

Ikegami

INSTRUCTION MANUAL

ICD-800 SINGLE CHIP COLOR CCD CAMERA

OPERATION MANUAL

**OUTDOOR USE WARNING
WARNING-TO PREVENT FIRE OR ELECTRIC
SHOCK, DO NOT EXPOSE THIS APPLIANCE
TO RAIN OR MOISTURE.**

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1. OUTLINE

The ICD-800 is single chip color CCD camera of high-sensitivity and high-resolution using a CCD (charge coupled device) with approximately 250,000 pixels.

By employing the CCD with prolonged service life that does not cause picture distortion and burning, LSI electronic circuits, and chips, the ICD-800 camera provides high reliability and stability for picture input.

2. FEATURES

2-1. High Resolution and High Sensitivity

The camera uses the 2/3" color compensating CCD with 250,000 pixels, producing high resolution and high sensitivity such as 330 TV lines of horizontal resolution and approximately 10 lux (F 1.2) of minimum illuminance.

2-2. Automatic White Balance/Full-automatic White Balance

The automatic white balance circuit with the digital memory function which provides 6-bit output resolution of the D/A converter allows the user to adjust the white balance easily with a switch. The optical color temperature sensor option allows tracking-type automatic color temperature white balance (full-automatic white balance).

2-3. LSIs and Chips

The ICD-800 with no color distortion uses LSI electronic circuits and chips for more compact design and stable color regeneration and performance.

2-4. CCD Features

- 1) The semiconductor producing pixels is precisely manufactured up to microns unit, causing no geometric distortion.
- 2) Strong light and continuous shooting of the same object do not cause burning.
- 3) The camera with no camera tube or deflection coil easily affected by magnetic fields can be used even in strong magnetic fields.
- 4) The CCD semiconductor image sensor causes long life.
- 5) High resistance to vibration and shock.

2-5. Genlock

The ICD-800 uses the genlock circuit which adjusts the subcarrier phase and horizontal phase, permitting color genlock with an external VBS or BBS signal.

3. PRECAUTIONS

- 3-1. The camera houses critical parts. Do not open the camera case as this could cause a fault in the camera.

For internal adjustment, dedicated measuring instruments are required. Contact the service engineer for adjustment.

- 3-2. Do not drop the camera or allow it to be bumped strongly.
- 3-3. Do not use the camera at high or low temperatures exceeding the ambient temperature range from -5°C to $+45^{\circ}\text{C}$, as faults may result.
- Do not use the camera at a humidity of 90% or more and a bedewing place.
- 3-3. Do not wet the camera.
- 3-4. Do not allow any unrelated materials to enter the camera.
- 3-5. Before installation or adjustment, switch the camera power off.
- 3-6. Use the supply voltage of +12 VDC ± 1 V.

4. CONFIGURATION

- 1) ICD-800 camera head: 1
- 2) 4-pin power connector plug: 1

The following components are optional. (*1)

- | | |
|--|----------------------------------|
| 1) A CTS-800 full-automatic white sensor (optional) | } A and B are used
in tandem. |
| B CTS-800 PC board (set inside the ICD-800 camera) | |
| 2) A PB-800 power box (optional) | } A and B are used
in tandem. |
| B PB-800 camera adapter (mounted on the bottom of
the ICD-800 camera) | |
| 3) AC-800 AC adapter (optional) | |

*1 Full-automatic white function is not available unless the dedicated PC boards are added. The user can mount the boards, but is encouraged to contact Ikegami before purchase, or to consult the dealer.

5. NAME OF EACH COMPONENT

See Figure 1.

6. FUNCTION OF EACH COMPONENT

See Figure 1.

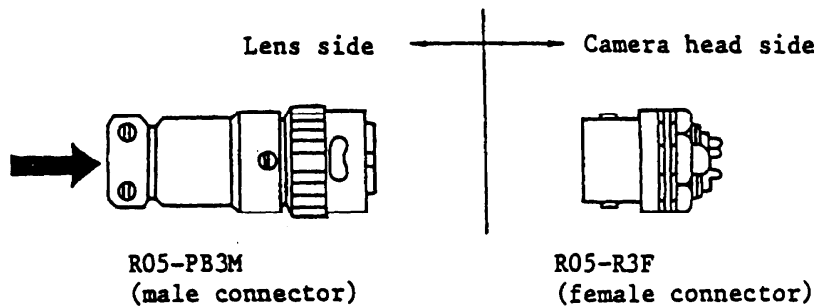
- 1) Lens Mount (C mount)
Used to set the lens on the C mount.
- 2) Camera Mounting Screw Holes
Used to mount the camera unit to the holder, bracket, or tripod. These holes are also used to connect the PB-800 camera adapter.
- 3) PB-800 (Camera Adapter) Mounting Screw Holes
Used to fix the adapter when the PB-800 camera adapter is used.
- 4) VIDEO OUT (Video Output) Connector
Connector to output the video signal of pictures shot by the camera.
- 5) CTS-800 SENSOR Input Connector
Connect the output connector of the sensor when the CTS-800 sensor (automatic white sensor) is used.
- 6) GEN LOCK Input Connector
Connector to input VBS or BBS when the camera is used by the genlock (external synchronization).
- 7) DC 12 V (DC power) Input Connector
Connector to input DC power supply to the camera. Connect to the power source with the attached plug (Hirose HR10A-7P-4S(01)). (The optional AC-800 (AC adapter) eliminates the need for troublesome plug wiring.)
- 8) A.I (Automatic Iris) Lens Connector
Used to mount the automatic iris lens for the B/W CCTV camera. Use the lens connected with the dedicated plug (Tajimi R05-PB3M).
- 9) AUTO W. (Automatic White Balance) Lamp Indicator
Lights red when the AUTO W. switch is press for white balance adjustment. The indicator goes off when the balance is adjusted. (When the full-automatic white sensor is used, the indicator remains lit.)
- 10) AUTO W. (Automatic White) Balance Switch
Used to adjust the white balance if the color temperature around the object changes. Pressing this switch adjust the white balnace to the ambient color temperature.
- 11) Camera Mounting Screw Holes
Used to mount the camera unit on the holder and bracket. These holes are also used when the CTS-800 (full-automatic white sensor) is used.
- 12) Optical Focus Fixing Screws
Used to adjust the indefinite of the lens used. Loosen the top and left screws to rotate the C mount. Perform optical focus (indefinite) and then tighten the screws.

- 13) CTS-800 (Full-automatic Sensor): optional
 The CTS-800 eliminates troublesome white balance adjustment. Its full-automatic tracking function always keeps an appropriate white balance to regenerate sharp colors.

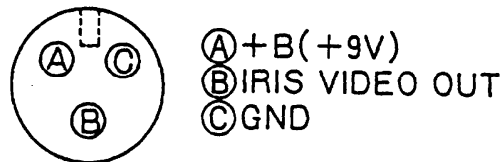
7. CONNECTION

7-1. How to Connect the Lens

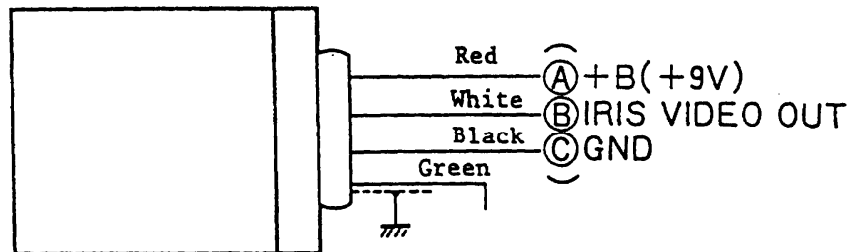
1) How to Connect the Lens Connector



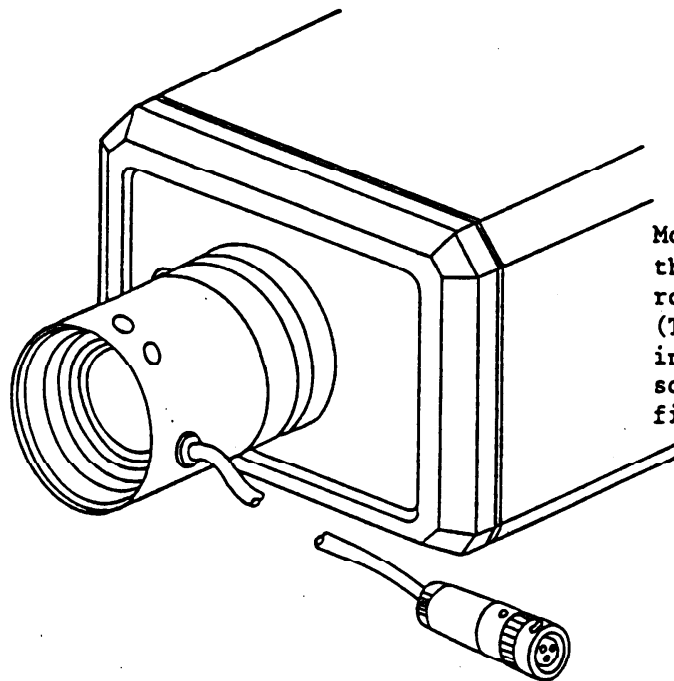
Viewed from the arrow



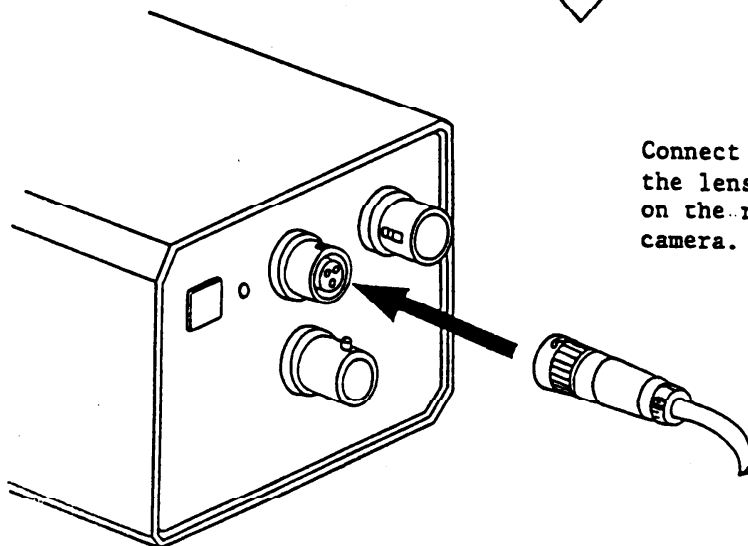
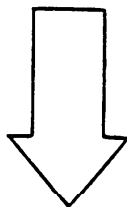
B/W automatic iris lens



2) How to Mount the Lens

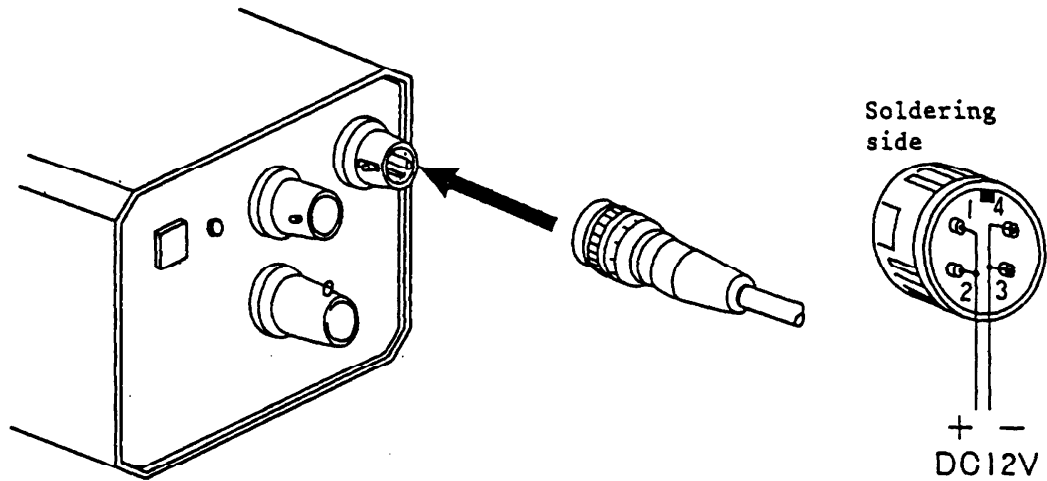


Mount the lens on the C mount by rotating the lens. (Thrust the lens into the position so it is inserted firmly.)



Connect the connector of the lens to the receptacle on the rear panel of the camera.

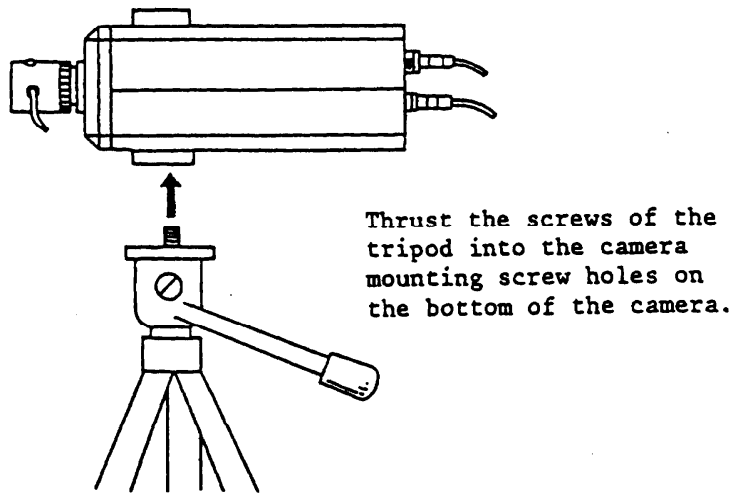
7-2. How to Connect DC Power Supply



Wire the attached power connect plug as shown in the above right figure and connect it to the receptacle on the rear panel of the camera.

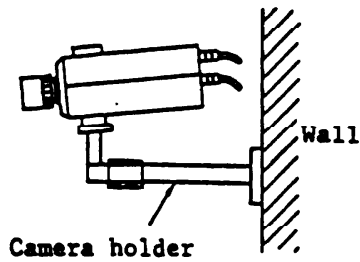
7-3. How to Mount Camera on Tripod of Holder

1) How to Mount on the Tripod

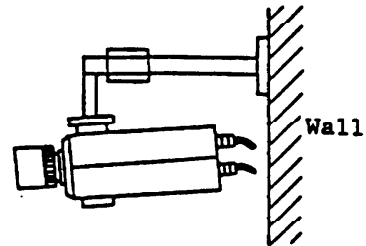


2) How to Mount on the Camera Holder

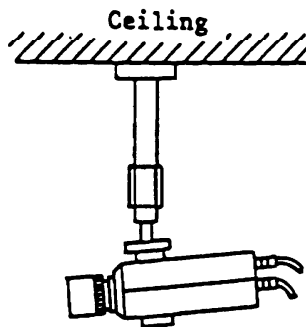
Mounting on the wall



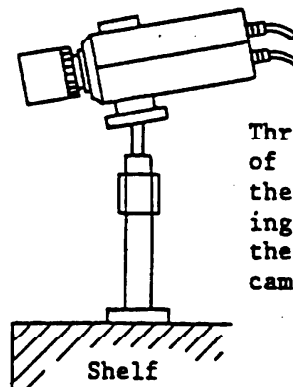
Or



Mounting on the ceiling

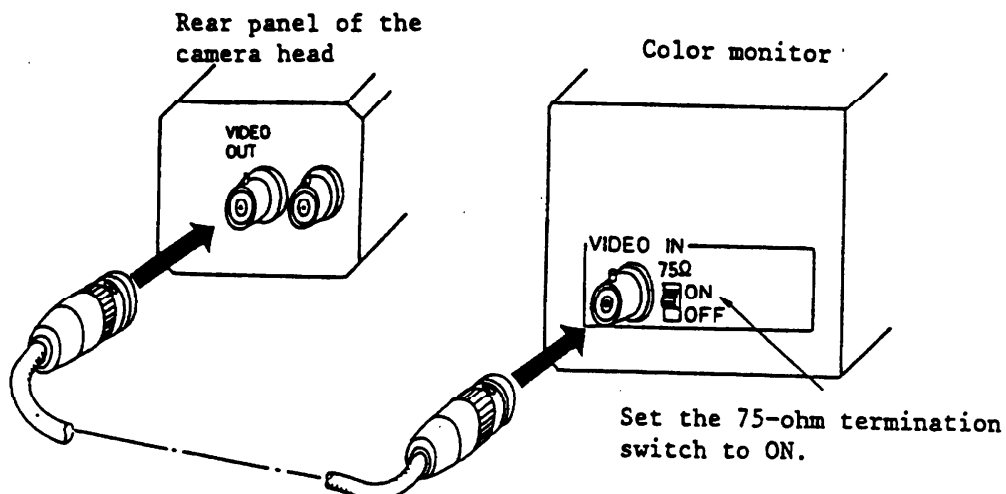


Mounting on the shelf



Thrust the screws of the holder into the camera mounting screw holes on the bottom of the camera.

7-4. How to Connect to Color Monitor

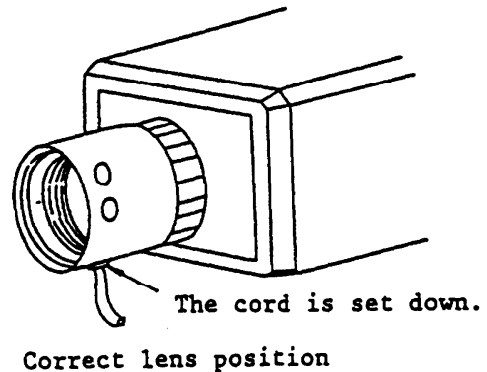
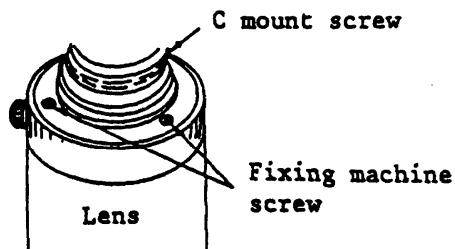


Connect the VIDEO OUT connector on the rear panel of the camera to the VIDEO IN connector of the color monitor with a coaxial cable and set the 75-ohm termination switch to ON.

8. OPERATIONS

8-1. How to Operate Automatic Iris Lens

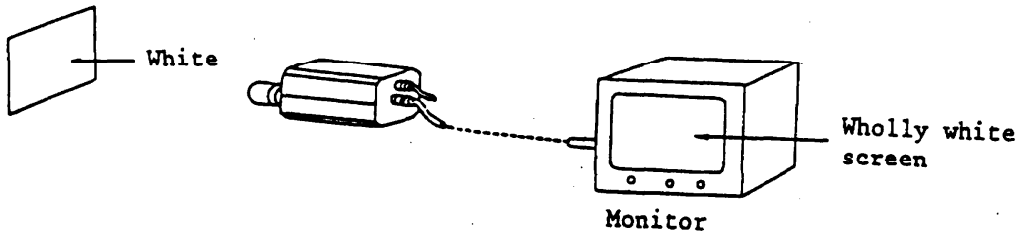
- 1) For video signal level adjustment, adjust the LEVEL volume to the position at which the pictures are sharp. (Turning it clockwise increases the level.)
- 2) For changing the photometry, turn the ALC volume to P for peak photometry; turn to A for average photometry.
- 3) Indefinite adjustment
Shoot a distant scene (10 m or more) then turn the focus ring to adjust the focus. Then, shoot the nearest object (about 30 cm), turn the focus ring to adjust the focus. If either the distant or nearest object is not focused, loosen the optical focus fixing screws and rotate the C mount of the camera together with the lens to adjust the focus. Repeat the above operations a few times and tighten the screws at the position where both distant and nearest objects are focused with the focus ring only.
Lastely, loosen the fixing machine screws of the C mount screw and rotate the C mount screw so that the lens is mounted on the correct position of the camera and tighten the fixing machine screws.



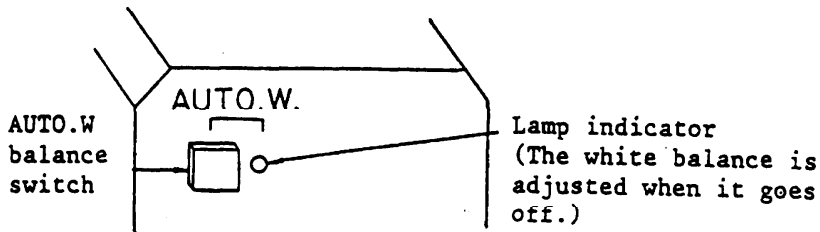
8-2. How to Adjust Automatic White Balance

The white balance must be adjusted in the procedure below if the color temperature around the object changes along with the change of the shooting location or lighting. (When the full-automatic white PC board is inserted, set the switch on the board to MAN.)

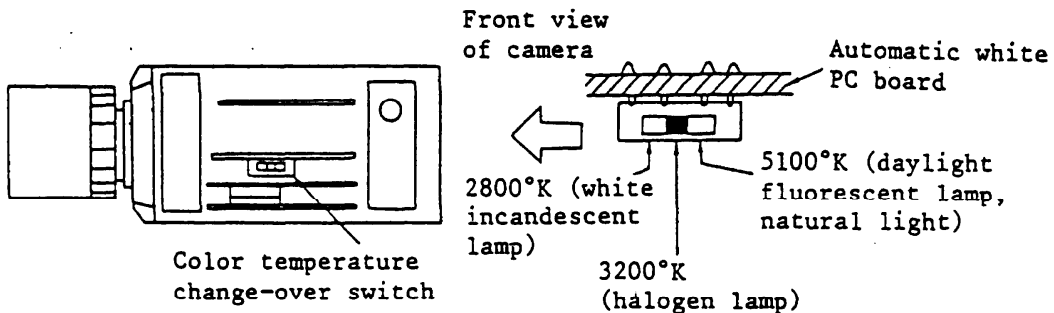
- 1) Shoot the wholly white object in the full frame.



- 2) When the AUTO.W balance switch on the rear panel of the camera is pressed, the AUTO.W lamp indicator once goes on and then goes off in a few seconds. When it goes off, the white balance is adjusted. Release the switch. If it is still on, the white balance is not adjusted. Press the switch again and check that the indicator goes off and then release the switch.



- 3) If the white balance is not adjusted, the color temperature may be extremely out of the range. THE ICD-800 is adjusted so that white balance is adjusted at around 3200°K when shipped from the factory. If the color temperature is extremely out of the range, change the internal switch.



- 4) The ICD-800 automatic white balance circuit has the backup function of memory. Once the white balance is adjusted, it is retained for about eight hours even if the power is down.

9. RATINGS AND PERFORMANCE

- | | |
|--------------------------------------|--|
| 1) Pick-up device: | Interline transfer CCD |
| 2) Color filter: | Ye, Cy, Mg, G color compensation method |
| 3) Picture element: | 510 (H) x 490 (V) pixels |
| 4) Sensing area: | 8.8 (H) x 6.6 (V) mm (2/3 inch) |
| 5) Scanning system: | 525 lines, 60 fields per 30 frames, 2 : 1 interface. Conforming to NTSC method |
| 6) Scanning frequency: | H: 15.734 KHz, V: 59.94 Hz |
| 7) Sync system: | Internal: Crystal oscillation
External: Genlock with a VBS or BBS input.
Internal or external is switched automatically. |
| 8) Genlock input: | VBS 1.0 $V_{p-p}/75$ ohms, or
BBS 0.45 $V_{p-p}/75$ ohms |
| 9) Video output: | Composit: VBS 1.0 $V_{p-p}/75$ ohms,
one output channel |
| 10) Resolution | Horizontal: 330 TV lines
Vertical: 350 TV lines |
| 11) S/N ratio: | 47 dB (P-P/rms) (luminance signal) Using
F4 1000 lux, 4.2 MHz LPF. |
| 12) Standard object illuminance: | F4, 1000 lux (100 fc)/3200°K, reflection
ratio of 89.9% |
| 13) Minimum object illuminance: | F1.2, about 10 lux (1.0 fc)/3200°K,
reflection ratio of 89.9% |
| 14) Automatic iris circuit: | Built-in |
| 15) Automatic white balance circuit: | Built-in |
| 16) Lens mount: | C mount |
| 17) Power supply: | 12 V DC ± 1 V, approx. 0.45 A |
| 18) Power consumption: | Approx. 5.4 W |

19) Operating temperature: -5°C to +45°C

20) Dimensions: 75 (W) x 65 (H) x 165 (D) mm

21) Weight: Approx. 800 g

22) Camera mount: 1/4 inch, 20 UNC (top and bottom panels)

23) Connectors: VIDEO OUT: BNC type x 1
GEN LOCK: BNC type x 1
DC 12 V: 4-pin connector x 1
A.I: 3-pin connector x 1

24) AC adapter (optional) Mode name: AC-800 120 VAC
input
12 V DC, 0.45 A output

5. NAME OF EACH COMPONENT

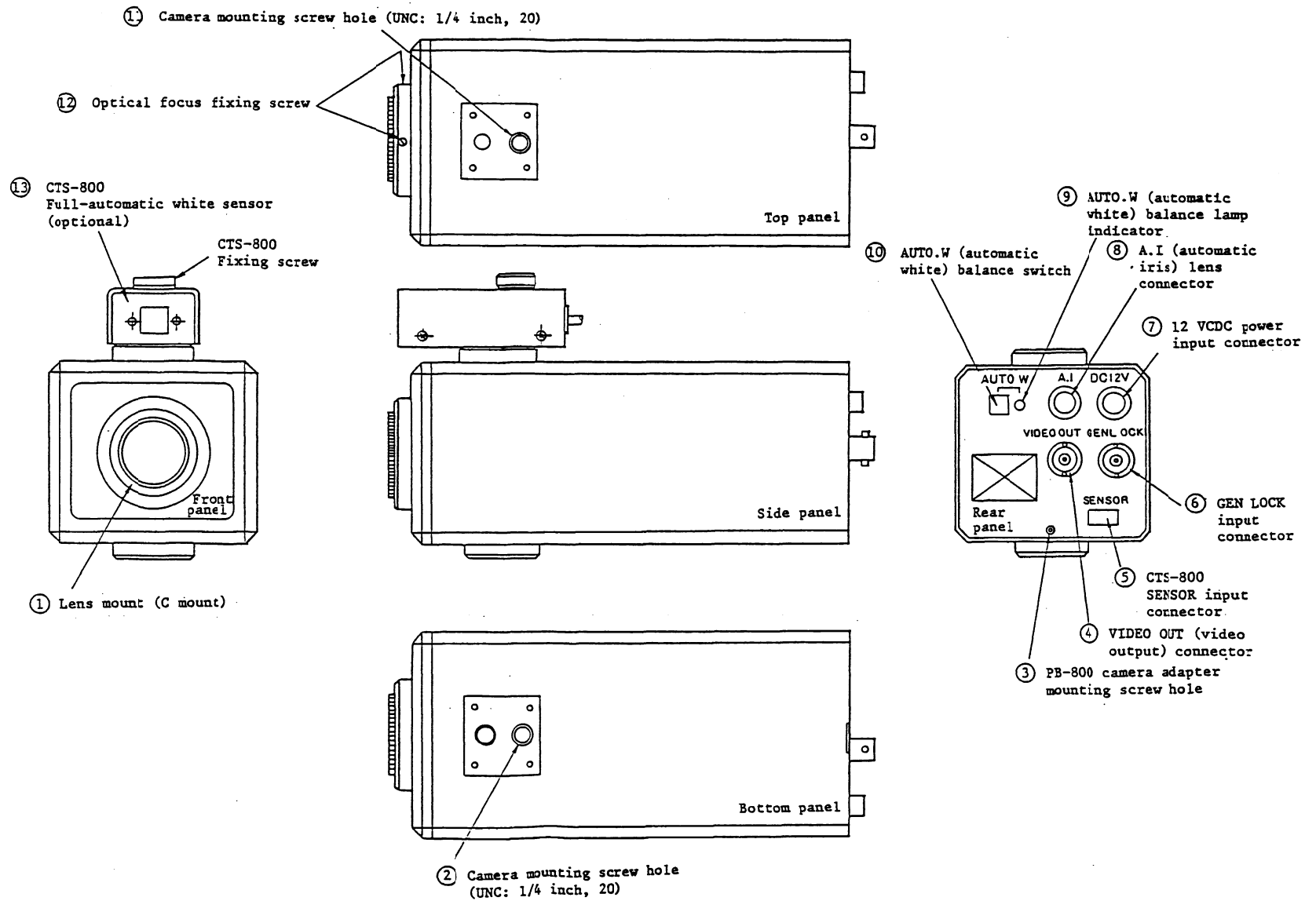
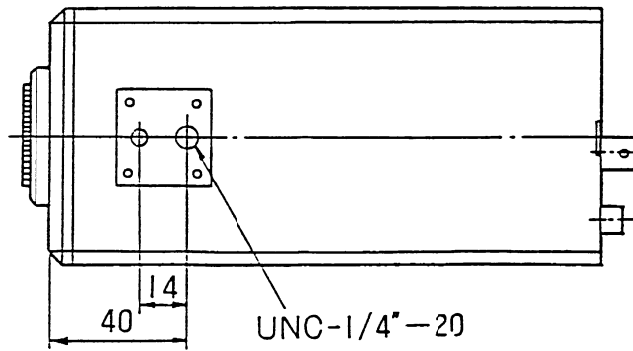
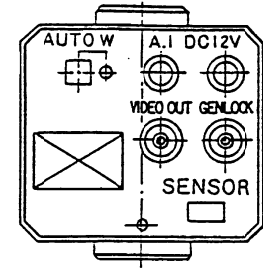
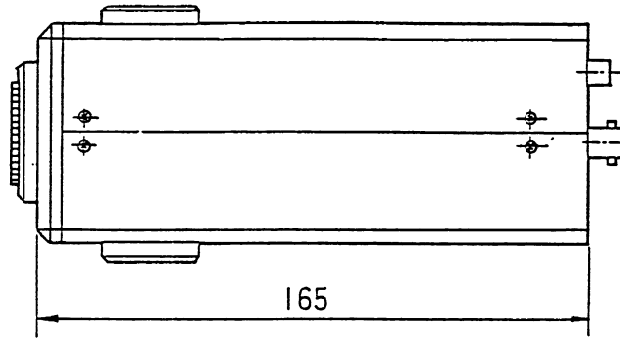
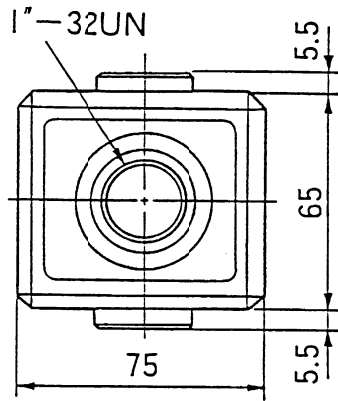
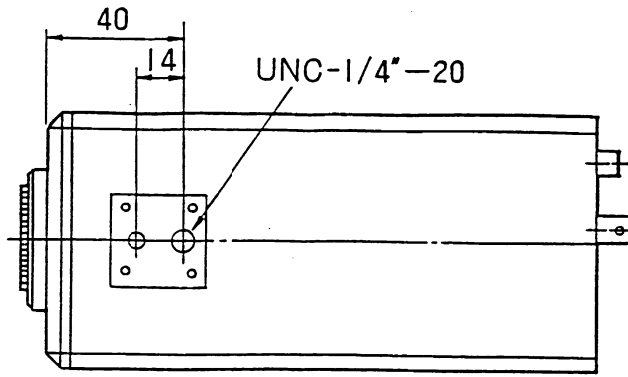


Figure 1

10. EXTERNAL VIEW AND DIMENSIONS



GENLOCK PC BOARD OPERATION MANUAL

1. OUTLINE

This PC board is used to operate the ICD-800 with the genlock (external sync), which will be switched from internal to external automatically.

The subcarrier phase and horizontal sync signal phase can be adjusted.

2. PRECAUTIONS

Do not drop the PC board or do not apply a strong impact on the board. This may cause a fault because the board incorporates many critical parts.

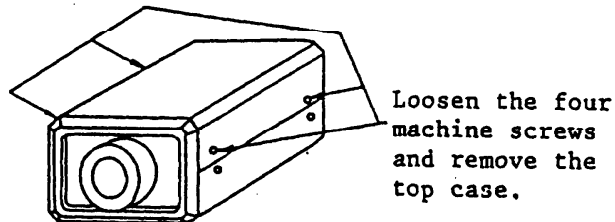
3. CONFIGURATION

Genlock PC board: 1

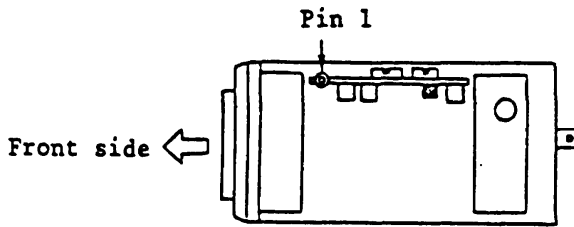
* The genlock PC board is built in the ICD-800 as standard function.

4. CONNECTION

1) Remove the top case of the ICD-800.



- 2) Insert the genlock PC board. (Make sure that pins and the socket are aligned properly and insert the board vertically. Take care not to break the pins.)

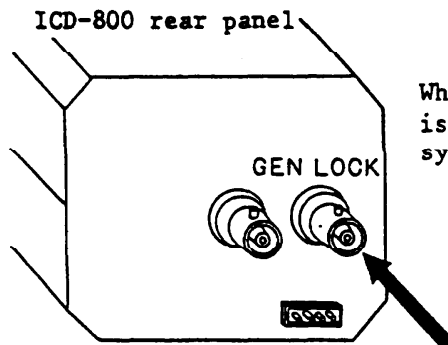


(The genlock PC board is inserted at the most forward position on the left side, viewed from the front.)

- 3) Cover the top case and secure it with the removed screws.

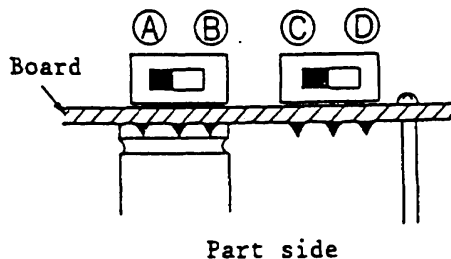
5. OPERATIONS

- 1) The internal and external synchronization is switched automatically. The ICD-800 operates in the external sync mode automatically when a genlock signal is input.



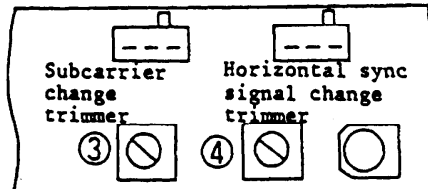
When a VBS or BBS signal is input, the external sync mode is set.

- 2) To change the subcarrier phase, use the two switches on the PC board.



Switch position	Phase angle
A · C	0°
B · C	90°
A · D	180°
B · D	270°

- 3) To change the subcarrier phase to approximately 90°C continuously, use the trimmer of the soldering side of the PC board.
- 4) To change the horizontal sync signal phase by steps of $+3^\circ$ (advance) or -3° (delay) or more continuously, use the trimmer on the soldering side of the PC board.



6. RATINGS

- 1) Sync system: Genlock with VBS or BBS input
Automatic switching between internal or external sync.
- 2) Genlock input: VBS $1.0 V_{p-p}/75$ ohms or BBS $0.45 V_{p-p}/75$ ohms

CTS-800 OPERATION MANUAL

1. OUTLINE

The CTS-800 is a color temperature sensor with a built-in color sensor which automatically adjusts the white balance.

The sensor senses the change in the color temperature and converts it to electric signals to adjust the white balance.

2. FEATURES

2-1. Full-automatic Balance

The color temperature sensor eliminates laborious white balance adjustment. There is no need to press the AUTO.W switch to adjust the white balance every time if the color temperature of the object changes. The sensor always keeps an appropriate white balance.

2-2. Wide Adjustment Range of White Balance

The sensor automatically adjusts the white balance in the range from about 2800°K to 6000°K.

If the camera is used outdoors, a little white balance adjustment may be required because of ultraviolet rays.

3. PRECAUTIONS

3-1. Do not strike the color temperature sensor or subject it to strong impact. That may cause a fault in it because it incorporates a sensor inside.

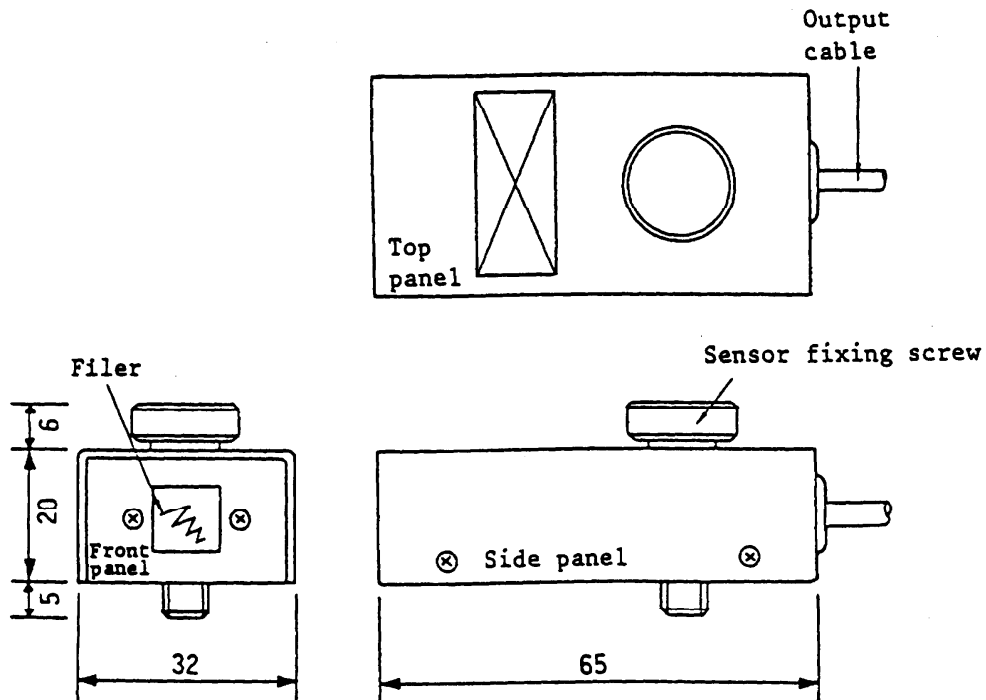
3-2. Do not scratch the filter or allow dust to get on it. This may cause improper white balance because the sensor is highly sensitive.

Do not place anything before the sensor, or obstruct the light, or place any dark-colored object before it.

4. CONFIGURATION

- 1) CTS-800 color temperature sensor: 1
- 2) Full-automatic white balance PC board: 1

5. NAME OF EACH COMPONENT

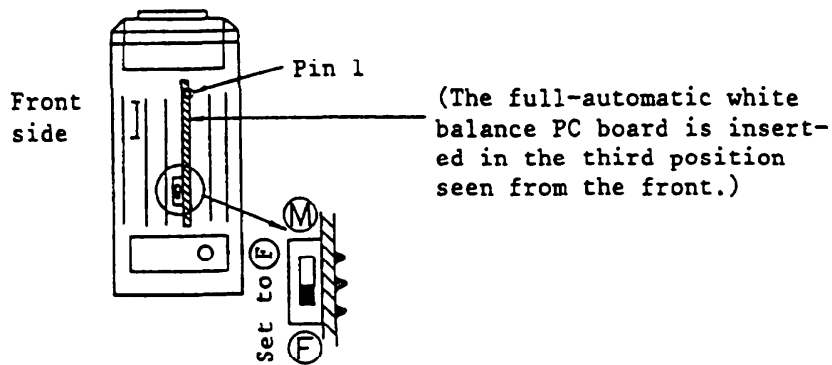
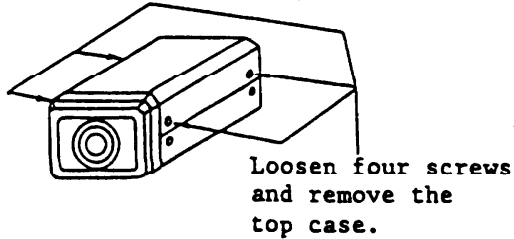


6. FUNCTION OF EACH COMPONENT

- 1) **Filter:** Color temperature conversion filter for appropriate white balance
- 2) **Output cable:** Cable used to output the electrical signals of the color temperature change detected by the sensor to the ICD-800
- 3) **Sensor fixing screws:** Screw used to fix the sensor on the top or bottom case of the ICD-800

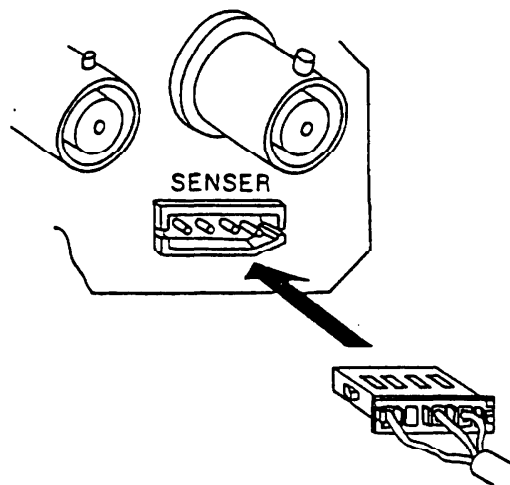
7. CONNECTION

- 1) Open the top case and insert the full-automatic white balance PC board.

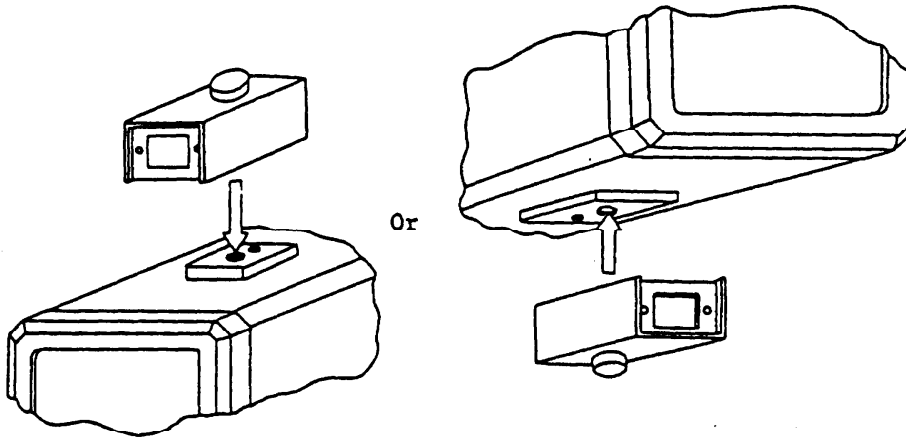


Make sure that the pins and the socket are aligned and insert the board vertically. Take care not to break the pins.

- 2) Connect the sensor output connector to the rear panel of the ICD-800.



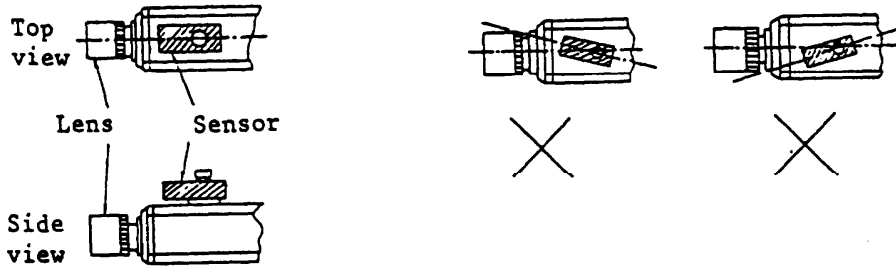
- 3) Mount the color temperature sensor to the top or bottom case of the ICD-800 with the fixing screw.



8. OPERATIONS

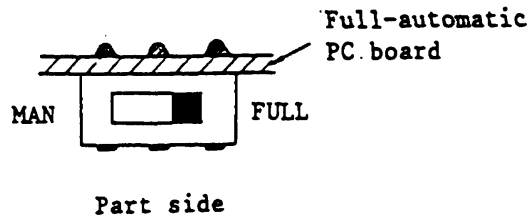
8-1.

- 1) Align the lens of the ICD-800 and the sensor in the same direction.



* If there are any objects having the same color in front or the sky is shot, the automatic white balance may not be made properly. In this case, change the direction of the sensor or adjust the sensor according to Section 8.2.

- 2) Set the switch on the full-automatic white PC board to FULL.

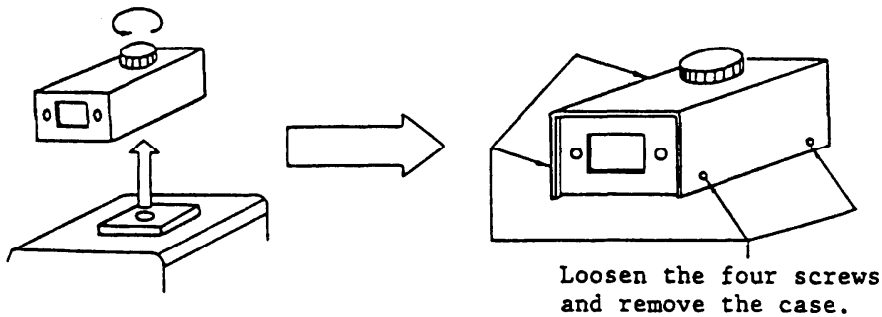


(Set the switch to MAN when the CTS-800 is used.)

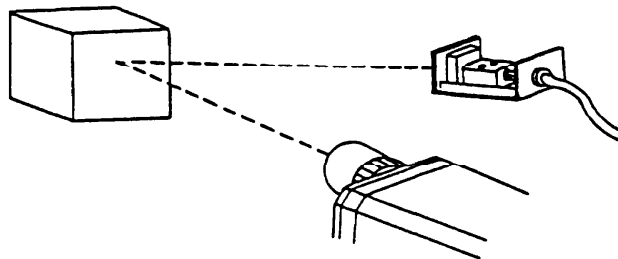
- 3) When the ICD-800 is turned to the object, the white balance is adjusted automatically, so that sharp pictures are obtained.

8-2. If the white balance is not adjusted properly, adjust it by the following procedure.

- 1) Remove the CTS-800 from the camera and loosen the screws to remove the top case.

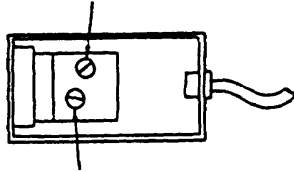


- 2) Shoot the object by the camera and turn the CTS-800 to the same direction.



- 3) Adjust the internal volume of the CTS-800 so that the white part of the object in the picture is the whitest.

This volume must be adjusted with the dedicated measuring instrument. Do not touch it.



Turn this volume
to adjust the white balance.

Ikegami Tsushinki Co., Ltd.

5-8-16 Ikegami, Ohta-ku, Tokyo, Japan
TEL. 03-754-2121/TLX. 2466738 IKETSU J

■ **Ikegami Electronics (U.S.A.), Inc.**

37 Brook Avenue, Maywood, New Jersey 07607, U.S.A.
Phone: (201) 368-9171, Telex: ITCNY 422065

■ **Ikegami Electronics (Europe) GmbH**

Ikegami Strasse 1, 4040 Neuss 1, F.R. Germany
TEL. 02101-123-0/TLX. 8517960 ITC D

■ **Ikegami Electronics (Europe) GmbH U.K. Branch**

61 High Street, Kingston-upon-Thames, Surrey KT11LO. England
TEL. 01-546-7772/TLX. 897005 ITC G