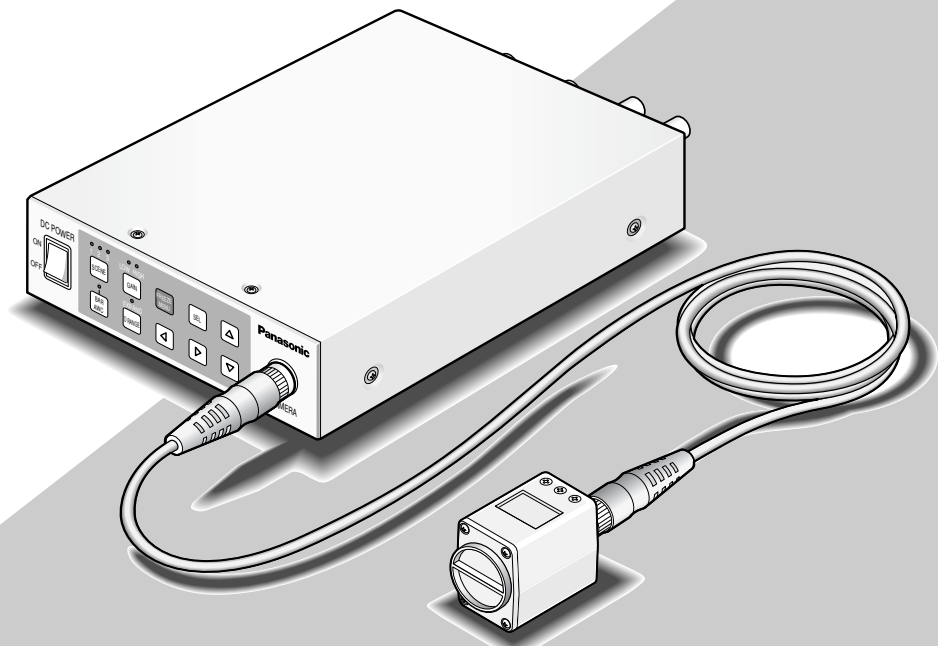


Panasonic

Operating Instructions HD Camera Control Unit

Model Nos. GP-US932CSAE

GP-US932CAE



This illustration represents GP-US932CSAE.
Camera head: Option
Camera cable: Option

HDMI[™]
HIGH DEFINITION MULTIMEDIA INTERFACE

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives 2006/95/EC and 2004/108/EC.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinie 2006/95/EC und 2004/108/EC.

Nous déclarons sous notre seule responsabilité que le produit auquel se réfère la présente déclaration est conforme aux normes ou autres documents normatifs conformément aux dispositions des directives 2006/95/CE et 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de las directivas 2006/95/CE y 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive 2006/95/CE e 2004/108/CE.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, overeenkomstig de bepalingen van Richtlijnen 2006/95/EC en 2004/108/EC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 2006/95/EC og 2004/108/EC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs i direktiv nr. 2006/95/EC och 2004/108/EC.

Ilmoitamme yksinomisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 2006/95/EC ja 2004/108/EC säädöksiä.

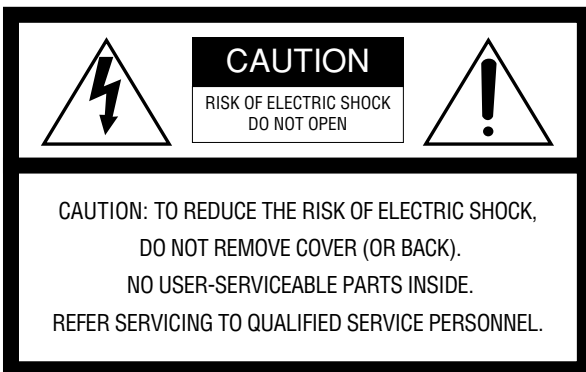
Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som følger bestemmelsene i direktivene 2006/95/EC og 2004/108/EC.

WARNING:

- To prevent fire or electric shock hazard, do not expose this apparatus to rain or moisture.
- The apparatus should not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, should be placed on the apparatus.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The connections should comply with local electrical code.

CAUTION:

Before attempting to connect or operate this product, please read the label on the bottom.



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.

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.

CONTENTS

| | |
|---|----|
| Important safety instructions | 3 |
| Limitation of liability | 5 |
| Disclaimer of warranty | 5 |
| Precautions | 6 |
| Preface | 7 |
| Trademarks and registered trademarks | 7 |
| Major operating controls and their functions | 8 |
| ■ Camera head | 8 |
| ■ Camera control unit (CCU) | 8 |
| Precautions for installation | 12 |
| Installations/connections | 13 |
| ■ How to mount lens | 14 |
| Setup procedure | 15 |
| ■ Setup menu | 15 |
| 1. Camera title setting [CAMERA ID] | 17 |
| 2. ELC setting [ELC] | 18 |
| 3. Electronic shutter setting [SHUTTER] | 19 |
| 4. Gain adjustment [GAIN] | 19 |
| 5. Electronic sensitivity enhancement setting [SENS UP] | 19 |
| 6. RGB/YPbPr output signal setting [OUTPUT SEL] | 19 |
| 7. HDMI output signal setting [HDMI OUTPUT] | 19 |
| 8. Scene file setting [SCENE FILE] | 20 |
| 9. White balance setting [WHITE BAL] | 23 |
| 10. Black balance setting [BLACK BAL] | 24 |
| 11. Synchronization setting [SYNC] | 24 |
| 12. Configure the settings relating to the electronic zoom [ELECTRIC ZOOM] | 25 |
| 13. Image freezing [FREEZE] | 25 |
| 14. Setting of vertical flip function [FLIP ENABLE] | 25 |
| 15. Setting of horizontal flip function [MIRROR ENABLE] | 25 |
| 16. Display setting of vertical and horizontal flip function [STATUS DISPLAY] | 25 |
| Default restoring | 25 |
| SEL menu | 26 |
| ■ How to display/operate the SEL menu | 26 |
| ■ Button assignment | 26 |
| Troubleshooting | 27 |
| Specifications | 29 |
| Standard accessories | 30 |
| Optional accessories | 30 |

Limitation of liability

THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THE THIRD PARTY'S RIGHT.

THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE ADDED TO THE INFORMATION HEREIN, AT ANY TIME, FOR THE IMPROVEMENTS OF THIS PUBLICATION AND/OR THE CORRESPONDING PRODUCT(S).

Disclaimer of warranty

IN NO EVENT SHALL Panasonic Corporation BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

- (1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- (3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- (4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;

(5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;

(6) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR THE PURPOSE OTHER THAN SURVEILLANCE.

Precautions

Refer installation work to the dealer.

Installation work requires technique and experiences. Failure to observe this may cause fire, electric shock, injury, or damage to the product.
Be sure to consult the dealer.

Stop the operation immediately when something is wrong with the camera.

When smoke goes up from the camera or the smell of smoke comes from the camera, stop the operation immediately and contact your dealer.
Turn the power off immediately and contact qualified service personnel for service.

Do not attempt to disassemble this product.

To prevent electric shock, do not remove screws or covers.
There are no user-serviceable parts inside.
Ask qualified service personnel for servicing.

Do not insert any foreign objects into this product.

Failure to observe this may cause damage to this product.
Turn the power off immediately and contact qualified service personnel for service.

Do not use this product in an inflammable atmosphere.

Failure to observe this may cause an explosion resulting in injury.

Avoid installing this product in the locations where salt damage occurs or corrosive gas is produced.

Otherwise, the mounting portions will deteriorate and accidents such as a fall of the camera may occur.

Do not operate this product beyond the specified temperature, humidity or power source ratings.

Use this product at temperature within 0 °C to 40 °C and humidity below 90 %. The input power source is 12 V DC.

To keep on using with stable performance

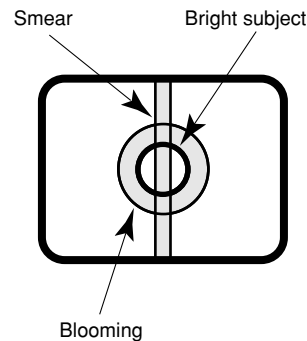
Parts of this product may deteriorate and it may shorten the lifetime of this product when using in locations subject to high temperatures and high humidity.
Use this product at temperatures between 0 °C to 40 °C
Failure to observe this may adversely affect the components inside or cause this product to malfunction. Use of this product at temperatures of 30 °C or lower is recommended without direct heat from heaters in consideration of heat release at the camera location.

Handle this product with care.

Do not abuse this product. Avoid striking, shaking, etc.
The product could be damaged by improper handling or storage.

Do not aim the camera head at strong light sources.

A light source such as a spot light causes a blooming (light bleeding) or a smear (vertical lines).



Clean the main body with care.

Turn the power off when cleaning the product. Failure to observe this may cause injury or malfunction.
Use a dry cloth to clean this product. Do not use strong abrasive detergent when cleaning this product. When the dirt is hard to remove, use a mild detergent and wipe gently. Then, wipe off the remaining detergent with a dry cloth.
Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

Clean the faceplate with care.

Do not clean the faceplate with strong or abrasive detergents. Use lens tissue or a cotton tipped applicator and ethanol.

To remove stubborn stains

When the dirt is hard to remove, use a mild detergent and wipe gently. Then, wipe off the remaining detergent with a dry cloth.

Indication label

Refer to the indication label placed on the surface of the unit as to the indications of equipment classification and power source, etc.

This product is intended for usage in general electronics applications.
The usage of this product for special purposes, such as traffic control instruments, transportation instruments, and medical instruments, may be prohibited without authorization under the applicable laws and regulations of each country or region where this product is in practical use.
The arrangement for the authorization shall be made under customer's or user's own responsibility.

Preface

This system is a compact and light type camera control unit (hereafter called CCU) with high image quality and multiple functions by introducing digital signal processing. The camera head is separately mounted.

- GP-US932CSAE; HD Camera Control Unit (HDMI and SDI output connectors equipped)
- GP-US932CAE; HD Camera Control Unit (HDMI output connector equipped)

This product is used in combination with the optional camera head.

- GP-US932HAE, 3CCD HD Camera Head
- The multi-format output applicable to 1 080p, 1 080i, 720p, 576p, and 576i is available.
- Signal transmission without signal degradation has been achieved thanks to the HDMI or SDI output connectors.
- The dynamic range expansion function allows users to shoot even images with a wide range of brightness contrast and facilitate their visibility.

The descriptions in this book are predicated on a system with the optional camera head.

Trademarks and registered trademarks

HDMI, HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

Major operating controls and their functions

■ Camera head

① Lens mount section

A C-mount lens is mounted on this section. (☞ page 14)

② Camera cable connector

The camera cable (option) is connected to this connector.

<HD Camera Cable> (option)

GP-CA932/4E (4 m)

GP-CA932/6E (6 m)

GP-CA932/10E (10 m)

GP-CA932A20E (20 m)

③ Tripod socket

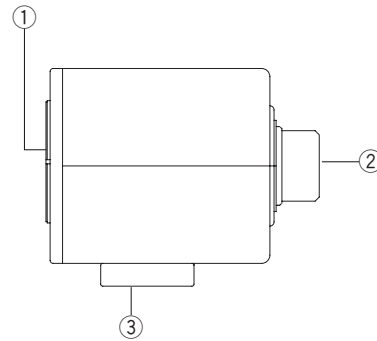
The tripod socket hole is used when the camera head is secured to the tripod.

The tripod socket can be mounted on either top or bottom of the camera head.

Tripod socket hole: 1/4-20 UNC

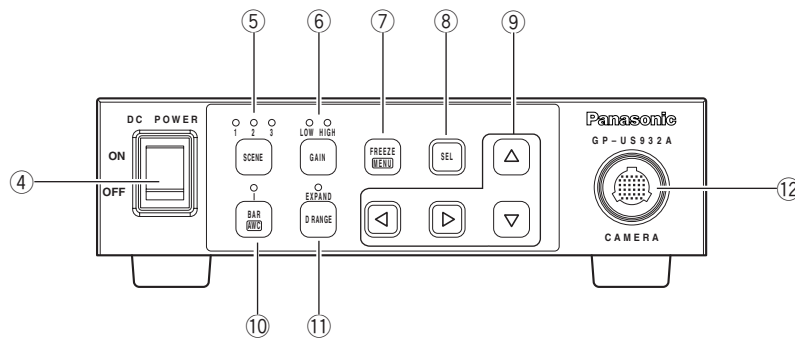
Important:

- Be sure to turn off the power of the CCU before connecting or disconnecting the camera cable.
- Avoid bending excessively or breaking the camera cable.
- Use the specific-camera head only.



■ Camera control unit (CCU)

<Front view>



④ Power switch [DC POWER]

This switch toggles the power of the CCU and camera head on and off. The switch lights green while the power is turned on.

⑤ Scene file selection button [SCENE]

The button selects a scene file from 1 to 3. Each scene file should be set up beforehand using the SETUP menu. (☞ page 20)

Selection of a scene file turns on the green indicator of the selected file number.

⑥ Gain selection button [GAIN]

The gain is selectable from OFF, LOW, and HIGH. Selection of a gain turns on the green indicator of the selected gain. No indicator is turned on when the gain is set to off.

Selectable gain varies depending on the gain setting in the SETUP menu (☞ page 19).

When GAIN is set to "AUTO" and SENS UP is set to "OFF": The gain is unchangingly set to "HIGH".

⑦ **Freeze/menu button [FREEZE MENU]**

Pressing this button: Displays the current image as a static image when "FREEZE" in the SETUP menu is set to "ON".

Note:

- Pressing a button other than the [Δ] and [∇] buttons provides freeze cancellation.
- When the zoom in/out or vertical/horizontal flip functions are assigned to the [<]/[>] buttons respectively, the frozen image can be reversed vertically or horizontally. Refer to page 26 for assigning function to buttons.

Holding down this button for 2 sec or more:

Displays the SETUP menu.

⑧ **Selection button [SEL]**

Pressing this button while the SETUP menu is displayed determines the setting.

Pressing this button except while the SETUP menu is displayed calls up the SEL menu. (☞ page 26)

⑨ **Up/down/left/right buttons**

Up button [Δ]: This button moves the cursor upward to change a setting item while the SETUP menu is displayed.

When "FLIP ENABLE" or "MIRROR ENABLE" in the SET UP menu is set to "ON" (☞ page 25), the image can be flipped vertically or horizontally.

Down button [∇]: This button moves the cursor downward to change a setting item while the SETUP menu is displayed.

When "FLIP ENABLE" or "MIRROR ENABLE" in the SET UP menu is set to "ON" (☞ page 25), the image can be flipped vertically or horizontally.

Left button [<]: This button moves the cursor leftward or selects a setting while the SETUP menu is displayed.

This button moves the cursor in the minus direction on the level adjustment scale or selects a setting item while the SEL menu is displayed.

The functions of the SEL menu can also be assigned to buttons (☞ page 26).

Right button [>]: This button moves the cursor rightward or selects a setting while the SETUP menu is displayed.

This button moves the cursor in the plus direction on the level adjustment scale or selects a setting item while the SEL menu is displayed.

The functions of the SEL menu can also be assigned to buttons (☞ page 26).

⑩ **Color bar display/AWC button [BAR AWC]**

Pressing this button: Calls up the color bar on the screen while an image is displayed. The color bar becomes a blue back display while the SETUP menu is displayed.

Holding down this button for 2 sec or more: Starts up AWC while an image is displayed if "WHITE BAL" in the SETUP menu is set to "AWC" (☞ page 23).

Important:

- When the camera head is not connected, pressing the [BAR AWC] button does not activate any operation.

⑪ **Dynamic range selection button [D RANGE]**

This button toggles the dynamic range between NORMAL and EXPAND. The button lights green when "EXPAND" is selected.

"EXPAND" shall be selected when dark portions are less viewable because too bright portions are present in a screen.

Note:

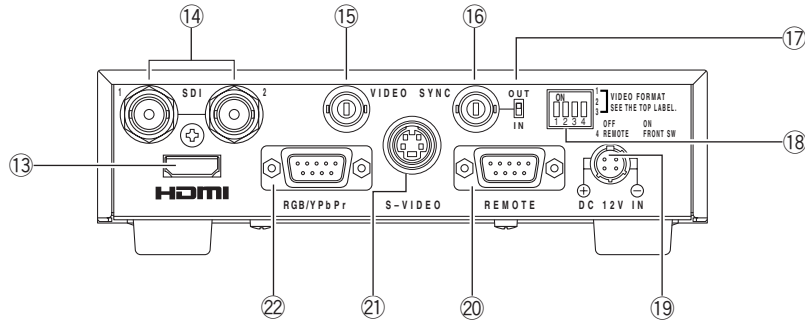
- The dynamic range can be set for each scene file. (☞ page 21)

⑫ **Camera cable connector**

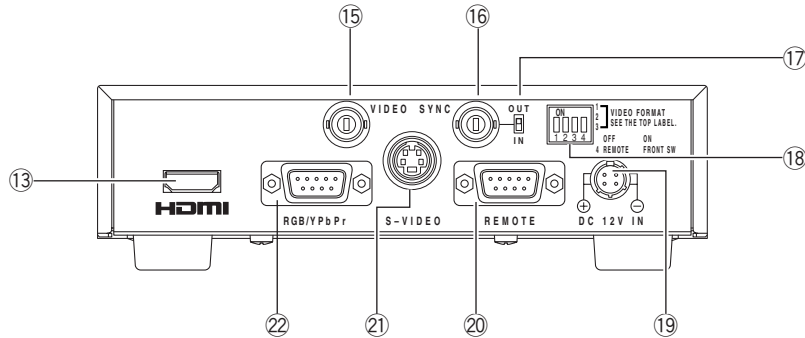
The camera cable (option) is connected to this connector.

<Rear view>

● GP-US932CSAE



● GP-US932CAE



⑬ **HDMI output connector [HDMI]**

This connector is used to connect to an HDMI-ready monitor.

⑭ **SDI output connector [SDI] (*only for GP-US932CSAE)**

This terminal provides HD-SDI or SD-SDI output signal.

Important:

- Please use a high quality cable compatible with HD-SDI.

⑮ **Video output connector [VIDEO]**

This connector provides composite video signal.

⑯ **Synchronizing signal output/input connector [SYNC]**

When an external device is synchronized, set the synchronizing signal output/input selection switch ⑰ to "IN" to provide the synchronizing signal input.

When the synchronizing signal output/input selection switch ⑰ is set to "OUT", the terminal provides the synchronizing signal output conformable to the video format of the RGB/YPbPr output connector of this system.

Important:

- The video format shall be the same among the synchronized devices.

⑰ **Synchronizing signal output/input selection switch [OUT/IN]**

This switch toggles synchronizing signals between output and input.

When the synchronizing signal output is selected, set this switch to "OUT". When the synchronizing signal input is selected, set this switch to "IN".

⑱ **Function setup switches**

These switches select a video format for RGB/YPbPr output connector, SDI output connector, and HDMI output connector.

| Switch | | | HDMI Output | SDI Output | RGB/YPbPr |
|--------|-----|-----|-------------|------------|------------|
| 1 | 2 | 3 | | | |
| ON | – | ON | 1 080p | 1 080i | 1 080i |
| OFF | – | ON | 1 080p(sF) | 1 080p(sF) | 1 080p(sF) |
| ON | OFF | OFF | 1 080i | 1 080i | 1 080i |
| ON | ON | OFF | 720p | 720p | 720p |
| OFF | ON | OFF | 576p | No Signal | 576p |
| OFF | OFF | OFF | 576i | 576i | 576i |

–: Either ON or OFF

| Switch | OFF | ON |
|--------|------------------------------|---|
| 4 | REMOTE (External control) | FRONT SW (Button operation via front face) |

Note:

- When the REMOTE terminal is used, set Switch 4 to "OFF" after turning off the power. When Switch 4 is set to "OFF", button operations on the front face are disabled.

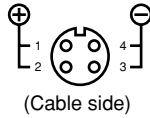
19 12 V DC power terminal [DC 12V IN]

This connector is used to connect an external DC power supply of 12 volts (3 A or more).

Compatible connector (as of April 2009):

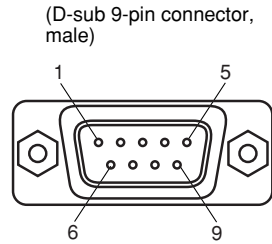
HR10A-7P-4S (73) manufactured by HIROSE ELECTRIC CO., LTD.

Pin arrangement of applicable connector



22 RGB/YPbPr connector [RGB/YPbPr]

This connector provides the RGB (red, green, and blue) signal output or the YPbPr signal (luminance, color difference B, and color difference R) output. The output signal can be set up with use of "OUTPUT SEL" in the SETUP menu. (page 19)

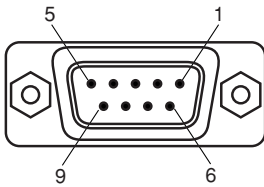


| Pin No. | Output signal |
|---------|---------------|
| 1 | GND |
| 2 | GND |
| 3 | R, Pr |
| 4 | G, Y |
| 5 | B, Pb |
| 6 | VIDEO |
| 7 | SYNC |
| 8 | GND |
| 9 | GND |

20 Remote terminal [REMOTE]

This port is used to perform external control.

(D-sub 9-pin connector, female)



| Pin No. | Signal |
|---------|--------|
| 1 | GND |
| 2 | TXD |
| 3 | RXD |
| 4 | DSR |
| 5 | GND |
| 6 | DTR |
| 7 | CTS |
| 8 | RTS |
| 9 | GND |

21 S-video output connector [S-VIDEO]

This connector provides the luminance signal (Y) output with synchronizing signal and color signal (C) output.

Precautions for installation

Use this product for indoor use only.

Do not expose this product to direct sunlight for hours and do not install this product near a heater or an air conditioner. Otherwise, it may cause a drop or malfunction. Keep this product away from water.

Installing place for camera head

If this product is installed on a high place such as a wall and a ceiling, consult your dealer before installation.

- Make sure that the installation area is strong enough to hold the camera, such as a concrete ceiling.
- If an installation area such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Locally procure a tripod, a camera mount bracket, and mounting screws.

A tripod on which the camera head is mounted, a camera mount bracket, and mounting screws are not provided. Prepare them according to the material and strength of the area where the product is to be installed.

Prepare them according to the material and strength of the area where this product is to be installed.

- The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area.
- Do not use an impact driver. Use of an impact driver may damage the screws.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws, perform visual check to ensure tightening is enough and there is no backlash.

Avoid moist or dusty places to install this system

Otherwise, lifetime of the internal parts may be shortened.

Do not expose this product to water or moisture nor operate this product in a humid environment.

Moisture can damage this product and also cause electric shocks.

(In case that this product is exposed to water), turn the power off immediately and contact qualified service personnel for service.

Avoid installing this product in the following locations:

- Locations where it may get wet from rain or water splash
- Locations where a chemical agent is used such as a swimming pool
- Locations subject to steam and oil smoke such as a kitchen
- Locations near flammable gas or vapor
- Locations where radiation or x-ray emissions are produced
- Locations subject to strong magnetic field or radio waves
- Locations where corrosive gas is produced
- Locations where the temperature is not within 0 °C to 40 °C
- Locations subject to vibrations (This product is not designed for on-vehicle use.)
- Locations subject to condensation as the result of severe changes in temperature

Radio interference

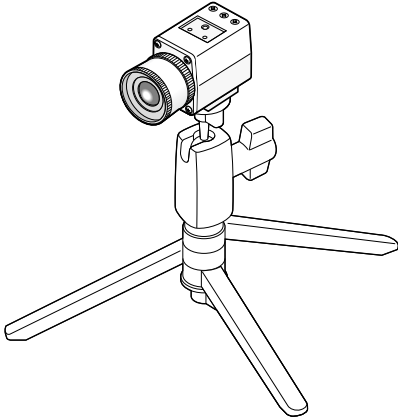
When the camera is used near TV/radio antenna, strong electric field or magnetic field (near a motor or a transformer), images may be distorted and noise sound may be produced.

Be sure to remove this product if it is not in use.

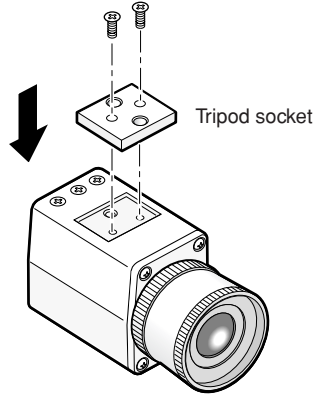
Installations/connections

The following shows how to mount the camera on the tripod (locally procured).
The tripod socket can be mounted on either top or bottom of the camera head.

<Sample of camera mounting on tripod>



<Change of tripod socket position>

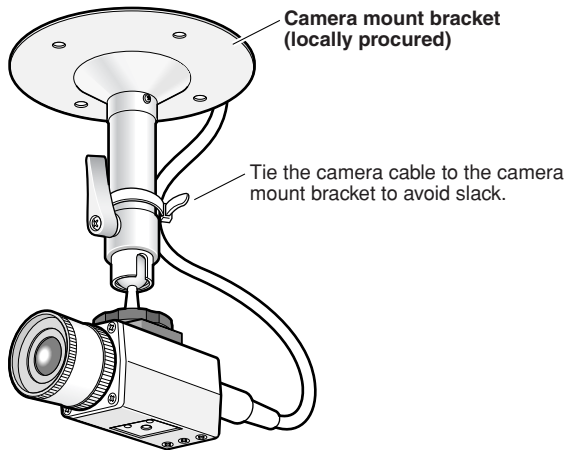


When exchanging the camera's tripod socket, make sure to use the removed screws. If other screws are used, the camera will fall down and suffer damage. (Recommended tightening torque: 0.39 N·m)

Important:

- The tripod and CCU shall be horizontally placed.
 - The CCU shall be horizontally placed. Do not place the unit in an upright or tilted position.
 - When the camera head is mounted on a high place, the camera cable (option) also plays a role of a safety wire for just in case. Use a cable tie to attach the camera cable to the camera mount bracket. The cable tie shall be made of metallic or durable material.
 - The camera mount bracket shall be mounted on the area which can sufficiently support the total weight.
-

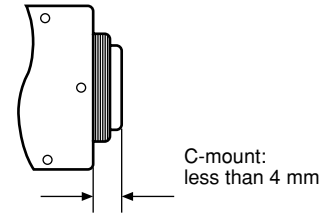
<Sample of camera mounting on high place>



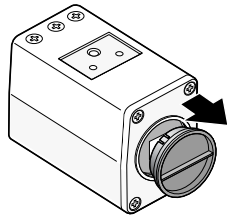
■ How to mount lens

Important:

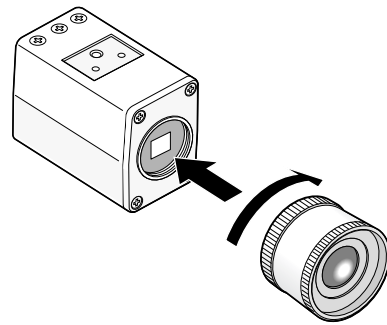
- A lens whose projection length of the lens mount section is 4 mm or less shall be used.
- The recommended lens aperture ranges from F2.2 to F16. Selection of less than F2.2 of the lens aperture may result in image blurring.
- When a zoom lens is used, focus adjustment method varies with the lens. For further information, refer to the operating instructions for the lens.
- When the lens is removed, be sure to put the cap on the lens mount section of the camera head.



- 1** Remove the lens cap from the lens mount section of the camera head.



- 2** Turn a C-mount lens clockwise to engage the lens with the lens mount section.



Important:

- Check to see whether the surface of the optical filter is clean before mounting a lens. If the surface is dirty, use a blower brush for general camera to remove dust.

Recommended lenses (as of April 2009)

| Manufacturer | Lens type | Models |
|--------------|----------------------------|-------------|
| FUJINON | High Definition Fixed Lens | HAF4.8DA-1 |
| FUJINON | High Definition Zoom Lens | XA4x7.5DA-1 |
| FUJINON | 3CCD Camera Lens | TF2.8DA-8 |
| FUJINON | 3CCD Camera Lens | TF4DA-8 |
| FUJINON | 3CCD Camera Lens | TF8DA-8B |
| FUJINON | 3CCD Camera Lens | TF15DA-8 |

Setup procedure

Performing each setting item in the setup menu should be completed in advance to use this unit. Perform the settings for each item in accordance with the conditions of the camera shooting area.

Note:

- In addition to the SETUP menu, this system has a simplified menu (SEL menu) that is displayed using the [SEL] button on the front face of the CCU. Refer to page 26 for further information about the SEL menu.
-

■ Setup menu

The following items can be set with use of the SETUP menu:

| Setup item | Description | Page |
|------------------|--|------|
| ① CAMERA ID | This item specifies the camera title. Through this item, a camera title is created with alphanumeric characters and symbols and displayed on the screen. | 17 |
| ② ELC | Specifies the ELC function. | 18 |
| ③ SHUTTER | Specifies the electronic shutter speed. | 19 |
| ④ GAIN | Specifies gain adjustment. | 19 |
| ⑤ SENS UP | Specifies electronic sensitivity enhancement. | 19 |
| ⑥ OUTPUT SEL | Specifies the output signal of the RGB/YPbPr output connector. | 19 |
| ⑦ HDMI OUTPUT | Specifies the output signal of the HDMI output connector. | 19 |
| ⑧ SCENE FILE | Registers the settings of details, gamma, hue, etc. | 20 |
| DTL MODE | Specifies the details. | 20 |
| RED DTL | Adjusts the enhancement of red edge. | 20 |
| GAMMA | Performs gamma adjustment. | 20 |
| KNEE | Adjusts the knee point. | 21 |
| BLACK STRETCH | Toggles the black stretch function on and off. | 21 |
| D-RANGE | Toggles the dynamic range between NORMAL and EXPAND. | 21 |
| WHITE CLIP | Adjusts the white clip level. | 21 |
| FLARE COMP | Performs flare compensation. | 21 |
| DNR | Selects the level of the digital noise reduction function. | 21 |
| MATRIX | Adjust the hue. | 21 |
| CHROMA GAIN | Adjusts chroma gain. | 22 |
| TOTAL PED | Adjusts the pedestal level. | 22 |
| FILE LABEL | Puts a label name instead of a scene file number. | 23 |
| AWC MEMORY | Specifies the destination where AWC setting is saved. | 23 |
| ⑨ WHITE BAL | Specifies white balance adjustment. | 23 |
| ⑩ BLACK BAL | Adjusts the black balance. | 24 |
| ⑪ SYNC | Specifies the synchronization type. | 24 |
| ⑫ ELECTRIC ZOOM | Toggles the electronic zoom on and off. | 25 |
| ⑬ FREEZE | Toggles the freeze function on and off. | 25 |
| ⑭ FLIP ENABLE | Toggles vertical image flip on and off. | 25 |
| ⑮ MIRROR ENABLE | Toggles horizontal image flip on and off. | 25 |
| ⑯ STATUS DISPLAY | Toggles the vertical/horizontal flip display on and off. | 25 |

Basic operation

This section explains how to display the SETUP menu on the monitor connected for adjustment and how to perform the basic operations in the SETUP menu.

Important:

- The following functions are not available when the camera head is not connected:
 - AWC startup for white balance
 - MATRIX
 - ELECTRIC ZOOM
 - FREEZE
 - FLIP
 - MIRROR
-

Top screen of SETUP menu

```
  ** SET UP ** P1
CAMERA ID   *OFF
ELC         *OFF
SHUTTER     OFF
GAIN        OFF
SENS UP     OFF
OUTPUT SEL  RGB
HDMI OUTPUT YPbPr (422)

END
```

```
  ** SET UP ** P2
SCENE FILE  *FILE1
WHITE BAL   AWC
BLACK BAL   *MANU
SYNC        INT

END
```

```
  ** SET UP ** P3
ELECTRIC ZOOM ON
FREEZE       ON
FLIP ENABLE  OFF
MIRROR ENABLE OFF
STATUS DISPLAY OFF

END
```

1 Hold down the [FREEZE MENU] button for 2 seconds or more.

→ The top screen of the SETUP menu appears.

2 The SETUP menu consists of 3 pages of contents.

To turn a page, move the cursor to "P1", "P2" or "P3" and press the [◀] or [▶] button.

Note:

- The cursor is a blinking part.
The cursor is displayed with halftone in these instructions.
-

3 Perform the settings for each item.

- Selection of setting item:
Press the [Δ] button or [∇] button to move the cursor.
- Change of settings:
Press the [◀] button or [▶] button.
- Display of advanced setup screen:
Press the [SEL] button when "*" is attached to the target item.
- Return to previous setup screen:
Move the cursor to "RET" and press the [SEL] button.

4 To return to the camera image screen after saving the setting contents, move the cursor to "END" and press the [SEL] button.

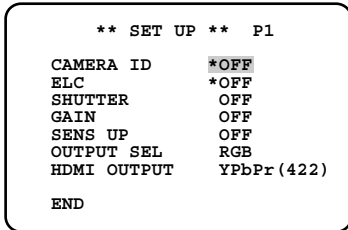
The setting contents can be saved even if the power of the CCU is turned off.

1. Camera title setting [CAMERA ID]

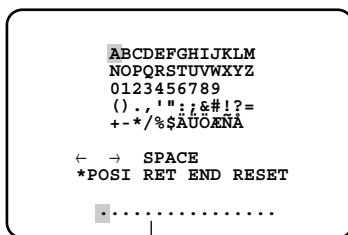
This item specifies the camera title. The camera title that indicates the camera location and other information about the camera is created with alphanumeric and symbols and displayed on the screen. The camera title is named with up to 16 characters.

Follow the procedure below to specify the camera title.

Top screen of SETUP menu

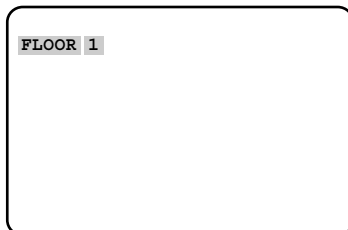


Title creation screen



Editing area

Display positioning screen



- 1 Set "CAMERA ID" to "ON" and press the [SEL] button.
→ The title creation screen appears.

Note:

- Even when "CAMERA ID" is set to "OFF", pressing the [SEL] button allows the title creation screen to appear.

Important:

- When "CAMERA ID" is set to "OFF", the camera title does not appear even after setting the camera title.

- 2 Move the cursor to the target item with use of the [Δ], [∇], [◀] and [▶] buttons, and press the [SEL] button.
→ The entered characters are displayed in the entry range.

<Character entry>

- To revise a character, move the cursor to "←" or "→" and press the [SEL] button.
Move the cursor to the character to be revised in the entry range and reenter a correct character.
- To enter a blank, move the cursor to "SPACE" and press the [SEL] button.
- To delete all the entered characters, move the cursor to "RESET" and press the [SEL] button.

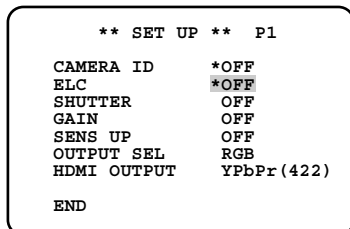
- 3 Move the cursor to "POSI" and press the [SEL] button after title entry.
→ The display positioning screen appears and the entered camera title blinks.
- 4 Use the [Δ], [∇], [◀] and [▶] buttons to decide the title position, and hold down the [FREEZE MENU] button for 2 seconds or more.
→ The display position is determined and the title creation screen appears again.

2. ELC setting [ELC]

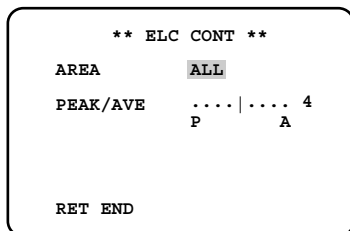
Setting ELC (electronic light control) to ON provides automatic adjustment of the screen brightness. The convergence level of ELC can be specified at "BRIGHTNESS" in the SEL menu (page 26).

If bright light such as a spotlight is present in the background behind a subject, the subject may appear dark. To eliminate this phenomenon, masking bright areas allows users to perform backlight compensation to hide bright areas.

Top screen of SETUP menu



"ELC CONT" screen



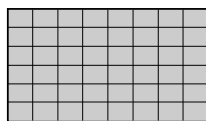
- 1 Set "ELC" to "ON" and press the [SEL] button.
→ The "ELC CONT" screen appears.

- 2 Move the cursor to "AREA" and use the [◀] or [▶] button to select an area.

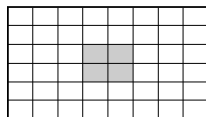
The area is selectable from the following:

- * The detection areas shown in the drawings below are not displayed.

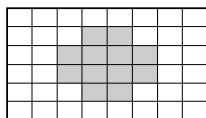
ALL (default): The detection target is the whole area on the screen.



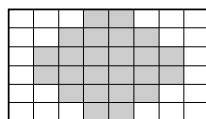
S CIRCLE: The detection target is the small circle area in the center of the screen.



M CIRCLE: The detection target is the medium circle area in the center of the screen.



L CIRCLE: The detection target is the large circle area in the center of the screen.



MANU: The detection target is manually specified. (page 18)

AUTO: Dark areas are automatically masked, and only bright areas are detected.

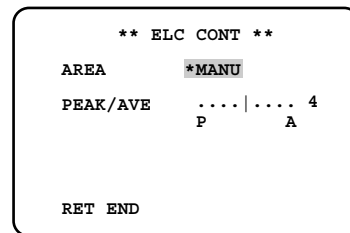
- 3 Move the cursor to "PEAK/AVE" and use the [◀] or [▶] button to adjust the detection level.

When the cursor is moved in the "P" direction, the peak value (maximum value) is detected. When the cursor is moved in the "A" direction, the average value is detected.

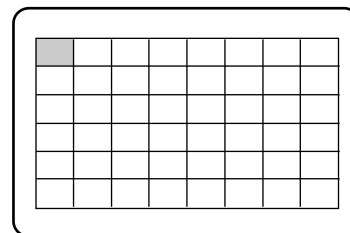
Manual detection area setting

The detection area is manually specified.

"ELC CONT" screen



Mask setting screen



- 1 Select "MANU" in "AREA" on the "ELC CONT" screen and press the [SEL] button.
→ The mask setting screen appears.

→ The mask setting screen appears.

- 2 Move the cursor to the area to be masked with use of the [Δ], [∇], [◀] and [▶] buttons, and press the [SEL] button.

→ The masked area is displayed in white.

Note:

- To cancel a masked area, move the cursor to the area to be canceled and press the [SEL] button. To cancel all the masked areas, hold down the [◀] and [▶] buttons simultaneously for 2 seconds or more.

- 3 Hold down the [FREEZE MENU] button for 2 seconds or more after completing masking areas.
→ The "ELC CONT" screen appears again.

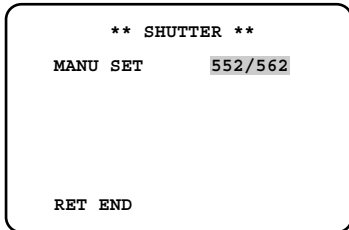
3. Electronic shutter setting [SHUTTER]

Specifies the electronic shutter speed. The following are available for the speed:

OFF (default), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 and MANU

Select "MANU", and then press the [SEL] button. The "SHUTTER" screen appears to make fine adjustment of the shutter speed.

"SHUTTER" screen



The adjusting range is from 2/562 to 552/562.

Note:

- When "SHUTTER" is specified, set "ELC" and "SENS UP" to "OFF" respectively. (☞ pages 18 and 19)

4. Gain adjustment [GAIN]

Select a gain control setting from the following:

OFF (default): No gain adjustment

AUTO(L), AUTO(H): Automatic gain adjustment

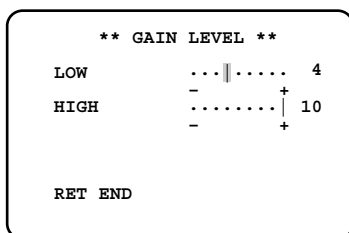
MANU(L), MANU(H): Manual gain adjustment

Fine adjustment of gain level

The gain can be finely adjusted in both "LOW" and "HIGH" levels.

- 1 Select an adjustment method in "GAIN" and press the [SEL] button.
→ The "GAIN LEVEL" screen appears.
- 2 Move the cursor to "HIGH" or "LOW" and adjust the level with use of the [◀] and [▶] buttons.

"GAIN LEVEL" screen



Important:

- The "LOW" level cannot be larger than the "HIGH" level.
- When "SENS UP" is set to "OFF" or "---", "AUTO(L)" is not available.
- "Manu (L)" and "Manu (H)" are not available when "SENS UP" is set to "AUTO (x2)", "AUTO (x4)" or "AUTO (x8)".

5. Electronic sensitivity enhancement setting [SENS UP]

The magnification of the electronic sensitivity is selectable from the following:

OFF (default), AUTO (x2), AUTO (x4), AUTO (x8), MANU (x2), MANU (x4), MANU (x8)

Note:

- When "MANU (x2)", "MANU (x4)" or "MANU (x8)" is selected, set "ELC" to "OFF". (☞ page 18)
- When "GAIN" is set to "OFF" or to a low level, image may become grainy and unstable. In such a case, adjust the electronic sensitivity.
- When "SHUTTER" is set to other than "OFF", "---" appears and the electronic sensitivity enhancement function is not available. (☞ page 19)
- When the electronic sensitivity enhancement function is used, time for CCD readout is elongated to enhance the sensitivity. Therefore, the residual image of a moving subject is increased in accordance with the magnification of the sensitivity.

6. RGB/YPbPr output signal setting [OUTPUT SEL]

The output signals of the RGB/YPbPr output connector are specified.

RGB (default), YPbPr

7. HDMI output signal setting [HDMI OUTPUT]

The output signals of the HDMI output connector are specified.

YPbPr (422) (default), YPbPr (444), RGB (NOR), RGB (ENH)

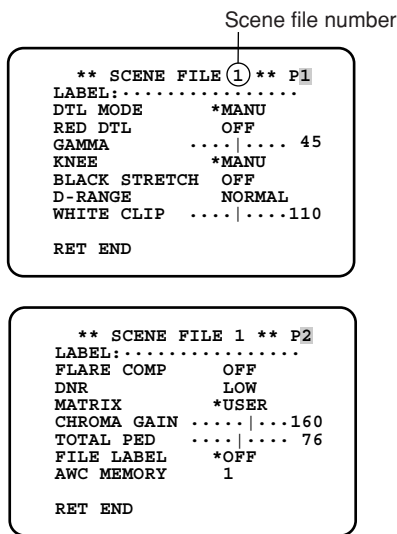
8. Scene file setting [SCENE FILE]

Registration of details, gamma, hue, etc. as a scene file in accordance with an installation location allows users to employ the registered contents only by pressing the [SCENE] button on the front face of the CCU.

Up to 3 scene files can be registered.

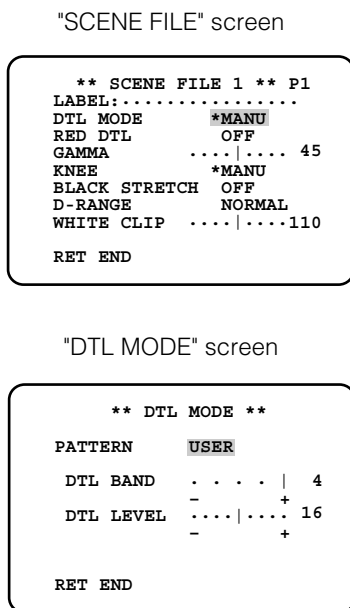
Scene file registration is performed on the "SCENE FILE" screen. When a scene file to be registered on the top screen, "SCENE FILE", in the SETUP menu is selected and the [SEL] button is pressed, the "SCENE FILE" screen appears. The "SCENE FILE" screen consists of 2 pages of contents. The selected scene file number appears beside the screen title.

The characters specified at "FILE LABEL" are displayed at "LABEL". The default is blank.



[DTL MODE] Specifies the details.

The band and level of the edge correction are specified.



- 1 Move the cursor to "DTL MODE" of the "SCENE FILE" screen and press the [SEL] button.
→ The "DTL MODE" screen appears.
- 2 Move the cursor to "PATTERN", select a pattern from among "1", "2" and "3" and press the [SEL] button.
→ The setting contents of "DTL BAND" and "DTL LEVEL" are applied to "USER".
The band and level can be manually adjusted in "USER". Perform adjustment on an as-needed basis.
Be sure to view a monitor when the adjustment is performed.

Note:

- The band and level can also be adjusted directly without applying any of the patterns, "1", "2" and "3" to "USER".

- 3 Move the cursor to "DTL BAND" and adjust the band with use of the [◀] or [▶] button.
When the level indicator moves in the "+" direction, the edge becomes thinner (the band becomes higher).
When the level indicator moves in the "-" direction, the edge becomes thicker (the band becomes lower).
- 4 Move the cursor to "DTL LEVEL" and adjust the level with use of the [◀] or [▶] button.
When the level indicator moves in the "+" direction, the image becomes sharper. When the level indicator moves in the "-" direction, the image becomes softer.

Note:

- Jaggies may appear on the edge of a photographic subject, but this phenomenon is not abnormal. If this phenomenon is not favorable, decrease "DTL BAND" or "DTL LEVEL" to adjust the image quality.

[RED DTL] Adjusts the enhancement of red edge.

The red edge enhancement level of images through the camera is adjusted.

The enhancement level is selectable from the following:

- OFF (default):** No edge enhancement is performed on the red portion.
- LOW:** The low level of edge enhancement is performed on the red portion.
- HIGH:** The high level of edge enhancement is performed on the red portion.

[GAMMA] Adjusts the gamma level.

Be sure to view a waveform monitor or a color video monitor when the gamma correction is performed.

Move the cursor to "GAMMA" and adjust the gamma level with use of the [◀] or [▶] button.

When the level indicator moves in the "+" direction, the correction level becomes larger. When the level indicator moves in the "-" direction, the correction level becomes smaller.

Moving the cursor to the far end of the "+" direction sets the gamma correction to OFF.

Important:

- In the cases of the following, "---" appears and the gamma correction is not available:
 - When "BLACK STRETCH" is set to "ON"
 - When "D-RANGE" is set to "EXPAND"

[KNEE] Adjusts the knee point.

Be sure to view a waveform monitor or a color video monitor when the knee point adjustment is performed.

Select the adjustment method from the following:

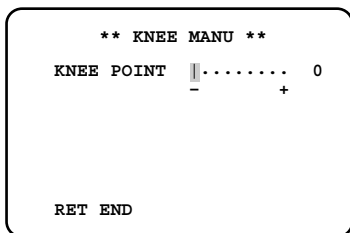
MANU (default): The knee point adjustment is manually adjusted.

AUTO: The knee point is automatically adjusted.

When "MANU" is selected, follow the steps below to adjust the knee point.

- 1 Select "MANU", and then press the [SEL] button.
→ The "KNEE MANU" screen will be displayed.
- 2 The knee point is adjusted with use of the [◀] or [▶] button.

"KNEE MANU" screen



Important:

- When "D-RANGE" is set to "EXPAND", the knee point adjustment is disabled.

[BLACK STRETCH] Toggles the black stretch function on and off.

Selection of "ON" or "OFF" (default) determines whether or not to perform the black stretch function.

When "ON" is selected, black crushing is corrected at low illuminance to make an image more viewable.

Important:

- When "D-RANGE" is set to "EXPAND", the black stretch setting is disabled.

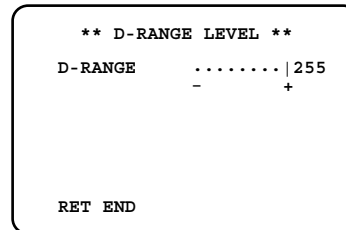
[D-RANGE] Toggles the dynamic range between NORMAL and EXPAND.

The dynamic range is set to "NORMAL" (default) or "EXPAND".

Selection of "EXPAND" makes contrasty images more viewable.

When "EXPAND" is selected, follow the steps below to adjust the dynamic range expansion level.

"D-RANGE LEVEL" screen



- 1 Select "EXPAND" and press the [SEL] button.
→ The "D-RANGE LEVEL" screen appears.
- 2 Press the [◀] or [▶] button to adjust the dynamic range expansion level.

[WHITE CLIP] Adjusts the white clip level.

Be sure to view a waveform monitor or a color video monitor when the white clip level is adjusted with use of the [◀] or [▶] button.

When the level indicator moves in the "+" direction, the level becomes higher. When the level indicator moves in the "-" direction, the level becomes lower.

Important:

- When "D-RANGE" is set to "EXPAND", the white clip adjustment is disabled.

[FLARE COMP] Performs flare compensation.

Selection of "ON" or "OFF" (default) determines whether or not to perform the flare compensation.

When "ON" is selected, flare is reduced.

[DNR] Selects the level of the digital noise reduction function.

The digital noise reduction function reduces noise. The level is selectable from the following:

LOW (default): The low level of digital noise reduction is performed. (small residual image)

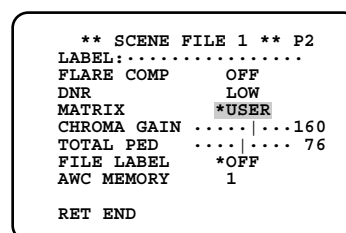
HIGH: The high level of digital noise reduction is performed. (large residual image)

OFF: The digital noise reduction function is disabled.

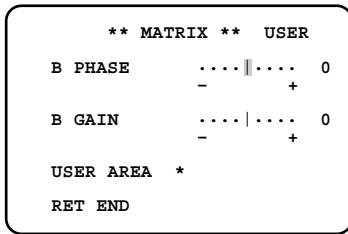
[MATRIX] Adjust the hue.

Be sure to view a vector scope or a color video monitor when the hue adjustment is performed.

"SCENE FILE" screen



"MATRIX" screen

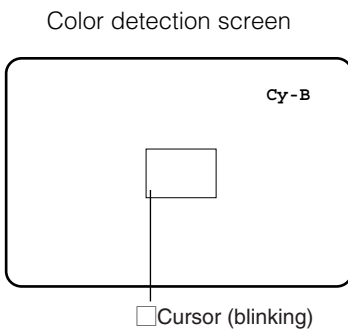


- 1 Display the color to be adjusted in the screen center as large as possible.
- 2 Select the axis close to the target color with use of "MATRIX" on the "SCENE FILE" screen. The axis is selectable from the following:
USER (default), B-Mg, Mg, Mg-R, R, R-Ye, Ye, Ye-G, G, G-Cy, Cy, Cy-B, B
- 3 Press the [SEL] button after axis selection.
→ The "MATRIX" screen appears.
- 4 To perform fine adjustment, adjust "PHASE" (hue) and "GAIN" (chroma) with use of the [<] or [>] button.

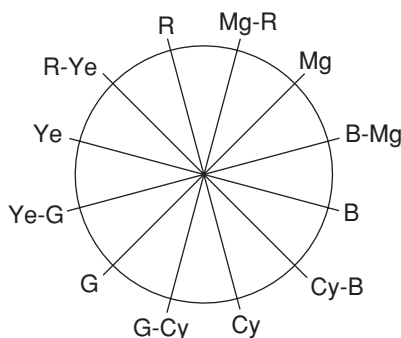
When the color axis is unclear

When "USER AREA" is selected on the "MATRIX" screen, the axis is automatically displayed by selecting a color on the screen.
Color selection is performed on the color detection screen.
The white rectangle cursor is blinking to select a target color on the color detection screen.

<Color matrix splitting chart>



* This chart is a guideline for displaying the closest axis at adjustment.



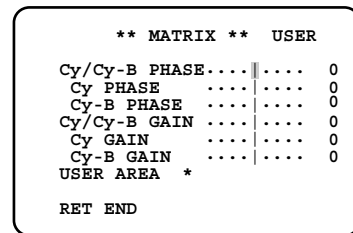
- 1 Point the camera at the center of the subject with which the color is detected.
If the camera is immovable, move the rectangle cursor to the area with the target color with use of the [Δ], [∇], [<] and [>] buttons.

Note:

- Every time the [SEL] button is pressed, the size of the rectangle cursor changes in the order of large → medium → small.
Select a size to meet the subject size.

- 2 Hold down the [FREEZE MENU] button for 2 seconds or more.
→ The "MATRIX" screen appears again.

- 3 To perform fine adjustment, adjust "PHASE" (hue) and "GAIN" (chroma).
For example, the adjustment of "PHASE" or "GAIN" of "Cy/Cy-B" on the following screen provides the simultaneous adjustment of "PHASE" or "GAIN" of the adjacent axes "Cy" and "Cy-B" in the color matrix splitting chart above.



Note:

- When the color on the axis in the color matrix splitting chart is detected, the adjacent axes are not displayed.

[CHROMA GAIN] Adjusts chroma gain.

Be sure to view a vector scope or a color video monitor when the chroma gain is adjusted with use of the [<] or [>] button.
When the level indicator moves in the "+" direction, the chroma level becomes higher. When the level indicator moves in the "-" direction, the chroma level becomes lower.

[TOTAL PED] Adjusts the pedestal level.

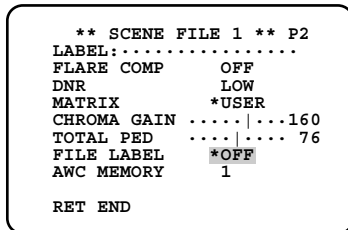
Be sure to view a waveform monitor or a color video monitor when the pedestal level (black signal level) is adjusted with use of the [<] or [>] button.
When the level indicator moves in the "+" direction, the image becomes brighter. When the level indicator moves in the "-" direction, the image becomes darker.

[FILE LABEL] Puts a label name instead of a scene file number.

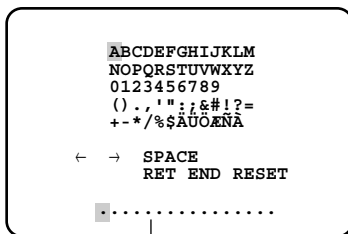
Characters (label) are displayed instead of the scene file number that is displayed on the screen when the [SCENE] button on the front face of the CCU is pressed. Up to 16 alphanumeric characters and symbols can be used to create a label. The created label is displayed in "LABEL" on the "SCENE FILE" screen.

Follow the procedure below to specify the label.

"SCENE FILE" screen



Label creation screen



Editing area

- 1 Set "FILE LABEL" to "ON" and press the [SEL] button.
→ The title creation screen appears.

Note:

- Even when "FILE LABEL" is set to "OFF", pressing the [SEL] button allows the label creation screen to appear.
- A label can be created for each scene file.

Important:

- When "FILE LABEL" is set to "OFF", a label is not displayed even if the label is created.

- 2 Move the cursor to the target character with use of the [Δ], [∇], [◀] and [▶] buttons, and press the [SEL] button.
→ The entered characters are displayed in the entry range.

<Character entry>

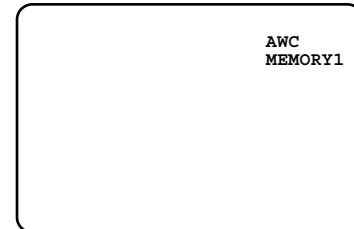
- To revise a character, move the cursor to "←" or "→" and press the [SEL] button.
Move the cursor to the character to be revised in the entry range and reenter a correct character.
- To enter a blank, move the cursor to "SPACE" and press the [SEL] button.
- To delete all the entered characters, move the cursor to "RESET" and press the [SEL] button.

[AWC MEMORY] Specifies the destination where AWC setting is saved.

The destination to save AWC that starts by holding down the [BAR AWC] button on the front face of the CCU for 2 seconds or more is specified. The destination can be selected with use of the [◀] or [▶] button. The destination is selectable from among 1 (default), 2 and 3.

When AWC is started by holding down the [BAR AWC] button for 2 seconds or more at displaying an image, the selected MEMORY number is displayed.

AWC-started screen



Note:

- If the indicator lights red when a scene file is changed by pressing the [SCENE] button on the front face of the CCU, restart AWC.
- If a different destination to save AWC is selected for each scene file, the white balance adjustment is required for each scene file.

9. White balance setting [WHITE BAL]

The white balance adjustment is selectable from the following:

AWC (default): Activates the automatic white balance control mode. This adjustment is suitable for a location where a light source is stable.

When "AWC" is selected, the operation to adjust the white balance is required.

ATW: Activates the automatic white balance tracking mode. The camera constantly checks and automatically adjusts the white balance.

If the situation meets one of the following or other, color may not be accurately reproduced. In these cases, perform "AWC" to adjust the white balance.

- The subject is mostly highly-colored.
- The photographic atmosphere is under the bright blue sky or at nightfall.
- The illumination of the light illuminating the subject is low.

MANU: Manually adjusts the white balance.

When "AWC" is selected, follow the steps below to adjust the white balance.

- 1 Aim the camera at a white subject.

- Hold down the [BAR **AWC**] button on the front face of the CCU for 2 seconds or more.
→ AWC starts, and the indicator of the [BAR **AWC**] button blinks. The adjustment is completed when the destination and "AWC OK" appear and the indicator goes off.

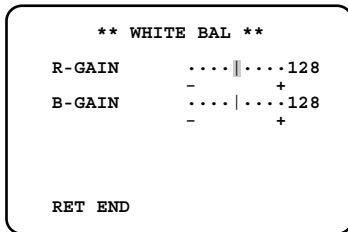
Note:

- The destination to save "AWC" can be specified for each scene file. (☞ page 23)
- If "AWC NG" appears and the indicator stays on or if the indicator lights when a scene file is changed, retry the steps 1 and 2.

When "MANU" is selected, follow the steps below to adjust the white balance.

- Select "MANU", and then press the [SEL] button.
→ The "WHITE BAL" screen appears.
- Move the cursor to "R-GAIN" or "B-GAIN" and adjust the white balance with use of the [◀] or [▶] button.

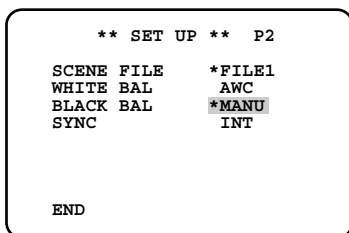
"WHITE BAL" screen



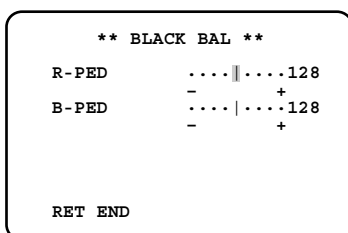
10. Black balance setting [BLACK BAL]

The black balance adjustment is generally unnecessary, but the adjustment is available also by hand.

Top screen of SETUP menu



"BLACK BAL" screen



- Move the cursor to "BLACK BAL" and press the [SEL] button.
→ The "BLACK BAL" screen appears.
- Put the lens cap on the camera lens.
- Move the cursor to "R-PED" and adjust "R-PED" with use of the [◀] or [▶] button while viewing a vector scope or a waveform monitor. Adjustment shall be performed so that the carrier is minimized.
- Move the cursor to "B-PED" and adjust "B-PED" with use of the [◀] or [▶] button while viewing a vector scope or a waveform monitor. Adjustment shall be performed so that the carrier is minimized.

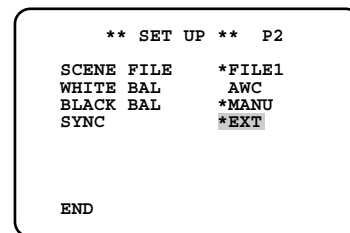
11. Synchronization setting [SYNC]

The synchronization state is displayed. The horizontal phase in the external synchronization mode can also be adjusted.

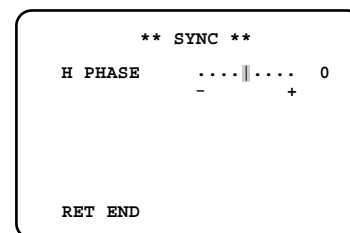
The internal synchronization is indicated as "INT", and the external synchronization is indicated as "EXT".

Adjustment of the horizontal phase in the external synchronization mode

Top screen of SETUP menu



"SYNC" screen



- Set the synchronizing signal input/output selection switch on the rear face of the CCU to "IN".
- Connect the video synchronizing signal to the synchronizing signal output/input connector.
- Perform the settings of the function setup switches 1, 2 and 3 in accordance with the video format used by the device to be synchronized. (☞ page 10)

- 4 Move the cursor to "SYNC" on the top screen of the SETUP menu.
- 5 Press the [SEL] button after making sure that "EXT" is displayed.
→ The "SYNC" screen appears.
- 6 Connect the G or Y signal from the RGB/YPbPr output connector and the video synchronizing input signal to an oscilloscope, and observe the horizontal synchronization component.
- 7 Adjust the horizontal phase with use of the [<] or [>] button.

12. Configure the settings relating to the electronic zoom [ELECTRIC ZOOM]

Select "ON" (default) or "OFF" to determine whether or not to use the electronic zoom.

To prevent the electronic zoom from being active by mistake, select "OFF".

When "ON" is selected, assignment of the zoom function to the [<] and [>] buttons allows users to scale up (up to 2.5 times) a subject with use of the buttons.

Note:

- Calling up the SETUP menu cancels scale up and down.
 - When "ELECTRIC ZOOM" is set to "OFF", "ZOOM OFF" appears in the SEL menu, and the zoom function is not adjustable.
-

13. Image freezing [FREEZE]

Selection of "ON" (default) or "OFF" determines whether or not to enable the freeze function.

When "ON" is selected, pressing the [FREEZE MENU] button on the front face of the CCU allows users to display the video currently displayed as a static image. (☞ page 9)

14. Setting of vertical flip function [FLIP ENABLE]

Selection of "ON" or "OFF" determines whether or not to enable the vertical flip function with use of the [Δ] or [▽] button.

OFF (default): Locks the normal display.

OFF (FLIP): Locks the vertically flipped display.

ON (FLIP): Selects the vertically flipped display. The vertical flip function is still available.

ON: Selects the normal display. The vertical flip function is still available.

Note:

- This function can be used in conjunction with the freeze function and zoom function.
 - When "ON" is selected, "ON" can be changed to "OFF" or "OFF(FLIP)" also in the SEL menu.
-

15. Setting of horizontal flip function [MIRROR ENABLE]

Selection of "ON" or "OFF" determines whether or not to enable the horizontal flip function with use of the [Δ] or [▽] button.

OFF (default): Locks the normal display.

OFF (MIRROR): Locks the horizontally flipped display.

ON (MIRROR): Selects the horizontally flipped display. The horizontal flip function is still available.

ON: Selects the normal display. The horizontal flip function is still available.

Note:

- This function can be used in conjunction with the freeze function and zoom function.
 - When "ON" is selected, "ON" can be changed to "OFF" or "OFF(MIRROR)" also in the SEL menu.
-

16. Display setting of vertical and horizontal flip function [STATUS DISPLAY]

Selection of "ON" or "OFF" determines whether or not to display an arrow ("↓": vertical flip, "→": horizontal flip, and "↓ →": vertical and horizontal flip) with use of the [Δ] or [▽] button.

Default restoring

- To restore the setting contents with level indicator in the SETUP menu or SEL menu to each default, hold down the [<] and [>] buttons simultaneously for 2 seconds or more.
- To restore all the setting contents in the SETUP menu and SEL menu to default, move the cursor to "END" in the bottom line and hold down the [FREEZE MENU] and [▽] buttons simultaneously for 2 seconds or more.

SEL menu

The SEL menu is a simplified menu that can be called up by pressing the [SEL] button while an image is displayed. The following items can be set with use of the SEL menu:

- Image level [BRIGHTNESS]: Adjusts the brightness (ELC, gain (AUTO), and the convergence level of electronic sensitivity enhancement (AUTO)).
- Red level [R-GAIN]: Adjust the red gain.
- Blue level [B-GAIN]: Adjust the blue gain.
- Edge enhancement level [DTL-LEVEL]: Adjusts the edge enhancement level.
- Electronic zoom factor [ZOOM]: Adjusts the zoom factor.
- Detection area [AREA]: Specifies the detection areas of ELC, gain (AUTO), and electronic sensitivity enhancement (AUTO).
- Image flip [FLIP+MIRROR]: Vertically (FLIP) or horizontally (MIRROR) flips an image.

■ How to display/operate the SEL menu

- 1 Press the [SEL] button.
→ The SEL menu appears.
- 2 Press the [SEL] button to call up the screen displaying the item to be changed.
- 3 Use the [◀] or [▶] button to adjust the setting.


Note:

- Pressing the [SEL] button calls up the items from the last displayed one while the power is turned on.
 - No operation for 3 seconds or more closes the SEL menu.
-


■ Button assignment

Only pressing the [◀] or [▶] button allows users to assign the settings in the SEL menu while an image is displayed.

How to assign settings

- 1 Call up the screen of the setting to be assigned in the SEL menu to a button.
- 2 Hold down the [SEL] and [FREEZE ] buttons simultaneously while the screen is displayed until the displayed contents disappear.
- 3 Use the [◀] or [▶] button to display and assign the settings to be stored.

Note:

- If "ZOOM" or "FLIP+MIRROR" is assigned to a button, the frozen image can be zoomed in or out or reversed ( pages 9 and 25).
-

Troubleshooting

Before asking for repairs, check the symptoms with the following table.

Contact your dealer if a problem cannot be solved even after checking and trying the solution in the table or a problem is not described below.

| Symptom | Cause/solution | Reference pages |
|---|--|-----------------|
| No image displayed | <ul style="list-style-type: none"> Are the cables appropriately connected to the video output connector, S-VIDEO output connector, RGB/YPbPr output connector, HDMI output connector, and SDI output connector, respectively? Check whether the connection is appropriately established. | 10, 11 |
| | <ul style="list-style-type: none"> Is the video output signal format of each output connector compatible with the video format displayable on the monitor? Check whether the video output signal format is compatible with the video format. | 10, 19 |
| | <ul style="list-style-type: none"> Is the monitor luminance appropriately adjusted, or is the contrast appropriately adjusted? Check whether the monitor settings are appropriate. | — |
| Camera with no response to the button operation on the front face of the CCU | <ul style="list-style-type: none"> Is the function setup switch No. 4 set to "ON"? Set the function setup switch No. 4 to "ON". | 10 |
| The lighting indicator of the [SCENE] button unchanged | <ul style="list-style-type: none"> Pressing once displays the state. Press the [SCENE] button repeatedly until your target indicator lights. | 8 |
| The lighting indicator of the [GAIN] button unchanged | <ul style="list-style-type: none"> Pressing once displays the state. Press the [GAIN] button repeatedly until your target indicator lights. | 8 |
| Only the color bar displayed | <ul style="list-style-type: none"> Is the camera cable appropriately connected at both the connector of the CCU and the connector of the camera head? Check whether the connection is appropriately established. | 8 |
| The hue [MATRIX] unadjustable in the menu | <ul style="list-style-type: none"> Is the camera cable appropriately connected at both the connector of the CCU and the connector of the camera head? Connection between the camera head and camera cable is required to adjust the image quality. Check whether the connection is appropriately established. | 8 |

| Symptom | Cause/solution | Reference pages |
|--|---|-----------------|
| Blurred whole screen | <ul style="list-style-type: none"> Is the lens aperture appropriately adjusted? Check whether the aperture is appropriately adjusted. Use lenses with recommended F number or higher and 3CCD-specific lenses. | 14 |
| Plural edges visible | <ul style="list-style-type: none"> Try to change the setting of "DTL MODE". | 20 |
| | <ul style="list-style-type: none"> Try to change the monitor cable. | — |
| "AWC OK" not displayed | <ul style="list-style-type: none"> When the screen is too bright, narrow the lens aperture or set "ELC" to "ON". | 14, 18 |
| Black bars at right and left of image | <ul style="list-style-type: none"> This phenomenon depends on the specifications of the monitor. Select the wide and full screen display at the monitor side. | — |
| Vertically longer image | <ul style="list-style-type: none"> This unit provides outputs on the assumption that the screen is 16:9. Select the wide screen display at the monitor side. | — |
| No sound from monitor | <ul style="list-style-type: none"> The monitor is not applicable to sound output. | — |

Specifications

| | |
|--------------------------------|---|
| Power source: | 12 V DC \pm 10 % |
| Power consumption: | Approx. 16.8 W (including camera head) (GP-US932CSAE) Approx. 15.6 W (including camera head) (GP-US932CAE) |
| Pick-up system: | Micro prism system |
| Image sensor: | Three 1/3" interline transfer (IT) progressive CCDs |
| Synchronization: | Internal or external synchronization |
| Video output: | Video output: BNC connector x1, 1.0 V[P-P]/75 Ω S-video output: S-video connector x1 Y: 0.7 V[P-P]/75 Ω C: 0.3 V[P-P]/75 Ω RGB/YPbPr output: (D-sub 9-pin connector) x1 R, G, B: 0.7 V[P-P]/75 Ω Y: 0.7 V[P-P]/75 Ω Pb, Pr: 0.525 V[P-P]/75 Ω SYNC: 0.6 V[P-P]/75 Ω (at output using 1 080i, 720p) 0.3 V[P-P]/75 Ω (at output using 576p, 576i) VIDEO: 1.0 V[P-P]/75 Ω HDMI output: HDMI connector x1 SDI output: BNC connector x2 (GP-US932CSAE only) |
| Video format: | Video output: 576/50i S-video output: 576/50i RGB/YPbPr output: 1 080/50i, 1 080/25p(sF), 720/50p, 576/50p, 576/50i HDMI output: 1 080/50p, 1 080/50i, 1 080/25p(sF), 720/50p, 576/50p, 576/50i SDI output: 1 080/50i, 1 080/25p(sF), 720/50p, 576/50i, (GP-US932CSAE only) |
| Required Illumination: | 2 000 lx (3 200 K, F8) |
| Minimum illumination: | 12 lx (F2.2, GAIN: HIGH, 30 % output, at center) |
| Signal-to-noise ratio: | 54 dB (at output using 1 080i) |
| Horizontal resolution: | 700 TV lines (at center, when 1 080i output) |
| Color bar: | SMPTTE color bar with 0 % set-up |
| Functions: | Camera title, ELC, electronic shutter, gain adjustment, electronic sensitivity enhancement, output signal switching, scene file, white balance, black balance, synchronization, electronic zoom, image freezing, flip, mirror, status display |
| External control: | RS-232C D-sub 9-pin connector x1 |
| Ambient operating temperature: | 0 °C to 40 °C |
| Ambient operating humidity: | 30 % to 90 % |
| Dimensions: | GP-US932CSAE/GP-US932CAE: 170 (W) x 44 (H) x 229 (D) mm (excluding rubber feet and projections) GP-US932HAE: 37 (W) x 47 (H) x 54 (D) mm (excluding tripod socket and projections) |
| Weight: | GP-US932CSAE: 1.45 kg GP-US932CAE: 1.40 kg GP-US932HAE: 140 g |
| Finish: | Ivory color coating |

Dimensions and Weight indicated are approximate.
Specifications are subject to change without notice.

Standard accessories

Operating Instructions (this document) 1 pc.

Optional accessories

3CCD HD Camera Head, GP-US932HAE
HD Camera Cable, GP-CA932/4E
HD Camera Cable, GP-CA932/6E
HD Camera Cable, GP-CA932/10E
HD Camera Cable, GP-CA932A20E

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local

authority for further details of your nearest designated collection point.

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

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Panasonic Corporation

<http://panasonic.net>

Importer's name and address to follow EU rules:

Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg F.R.Germany