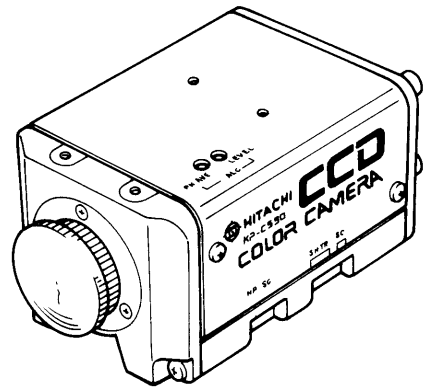
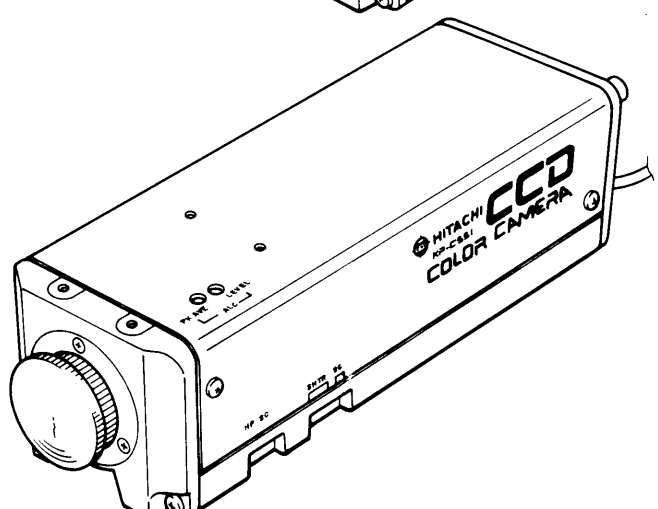
READ AND SAVE THIS BOOK

CCD COLOR CAMERA

KP-C550
KP-C551





OPERATION MANUAL

IMPORTANT:

READ "CAUTION FOR SAFE OPERATION" CAREFULLY AND UNDERSTAND THEM BEFORE USING YOUR COLOR CAMERA. RETAIN THIS OPERATION MANUAL FOR FUTURE REFERENCE.

Hitachi Denshi, Ltd.

Table of contents

Features

- **High resolution**

  The high density CCD imaging device (about 360,000 pixels) ensures a picture of the horizontal resolution of 430 TV lines.

- **Full-time auto white balance**

  Optimum color tone is always obtained even in outdoors where color temperature changes with the lapse of time.

- **Electronic shutter function**

  Eight electronic shutter speeds (1/60* to 1/4000 s) are available for shooting conditions.

  * NTSC:1/60, PAL:1/50

- **Y/C output connector**

  A video monitor (or S-VHS VTR) with Y/C input connector can be directly connected to provide a sharp picture.

- **Genlock operation**

  This camera is most suitable for a system operation.

- **Camera ID number display**

  A 4-digit camera ID number can be displayed on a video monitor.

Operating considerations

Power supply

Be sure to use the power source specified in the Major Specifications.

- Before plugging or unplugging a connector, be sure to turn off power.

  To plug or unplug a connector, be sure to hold the connector section.

Handling

- Do not attempt to remove cover.
- When installing or removing a lens, be sure to use care that water or dust does not enter the inside of the camera.

Installing and storage

Avoid installing or storing the camera in the following environments.

- Environments exposed to direct sunlight, rain or snow
- Environments where combustible or corrosive gas exists
- Excessively warm or cold environment (Operating ambient temperature:0 to 40°c)
- Humid or dusty environment
- Place subjected to excessive vibration or shock
- Environment exposed to strong electric or magnetic field
- Do not aim the camera lens at the sun.
- Do not shoot strong light or a scene including strong light.

  When such a scene is shot, vertical trailings will appear. However, this is not due to failure.

  In case strong light enters the camera through the lens, partial deterioration will result.

To obtain stable performance for long time

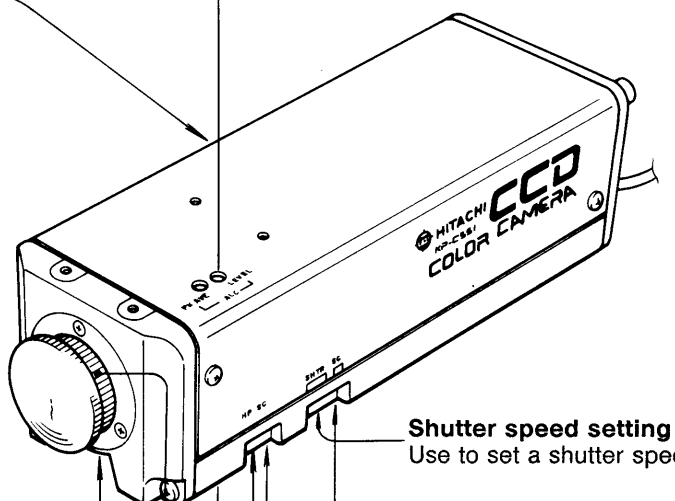
When the camera is used continuously for long time under high ambient temperature, the inside electrical parts become deteriorated, resulting in shortening its life.

To use the camera continuously for long time, the highest temperature must be below 40°C.

Cleaning

- Use a blower or a lens brush to remove dusts on the lens or the optical filter.
- Wipe dirts on the case off with dry soft cloth. If dirts are hardened, wipe them off with cloth moistened with neutral detergent liquid; wipe the cover with dry cloth.
- Do not use benzine,thinner,alcohol,liquid cleaner or spray-type cleaner

Name and function of each section



ALC lens control [ALC]
Adjust the photometric characteristic and the video level when an auto-iris lens having no iris amplifier is used.

Lens connector[LENS]
(KP-C551 only)

Shutter speed setting switch [SHTR]
Use to set a shutter speed.

Color phase control [SC]
Adjust the color phases of an external sync signal and a video output signal.

Horizontal phase control [HP]
Adjust the horizontal phases of an external sync signal and a video output signal.

Flange focal distance adjustment ring

C-mount adaptor
Use only when a C-mount lens is installed.

Camera mounting tapped holes

Gain switch [AGC ON]
Select the AGC mode or the standard gain mode. When this switch is set to ON, the AGC mode is established, and sensitivity increases automatically when illumination becomes dark.

External sync termination switch [75Ω ON]
Set the 75Ω termination switch of the external sync signal to ON or OFF.
Set to ON unless an external sync signal isped looped through.

External sync input connector [GL IN]
Connect a black burst signal (B.B.) or a composite video signal (VBS).

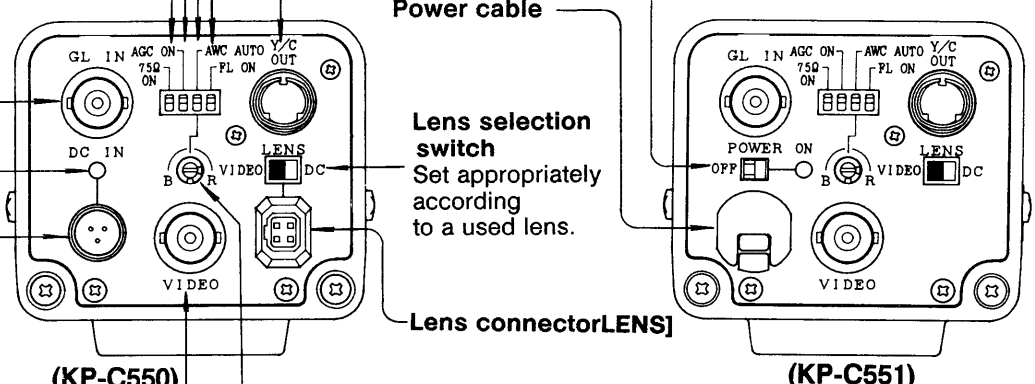
White balance selection switch [AWC AUTO]
Use to select the white balance adjustment mode.

Fluorescent switch [FL ON]
Set to the upper side when a fluorescent lamp is used.

Y/C output connector [Y/C OUT]
The luminance signal (Y) and the chrominance signal (C) are delivered.

Power switch[POWER]

Power cable



Pilot lamp

Power input connector [DC IN]

Lens selection switch
Set appropriately according to a used lens.

Lens connectorLENS]

(KP-C550)

(KP-C551)

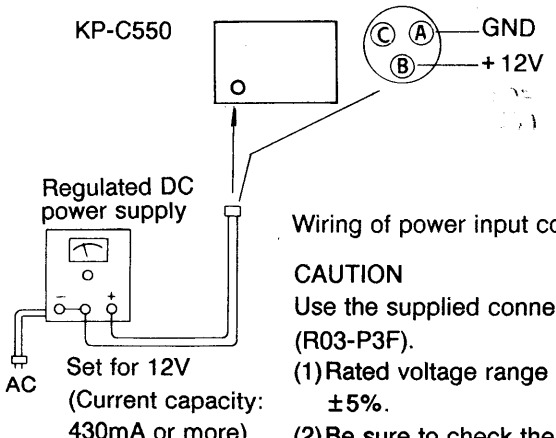
Video output connector [VIDEO]

White balance control
Use to adjust white balance manually.

Connection

- Connection of DC power supply unit (KP-C550)

Connect the regulated DC power supply as illustrated below.



Wiring of power input connector

CAUTION

Use the supplied connector (R03-P3F).

(1) Rated voltage range is 12V ±5%.

(2) Be sure to check the polarity of an external power supply before power on.

- **Connection of video output connector**

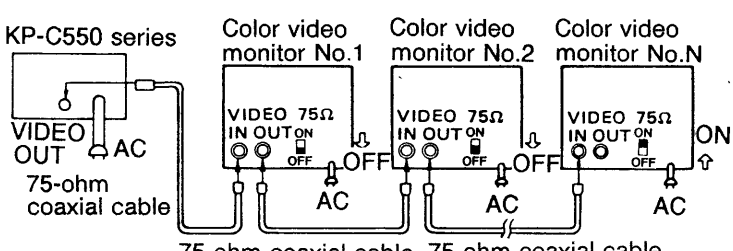
Connect the video output of the camera to the video input connector of the equipment to be connected.

When more than one video monitor is looped through, set the 75Ω termination switch of the final monitor to ON.

Select a coaxial cable, considering the length between the camera and the connected equipment.

Approximate maximum cable length that ensures a picture with less deterioration in quality is as follows.

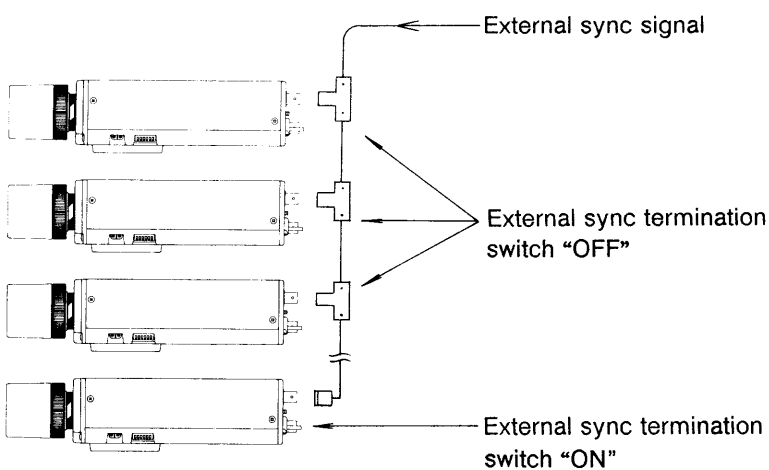
3C-2V ···· 150m
5C-2V ···· 200m
7C-2V ···· 300m
10C-2V ·····400m



- **Connection of external sync input connector**

  Connect a black burst signal (B.B.) or a composite video signal (VBS) to the external sync input connector ; the external synchronization mode is established.

  When more than one camera is genlocked in loop-through mode, set the 75Ω termination switch of the final camera to ON.



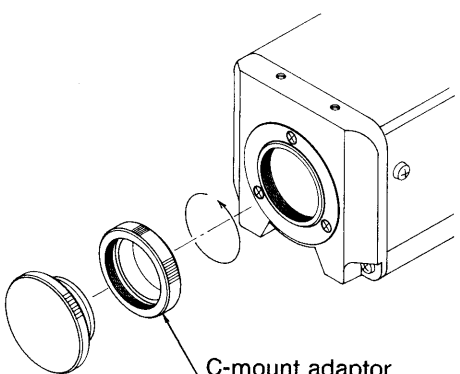
- **Connection of Y/C output connector**

  Connect to a color monitor (or S-VHS VTR, or the like) with the Y/C input terminal (S-input terminal) with an S cable.

Lens

1.Installation of CS-mount lens

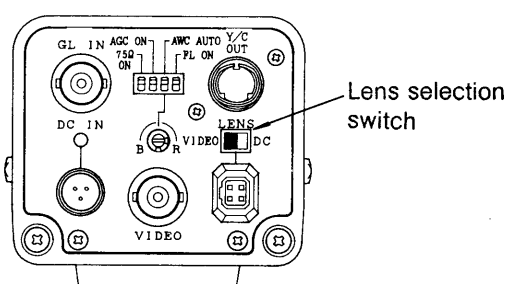
Before shipment, the C-mount adaptor for a C-mount lens is provided for the camera. When using a CS-mount lens, remove the C-mount adaptor by turning it counterclockwise.



2. When an auto-iris lens having no iris amplifier is used

When an auto-iris lens having no iris amplifier is used, set the lens selection switch to DC.

(When an auto-iris lens having an iris amplifier is used, set the switch to VIDEO.)



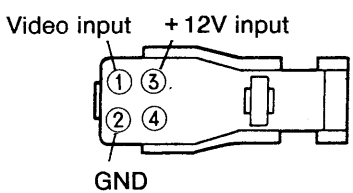
Store the removed C-mount adaptor for future use.

3.Use of lens connector

When an auto-iris lens is used, connect the lens cable to the supplied lens plug as illustrated below.

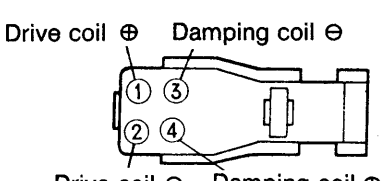
For the combination of the signals in the lens cable and wire colors, see the operation manual of the used lens.

- Lens having an iris amplifier



Set the lens selection switch to VIDEO.

- Lens having no iris amplifier



Set the lens selection switch to DC.

After connecting the lens plug to the tip of the lens cable, insert the plug into the lens connector [LENS] on the rear of the camera (KP-C550) or on the side of the camera (KP-C551).

4.Recommended lenses

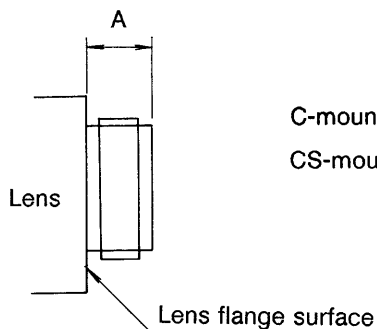
To demonstrate the full performance of the camera, select a lens from the following recommended lenses.

Type	Type name	Specification	Lens mount
Fixed iris	HS316	3.7mm, f1.6	CS-mount
	H416	4.2mm, f1.6	C-mount
	H612A	6mm, f1.2	C-mount
	HS614A	6mm, f1.4	CS-mount
	H1212A	12mm, f1.2	C-mount
	HS1214C	12mm, f1.4	CS-mount
Auto-iris	H416EX-2	4.2mm, f1.6	C-mount
	H316HX	3.7mm, f1.6	CS-mount
	HS316GX	3.7mm, f1.6	CS-mount
	※HS316GX(HJ)	3.7mm, f1.6	CS-mount
	H612AEX-2	6mm, f1.2	C-mount
	H614HX	6mm, f1.4	CS-mount
	HS614GX	6mm, f1.4	CS-mount
	※HS614GX(HJ)	6mm, f1.4	CS-mount
	H1212AEX-2	12mm, f1.2	C-mount
	H1214CHX	12mm, f1.4	CS-mount
	HS1214GX	12mm, f1.4	CS-mount
	※HS1214GX(HJ)	12mm, f1.4	CS-mount

Note: The auto-iris lenses marked with ※ do not incorporate an iris amplifier.

5.Note of lens selection

1) Observe the following condition for the dimension of the lens mounting section.



C-mount lens: 8.0mm or less

CS-mount lens:4.5mm or less

In case the above condition is not observed, the inside of the camera may be damaged.

2) Do not use a lens heavier than the camera body itself.

If a lens is heavier than the camera, the camera is not balanced, resulting in possible damage.

If it is needed to use a lens heavier than the camera body, be sure to fix the lens itself on a support.

Adjustment and operation

1. **Flange focal distance adjustment**

When the picture is out of focus after a lens is replaced, or when the picture is out of focus at the telephoto and wide positions, adjust the flange focal distance.

To adjust the flange focal distance, take the following procedure.

In case of fixed-focus lens

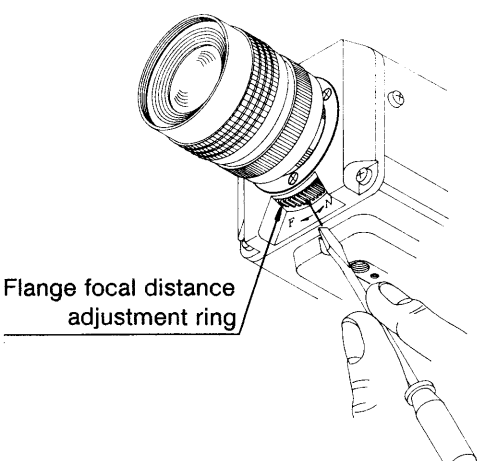
Set the focus ring of the lens to the infinite position and shoot an object more than 20 meters away, then rotate the flange focal distance adjustment ring in the direction of N or F so that the picture becomes in focus.

In case of zoom lens

1) Set the zoom lens to the telephoto position and shoot an object more than 3 meters away. Then, rotate the focus ring appropriately so that the picture becomes in focus.

2) Set the zoom lens to the wide position and rotate the flange focal distance adjustment ring, taking care that the focus ring does not move.

Repeat the above steps 1) and 2) appropriately so that the picture becomes in focus at the telephoto and wide positions.

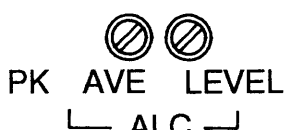


2. Adjustment of ALC lens control

When an auto-iris lens having no iris amplifier is used, adjust the photometric characteristics and the video level by this control. (In this case, set the lens selection switch to DC.)

Photometric characteristics control (PK AVE)

Clockwise rotation establishes the average photometric mode, while counterclockwise rotation establishes the peak photometric mode.



ALC level control (LEVEL)

Adjust the lens iris appropriately.

(Set the SHTR switch to the normal condition(OFF) and the AGC ON switch to the lower side.)

Note:For the SHTR switch setting, see page 14.

3. White balance adjustment

- Full-time auto white balance

When the white balance selection switch [AWC AUTO] is set to the upper position, white balance is automatically controlled against the change in the color temperature of illumination, and the optimum color tone is ensured.

Caution

The automatic white balance adjustment function may not function appropriately in the following cases.
In such cases, adjust white balance manually.

- When the most part of the screen is the same color or when white portion is excessively little
- When illumination is made by more than one light source with different color temperatures
- When a special lamp like a natrium lamp is used
- When background color is red or blue

- Manual adjustment

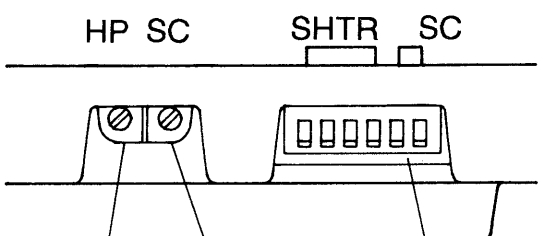
Turn the white balance selection switch downward.

Shoot a white object, and display the object on the color monitor which is adjusted optimally.

Adjust the white balance control so that the color of the displayed object becomes maximum white.

4. Phase adjustment in genlock mode

In the genlock mode, it is possible to adjust the horizontal and color phases of the video output signal with respect to the external sync signal. It is needed to adjust these phases for each camera when more than one camera is used in a camera system incoporating a video switcher, an image processing equipment, etc.



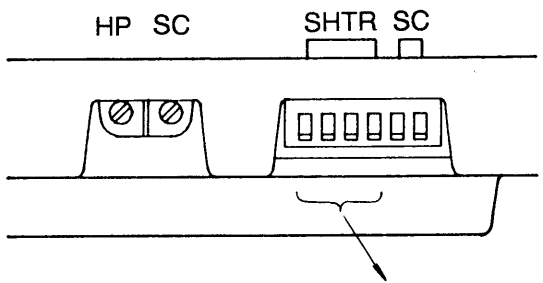
Color phase adjustment switch [SC]
The phase of a subcarrier can be switched in 90° steps by using the two switches.

Horizontal phase control [HP]

Color phase control [SC]
The color phase can be adjusted finely by this control after it has been adjusted coarsely by the color phase adjustment switch.

5. Shutter speed setting

Set an appropriate shutter speed by the combination of four switches.



Shutter speed (s)	Switch setting
OFF(1/60)[1/50]	
(1/100)[1/60]	*
1/120	
1/250	
1/500	
1/1000	
1/2000	
1/4000	

( ): NTSC , [ ]:PAL

*: This shutter speed is set by setting the fourth switch from left to the upper side regardless of other three switches.

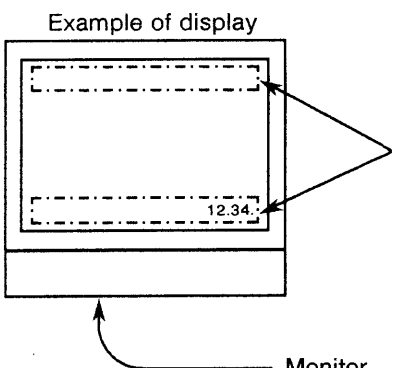
6. Fluorescent lamp illumination

When a fluorescent lamp is used for illumination, set the fluorescent lamp switch [FL] to ON. If the switch is set to OFF, white balance may be adjusted optimally.

7. Camera ID number setting

It is possible to superimpose a camera ID number of up to four digits onto the picture on the monitor.

This feature is convenient when switching the pictures from more than one camera by using a video switcher, because it is possible to identify the camera now selected.



It is possible to select whether to display a camera ID number or not, whether to display the ID number at the upper side or lower side of the screen, a horizontal position and a display level.

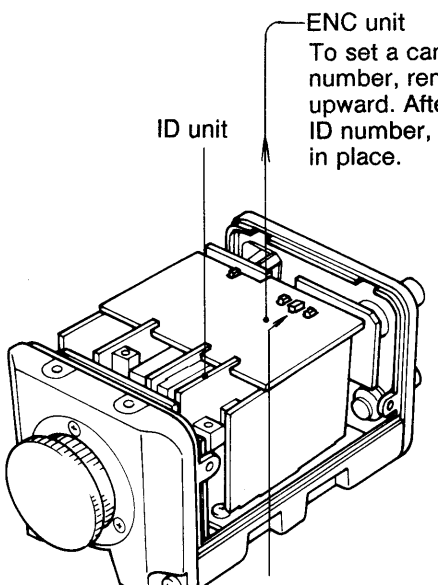
Note:

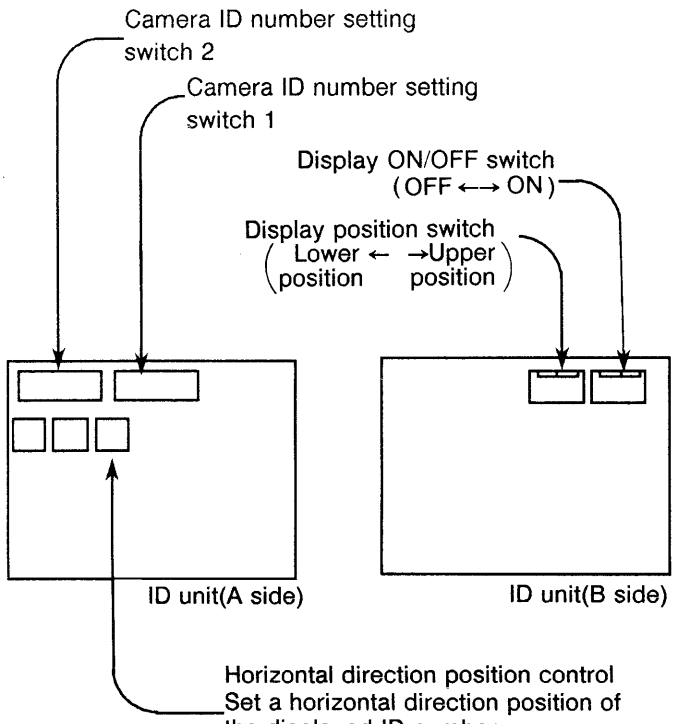
Before shipment, this function is set to the non-display state.

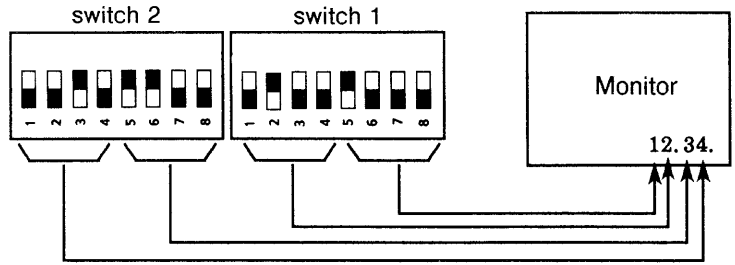
For camera ID number setting, contact your nearest Hitachi Denshi agent.

Camera ID number setting (for service personnel only)

Remove the four screws at both side covers and remove the top cover.







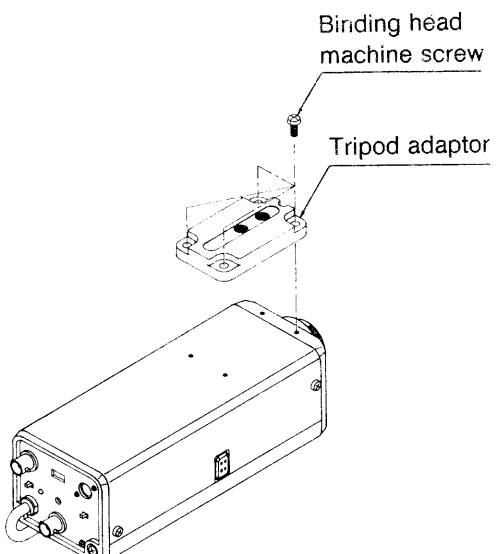
- Set a desired number of each digit to 0 to 9 by the combination of four switches for each digit.
- It is impossible to set the ten's digit to zero.
- It is impossible to erase two dots.

Display numbers and switch setting

Display number	Switch setting positions	Display number	Switch setting positions
0		6	
1		7	
2		8	
3		9	
4		Blank	
5			

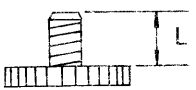
Installation of camera

To secure the camera to the hanging bracket, install the optional adaptor TA-231 on the top of the camera as illustrated below.



Caution
Use a camera fixing screw as illustrated below.

U1/4-20
L = 4.5 to 7mm



If a screw other than specified is used, the camera cannot be installed securely or may drop, resulting in damage.

Major Specifications

(1) Color system	U: Conforming to NTSC system E/K: Conforming to PAL system
(2) Imaging device	Interline transfer CCD
Number of pixels	NTSC: 722(H) × 494(V) PAL: 721(H) × 584(V)
Number of effective pixels	NTSC: 682(H) × 492(V) PAL: 681(H) × 582(V)
(3) Scanning area	6.4(H) × 4.8(V)mm (equivalent to 1/2-inch tube)
(4) Scanning system	2:1 interlaced
(5) Scanning frequency	NTSC: Horizontal: 15.734kHz Vertical: 59.94Hz PAL: Horizontal: 15.625kHz Vertical: 50Hz
(6) Sync system	Internal or external (automatic switching)
(7) Video signal output	VBS: 1.0Vp-p
(8) Y/C VIDEO output	Y: 1.0Vp-p, 75Ω, sync negative C: 0.3Vp-p, 75Ω, burst signal
(9) External sync input	Black burst or VBS Sync: 0.3Vp-p/75Ω Burst: 0.3Vp-p/75Ω, Video: 0.7p-p or less / 75Ω fsc = 3.579545MHz ± 100Hz (NTSC) fsc = 4.433618MHz ± 100Hz (PAL) 75Ω ON-OFF switch provided
(10) Signal-to-noise ratio	48dB (AGC:OFF,no contour correction and no gamma correction) 40dB (AGC:OFF, contour correction and gamma correction)
(11) Resolution	Horizontal: 430 TV lines typical Vertical: 350 TV lines typical
(12) Minimum illumination	3 lux (f/1.4 3200K AGC:ON)

(13) White balance adjustment	Automatic or manual adjustment (switch selectable) From tungsten light to cloudy weather (approx. 2800 to 8000K)
(14) Camera ID No.	4 digits
(15) Output for ES lens	• Lens selection switch = VIDEO Luminance video signal: 0.7Vp-p/high impedance. Power requirement: 12V DC (60mA max.) • Lens selection switch = DC Auto-iris lens of Galvanometer type
(16) Sensitivity setting	AGC/normal gain (switch selectable)
(17) Lens mount	C/CS-mount
(18) Ambient temperature and humidity	Operating: –10 to 50°C, 95%RH or less Full specifications: +20° ± 15°C, 35 to 85%RH Storage: –20 to +60°C, 85%RH or less Non-condensation
(19) Power requirement	KP-C550: 12VDC ± 5% 430mA KP-C551 U type:117VAC ± 10%,60Hz, 6.7W E type:220VAC ± 10%, 50Hz, 6.8W K type:240VAC ± 10%, 50Hz, 6.8W
(20) Dimensions and weight	KP-C550 : 64(W) × 55(H) × 95(D)mm, 350g KP-C551 : 64(W) × 55(H) × 178(D)mm, 650g

Accessories

Standard accessories:

Lens plug, E4-191J-100 1
DC plug, R03-P3F (for KP-C550) . . . 1
Fuse* 1
KP-C551U : 125V,630mA
KP-C551E/K : 250V,400mA
Operation manual 1

* Do not attempt to replace a fuse.
Fuse replacement is permitted only for qualified service personnel.

Optional accessories

Tripod adaptor, TA-231
Lenses (see Recommended lens list on page 9.)

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CCDカラーカメラ
KP-C550-S2/KP-C551-S2
取扱説明書

KP-C550-S2/KP-C551-S2形カラーカメラは、KP-C550/KP-C551に自動電子シャッター制御による電子アイリス機能を付加したCCDカラーカメラです。
この機能により手動絞りレンズでも明るさに応じて自動的に電子シャッタースピード(露光時間)が制御され、常に最適な画像が得られます。
なお、KP-C550-S2/KP-C551-S2形カラーカメラには、カメラ番号表示の機能はありません。

この取扱説明書にはKP-C550-S2/KP-C551-S2形の取り扱い上の注意事項を記載しています。その他の取り扱いや操作についてはKP-C550/551形CCDカラーカメラの取扱説明書をお読みください。

ご 注 意

1. KP-C550-S2/KP-C551-S2形カラーカメラは、電子アイリスモードに設定して出荷しています。電子アイリスモードOFFでご使用になる場合は、4ページをご覧ください。

CCD Color Cameras
KP-C550-S2/KP-C551-S2
Operation Manual

The Hitachi KP-C550-S2/KP-C551-S2 are a CCD color cameras that the electronic iris function using the automatic electronic shutter control is added to the KP-C550/KP-C551 CCD color cameras. With this function, the electronic shutter speed is automatically controlled according to illumination even when a manual iris control lens is used, and an optimum picture is obtained at all times.
This model is not provided with the camera ID No. display function.

This operation manual contains operating considerations inherent to the KP-C550-S2/KP-C551-S2.
For other handling and operations, read the operation manual of the KP-C550/KP-C551 CCD Color Cameras.

Operating considerations

1. The KP-C550-S2/KP-C551-S2 are placed in the electronic iris mode at factory.
   To release the electronic iris mode, see page 4 of this insertion.

2. 電子アイリスモードで自動絞りレンズをご使用になると最適な画像が得られないことがあります。電子アイリスモードでは手動絞りレンズをご使用ください。

3. 電子アイリスモード時は、カメラ側面のシャッタースピード設定スイッチ(SHTR)はすべて下側にしてご使用ください。

4. 電源周波数が50サイクルの地域で蛍光灯や水銀灯などの照明で撮影すると、モニター画面上にちらつき(フリッカー)が生じることがあります。この場合は、電子アイリスモードを解除し自動絞りレンズを使用して、シャッタースピード設定スイッチ(SHTR)をフリッカーレス(1/100秒)に設定してください。

5. 電子アイリスモードのとき、極端に明るい被写体を映した場合、被写体の上下に薄く尾を引いたような画像になることがありますが、故障ではありません。この場合明るい被写体を避けて映すか、絞りを少し閉じてご使用ください。

6. 電子アイリスの制御範囲(照度範囲のめやす)
電子アイリスの制御範囲は、使用する固定絞りレンズのF値から約7絞り(例えばF1.4レンズの場合はF16)まで絞りこんだときと同様の露光制御ができます。
AGC機能と組み合わせて、F1.4レンズを使用すると5~約10,000 lxまでの照度範囲で使用することができます。

2. When an automatic iris control lens is used in the electronic iris mode, an optimum picture may not be obtained. Use a manual iris control lens when the electronic iris mode is established.

3. Set all the switches of the SHTR switch on the side of the camera to the respective lower sides in the electronic iris mode.

4. When an excessively high luminance object is shot in the electronic shutter mode, a picture having thin vertical trailings above and below the object may appear. This is not due to failure. Avoid high luminance objects or close a lens iris slightly.

5. Control range of electronic shutter iris (guide to illumination range)
The control range of the electronic shutter iris is from the f-value of a used fixed iris lens to approximately 7 lens stops (for example, f/16 for a f/1.4 lens).
When an f/1.4 lens is used in conjunction with the AGC function, the KP-C551-S2 can be used under the illumination ranging from 3 to 10,000 lx. An f/1.4 lens can be used fine outdoors.

照度のめやす

- F1.4 レンズ使用時 5~10,000 lx
- F2 レンズ使用時 10~20,000 lx
- F2.8 レンズ使用時 20~40,000 lx
- F4 レンズ使用時 40~80,000 lx

ただし反射率50%の場合です。白い被写体(反射率50%を超える)の場合は絞りを少し閉じる必要があります。

ビデオレベルの調整と電子アイリスモードの解除(サービスマン用)

KP-C550-S2/KP-C551-S2形カメラは、出荷時には電子アイリスモードに設定されていますので、固定絞りレンズを付け、絞りは解放でご使用ください。電子アイリスモードでのレベル調整と電子アイリスモードの解除は次の手順で行います。

■電子アイリスモードでのレベル調整

1) カメラ両側面の4本のネジをはずし、上部のカバーをはずします。
2) F1.4の場合、1000~2000 lxの明るさで被写体を映し、ビデオレベルが最適になるようにSIユニット(A面)の電子アイリス調整器を調整します。

Guide to illumination(50% reflectance)

- f/1.4 lens 3-10,000 lx
- f/2 lens 6-20,000 lx
- f/2.8 lens 12-40,000 lx
- f/4 lens 24-80,000 lx

In case of white objects (in excess of 50% reflectance), close a lens iris slightly.

Video level adjustment and release of electronic iris mode (For service person use only)

As the KP-C550-S2/KP-C551-S2 Color Cameras are placed in the electronic iris mode at factory, install a fixed iris lens and set the lens iris to open.

■ Video level adjustment in electronic iris mode

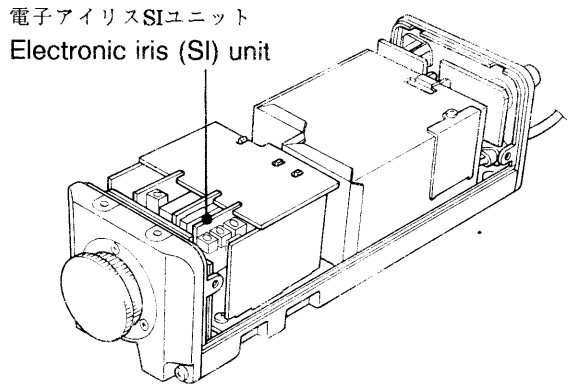
1) Remove four screws at both sides of the camera and remove the upper cover.
2) When an f/1.4 lens is used, shoot a scene under the illumination of 1000 to 2000 lx, and adjust the electronic iris control on the SI unit (A side) for optimum video level.

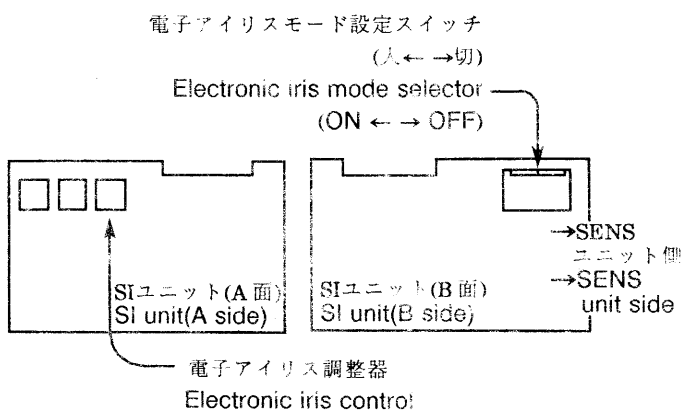
■ 電子アイリスモードの解除

SIユニット(B面)のスイッチをSENSユニット側へ切り換えると電子アイリスモードを解除することができます。

■ Release of electronic iris mode

To release the electronic iris mode, set the electronic iris mode selector on the SI unit (B side) to the SENS unit side.





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