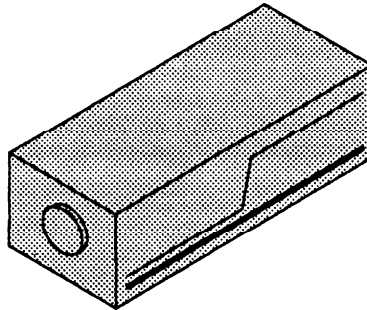


Ikegami

ELECTRONIC SENSITIVITY UP COLOR CCD TV CAMERA

MODEL **ICD-880** (AC TYPE)/(DC TYPE)



INSTRUCTION MANUAL



OUTDOOR USE WARNING

WARNING — TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION;
ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PART RESPONSIBLE FOR COMPLIANCE COULD VOID THE USERS AUTHORITY TO OPERATE THE EQUIPMENT.

IMPORTANT SAFEGUARDS

- **Read Instructions** — All the safety and operating instructions should be read before the appliance is operated.
- **Retain Instructions** — The safety and operating instructions should be retained for future reference.
- **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
- **Follow Instructions** — All operating and use instructions should be followed.
- **Cleaning** — Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- **Attachments** — Do not use attachments not recommended by the video product manufactures as they may cause hazards.
- **Water and Moisture** — Do not use this video product near water — for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
- **Accessories** — Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to person, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- **Power Sources** — This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.
- **Grounding or Polarization** — This video product is equipped with a polarized alternating current line-plug (a plug having one blade wider than the other) or a 3-wire grounding-type plug (a plug having a third grounding pin). This is a safety feature. The plug having one blade wider than the other will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, try reversing the plug. The plug having a third grounding pin will only fit into a grounding-type power outlet. If the plug should fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug or the grounding-type plug.

- **Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- **Lightning** — For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the video product due to lightning and power-line surges.
- **Power Lines** — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
- **Overloading** — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
- **Object and Liquid Entry** — Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.
- **Servicing** — Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- **Damage Requiring Service** — Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the video product.
 - c. If the video product has been exposed to rain or water.
 - d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
 - e. If the video product has been dropped or the cabinet has been damaged.
 - f. When the video product exhibits a distinct change in performance — this indicates a need for service.
- **Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
- **Safety Check** — Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

GENERAL

The ICD-880 is a single CCD color CCTV camera employing a 1/2-inch CCD (Charge Coupled Device) solid state imaging device with 410,000 picture elements. The unit is equipped electronic sensitivity enhancer with a low-speed electronic shutter and a digital memory. The camera offers sensitivity and resolution dozens of times

as high as conventional models. Using a dedicated remote control unit, the camera can be remotely controlled through a single coaxial cable.

FEATURES

- **Electronic sensitivity enhancer**

The camera features the low-speed electronic shutter — shutter speeds of 1/30, 1/15, 1/7.5 and 1/3.75 sec (storage of up to 16 fields) —, digital memory circuit and high-performance AGC circuit. These upgrade the sensitivity up to 0.1 lux/F1.4 and offer switching of various controls; one manual mode and three automatic modes.

The dedicated remote control unit provides for remote multi-source transmission through a single coaxial video output cable.

- **High resolution**

The complementary color CCD of 410,000 picture elements (in total) is adopted in order to give a high horizontal resolution of 460 lines.

- **Auto white balance circuit using TTL (Through The Lens) system**

Incorporating the TTL-system full auto white balance circuit which automatically corrects the white balance with the light coming through the lens, the user no more needs to worry about white balance adjustment even when the color temperature changes.

- **Y/C separation video output**

In addition to the composite video output terminal, the camera is provided with a video output terminal with Y (luminance)/C (chroma) signal separation. This output socket makes it possible to hook up a monitor or a VCR having Y/C separation input (S video input) terminal, which provides for sharper video recording and playback.

- **High-speed electronic shutter function**

The electronic shutter can be switched over for shutter speeds of 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000 and 1/10000. Even quick-moving subjects can be shot vividly and clearly.

- **Color reproductivity at low light**

The color of a subject in the dark is difficult to identify with naked human eyes. The electronically upgraded sensitivity function can reproduce the image in brilliant colors.

- **C mount**

The flexible C mount enables you to choose from a wide variety of C mount lenses.

- **Flange focal distance adjustment**

The flange focal distance can be easily adjusted from behind the camera even after the camera has been installed in position.

PRECAUTIONS FOR INSTALLATION

- **Never expose the unit to rain or water.**

Water intrusion can be a cause of trouble or accident.

- **Use within the range of specified operating temperature.**

When used in extremely hot or cold place where the temperature goes beyond the specified operating temperature range ($-10\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$), the adverse effect will be exerted on the picture or the parts and lead to trouble.

- **Avoid installation in extremely humid or dusty place.**

Adverse effect will be exerted on component parts.

- **Avoid installation in the place where radiant ray or X-ray exists.**

Adverse effect will be exerted on CCD or other component parts and lead to trouble.

- **Avoid installation in the place where powerful radio wave or magnetism exists.**

Adverse effect will be exerted on the picture.

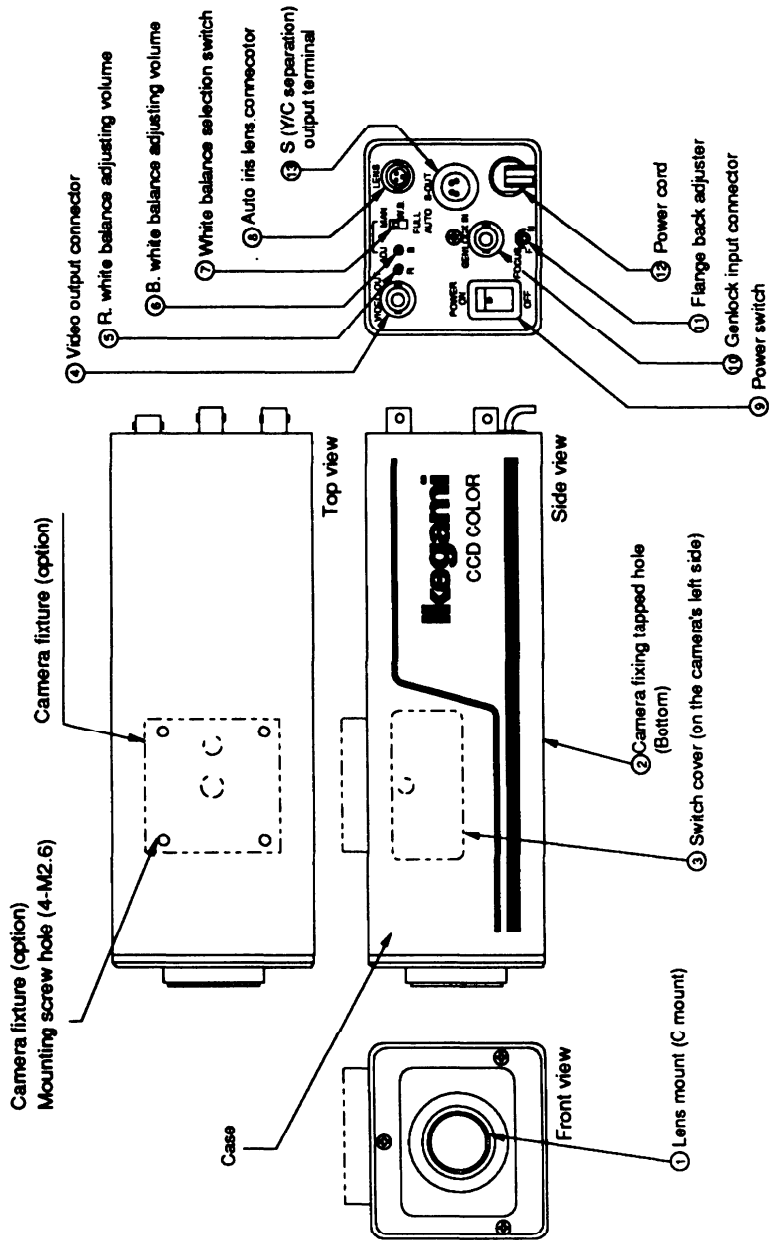
- **Avoid installation in the place subject to extreme vibrations.**

Adverse effect will be exerted on the picture or the component parts.

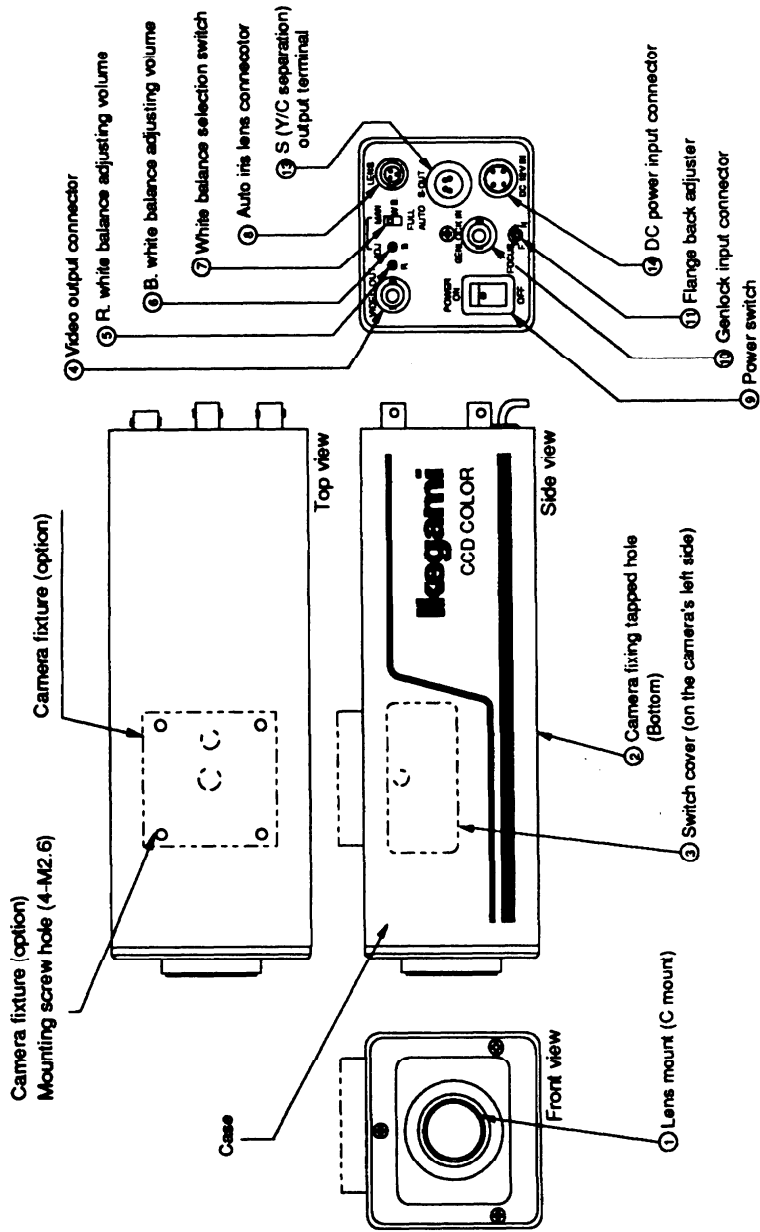
Prior to use, please read carefully Precautions for Use on page 19.

NAMES OF EACH PARTS AND ITS FUNCTIONS

MODEL ICD-880 (AC TYPE)



MODEL ICD-880 (DC TYPE)



- ① **Lens mount (C mount)**
A mount for lens installation. Accepts a variety of the C mount lenses. (See Page 9.)
- ② **Camera fixing tapped hole**
A camera fixing tapped hole (1/4"-20UNC) is provided in the bottom of the camera. The tapped hole is used for installing the camera on a holder, bracket, or tripod. (See Page 10.)
- ③ **Switch cover**
Open this cover to set such functions as the AGC, electronic sensitivity level and shutter speed.
- ④ **Video output connector**
This video signal output connector (BNC connector) is connected to the video input terminal of a monitor or a switcher. (Terminate it at 75 Ω .) (See Page 11.)
- ⑤ **R. white balance adjusting volume**
This volume is used when the white balance selection switch is set in manual position. (See Page 15.)
- ⑥ **B. white balance adjusting volume**
This volume is used when the white balance selection switch is set in manual position. (See Page 15.)
- ⑦ **White balance selection switch**
This switch is used when selecting the white balance adjusting type, TTL-system automatic white balance (FULL AUTO) or manual.
- ⑧ **Auto iris lens connector**
This connector is used for connecting the iris cord of the auto iris lens. Use a lens wired to the dedicated plug (R05-PB3M of Tajimi Ltd. make). (See Page 10.)
- ⑨ **Power switch**
This switch is used to turn ON or OFF the power.
- ⑩ **Genlock input terminal**
The BNC socket is for receiving the GENLOCK signal (BNC connector). Feed the VBS or BBS signal.
- ⑪ **Flange focal distance adjuster**
Turn the adjuster with a screwdriver to adjust the flange focal distance. (See page 17.)
Note: The flange focal distance is the distance between the lens mounting surface and the focal point.
- ⑫ **Power cord (AC type only)**
This cord is used for AC120V power input. Connect it to AC120 \pm 10% power source.
- ⑬ **S output terminal**
This is a Y/C separation video signal output terminal. A S video output cable available on the market is applicable.
- ⑭ **DC power input connector (DC12V IN) (DC type only)**
This connector is used for DC power input. Using the specially designed plug (HR10A-7P-4S (01) manufactured by Hirose) attached, connect it to DC12V \pm 1V power source. (See page 12.)

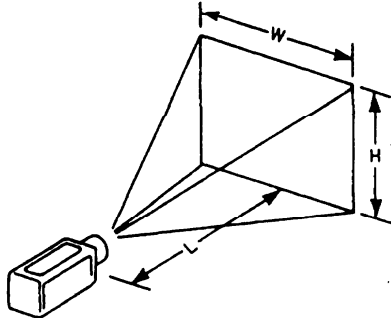
LENS SELECTION

- Use the C-mount lens for 1/2" video camera.
- Select the lens which can provide desired view range (picture range).

If object size and the distance between the object and the lens are known, a lens of the proper focal length must be selected. The proper focal length can be determined by the following equations. (The equation offers a guideline when the distance (L) between the

lens and the object is more than 100 times of the lens focal length. The value thus obtained should be regarded as reference value only.)

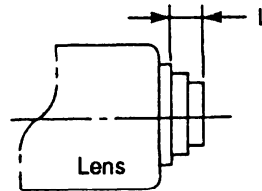
Equation to obtain picture range	$H = \frac{4.8 \times L}{f}$	$H = \frac{6.4 \times L}{f}$
----------------------------------	------------------------------	------------------------------



- H : Height of object (m)
- W : Width of object (m)
- L : Distance between lens and object (m)
- f : Focal length of lens (mm)

Notes:

- Use the auto iris lens which is powered by DC 9V and consumes less than 50 mA.
- Dimension "L" at the lens end, shown at right, must be shorter than 7mm. If the dimension is too long, the lens cannot be mounted properly or the camera may be damaged inside.
- B/W lens is available, however please note that some lenses can deteriorate color reproduction level and picture quality. (Please pay attention especially when is used outdoor or in extremely bright place.)

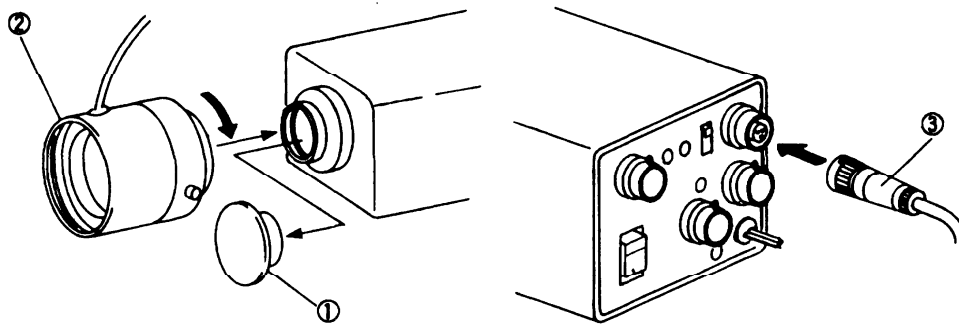


MOUNTING OF LENS

- ① Remove the lens mount cap.
 - ② Mount the lens by turning it into the C-mount of the camera.
Screw it in until it is completely fixed.
 - ③ When using the auto iris lens, connect the auto iris cable plug (3-pin type) to the auto iris connector on the rear panel of the camera. (See page 10.)
- * Use the auto iris lens which controls video signal as input signal.

Notes:

- Read carefully the instructions of the lens, too.
- Auto iris lens is recommended to draw full benefits of the camera functions.
- After lens mounting, the flange-back adjustment is sometimes required. And when using the auto iris lens which controls video signal as input signal, the additional adjustments of lens level and ALC volume is sometime also required. Make readjustment as required. (See page 18)



CAMERA INSTALLATION

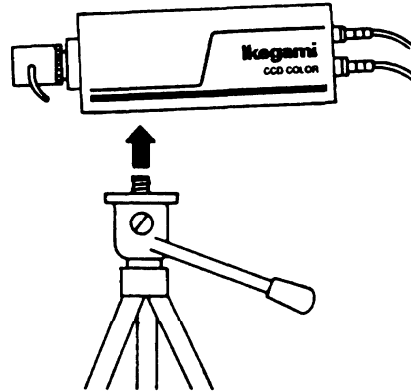
- With the camera mounting screw hole (1/4"-20UNC) provided on bottom faces, the camera unit can be mounted on tripods or camera holder on either side.
- Use the optional fixture when you want to hang the unit from the ceiling. (Use the screws that accompany the optional fixture.)

Note:

The length of the fitting screw used on tripods or camera holder should be less than 5.5 mm.

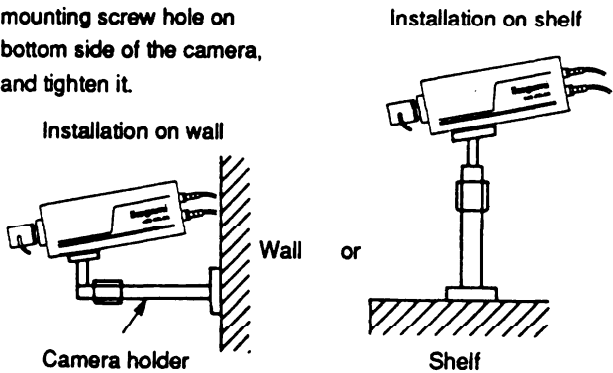
<Installation on tripods>

Fit the screw on the tripods into the camera mounting screw hole on the camera bottom face, and tighten it.



<Installation on camera holder>

Fit the screw on the camera holder into the camera mounting screw hole on bottom side of the camera, and tighten it.



CONNECTING PROCEDURE

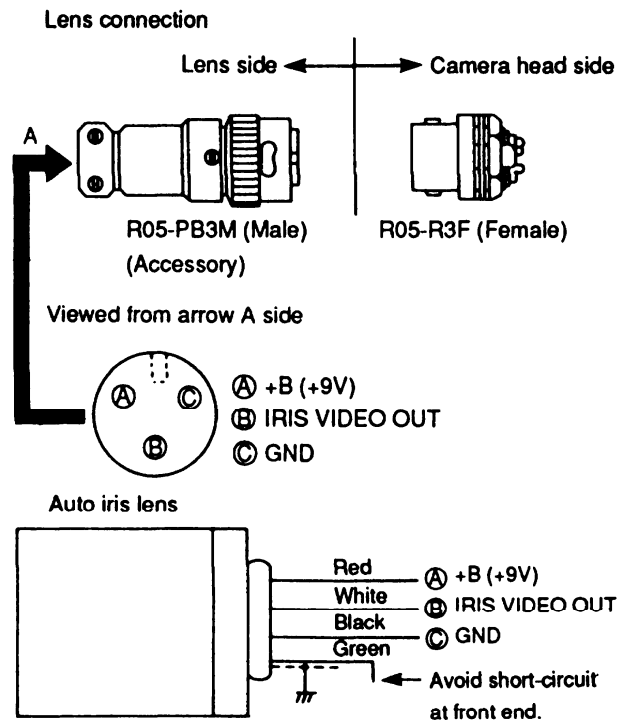
- Keep the camera and connected equipment power switched OFF during installation.
- Read carefully the instructions of each equipment to be connected.

① **Auto Iris connector (LENS)**

- Connect the iris cord of the auto iris lens.
- When the iris cord connector plug is different, use the attachment special iris connector plug (3-pin).

Note:

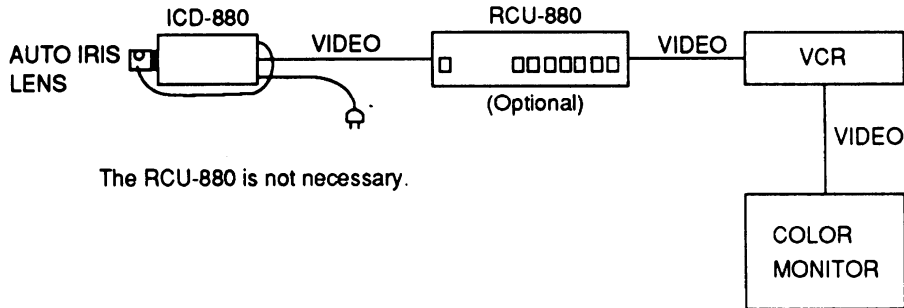
Use the auto iris lens which is powered by DC 9V and 50mA. Max.



② **Video output connector (VIDEO OUT)**

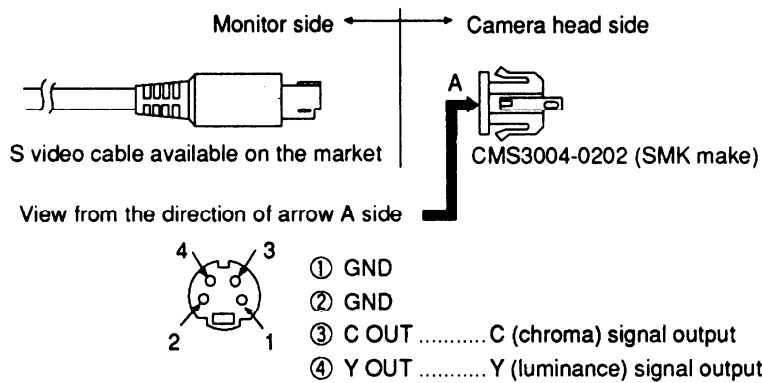
- This connector is the video signal output terminal (BNC connector).
- Connect it to the video input terminal of the monitor, switcher, or other appliance to which the video camera is to be connected. (Terminate it at 75 Ω)
- Use a coaxial cable as the connecting cable.

(Sample connection)



③ **Y/C separation video output terminal (S-out)**

This is the S video signal (Y/C separation video signal) output terminal.



④ **External sync signal input terminal (GENLOCK IN)**

This is the input terminal (BNC socket) for the video signal (VBS) and black burst signal (BBS), which serve as reference for the external sync. (See page 17.)

Notes:

- The external sync. signals to be inputted are as follows:

Videoburst and sync.

signal (VBS) 1.0 V p-p/75 Ω

Black burst signal (BBS) 0.45 V p-p/75 Ω

- Signal from the VCR or other that causes the jitters (up-and-down/right-and-left irregular movement) much may disturb the synchronization.
- For generator lock, image condition adjustment (adjusting the horizontal phase and color phase) is needed. (See Page 17.)

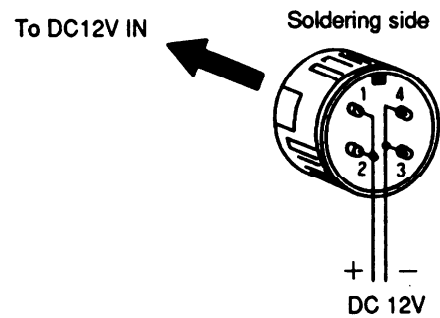
⑤ **Power input connector**

■ **AC TYPE (AC 120V)**

- Use the supply voltage within the range AC120V ± 10%.
- Plug the power cord of the camera into a nearby socket. Turn on the power switch.

■ **DC TYPE (DC 12V IN)**

- Use the supply voltage within the range DC 12V ± 1V.
- Wire the attached power connector plug as shown by the figure below, and connect it to the DC power input connector (DC 12V IN) located in the rear panel of the camera.



Notes:

- Be sure to connect the power as the last step. Before connecting it, be also sure to turn off the apparatus connected to the camera.
- As the voltage of DC 12V, use the ripple voltage of below 25mV.
- Plug the power cord (connector) into the DC power input socket on the rear panel. Now turn on the power switch.

■ AGC (Automatic Gain Control) selection (SW1-3)

- This function serves to automatically raise the sensitivity level when a subject is not sufficiently illuminated.

AGC ON: AGC function on

AGC OFF: AGC function off

Notes:

- When the electronic sensitivity up mode is combined with any auto mode — S/N priority, standard or movement priority —, the AGC is kept on whether the SW1-3 is in the ON or OFF position. The SW1-3 is effective in enhancing the manual electronic sensitivity.
- With the AGC function on, the on-screen image looks somewhat rough.

■ Electronic sensitivity up/high-speed electronic shutter selection (SW1-4)

- The electronic sensitivity up mode is used in shooting subjects in very dark spots, which the AGC function alone could not cope with.
- In the electronic sensitivity up mode, the low-speed electronic shutter is used to achieve the $\times 1$, $\times 2$, $\times 4$, $\times 6$, $\times 8$, $\times 10$, $\times 12$, $\times 14$ or $\times 16$ sensitivity with respect to the usual 1/60 sec shutter speed. In the manual mode, the sensitivity can be fixed at a desired level. There are also three automatic modes in which the sensitivity level is automatically variable depending on the brightness of a subject.

Notes:

- The higher the electronic sensitivity level, the more out of focus the image of a moving subject may look.
- The vertical resolution is reduced while in the electronic sensitivity up mode.
- If the ambient temperature is around +50°C, higher electronic sensitivity level might cause whitish spots on the screen.

- The high-speed electronic shutter mode is used to suppress on-screen blurs of the image of a fast-moving subject.
- In the high-speed electronic shutter mode, the shutter speed can be changed from the usual 1/60 sec to any of the following speeds: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000 and 1/10000.

Notes:

- In the shutter mode, more light than usual is needed in shooting. Use the mode in a well-lit place.
- The sensitivities in the shutter mode with respect to the 1/60 sec speed are as follows.

Shutter speed	1/100	1/125	1/250	1/500	1/1000	1/2000	1/4000	1/10000
Sensitivity	1/1.7	1/2	1/4	1/8	1/17	1/23	1/67	1/167

■ Electronic sensitivity up mode selection (SW1-5 and -6)

- In the electronic sensitivity up mode, the sensitivity control can be chosen from the four modes; manual, S/N priority auto, standard auto, and movement priority auto.

• Manual mode

This mode is used in shooting a subject that is illuminated at a certain brightness level.

The electronic sensitivity level is fixed at that preset with the SW2. Also the AGC function ON/OFF can be made with the SW1-3.

• S/N priority auto mode

This mode is used in shooting a subject that varies in brightness but stays somewhat in a position (subjects in an outdoor storage place, for example).

In this mode, as the subject gets darker, the electronic sensitivity level is raised first. The AGC sensitivity is then boosted when more sensitivity is needed. During the sensitivity-raising period, therefore, the image looks less rough on the screen because the AGC sensitivity is kept off.

The electronic sensitivity level is automatically variable between $\times 1$ and the level preset with SW2 in response to the brightness of the subject. Note that the AGC function comes on regardless of the SW1-3 setting.

• Movement priority auto mode

This mode is used in shooting a subject that varies in brightness and moves much (subjects on roads or the entrance/exit of a parking lot, for example).

In this mode, as the subject gets darker, the AGC sensitivity is raised first. The electronic sensitivity level is then boosted when more sensitivity is needed. During the sensitivity-raising period, therefore, the image of a moving subject looks less blurry on the screen because the electronic sensitivity level is kept off.

The electronic sensitivity level is automatically variable between $\times 1$ and the level preset with SW2 in response to the brightness of the subject. Note that the AGC function comes on regardless of the SW1-3 setting.

• **Standard auto mode**

This mode is used in shooting a subject, in a brightness-changing place, that will not get blurry and rough on the screen.

In this mode, as the subject gets darker, the AGC sensitivity is raised to the half level first. Next the electronic sensitivity level is boosted. Finally the AGC sensitivity is raised to its highest level. During the sensitivity-increasing period, therefore, blurring and roughness of the image on the screen is medium in level between the S/N priority auto mode and the movement priority auto mode.

The electronic sensitivity level is automatically variable between $\times 1$ and the level preset with SW2 in response to the brightness of the subject. Note that the AGC function comes on regardless of the SW1-3 setting.

- Listed below are the characteristics in the S/N priority, standard and movement priority auto modes.

Mode	Movement-related blurring	On-screen roughness
S/N priority	High	Low
Standard	Medium	Medium
Movement priority	Low	High

Note:

When the sensitivity level is highest, the movement-related blurring and the on-screen roughness are the same in all the three auto modes.

■ **White balance adjustment**

- The color temperature is compensated by this function. Adjustment is made to reproduce the most natural color depending on the color temperature of the lighting source for the object. (To make color confirmation, please see the color monitor which is correctly adjusted.)

• **White balance adjustment selection switch**

FULL AUTO position:

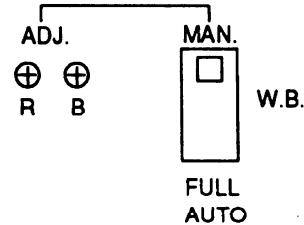
The white balance is set by the automatic follow-up system (color temperature range of approx. 2500°K—9000°K), which adjusts the balance automatically according to the color temperature of the light source. (The automatic color temperature follow-up system used in this model is the TTL (Through The Lens) system, which sensors the color temperature of the light source coming through the lens and, according to it, automatically adjusts the balance.)

MAN. position:

The white balance can be adjusted manually.

• **Manual white balance adjustment**

- ① Set the white balance selection switch on the rear panel to MAN. position.
 - ② Monitor the all white object on the full screen.
 - ③ Adjust the color temperature change with the control on the rear panel.
- FULL AUTO-MAN. switch and R.B.ADJ control are located as shown below.



- The white balance adjustment can produce red shade in the picture. Adjust with R.ADJ. control so that the screen color may become natural.
- The white balance adjustment can produce blue shade in the picture. Adjust with B.ADJ. control so that the screen color may become natural.

Notes:

- The automatic color temperature following-up function will not properly work if used with an unusual light source or with a light source which is not within the adjustable range. In addition, since the automatic color temperature following-up function uses the TTL system, a colored object may cause a color temperature difference from its surroundings and proper white balance may not be obtained if the function is used when taking a colored object (especially an object having a large area of a single color). If such is the case, use the camera with the white balance selection switch in MAN. position.
- In the FULL AUTO mode, panning or tilting the camera using a carrier or the like may cause the white balance to change depending on the subject. On some occasions, the image might be blurry.
- The switch is factory preset to the FULL AUTO position.
- For color temperature and brightness guides, see the table given in Page 16.

• Guide for brightness expression in figures

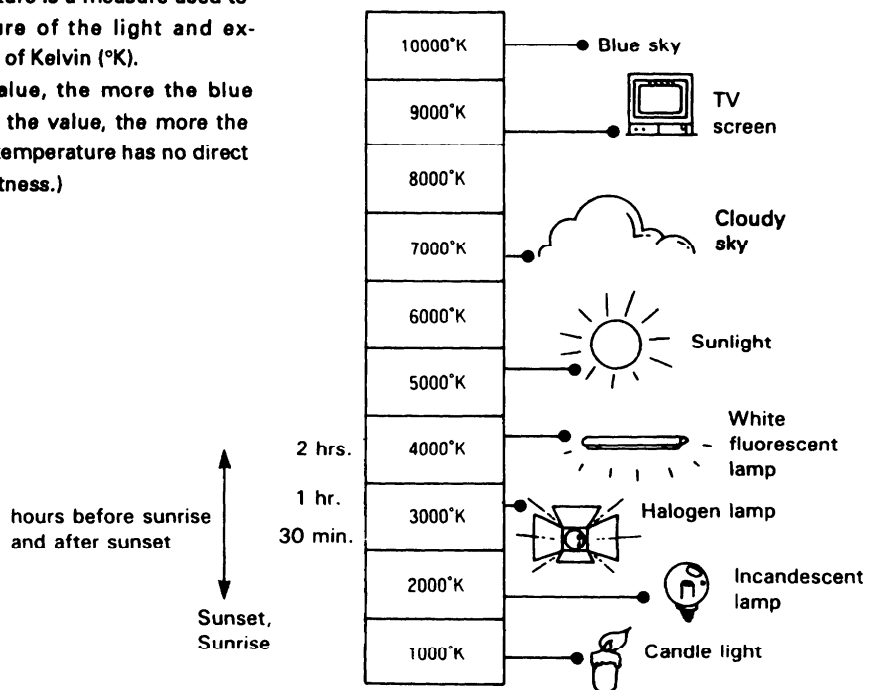
10		• Candle light (20 cm away) (10-15)
100	<ul style="list-style-type: none"> • Outdoor golf practice yard (200-300) • Fluorescent lamp 30W X 2 (300) • Desk under fluorescent lighting (400) • Office room under fluorescent lighting (400-500) • Bowling play hall (500) • Department store (500-700) 	<ul style="list-style-type: none"> • Flashlight (1 m away) (250) • Subway platform (300) • Boutique (400-500) • Public library (400-500)
1,000	<ul style="list-style-type: none"> • Sunlight 1 hr before sunset on fine day (1,000) • Sunlight 1 hr after sunrise on cloudy day (2,000) 	<ul style="list-style-type: none"> • Subway coach (500) • Station ticket gate (650) • Well-lighted room (1,000)
10,000	<ul style="list-style-type: none"> • Sunlight at 10 AM on cloudy day (250×10^2) • Sunlight at noon on cloudy day (320×10^2) • Sunlight at 3 PM on fine day (350×10^2) • Sunlight at 10 AM on fine day (650×10^2) 	<ul style="list-style-type: none"> • Window side of office room under fluorescent lighting (1,000)
100,000 lux	<ul style="list-style-type: none"> • Sunlight at noon on fine day ($1,000 \times 10^2$) 	

* Shown above are the approx. values and for reference only. Use this table as a guide to estimate brightness level.

• Guide for color temperature of light source

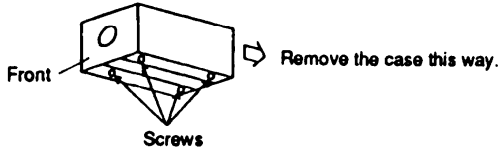
The color temperature is a measure used to indicate the nature of the light and expressed in the unit of Kelvin (°K).

The higher the value, the more the blue shade. The lower the value, the more the red shade. (Color temperature has no direct relation with brightness.)



■ Horizontal phase (H. PHASE) adjustment and color phase (SC. PHASE) adjustment for external sync (GENLOCK)

- When removing the case for external sync adjustment, unscrew the four screws as shown below.



• Horizontal phase adjustment

This horizontal phase adjusting function is for external synchronization connection. If out of horizontal phase with another camera (or system), adjust and put them in phase. Using the control H.PHASE shown in the figure below enables you to vary the phase of the horizontal sync. signal between over $3\mu\text{s}$ lead and over $3\mu\text{s}$ delay on a continuous basis.

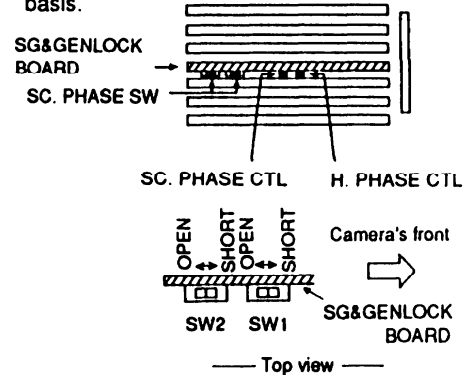
• Color phase adjustment

This color phase adjusting function is for external synchronization connection. If out of horizontal phase with another camera (or system), adjust the phase by using the SC.PHASE switches in combination with the SC.PHASE control and put them in phase. Using the two SC.PHASE switches can vary the color phase as follows:

		S1	
		OPEN	SHORT
SW2	OPEN	+180°	0°
	SHORT	+90°	+270°

- When the phase with the S1 in SHORT position and the S2 at OPEN is the 0-degree reference phase:

Using the SC.PHASE control enables you to vary the color phase about 90 degrees on a continuous basis.



Notes:

- Signal from the VCR or other that causes the jitters (up-and-down or right-and-left irregular movement) much may disturb the synchronization.
- The adjustment here is not needed with no external synchronization connection.

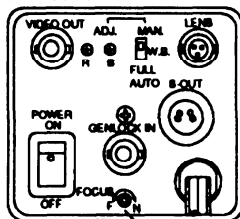
ADJUSTING THE LENS

■ Flange Focal Distance Adjustment

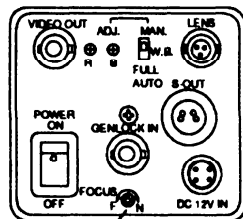
The flange focal distance is the distance between the lens mounting surface and the focal point.

In some cases, it is necessary to readjust this distance; that is to say, if the focus ring on the lens fails to give perfect focusing. Use the flange focal distance adjuster shown below.

Rear panel of the ICD-880 (AC type)



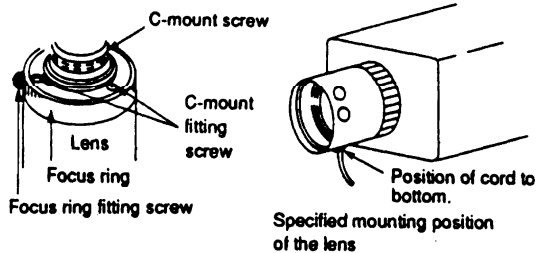
Rear panel of the ICD-880 (DC type)



Flange focal distance adjuster

• When using fixed focus lens

- ① Open the iris as much as possible, and set to the distant object. Turn the focus ring to fix the focus.
- ② Set to the object nearby (approx. 30 cm), and fix the focus by the focus ring.
- ③ When the focus is not fixed for the distant or the nearby objects, fix the focus with the flange-back adjuster.
- ④ Repeat the above procedures several times until the focus can be fixed only by the focus ring for both distant and nearby objects.
- ⑤ When the auto iris lens is used, position the cord of the lens as shown as follows.



Note:

When fixing the focus for distant object, keep the distance more than 2,000 times of the focal length of the mounted lens.

(When the lens focal length is 7.5 mm, for example, the distance should be more than 15m.)

• **When using zoom lens**

- ① Set the iris to open, and zoom the lens to the maximum TELE position. Fix the focus by the focus ring.
- ② When the image is out of focus with the lens zoomed to the maximum WIDE position, fix the focus with the flange-back adjuster.
- ③ Repeat the above procedures ① and ② several times and reduce the deviation of focus in both TELE and WIDE positions.

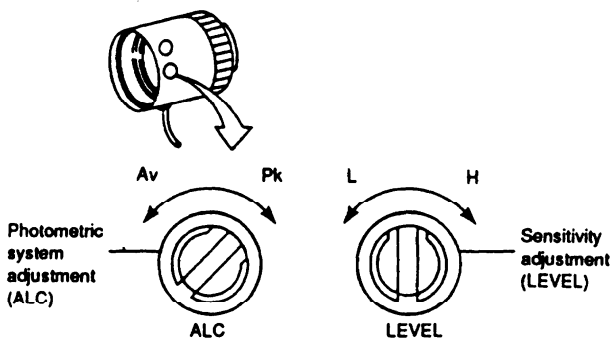
If the best focus is obtained, the adjustment is completed.

Note:

Keep the distance to the object more than 5 times of the minimum image forming distance of the mounted lens.

(When the minimum image forming distance of the lens is 1 m, for example, keep the distance more than 5 m.)

■ **Auto Iris lens adjustment**



• **Adjust the ALC and LEVEL controls of the auto iris lens under the following conditions.**

- ① Shutter speed set at 1/60 sec.
- ② AGC control on.

• **Sensitivity adjustment (LEVEL)**

Adjust the sensitivity in this way: While shooting an object, whose contrast ratio is relatively small, under sufficient illuminance (over 1000 luxes), conduct the adjustment by watching the monitor screen so that the image of the object achieves the optimal brightness and tone. For the adjustment, select an evenly lighted place with the ALC adjuster fully turned in the Av direction.

Turning in H direction:

When the entire screen is rather dark or when noise is much, turn the LEVEL switch in the H direction for bringing the screen into appropriate brightness.

Turning in L direction:

When the screen is rather whitish and there are white spots in colored areas, turn the LEVEL switch in the L direction for bringing the screen into appropriate brightness.

• **Photometric system adjustment (ALC)**

Watching the screen, choose the photometric method that suits the object caught in the lens, then make adjustment so that an optimal image be obtained.

Turning in Av direction:

Turning the ALC switch in the Av direction selects the average photometric method.

When turned to the end of the Av direction, the iris is automatically adjusted with the average value of the video signal level of the object regarded as the appropriate photometric value.

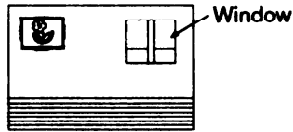
Turning in Pk direction:

Turning the ALC switch in the Pk direction selects the peak photometric method. (See Notes ③ as follows.)

When turned to the end of the Pk direction, the iris is automatically adjusted with the value of the high luminance part of the video signal level of the object regarded as the appropriate photometric value.

Notes ①

- When the situation is like the figure as shown and you desire the camera to bring the picture hanging on the wall into the screen, turn the ALC switch in the Av direction for adjustment. In this case, the window and its periphery will be in saturated white.



- When the situation is like the figure as shown and you desire the camera to bring the scene outside the window in to the screen together with its periphery, turn the ALC switch in the Pk direction for adjustment. In this case, the area around the picture on the wall including the picture itself will be dark in the screen since the luminance level for that area lowers.
- If the scene caught in the camera is evenly lighted more or less, the level will not change much, in whichever direction the switch is turned.

Notes ②

- The ALC adjustment should be preceded by the LEVEL adjustment.
- Since the sensitivity adjustment (LEVEL) is the video signal level adjustment, avoid to needlessly turn the LEVEL switch after completing its adjustment. Otherwise, the sensitivity of the lens might change to result in picture quality deterioration or to put the camera out of order in the worst case.

Note ③

- Do not adjust the ALC too close to the peak level, because otherwise hunching might happen.

PRECAUTIONS ON USE

- **Never set the camera toward the sun.**
Never turn the lens toward the sun in whatever usage of the camera.
- **Do not catch a intense light.**
If there is a highly luminant (intensely lighted) object as a part of the scene shown in the screen, it will appear like a tail in the longitudinal or lateral direction. It is called the smear which is peculiar to the solid state imaging device, and does not mean a trouble.
- **Never disassemble the camera.**
NEVER touch the interior of the camera. Otherwise, a trouble will result.
- **Keep the camera free from any foreign matters.**
The camera dislikes foreign matters, especially metallic and flammable pieces, entering it. Their entrance into the camera may cause a trouble or accident.
- **Gently handle the camera.**
Never drop the camera nor give it a shock or vibration.

- **In case of trouble or anything wrong with the camera:**

If you discover anything wrong (such as unusual sound, smell, or smoke) with the camera or a trouble (such as a sudden disappear of the picture from the screen), stop operating the camera (turn off its power) all at once, and contact your dealer or salesman.

- **Caring the camera**

After turning off the power, clean the exterior of the camera with soft, dry cloth. If hard to remove any dirt or smear from the camera, gently wipe it off by cloth well wrought after wetted with water-diluted furniture/house cleaning detergent.

For cleaning the lens or other delicate component, use a camera lens blower or lens cleaning paper (sold in a camera shop).

SPECIFICATIONS

	ICD-880 AC TYPE (120V)	ICD-880 DC TYPE (12V)
1) Imaging system	1/2" Interline Transfer CCD	
2) Color filter	Ye, Cy, Mg, G complementary color system	
3) Sensing Area	6.4 mm (H) × 4.8 mm (V) Effective	
4) Pixels	786 (H) × 494 (V), 410,000 (Total); 380,000 (Effective)	
5) Scanning system	525 lines, 60 field/30 frames, 2:1 Interlaced Conforming to NTSC method.	
6) Scanning frequency	H: 15.734 kHz V: 59.94 Hz	
7) Sync. system	Internal : Crystal Lock External : Genlock (Auto change)	
8) Genlock input	VBS 1.0 V p-p/75Ω or BBS 0.45 V p-p/75Ω	
9) Video output	① VBS 1.0 V p-p/75Ω ② Separate Y/C Output Y signal: 1.0 V p-p/75Ω C signal: 0.286 V p-p/75Ω	
10) Resolution	Horizontal 460 TV lines Vertical 350 TV lines	
11) S/N ratio	46 dB (p-p/rms) (luminous signal) (800 lux/F4.0, AGC OFF, with 4.2 MHz LPF)	
12) Standard Illumination on object	800 lux/F4.0 (3200°K, 89.9% reflection)	
13) Minimum Illumination on object	① 0.1 lux/F1.4 (electronic sensitivity up on, AGC on) ② 3 lux/F1.4 (electronic sensitivity up off, AGC on)	
14) Electronic sensitivity up	Auto/manual switchable	
15) White Balance Circuit	Built in (TTL auto white/manual selection switchable)	
16) Auto iris Circuit	Built in (Video Signal and +9V)	
17) Lens mount	C Mount (Flange focal distance adjustable)	
18) Power Requirement	AC 120V ± 10%, 60 Hz	DC12 V ± 1V
19) Power Consumption	12 W approx.	9 W approx.
20) Operating Temperature	-5°C to + 45°C (23°F~113°F)	
21) Connector	<ul style="list-style-type: none"> • VBS Output: BNC×1 • Y/C Output: 4P×1 • Genlock Input: BNC×1 • Auto Iris: 3P×1 	<ul style="list-style-type: none"> • VBS Output: BNC×1 • Y/C Output: 4P×1 • Genlock Input: BNC×1 • Auto Iris: 3P×1 • DC 12V Input: 4P×1
22) Camera mount	1/4"-20UNC (bottom) ×1, (optionally mountable on top)	
23) Dimensions (WHD)	80 × 70 × 215 mm (3.15 × 2.76 × 8.47 inches) (without lens mount, connector and other projections)	
24) Weight	1.7kg (3.7 lbs.) approx.	1.6kg (3.5 lbs.) approx.
25) Option	<ul style="list-style-type: none"> • RCU-880 Camera Control Unit (operates from 1 to 4 cameras) • Camera mount adaptor (TOP) 	

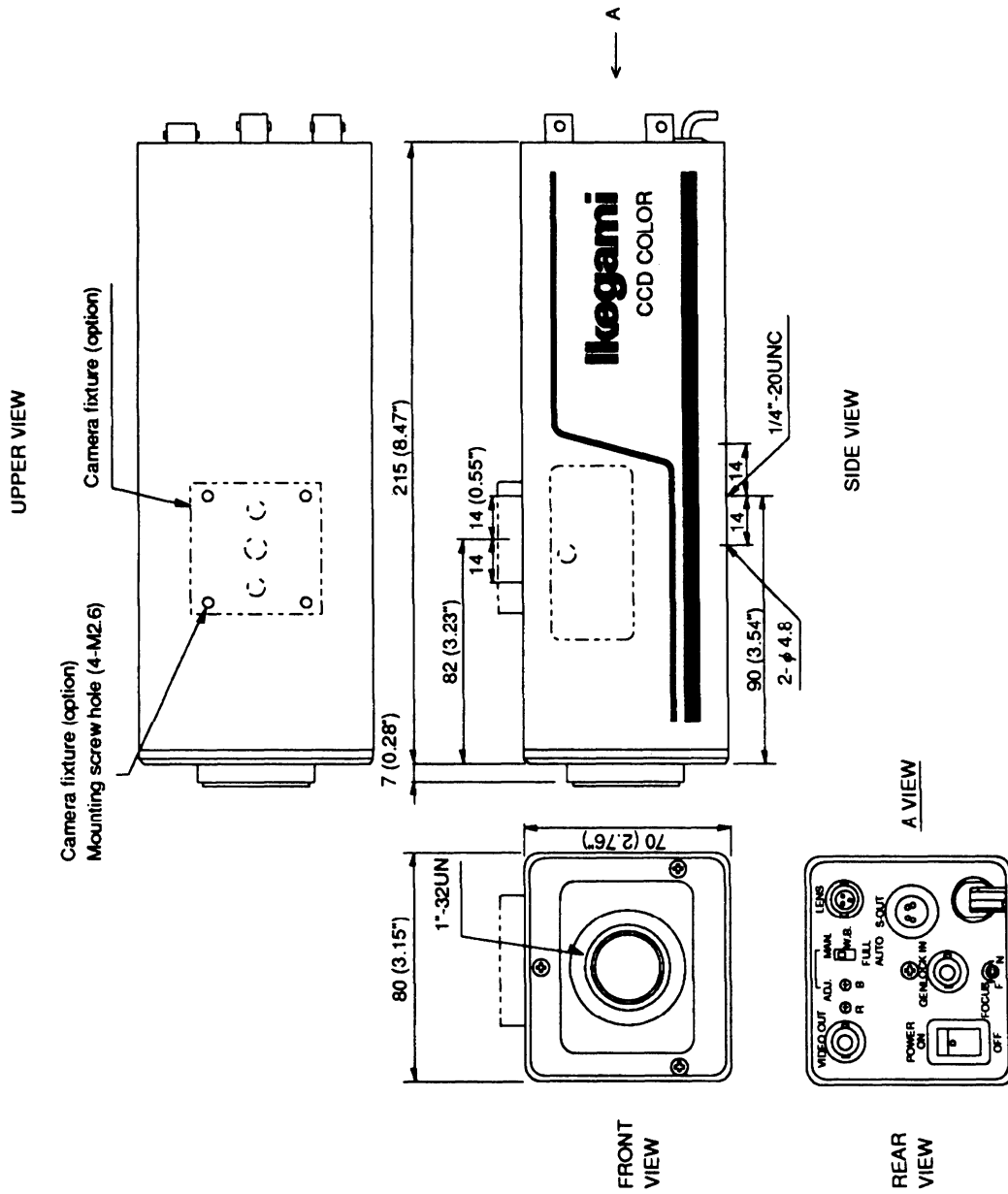
■ Accessories

Auto iris lens connector plug (R05-PB3M)	1
Power connector plug: (HR10A-7P-4S(01) (DC type only)	1
Lens mount cap	1
Operating manual	1

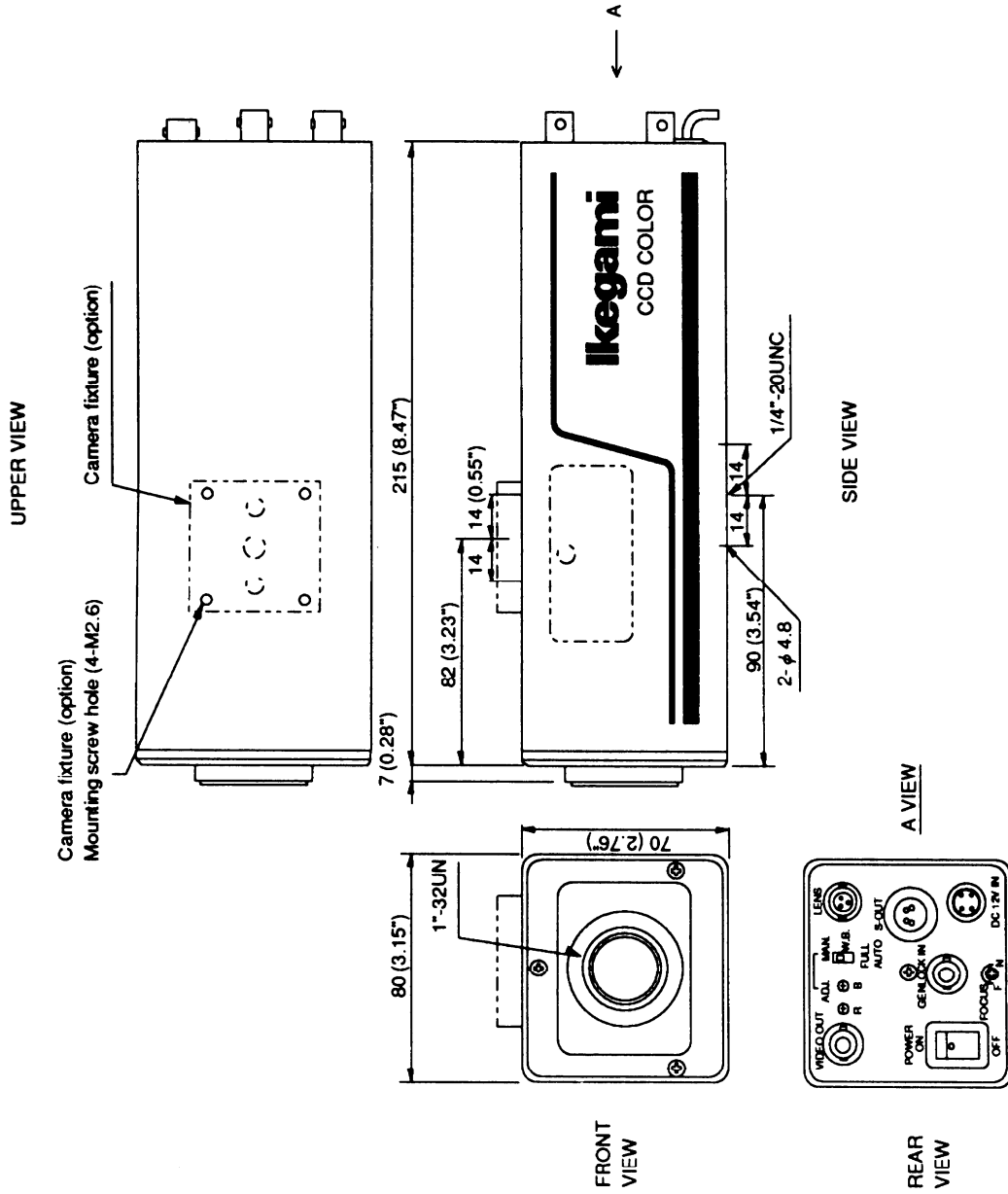
- The specifications and the appearance are subject to change without prior notice.
- Since the camera described herein is so designed as to output the video signal that conforms to the NTSC, it cannot be used for VCR's and monitors that use other system.

DIMENSIONS

MODEL ICD-880 (AC TYPE)



MODEL ICD-880 (DC TYPE)



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