

# Panasonic

## Operating Instructions

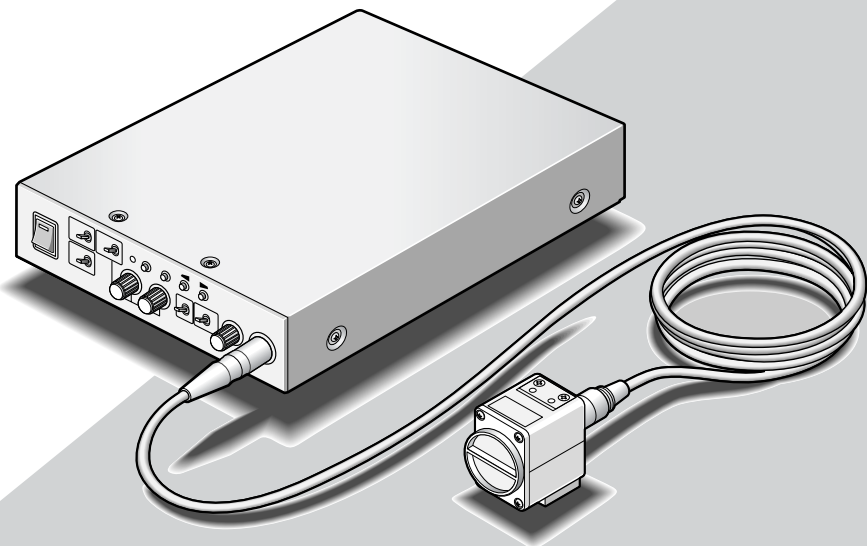
3 CCD Color Camera Head

Model Nos. **GP-US522HB**

**GP-US732H**

3 CCD Color Camera CCU

Model No. **GP-US742CU**



Lens : Purchased locally  
Cable : Option

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 EEC/73/23 and EEC/89/336.

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 73/23/EEC und 89/336/EEC.

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 CEE/73/23 et CEE/89/336.

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 CEE/73/23 y CEE/89/336.

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 CEE/73/23 e CEE/89/336.

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 73/23/EEC en 89/336/EEC.

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 73/23/EEC og 89/336/EEC.

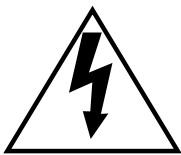
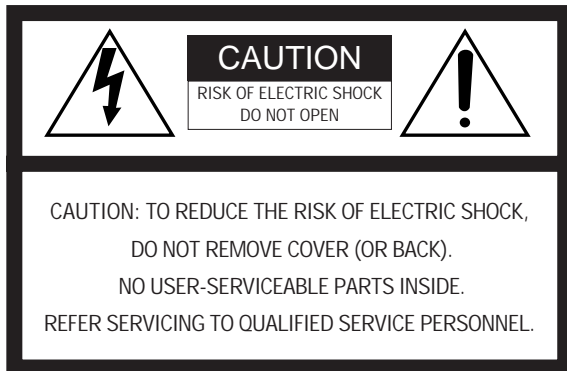
Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs i EEC-direktiv nr. 73/23 och 89/336.

Ilmoitamme yksinomisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 73/23/EEC ja 89/336/EE 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 73/23/EEC og 89/336/EEC.

**Caution:**

- Before attempting to connect or operate this product, please read the label on the surface of the product.
- Read the label on the surface of the product for identification, and the power ratings.



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.

For U.S.A.

**NOTE:** 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 Caution:** To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The serial number of this product may be found on the top and bottom of the unit. You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. \_\_\_\_\_

Serial No. \_\_\_\_\_

**WARNING:**

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

# 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 use near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not misuse 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 stepped on or pinched particularly at plugs, convenient receptacles and the points 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-overs.



- 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 when the 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.

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## 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 MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. 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) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY.

# PRECAUTIONS

**1. Do not attempt to disassemble the camera or camera control unit.**

To prevent electric shock, do not remove screws or covers.

There are no user-serviceable parts inside.  
Ask a qualified service person for servicing.

**2. Handle the camera and the camera control unit with care.**

Do not abuse the camera and the camera control unit. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.

**3. Do not expose the camera or camera control unit to rain or moisture, or try to operate it in wet areas.**

Turn the power off immediately and ask a qualified service person for servicing. Moisture can damage the camera and the camera control unit, and also create the danger of electric shock.

**4. Do not drop anything inside the camera or camera control unit.**

Dropping a metal part for example inside the camera and camera control unit could permanently damage the unit.

**5. Do not crush or pinch the camera cable.**

Avoid tight bends in the camera cable.

**6. Never face the camera toward the sun.**

Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.

**7. Do not use strong or abrasive detergents when cleaning the camera or the camera control unit body.**

Use a dry cloth to clean the camera or the camera control unit when dirty.

In case the dirt is hard to remove, use a mild detergent and wipe gently.

**8. 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.

**9. Put the lens cap on the camera after using the camera.**

After using the camera, turn the power of the camera control unit off, and put the lens cap on the camera head.

**10. Do not connect units other than the camera head to the GP-US742CU camera control unit.**

Other connections may result in improper operation.

**11. Do not operate the camera and the camera control unit beyond the specified temperature, humidity, or power source ratings.**

Use the camera and the camera control unit under conditions where temperature is between 0°C - +45°C (32°F - 113°F), and humidity is below 90 %. The input power resource is 12 V DC.

**12. Ask a qualified service person for installation.**

All necessary procedures with regards to installation of this product should be made by qualified service person or system installer.

## Cautions

1. Connecting or disconnecting the camera cable to/from the camera control unit or camera head must be done after turning off the power of the camera control unit.
2. Use GP-CA522/4 (4 m/13 ft) camera cable only for connection between the camera head and camera control unit. Do not extend the cable.

# PREFACE

Panasonic's GP-US742CU and GP-US522HB/GP-US732H Industrial Digital Signal Processing Color 3-CCD Camera overcomes space limitations that have complicated many video applications.

The GP-US522HB/732H incorporates Three 380 000-pixel Interline Transfer CCDs for NTSC (Three 440 000-pixel Interline Transfer CCDs for PAL) to give you a remarkable 800 lines (750 lines for GP-US732H) at center of horizontal resolution and a S/N ratio is 62 dB. Using the GP-US742CU

together with the GP-US732H makes possible to generate images of higher vertical resolutions with a lesser blur and flicker by means of the progressive drive. This means a color picture with high visual information content, for excellent image detail.

Because it features digital signal processing, the GP-US742CU and GP-US522HB/GP-US732H provides an exceptionally stable picture.

# FEATURES

1. High-performance micro prism optical system with three IT CCDs
2. 800 lines of horizontal resolution for GP-US522HB and 750 lines for GP-US732H
3. Signal to noise ratio of 62 dB
4. Minimum scene illumination with +12 dB gain of 5 lx at F2.8 for GP-US522HB and 7 lx at F2.8 for GP-US732H (interlace drive at center)
5. Auto Tracing White Balance (ATW), Auto White Balance Control (AWC) or Manual White Balance Control are selectable
6. Automatic Setting of Black Balance (ABC) or Manual Setting
7. Gen-Lock capability
8. SMPTE color bar generator for NTSC (EBU color bar generator for PAL)
9. Automatic Gain Control (AGC) and Electronic Light Control (ELC) are available
10. Automatic (AUTO), Step (STEP) and Manual (MANU) setting of Electronic shutter modes are selectable
11. 12 V DC operation
12. RGB/YPbPr and S-Video Outputs
13. 2 SCENE files are selectable

# MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

## Camera Head

### 1. Lens Mount

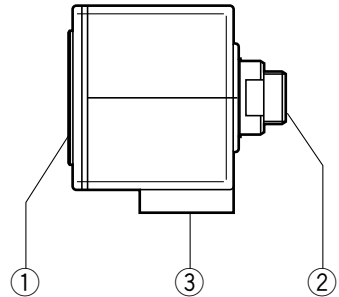
This is used to attach the special C-mount lens for GP-US522HB and the C-mount lens for GP-US732H.

### 2. Camera Cable Connector

This 24-pin connector is used to connect the optional camera cable GP-CA522/4 to the camera control unit.

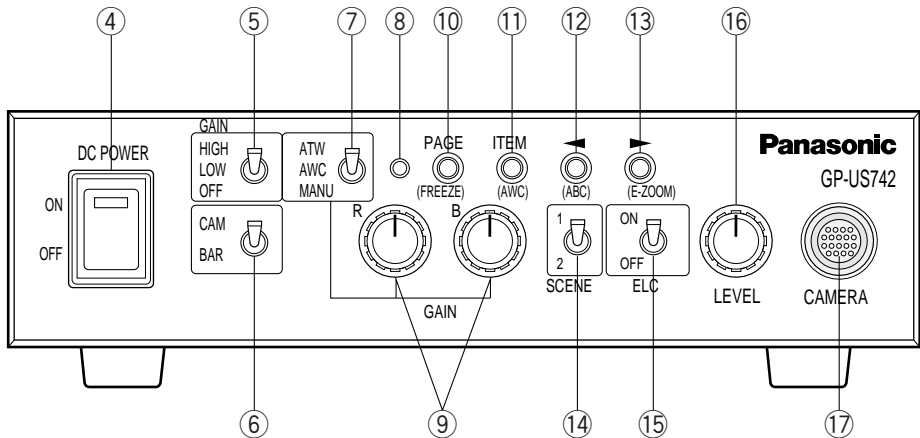
### 3. Camera Mounting Screw Hole

This hole (1/4" - 20) is used to mount the camera onto a mounting bracket.



## Camera Control Unit

### [Front Panel]



### 4. Power ON/OFF Switch (DC POWER ON/OFF)

This switch turns the power of this unit and the power supply for the camera head on or off. The indicator on this switch lights up green when the power switch is turned on.

### 5. Automatic/Manual Gain Selector Switch (GAIN HIGH/LOW/OFF)

This selector is used to select the gain of video amplifier as follows. The mode can be selected in the SET UP menu. Refer to page 19.

MODE	POSITION OF SW	GAIN
AUTO	HIGH	Maximum +12 dB
	LOW	Maximum +6 dB
	OFF	0 dB
MANU	HIGH	+12 dB (Fixed)
	LOW	+6 dB (Fixed)
	OFF	0 dB



## 6. Camera/Color Bar Selector (CAM/BAR)

This selector is used to select either the video signal or the SMPTE color bar signal (the EBU color bar signal for PAL) which is output from the video output connector (VIDEO), YC (S-VIDEO) output connector or RGB/YPbPr (D-SUB, 9-pin) output connector.

**CAM:**The video signal from the camera is output.

**BAR (For NTSC models):** The SMPTE color bar signal is output.

**BAR (For PAL models):** The EBU color bar signal is output.

Set this switch to BAR when making video monitor adjustments and recording the color bar signal.

## 7. White Balance Selector (ATW/AWC/MANU)

This selector is used to select one of the following white balance modes.

**ATW:** In this mode, the color temperature is monitored continuously and thereby white balance is set automatically.

**AWC:** In this mode, accurate white balance is obtained. The white balance settings are as follows:

1. Aim the camera at white chart.
2. Press the ITEM (AWC) button on the front panel to set the white balance.
3. When the auto white balance is completed, the auto warning indicator first blinks and then goes off.

If the auto warning indicator remains lit, repeat the above procedure for setting the auto white balance.

### Notes:

- The auto white balance settings are not available when displaying a freeze frame picture or an enlarged picture using the ►/E-ZOOM button.
- Before performing the auto white balance settings, display normal pictures first by releasing the displayed freeze frame picture or the enlarged picture.

**MANU:** The white balance can be adjusted manually with the red gain (R GAIN) and blue gain (B GAIN) controls.

**Note:** When the "SCANNING MODE" setting is changed, it is necessary to set or adjust the white balance settings again.

## 8. Auto Warning Indicator

This indicator blinks while the white balance or black balance is being automatically set. This indicator lights continuously when the white balance or black balance is set improperly. In this case, follow the auto white balance or black balance setting procedure.

## 9. Red and Blue Gain Controls (R/B GAIN)

These controls are used to manually adjust the white balance.

These controls only work when the white balance selection switch (ATW/AWC/MANU) is set to MANU.

Turn the controls clockwise to increase the red and blue signal levels, and counterclockwise to decrease.

## 10. Page Button (PAGE/FREEZE)

This button is used to display the SET UP menu by pressing it for 2 seconds or more, and to change the parameters in the SET UP menu.

When "ON" is selected for "FREEZE" on the SET UP menu, pressing this button for less than 2 seconds makes this button work as the FREEZE button in order to display a freeze frame picture.

## 11. Item Button (ITEM/AWC)

While the SET UP menu is displayed, this button is used to move the cursor to the downward.

Normally, when the white balance selection switch (ATW/AWC/MANU) is set to AWC, this button is used to set the automatic white balance control (AWC).

## 12. Left Button (◀/ABC)

While the SET UP menu is displayed, this button is used to move the cursor to the left.

Normally, this button is used to set the automatic black balance control (ABC).

## 13. Right Button (▶/E-ZOOM)

While the SET UP menu is displayed, this button is used to move the cursor to the right in the SET UP menu.

When "ON" is selected for "ELECTRIC ZOOM" on the SET UP menu, normally this button works as the ELECTRIC ZOOM button in order to enlarge a picture up to x2.5.

## 14. Scene File Selector (SCENE)

This selector is used to select the scene files.

## 15. Electronic Light Control ON/OFF Selector (ELC ON/OFF)

This selector is used to select the electronic light control from followings.

**ON:** Enables Electronic Light Control (ELC) mode and disables Electronic Shutter Speed (SHUTTER) mode.

**OFF:** Enables Electronic Shutter Speed (SHUTTER) mode and disables Electronic Light Control (ELC) mode.

**Note:** Confirm the setting of the ELC and SHUTTER parameters on the SET UP menu.

## 16. Brightness Control (LEVEL)

This control is used to set the target value of brightness in the following cases:

- When the position of the ELC ON/OFF switch is "ON"
- When "AUTO" is selected for "GAIN" on the SET UP menu
- When "AUTO" is selected for "SENS UP" on the SET UP menu

### 17. Camera Cable Connector (CAMERA)

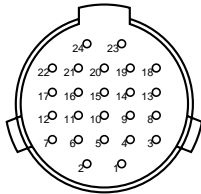
This 20-pin connector is used for connection with the camera head via the optional camera cable GP-CA522/4.

Fasten the camera cable to this connector firmly. If not, noise may be appeared.

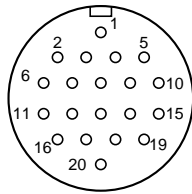
#### Caution

Connecting or disconnecting the camera cable to/from the camera control unit or camera head must be done after turning off the Power of the camera control unit.

For Camera

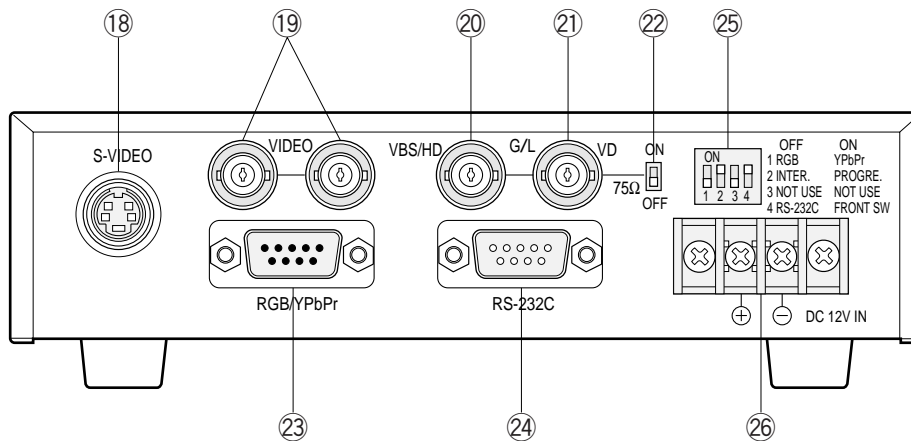


For CCU



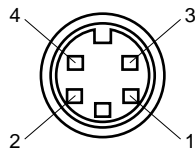
Camera Head Side	Camera Control Unit Side
1 +15 V Input	1 Ground (GND)
2 Ground (GND)	2 Chip Select 2 Output
3 Chip Select 1 Input	3 Serial Data Input
4 +25 V Input/HCLR Output	4 +9 V Output/Not used
5 VL Input	5 VL Output
6 B Signal Output	6 TGCLK Output
7 SCANNING MODE Select Input	7 CPOB Input
8 Serial Data Input	8 SCANNING MODE Select Output
9 Serial Clock Input	9 +5 V Output
10 CCD Select Output	10 B Signal Input
11 G Signal Output	11 Serial Clock Output
12 R Signal Output	12 VD Output
13 VD Input	13 Chip Select 1 Output
14 CPOB Output	14 +25 V Output/HCLR Input
15 HD Input	15 R Signal Input
16 +9 V Input/Not used	16 Serial Data Output
17 +5 V Input	17 HD Output
18 Serial Data Output	18 G Signal Input
19 Chip Select 2 Input	19 +15 V Output
20 Not used	20 CCD Select Input
21 Not used	
22 Not used	
23 TGCLK Input	
24 Not used	

### [Rear Panel]



### 18. S-Video Output Connector (S-VIDEO)

The luminance (Y) and chrominance (C) signals for VCR (VTR) or monitor are provided at this connector.



S-VIDEO (Mini-DIN, 4-pin)

Pin No.	Description
1	Y Ground (GND)
2	C Ground (GND)
3	Y Signal Output (For NTSC 0.714 V[P-P], for PAL 0.7 V[P-P] (Y level)/75 Ω)
4	C Signal Output (For NTSC 0.286 V[P-P], for PAL 0.3 V[P-P] (Burst Level)/75 Ω)

### 19. Video Output Connector (VIDEO)

A 1.0 V[P-P]/75 Ω composite video signal is provided at this connector.

### 20. Gen-lock Signal Input Connector (VBS/HD)

The color video signal of the camera is automatically synchronized with the gen-lock signal (Composite Signal, Black Burst Signal or Video Sync) when either signal is supplied to this connector.

The gen-lock signal is used for system reference.

#### Caution:

If the gen-lock signal is jittery (as in the case of a VCR (VTR) playback picture), the camera cannot be synchronized properly.

#### (External HD and VD Mode)

The horizontal and vertical pulse of the color video signal is synchronized with the external HD fed to this connector and external VD fed to the VD input connector when using in the External HD and VD Mode.

### 21. VD Input Connector (VD)

Supply the external vertical drive (VD) pulse to this connector when using in the External HD and VD Mode.

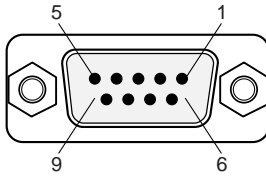
### 22. Gen-Lock Video 75 Ω Termination ON/OFF Switch (75 Ω ON/OFF)

When looping through the gen-lock video signal with a BNC "T" adapter, set this switch to OFF. When not looping through, set this switch to ON.

### 23. RGB/YPbPr Output Connector (RGB/YPbPr)

The red, green, blue, sync output signals, or luminance, blue color-difference, red color-difference, sync output signals are provided at this connector.

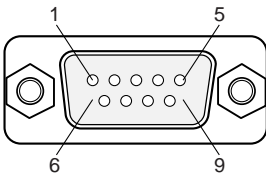
Select output signals to be provided by setting "SCANNING MODE" on the SET UP menu and using the Function Setup Switch.



RGB/YPbPr (D-SUB, 9-pin, Female)

Pin No.	Description
1	Ground (GND)
2	Ground (GND)
3	Red (R) Output (0.7 V[P-P]/75 Ω)/ Pr Output (0.525 V[P-P]/75 Ω)
4	Green (G) Output (0.7 V[P-P]/75 Ω)/ Y Output (0.7 V[P-P]/75 Ω)
5	Blue (B) Output (0.7 V[P-P]/75 Ω)/ Pb Output (0.525 V[P-P]/75 Ω)
6	Composite Video Output (1.0 V[P-P]/75 Ω)
7	Sync (SYNC) Output (0.3 V[P-P]/75 Ω)
8	Ground (GND)
9	Ground (GND)

### 24. RS-232C Connector (RS-232C)



RS-232C (D-SUB, 9-pin, Male)

Pin No	Signal
	RS-232C
1	Ground
2	TXD
3	RXD
4	DSR
5	Ground
6	DTR
7	CTS
8	RTS
9	Ground

**Note:** Refer this connection to a qualified service person or system installer.

### 25. Function Setup Switch



Switch No.	Description	
	OFF	ON
1	RGB Output (RGB)	YPbPr Output (YPbPr)
2	Interlace Output (INTER.)	Progressive Output (PROGRE.)
3	Not Used (NOT USE)	Not Used (NOT USE)
4	RS-232C Control (RS-232C)	Front PANEL Switch Control (FRONT SW)

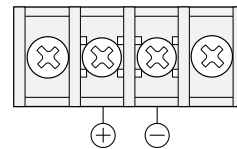
1. Select the output signals to be provided at the RGB/YPbPr output connector using switch 1 and 2. When using the GP-US732H and "PROG" is selected for "SCANNING MODE" on the SET UP menu, progressive signals will be provided by setting switch 2 to "ON". When using the GP-US522HB, interlace signals will be provided regardless of the switch 2 setting.
2. Set switch 4 to "OFF" before turning on the power only when using the RS-232C connector.

**Caution:** When setting switch 4 to "OFF", all the buttons and controls on the front panel will be disabled.

3. Switch 3 is not applicable.

### 26. DC 12 V Input Terminals (DC 12V IN)

These terminals accept an external DC power source supplying nominal power of 12 V DC, 2 A.



#### Cautions:

1. Connect to 12 V DC (11.5 V - 16 V) class 2 power supply only.
2. To prevent fire or electric shock hazard, use a UL listed wire VW-1, Style 1007 cable for 12 V DC input terminals.

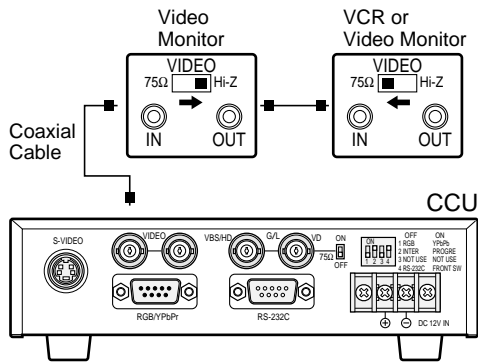
# CONNECTIONS

## Cautions:

1. Keep the DC POWER ON/OFF switch in the OFF position until all connections have been properly made.
2. Connect the camera head and camera control unit.

## Internal Sync Operation

1. Connect the camera cable between the camera head and the camera control unit.
2. Connect the coaxial cable with BNC connectors between the video output connector of the camera control unit and the video monitor or VCR (VTR).



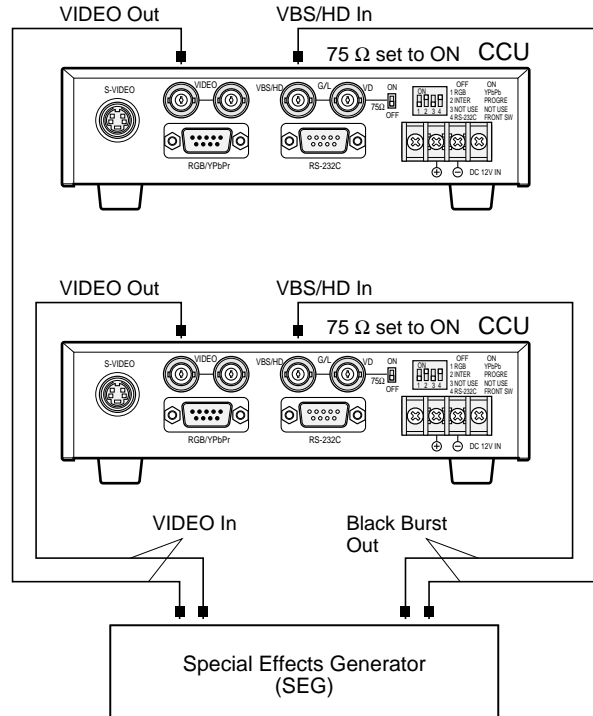
3. Connect the power cable between the DC 12 V input terminals and the 12 V DC power supply unit which supplies nominal power of 12 V DC, 2 A (obtained locally).

## Cautions:

1. Connect to 12 V DC (11.5 V - 16 V) class 2 power supply only.
2. To prevent fire or electric shock hazard, use a UL listed wire VW-1, Style 1007 cable for 12 V DC input terminals.

## Gen-lock Operation

1. Connect the camera cable between the camera head and the camera control unit.
2. Connect the coaxial cable with BNC connectors between the video output connector of the camera control unit and the video input connector of Special Effects Generator (SEG), and between the VBS/HD input connector of the camera control unit.



3. Connect the power cable between the DC 12 V input terminals and the 12 V DC power supply unit which supplies nominal power of 12 V DC, 2 A (obtained locally).

## Cautions:

1. Connect to 12 V DC (11.5 V - 16 V) class 2 power supply only.
2. To prevent fire or electric shock hazard, use a UL listed wire VW-1, Style 1007 cable for 12 V DC input terminals.

## Mounting the Lens

### Caution:

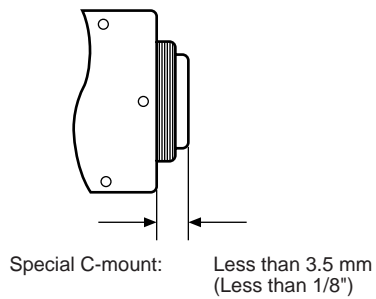
Keep the POWER ON/OFF switch of the camera control unit in the OFF position throughout the installation.

### Lens Mount

1. Remove the front cap of the camera head and confirm that the surface of the optical filter of the camera head is clean.  
If the surface of the optical filter is dirty clean it with a blower brush which is for film camera lenses (available at your local camera store).
2. Mount the C-mount lens by turning it clockwise onto the lens mount of the camera head.

### Cautions:

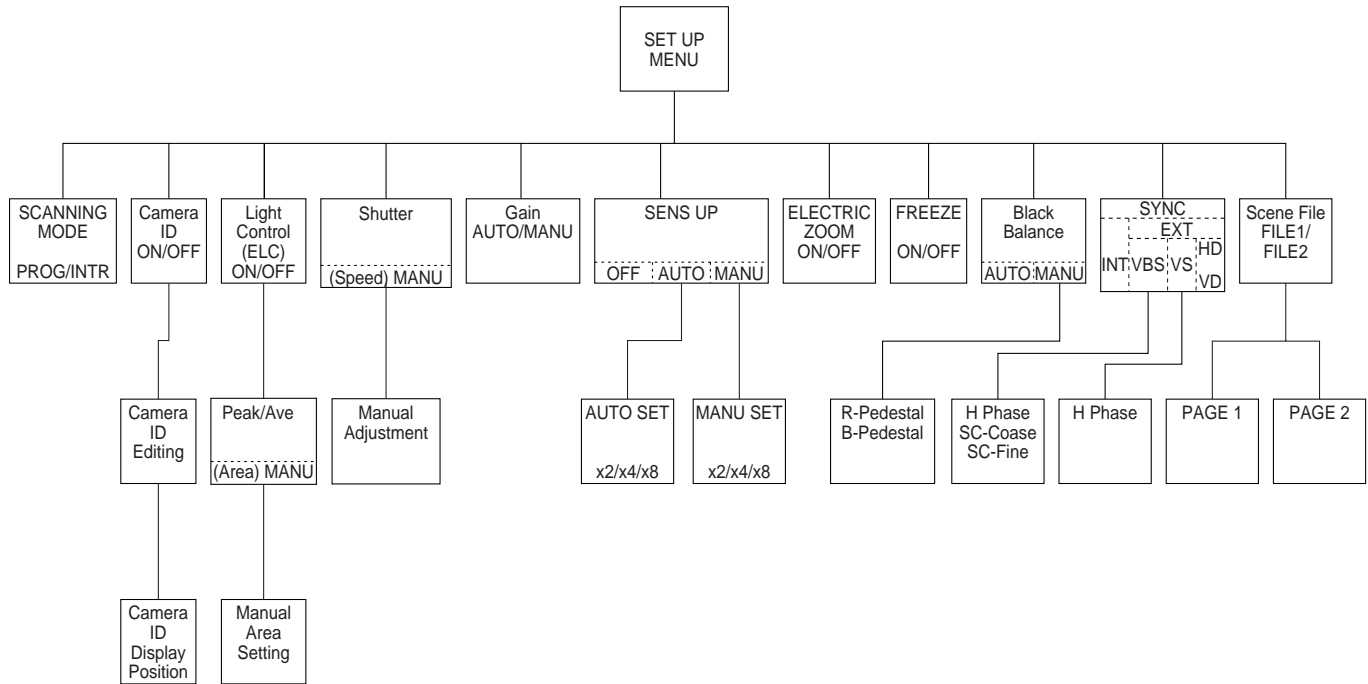
- Do not use any lens which has more than 3.5 mm (1/8") of protrusion for lens mounting. (GP-US522HB)
- When the lens iris is opened wider than F2.8, it may cause the low ambient light intensity or blur. (GP-US522HB)
- When the lens iris is opened wider than F4, it may cause the low ambient light intensity or blur. (GP-US732H)



# SETUP

## 1. CAMERA SETUP MENU

This camera utilizes a user setup menu that is displayed on-screen. The setup menu contains various items that form a tree-type structures as shown below.



It is described in the following section: "2. SETUP OPERATION".

**Note:** The SET UP menu is output from the VIDEO connectors, the S-VIDEO connector, and the RGB/YPbPr connector.

## 2. SETUP OPERATION

This camera utilizes a user setup menu (SETUP) that is displayed on the monitor. To set items on the SET UP menu, use the following buttons on the front panel of the camera control unit.

### Page Button (PAGE):

To display the SET UP menu, press this button for 2 seconds or more. Use this button to select an item.

### Item Button (ITEM):

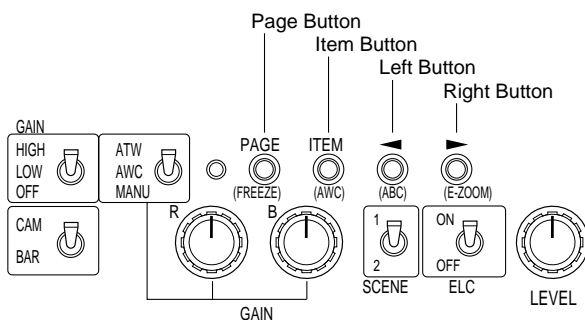
This button is used to move the cursor downwards.

### Left Button (◀)

This button is used to move the cursor to the left. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.

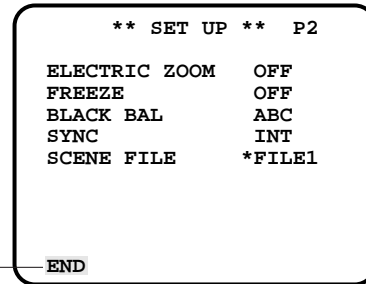
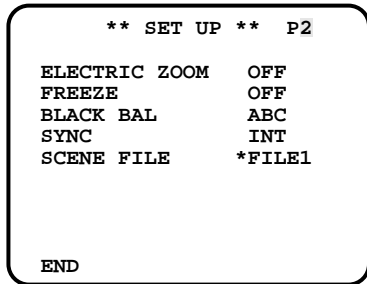
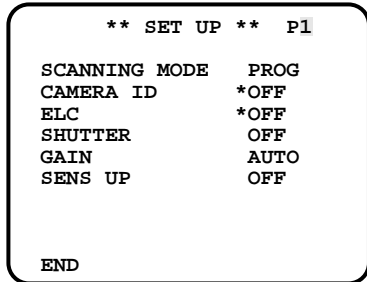
### Right Button (▶)

This button is used to move the cursor to the right. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.



• **Opening the SET UP menu**

Press the PAGE button for 2 seconds or more. The SET UP menu appears.



Blinking

• **All Reset Operation**

All Reset allows you to reset all setup menu items to the factory settings if you are unsure about the correct settings. Proceed as follows:

1. Repeat the above procedures to display the SET UP menu.
2. Move the cursor to END at the bottom line.
3. Press all of PAGE, ◀ and ▶ for a few seconds. The SET UP menu disappears on the monitor screen.
4. Turn on the power again using the power ON/OFF switch.

At this time, all adjustments and parameters are reset to the factory default settings.

There are 2 pages (P1 and P2) for the SET UP menu.

The following items are on page 1 (P1):

- Scanning Mode Setting (SCANNING MODE)
- Camera Identification Setting (CAMERA ID)
- Electronic Light Control Setting (ELC)
- Electronic Shutter Speed Setting (SHUTTER)
- Gain Control Setting (GAIN)
- Sensitivity Up Control Setting (SENS UP)

The following items are on page 2 (P2):

- Electronic Zoom Control Setting (ELECTRIC ZOOM)
- Freeze Control Setting (FREEZE)
- Black Balance Setting (BLACK BAL)
- Synchronization Setting (SYNC)
- Scene File Setting (SCENE FILE)

To turn the pages, move the cursor to P1 or P2 and press the ◀ or ▶ button.

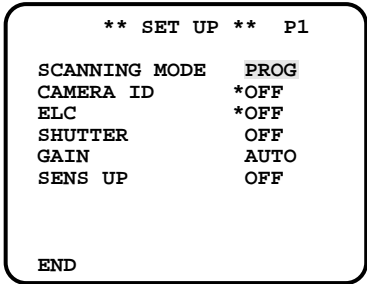
• **Editing the SET UP menu**

To edit the SET UP menu (change settings), press the ITEM button to move the cursor to an item, and press ◀ and ▶ to change its parameter. After completing all the settings, move the cursor to END at the bottom line, and press the PAGE button. The new values are stored in the EEPROM (Electric Erasable and Programmable Read Only memory). These values remain valid until new values are stored, even if the power of the camera control unit is off.

# SETTING PROCEDURES

## 1. Scanning Mode Setting (SCANNING MODE)

It is possible to switch between interlace drive and progressive drive by setting "SCANNING MODE" when using the GP-US732H.



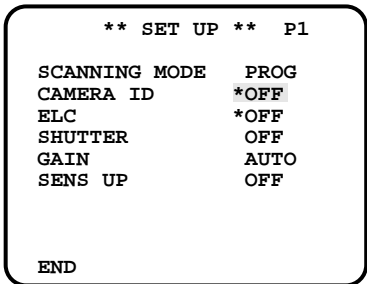
1. Move the cursor to the SCANNING MODE parameter.
2. Select "PROG" or "INTR".
3. Move the cursor to "END" at the bottom, and press the PAGE button to close the SET UP menu.
4. Turn on the power after turning the power off once using the power ON/OFF switch. The selected drive will be enabled.

When progressive drive is enabled, output signals provided at the RGB/YPbPr output connector can be switched between progressive output signals and interlace output signals using the Function Setup Switch on the rear panel.

**Note:** When using the GP-US522HB, interlace output signals will be provided automatically.

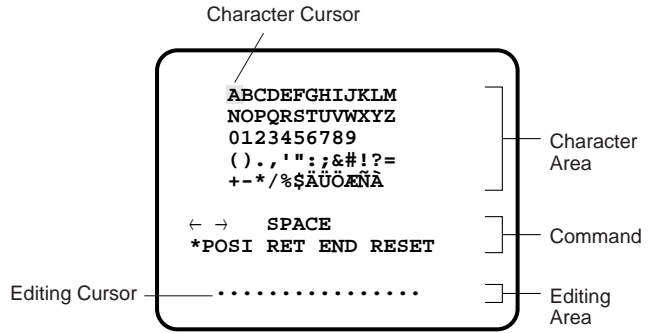
## 2. Camera Identification Setting (CAMERA ID)

You can use the camera identification (CAMERA ID) to assign a name to the camera. The camera ID consists of up to 16 alphanumeric characters. You can select whether to have the camera ID displayed on the monitor screen or not.



### To edit the CAMERA ID

1. Move the cursor to the CAMERA ID parameter.
2. Press the PAGE button. The CAMERA ID menu appears. The cursor on the letter "A" starts blinking. (Umlaut characters are available only for the GP-US742CU for PAL system.)



3. Move the character cursor to a character you want by pressing ITEM, ◀ or ▶.
4. After selecting the character, press the PAGE button. The selected character appears in the editing area. (The editing cursor in the editing area moves to the right automatically at this moment.)
5. Repeat the steps above until all characters are edited.

### To enter a blank space in the CAMERA ID

Move the character cursor to SPACE and press the PAGE button.

### To edit a specific character in the CAMERA ID

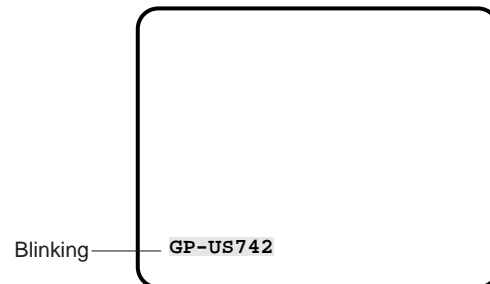
1. Move the character cursor to ← or → then press the PAGE button to move the editing cursor to the character to be edited in the editing area.
2. Move the character cursor to the character area and select a new character.
3. Press the PAGE button to set the CAMERA ID.

### To erase all characters in the editing area

Move the character cursor to RESET and press the PAGE button. All characters in the editing area disappear.

### To determine the display position of the CAMERA ID

1. Move the cursor to POSI, and press the PAGE button. The display shown below appears and the CAMERA ID starts blinking.



2. Move the CAMERA ID to the desired position by pressing ◀, ▶ or the ITEM button.
3. Press the PAGE button for 2 seconds or more to fix the position of the CAMERA ID. The mode returns to the previous CAMERA ID menu.



**To return to the SET UP menu**

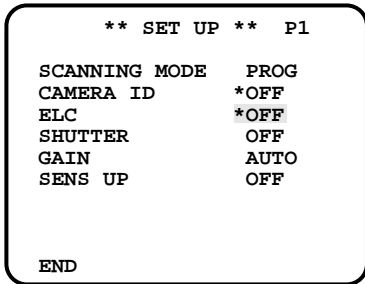
Move the cursor to RET and press the PAGE button. The SET UP menu appears.

**To display the CAMERA ID on the monitor screen**

Move the cursor to CAMERA ID in the SET UP menu and select ON.

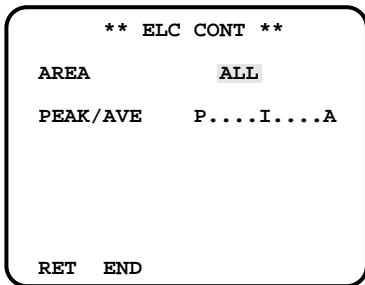
**3. Electronic Light Control Setting (ELC)**

The electronic light control function eliminates interference by strong background lighting which makes the camera picture dark, such as a spotlight. In the ELC mode, more photometric weight is given to the desired point of the screen (to where the important object is located).



**3-1. ELC/AUTO-GAIN/AUTO-SENS-UP detection control area setting (ELC CONT)**

1. Move the cursor to the ELC parameter and press the PAGE button. The ELC CONT menu appears.



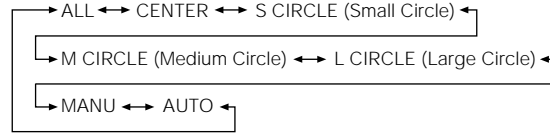
2. Move the cursor to the AREA parameter and select the desired detection area. You can select the desired detection area from followings.

- ALL:** All areas on the monitor screen are detected.
- CENTER:** The photometric weight is given to the center of the monitor screen.
- S CIRCLE (Small Circle):** The photometric weight is given to the area within a small circle in the center of the monitor screen.
- M CIRCLE (Medium Circle):** The photometric weight is given to the area within a medium large circle in the center of the monitor screen.
- L CIRCLE (Large Circle):** The photometric weight is given to the area within a large circle in the center of the monitor screen.

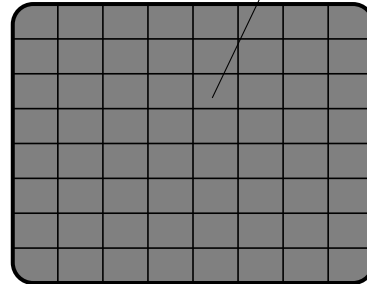
**MANU:** Detection areas are selectable manually. See below for details.

**AUTO:** Darker areas are masked automatically and only brighter areas on the monitor screen are detected.

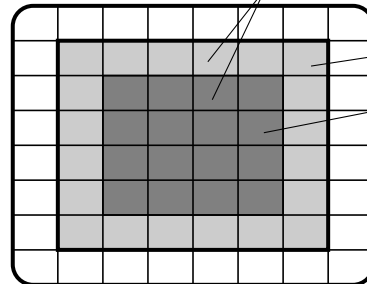
Each time you press ◀ or ▶, the parameter changes as follows.



ALL Detection Area

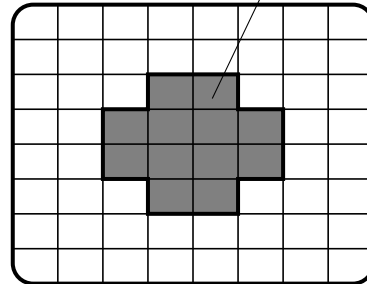


CENTER Detection Area

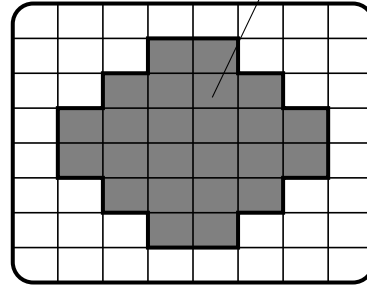


50 % Sensing Area  
100 % Sensing Area

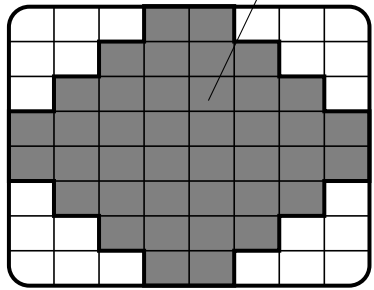
S CIRCLE (Small Circle) Detection Area



M CIRCLE (Medium Circle) Detection Area



L CIRCLE  
(Large Circle)



**Note:** Detection areas are not displayed on the monitor.

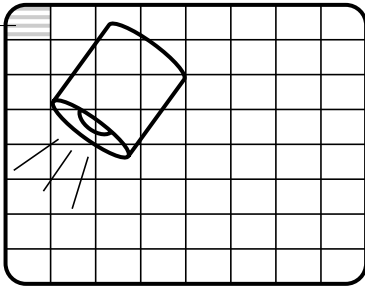
### Manual setting of the detection control area (MANU)

You can mask areas on the monitor screen to block the strong brightness manually. Follow the steps below.

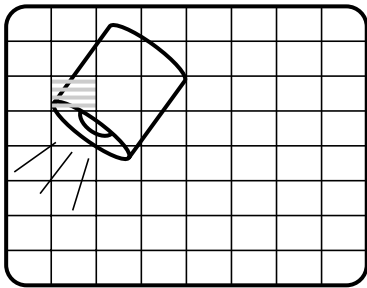
**Note:** The manual mask setting field is displayed on VIDEO, S-VIDEO and RGB/YPbPr Interlace output. It is not displayed on RGB/YPbPr Progressive output.

1. Move the cursor to the AREA parameter on the ELC CONT menu.
2. Select MANU and press the PAGE button. The manual mask setting field appears.

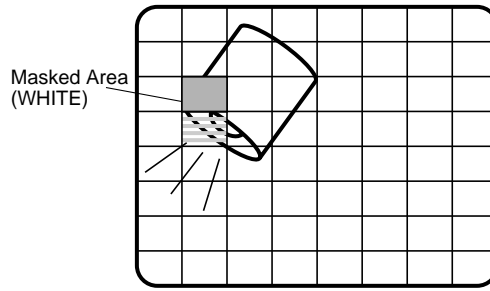
Cursor  
(Blinking)



3. Select the area where backlight is bright by pressing ◀, ▶ or the ITEM button.



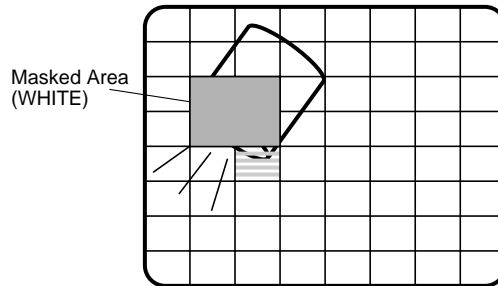
4. Press the PAGE button to mask that area. The mask turns white. (When the cursor is moved on an area that has already been masked, the mask and cursor start blinking.)



### Notes:

- A masked area will be excluded from ELC/AUTO-GAIN/AUTO-SENS-UP detection.
- It is impossible to mask all areas.

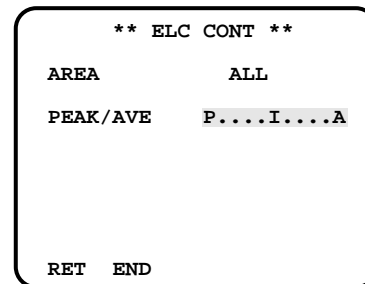
5. Repeat the steps 3 and 4 to complete masking. To cancel masking, move the cursor to that area and press the PAGE button.



6. After masking is completed, press the PAGE button for a second or more. The ELC CONT menu appears.

### 3-2. Peak and Average Weight Control (PEAK/AVE)

1. Move the cursor to the PEAK/AVE parameter.

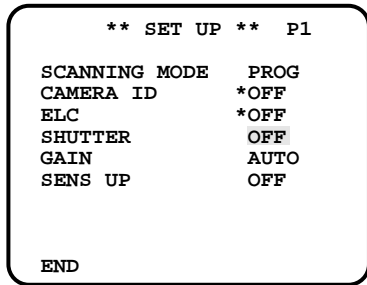


2. Move the "I" cursor to set the detection value. When the "I" cursor is moved to the P (peak) side, the peak value is detected. When the "I" cursor is moved to the A (average) side, the average value is detected.

## 4. Electronic Shutter Speed Setting (SHUTTER)

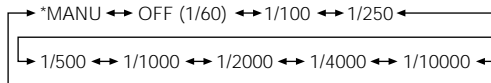
**Note:** When ON is selected for ELC on the SET UP menu, this item is not available. To select the electronic shutter speed, select OFF for ELC on the SET UP menu using the ELC ON/OFF selector on the front panel.

You can select the electronic shutter speed of 1/100 (1/120 for PAL), 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000 or 1/10 000 seconds. The shutter speed can also be set manually.

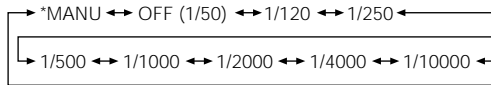


1. Move the cursor to the SHUTTER parameter.
2. Select the shutter speed or MANU for manual setting from the following.

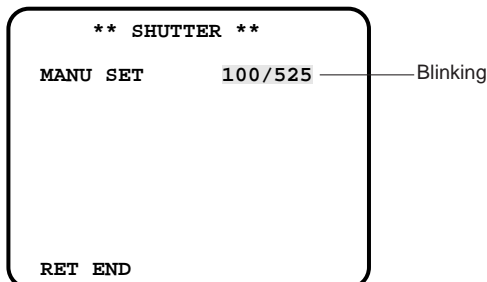
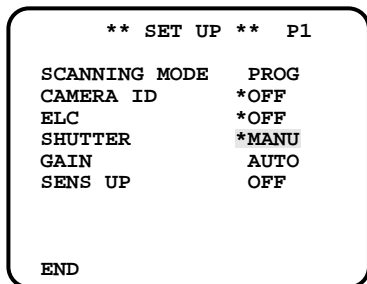
### NTSC



### PAL



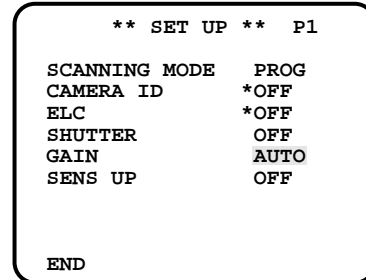
3. When you have selected MANU, press the PAGE button. The SHUTTER menu appears and the MANU SET parameter starts blinking.



4. Select the desired electronic shutter speed by pressing ◀ or ▶. The adjustable range is 1/525-509/525 (1/625-609/625 for PAL).

## 5. Gain Control Setting (GAIN)

You can set the gain (brightness level portion of an image) to automatic level adjustment (AUTO) or manual level adjustment (MANU).



1. Move the cursor to the GAIN parameter.
2. Select AUTO or MANU. The gain of the video amplifier is changed according to the position of the automatic/manual gain selector (HIGH/LOW/OFF) on the front panel of the camera control unit.

If you select AUTO, the gain of the amplifier changes as follows.

Position	Gain
HIGH	Maximum +12 dB
LOW	Maximum +6 dB
OFF	0 dB

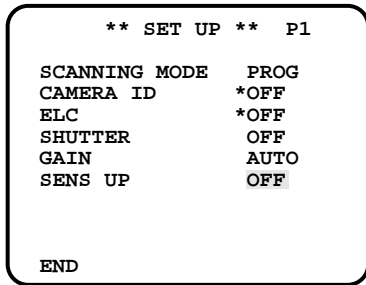
When you select MANU, the gain of the amplifier changes as follows.

Position	Gain
HIGH	+12 dB (Fixed)
LOW	+6 dB (Fixed)
OFF	0 dB

## 6. Sensitivity Up Control Setting (SENS UP)

You can set the sensitivity enhancement with accumulation to OFF, automatic level adjustment (AUTO) or manual level adjustment (MANU).

**Note:** When enhancing sensitivity, pictures may not be displayed smoothly.

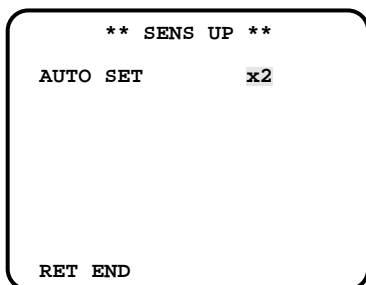


### 6-1. Normal Mode

1. Move the cursor to the SENS UP parameter.
2. Select "OFF". Sensitivity enhancement with accumulation will not be performed.

### 6-2. Auto Sensitivity Up Mode

1. Move the cursor to the SENS UP parameter.
2. Select "AUTO".
3. Press the PAGE button. The SENS UP (AUTO SET) menu appears on the monitor screen.

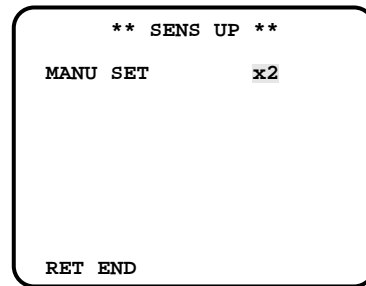


4. Select "x2". "x4" or "x8".  
The accumulation time changes as follows.

Parameter	Sensitivity
x8	Maximum x8
x4	Maximum x4
x2	Maximum x2

### 6-3. Manual Sensitivity Up Mode

5. Move the cursor to the SENS UP parameter.
6. Select "MANU".
7. Press the PAGE button. The SENS UP (MANU SET) menu appears on the monitor screen.

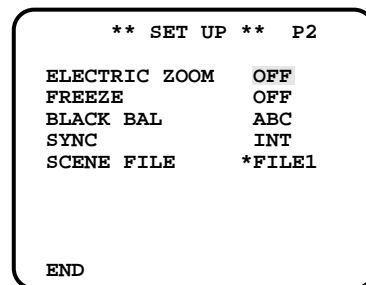


8. Select "x2". "x4" or "x8".  
The accumulation time changes as follows.

Parameter	Sensitivity
x8	x8 (Fixed)
x4	x4 (Fixed)
x2	x2 (Fixed)

## 7. Electronic Zoom Setting (ELECTRIC ZOOM)

It is possible to enlarge a picture up to x2.5 using the electronic zoom.

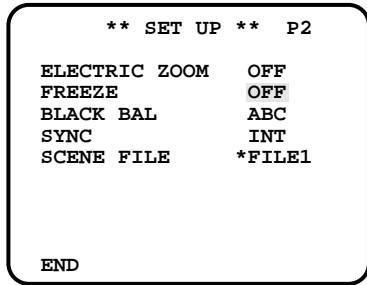


1. Move the cursor to the ELECTRIC ZOOM parameter.
2. Select "ON" or "OFF". Move the cursor "END" and press the PAGE button to close the SET UP menu.
3. When "ON" is selected, the displayed picture will be enlarged each time the ►/E-ZOOM button on the front panel is pressed. When the ►/E-ZOOM button is pressed while the picture is displayed at the maximum zoom ratio, the displayed picture will be reduced to its original size (x1).

**Note:** When turning on the power or display the SET UP menu after enlarging a picture, the displayed picture will be reduced to its original size (x1).

## 8. Freeze Control Setting (FREEZE)

It is possible to display a freeze frame picture.



1. Move the cursor to the FREEZE parameter.
2. Select "ON" or "OFF". Move the cursor "END" and press the PAGE button to close the SET UP menu.
3. When "ON" is selected, the displayed picture will be a freeze frame picture when the PAGE/FREEZE button on the front panel is pressed shortly (less than 2 seconds). When the PAGE/FREEZE button is pressed shortly (less than 2 seconds) while the picture is frozen, the freeze frame picture will be released and will become normal (motion picture).

**Note:** When turning on the power or display the SET UP menu after display a freeze frame picture, the displayed picture will be released and will become normal (motion picture).

## 9. Black Balance Setting (BLACK BAL)

Under low light conditions, correct setting of the black balance is required for producing correct colours.

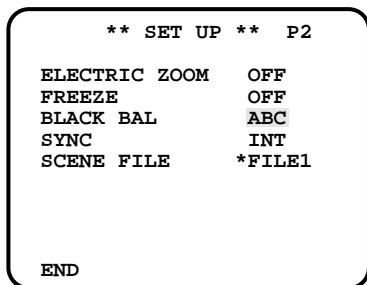
Once the black balance has been set correctly, the setting is maintained in memory.

This setting will not be lost even if the camera control unit is turned off. However, for best results, it is recommended that the black balance adjustment be carried out when the camera has not been used for a long period of time.

There are two black balance control mode. Auto black balance control (ABC) can be selected on the front panel and manual control (MANU) on this menu.

### 9-1. Auto Black Balance Setting (ABC)

1. Move the cursor to the BLACK BAL parameter and select ABC.



2. Attach the lens cap on the camera lens.
3. Move the cursor to END and press the PAGE button to close the SET UP menu.

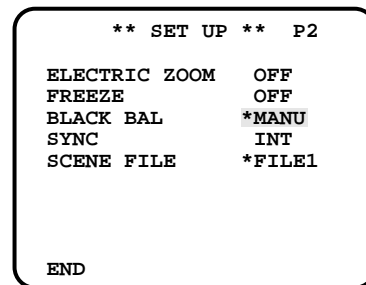
4. Press the ◀ (ABC) button on the front panel of the camera control unit.  
The auto black balance setting is performed.
5. When the auto black balance is completed, the auto warning indicator first blinks and then goes off. If the indicator remains lit, repeat the above procedure for setting the auto black balance (ABC).

**Note:** The auto black balance settings are not available when displaying a freeze frame picture or an enlarged picture using the ▶/E-ZOOM button.

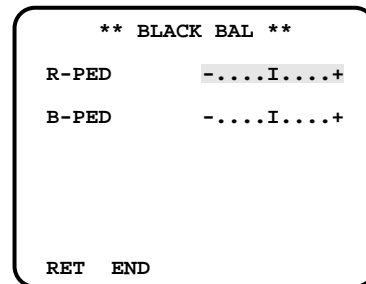
Before performing the auto black balance settings, display normal pictures first by releasing the displayed freeze frame picture or the enlarged picture.

### 9-2. Manual Black Balance Control Setting(MANU)

1. Move the cursor to the BLACK BAL parameter and select MANU.



2. Press the PAGE button. The BLACK BAL menu (manual black balance setting menu) appears.

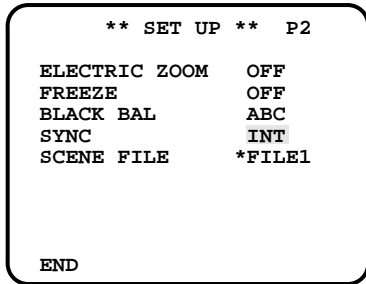


3. Move the cursor to R-PED. The cursor starts blinking.
4. Attach the lens cap on the camera lens.
5. While observing the vector scope or waveform monitor, adjust the red pedestal level (R-PED) for minimum carrier by pressing ◀ or ▶.
6. Move the cursor to B-PED. The cursor starts blinking.
7. While observing the vector scope or waveform monitor, adjust the blue pedestal level (B-PED) for minimum carrier by pressing ◀ or ▶.

**Note:** To reset the pedestal level to the factory setting, move the cursor to R-PED or B-PED and press the ◀ and ▶ button simultaneously for a second or more. The R-PED or B-PED level value reset to the factory setting.

## 10. Synchronization Setting (SYNC)

This model accepts the VBS signal (color composite video or blackburst signal) and VS signal (B/W composite video or composite sync signal) for gen-lock operation. It also accepts the combined vertical (VD) and horizontal (HD) drive pulse.



### Important Notices:

- The sync mode priority is as follows:
  - Color composite video signal (EXT(VBS))
  - B/W composite video signal (EXT(VS))
  - HD/VD signal (EXT(H/V))
  - Internal sync (INT)
- When the internal sync (INT) mode is to be used, no gen-lock input signal should be supplied to the gen-lock input connector on the rear panel of the camera control unit.
- When the VBS or VS gen-lock mode is to be used, supply the gen-lock input signal to the gen-lock input connector (VBS/HD) on the rear panel of the camera control unit.
- The VBS gen-lock mode has its own menu for horizontal and subcarrier phase adjustments. When the cable length of the video output or the gen-lock input is changed, horizontal and subcarrier phase must be re-adjustable.
- The VS gen-lock mode has its own menu for horizontal phase adjustments. When the cable length of the video output or the gen-lock input is changed, the horizontal phase must be re-adjusted.
- When the HD/VD pulse is to be used, supply them to the gen-lock signal input connector (VBS/HD) and the VD input connector (VD) on the rear panel of the camera control unit.

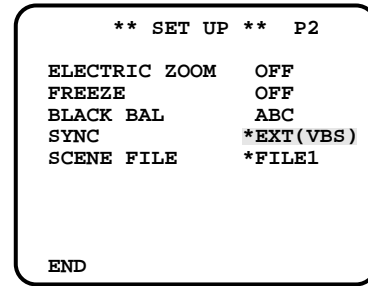
### 10-1. Internal Sync Mode (INT)

It is not necessary to perform this setting.

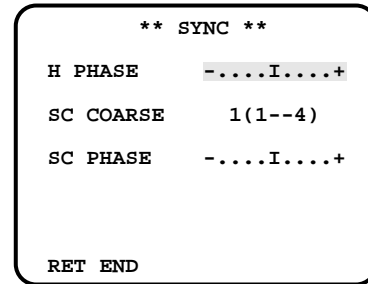
### 10-2. VBS Gen-lock Mode (EXT(VBS))

- Move the cursor to the SYNC parameter.
- Connect the coaxial cable for the blackburst or composite color video signal to the gen-lock input connector (VBS/HD).
- Confirm that the INT parameter changed to EXT(VBS) on the menu.

**Caution:** The gen-lock input signal should meet the EIA RS-170A specifications and should not contain jitter, such as a VCR (VTR) playback signal, as it could disturb synchronization.



- After confirming that the cursor is on EXT(VBS), press the PAGE button. The SYNC menu appears on the monitor screen.



### Horizontal Phase Adjustment (H PHASE)

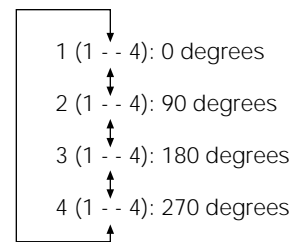
- Move the cursor to H PHASE. The cursor starts blinking.
- Supply the video output signal of the camera to be adjusted and the reference gen-lock input signal to a dual-trace oscilloscope.
- Set the oscilloscope to the horizontal sync portion on the oscilloscope.
- Adjust the horizontal phase by pressing ◀ or ▶.

**Note:** To reset H PHASE to the values preset at the factory, press ◀ and ▶ simultaneously. The H PHASE is reset at the factory setting.

### Subcarrier Coarse Phase Adjustment (SC COARSE)

- Move the cursor to SC COARSE parameter on the SYNC menu. The cursor starts blinking.
- Press ◀ or ▶ to match the color of the camera's video signal, when observed at the output of the Special Effect Generator (SEG) or Switcher, as closely as possible the color of the original scene. (The SC COARSE adjustment can be incremented in steps of 90 degrees (4 steps) by pressing ◀ or ▶.)

**Note:** After the fourth step, the adjustment returns to the first step.



### Subcarrier Fine Phase Adjustment (SC PHASE)

1. Move the cursor to SC PHASE on the SYNC menu. The cursor starts blinking.
2. Press ◀ or ▶ to match the color of the camera's video signal, when observed at the output of the Special Effect Generator (SEG) or Switcher, as closely as possible the color of the original scene.

The SC PHASE adjustment has a range of 90 degrees of color shift.

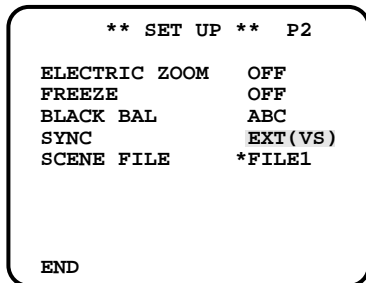
#### Notes:

- When the "I" cursor reaches the "+" end, it jumps back to "-". At the same time, SC COARSE is incremented by one step to enable a continuous adjustment. The reverse takes place when the "I" cursor reaches the "-" end.  
For more accurate adjustment, supply both the original camera video output signal and the effect output video signal (program output video signal) of the special effects generator (SEG) to a vectorscope and compare the chroma phase of both signals.
- To reset SC PHASE to the values preset at the factory, press ◀ and ▶ simultaneously. The SC PHASE is reset at the factory setting.

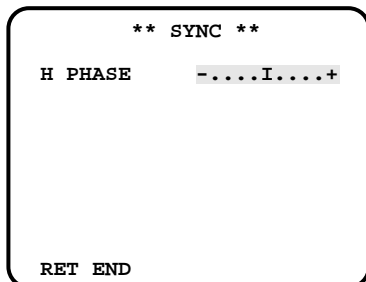
### 10-3. VS Gen-lock Mode (EXT(VS))

1. Move the cursor to the SYNC parameter.
2. Connect the coaxial cable for the composite sync or composite B/W video signal to the gen-lock input connector (VBS/HD).
3. Confirm that the INT parameter changed to EXT(VS) on the menu.

**Caution:** The gen-lock input signal should meet the EIA RS-170 specifications and should not contain jitter, such as a VCR (VTR) playback signal, as it could disturb synchronization.



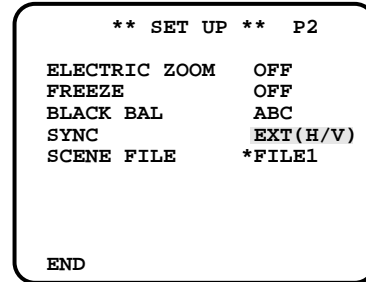
4. After confirming that the cursor is on EXT(VS), press the PAGE button. The phase adjustment menu appears on the monitor screen.



5. Move the cursor to H PHASE. The cursor starts blinking.
6. Supply the video output signal of the camera to be adjusted and the reference gen-lock input signal to a dual-trace oscilloscope.
7. Set the oscilloscope to the horizontal rate and expand the horizontal sync portion on the oscilloscope.
8. Adjust the horizontal phase by pressing ◀ or ▶.

### 10-4. External HD/VD Mode (EXT(H/V))

1. Connect the coaxial cable for the external HD and VD signal to the gen-lock input connector (VBS/HD) and the VD input connector (VD) respectively.
2. Confirm that the INT parameter changed to EXT(H/V) on the menu.

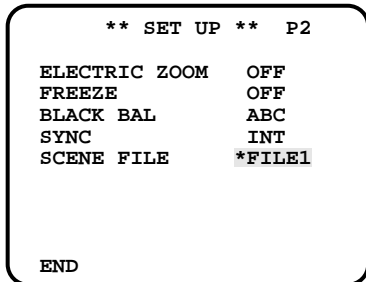


## 11. Scene File Setting (SCENE FILE)

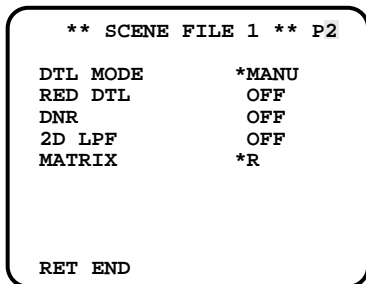
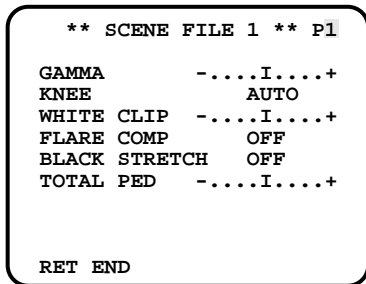
This menu allows for you to adjust and set the items for the video signal of the camera to meet your requirements.

You can store two sets of values in two different scene files. Use the Scene File Selector on the front panel of the camera control unit to select SCENE FILE1 or SCENE FILE2.

1. Move the cursor to the SCENE FILE parameter and select FILE1.



2. Press the PAGE button. The SCENE FILE menu appears.



There are 2 pages for SCENE FILE (P1 and P2). On page 1 (P1), you can set the following items:

- Gamma Correction (GAMMA)
- Knee Control (KNEE)
- White Clip Level Control (WHITE CLIP)
- Flare Compensation (FLARE COMP)
- Black Stretch Control (BLACK STRETCH)
- Total Pedestal Level Control (TOTAL PED)

On page 2 (P2), you can set the following items:

- Detail Mode Control (DTL MODE)
- Red Detail ON/OFF (RED DTL)
- Digital Noise Reduction Control (DNR)
- 2 Dimension Low Pass Filter ON/OFF (2D LPF)
- Chroma Matrix Control (MATRIX)

### To turn the page

Move the cursor to P1 or P2 and press the ◀ or ▶ button.

### Returning to the SET UP menu

Move the cursor to RET and press the PAGE button.

#### 11-1. Gamma Correction (GAMMA)

1. Move the cursor to the GAMMA parameter.
2. While observing the waveform monitor or the color video monitor, adjust the gamma level.  
When the "I" cursor is at the end of the "+" side, gamma correction is set to OFF.

#### 11-2. Knee Control (KNEE)

1. Move the cursor to the KNEE parameter.
2. Select AUTO or MANU for the knee mode.
3. When "MANU" is selected, press the PAGE button.  
The KNEE MENU appears.  
While observing the waveform monitor or the color video monitor, adjust the knee point.

#### 11-3. White Clip Level Control (WHITE CLIP)

1. Move the cursor to the WHITE CLIP parameter.
2. While observing the waveform monitor or the color video monitor, adjust the white clip level.

#### 11-4. Flare Compensation (FLARE COMP)

1. Move the cursor to the FLARE COMP parameter.
2. Select "ON" or "OFF" for the FLARE COMP mode.  
When "ON" is selected, flare appearance will be compensated.

#### 11-5. Black Stretch Control (BLACK STRETCH)

1. Move the cursor to the BLACK STRETCH parameter.
2. Select "ON" or "OFF" for the BLACK STRETCH mode.  
When "ON" is selected, dark tone will be stretched.

#### 11-6. Total Pedestal Level Control (TOTAL PED)

1. Move the cursor to the TOTAL PED parameter.
2. While observing the waveform monitor or the color video monitor, adjust the total pedestal level (black level).  
Move the "I" cursor to the "+" side to make the image brighter.  
Move the "I" cursor to the "-" side to make the image darker.

#### 11-7. Detail Mode Control (DTL MODE)

It is possible to select manual (MANU), special 1 (SP-1), special 2 (SP-2), special 3 (SP-3) for the detail mode. When "MANU" is selected, settings of detail band (DTL BAND), horizontal detail gain (H-DTL) and vertical detail gain (V-DTL) are available.

##### 11-7-1. Detail Band Control (DTL BAND)

1. Move the cursor to the DTL MODE parameter. Select "MANU" and press the PAGE button. The DTL MODE menu appears on the monitor screen.
2. Move the cursor to the DTL BAND parameter.
3. While observing the color video monitor, adjust the aperture level.



Move the "I" cursor to the "+" side to raise the frequency.

Move the "I" cursor to the "-" side to lower the frequency.

#### **11-7-2. Manual Horizontal Detail Gain Control (H-DTL)**

1. Move the cursor to the DTL MODE parameter. Select "MANU" and press the PAGE button. The DTL MODE menu appears on the monitor screen.
2. Move the cursor to the H-DTL parameter.
3. While observing the color video monitor, adjust the aperture level.  
Move the "I" cursor to the "+" side to make the image sharper.  
Move the "I" cursor to the "-" side to make the image softer.

#### **11-7-3. Manual Vertical Detail Gain Control (V-DTL)**

1. Move the cursor to the DTL MODE parameter. Select "MANU" and press the PAGE button. The DTL MODE menu appears on the monitor screen.
2. Move the cursor to the V-DTL parameter.
3. While observing the color video monitor, adjust the aperture level.  
Move the "I" cursor to the "+" side to make the image sharper.  
Move the "I" cursor to the "-" side to make the image softer.

#### **11-8. Red Detail ON/OFF (RED DTL)**

1. Move the cursor to the RED DTL parameter.
2. Select ON or OFF for the RED DTL mode.  
When ON is selected, the red detail is enhanced.

#### **11-9. Digital Noise Reduction Control (DNR)**

1. Move the cursor to the DNR parameter.
2. Select OFF, LOW or HI for the DNR mode.

#### **11-10. 2 Dimension Low Pass Filter ON/OFF (2D LPF)**

1. Move the cursor to the 2D LPF parameter.
2. Select ON or OFF for the 2D LPF mode.

#### **11-11. Chroma Matrix Control (MATRIX)**

1. Move the cursor to the MATRIX parameter.
2. Select magenta (Mg), red (R), yellow (Ye), green (G), cyan (Cy) or blue (B).  
Press the PAGE button. The MATRIX PHASE menu appears on the monitor screen.
3. While observing the vectorscope or the color video monitor, adjust the matrix phase and gain.

#### **To reset to the factory setting**

The item selected using the "I" cursor can be reset to the factory settings.

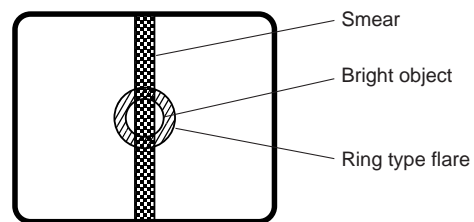
Move the cursor to the desired item and press ◀ and ▶ simultaneously for a second and more.

## PREVENTION OF BLOOMING AND SMEAR

When the camera is aimed towards spotlights or other bright lights or light reflecting objects, smear or blooming may appear.

Therefore the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.

If the camera is aimed at the sun or very bright light, such as laser beam, for a long period of time, the CCD image sensor may be burned in and blemishes (white or black dots) appears on the monitor screen



# SPECIFICATIONS

Pick-up System:	Micro prism system
Image Sensor:	Three 1/2" interline transfer (IT) super high sensitivity CCDs (GP-US522HB) Three 1/3" interline transfer (IT) super high sensitivity CCDs (GP-US732H)
Pixels:	For NTSC: 768 (Horizontal) x 494 (Vertical) (GP-US522HB) 771 (Horizontal) x 492 (Vertical) (GP-US732H) For PAL: 752 (Horizontal) x 582 (Vertical) (GP-US522HB) 753 (Horizontal) x 582 (Vertical) (GP-US732H)
Scanning Standard:	For NTSC: 525 lines, 60 fields, 30 frames (Interlace drive) 525 lines, 60 frames (GP-US732H, Progressive drive) For PAL: 625 lines, 50 fields, 25 frames (Interlace drive) 625 lines, 50 frames (GP-US732H, Progressive drive)
Synchronizing System:	Internal or External (Gen-Lock), automatically switchable Internal: EIA standard for NTSC CCIR standard for PAL External (Gen-Lock) Input: VBS, VS, HD/VD is selectable SC Phase for Gen-Lock (VBS): Free adjustable over 360° H Phase for Gen-Lock (VBS, VS): Adjustable
Video Outputs:	Video Output: BNC Connector x 2 VIDEO 1.0 V[P-P] Composite/75 Ω YC (S-VIDEO) Output: S-VIDEO Connector x 1 For NTSC: Y: 0.714 V[P-P] Luminance level/75 Ω C: 0.286 V[P-P] Burst level/75 Ω For PAL: Y: 0.7 V[P-P] Luminance level/75 Ω C: 0.3 V[P-P] Burst level/75 Ω RGB/YPbPr Output: D-SUB 9-pin Connector x 1 R,G,B: 0.7 V[P-P] each/75 Ω Y: 0.7 V[P-P] Luminance level/75 Ω Pb,Pr: 0.525 V[P-P] Color-difference level, each/75 Ω SYNC: 0.3 V[P-P] Sync level/75 Ω VIDEO: 1.0 V[P-P] Composite/75 Ω
Required Illumination:	2 000 lx at F16, 3 200 K (GP-US522HB) 2 000 lx at F13, 3 200 K (GP-US732H, Interlace drive) 2 000 lx at F9, 3 200 K (GP-US732H, Progressive drive)
Minimum Illumination:	5 lx (0.5 foot candle) at F2.8 with +12 dB gain without Sensitivity Up, 30 % level at center (GP-US522HB) 7 lx (0.7 foot candle) at F2.8 with +12 dB gain without Sensitivity Up, 30 % level at center (GP-US732H, Interlace drive) 14 lx (1.4 foot candle) at F2.8 with +12 dB gain 30 % level at center (GP-US732H, Progressive drive)
Signal-to-Noise Ratio:	62 dB (Typical, Luminance)
Horizontal Resolution:	800 lines at center (Y signal) (GP-US522HB) 750 lines at center (Y signal) (GP-US732H)
White Balance:	ATW (Automatic Tracing White Balance Control), AWC (Automatic White Balance Control) and Manual
Black Balance:	ABC (Automatic Black Balance) and Manual
Color Bar:	SMPTE color bar with 7.5 % set-up for NTSC EBU color bar with 0 % set-up for PAL
Electronic Shutter:	AUTO: Adjustable between 1/60 - 1/10 000s for NTSC, 1/50 - 1/10 000s for PAL STEP: For NTSC: Selectable 1/60(OFF), 1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000 and 1/10 000s For PAL: Selectable 1/50(OFF), 1/120, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000 and 1/10 000s SYNCHRO SCAN: For NTSC: Selectable from 1/525 to 509/525 For PAL: Selectable from 1/625 to 609/625
Gain Selection:	AGC and Gain Up (Selectable)
Sensitivity Up:	OFF, AUTO (x2/x4/x8), MANU (x2/x4/x8)
Special Function:	Freeze frame picture OFF/ON, Electronic Zoom x1 - x2.5

Switches:	Power On/Off (DC POWER), Camera/Color Bar Selection (CAM/BAR), Gain Up Selection (OFF/LOW/HIGH (0/+6/+12 dB)), White Balance Selection (ATW/AWC/MANU), Scene File Selection (SCENE 1/2), ELC (Electronic Light Control) On/Off, PAGE (FREEZE), ITEM (AWC), ◀ (ABC) and ▶ (E-ZOOM)
Controls:	R Gain, B Gain and Brightness LEVEL
Computer Interface	RS-232C: D-SUB 9-pin Connector x 1
Lens Mount:	Special C Mount (GP-US522HB) C Mount (GP-US732H)
Power Source:	12 V DC
Power Consumption:	12 W
Ambient Operating Temperature:	32 °F - 113 °F {0 °C - +45 °C}
Ambient Operating Humidity:	30 % - 90 %
Dimensions	
Camera Head:	34 (W) x 44 (H) x 52 (D) mm
(Excluding Mounting Adaptor)	[1-5/16" (W) x 1-11/16" (H) x 2" (D)]
CCU:	170 (W) x 44 (H) x 227 (D) mm
(Excluding Rubber Foot and Connector)	[6-45/64" (W) x 1-11/16" (H) x 8-15/16" (D)]
Weights	
Camera Head:	110 g {0.24 lbs}
CCU:	1.2 kg {2.64 lbs}

Dimensions and Weights indicated are approximate  
Specifications are subject to change without notice

## STANDARD ACCESSORIES

Operating Instructions (this document) .....	1 pc.
Warranty Card for U.S. Field .....	1 pc.

## OPTIONAL ACCESSORIES

Camera Cable .....	GP-CA522/4
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**For U.S., Canadian and Puerto Rican fields:**

**Panasonic System Solutions Company,**  
Unit Company of Panasonic Corporation of North America

**Security Systems**

[www.panasonic.com/security](http://www.panasonic.com/security)  
For customer support, call 1.877.733.3689

**Executive Office:** Three Panasonic Way 2H-2, Secaucus, New Jersey 07094

**Zone Office**

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**Central:** 1707 N. Randal Road, Elgin, IL 60123

**Southern:** 1225 Northbrook Parkway, Suwanee, GA 30024

**Western:** 6550 Katella Ave., Cypress, CA 90630

**Panasonic Canada Inc.**

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Ontario, L4W 2T3 Canada (905)624-5010  
<http://www.panasonic.ca>

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Osaka, Japan

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