
[INPUT LEVEL] U <input type="radio"/>	Sets the input volume of Clear-Com. [-36dB]...[+12dB] • Factory setting: [0dB]
[CANCEL LEVEL] U <input type="radio"/>	Sets the input/output cancel signal level of Clear-Com. [-20.0dB]...[+20.0dB] (0.5 dB step) • Factory setting: [0.0dB]
[SIDE TONE] U <input type="radio"/>	Sets the side tone volume of Clear-Com. [OFF], [-36dB]...[0dB] (3 dB step) • Factory setting: [-6dB]
[CLEAR COM TO CCU] U <input type="radio"/>	Sets whether to output the Clear-Com audio to the CCU. [OFF], [ON] • Factory setting: [ON]
[CLEAR COM OUTPUT SETTING]	
[PGM1 MIX] U <input type="radio"/>	Sets whether to mix the PGM1 signal with Clear-Com output. [OFF], [ON] • Factory setting: [ON]
[PGM2 MIX] U <input type="radio"/>	Sets whether to mix the PGM2 signal with Clear-Com output. [OFF], [ON] • Factory setting: [ON]
[INCOM1 MIX] U <input type="radio"/>	Sets whether to mix the INCOM1 signal with Clear-Com output. [OFF], [ON] • Factory setting: [OFF]
[CRANE INCOM MIX] U <input type="radio"/>	Sets whether to mix the CRANE INCOM signal with Clear-Com output. [OFF], [ON] • Factory setting: [OFF]

**[EAR PHONES SETTING]**

Item	Description of settings
[LCH OUTPUT SELECT] U O	Sets the audio signal output to the L channel of the earphones. [INCOM1(CH1)], [INCOM2(CH1)] (for Clear-Com option: [CLEAR COM]), [INCOM1/2 MIX(CH1)] (for Clear-Com option: [INCOM1(CH1)/CLEAR COM MIX]), [PGM1], [PGM2], [PGM1/PGM2 MIX], [MIC1], [OFF] • Factory setting: [INCOM1(CH1)]
[RCH OUTPUT SELECT] U O	Sets the audio signal output to the R channel of the earphones. [INCOM1(CH2)], [INCOM2(CH2)] (for Clear-Com option: [CLEAR COM]), [INCOM1/2 MIX(CH2)] (for Clear-Com option: [INCOM1(CH2)/CLEAR COM MIX]), [PGM1], [PGM2], [PGM1/PGM2 MIX], [MIC2], [OFF] • Factory setting: [INCOM1(CH2)]
[LCH MONITOR LEVEL] U O	Sets the monitor output level for the L channel of the earphones. [-40dB]...[+12dB] • Factory setting: [0dB]
[RCH MONITOR LEVEL] U O	Sets the monitor output level for the R channel of the earphones. [-40dB]...[+12dB] • Factory setting: [0dB]

**[PGM OUTPUT]**

These items can be set only when the PGM option is used.

Item	Description of settings
[PGM OUTPUT SELECT] U O	Sets the audio output from the <PGM OUT> terminal. [PGM1], [PGM2], [PGM1/PGM2], [ENG], [PROD], [ENG/PROD], [CRANE] • Factory setting: [PGM1]
[PGM OUTPUT LEVEL] U O	Sets the output level from the <PGM OUT> terminal. [-36dB]...[+12dB] • Factory setting: [0dB]

**[LEVEL/PGM1/PGM2 VR SETTING]**

Item	Description of settings
[INTERCOM1 PGM1 VR] U O	Sets the audio signal to be controlled by the <PGM1> dial of <INTERCOM1>. [ENG], [PROD], [ENG/PROD], [PGM1], [PGM2], [PGM1/PGM2], [CRANE], [INCOM2] (for Clear-Com option: [CLEAR COM]) • Factory setting: [PGM1]
[INTERCOM1 PGM2 VR] U O	Sets the audio signal to be controlled by the <PGM2> dial of <INTERCOM1>. [ENG], [PROD], [ENG/PROD], [PGM1], [PGM2], [PGM1/PGM2], [CRANE], [INCOM2] (for Clear-Com option: [CLEAR COM]) • Factory setting: [PGM2]
[INTERCOM2 PGM1 VR] U O	Sets the audio signal to be controlled by the <PGM1> dial of <INTERCOM2>. [ENG], [PROD], [ENG/PROD], [PGM1], [PGM2], [PGM1/PGM2], [CRANE], [INCOM1] • Factory setting: [PGM1]
[INTERCOM2 PGM2 VR] U O	Sets the audio signal to be controlled by the <PGM2> dial of <INTERCOM2>. [ENG], [PROD], [ENG/PROD], [PGM1], [PGM2], [PGM1/PGM2], [CRANE], [INCOM1] • Factory setting: [PGM2]
[VR MIN MODE] U O	Sets the level when the volume level is minimum. [MUTE]: Muted [MIN GAIN]: Minimum level • Factory setting: [MUTE]
[B/U INTERCOM LEVEL] U O	Sets the audio signal to be controlled by the intercom level of the Build-up Unit. [OFF], [INCOM1], [INCOM2] (for Clear-Com option: [CLEAR COM]), [INCOM1/INCOM2] (for Clear-Com option: [INCOM1/CLEAR COM]) • Factory setting: [OFF]

**[OPT INTERCOM INPUT SETTING]**

Item	Description of settings
[OPT ENG INPUT LEVEL] U O	Sets the input level of the ENG audio signal sent from the CCU to the camera. [-36dB]...[+12dB] • Factory setting: [0dB]
[OPT PROD INPUT LEVEL] U O	Sets the input level of the PROD audio signal sent from the CCU to the camera. [-36dB]...[+12dB] • Factory setting: [0dB]
[OPT PGM1 INPUT LEVEL] U O	Sets the input level of the PGM1 audio signal sent from the CCU to the camera. [-36dB]...[+12dB] • Factory setting: [0dB]
[OPT PGM2 INPUT LEVEL] U O	Sets the input level of the PGM2 audio signal sent from the CCU to the camera. [-36dB]...[+12dB] • Factory setting: [0dB]

**[MIC SETTING]**

Item	Description of settings
[MIC1 GAIN] U O	Sets the gain when there is a microphone input to the <MIC 1> terminal. <b>[60dB], [40dB], [20dB]</b> • Factory setting: [60dB]
[MIC1 LINE INPUT LEVEL] U O	Sets the input level when there is a line input to the <MIC 1> terminal. <b>[0dB], [+4dB]</b> • Factory setting: [0dB]
[MIC1 AMP] U O	Adjusts the level of the input to the <MIC 1> terminal. <b>[-20dB]...[+20dB]</b> • Factory setting: [0dB]
[MIC2 GAIN] U O	Sets the gain when there is a microphone input to the <MIC 2> terminal. <b>[60dB], [40dB], [20dB]</b> • Factory setting: [60dB]
[MIC2 LINE INPUT LEVEL] U O	Sets the input level when there is a line input to the <MIC 2> terminal. <b>[0dB], [+4dB]</b> • Factory setting: [0dB]
[MIC2 AMP] U O	Adjusts the level of the input to the <MIC 2> terminal. <b>[-20dB]...[+20dB]</b> • Factory setting: [0dB]
[MIC2 INPUT SELECT] U O	Sets the input signal for the <MIC 2> terminal. This item can be set only when the PGM option is used. <b>[FRONT MIC], [OFF]</b> • Factory setting: [OFF]
[FRONT MIC POWER] U O	Enables/disables the phantom power (48 V) for the external microphone connected to the <MIC> terminal (front). <b>[ON], [OFF]</b> • Factory setting: [OFF]

**[PAINT]****[PAINT SWITCH]**

Item	Description of settings
[BLACK SHADING] U R	Enables/disables the black shading (saw-toothed waveform or parabolic waveform). <b>[OFF], [ON]</b> • Factory setting: [ON]
[WHITE SHADING] U S R	Enables/disables the white shading (saw-toothed waveform or parabolic waveform). <b>[OFF], [ON]</b> • Factory setting: [ON]
[FLARE] U S R	Enables/disables flare. <b>[OFF], [ON]</b> • Factory setting: [ON]
[GAMMA] U S R	Enables/disables gamma. <b>[OFF], [ON]</b> • Factory setting: [ON]
[BLACK GAMMA] U S R	Enables/disables black gamma. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[KNEE] U S R	Enables/disables knee. <b>[OFF], [ON]</b> • Factory setting: [ON]
[WHITE CLIP] U S R	Enables/disables white clips. <b>[OFF], [ON]</b> • Factory setting: [ON]
[DRS SW] U S R	Enables/disables dynamic range stretcher. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[DETAIL] U S R	Enables/disables the detail. <b>[OFF], [ON]</b> • Factory setting: [ON]
[SKIN TONE DETAIL] U S R	Enables/disables the skin tone detail. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[MATRIX] U S R	Enables/disables matrix (linear matrix/12-axis color correction). <b>[OFF], [ON]</b> • Factory setting: [OFF]
[LINEAR MATRIX] U S R	Enables/disables linear matrix. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[COLOR CORRECT] U S R	Enables/disables 12-axis color correction. <b>[OFF], [ON]</b> • Factory setting: [OFF]

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Item	Description of settings
[PRESET MATRIX] U S R	Sets the preset matrix. [NORM], [EBU], [NTSC] • Factory setting: [NORM]

### [BLACK SHADING]

Item	Description of settings
[CORRECT] U R	Enables/disables black shading (saw-toothed waveform or parabolic waveform) correction. [OFF], [ON] • Factory setting: [ON]
[H SAW R] U R	Adjusts the black shading gain for Rch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H SAW G] U R	Adjusts the black shading gain for Gch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H SAW B] U R	Adjusts the black shading gain for Bch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H PARA R] U R	Adjusts the black shading gain for Rch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[H PARA G] U R	Adjusts the black shading gain for Gch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[H PARA B] U R	Adjusts the black shading gain for Bch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V SAW R] U R	Adjusts the black shading gain for Rch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[V SAW G] U R	Adjusts the black shading gain for Gch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[V SAW B] U R	Adjusts the black shading gain for Bch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[V PARA R] U R	Adjusts the black shading gain for Rch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V PARA G] U R	Adjusts the black shading gain for Gch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V PARA B] U R	Adjusts the black shading gain for Bch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]

### [PEDESTAL]

Item	Description of settings
[MASTER PEDESTAL] U S R	Adjusts the black level of the master pedestal. For relative value display: [-99]...[99] For absolute value display: [-2.8%]...[51.3%] • Factory setting: [0]/[0%]
[R PEDESTAL] U S R	Sets the correction level of red to the master pedestal. [-800]...[+800] • Factory setting: [0]
[G PEDESTAL] U S R	Sets the correction level of green to the master pedestal. [-800]...[+800] • Factory setting: [0]
[B PEDESTAL] U S R	Sets the correction level of blue to the master pedestal. [-800]...[+800] • Factory setting: [0]
[PEDESTAL OFFSET] U S R	Sets whether to maintain the Rch, Gch, and Bch pedestal levels after adjusting the automatic black balance. [ON]: Maintains the values set in [R PEDESTAL], [G PEDESTAL], and [B PEDESTAL]. [OFF]: Sets [R PEDESTAL], [G PEDESTAL], and [B PEDESTAL] to [0]. • Factory setting: [OFF]
[MASTER PEDESTAL ABS DISP SWITCH] U S R	Sets the display of [MASTER PEDESTAL]. This cannot be set in HDR mode. [ON]: Absolute value [OFF]: Relative value • Factory setting: [OFF]



**[CHROMA]**

Item	Description of settings
[CHROMA LEVEL SWITCH] U S R	Enables/disables the gain adjustment of chroma. [OFF], [ON] • Factory setting: [OFF]
[CHROMA LEVEL] U S R	Sets the gain adjustment of chroma. [-100%]...[+40%] • Factory setting: [0%]

**[COLOR TEMP SETTING]**

Item	Description of settings
[COLOR TEMP PRESET]	
[COLOR TEMP PRE SWITCH] U S R	Enables/disables the color temperature adjustment. [OFF], [ON] • Factory setting: [OFF]
[COLOR TEMP] U S R	Sets the color temperature when [COLOR TEMP PRE SWITCH] is [ON]. When the <CC> filter is set to <B><3200K>: [2000K]...[15000K] When the <CC> filter is set to <C><4300K>: [2300K]...[99999K] When the <CC> filter is set to <D><6300K>: [2700K]...[99999K] • Factory setting: [3200K]
[R GAIN] U S R	Sets the correction level of red to the color temperature. [-400]...[+400] • Factory setting: [0]
[B GAIN] U S R	Sets the correction level of blue to the color temperature. [-400]...[+400] • Factory setting: [0]
[G AXIS] U S R	Sets the correction level of green to the color temperature. [-400]...[+400] • Factory setting: [0]
[COLOR TEMP ACH/ BCH]	—
	When the camera is connected to the system, only [COLOR TEMP ACH] can be set.
[COLOR TEMP ACH] U S R	Sets the color temperature when the <WHITE BAL> switch is <A>. When the <CC> filter is set to <B><3200K>: [2000K]...[15000K] When the <CC> filter is set to <C><4300K>: [2300K]...[99999K] When the <CC> filter is set to <D><6300K>: [2700K]...[99999K] • Factory setting: [3200K]
[R GAIN ACH] U S R	Sets the correction level of red to the color temperature. [-400]...[+400] • Factory setting: [0]
[B GAIN ACH] U S R	Sets the correction level of blue to the color temperature. [-400]...[+400] • Factory setting: [0]
[G AXIS ACH] U S R	Sets the correction level of green to the color temperature. [-400]...[+400] • Factory setting: [0]
[COLOR TEMP BCH] U S R	Sets the color temperature when the <WHITE BAL> switch is <B>. When the <CC> filter is set to <B><3200K>: [2000K]...[15000K] When the <CC> filter is set to <C><4300K>: [2300K]...[99999K] When the <CC> filter is set to <D><6300K>: [2700K]...[99999K] • Factory setting: [3200K]
[R GAIN BCH] U S R	Sets the correction level of red to the color temperature. [-400]...[+400] • Factory setting: [0]
[B GAIN BCH] U S R	Sets the correction level of blue to the color temperature. [-400]...[+400] • Factory setting: [0]
[G AXIS BCH] U S R	Sets the correction level of green to the color temperature. [-400]...[+400] • Factory setting: [0]
[COLOR TEMP USER SW]	
[COLOR TEMP] U S R	Sets the color temperature when any of the <USER 1>/<USER 2>/<USER 3>/<USER 4> buttons are set to [C.TEMP] and the setting is enabled. When the <CC> filter is set to <B><3200K>: [2000K]...[15000K] When the <CC> filter is set to <C><4300K>: [2300K]...[99999K] When the <CC> filter is set to <D><6300K>: [2700K]...[99999K] • Factory setting: [3200K]
[R GAIN] U S R	Sets the correction level of red to the color temperature. [-400]...[+400] • Factory setting: [0]
[B GAIN] U S R	Sets the correction level of blue to the color temperature. [-400]...[+400] • Factory setting: [0]
[G AXIS] U S R	Sets the correction level of green to the color temperature. [-400]...[+400] • Factory setting: [0]

**[RGB GAIN CONTROL SETTING]**

Item		Description of settings
[RGB GAIN ABS DISP SWITCH] U S R		Sets whether to show the absolute value display for Ach/Bch inRGB gain. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[G GAIN REL CONTROL SWITCH] U S R		Enables/disables the relative value control of Gch gain. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[RGB GAIN PRESET]	[R GAIN] U S R	Sets the preset value of Rch gain. [-1000]...[+1000] • Factory setting: [0]
	[G GAIN] U S R	Sets the preset value of Gch gain. [-1000]...[+1000] • Factory setting: [0]
	[B GAIN] U S R	Sets the preset value of Bch gain. [-1000]...[+1000] • Factory setting: [0]
[RGB GAIN ACH/BCH]	—	When the camera is connected to the CCU, only [R GAIN ACH]/[G GAIN ACH]/[B GAIN ACH]/[GAIN OFFSET ACH] can be set.
	[R GAIN ACH] U S R	Sets the correction level of red to the gain. [-1000]...[+1000] • Factory setting: [0]
	[G GAIN ACH] U S R	Sets the correction level of green to the gain. [-1000]...[+1000] • Factory setting: [0]
	[B GAIN ACH] U S R	Sets the correction level of blue to the gain. [-1000]...[+1000] • Factory setting: [0]
	[GAIN OFFSET ACH] U S R	Sets whether to maintain the Rch, Gch, and Bch gain levels when adjusting the automatic white balance. <b>[ON]</b> : Maintains the values set in [R GAIN ACH], [G GAIN ACH], and [B GAIN ACH]. <b>[OFF]</b> : Sets [R GAIN ACH], [G GAIN ACH], and [B GAIN ACH] to [0]. • Factory setting: [OFF]
	[R GAIN BCH] U S R	Sets the correction level of red to the gain. [-1000]...[+1000] • Factory setting: [0]
	[G GAIN BCH] U S R	Sets the correction level of green to the gain. [-1000]...[+1000] • Factory setting: [0]
	[B GAIN BCH] U S R	Sets the correction level of blue to the gain. [-1000]...[+1000] • Factory setting: [0]
	[GAIN OFFSET BCH] U S R	Sets whether to maintain the Rch, Gch, and Bch gain levels when adjusting the automatic white balance. <b>[ON]</b> : Maintains the values set in [R GAIN BCH], [G GAIN BCH], and [B GAIN BCH]. <b>[OFF]</b> : Sets [R GAIN BCH], [G GAIN BCH], and [B GAIN BCH] to [0]. • Factory setting: [OFF]

**[WHITE SHADING]**

Item		Description of settings
[CORRECT] U S R		Enables/disables the white shading (saw-toothed waveform or parabolic waveform) correction. <b>[OFF], [ON]</b> • Factory setting: [ON]
[H SAW R] U S R		Adjusts the white shading gain for Rch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H SAW G] U S R		Adjusts the white shading gain for Gch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H SAW B] U S R		Adjusts the white shading gain for Bch horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[H PARA R] U S R		Adjusts the white shading gain for Rch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[H PARA G] U S R		Adjusts the white shading gain for Gch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[H PARA B] U S R		Adjusts the white shading gain for Bch horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V SAW R] U S R		Adjusts the white shading gain for Rch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]

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Item	Description of settings
[V SAW G] U S R	Adjusts the white shading gain for Gch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[V SAW B] U S R	Adjusts the white shading gain for Bch vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[V PARA R] U S R	Adjusts the white shading gain for Rch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V PARA G] U S R	Adjusts the white shading gain for Gch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[V PARA B] U S R	Adjusts the white shading gain for Bch vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]

### [FLARE]

Item	Description of settings
[FLARE] U S R	Enables/disables flare correction. [OFF], [ON] • Factory setting: [ON]
[MASTER FLARE] U S R	Adjusts the master flare. [-100]...[+100] • Factory setting: [0]
[R FLARE] U S R	Adjusts the Rch flare. [-100]...[+100] • Factory setting: [0]
[G FLARE] U S R	Adjusts the Gch flare. [-100]...[+100] • Factory setting: [0]
[B FLARE] U S R	Adjusts the Bch flare. [-100]...[+100] • Factory setting: [0]

### [GAMMA/BLACK GAMMA]

Item	Description of settings
[GAMMA] U S R	Enables/disables gamma correction. This cannot be set in HDR mode. [OFF], [ON] • Factory setting: [ON]
[GAMMA MODE SELECT] U S R	Selects the type of gamma. [HD], [FILMLIKE1], [FILMLIKE2], [FILMLIKE3], [FILM REC], [VIDEO REC] • Factory setting: [HD]
[MASTER GAMMA] U S R	Adjusts the gamma characteristic. When [GAMMA MODE SELECT] is [HD]: [0.150]...[0.750] (0.0020 step) When [GAMMA MODE SELECT] is [FILMLIKE1]/[FILMLIKE2]/[FILMLIKE3]: [0.3000]...[0.7500] (0.0025 step) When [GAMMA MODE SELECT] is [FILE REC]/[VIDEO REC]: [0.150]...[0.750] (0.0020 step) When [MAIN MENU]→[PAINT]→[DRS]→[DRS] is [ON]: [0.150]...[0.750] (0.0020 step) • Factory setting: [0.450]
[R GAMMA] U S R	Adjusts the gamma characteristic of red to the master gamma. [-75]...[+75] • Factory setting: [0]
[B GAMMA] U S R	Adjusts the gamma characteristic of blue to the master gamma. [-75]...[+75] • Factory setting: [0]
[BLACK STRECH LEVEL] U S R	(Only when [FILM REC] is set) Sets the position of the gamma stretch. [0%]...[30%] • Factory setting: [0%]
[DYNAMIC LEVEL] U S R	(Only when [FILM REC] is set) Sets dynamic range. [200%], [300%], [400%], [500%] • Factory setting: [500%]
[KNEE POINT] U S R	(Only when [VIDEO REC] is set) Sets the knee point. [30]...[90] • Factory setting: [30]
[KNEE SLOPE] U S R	(Only when [VIDEO REC] is set) Sets the knee slope. [150%]/[200%]/[250%]/[300%]/[350%]/[400%]/[450%]/[500%]/[550%]/[600%] • Factory setting: [150%]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[BLACK GAMMA] U S R	Enables/disables black gamma. This cannot be set when [MAIN MENU] → [PAINT] → [DRS] → [DRS] → [ON] is set. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[MASTER BLACK GAMMA] U S R	Adjusts the gamma characteristic adjacent to black. <b>[-32]...[+32]</b> • Factory setting: [0]
[R BLACK GAMMA] U S R	Adjusts the gamma characteristic of red adjacent to black to the master gamma. <b>[-20]...[+20]</b> • Factory setting: [0]
[B BLACK GAMMA] U S R	Adjusts the gamma characteristic of blue adjacent to black to the master gamma. <b>[-20]...[+20]</b> • Factory setting: [0]
[INITIAL GAMMA] U S R	Sets the gamma initial slope. When [GAMMA MODE SELECT] is [HD]: <b>[4.0]/[4.5]/[5.0]</b> When [GAMMA MODE SELECT] is [FILMLIKE1]/[FILMLIKE2]/[FILMLIKE3]: <b>[4.5]</b> (fixed) When [GAMMA MODE SELECT] is [FILE REC]/[VIDEO REC]: <b>[4.5]</b> (fixed) • Factory setting: [4.5]

### [KNEE]

Item	Description of settings
[KNEE] — U S R	Enables/disables the knee function. This cannot be set in HDR mode. <b>[OFF], [ON]</b> • Factory setting: [ON]
[KNEE MASTER POINT] U S R	Sets the knee point position. <b>[080.00%]...[110.00%]</b> (0.25% step) • Factory setting: [95.00%]
[KNEE R POINT] U S R	Adjusts the knee point of red to [KNEE MASTER POINT]. <b>[-25.00]...[25.00%]</b> (0.25% step) • Factory setting: [0.00%]
[KNEE B POINT] U S R	Adjusts the knee point of blue to [KNEE MASTER POINT]. <b>[-25.00]...[25.00%]</b> (0.25% step) • Factory setting: [0.00%]
[KNEE MASTER SLOPE] U S R	Sets the knee slope. <b>[00]...[199]</b> • Factory setting: [130]
[KNEE R SLOPE] U S R	Adjusts the knee slope of red to [KNEE MASTER SLOPE]. <b>[-99]...[+99]</b> • Factory setting: [0]
[KNEE B SLOPE] U S R	Adjusts the knee slope of blue to [KNEE MASTER SLOPE]. <b>[-99]...[+99]</b> • Factory setting: [0]

### [WHITE CLIP]

Item	Description of settings
[WHITE CLIP] U S R	Enables/disables the white clip function. This cannot be set in HDR mode. <b>[OFF], [ON]</b> • Factory setting: [ON]
[MASTER WHITE CLIP LEVEL] U S R	Sets the white clip level. <b>[80%]...[109%]</b> • Factory setting: [109%]
[R WHITE CLIP LEVEL] U S R	Adjusts red to [MASTER WHITE CLIP LEVEL]. <b>[-15%]...[+15%]</b> • Factory setting: [0%]
[B WHITE CLIP LEVEL] U S R	Adjusts blue to [MASTER WHITE CLIP LEVEL]. <b>[-15%]...[+15%]</b> • Factory setting: [0%]
[HI-COLOR] U S R	Sets whether to improve the color reproduction in high-luminance areas. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[HI-COLOR LEVEL] U S R	Sets the level of the mode that expands the color dynamic range. <b>[1]...[32]</b> • Factory setting: [32]

[DRS]

Item	Description of settings
[DRS] U S R	Enables/disables the dynamic range stretcher function. Set this to [ON] to automatically adjust the contrast. This cannot be set in HDR mode. [OFF], [ON] • Factory setting: [OFF]
[EFFECT DEPTH] U S R	Sets the compression level of the high-luminance areas of the dynamic range stretcher function. Set a larger value to increase the compression level of the high-luminance areas. [1]...[5] • Factory setting: [5]

[DETAIL SETTING]

Item	Description of settings
[DETAIL] U S R	Enables/disables all detail functions. [OFF], [ON] • Factory setting: [ON]
[MASTER DETAIL] U S R	Sets the master detail. [-31]...[+31] • Factory setting: [0]
[H DETAIL LEVEL] U S R	Sets the correction level of the horizontal detail. [00]...[63] • Factory setting: [15]
[V DETAIL LEVEL] U S R	Sets the correction level of the vertical detail. [00]...[63] • Factory setting: [20]
[PEAK FREQUENCY] U S R	Sets the peak frequency of the horizontal detail. [12.4MHz], [12.5MHz], [12.7MHz], [12.9MHz], [13.0MHz], [13.3MHz], [13.6MHz], [13.9MHz], [14.2MHz], [14.6MHz], [15.0MHz], [15.5MHz], [16.1MHz], [16.7MHz], [17.3MHz], [18.3MHz], [18.6MHz], [18.8MHz], [19.0MHz], [19.2MHz], [19.5MHz], [19.9MHz], [20.3MHz], [20.9MHz], [21.5MHz], [22.4MHz], [23.6MHz], [25.4MHz], [28.6MHz], [37.1MHz] • Factory setting: [19.0MHz]
[V DETAIL FREQUENCY] U S R	Sets the vertical detail frequency. [00]...[31] • Factory setting: [18]
[CRISP] U S R	Sets the detail signal noise removal level. [00]...[63] • Factory setting: [0]
[DETAIL GAIN(+)] U S R	Sets the detail level in the + (upward) direction. [-31]...[+31] • Factory setting: [0]
[DETAIL GAIN(-)] U S R	Sets the detail level in the - (downward) direction. [-31]...[+31] • Factory setting: [0]
[DETAIL CLIP+] U S R	Adjust the detail clip to reduce glare produced by an excess of details. [00]...[63] • Factory setting: [0]
[DETAIL CLIP-] U S R	Adjusts the length of the undershoot of the detail edge component. [00]...[63] • Factory setting: [0]
[DETAIL SOURCE] U S R	Sets the RGB signal component ratio to create the detail. [(G+R)/2], [(G+B)/2], [(2G+B+R)/4], [(3G+R)/4], [R], [G] • Factory setting: [(G+R)/2]
[KNEE APERTURE LEVEL] U S R	Adjusts the knee aperture level. This cannot be set in HDR mode. [00]...[39] • Factory setting: [5]
[DETAIL KNEE] U S R	Adjusts the detail components of knee. [00]...[15] • Factory setting: [0]
[LEVEL DEPENDENT SWITCH] U S R	Enables/disables the function to remove details of dark areas. This cannot be set in HDR mode. [OFF], [ON] • Factory setting: [OFF]
[LEVEL DEPENDENT] U S R	Sets the level to remove details of dark areas. [00]...[15] • Factory setting: [8]
[DARK DETAIL SWITCH] U S R	Enables/disables the function to emphasize details of dark areas. This cannot be set in HDR mode. [OFF], [ON] • Factory setting: [OFF]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[DARK DETAIL] U S R	Sets the level to emphasize details of dark areas. [00]...[7] • Factory setting: [3]

### [SKIN TONE DETAIL SETTING]

Item	Description of settings
[SKIN TONE DETAIL] U S R	Enables/disables the skin tone detail function. This cannot be set if [MAIN MENU] → [PAINT] → [DETAIL SETTING] → [DETAIL] → [OFF] is set. [OFF], [ON] • Factory setting: [OFF]
[SKIN GET]	— Selects whether to automatically obtain the color saturation and hue information from the cursor position. [NO], [YES]
[MEMORY SELECT] U S R	Selects the skin tone table of the subject to apply the skin tone table to. [A], [B], [C] • Factory setting: [A]
[CURSOR] U S R	Shows/hides the box cursor in the center of the screen. [OFF], [ON] • Factory setting: [OFF]
[H POSITION] U S R	Adjusts the horizontal position of the cursor. [0%]...[100%] (0.25% step) • Factory setting: [50%]
[V POSITION] U S R	Adjusts the vertical position of the cursor. [0%]...[100%] (0.25% step) • Factory setting: [50%]
[ZEBRA]	— Enables/disables the zebra display. [OFF], [ON] • Factory setting: [OFF]
[ZEBRA EFFECT MEMORY] U S R	Selects the table of the zebra display. [A], [B], [C], [A+B], [A+C], [B+C], [A+B+C] • Factory setting: [A+B+C]
[SKIN TONE EFFECT MEMORY] U S R	Selects the skin tone table used to apply the skin tone detail. [A], [B], [C], [A+B], [A+C], [B+C], [A+B+C] • Factory setting: [A+B+C]
[SKIN TONE CRISP] U S R	Adjusts the skin tone detail. [-63]...[+63] • Factory setting: [+63]
[I CENTER] U S R	Sets the center position on the I axis (the area where the skin tone effect is applied). [0]...[255] • Factory setting: [33]
[I WIDTH] U S R	Sets the width of the area where the skin tone effect is applied on the I axis with [I CENTER] being the center. [0]...[255] • Factory setting: [10]
[Q WIDTH] U S R	Sets the width of the area where the skin tone effect is applied on the Q axis with [I CENTER] being the center. [0]...[255] • Factory setting: [28]
[Q PHASE] U S R	Sets the phase of the area where the skin tone effect is applied with the Q axis being the reference. [0]...[359] • Factory setting: [89]

### [LINEAR MATRIX]

Item	Description of settings
[PRESET MATRIX] U S R	Sets the preset matrix. [NORM], [EBU], [NTSC] • Factory setting: [NORM]
[MATRIX] U S R	Enables/disables the matrix function. [OFF], [ON] • Factory setting: [OFF]
[LINEAR MATRIX] U S R	— Enables/disables the linear matrix function. [OFF], [ON] • Factory setting: [OFF]
[LINEAR TABLE] U S R	Selects the table for linear matrix. [A], [B] • Factory setting: [A]
[COLOR CORRECT] U S R	— Enables/disables the 12-axis color correction function. [OFF], [ON] • Factory setting: [OFF]
[COLOR CORRECT TABLE] U S R	Selects the table for color correction. [A], [B] • Factory setting: [A]

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Item	Description of settings
[MATRIX (R-G)_N] U S R	Adjusts the linear matrix between red and green. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (R-G)_P] U S R	Adjusts the linear matrix between red and green. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (R-B)_N] U S R	Adjusts the linear matrix between red and blue. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (R-B)_P] U S R	Adjusts the linear matrix between red and blue. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (G-R)_N] U S R	Adjusts the linear matrix between green and red. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (G-R)_P] U S R	Adjusts the linear matrix between green and red. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (G-B)_N] U S R	Adjusts the linear matrix between green and blue. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (G-B)_P] U S R	Adjusts the linear matrix between green and blue. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (B-R)_N] U S R	Adjusts the linear matrix between blue and red. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (B-R)_P] U S R	Adjusts the linear matrix between blue and red. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (B-G)_N] U S R	Adjusts the linear matrix between blue and green. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]
[MATRIX (B-G)_P] U S R	Adjusts the linear matrix between blue and green. This item is not available when [MATRIX] is set to [OFF]. [-31]...[+31] • Factory setting: [0]

### [COLOR CORRECTION]

Item	Description of settings
[PRESET MATRIX] U S R	Sets the preset matrix. [NORM], [EBU], [NTSC] • Factory setting: [NORM]
[MATRIX] U S R	Enables/disables the matrix function. [OFF], [ON] • Factory setting: [OFF]
[LINEAR MATRIX] U S R	— Enables/disables the linear matrix function. [OFF], [ON] • Factory setting: [OFF]
[LINEAR TABLE] U S R	— Selects the table for linear matrix. [A], [B] • Factory setting: [A]
[COLOR CORRECT] U S R	— Enables/disables the 12-axis color correction function. [OFF], [ON] • Factory setting: [OFF]
[COLOR CORRECT TABLE] U S R	— Selects the table for color correction. [A], [B] • Factory setting: [A]
[G SAT] U S R	Adjusts green color saturation. [-127]...[+126] • Factory setting: [0]

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Item	Description of settings
[G_CY SAT] U S R	Adjusts the color saturation between green and cyan. [-127]...[+126] • Factory setting: [0]
[CY SAT] U S R	Adjusts cyan color saturation. [-127]...[+126] • Factory setting: [0]
[CY_B SAT] U S R	Adjusts the color saturation between cyan and blue. [-127]...[+126] • Factory setting: [0]
[B SAT] U S R	Adjusts blue color saturation. [-127]...[+126] • Factory setting: [0]
[B_MG SAT] U S R	Adjusts the color saturation between blue and magenta. [-127]...[+126] • Factory setting: [0]
[MG_SAT] U S R	Adjusts magenta color saturation. [-127]...[+126] • Factory setting: [0]
[MG_R SAT] U S R	Adjusts the color saturation between magenta and red. [-127]...[+126] • Factory setting: [0]
[R SAT] U S R	Adjusts red color saturation. [-127]...[+126] • Factory setting: [0]
[R_YE SAT] U S R	Adjusts the color saturation between red and yellow. [-127]...[+126] • Factory setting: [0]
[YE SAT] U S R	Adjusts yellow color saturation. [-127]...[+126] • Factory setting: [0]
[YE_G SAT] U S R	Adjusts the color saturation between yellow and green. [-127]...[+126] • Factory setting: [0]
[G PHASE] U S R	Adjusts green hue. [-127]...[+127] • Factory setting: [0]
[G_CY PHASE] U S R	Adjusts the hue between green and cyan. [-127]...[+127] • Factory setting: [0]
[CY PHASE] U S R	Adjusts cyan hue. [-127]...[+127] • Factory setting: [0]
[CY_B PHASE] U S R	Adjusts the hue between cyan and blue. [-127]...[+127] • Factory setting: [0]
[B PHASE] U S R	Adjusts blue hue. [-127]...[+127] • Factory setting: [0]
[B_MG PHASE] U S R	Adjusts the hue between blue and magenta. [-127]...[+127] • Factory setting: [0]
[MG_PHASE] U S R	Adjusts magenta hue. [-127]...[+127] • Factory setting: [0]
[MG_R PHASE] U S R	Adjusts the hue between magenta and red. [-127]...[+127] • Factory setting: [0]
[R PHASE] U S R	Adjusts red hue. [-127]...[+127] • Factory setting: [0]
[R_YE PHASE] U S R	Adjusts the hue between red and yellow. [-127]...[+127] • Factory setting: [0]
[YE PHASE] U S R	Adjusts yellow hue. [-127]...[+127] • Factory setting: [0]
[YE_G PHASE] U S R	Adjusts the hue between yellow and green. [-127]...[+127] • Factory setting: [0]
[COLOR CORRECTION GET]	— Obtains the color information automatically from the cursor position and moves the menu arrow to the axis whose color is to be adjusted. [NO], [YES]



## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[CURSOR] U R	Shows/hides the box cursor in the center of the screen. [OFF], [ON] • Factory setting: [OFF]
[H POSITION] U R	Adjusts the horizontal position of the cursor. [0%]...[100%] (0.25% step) • Factory setting: [50%]
[V POSITION] U R	Adjusts the vertical position of the cursor. [0%]...[100%] (0.25% step) • Factory setting: [50%]

### [SKIN CORRECTION]

Item	Description of settings
[SKIN AREA SW] U S R	Enables/disables the function to finely adjust the color of the skin tone area. [OFF], [ON] • Factory setting: [OFF]
[SKIN AREA TABLE] U S R	Selects the table for the skin tone area. [A], [B] • Factory setting: [A]
[SKIN AREA HUE] U S R	Finely adjusts the hue of the skin tone area. [-127]...[+127] • Factory setting: [0]
[SKIN AREA TONE] U S R	Finely adjusts the tone of the skin tone area. [-127]...[+126] • Factory setting: [0]

### [DNR]

Item	Description of settings
[DNR SW] U S R	Enables/disables the noise reduction function. [OFF], [ON] • Factory setting: [OFF]
[DNR LEVEL] U S R	Sets the level of noise reduction. [1]...[5] • Factory setting: [3]

### [SCENE FILE]

Item	Description of settings
[MODE]	Selects the operation mode. [LOAD], [STORE] • Factory setting: [LOAD]
[FILE NO.]	Selects a file number. When [MODE] is [LOAD]: [OFF], [1]...[8] When [MODE] is [STORE]: [1]...[8] • Factory setting: [1]
[FILE NAME]	Enters a file name. (15 characters or less) • Factory setting: [SCENE1]
[EXECUTE]	Selects whether to execute with the configured settings. [NO], [YES]

### [ROP CONTROL]

Item	Description of settings
[CONTROL ROTATION MODE] U S R	Sets the control rotation mode of ROP. [MODE1], [MODE2] • Factory setting: [MODE2]

### [SYSTEM MODE]

[FORMAT] cannot be selected right after the power is turned on, because boot of the camera is in progress.

This is not an error. Perform operation after a while.

Item	Description of settings
[FORMAT]	Sets the system format. [1080/59.94p], [1080/50p], [1080/29.97p], [1080/25p], [1080/23.98p], [1080/59.94p-240fps], [1080/50p-200fps] • Factory setting: [1080/59.94p]
[HDR SW]	Enables/disables the HDR mode. [OFF], [ON] • Factory setting: [OFF]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[SHOOTING MODE] U R	Sets the shooting mode. <b>[NORMAL]</b> , <b>[HIGH SENS]</b> • Factory setting: [NORMAL]
[CABLE CONNECTION] U R	Set the connection method used between the camera and CCU. <b>[HYBRID]</b> , <b>[FIBER]</b> • Factory setting: [HYBRID]

### [IN/OUT SELECT]

Item	Description of settings
[CALL TALLY] U R	Sets whether the rear tally lamp is to be lit up when called. <b>[OFF]</b> : Turned off. <b>[R]</b> : Red tally lights up. <b>[T]</b> : Up tally lights up. <b>[R&amp;T]</b> : Red tally and up tally light up. • Factory setting: [OFF]
[TALLY GUARD] U R	Enables/disables automatic white balance, automatic black balance, and automatic setup when the tally lamp is lit. <b>[OFF]</b> , <b>[ON]</b> • Factory setting: [OFF]
[HD-SDI1 OUT] U R	Configures the video output from the <HD SDI1> terminal. <b>[CAM]</b> : Outputs camera images. <b>[HD PROMPT]</b> : Outputs HD prompter video images. • Factory setting: [CAM]
[HD-SDI1 OUTPUT FORMAT] U R	Sets the signal format of the video output from the <HD SDI1> terminal. <b>[1080i]</b> , <b>[1080P]</b> , <b>[720P]</b> • Factory setting: [1080i]
[HD-SDI1 OUTPUT ITEM] U R	Selects details of the characters superimposed on images output from the <HD SDI1> terminal. <b>[MENU ONLY]</b> : Displays only on the menu. <b>[STATUS]</b> : Displays all characters that are the same as in the viewfinder display. • Factory setting: [MENU ONLY]
[HD-SDI1 CHAR] U R	Sets whether to superimpose characters on images output from the <HD SDI1> terminal. This cannot be set when the output format is [720P]. <b>[OFF]</b> , <b>[ON]</b> • Factory setting: [OFF]
[HD-SDI1 CHAR SIZE] U R	Sets the size of the characters superimposed on images output from the <HD SDI1> terminal. <b>[LARGE]</b> , <b>[SMALL]</b> • Factory setting: [SMALL]
[HD-SDI1 3G-SDI] U R	Sets the output format when the video output from the <HD SDI1> terminal is in 3G format. <b>[LEVEL-A]</b> , <b>[LEVEL-B]</b> • Factory setting: [LEVEL-A]
[HD-SDI2 OUT] U R	Configures the video output from the <HD SDI2> terminal. <b>[CAM]</b> : Outputs camera images. <b>[VF]</b> : Outputs viewfinder images. <b>[RET]</b> : Outputs return images. <b>[RET1]</b> , <b>[RET2]</b> , <b>[RET3]</b> , <b>[RET4]</b> : Outputs fixed return images. • Factory setting: [VF]
[HD-SDI2 OUTPUT FORMAT] U R	Sets the signal format of the video output from the <HD SDI2> terminal. <b>[1080i]</b> , <b>[1080P]</b> , <b>[720P]</b> • Factory setting: [1080i]
[HD-SDI2 OUTPUT ITEM] U R	Selects details of the characters superimposed on images output from the <HD SDI2> terminal. <b>[MENU ONLY]</b> : Displays only on the menu. <b>[STATUS]</b> : Displays all characters that are the same as in the viewfinder display. • Factory setting: [MENU ONLY]
[HD-SDI2 CHAR] U R	Sets whether to superimpose characters on images output from the <HD SDI2> terminal. This cannot be set when the output format is [720P]. <b>[OFF]</b> , <b>[ON]</b> • Factory setting: [OFF]
[HD-SDI2 CHAR SIZE] U R	Selects the size of the characters superimposed on images output from the <HD SDI2> terminal. <b>[LARGE]</b> , <b>[SMALL]</b> • Factory setting: [SMALL]
[HD-SDI2 3G-SDI] U R	Sets the output format when the video output from the <HD SDI2> terminal is in 3G format. <b>[LEVEL-A]</b> , <b>[LEVEL-B]</b> • Factory setting: [LEVEL-A]
[HD-SDI2 POWER] U R	Enables/disables the power supply of the <HD SDI2> terminal. <b>[ACTIVE]</b> , <b>[SAVE]</b> • Factory setting: [ACTIVE]
[AUX I/O] U R	Configures the video output from the <AUX> terminal. <b>[PMT2 OUT]</b> , <b>[HD TRUNK]</b> • Factory setting: [PMT2 OUT]
[VF OUT] U R	Configures the video output from the <VF> terminal. <b>[Y/C]</b> , <b>[R]</b> , <b>[G]</b> , <b>[B]</b> , <b>[NAM]</b> • Factory setting: [ENC]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[TRUNK1] U R	Sets the serial interface standard of the <TRUNK> terminal. <b>[RS422], [RS232C]</b> • Factory setting: [RS422]
[TRUNK2] U R	Sets the serial interface standard of the <TRUNK> terminal. <b>[RS422], [RS232C]</b> • Factory setting: [RS422]
[BACK LIGHT] U R	Sets the brightness of the backlight. <b>[1]...[70]</b> • Factory setting: [20]
[LAN] U R	Sets the usage for the <LAN> terminal. <b>[TRUNK], [PC]</b> • Factory setting: [PC]
[B/U LENS] U R	Sets the lens type of the Build-up Unit. <b>[PORTABLE], [BOX]</b> • Factory setting: [BOX]
[T-BAR CONNECT] U R	Sets whether to connect the T-BAR unit. <b>[OFF], [ON]</b> • Factory setting: [OFF]
[LENS I/F] U R	Sets the lens interface. <b>[ANALOG], [SERIAL]</b> • Factory setting: [SERIAL]
[DISPLAY STATUS/BAR OSD]	[CAM ID CHARACTER] U R Sets the camera name.
[GEN-LOCK]	[H PHASE-COARSE] U R Roughly adjusts the phase of horizontal synchronization. <b>[-5]...[+5]</b> • Factory setting: [0]
	[H PHASE-FINE] U R Finely adjusts the phase of horizontal synchronization. <b>[-100]...[+100]</b> • Factory setting: [0]

### [AUTO SET UP]

This cannot be set in HDR mode.

Item	Description of settings
[FILTER] U R	Sets the ND/CC filter mode for automatic setup. <b>[REF], [CURRENT]</b> • Factory setting: [REF]
[SETUP MODE] U R	Sets the mode for automatic setup. <b>[FULL], [EASY]</b> • Factory setting: [FULL]
[REFERENCE FILE] U R	Sets the reference file for automatic setup. <b>[FACTORY], [USER1], [USER2], [USER3], [REF1], [REF2], [REF3]</b> • Factory setting: [FACTORY]
[MASTER PEDESTAL TARGET] U R	Sets the master pedestal for automatic setup. <b>[0.0%]...[7.5%]</b> • Factory setting: [3.0%]
[AUTO SET UP EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>

### [NETWORK SETUP]

[NETWORK SETUP] cannot be selected right after the power is turned on, because boot of the camera is in progress.

This is not an error. Perform operation after a while.

Item	Description of settings
[IP ADDRESS]	Sets the IP address. • Factory setting: [192.168.0.30]
[SUBNET MASK]	Sets the subnet mask. • Factory setting: [255.255.255.0]
[DEFAULT GATEWAY]	Sets the default gateway. • Factory setting: [192.168.0.1]
[HTTP PORT]	Sets the port number of HTTP (port number when accessing with a browser). <b>[1]...[65535]</b> • Factory setting: [80]
[ROP PORT]	Sets the port number when connecting to ROP. <b>[49152], [49200]...[49299]</b> • Factory setting: [49152]
[SET EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>
[MAC ADDRESS]	Displays the MAC address. (This cannot be changed.)

**[FILE]****[SD CARD]**

[SD CARD] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Item	Description of settings
[MODE]	Selects the operation mode. <b>[FORMAT], [LOAD], [STORE]</b> • Factory setting: [LOAD]
[FILE SEL]	Selects a file. <b>[ALL], [ALL SCENE], [ALL USER], [ALL LENS], [SCENE], [USER], [LENS]</b> • Factory setting: [SCENE]
[FILE NO.]	Selects a file number. <b>[CURRENT], [1]...[8]</b> (Scene file) <b>[1]...[3]</b> (User file) <b>[1]...[32]</b> (Lens file) <b>[CURRENT]</b> (Operation file) • Factory setting: [1]
[FILE NAME]	Enters a file name. (15 characters or less) • Factory setting: [SCENE1]
[SD FILE NO.]	Selects the file number of the SD memory card. <b>[1]...[100]</b> • Factory setting: [1]
[EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>

**[SCENE FILE]**

Item	Description of settings
[MODE]	Selects the operation mode. <b>[LOAD], [STORE]</b> • Factory setting: [LOAD]
[FILE NO.]	Selects a file. When [MODE] is set to [LOAD]: <b>[OFF], [1]...[8]</b> • Factory setting: [OFF] When [MODE] is set to [STORE]: <b>[1]...[8]</b> • Factory setting: [1]
[FILE NAME]	Enters a file name. (15 characters or less) • Factory setting: [SCENE1]
[EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>

**[USER FILE]**

Item	Description of settings
[MODE]	Selects the operation mode. <b>[LOAD], [STORE]</b> • Factory setting: [LOAD]
[FILE NO.]	Selects a file. <b>[1], [2], [3]</b> • Factory setting: [1]
[FILE NAME]	Enters a file name. (15 characters or less) • Factory setting: [USER1]
[EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>

**[REFERENCE FILE]**

Item	Description of settings
[MODE]	Selects the operation mode. <b>[LOAD], [STORE]</b> • Factory setting: [LOAD]
[FILE NO.]	Selects a file. <b>[1], [2], [3]</b> • Factory setting: [1]
[FILE NAME]	Enters a file name. (15 characters or less) • Factory setting: [REFERENCE1]
[EXECUTE]	Selects whether to execute with the configured settings. <b>[NO], [YES]</b>

**[CAC FILE]**

[CAC FILE] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Item	Description of settings
[CARD FILE SELECT]	Selects a file. [1]...[100] • Factory setting: [1]
[READ]	Loads CAC files. [YES], [NO]
[DELETE]	Deletes the CAC file in the SD memory card. [NO], [YES]

**[MAINTENANCE]**

**[CAC ADJUST]**

[CAC ADJUST] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Item	Description of settings
[CAC CONTROL] U R	Selects whether to perform maintenance of CAC files stored in the camera's internal memory. [OFF], [ON] • Factory setting: [ON]
[CAC FILE DELETE]	Selects a file to delete. [YES], [NO]
[CAC FILE NUMBER] U R	Selects a file. [1]...[32] • Factory setting: [1]

**[LENS FILE ADJUST]**

Item	Description of settings
[LENS FILE ADJUST]	[LENS FILE SW] Switches the enable/disable of the lens file. [OFF], [ON] • Factory setting: [OFF]
	[LENS FILE MODE] Selects the operation mode. [LOAD], [STORE], [CANCEL] • Factory setting: [LOAD]
	[FILE NO.] Selects a file. When [LENS FILE MODE] is [LOAD]: [1]...[32] When [LENS FILE MODE] is [STORE]: [1]...[32] • Factory setting: [1]
	[FILE NAME] Enters a file name. (15 characters or less) • Factory setting: [LENS FILE 1]
	[EXECUTE] Selects whether to execute. [NO], [YES]
	[FLARE R] U R Adjusts Rch flare of the data selected in [FILE NO.]. [-100]...[+100] • Factory setting: [0]
	[FLARE G] U R Adjusts Gch flare of the data selected in [FILE NO.]. [-100]...[+100] • Factory setting: [0]
	[FLARE B] U R Adjusts Bch flare of the data selected in [FILE NO.]. [-100]...[+100] • Factory setting: [0]
	[GAIN R] U R Adjusts Rch gain of the data selected in [FILE NO.]. [-100]...[+100] • Factory setting: [0]
	[GAIN B] U R Adjusts Bch gain of the data selected in [FILE NO.]. [-100]...[+100] • Factory setting: [0]
	[W H SAW R] U R Adjusts Rch white shading for the data selected in [FILE NO.] horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
	[W H SAW G] U R Adjusts Gch white shading for the data selected in [FILE NO.] horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
	[W H SAW B] U R Adjusts Bch white shading for the data selected in [FILE NO.] horizontally using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]

## Chapter 4 Menu Operations — Menu list

Item	Description of settings
[W H PARA R] UR	Adjusts Rch white shading for the data selected in [FILE NO.] horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[W H PARA G] UR	Adjusts Gch white shading for the data selected in [FILE NO.] horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[W H PARA B] UR	Adjusts Bch white shading for the data selected in [FILE NO.] horizontally using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[W V SAW R] UR	Adjusts Rch white shading for the data selected in [FILE NO.] vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[W V SAW G] UR	Adjusts Gch white shading for the data selected in [FILE NO.] vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[W V SAW B] UR	Adjusts Bch white shading for the data selected in [FILE NO.] vertically using a saw-toothed waveform. [-100]...[+100] • Factory setting: [0]
[W V PARA R] UR	Adjusts Rch white shading for the data selected in [FILE NO.] vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[W V PARA G] UR	Adjusts Gch white shading for the data selected in [FILE NO.] vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[W V PARA B] UR	Adjusts Bch white shading for the data selected in [FILE NO.] vertically using a parabolic waveform. [-100]...[+100] • Factory setting: [0]
[EXTENDER1] UR	Sets the magnification of lens extender 1. [NONE], [0.1]...[9.9] • Factory setting: [2.0]
[EXTENDER2] UR	Sets the magnification of lens extender 2. [NONE], [0.1]...[9.9] • Factory setting: [NONE]
[EXTENDER3] UR	Sets the magnification of lens extender 3. [NONE], [0.1]...[9.9] • Factory setting: [NONE]
[EXTENDER4] UR	Sets the magnification of lens extender 4. [NONE], [0.1]...[9.9] • Factory setting: [NONE]

### [F DROP ADJUST]

Item	Description of settings
[F DROP RANGE] UR	Sets the determination reference value for the F drop of the lens. [1]...[40] • Factory setting: [10]

### [BLACK SHADING]

Item	Description of settings
[CORRECT] UR	Enables/disables the auto correction function of black shading. [OFF], [ON] • Factory setting: [ON]
[DETECTION]	Selects whether to execute auto correction function of black shading. [NO], [YES]
[SAVE]	Selects whether to save the auto correction data. [NO], [YES]
[CLEAR]	Selects whether to clear the auto correction data. [NO], [YES]

### [FAN SETTING]

Item	Description of settings
[FAN] UR	Sets the operation mode of the air cooling fan. [NORMAL], [SILENT], [POWERFUL], [OFF] • Factory setting: [NORMAL]

**[B/U LIGHT ADJUST]**

Item	Description of settings
[BOX SW(PUSH SW)] U R	Sets the luminance of the box switch of the Build-up Unit. [1]...[10] • Factory setting: [5]
[LED(POWER)] U R	Sets the luminance of the lamp (<POWER>) of the Build-up Unit. [1]...[10] • Factory setting: [5]
[LED(ND/CC)] U R	Sets the luminance of the lamp (<ND>/<CC>) of the Build-up Unit. [1]...[10] • Factory setting: [5]
[CAM NO.(REAR)] U R	Sets the luminance of the rear side camera number of the Build-up Unit. [1]...[10] • Factory setting: [5]
[CAM NO.(FRONT)] U R	Sets the luminance of the front side camera number of the Build-up Unit. [1]...[10] • Factory setting: [5]

**[DATE/TIME]**

[DATE/TIME] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Item	Description of settings
[PRESENT]	Displays the present date and time.
[DATE YY]	Sets the year. [15]...[99] • Factory setting: [16]
[DATE MM]	Sets the month. [01]...[12] • Factory setting: [01]
[DATE DD]	Sets the day. [01]...[31] • Factory setting: [01]
[TIME HH]	Sets the hour. [00]...[23] • Factory setting: [00]
[TIME MM]	Sets the minute. [00]...[59] • Factory setting: [00]
[SET EXECUTE]	Selects whether to save the configured details. [NO], [YES]
[RESET]	Selects whether to reset the settings. [NO], [YES]

**[INITIALIZE]**

[READ FACTORY ALL DATA] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Item	Description of settings
[MENU INITIALIZE]	Restores the value of [MAIN MENU] to their factory settings. [YES], [NO]
[READ USER ALL DATA]	Restores the values of [MAIN MENU], scene file and user file to their factory settings. [YES], [NO]
[READ FACTORY ALL DATA]	Restores the values of [MAIN MENU], scene file, user file, and the factory adjusted values to their factory settings. [YES], [NO]

**[UPDATE]**

[UPDATE] cannot be selected right after the power is turned on, because boot of the camera is in progress.  
This is not an error. Perform operation after a while.

Description of settings
Updates the software. • Execute the update of the software with the update image file stored in the SD memory card. • The busy lamp (next to the SD memory card slot) and the back tally lamp flash during the update of software is executing. [YES], [NO] • Factory setting: [NO]

**[DIAGNOSTIC]****[VERSION]**

Item	Description of settings
[CAM MAIN]	Displays the software version of the camera.
[NETWORK]	Displays the version of the network software.
[ROM TABLE]	Displays the version of the camera table.
[CAM FPGA]	Displays the FPGA version of the camera.
[AVIO FPGA]	Displays the version of AVIO FPGA.
[INCOM FPGA]	Displays the FPGA version of the intercom.
[B/U]	Displays the software version of the Build-up Unit. This is displayed only when the Build-up is connected.

**[HOUR METER]**

Item	Description of settings
[HEAD]	Display the operating time of the camera head. [0000000]...[1193046]



## Chapter 5 **Web Screen**

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This chapter describes how to configure the settings from a computer.

## Setting the network

### Software

To install the software, download EASY IP Setup Software (EasyIPSetup.exe) and the installer for the plugin software for the display (nwcV4SSetup.exe) from the following website. (Windows)

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

#### ■ EASY IP Setup Software (EasyIPSetup.exe)

This software is used for configuring the network settings of the camera. (page 74)

#### ■ Installer for the plugin software for the display (nwcV4SSetup.exe)

Install the plugin software (Network Camera View 4S) required to display the IP images of the camera on a web browser. (page 75)

### Configuring the camera using EASY IP Setup Software

Network setting of this unit can be set using EASY IP Setup Software.

To configure multiple cameras, settings must be configured for each.

Set the setting of this unit and the computer individually with [MAIN MENU] → [NETWORK SETUP] when it cannot be set with EASY IP Setup Software.

#### NOTE

- After the network has been configured, if an IP address conflicts with another device in the same network, the camera does not operate properly. Be sure to avoid IP address conflicts.
- Do not configure the network of a single camera simultaneously from multiple computers running EASY IP Setup Software.
- EASY IP Setup Software cannot be used from a separate subnet via a router.
- This camera will not be displayed and configured on previous versions of EASY IP Setup Software (Ver.4.25 and earlier).

### Setting procedure

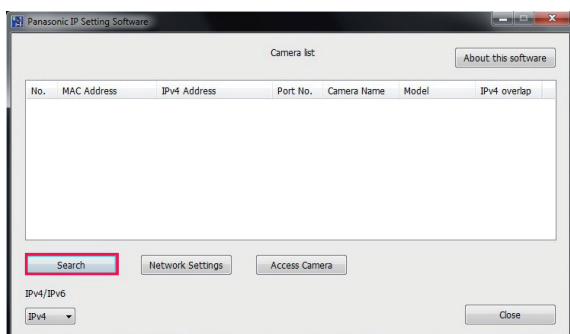


Fig. 1

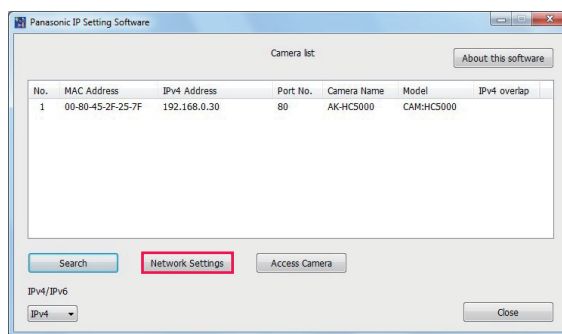


Fig. 2

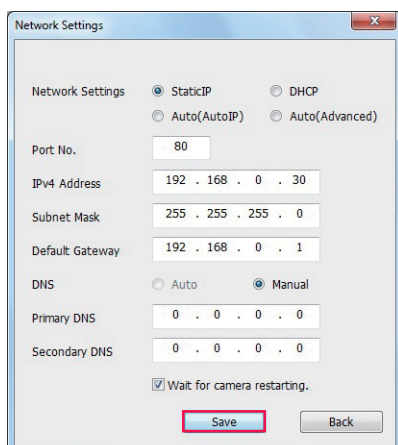


Fig. 3

**1** Start EASY IP Setup Software.

**2** Click the [Search] button. (Fig. 1)

**3** Click the MAC address/IPv4 address of the camera to configure, and then click the [Network settings] button. (Fig. 2)

- If there is an IP address conflict, the number of the camera with the conflicted address is displayed in the [Duplicate IPv4 address] field of the corresponding camera.
- Click the [View Camera Screen] button to display the [Live] screen of the selected camera.

**4** Enter each item for the network, and then click the [Save] button. (Fig. 3)

- This camera only supports the [Fixed IP] connection mode. As DHCP is not supported, do not set the connection mode to DHCP.

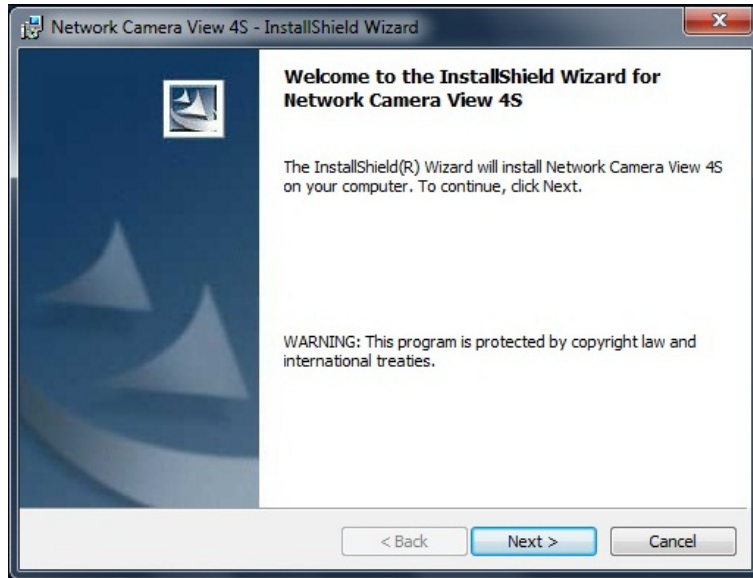
- After clicking the [Save] button, it will take approximately two minutes to complete configuration of the camera.  
Disconnecting the AC adaptor or LAN cable before the configuration has been completed will invalidate the settings. In such a case, configure the settings again.

 **NOTE**

- This camera does not support IPv6.
- If a firewall (including software) is used, set access permission to all UDP ports.
- This camera does not support DNS.

## Installing the plugin software for display

To display the IP images of the camera on the web browser, the plugin software for display Network Camera View 4S (ActiveX®) must be installed. Install the plugin software for display from this camera directly.



- [Automatic installation of viewer software] is set to [On] in the factory settings, which allows installation from the camera directly. If a message appears on the information bar of the web browser, refer to “Troubleshooting” (page 94).
- When the [Live] screen is displayed for the first time on a computer, the installation screen for the plugin software for display (ActiveX®) appears. Install the software by following the on-screen instructions.
- If the installation screen appears every time you switch the screen even after the plugin software for display (ActiveX®) has been installed, restart your computer.
- To uninstall the plugin software for display, select [Control Panel] - [Program] - [Uninstall programs] on Windows, and uninstall Network Camera View 4S.
- The plugin software for display requires a license for each computer.  
The number of times that the plugin software for display has been automatically installed can be viewed in the [Maintenance] screen. (page 90)  
For details on licenses, contact your dealer.

## Displaying the web screen

You can connect the camera to a computer to view IP images of the camera on a web browser or to configure various settings.

To connect the camera's IP control LAN terminal and a computer directly, use a crossover LAN cable.

To connect via a switching hub, etc., use a straight-through LAN cable.

### Notes on the web screen

#### IP address and subnet mask

Set the IP address of your computer to a different one from that of the camera within the private address range, and set the subnet mask address to the same as that of the camera.

#### IP address and subnet mask of the camera (factory settings)

- IP address: 192.168.0.30
- Subnet mask: 255.255.255.0
- Private address range: 192.168.0.0 to 192.168.0.255

#### Computer environment required to display the web screen

For details on the computer environment required to display the web screen, refer to "Required environment for computer" (page 11).

Some of the functions on the [Setup] screen are only available on computers operating on Windows. Such functions are not available for computers operating on OS X (Mac).

Functions that are only available for Windows are indicated with (Windows).

To display the IP images of the camera on a computer running Windows, the plugin software for display, Network Camera View 4S, must be installed. This is not necessary with computers operating on OS X (Mac). (page 75)

### Web screen display on computer

The screen shots in this manual are based on those of Windows (Internet Explorer). The procedures for Mac (Safari) are the same. The screen displays differ in part.

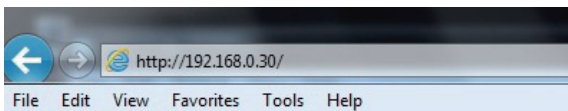


Fig. 1

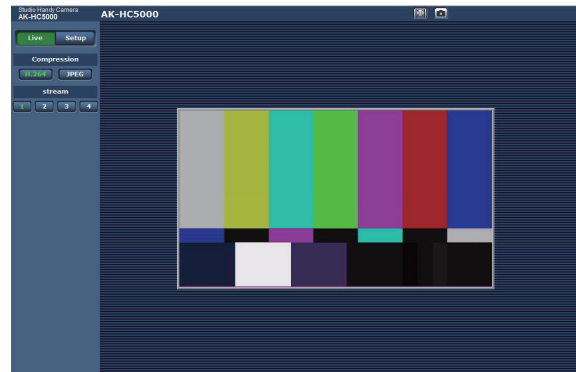


Fig. 2

### 1 Start the web browser on your computer.

Depending on the OS on your computer, use the following web browser.

- Windows: Internet Explorer
- OS X (Mac): Safari

### 2 Enter the IP address set on EASY IP Setup Software in the address field of the web browser. (Fig. 1)

- Example: `http://192.168.0.30`
- If the HTTP port number has been changed and differs from "80", enter "`http://camera's IP address:port number`" in the address field.  
Example: `http://192.168.0.30:8080` (when the port number is set to 8080)
- If the camera is on a local network, configure the proxy server from the web browser ([Tools] - [Internet Options] on the menu bar), so that the proxy server is not used for the local addresses.

### 3 Press the [Enter] key.

The web screen is displayed. (Fig. 2)

The initial screen is the [Live] screen. Switch this to the [Setup] screen as necessary. (page 77)

#### NOTE

- With a computer on which the plugin software for display is not installed, a confirmation message for installation appears before the [Live] screen is displayed.  
If this message appears, install the software by following the on-screen instructions. (Windows) (page 75)
- A screen to input the user name and the password is displayed before displaying the [Live] screen when [User auth.] (page 87) is set to [On].  
The initial user name and password are as follows.  
User name: admin  
Password: 12345
- While using the initial user name and password, a message prompting to change the user name and password appears after authentication.  
To ensure security, the password for the user name "admin" must be changed.

It is also recommended that the password is changed regularly.

- If you attempt to display multiple H.264 videos on a single computer, the IP images may not be displayed depending on the specifications of the computer. (Windows)
- Clicking on an underlined item on the screen opens a separate window showing an entry example.
- The maximum number of users that can simultaneously access the camera is 14, which is the total of users receiving H.264 images and users receiving JPEG images.

However, access may be restricted to less than 14 users depending on the settings of [Bandwidth control (bitrate)] and [Max bit rate (per client)]. When the number of users accessing the camera has exceeded the maximum of 14 users, a message indicating excessive access appears.

When [Transmission type] of [H.264] is set to [Multicast port], the second and later users that receive the H.264 images are not counted in the number of users accessing the camera.

- When [H.264 transmission] (page 85) is set to [On], the H.264 images are displayed. When this is set to [Off], JPEG images are displayed. JPEG images can be displayed even when [H.264 transmission] is set to [On]. However, the maximum refresh rate for JPEG images is restricted to 5 fps. (Windows)
- The refresh rate for JPEG images may decrease depending on the network environment, computer specification, subject, and the number of users accessing the camera.

JPEG image refresh rate

When [H.264 transmission] is [On]: 5 fps maximum

When [H.264 transmission] is [Off]: 30 fps maximum

## Switching [Live]/[Setup] screens

Press the [Setup] button while the [Live] screen is displayed.

For details on the [Setup] screen, refer to "[Setup] screen" (page 82).



Press the [Live] button while the [Setup] setting screen is displayed.

For details on the [Live] screen, refer to "[Live] screen" (page 78).

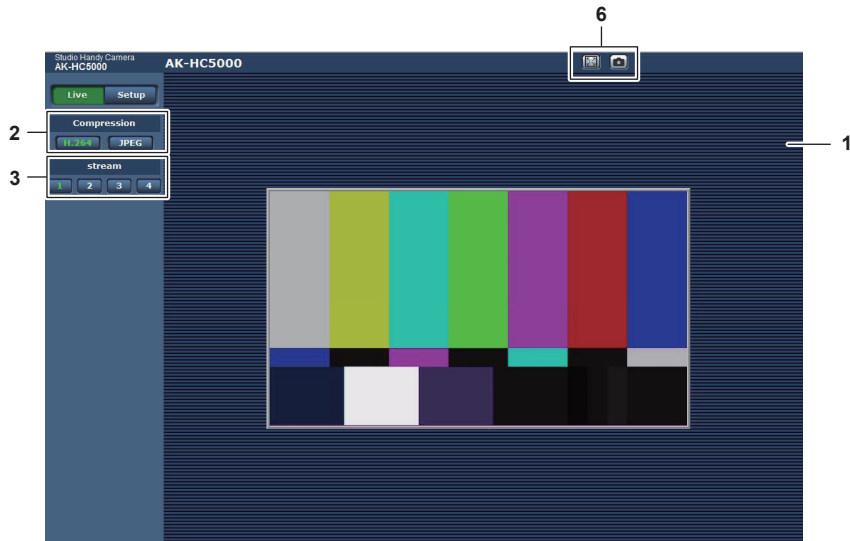


## [Live] screen

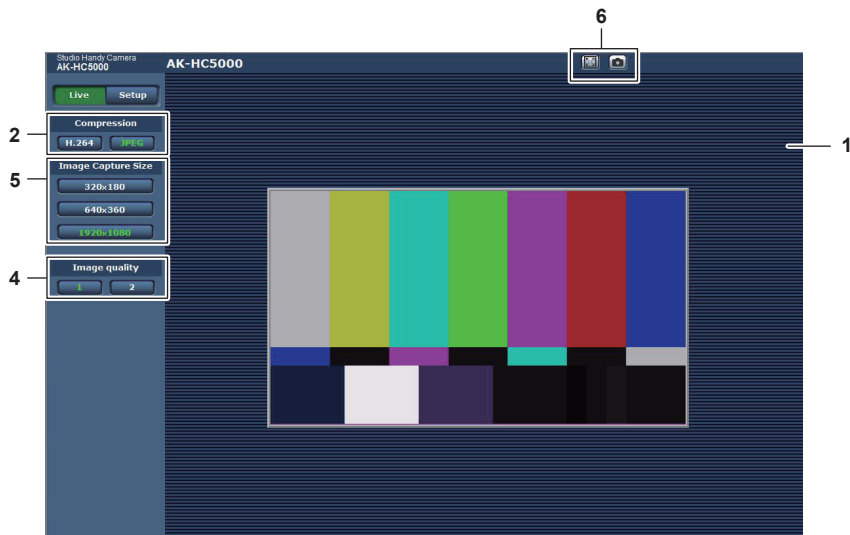
The camera image can be displayed on the computer.

The items displayed differ between when [H.264] is selected and when [JPEG] is selected with the [Compression] button.

### ■ H.264



### ■ JPEG



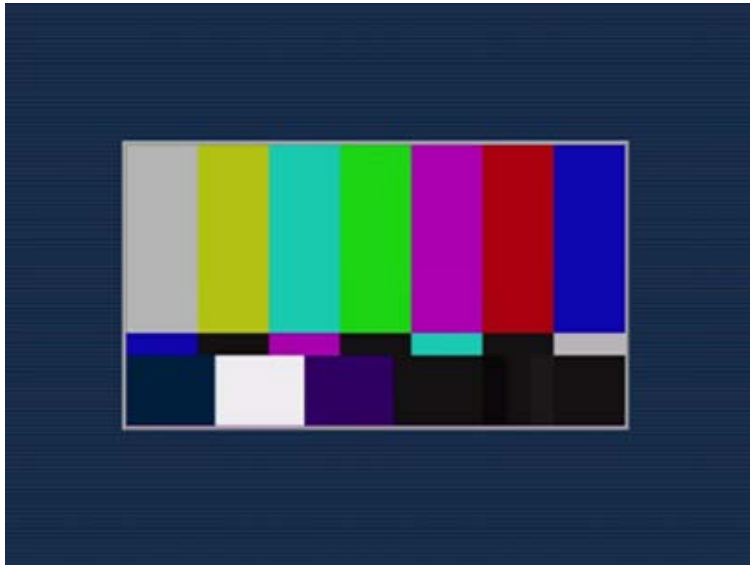
- 1 Main area (IP image display area) (page 78)
- 2 [Compression] button (page 79)
- 3 [Stream] button (page 79)
- 4 [Image quality] button (page 80)
- 5 [Image capture size] button (page 80)
- 6 Full screen display button/snapshot button (Windows) (page 81)

## Names and functions of parts ([Live] screen)

### Main area (IP image display area)

This area displays the IP images of the connected camera.

You can use the digital zoom of the plugin software for display by operating the mouse wheel in the area. (Windows)



- Depending on the computer being used, the drawing processor (GDI) of the OS may have restrictions and the images may cause tearing (part of images show deviated display) at major changes of shooting scenes.
- On a Windows computer, when [H.264 transmission] is set to [On], the H.264 videos or JPEG images are displayed. When set to [Off], only the JPEG images are displayed.  
Also, only JPEG image can be displayed on a computer with OS X (Mac) regardless of the [H.264 transmission] setting. H.264 video cannot be displayed. (page 85)
- If [H.264 transmission] is set to [On], regardless of whether an H.264 video is being transmitted or not, the refresh rate of JPEG images may decrease.
- The refresh rate for JPEG images may decrease depending on the network environment, computer specification, subject, and the number of users accessing the camera.
- The maximum number of users that can simultaneously access the camera is 14, which is the total of users receiving H.264 images and users receiving JPEG images.  
However, access may be restricted to less than 14 users depending on the settings of [Bandwidth control (bitrate)] and [Max bit rate (per client)].
- When the number of users has exceeded the upper limit, a message indicating excessive access appears. (Windows)

### [Compression] button

This button is used to switch the display between H.264 images and JPEG images.  
The characters on the selected button change to green.



#### 1 [H.264]

Displays H.264 images. (Windows)

Set [H.264 transmission] for [H.264(1)] to [H.264(4)] to [On] in the IP video settings to enable the [H.264] button. (page 85)

#### 2 [JPEG]

Displays JPEG images.

In the following cases, the selection status of the [Compression] button returns to the setting in [Stream] for [Initial display settings for "Live" page] in the [Video over IP] tab. (Windows)

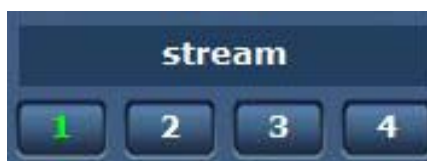
- When a screen has been exited to move to another
- When a screen has been refreshed

### [Stream] button

This button is displayed only when H.264 images are displayed. (Windows)

The display shows images as set in [H.264(1)]/[H.264(2)]/[H.264(3)]/[H.264(4)].

The characters on the selected button change to green.



#### 1 [1]

The main area image is displayed as set in [H.264(1)]. (page 84)

#### 2 [2]

The main area image is displayed as set in [H.264(2)]. (page 84)

**3 [3]**

The main area image is displayed as set in [H.264(3)]. (page 84)

**4 [4]**

The main area image is displayed as set in [H.264(4)]. (page 84)

In the following cases, the selection status of the [Stream] button returns to the setting in [Stream] for [Initial display settings for "Live" page] in the [Video over IP] tab. (Windows)

- When a screen has been exited to move to another
- When a screen has been refreshed

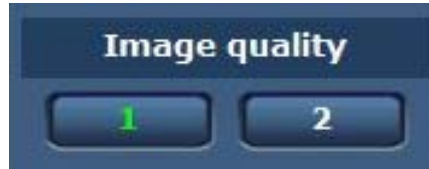
If the resolution of the selected H.264 image is set to [1920×1080] or [1280×720], the displayed image may be smaller than the actual size, depending on the screen size of your web browser.

**[Image quality] button**

This button is displayed only when JPEG images are displayed.

The display shows images as set in [Image quality(JPEG)].

The characters on the selected button change to green.

**1 [1]**

The display shows images as set in [Quality1] for [Image quality(JPEG)]. (page 84)

**2 [2]**

The display shows images as set in [Quality2] for [Image quality(JPEG)]. (page 84)

In the following cases, the selection status of the [Image quality] button returns to the setting in [Image quality(JPEG)] for [Initial display settings for "Live" page] in the [Video over IP] tab.

- When a screen has been exited to move to another
- When a screen has been refreshed

**[Image capture size] button**

This button is displayed only when JPEG images are displayed.

It switches the size of the image displayed in the main area.

The characters on the selected button change to green.

**1 [1920×1080]**

The image in the main area is displayed in the resolution of 1920 × 1080.

**2 [1280×720]**

The image in the main area is displayed in the resolution of 1280 × 720.

**3 [640×360]**

The image in the main area is displayed in the resolution of 640 × 360.

**4 [320×180]**

The image in the main area is displayed in the resolution of 320 × 180.

**5 [160×90]**

The image in the main area is displayed in the resolution of 160 × 90.

The image is displayed in the resolution set in [JPEG(1)], [JPEG(2)], and [JPEG(3)] in the [Video over IP] tab - [JPEG].

If the resolution is set to [1920×1080] or [1280×720], the displayed image may be smaller than the actual size, depending on the screen size of your web browser.

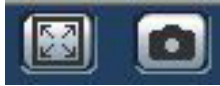
In the following cases, the selection status of the [Image capture size] button returns to the setting in [Stream] for [Initial display settings for "Live" page] in the [Video over IP] tab.

- When a screen has been exited to move to another
- When a screen has been refreshed



## Full screen display button/snapshot button

The images are displayed in full screen. (Full screen display button)  
It captures snapshots. (Snapshot button)



### 1 Full screen display button (left)

Displays the images in full screen.

When the image in the main area is displayed in a reduced size, pressing this button once displays the image in its actual resolution in the main area.

When the image is displayed in its original resolution, it will be displayed in full screen.

To return to the [Live] screen, press the Esc key on the keyboard of your computer while in full screen display.

Or, right click the mouse while it is displaying in full screen, and click [Back].

### 2 Snapshot button (right)

Captures a snapshot (one still image) and shows the image on a separate window.

Right-clicking this button displays a pop-up menu, and you can save the image on your computer by selecting [Save].

Selecting [Print] outputs the image to a printer.

### NOTE

- The following configuration may be required.  
From the menu bar on Internet Explorer, select [Trusted site] in [Tools] - [Internet Options] - [Security] tab, and then click [site]. Add the address of the camera to "Websites" in "Trusted sites".
- Depending on the network environment, etc., if capturing of a snapshot takes longer than a certain period of time, the image may not be displayed.

## [Setup] screen

Various settings of this camera can be configured.

The setup menu is only available to users set as [1. Administrator] in [Access level]. (page 88)

### Logging in to the [Setup] screen

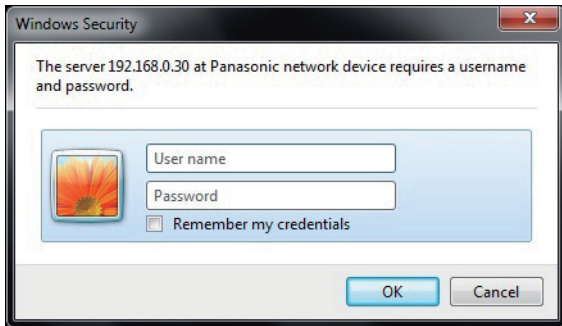


Fig. 1

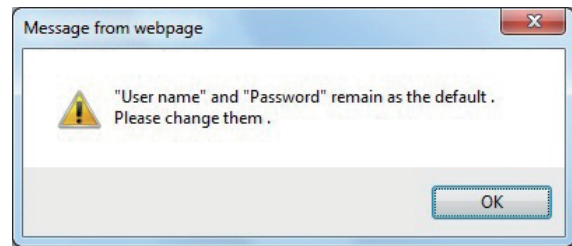


Fig. 2

#### 1 Click the [Setup] button.

The login screen is displayed. (Fig. 1)

#### 2 Enter the user name and password.

The user name and password in the factory settings are as follows.

User name: admin

Password: 12345

#### 3 Click the [OK] button.

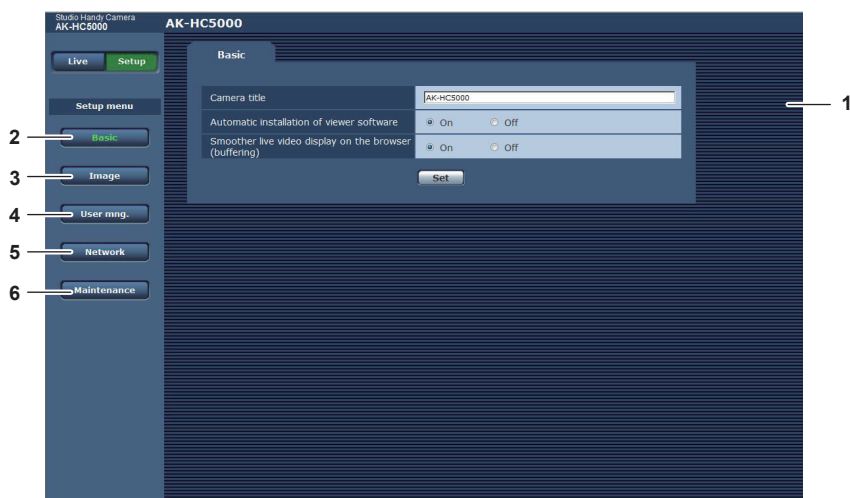
A message screen is displayed.

#### 4 Click the [OK] button.

While using the initial user name and password, a message prompting to change the user name and password appears after authentication. (Fig. 2)

To ensure security, the password for the user name “admin” must be changed. It is also recommended that the password is changed regularly.

### Names and functions of parts ([Setup] screen)



#### 1 Main area

The menu screen is displayed.

#### 2 [Basic] button

Clicking this button displays the [Basic] screen in the main area. (page 83)

#### 3 [Image] button

Clicking this button displays the [Image] screen in the main area. (page 83)

#### 4 [User mng.] button

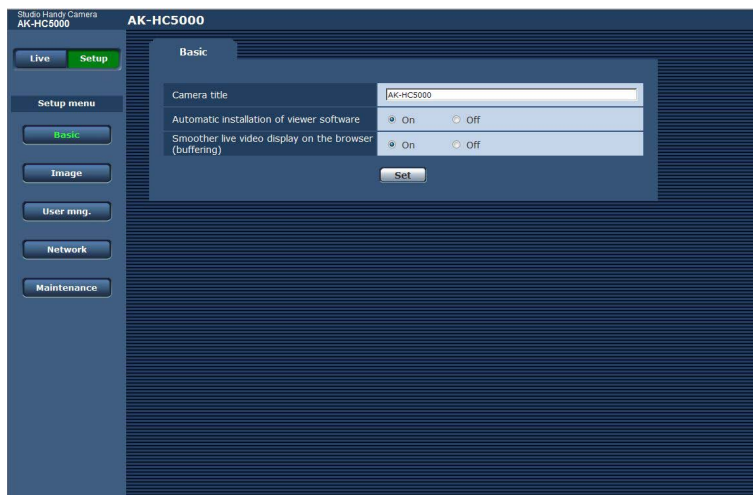
Clicking this button displays the [User mng.] screen in the main area. (page 87)

#### 5 [Network] button

Clicking this button displays the [Network] screen in the main area. (page 88)

#### 6 [Maintenance] button

Clicking this button displays the [Maintenance] screen in the main area. (page 90)

**[Basic] screen**

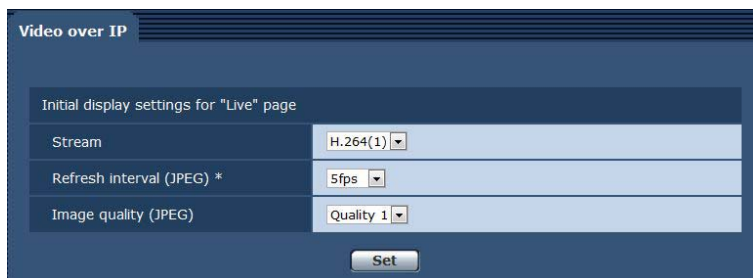
Item	Description of settings
[Camera title]	<p>Enter the name of the camera. Clicking the [Set] button displays the entered name on the camera title display area. The factory setting value is the product number of the camera. You can enter 0 to 20 single-byte characters.</p> <p><b>Characters that can be used</b></p> <ul style="list-style-type: none"> <li>• Single-byte numbers: 0123456789</li> <li>• Single-byte alphabet (upper/lower case): ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz</li> <li>• Single-byte symbols: !#\$%&amp;'()*+,-./:;&lt;=&gt;?@[^_`{ }~\</li> </ul>
[Automatic installation of viewer software]	<p>Configures automatic installation of the plugin software for display. <b>[On]:</b> Installs the plugin software for display automatically. <b>[Off]:</b> Does not install the plugin software for display automatically. • Factory setting: [On]</p>
[Smoother live video display on the browser (buffering)]	<p>Configures settings for display of images on the camera using the plugin software for display. <b>[On]:</b> Stores images on the camera to the computer temporarily to make images to be displayed smoother. <b>[Off]:</b> Does not store images on the camera to the computer and displays images in real time. Image display and audio playback are not available on a computer where the plugin software for display Network Camera View 4S is not installed. The number of times that the plugin software for display has been installed can be viewed in the [Product info.] tab of the [Maintenance] menu in the [Setup] screen. • Factory setting: [On]</p>

**[Image] screen****[Video over IP] tab**

You can configure the settings for JPEG images, H.264 images, and image quality.

■ **[Initial display settings for "Live" page]**

Configures initial settings for display on the [Live] screen.



Item	Description of settings
[Stream]	<p>Selects the image to be displayed on the [Live] screen.</p> <p><b>[H.264(1)]</b>: Displays movie (H.264 (1)).  <b>[H.264(2)]</b>: Displays movie (H.264 (2)).  <b>[H.264(3)]</b>: Displays movie (H.264 (3)).  <b>[H.264(4)]</b>: Displays movie (H.264 (4)).  <b>[JPEG(1)]</b>: Displays still image (JPEG (1)).  <b>[JPEG(2)]</b>: Displays still image (JPEG (2)).  <b>[JPEG(3)]</b>: Displays still image (JPEG (3)).</p> <ul style="list-style-type: none"> <li>• Factory setting: [H.264(1)]</li> </ul>
[Refresh interval (JPEG)]	<p>Sets the refresh rate for JPEG images.</p> <p>At 59.94 Hz  <b>[1fps], [2fps], [3fps], [5fps], [6fps]*, [10fps]*, [15fps]*, [30fps]*</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [5fps]</li> </ul> <p>At 50 Hz  <b>[1fps], [2fps], [5fps], [10fps]*, [12.5fps]*, [25fps]*</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [5fps]</li> </ul> <p>The image refresh rate may decrease to lower than the configured value depending on the network environment, resolution, image quality, and number of users simultaneously accessing the camera. If the configured image refresh rate cannot be realized, setting a lower resolution or image quality may increase the refresh rate to be closer to the configured value.</p> <p>* When [H.264 transmission] is set to [On], the image refresh rate may decrease to lower than the configured value.</p>
[Image quality(JPEG)]	<p>Configures the image quality of the first image when JPEG image is displayed on the [Live] screen.</p> <p><b>[Quality1]</b>: Image quality 1  <b>[Quality2]</b>: Image quality 2</p> <ul style="list-style-type: none"> <li>• Factory setting: [Quality1]</li> </ul>

### ■ JPEG

Configure [Image capture size] and [Image quality] for [JPEG(1)], [JPEG(2)], and [JPEG(3)].

### NOTE

- Different resolution must be each selected for [JPEG(1)], [JPEG(2)], and [JPEG(3)]. The same resolution cannot be selected for different JPEG image setting.

Item	Description of settings
[Image capture size]	<p>Sets the resolution of the displayed image when JPEG images are displayed</p> <p><b>[1920×1080], [1280×720], [640×360], [320×180], [160×90]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [1920×1080] ([JPEG(1)]), [640×360] ([JPEG(2)]), [320×180] ([JPEG(3)])</li> </ul>
[Image quality]	<p>Sets two types of the image quality for JPEG images in each resolution.</p> <p><b>[0 Super fine], [1 Fine], [2], [3], [4], [5 Normal], [6], [7], [8], [9 Low]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [5 Normal] ([Quality1]), [8] ([Quality2])</li> </ul>

### ■ H.264

Set [Max bit rate (per client)], [Image capture size], [Image quality], etc. for H.264 image. (Windows)

The following screen shows an example of [H.264(1)].

H.264(1)	
H.264 transmission	<input checked="" type="radio"/> On <input type="radio"/> Off
Internet mode (over HTTP)	<input type="radio"/> On <input checked="" type="radio"/> Off
Image capture size	1920x1080
Transmission priority	Frame rate
Burst tolerance level	Low
Control time period	24h
Frame rate	60fps
Max bit rate (per client) *	Max 4096kbps - Min 1024kbps
Image quality	Normal
Refresh interval	1s
Transmission type	Unicast port (AUTO)
Unicast port	32004 (1024-50000)
Multicast address	239.192.0.20
Multicast port	37004 (1024-50000)
Multicast TTL/HOPLimit	16 (1-254)
<input type="button" value="Set"/>	

Item	Description of settings
[H.264 transmission]	<p>Sets whether to transmit H.264 images.</p> <p><b>[On]:</b> Transmits H.264 images.</p> <p><b>[Off]:</b> Does not transmit H.264 images.</p> <p>When [H.26 transmission] is set to [On], both H.264 and JPEG images can be displayed on the [Live] screen.</p> <p>When [H.26 transmission] is set to [On], the refresh rate of JPEG images may decrease.</p> <ul style="list-style-type: none"> <li>• Factory setting: [On]</li> </ul>
[Internet mode (over HTTP)]	<p>Sets whether to transmit H.264 images over the Internet.</p> <p>The broadband router setting can be kept the same as that for JPEG images when transmitting H.264 images.</p> <p><b>[On]:</b> Transmits H.264 image using the HTTP port. For setting the HTTP port number, refer to [HTTP port] (page 89).</p> <p><b>[Off]:</b> Transmits H.264 image using the UDP port.</p> <p>When set to [On], the transmission type is restricted to [Unicast port (AUTO)].</p> <p>When set to [On], the H.264 images will be displayed after a lapse of a few seconds.</p> <p>When set to [On], the H.264 images may not be displayed depending on the number of users simultaneously accessing the camera or the existence of audio data.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Off]</li> </ul>
[Image capture size]	<p>Sets the resolution of the H.264 image.</p> <p>The options are restricted depending on the selected resolution.</p> <p>For [H.264(1)]</p> <p><b>[1920x1080], [1280x720]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [1920x1080]</li> </ul> <p>For [H.264(2)]</p> <p><b>[1920x1080], [1280x720], [640x360], [320x180], [160x90]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [640x360]</li> </ul> <p>For [H.264(3)]</p> <p><b>[1280x720], [640x360], [320x180], [160x90]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [320x180]</li> </ul> <p>For [H.264(4)]</p> <p><b>[1280x720], [640x360], [320x180], [160x90]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [160x90]</li> </ul>
[Transmission priority]	<p>Sets the transmission mode of H.264 images.</p> <p><b>[Constant bit rate]:</b> Transmits H.264 images in the bitrate set in [Max bit rate (per client)].</p> <p><b>[Frame rate]:</b> Transmits H.264 images in the bitrate set in [Frame rate].</p> <p><b>[Best effort]:</b> Transmits H.264 images in a variable bitrate between the maximum and minimum values set in [Max bit rate (per client)].</p> <p><b>[Advanced VBR]:</b> Transmits H.264 images in the bitrate set in [Frame rate]. Images are transmitted so that the average transmission amount in the duration set for [Control time period] will be the bitrate set in [Max bit rate (per client)].</p> <p>When [Transmission priority] is set to [Frame rate] or [Advanced VBR], the number of users allowed to be connect may decrease.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Frame rate]</li> </ul>
[Burst tolerance level]	<p>Sets how much further the H.264 bitrate can exceed [Max bit rate (per client)].</p> <p><b>[High], [Middle], [Low]</b></p> <p>This can only be set when [Advanced VBR] is selected in [Transmission priority].</p> <ul style="list-style-type: none"> <li>• Factory setting: [Low]</li> </ul>

Chapter 5 Web Screen — [Setup] screen

Item	Description of settings
[Control time period]	<p>Sets the duration for which the H.264 bitrate is controlled.            Images are transmitted so that the average transmission amount in the selected duration will be the bitrate set in [Max bit rate (per client)].</p> <p><b>[1h]:</b> 1 hour  <b>[6h]:</b> 6 hours  <b>[24h]:</b> 1 day (24 hours)  <b>[1week]:</b> 1 week</p> <p>This can only be set when [Advanced VBR] is selected in [Transmission priority].</p> <ul style="list-style-type: none"> <li>• Factory setting: [24h]</li> </ul>
[Frame rate]	<p>Sets the frame rate of the H.264 images.</p> <p>At 59.94 Hz  <b>[5fps], [15fps], [30fps], [60fps]</b>  <ul style="list-style-type: none"> <li>• Factory setting: [30fps]</li> </ul> </p> <p>At 50 Hz  <b>[5fps], [12.5fps], [25fps], [50fps]</b>  <ul style="list-style-type: none"> <li>• Factory setting: [25fps]</li> </ul> </p> <p>[Frame rate] is restricted by [Max bit rate (per client)]. The actual frame rate may decrease to lower than the configured value.</p> <p>This can only be set when [Frame rate] or [Advanced VBR] is selected in [Transmission priority].            For [H.264(1)], the value is fixed to [60fps] (59.94 Hz) or [50fps] (50 Hz).            For [H.264(2)] to [H.264(4)], [60fps] (59.94 Hz) or [50fps] (50 Hz) cannot be selected.</p>
[Max bit rate (per client)]	<p>Sets the H.264 bitrate per client.</p> <p>When [Best effort] is selected for [Transmission priority], set the maximum ([Max]) and minimum ([Min]).  <b>[64kbps], [128kbps], [256kbps], [384kbps], [512kbps], [768kbps], [1024kbps], [1536kbps], [2048kbps], [3072kbps], [4096kbps], [6144kbps], [8192kbps], [10240kbps], [12288kbps], [14336kbps], [16384kbps], [20480kbps], [24576kbps]</b></p> <p>The H.264 bitrate is restricted by [Bandwidth control (bitrate)] in the [Network] tab of the [Network] screen. A bitrate of other than [64kbps] may decrease to lower than the configured value. ([Bandwidth control (bitrate)])</p> <p>The range of the H.264 bitrate that can be configured differs depending on the resolution.</p> <p>For [160×90]: [64kbps] to [2048kbps]            For [320×180] and [640×360]: [64kbps] to [4096kbps]            For [1280×720]: [256kbps] to [8192kbps]            For [1920×1080]: [512kbps] to [14336kbps]            For [1920×1080] (60 fps) and [1280×720] (60 fps): [1024kbps] to [24576kbps]</p> <ul style="list-style-type: none"> <li>• Factory setting: [4096kbps] ([H.264(1)]), [1536kbps] ([H.264(2)]), [1024kbps] ([H.264(3)]), [512kbps] ([H.264(4)])</li> </ul>
[Image quality]	<p>Sets the image quality of H.264 image.</p> <p>This can only be set when [Constant bit rate] or [Best effort] is selected in [Transmission priority].  <b>[Low (Motion priority)], [Normal], [Fine (Image quality priority)]</b></p> <ul style="list-style-type: none"> <li>• Factory setting: [Normal]</li> </ul>
[Refresh interval]	<p>Sets the interval (1 frame interval: 0.2 to 5 seconds) at which to refresh H.264 images.</p> <p>If many errors occur in your network environment, setting a shorter refresh interval will cause less noise in the images. However, this may lower the image refresh rate.</p> <p>At 59.94 Hz  <b>[0.2s], [0.25s], [0.33s], [0.5s], [1s], [2s], [3s], [4s], [5s]</b>  <ul style="list-style-type: none"> <li>• Factory setting: [1s]</li> </ul> </p> <p>At 50 Hz  <b>[0.2s], [0.5s], [1s], [2s], [3s], [4s], [5s]</b>  <ul style="list-style-type: none"> <li>• Factory setting: [1s]</li> </ul> </p>
[Transmission type]	<p>Sets the transmission type of the H.264 images.</p> <p><b>[Unicast port (AUTO)]:</b> A single camera can be simultaneously accessed by a maximum of 14 users. When images are transmitted from the camera, [Unicast port1 (Image)] will be set automatically. If a fixed port number for H.264 image transmission is not necessary in cases such as when the camera is used within a network, it is recommended that this is set to [Unicast port (AUTO)].</p> <p><b>[Unicast port (MANUAL)]:</b> A single camera can be simultaneously accessed by a maximum of 14 users. When images are transmitted from the camera, [Unicast port1 (Image)] must be set manually. When H.264 images are transmitted over the Internet, set a fixed port number for the broadband router (referred to as a router hereafter) to permit communication. ([HTTP port] (page 89))            For details, refer to the Operating Instructions of your router.</p> <p><b>[Multicast port]:</b> A single camera can be simultaneously accessed by an unlimited number of users. To send H.264 images in multicast, enter [Multicast address], [Multicast port], and [Multicast TTL/HOP Limit].</p> <p>To transmit the H.264 image in multicast, specify the destination using a router, etc., supporting the multicast. At that time, set so the H.264 image is not transmitted to other connected device (AK-HRP1000G, etc.). The IP communication with the camera may become disabled when a H.264 image is transmitted to AK-HRP1000G.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Unicast port (AUTO)]</li> </ul> <p><b>Maximum number of simultaneous accesses</b></p> <p>The maximum number of users that can simultaneously access the camera is 14, which is the total of users receiving H.264 images and users receiving JPEG images. However, access may be restricted to less than 14 users depending on the settings of [Bandwidth control (bitrate)] and [Max bit rate (per client)].</p> <p>When the number of users accessing the camera has exceeded the maximum of 14 users, a message indicating excessive access appears.</p> <p>When [Transmission type] of [H.264] is set to [Multicast port], the second and later users that receive the H.264 images are not counted in the number of users accessing the camera.</p>

Item	Description of settings
[Unicast port1 (Image)]	Sets the unicast port number (to be used when images are transmitted from the camera). This item must be configured when [Transmission type] is set to [Unicast port (MANUAL)]. <b>[1024]...[50000]</b> Only even numbers can be configured. 10670 and 49152 cannot be set as a port number. • Factory setting: [32004] ([H.264(1)]), [32014] ([H.264(2)]), [32024] ([H.264(3)]), [32034] ([H.264(4)])
[Multicast address]	Sets the IP address of the multicast. The images are transmitted to the specified IP address. This item must be configured when [Transmission type] is set to [Multicast port]. Before setting, check if it can be used as a multicast IP address. <b>[224.0.0.0]...[239.255.255.255]</b> • Factory setting: [239.192.0.20] ([H.264(1)]), [239.192.0.21] ([H.264(2)]), [239.192.0.22] ([H.264(3)]), [239.192.0.23] ([H.264(4)])
[Multicast port]	Enter the multicast port number (to be used when images are transmitted from the camera). This item must be configured when [Transmission type] is set to [Multicast port]. Only even numbers can be configured. 10670 and 49152 cannot be set as a port number. <b>[1024]...[50000]</b> • Factory setting: [37004]
[Multicast TTL/HOP Limit]	Enter the TTL/HOP Limit value of the multicast. This item must be configured when [Transmission type] is set to [Multicast port]. <b>[1]...[254]</b> • Factory setting: [16] When H.264 images are transmitted via Internet, the transmitted images may not be displayed depending on the settings for the proxy server, firewall, etc. In this case, consult your network administrator. When multicast images are to be displayed using a computer where multiple LAN cards are installed, disable the LAN cards that are not to be used for reception.

## [User mng.] screen

The [User mng.] screen performs the authentication registration to limit the user or computer (IP address) that can access this unit from a computer. The [User mng.] screen consists of the [User auth.] tab and [Host auth.] tab.

### [User auth.] tab

Performs the authentication registration to limit the user that can access this unit from a computer. A maximum of 24 users can be registered.

#### NOTE

- When authentication of a computer with an identical IP address has been failed eight times or more in 30 seconds (authentication error), the camera cannot be accessed for a while.

Item	Description of settings
[User auth.]	Sets whether to authenticate users. <b>[On]:</b> Authenticates the users. <b>[Off]:</b> Does not authenticate the users. • Factory setting: [Off]
[Authentication]	Sets the authentication method to be used for user authentication. <b>[Digest or Basic]:</b> Uses Digest authentication or Basic authentication. <b>[Digest]:</b> Uses Digest authentication. <b>[Basic]:</b> Uses Basic authentication. After changing the [Authentication] settings, exit your web browser and access again. The authentication set here is the authentication method to access the Web screen. It is always a digest authentication for the connection with the controller. • Factory setting: [Digest or Basic]

Item	Description of settings
[User name]	Enter a user name. Number of characters that can be entered: 1 to 32 Characters that cannot be entered: Double-byte and single-byte symbols " & ; ; \\ Entering a user name that has been already registered and clicking the [Set] button overwrites the user information.
[Password] [Retype password]	Enter a password. Number of characters that can be entered: 4 to 32 Characters that cannot be entered: Double-byte and single-byte symbols " &
[Access level]	Sets the access level for users. <b>[1. Administrator]:</b> Allows full operation of the camera. <b>[2. Live only]:</b> Allows only to display the [Live] screen. No operation and setting of the camera is available. • Factory setting: [2. Live only]
[User check]	Click ▼ in [User check] to check the registered users. A registered user is indicated as "registered user name[Access level]". (Example: admin[1]) Clicking the [Delete] button on the right deletes the selected user.

### [Host auth.] tab

Register host authentication information to restrict computers (IP addresses) that can access the camera.

Item	Description of settings
[Host auth.]	Sets whether to authenticate hosts. <b>[On]:</b> Authenticates the hosts. <b>[Off]:</b> Does not authenticate the hosts. • Factory setting: [Off]
[IP address]	Enter the IP address of the computer to permit its access to the camera. A host name cannot be entered as an IP address. If the IP address/mask length of subnet is entered, computers that can access the camera can be restricted per subnet. When 192.168.0.1/24 is entered and [1. Administrator] is selected for [Access level], computers with 192.168.0.1 to 192.168.0.254 can access the camera in the access level [1. Administrator]. Entering an IP address that has been already registered and clicking the [Set] button overwrites the host information.
[Access level]	Sets the access level for hosts. <b>[1. Administrator]:</b> Allows full operation of the camera. <b>[2. Live only]:</b> Allows only to display the [Live] screen. No operation and setting of the camera is available. • Factory setting: [2. Live only]
[Host check]	Click ▼ of [Host check] to check the IP addresses of the registered hosts. A host is indicated as "registered IP address and access level". (Example: 192.168.0.21[1]) Clicking the [Delete] button on the right deletes the selected host (IP address).

### [Network] screen

Configure the settings for network in the [Network] screen.

The following information is necessary to configure the network settings. Consult your network administrator or Internet service provider.

- IP address
- Subnet mask
- Default gateway (when gateway server and router are to be used)
- HTTP port



## [IPv4 network]

Network	
IPv4 network	
IP address(IPv4)	192 . 168 . 0 . 20
Subnet mask	255 . 255 . 255 . 0
Default gateway	192 . 168 . 0 . 1

Item	Description of settings
[IP address(IPv4)]	Enter the IP address of the camera. Enter an IP address that does not conflict with the ones set for computers or other network cameras. • Factory setting: [192.168.0.30]
[Subnet mask]	Enter the subnet mask of the camera. • Factory setting: [255.255.255.0]
[Default gateway]	Enter the default gateway of the camera. Multiple IP addresses cannot be used for the default gateway. • Factory setting: [192.168.0.1]

## [Common]

Common	
HTTP port	80 (1-65535)
ROP port	49152 (49152/49200-49299)
Line speed	Auto
Max RTP packet size	<input checked="" type="radio"/> Unlimited(1500byte) <input type="radio"/> Limited(1280byte)
HTTP max segment size(MSS)	Unlimited(1460byte)
Bandwidth control(bit rate)	Unlimited
Easy IP Setup accommodate period	<input type="radio"/> 20min <input checked="" type="radio"/> Unlimited
<b>Set</b>	
Recommended network setting for internet	<b>Set</b>

Item	Description of settings
[HTTP port]	Assigns the port number of HTTP individually (port number when accessing with a browser). <b>[1]...[65535]</b> • Factory setting: [80] The following port numbers are used by the camera. Do not use them. [20]/[21]/[23]/[25]/[42]/[53]/[67]/[68]/[69]/[110]/[123]/[161]/[162]/[443]/[554]/[995]/[10669]/[10670]/[49152]/[49200]...[49299]/[59000]...[61000]
[ROP port]	Assigns the port number individually when connecting to ROP. <b>[49152], [49200]...[49299]</b> • Factory setting: [49152]
[Line speed]	Sets data transmission speed. <b>[Auto]</b> : Sets the transmission speed automatically. <b>[100M-Full]</b> : 100 Mbps full-duplex <b>[100M-Half]</b> : 100 Mbps half-duplex <b>[10M-Full]</b> : 10 Mbps full-duplex <b>[10M-Half]</b> : 10 Mbps half-duplex It is recommended to use the initial setting [Auto] for normal use. • Factory setting: [Auto]
[Max RTP packet size]	Sets whether to limit the RTP packet size transmitted from the camera while viewing camera images using RTP. <b>[Unlimited (1500byte)]</b> : Unlimited (1500 bytes) <b>[Limited (1280byte)]</b> : Limited (1280 bytes) It is recommended to set [Unlimited (1500byte)] for normal use. Select [Limited (1280byte)] when the packet size of the communication line to be used is limited. For the maximum packet size of your communication line, consult your network administrator. • Factory setting: [Unlimited (1500byte)]

## Chapter 5 Web Screen — [Setup] screen

Item	Description of settings
[HTTP max segment size (MSS)]	<p>Sets whether to limit the maximum segment size (MSS) transmitted from the camera while viewing camera images using HTTP.</p> <p><b>[Unlimited (1460byte)]:</b> Unlimited (1460 bytes)  <b>[Limited (1280byte)]:</b> Limited (1280 bytes)  <b>[Limited (1024byte)]:</b> Limited (1024 bytes)</p> <p>It is recommended to set [Unlimited (1460byte)] for normal use.            Select [Limited (1024byte)] or [Limited (1280byte)] when the maximum segment size (MSS) of the communication line to be used is limited.            For the maximum segment size (MSS) of your communication line, consult your network administrator.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Unlimited (1460byte)]</li> </ul>
[Bandwidth control (bitrate)]	<p>Sets data transmission amount.</p> <p><b>[Unlimited], [64kbps], [128kbps], [256kbps], [384kbps], [512kbps], [768kbps], [1024kbps], [2048kbps], [4096kbps], [8192kbps]</b></p> <p>When a low [Bandwidth control (bitrate)] is set, the snapshot button may not function depending on the environment of use. In this case, use the [Compression] button in the [Live] screen to select [JPEG], and take snapshots in an environment where images are transmitted in the smallest resolution.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Unlimited]</li> </ul>
[Easy IP Setup accommodate period]	<p>Sets the time period that the network setting operations from EASY IP Setup Software is to be enabled.</p> <p><b>[20min]:</b> Enables camera setting operations in EASY IP Setup Software for only 20 minutes after the camera has started up.</p> <p><b>[Unlimited]:</b> Enables camera setting operations in EASY IP Setup Software invariably.</p> <p>Since camera display is always enabled in EASY IP Setup Software, the camera images can be displayed. For the address setting of each server, consult your network administrator.</p> <ul style="list-style-type: none"> <li>• Factory setting: [Unlimited]</li> </ul>
[Recommended network setting for internet]	<p>Sets the recommended configuration for making the camera public on the Internet.</p> <p>When the [Set] button is clicked, a dialog box appears indicating the setting configuration of the item is to be changed. After checking it, click the [OK] button.</p> <p>[Image] screen</p> <ul style="list-style-type: none"> <li>• [JPEG(1)]  <b>[Image capture size]:</b> [640×360]</li> <li>• [JPEG(2)]  <b>[Image capture size]:</b> [320×180]</li> <li>• [JPEG(3)]  <b>[Image capture size]:</b> [160×90]</li> <li>• [H.264(1)]/[H.264(2)]/[H.264(3)]/[H.264(4)] (Windows)  <b>[Internet mode (over HTTP)]:</b> [On]  <b>[Transmission priority]:</b> [Best effort]</li> <li>• [H.264(1)] (Windows)  <b>[Image capture size]:</b> [1280×720]  <b>[Max bit rate (per client)]:</b> [Max1024 kbps], [Min1024 kbps]</li> <li>• [H.264(2)] (Windows)  <b>[Image capture size]:</b> [640×360]  <b>[Max bit rate (per client)]:</b> [Max1024 kbps], [Min128 kbps]</li> <li>• [H.264(3)] (Windows)  <b>[Image capture size]:</b> [320×180]  <b>[Max bit rate (per client)]:</b> [Max1024 kbps], [Min128 kbps]</li> <li>• [H.264(4)] (Windows)  <b>[Image capture size]:</b> [160×90]  <b>[Max bit rate (per client)]:</b> [Max1024 kbps], [Min128 kbps]</li> </ul> <p>[Network] screen</p> <p><b>[Max RTP packet size]:</b> [Limited (1280byte)]  <b>[HTTP max segment size (MSS)]:</b> [Limited (1280byte)]</p>

## [Maintenance] screen

Check system logs, confirm software versions, or initialize the camera.

The screen consists of three tabs, [Product info.], [Default reset], and [Back up].

### [Product info.] tab

Displays the software version of the camera.

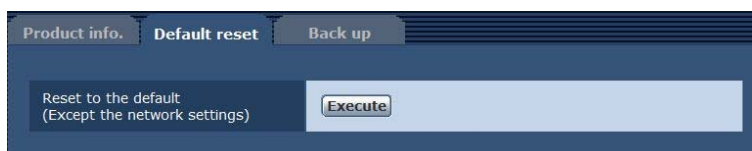
Displays information of the camera such as [Model no.], [MAC address], [Serial no.], and [Firmware version].

Product info.				Default reset	Back up
Model no.		AK-HC5000			
MAC address		00-80-45-2F-25-F1			
Firmware version	CPU Software	CAM MAIN	1.00-00-0.00		
		NETWORK	1.00-00-0.00		
	EEPROM	ROM TABLE	1.00-00-0.00		
		FPGA			
		CAM FPGA	1.00-00-0.00		
		AVIO FPGA	1.00-00-0.00		
		INCOM FPGA	1.00-00-0.00		
Viewer software installation counter		0			

Item	Description of settings
[Model no.]	Displays the model number of the camera.
[MAC address]	Displays the MAC address of the camera.
[Firmware version]	<b>[CPU Software - CAM MAIN]:</b> Displays the camera's main software version. <b>[CPU Software - NETWORK]:</b> Displays the software version of the network component. <b>[EEPROM - ROM TABLE]:</b> Displays the version of the camera table. <b>[FPGA - CAM FPGA]:</b> Displays the camera's FPGA version. <b>[FPGA - AVIO FPGA]:</b> Displays the FPGA version of the image processing component. <b>[FPGA - INCOM FPGA]:</b> Displays the FPGA version of the power supply and audio control component.
[Viewer software installation counter]	Displays the number of plugin software for display that has been installed automatically from the camera.

### [Default reset] tab

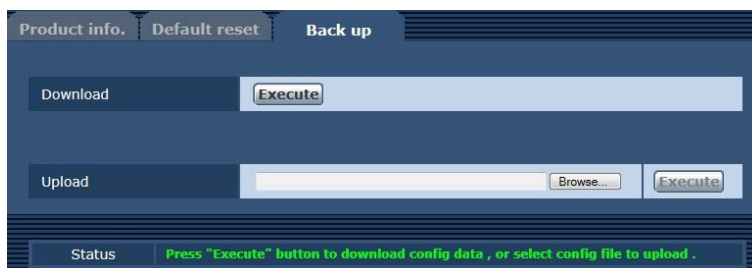
Initialize the setting data of the camera and restart the camera.



Item	Description of settings
[Reset to the default (Except the network settings)]	By clicking the [Execute] button, resets the configuration of the camera to its default settings. The user name and password used for login are also reset to their default values (admin/12345). After executing the reset operation, the camera cannot be operated for approximately three minutes. The following setting items will not be reset. <ul style="list-style-type: none"> <li>• All items for [IPv4 network]</li> <li>• [HTTP port]</li> <li>• [Line speed]</li> <li>• [Bandwidth control (bitrate)]</li> </ul>

### [Back up] tab

You can save network-related settings to a computer, or apply the settings saved in a computer to the camera.



Item	Description of settings
[Download]	Saves the network-related settings of the camera to a computer. (page 91)
[Upload]	Uploads the setting file of the camera saved in a computer using the download function. (page 91)

#### ■ Saving the network-related settings of the camera to a computer ([Download])

Perform the following procedure to save the network-related settings of the camera to a computer.

Do not turn off the power of the camera while the download operation is in process.

Do not perform any operation from the start of the download operation until its end.

##### 1 Click the [Execute] button for [Download].

A dialog box for saving destination appears.

##### 2 Specify a saving destination folder, and then click the [OK] button.

The data will be saved.

#### ■ Applying the settings saved in a computer to the camera ([Upload])

Perform the following procedure to upload the setting file of the camera saved in a computer using the download function [Download] to apply the settings to the camera.

Use the file downloaded with the camera when uploading data.

Do not change the extension (.ndt) of a downloaded file.

Do not turn off the power of the camera while the upload operation is in process.

Do not perform any operation from the start of the upload operation until its end.

##### 1 Click the [Browse...] button on [Upload] to specify the downloaded software.

##### 2 Click the [Execute] button.

A message dialog box appears.

**3** Click the [OK] button.

Uploading will start.

When uploading has finished, a message dialog box appears.

**4** Click the [OK] button.

The camera will be restarted automatically.

## Chapter 6 **Maintenance**

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This chapter describes the warning displays and after-sales services of the camera.

# Troubleshooting

## For operations

Problem	Cause/solution	
The camera cannot be turned on.	Does the power cable plugged into the power outlet securely?	
The camera cannot be operated from the ROP (AK-HRP1000G) that is connected via IP.	Is the power turned on? • If the power lamp of the camera is not lit, the power of the camera is off.	
	Is a valid IP address of the camera set?	
	Is the correct camera to be operated selected?	
	Is the camera connected with the ROP (AK-HRP1000G) correctly? • Also refer to the Operating Instructions of AK-HRP1000G.	
	The ROP (AK-HRP1000G) may require upgrading to support the camera. • Contact your dealer.	
The camera cannot be accessed from the web browser.	Is the camera connected via the <LAN> terminal using a LAN cable of category 5 or higher?	
	Is the lamp of the <LAN> terminal lit? • If it is not lit, the camera may not be connected to LAN correctly, or the connected network is not functioning properly. Check the contact and wiring of the LAN cable.	
	Is the power turned on? • If the <POWER> lamp of the camera is not lit, the power of the camera is off.	
	Is a valid IP address of the camera set?	
	Does the camera access a wrong IP address? (Windows) • Execute >ping xxx.xxx.x.xx (xxx.xxx.x.xx is the IP address set for the camera) on Windows command prompt. If the camera responds, the camera is operating normally. If the camera does not respond, restart the camera and change its IP address within 20 minutes using EASY IP Setup Software.	
	Does the camera access a wrong IP address? (Mac) • Execute >ping -c 10 xxx.xxx.x.xx (xxx.xxx.x.xx is the IP address set for the camera) on Terminal of OS X. If the camera respond, the camera is operating normally. If the camera does not respond, restart the camera and change its IP address within 20 minutes using EASY IP Setup Software.	
	Is the port number set to 554? • Set an HTTP port number other than the following port numbers that are used by the camera. [20], [21], [23], [25], [42], [53], [67], [68], [69], [110], [123], [161], [162], [554], [995], [10669], [10670], [49152], [59000]...[59999], [60000]...[61000]	
	Does the set IP address conflict with another device? • Check the IP addresses of the camera, access devices (computer, controller, etc.), and other cameras.	
	Does the set subnet mask match the subnet of the network where the camera is installed? • Check the subnet mask set for the camera and access devices, and consult your network administrator.	
	Is [Use a proxy server] set on the web browser? (When the camera and computer are connected to the same subnet) • If a proxy server is set in [Proxy settings] of the web browser, it is recommended that an address that is excluded from proxy is set for the IP address.	
	Is the default gateway set for the camera wrong? (When the camera and computer are connected to separate subnets) • Check the default gateway set for the camera, and consult your network administrator.	
	The setting values on the [Setup] screen are not updated successfully or not displayed.	Press the F5 key on the keyboard of your computer to request update of the setting values. (Windows)
		Press the Command + R keys on the keyboard of your computer to request update of the setting values. (Mac)
Perform the following procedure to delete Internet temporary files. (Windows) 1) Select [Tools] - [Internet Options] on Internet Explorer. 2) Click the [General] tab, and then click the [Del] button on [Browsing history]. 3) On the [Delete browsing history] dialog box, set the [Temporary Internet Files] check box to on and click the [Del] button. 4) Click the [OK] button.		
Perform the following procedure to delete Internet temporary files (cache). (Mac) 1) Select [Safari] - [Empty Cache] on Safari. 2) Click the [Empty] button in the [Are you sure you want to empty the cache?] pop-up window.		
For Internet temporary file configuration, set [Check for newer versions of stored pages] to [Every time I visit the webpage]. (Windows) Perform the following procedure to set. 1) Select [Tools] - [Internet Options] on Internet Explorer. 2) Click the [General] tab, and then click the [settings] button on [Browsing history]. 3) On the [Temporary Internet Files and History Settings] dialog box, set the [Every time I visit the webpage] radio button of [Check for newer versions of stored pages] to on. 4) Click the [OK] button.		
The port of the camera may be filtered by the firewall function of the anti-virus software, etc. • Change the HTTP port number of the camera to another port number that is excluded from filtering.		

## Chapter 6 Maintenance — Troubleshooting

Problem	Cause/solution
The setting file cannot be downloaded.	<p>Is the file download function disabled? (Windows) Perform the following procedure to set.</p> <ol style="list-style-type: none"> <li>1) Select [Tools] - [Internet Options] on Internet Explorer.</li> <li>2) Click the [Security] tab, and then click the [Custom Level...] button on [Security level for this zone].</li> <li>3) On the [Security Setting] dialog box, set the [Enable] radio button of [Download file] to on.</li> <li>4) Set the [Enable] radio button of [Automatic prompting for file downloads] to on. (Internet Explorer 8 only)</li> <li>5) Click the [OK] button.</li> <li>6) Click the [OK] button.</li> </ol>
The screen for authentication is displayed continuously.	<p>Has the user name or password been changed?</p> <ul style="list-style-type: none"> <li>• While accessing the camera, if the user name or password for the user who has logged in from a separate web browser is changed, the screen for authentication appears every time the screen is switched.</li> </ul> <p>Close the web browser and access the camera again.</p> <hr/> <p>Has the setting for user authentication method been changed?</p> <ul style="list-style-type: none"> <li>• If the setting of [User auth.] - [Authentication] has been changed, close the web browser and access again.</li> </ul>
It takes long before the image is displayed.	<p>Is the camera on the same local network accessed via proxy?</p> <ul style="list-style-type: none"> <li>• Configure your web browser so that the camera is not accessed via proxy.</li> </ul> <hr/> <p>Are multiple users viewing the IP images on the camera at the same time?</p> <ul style="list-style-type: none"> <li>• When multiple users access the IP images on the camera at the same time, it may take longer to display the images on the screen, or the refresh rate of IP images may decrease.</li> </ul>

### For IP images

Problem	Cause/solution
The screen does not show images.	<p>Has the plugin software for display been installed? (Windows)</p> <ul style="list-style-type: none"> <li>• Install the plugin software for display.</li> </ul> <hr/> <p>If the IP image on the [Live] screen is not displayed, set [Check for newer versions of stored pages] to [Every time I visit the webpage] in the Internet temporary file configuration. (Windows) Perform the following procedure to set.</p> <ol style="list-style-type: none"> <li>1) Select [Tools] - [Internet Options] on Internet Explorer.</li> <li>2) Click the [General] tab, and then click the [settings] button on [Browsing history].</li> <li>3) On the [Temporary Internet Files and History Settings] dialog box, set the [Every time I visit the webpage] radio button of [Check for newer versions of stored pages] to on.</li> <li>4) Click the [OK] button.</li> </ol>
The image is blurry.	<p>Has the focus been adjusted properly?</p> <ul style="list-style-type: none"> <li>• Check the focus adjustment.</li> </ul>
The screen does not update images.	<p>Troubles in image updating may occur depending on the web browser or version being used. Crowded network or heavy access to the camera may interrupt image display. If the IP image setting of the camera has been changed, the image may be interrupted temporarily.</p> <ul style="list-style-type: none"> <li>• Check the access status to the camera and terminate accesses that can be disconnected. Press the F5 key on the keyboard of your computer to request update of the setting values. (Windows)</li> <li>• Check the access status to the camera and terminate accesses that can be disconnected. Then, press the Command + R keys on the keyboard of your computer to request update of the setting values. (Mac)</li> </ul>
Images are not updated successfully or not displayed.	<p>Perform the following procedure to delete Internet temporary files. (Windows)</p> <ol style="list-style-type: none"> <li>1) Select [Tools] - [Internet Options] on Internet Explorer.</li> <li>2) Click the [General] tab, and then click the [Del] button on [Browsing history].</li> <li>3) On the [Delete browsing history] dialog box, set the [Temporary Internet Files] check box to on and click the [Del] button.</li> <li>4) Click the [OK] button.</li> </ol> <hr/> <p>Perform the following procedure to delete Internet temporary files (cache). (Mac)</p> <ol style="list-style-type: none"> <li>1) Select [Safari] - [Empty Cache] on Safari.</li> <li>2) Click the [Empty] button in the [Are you sure you want to empty the cache?] pop-up window.</li> </ol> <hr/> <p>The port of the camera may be filtered by the firewall function of the anti-virus software, etc.</p> <ul style="list-style-type: none"> <li>• Change the HTTP port number of the camera to another port number that is excluded from filtering.</li> </ul>
The screen does not show H.264 images.	<p>If the plugin software for display, Network Camera View 4S, has been uninstalled in an environment where the plugin software for display, Network Camera View 3, is installed, H.264 image display is disabled. In this case, uninstall Network Camera View 3, and then install Network Camera View 4S.</p> <hr/> <p>Are the camera and computer connected via Internet?</p> <ul style="list-style-type: none"> <li>• Set [Internet mode (over HTTP)] to [On].</li> </ul>
Images are interrupted.	<p>Image information may not be transmitted properly due to congestion in the transmission path, etc., causing the images to be interrupted.</p> <ul style="list-style-type: none"> <li>• Consult your network administrator.</li> </ul> <hr/> <p>The sequence of packets may be changed in the transmission path, causing the images to be interrupted.</p> <ul style="list-style-type: none"> <li>• It may be avoided by using the same Internet service provider on the camera and on the computer.</li> </ul> <p>Consult your network administrator.</p>

Problem	Cause/solution
When multiple web browsers are running to display H.264 images, one of the web browsers show shifted multiple camera images.	Some combinations of the computer's display adaptor and driver may cause this problem. (Windows) <ul style="list-style-type: none"> <li>• If it occurs, update the driver of the display adaptor to its latest version first. If the problem persists, perform the following procedure to adjust the function of [Hardware Acceleration]. An example for Windows 7 is described here. The settings may not be able to be changed depending on your environment.                             <ol style="list-style-type: none"> <li>1) Right-click the mouse on the desktop, and select [Screen Resolution] from the menu.</li> <li>2) Click [advanced].</li> <li>3) Select the [Troubleshoot] tab and click [Change Settings].</li> <li>4) If the [User Account Control] dialog box appears, click [Yes]. If you have logged in with an account other than the administrator, enter the password and the username if necessary, and click [Yes].</li> <li>5) Change the item for [Hardware Acceleration] to the leftmost [None], and then click the [OK] button.</li> </ol> </li> </ul>

## Web screen

The following problems may occur depending on the OS of your computer. When these problems occur, take the respective measures. These measures do not affect on the operation of other applications.

“Information bar” described in this section refers to the message bar displayed on Internet Explorer. (Windows)

### ■ Internet Explorer



The “Information bar” will be displayed under the address bar of Internet Explorer.

Problem	Cause/solution
The information bar indicating the following message appears on Internet Explorer 9.0/10.0/11.0. [This webpage wants to run the following add-on: 'WebVideo Module' from 'Panasonic System Networks Co.,Ltd.'.]	Perform the following procedure to grant the permission. <ol style="list-style-type: none"> <li>1) Select [Grant(A)].</li> </ol>
The information bar indicating the following message appears on Internet Explorer 8.0. [Pop-up blocked. To see this pop-up or additional options click here...]	Perform the following procedure to grant the permission. <ol style="list-style-type: none"> <li>1) Click the information bar and select [Always Allow Pop-ups from This Site(A)...]. [Allow pop-ups from this site?] screen appears.</li> <li>2) Click the [Yes(Y)] button.</li> </ol>
The information bar indicating the following message appears on Internet Explorer 9.0/10.0/11.0. [This website wants to install the following add-on: 'nwcV4SSetup.exe' from 'Panasonic System Networks Co.,Ltd.'.]	Perform the following procedure to grant the permission. <ol style="list-style-type: none"> <li>1) Select [install(I)]. A security warning screen appears.</li> <li>2) Click the [install(I)] button.</li> </ol>
The information bar indicating the following message appears on Internet Explorer 8.0. [This site might require the following ActiveX control:'nwcV4SSetup.exe' from 'Panasonic System Networks Co.,Ltd.'. Click here to install...]	Perform the following procedure to grant the permission. <ol style="list-style-type: none"> <li>1) Click the information bar and select [Install ActiveX Control...]. A security warning screen appears.</li> <li>2) Click the [install(I)] button.</li> </ol>
Unnecessary status bar or scroll bar appears on a pop-up window.	Perform the following procedure to grant the permission. <ol style="list-style-type: none"> <li>1) Open the security setting screen on Internet Explorer, and select [internet].</li> <li>2) Click the [Custom Level...] button.</li> <li>3) Select [Enable] in [Allow script-initiated windows without size or position constraints] of [More], and click the [OK] button. A warning screen appears.</li> <li>4) Click the [Yes(Y)] button.</li> </ol>
IP images do not match the display frame.	When the DPI setting for image is set to 120 DPI or above, the image may not be displayed properly. Perform the following setting. <ol style="list-style-type: none"> <li>1) Right-click on the computer screen and click [Screen Resolution] - [Make text and other items larger or smaller].</li> <li>2) Set it to [Smaller-100% (default)].</li> </ol> When the zoom level for the zooming function of Internet Explorer is set to other than 100%, the image may not be displayed properly. Perform the following setting. <ol style="list-style-type: none"> <li>1) Select [View(V)] - [Zoom(Z)] on the menu bar of Internet Explorer, and click [100%].</li> </ol>
The display layout is corrupted, or some buttons on the screen cannot be operated.	Configure the settings so that the camera is not displayed in the compatibility view. <ol style="list-style-type: none"> <li>1) Select [Tools(T)] - [Compatibility View Settings(B)] on the menu bar of Internet Explorer.</li> </ol>



## Checking the operating time

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The operating time can be checked in [MAIN MENU] → [DIAGNOSTIC] → [HOUR METER].

**[HEAD]:** The operating time of the camera head can be checked.

## Warning displays

Warning displays appear when errors have occurred in camera's auto functions.

### Camera warning displays

#### ■ When AWB (automatic white balance) is executed

[AWB BREAK]	Automatic white balance has been interrupted.
[AWB HIGH LIGHT NG]	Automatic white balance cannot be executed because the light amount is excessive. Set the light amount to an appropriate level.
[AWB LOW LIGHT NG]	Automatic white balance cannot be executed because the light amount is insufficient. Set the light amount to an appropriate level.
[AWB NG CHECK FILTER]	Automatic white balance cannot be executed because of erroneous filter position. Set the correct filter position.
[AWB RCH OUT RANGE]	The white balance convergence for red cannot be achieved. Shoot a uniformly white object on the screen, and execute AWB.
[AWB BCH OUT RANGE]	The white balance convergence for blue cannot be achieved. Shoot a uniformly white object on the screen, and execute AWB.

#### ■ When ABB (automatic black balance) is executed

[ABB BREAK]	Automatic black balance has been interrupted.
[ABB RCH OUT RANGE]	The black balance convergence for red cannot be achieved. Check if there are any errors in the image.
[ABB BCH OUT RANGE]	The black balance convergence for blue cannot be achieved. Check if there are any errors in the image.
[ABB GCH OUT RANGE]	The black balance convergence for green cannot be achieved. Check if there are any errors in the image.
[ABB NG]	The lens iris may not be closed.

#### ■ Executing black shading

[BSHD]	Black shading is executing.
[BSHD BRAK]	Black shading has been interrupted.
[BSHD NG]	An error has occurred with the black shading. Check if the lens is correctly closed.

#### ■ When ASU (automatic setup) is executed

[AUTO SETUP BREAK]	Automatic setup has been interrupted.
[ASU NG] [LENS CTL NG OUT RANGE]	The lens iris control cannot be performed. Check the lens settings.
[ASU NG] [AWB RCH NG]	An error in red has occurred. Check the white balance settings.
[ASU NG] [AWB BCH NG]	An error in blue has occurred. Check the white balance settings.
[ASU NG] [ABB RCH NG]	An error in red has occurred. Check the black balance settings.
[ASU NG] [ABB BCH NG]	An error in blue has occurred. Check the black balance settings.
[ASU NG] [ABB GCH NG]	An error in green has occurred. Check the black balance settings.
[ASU NG] [BSHD RCH NG]	An error in red has occurred. Adjust black shading.
[ASU NG] [BSHD BCH NG]	An error in blue has occurred. Adjust black shading.
[ASU NG] [BSHD GCH NG]	An error in green has occurred. Adjust black shading.
[ASU NG] [BSHD BREAK]	Black shading has been interrupted.
[ASU NG] [BSHD NG]	An error in black shading has occurred.
[ASU NG] [GAMMA RCH NG]	An error in red has occurred. Check the gamma settings.
[ASU NG] [GAMMA BCH NG]	An error in blue has occurred. Check the gamma settings.
[ASU NG] [FLARE RCH NG]	An error in red has occurred. Check the flare settings.
[ASU NG] [FLARE BCH NG]	An error in blue has occurred. Check the flare settings.

[ASU NG] [ABB MPED NG]	An error in master pedestal has occurred. Check the master pedestal settings of automatic black balance.
[ASU NOT RUNNING(BAR)]	Automatic setup is prohibited.
[ASU NOT RUNNING(TEST)]	Automatic setup is prohibited.
[ASU NOT RUNNING(D.EXT)]	Automatic setup is prohibited.
[ASU NOT RUNNING(HDR)]	Automatic setup is prohibited.

## Other warning displays

[FAN OFF]	Fan has stopped. [MAIN MENU] → [MAINTENANCE] → [FAN SETTING] → [FAN] → [FAN MODE] → [OFF] is set.
[UPDATE ERROR!] [ERRCODE:01]	The version update file is invalid. Store the correct version update file in the SD memory card, and the execute the update again.
[UPDATE ERROR!] [ERRCODE:02]	The version update file does not exist. Store the correct version update file in the SD memory card, and the execute the update again.
[UPDATE ERROR!] [ERRCODE:03]	Mounting error of the SD memory card. The SD memory card may not be inserted, or the SD memory card may be damaged.
[UPDATE ERROR!] [ERRCODE:04]	File load error. The SD memory card may be ejected during the version update, or the version update file in the SD memory card may be corrupted.
[UPDATE ERROR!] [ERRCODE:05]	An error has occurred during the ROM erase for overwriting the version update file. Consult the dealer.
[UPDATE ERROR!] [ERRCODE:06]	An error has occurred during the ROM write for overwriting the version update file. Consult the dealer.
[UPDATE ERROR!] [ERRCODE:07]	The version update file is invalid. Store the correct version update file in the SD memory card, and the execute the update again.
[UPDATE ERROR!] [ERRCODE:08]	Other system error. (Communication error, etc.) Consult the dealer.
[TEMP OVER!] [FORCE POWER OFF!!]	The internal temperature is high. The power is turned off forcefully. Operate the fan when set to [MAIN MENU] → [MAINTENANCE] → [FAN SETTING] → [FAN] → [FAN MODE] → [OFF].

## Updating the camera firmware

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Refer to the following website for new updates of the firmware and for operating instructions.  
<http://pro-av.panasonic.net/>

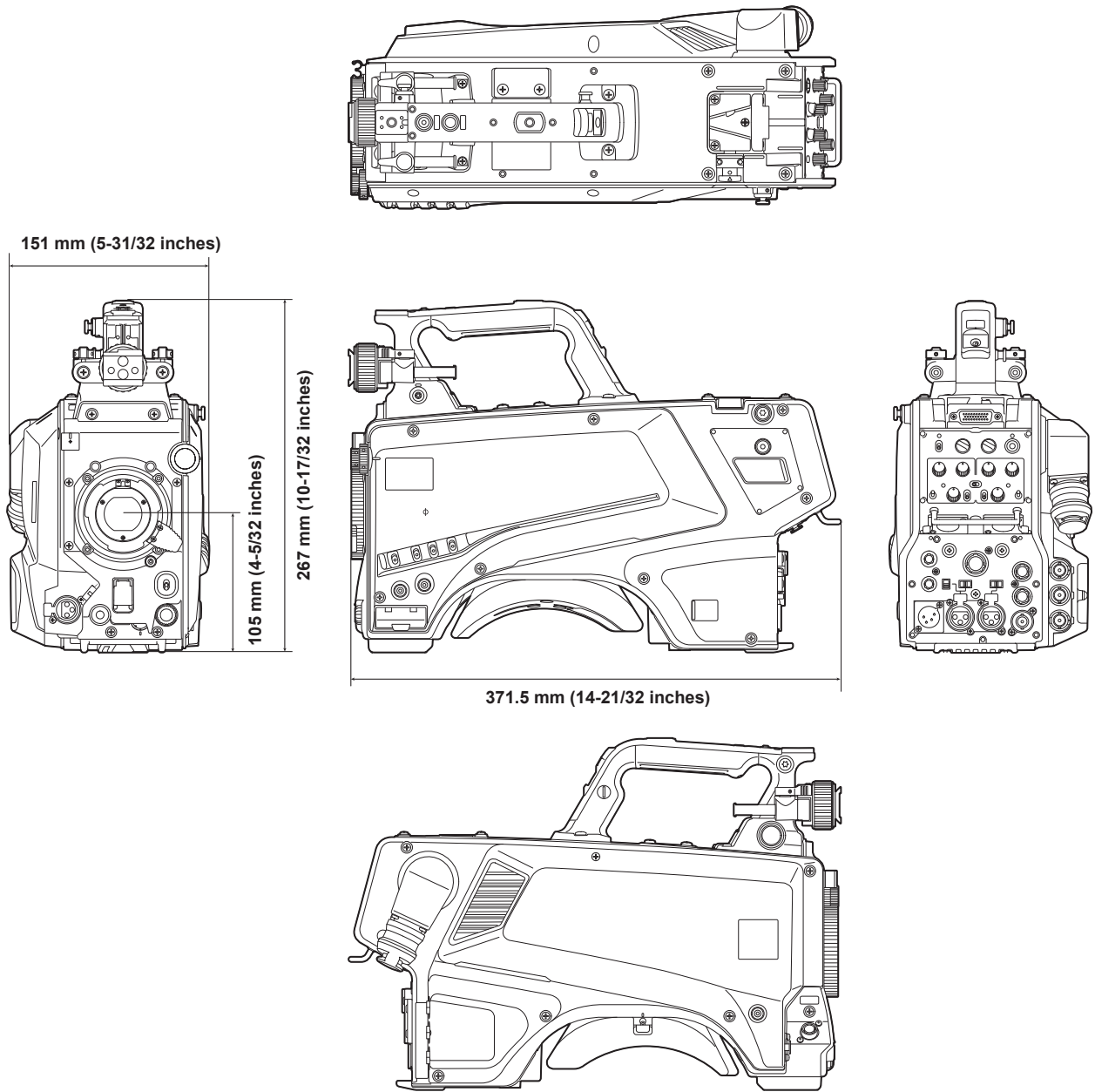
## Chapter 7 **Specifications**

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This chapter describes the specifications of this product.

# Specifications

## Dimensions



## Specifications

### General

Power  
 DC --- 12 V (when using an external power supply)  
 AC ~ 240 V, 50 Hz/60 Hz (when AK-UCU500P/AK-UCU500PS/AK-UCU500E/AK-UCU500ES is connected)  
 Power consumption  
 119 W (maximum, when connecting to an external 12 V and including supply to an externally connected devices)  
 360 W (maximum, when AK-UCU500P/AK-UCU500PS/AK-UCU500E/AK-UCU500ES is connected and including supply to an externally connected devices)

 indicates safety information.

Ambient operating temperature	-10 °C – 45 °C (14 °F – 113 °F) (Preheating required under a temperature 0 °C (32 °F) or below)
Storage temperature	-20 °C – 60 °C (-4 °F – 140 °F)
Ambient operating humidity	85% or less (relative humidity)
Weight	Approx. 4.4 kg (9.70 lbs.) (body only, excluding the accessories)

## Chapter 7 Specifications — Specifications

Dimensions (W×H×D)	Body only 151 mm × 267 mm × 371.5 mm (5-31/32 inches × 10-17/32 inches × 14-21/32 inches) (excluding protrusions)
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### Camera unit

Pickup device	2/3-type, 2.2 million pixels, MOS × 3
Optical filter	CC: 3200 K, 4300 K, 6300 K, Cross, Diffusion ND: CAP, Clear, 1/4, 1/16, 1/64
Lens mount	2/3-type bayonet
Sensitivity	Two shooting modes [HIGH SENS]: F11 (59.94 Hz)/F12 (50 Hz) [NORMAL]: F8 (59.94 Hz)/F9 (50 Hz) 2000 lx, 3200 K, when white reflectivity is 89.9%
Horizontal modulation	50% or above (27.5 MHz)
S/N	60 dB or above
Horizontal resolution	1000 TV lines or above (center)
Gain switching	[NORMAL]: -3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36 [HIGH SENS]: -6, -3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36
Shutter speed	<ul style="list-style-type: none"> <li>• [59.94i]/[59.94p] mode: 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [29.97p] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [23.98p] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [50i]/[50p] mode: 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [25p] mode: 1/48, 1/50, 1/60, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> <li>• [200fps]/[240fps] mode: 1/250, 1/500, 1/1000, 1/1500, 1/2000</li> </ul>

### Video input/output

<HD SDI1> terminal	BNC × 1 HD (3G/1.5G): 0.8 V [p-p], 75 Ω
<HD SDI2> terminal	BNC × 1 HD (3G/1.5G): 0.8 V [p-p], 75 Ω
<AUX> terminal	BNC × 1 Functions as <HD TRUNK> terminal/<PROMPTER2> terminal by switching the setting in the menu <HD TRUNK>: HD (1.5G) <PROMPTER2>: VBS signal 1 V [p-p], 75 Ω
<G/L IN/PROMPTER OUT> terminal	BNC × 1 <G/L IN>: Tri-level SYNC or black burst <PROMPTER OUT>: VBS signal 1 V [p-p], 75 Ω Functions as <G/L IN> when standalone, and as <PROMPTER OUT> when AK-UCU500P/ AK-UCU500PS/AK-UCU500E/AK-UCU500ES is connected

### Audio input/output

<MIC 1> terminal	XLR × 1, 3-pin <LINE>/<MIC>/<+48V> switchable For <MIC>, <FRONT>/<REAR> switchable <LINE>: 0 dBu, +4 dBu menu selection available <MIC>: -60 dBu, -40 dBu, or -20 dBu menu can be selected
<MIC 2> terminal	XLR × 1, 3-pin <LINE>/<MIC>/<+48V> switchable <LINE>: 0 dBu, +4 dBu menu selection available <MIC>: -60 dBu, -40 dBu, or -20 dBu menu can be selected
<MIC> terminal (front)	XLR × 1, 3-pin Switchable with <MIC 1> terminal

### Intercom

<INTERCOM1> terminal	XLR × 1, 5-pin
<INTERCOM2> terminal	XLR × 1, 5-pin
<EARPHONE> terminal	Stereo mini jack × 1, 3-pin

## Other input/output

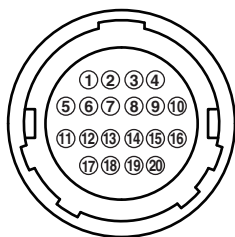
<OPT FIBER> terminal	Optical composite connector × 1
<LENS> terminal	12-pin × 1
<VF> terminal	20-pin × 1
<VF> terminal (rear)	29-pin × 1
<DC IN> terminal	XLR × 1, 4-pin, DC 12 V
<DC OUT 12V 1A> terminal	4-pin × 1
<RET CTRL> terminal	6-pin × 1
<EXT I/O> terminal	20-pin × 1, DC 12 V, 0.5 A
<REMOTE> terminal	10-pin × 1
<TRUNK> terminal	12-pin × 1
<DC OUT 12V 2.5A> terminal	2-pin × 1
<LAN> terminal	RJ-45 × 1
<USB2.0> terminal (host)	Type A connector, DC 5 V, 0.5 A
Build-up terminal	20-pin × 1



## Details of the connector signals

OPT FIBER	
	1 OPT-TX(Mark Band=IN)
	2 OPT-RX(Mark Band=OUT)
	3 AC240V(C)
	4 AC240V(H)
	5 STBY-SIG
	6 STBY-CONT
TAJIMI ELECTRONICS	
	1 OPT-TX(Mark Band=IN)
	2 OPT-RX(Mark Band=OUT)
	3 STBY-SIG
	4 STBY-CONT
	5 AC240V(C)
	6 AC240V(H)
LEMO	
INTERCOM	
	1 TALK GND
	2 TALK
	3 RECEIVE GND
	4 RECEIVE CH1
	5 RECEIVE CH2
HA16PRH-5S (Hirose Electric Co.)	
RET CTRL	
	1 INTERCOM1 MIC ON
	2 INTERCOM2 MIC ON
	3 GND
	4 RET CONT3
	5 RET CONT1
	6 RET CONT2
HR10A-10R-10SB(71) (Hirose Electric Co.)	
DC IN	
	1 UNREG GND
	2 Not used
	3 Not used
	4 +12 V
HA16RA-4P(77) (Hirose Electric Co.)	

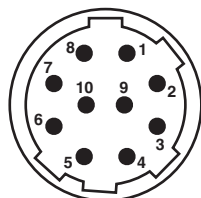
EXT IO



1	CRANE DATA(H)
2	CRANE DATA(C)
3	CRANE CONT(H)
4	CRANE CONT(C)
5	GND
6	CRANE INTERCOM RECEIVE
7	CRANE INTERCOM RECEIVE GND
8	CRANE INTERCOM TALK
9	CRANE INTERCOM TALK GND
10	CRANE PGM1 LEVEL
11	CRANE PGM2 LEVEL
12	Not used
13	Not used
14	G TALLY VF
15	R TALLY VF
16	T TALLY VF
17	CRANE ACT
18	UNREG +12 V
19	Not used
20	UNREG GND

HR10A-13R-20SC (Hirose Electric Co.)

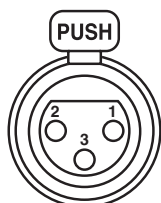
REMOTE



1	CAM DATA (H)
2	CAM DATA (C)
3	CAM CONT(H)
4	CAM CONT(C)
5	Not used
6	Not used
7	Not used
8	Not used
9	UNREG +12 V
10	UNREG GND

HR10A-10R-10SC (Hirose Electric Co.)

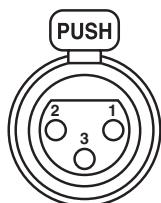
MIC (front)



1	GND
2	AUDIO IN (H)
3	AUDIO IN (C)

HA16PRM-3SG (Hirose Electric Co.)

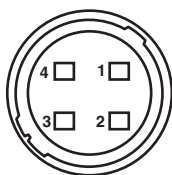
MIC (rear)



1	GND
2	AUDIO IN (H)
3	AUDIO IN (C)

HA16PRM-3SG (Hirose Electric Co.)

DC OUT 1.0A



1	GND
2	R TALLY (open collector)
3	G TALLY (open collector)
4	UNREG +12 V (max. 1.0 A)

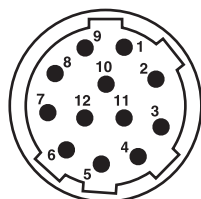
HR10A-7R-4SC (Hirose Electric Co.)

Chapter 7 Specifications — Details of the connector signals

**EARPHONE**

—	1	GND
	2	AUDIO OUT1
	3	AUDIO OUT2

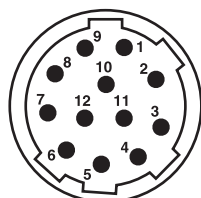
**TRUNK**



1	CMD OUT0(H)
2	CMD OUT0(C)
3	CMD IN0(H)
4	CMD IN0(C)
5	CMD OUT1(H)
6	CMD OUT1(C)
7	CMD IN1(H)
8	CMD IN1(C)
9	Not used
10	GND
11	Not used
12	Not used

HR10A-10R-12SC (Hirose Electric Co.)

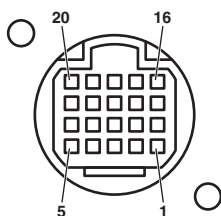
**LENS**



1	RET-SW
2	REC
3	GND
4	IRIS-AUTO
5	IRIS-CONT
6	UNREG +12 V
7	IRIS-POSI
8	IRIS-G-MAX
9	EXT-POSI
10	ZOOM-POSI
11	FOCUS POSI/LENS RXD
12	IRIS AUTO/LENS TXD

HR10A-10R-12SC (Hirose Electric Co.)

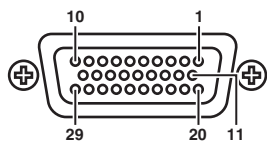
**VF (front)**



1	UNREG-12V
2	UNREG-12V
3	+9 V
4	VF-P <sub>B</sub> -OUT-GND
5	VF-P <sub>R</sub> -OUT-GND
6	VF-Y-OUT
7	VF-Y-OUT-GND
8	VF-CLK
9	VF-WR
10	VF-DATA
11	UNREG-GND
12	ZEBRA-SW
13	PEAKING
14	TA BOX ACT
15	VF-P <sub>B</sub> -OUT
16	VF-P <sub>R</sub> -OUT
17	VF-SW3
18	FRONT-VR
19	TA TALLY
20	GND

HR12-14RF-20SDL (Hirose Electric Co.)

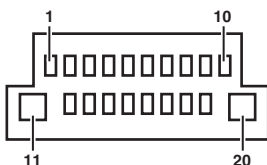
VF (rear)



1	VF-Y-OUT
2	VF-P <sub>B</sub> -OUT
3	VF-P <sub>R</sub> -OUT
4	CAM DETECT
5	I2C DATA
6	R TALLY
7	T TALLY
8	UNREG +12 V
9	UNREG +12 V
10	UNREG +12 V
11	VF-Y-OUT-GND
12	VF-P <sub>B</sub> -OUT-GND
13	VF-P <sub>R</sub> -OUT-GND
14	AGND
15	DGND
16	Not used
17	UNREG GND
18	Not used
19	FGND
20	LCD ACT (Not used)
21	Not used
22	Not used
23	PEAKING CONT (Not used)
24	I2C CLK
25	G TALLY
26	VF P REQ
27	RESERVED
28	RESERVED
29	RESERVED

D02F-29SF-N-F0 (Japan Aviation Electronics Industry)

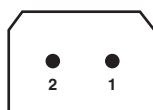
BUILD UP



1	Not used
2	VF-P <sub>B</sub> -OUT-GND
3	VF-P <sub>B</sub> -OUT
4	VF-P <sub>R</sub> -OUT-GND
5	VF-P <sub>R</sub> -OUT
6	VF-Y-OUT
7	VF-Y-OUT-GND
8	CAM DATA
9	CAM CONT
10	Not used
11	AC(H)
12	Not used
13	IRIS POS
14	GND
15	IRIS CNT
16	FOCUS POS/L2C DATA
17	C2L DATA
18	BU ACT
19	Not used
20	AC(C)

QR/P8-20S-C (Hirose Electric Co.)

DC OUT 2.5A



1	UNREG +12 V
2	UNREG GND

VJS4444 (Panasonic)

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#### **Disposal of Old Equipment and Batteries**

##### **Only for European Union and countries with recycling systems**

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points in accordance with your national legislation.

By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.

EU



For more information about collection and recycling, please contact your local municipality, dealer or supplier.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

##### **Note for the battery symbol (bottom symbol):**

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.