

**Ikegami**



# **INSTRUCTION MANUAL**

**MODEL ICD-40VP**

**B/W CCD CAMERA**

**OUTDOOR USE WARNING**

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

	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p style="margin: 0;"><b>CAUTION</b></p> <p style="margin: 0; font-size: small;">RISK OF ELECTRICAL SHOCK DO NOT REMOVE COVER</p> </div>	
<p><b>CAUTION:</b> 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>		



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.

## CONTENTS

1. General .....	5
2. Features .....	5
3. System Configuration .....	5
4. Precautions .....	5
5. Part Names and Functions .....	6
6. Connections .....	7
7. Operation .....	8
8. Specifications .....	9
9. Block Diagram .....	10
10. External Appearance .....	11

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 manufacturer 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.

## 1. GENERAL

The ICD-40VP is a high-resolution B/W CCD video camera employing a CCD imaging device with approx 280,000 picture elements. Its technical sophistication offers such outstanding features as no geometric distortion or sticking of images, and a longer service life. Intensive use of LSI's and surface mount

devices (SMD's) in the electronics ensures exceptional vibration- and shock-resistant capabilities. Thanks to the VP multiplex transmission system, the camera can be operated with only a single coaxial cable which transmit the video signal while supplying a DC source and a line synchronizing signal.

## 2. FEATURES

- (1) Compact design with intensive use of LSI's and surface mount devices (SMD's)
- (2) Free from sticking (image burn) problems for a longer life
- (3) Unmatched electromagnetic compatibility (EMC)
- (4) Exceptional vibration- and shock-resistant performance
- (5) Provided with flangeback adjustment mechanism
- (6) Dedicated power supply box PB-40 featuring the line lock function for signal synchronization

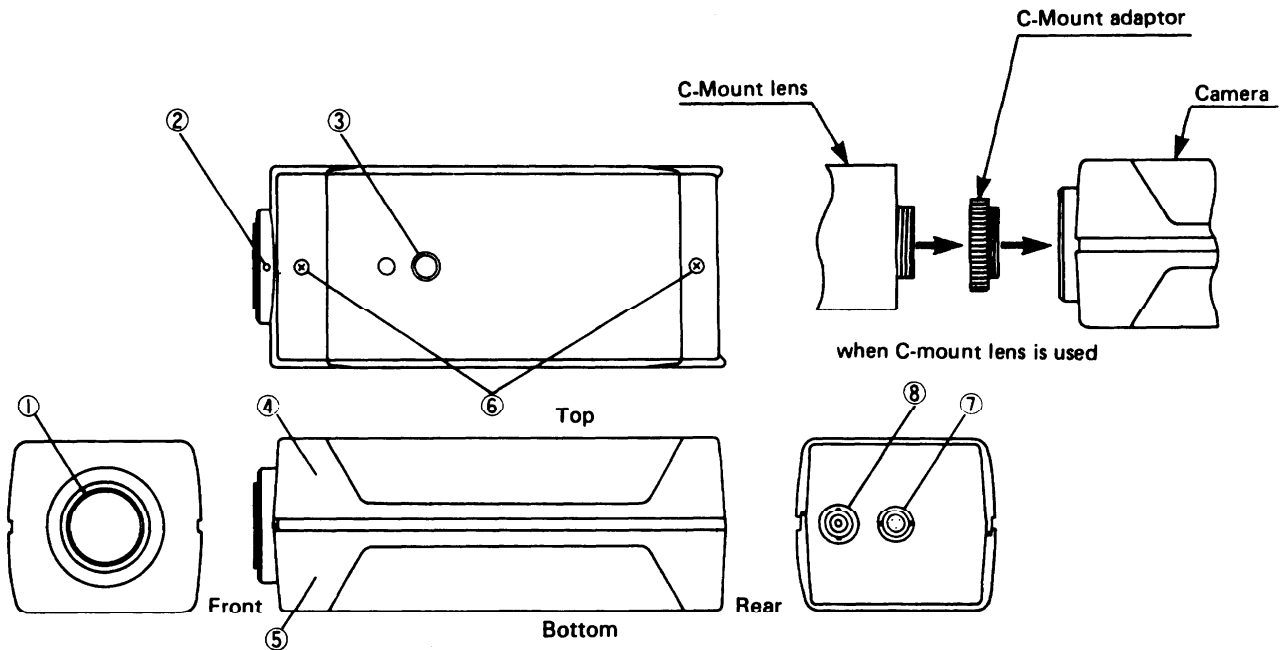
## 3. SYSTEM CONFIGURATION

- (1) CCD TV Camera ICD-40VP ..... 1 unit
  - (2) Connector for Auto-Iris Lens R05-PB3M ..... 1 pc.
  - (3) Instruction Manual ..... 1 vol.
  - (4) Power Supply Box PB-40\* ..... optional
- \* The ICD-40VP should always be operated with the dedicated power supply box PB-40. Please order this option if you do not already possess it.

## 4. PRECAUTIONS

- (1) Do not open the camera housing unless it is absolutely needed. Tampering with the internal precision electronics may result in an equipment failure. Consult qualified service personnel for internal adjustment.
- (2) Do not install the camera at a location subjected to watersplash or in a damp environment. It should be operated within an ambient temperature range of  $-5^{\circ}$  to  $+40^{\circ}\text{C}$ .
- (3) Make sure the power supply is switched off before starting installation or wiring of the camera.
- (4) Do not touch the CCD faceplate in any occasion.

## 5. PART NAMES AND FUNCTIONS



① **Lens mount (CS-mount)**

Threaded for easy mounting of the lens. The camera comes with a CS-mount for a flangeback setting of 12.5 mm as standard. Use the CS-mount lens. When using the C-mount lens, attach the optional C-mount adaptor by screwing it to the front of the CS-mount to change flangeback to 17.526 mm.

Be ware that the C-mount lens will not properly focus if it is directly mounted to the CS-mount of the camera due to the difference in flangeback setting.

② **Optical focus fixing screws**

The optical focus mechanism of this camera employs a system to adjust the flangeback setting by moving the lens mount back and forth while rotating it. There are provided two screws, one on the upper side and the other on the left side of the lens mount as viewed from the front, to fix the lens mount in position after optical focus adjustment.

③ **Camera mount**

There are provided two screw holds, one on the top and the other on the bottom of the camera body, to mount it on a camera holder, tripod, or the like.

④ **Top cover**

This is the upper half of the camera housing.

⑤ **Bottom cover**

This is the lower half of the camera housing.

⑥ **Camera cover fixing screws**

There are two screws each fixing the top and bottom camera covers.

⑦ **Auto-Iris lens connector (AI)**

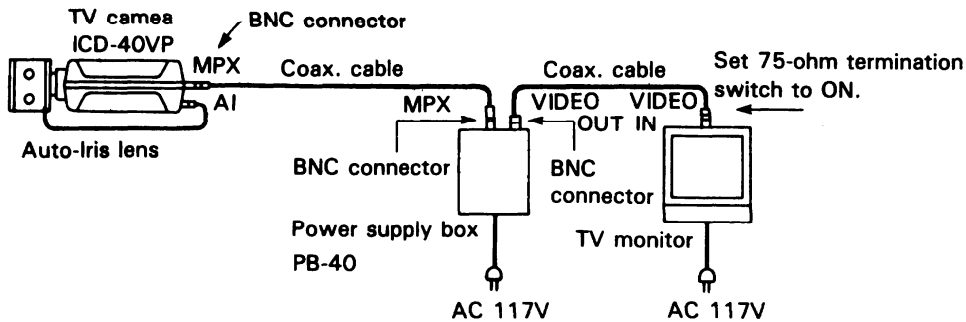
Outputs a 9V DC source voltage needed for operating the auto-iris lens and a video signal.

⑧ **VP multiplex connector (MPX)**

A BNC connector for input/output of the multiplex video signal and DC power supply for the camera. Do not connect the BNC plug to other camera than the ICD-40VP since a DC source voltage is present.

## 6. CONNECTIONS

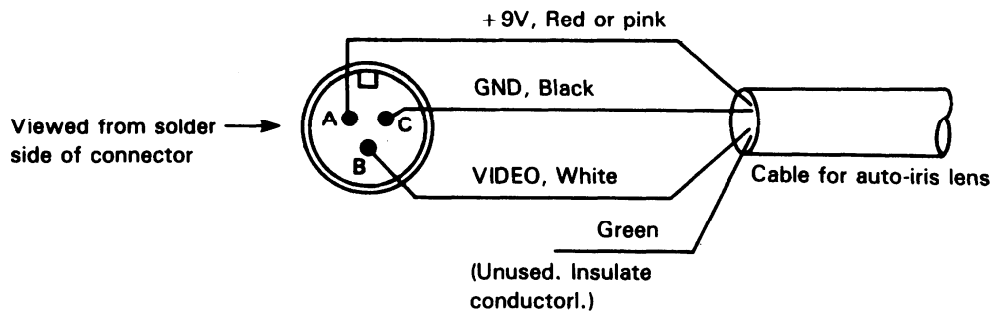
### 6-1 Connecting the Camera to the Power Supply Box



- (1) Connect the coaxial cable coming from the TV camera to the VP multiplex connector (MPX) of the power supply box.
- (2) Before using the coaxial cable, be sure to check that its central conductor is not shorted to the outer shield to prevent possible equipment failure.
- (3) Connect between the VIDEO OUT connector of the power supply box PB-40 and the VIDEO IN connector of the TV monitor with the coaxial cable.
- (4) Connect the power cords of both the power supply box and TV monitor to 117 V AC power outlets.

### 6-2 Connecting the Auto-Iris Lens

- (1) This camera is not equipped with a lens. Use the optical auto-iris lens optionally available. Take the following steps to connect the lens to the camera.
- (2) Prepare the auto-iris camera connector R05-PB3M supplied (mfd. by TAJIMI).
- (3) Solder three wires of the auto-iris lens cable to the connector as shown below.



- (4) Install the lens firmly to the C-mount of the camera, then plug the connector on the back of the camera.
- (5) The auto-iris lens should be of 9 V DC, 40 mA max. type.

## 7. OPERATION

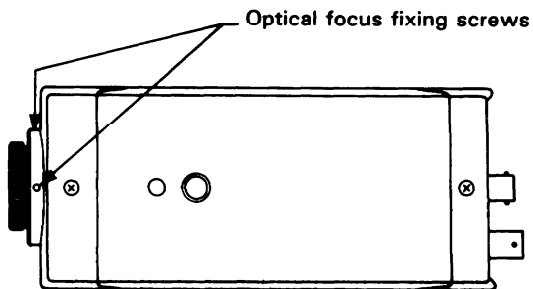
### 7-1 Power-on

There is no power switch on the camera. To supply power to the camera, make sure the camera is connected to the dedicated power supply box PB-40 via the coaxial cable, and turn on the power switch on it. Now, the camera is ready to operate.

### 7-2 Lens Focus Adjustment

While observing the picture on the TV monitor, rotate the focus ring of the lens for optimum focussing. If you cannot obtain optimum focussing by rotating the focus ring, loosen the two optical focus fixing screws and with the lens installed on the C-mount, rotate the C-mount to complete flangeback adjustment. (Refer to paragraph 7-3 for details.)

### 7-3 Optical Focus Adjustment



- (1) Loosen the two optical focus fixing screws.
- (2) With the focus ring of the lens fully turned to the direction of infinity ( $\infty$ ), aim at a distant object, 20 m or more away. Then rotate the lens together with the C-mount of the camera for a sharp image.

Once the infinity adjustment is perfect, the lens can be focused only with the focus ring.

- (3) Fasten the two optical focus fixing screws.

### 7-4 Video Level Adjustment

#### (Auto-Iris Lens Adjustment)

- (1) The video level is adjusted by changing the iris of the lens.
- (2) The auto-iris lens has two adjusters marked "LEVEL" and "ALC". Open the caps of the adjusters and adjust the iris in the following manner:
- (3) Fully turn the ALC adjuster to the direction of "A" or "Av" (average).
- (4) Aim the camera at an object which gives a black and white area ratio of about 50%. Set the LEVEL adjuster so that the video level becomes 0.7 Vp-p at the bright portion of the image. (The setting is usually obtained where you get an optimal image with respect to the screen contract on the TV monitor.)

Remember that too dark a target may not permit you optimum adjustment resulting in a malfunction of the lens; for example, the iris may stick to the open or closed position disabling further adjustment.

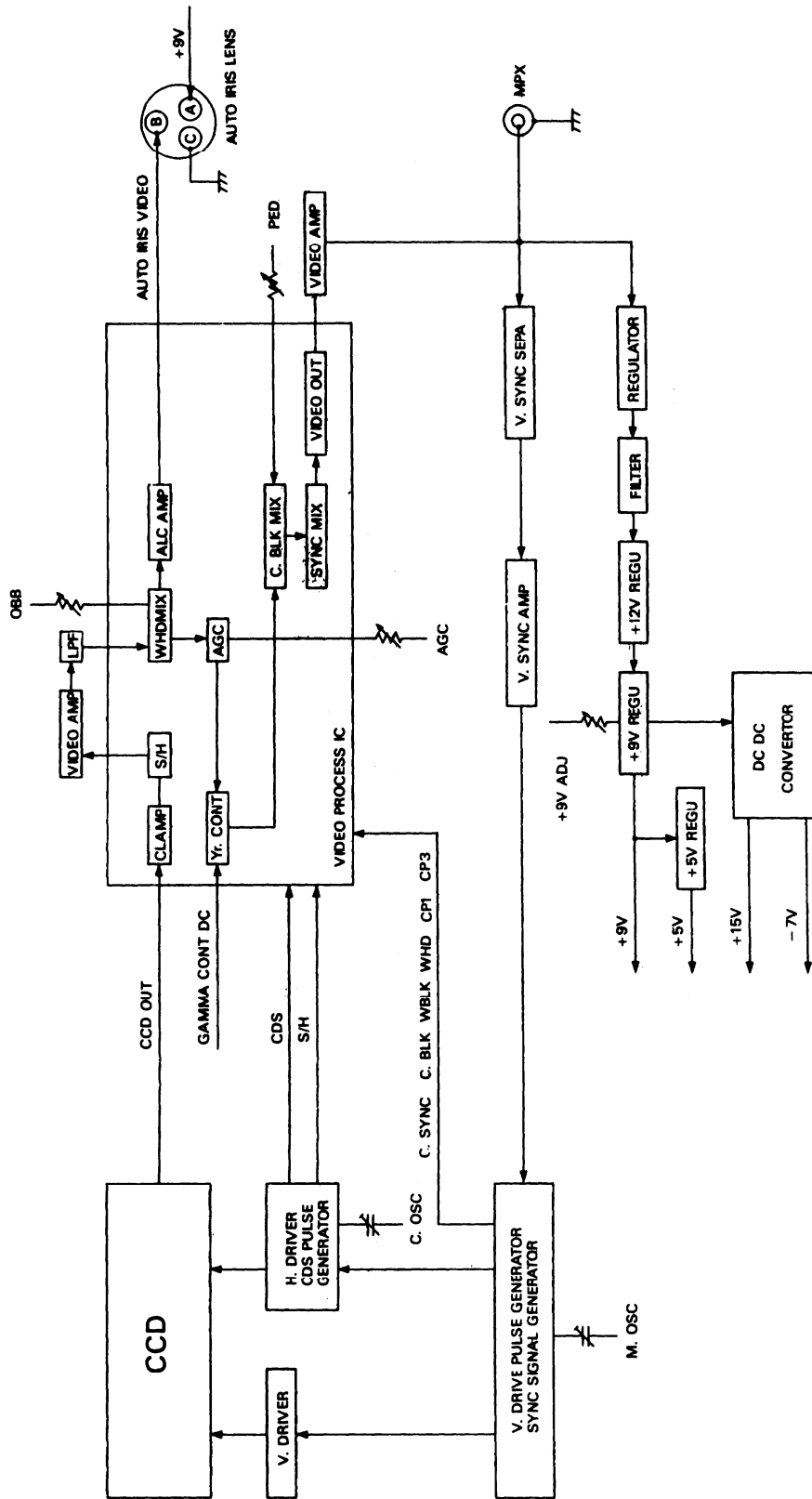
- (5) Aim at the actual target which you wish to shoot. Set the ALC adjuster between the "A" or "Av" position and the "P" or "Pk" position to obtain an optimal image at an appropriate contract on the TV monitor.

When the bright portion is too broad, turning the ALC adjuster will not cause a significant change to the picture.

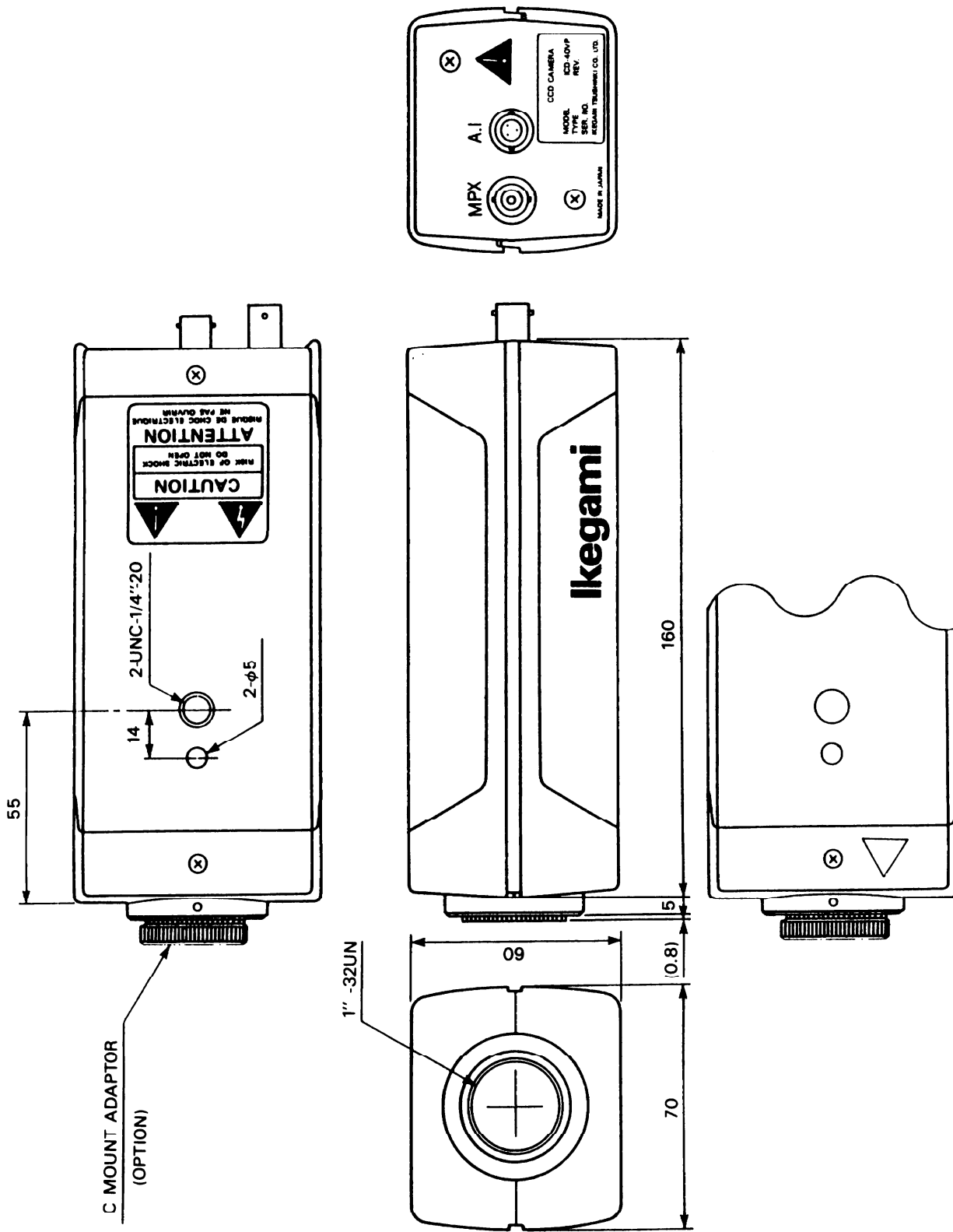
## 8. SPECIFICATIONS

(1) Image device:	1/2 inch, interline transfer type CCD	
(2) No. of picture elements:	Horizontal	570
	Vertical	485
(3) Image size:	6.5 (H) x 4.85 (V) mm	
(4) Scanning system:	525 lines/60 Hz, 2:1 interlace	
(5) Synchronization system:	External synchronization (V. sync PLL) by multiples system	
(6) Scanning frequencies:	Horizontal	15.75 kHz
	Vertical	60 Hz
(7) Video output:	SPECISIC multiplex signal (incl. video, power supply and sync signals)	
(8) Video output load impedance:	75 ohms	
(9) Resolution:	Horizontal	424 TV lines
	Vertical	350 TV lines
(10) S/N ratio:	46 dB (p-p/rms) or better	
(11) Illuminance (Light source of color temperature 3000°K)	Faceplate	Object*
Standard illuminance:	4.5 lux (0.42 fc)	45 lux (4.2 fc)
Minimum illuminance:	0.15 lux (0.014 fc)	1.5 lux (0.14 fc)
* Reflectance ratio of object 89%, measured with a F1.4 lens.		
(12) AGC:	Provided	
(13) GAMMA:	Approx. 0.45	
(14) Peak white clipper:	Provided	
(15) Auto-Iris function:	Video signal and DC power supply connector provided as standard	
(16) Power supply:	Multiplex system; requires dedicated power supply box PB-40 and single coaxial cable.	
(17) Current drain:	Approx. 300 mA	
(18) Operation temperature range:	-10° to +50°C	
(19) Lens mount:	CS-mount, C-mount adaptor (optional)	
(20) I/O connectors:	1) MPX (power supply, sync signal and video signal), BNC-type	
	2) Auto-iris lens output, R05-R3F	
(21) External dimensions:	70 (W) x 60 (H) x 160 (D) mm	
(22) Weight:	Approx. 650 g	
(23) Accessories:	1) Connector for auto-iris lens R05-PB3M ..... 1 pc.	
	2) Instruction manual ..... 1 vol.	

# 9. BLOCK DIAGRAM



# 10. EXTERNAL APPEARANCE



# **Ikegami Tsushinki Co., Ltd.**

5-6-16 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. 2627-2101365 = IKE

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

Kestrel Court, Pound Road, Chertsey, Surrey KT16 8ER, England  
TEL. 01-546-7772 & 0932-568966/TLX. 897005 ITC G

PRINTED IN JAPAN