

CCD CAMERA

IK-540A

Please read this manual thoroughly before use, and keep it handy for future reference.

Record in space provided below the Model No. and the Seral No. as found on the label on the bottom of this unit.

Model. No. IK-540A Serial No. _____

Retain this information for future reference.

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IMPORTANT SAFEGUARDS

1. Read Instructions

All the safety and operating instructions should be read before the product is operated.

2. Retain Instructions

The safety instructions and instruction manual should be retained for future reference.

3. Heed Warnings

All warnings on the product and in the instruction manual should be adhered to.

4. Follow Instructions

All operating and use instructions should be followed.

5. Cleaning

Disconnect this video product from the power supply before cleaning.

6. Attachments

Do not use attachments not recommended by the video product manufacturer as they may cause hazards.

7. 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.

8. 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 a child or adult, and serious damage to the product. Use only with stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. Ventilation

This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. 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 location, consult your product dealer.

11. 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, screws and the point where they exit from the product.

12. Lightning

For added protection for this video product 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 power supply and cable system. This will prevent damage to the video product due to lightning and power-line surges.

13. Overloading

Do not overload power supply and extension cords as this can result in a risk of fire or electric shock.

14. 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 electrical shock. Never spill liquid of kind on the video product.

15. 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.

16. Damage Requiring Service

Disconnect this video product from the power supply and refer servicing to qualified service personnel under the following conditions.

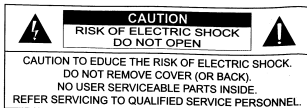
- when the power-supply cord or plug is damaged.
- if liquid has been spilled, or objects have fallen into the video product.
- if the video product has been exposed to rain or water.
- if the video product does not operate normally by following the operating instructions in the instruction manual. Adjust only those controls that are covered by the instruction manual 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.
- if the video product has been dropped or the cabinet has been damaged.
- When the video product exhibits a distinct change in performance—this indicates a need for service.

17. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer of have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

18. 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.



- The CAUTION label, shown on the left, is attached on the bottom of camera.



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.

WARNING :

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

• **CAUTION**

CONNECT 24V AC UL LISTED CLASS 2 POWER SUPPLY.

FIELD INSTALLATION MARKING :

WORDED : "THIS INSTALLATION SHOULD BE MADE BY A QUALIFIED SERVICE PERSON AND SHOULD CONFORM TO ALL LOCAL CODES."

INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER CAUTION : Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party

1. FEATURES & DESCRIPTION :

This camera is a high resolution CCD MONOCHROME video camera designed for EIA system. With the adoption of a CCD, the camera produces an image with reduced lag, little geometric distortion and has good resistance to vibration and mechanical shock. With those features shown below, this series is suitable for surveillance application or as an input device for an image processing system.

(1) High resolution :

The camera can produce an image with horizontal resolution over 570 TV lines.

(2) High sensitivity :

With minimum illumination at 0.015 lux (F1.2, 3200K, AGC WIDE) ensures this unit can produce a good image even in very low light condition.

(3) Since the camera uses AC 24V ~/DC12 V , it can be installed and built into system easily.

(4) Line-lock mode :

Based on this unique design. the image would be stable as viewed from a video monitor controlled by a switcher, so this unit is suitable for surveillance system application.

(5) Automatic electronic shutter (AES) :

The unit automatically adjusts shutter speed according to the subject brightness so that the amount of exposure is steady.

(6) 4-way programmable BLC show window type. Programmable Back Light Compensation gives Four user-selectable zone.

(7) Dynamic range boost increases Dynamic range by 40%.

(8) Easy back focus adjustment and Menu-Driven set-up makes for easy installations.

2. CAUTIONS :

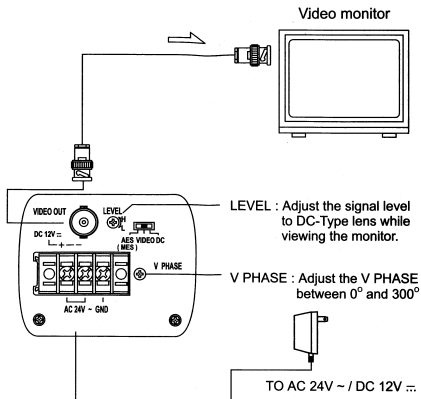
- (1) In order to protect the camera, avoid placing or using it under direct sunlight, rain or dust. (Indoor use only.)
- (2) Don't touch the CCD sensor directly with your fingers, If necessary, use soft cloth moistened with alcohol to wipe off the dust.
- (3) When the camera is not in use, keep the lens or cap being attached to protect the CCD sensor.
- (4) Connect AC 24V UL listed class 2 or DC 12V for power supply. Never input AC 24V and DC 12V at the same time.
- (5) Don't drop your camera or give it a strong shock or vibration, or it will incur malfunction.
- (6) Keep clean the video out connector and Power input terminals.

3. SYSTEM COMPONENTS :

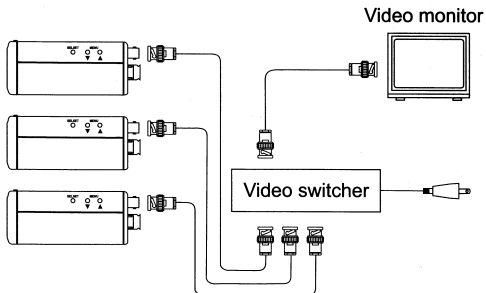
Camera	1
Instruction manual	1
Lens mount cap	1
IRIS 4 pins plug, E4-191J-100	1

4. CONNECTION :

(1) When using one camera and one monitor :



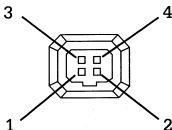
(2) when using several cameras and one monitor :



- (3) When using the auto IRIS lens (with amplifier) :
- Set the slide switch (on rear panel) to VIDEO position.
 - Connect the AI lens cable to the IRIS connector on left side of camera.
- (4) When using the auto IRIS lens (without amplifier) :
- Set the slide switch (on rear panel) to DC position.
 - Connect the auto IRIS lens cable to the IRIS connector on left side of camera.
- NOTE : Please refer to the pin definitions and figure shown below to ensure correct operation.

IRIS pin definitions

	VIDEO	DC
1	+ 12V	DAMP - (y)
2	NC	damp + (r)
3	VIDEO	DRIVER + (wh)
4	GND	DRIVER - (g)

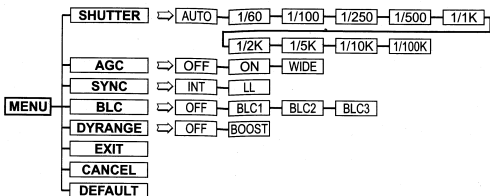


5. OPERATION PROCEDURE :

- Before operation make sure the power source is correct for your camera.
- Install lens to the camera.
- Connect the VIDEO output to the Video monitor. The picture will appear on the monitor screen as the power is supplied to the camera.
- Adjust the focus and aperture of the lens to get a best quality image.
- Back focus adjustment :
 In general, the back focus is calibrated in the factory. So readjustment is unnecessary. But depending on your application, back focus readjustment may be necessary. In this case, set the focus ring of the lens to the ∞ position and take a picture at a distance of 20m or more. Then, loosen the focus lock screw and turn the focus ring till the picture on the monitor is in focus. Now tighten the focus lock screw.

5-1. Menu-Driven set-up

The setting menus of hierarchy are shown below and with on-screen character displays.



5-2. Setting switches and the functions

On the side panel of the camera there are three push button switches as shown below :

Switch name	Main function
SELECT	Setting mode call on / off, setting entry
▼	Setting item selection (down)
▲	Setting item selection (up)

5-3. Setting mode call and basics

Press the SELECT switch down about 2 seconds then menu will appear on the display.

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT	CANCEL
DEFAULT	DEFAULT

5-3-1. Shutter (Exposure time)

Set the slide switch (on rear panel) to AES / (MES) position. Move the cursor to the position as shown in Fig. Using the SELECT switches, choose the shutter speed from AUTO through 1/100K

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT	CANCEL
DEFAULT	DEFAULT

AUTO (AES)

1/60, 1/100, 1/250, 1/500, 1/1K, 1/2K, 1/5K, 1/10K, 1/100K (MES)

When the rear panel switch is turned to VIDEO or DC, the exposure time is fixed 1/60 sec, and shutter mode turn to IRIS.

5-3-2. AGC

Move the cursor to the position shown in Fig.
Using SELECT switches, to select ON, WIDE,
OFF

- A. ON (Standard position, max gain = 18dB)
- B. WIDE (High-Sensitivity position, max gain = 32dB)
- C. OFF

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT CANCEL DEFAULT	

5-3-3. SYNC

Move the cursor to the position shown in Fig.
Using the SELECT switches, to select INT or LL
in the SYNC item.





- A. INT : The camera is in the internal SYNC mode.
- B. LL : The camera is in the Line-Lock Mode.
Setting 0 to 300 degree by adjusting
the V phase of rear panel.

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT CANCEL DEFAULT	

5-3-4. BLC (BACK LIGHT COMPENSATION)

Move the cursor to the position shown in Fig.
Using the SELECT switches, select the OFF,
BLC1, BLC2, BLC3. When the automatic
electronic iris and the auto iris lens used the
exposure adjustment is automatically performed
so that a best picture is obtained at next monitor
zone. There are 4 ways BLC function for different application. The window
area of BLC show as below:

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT CANCEL DEFAULT	

OFF	BLC1	BLC2	BLC3
Video monitor 	Video monitor 	Video monitor 	Video monitor 
BLC area will appear on the monitor screen as the BLC function is selected.			

5-3-5. DYRANGE (Dynamic - Range Boost)

Move the cursor to the position in Fig. Using the SELECT switches, SELECT the OFF, BOOST. It is changed the video output from 115 IRE to 155 IRE.

- A. OFF (Standard position, max 115 IRE)
- B. Boost (High dynamic range position, Max 155 IRE)

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT CANCEL DEFAULT	

5-3-6. EXIT

Move the cursor to the position in Fig. Press the SELECT switch when save all settings and exit.

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT	CANCEL DEFAULT

5-3-7. CANCEL

Move the cursor to the position in Fig. Press the SELECT switch, exit menu immediately and don't save.

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT	CANCEL DEFAULT

5-3-8. DEFAULT

Move cursor to the position in Fig. Press the SELECT switch to recall the factory settings.

Default position is below :

SHUTTER	AUTO / IRIS
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF

SHUTTER	AUTO
AGC	ON
SYNC	LL
BLC	OFF
DYRANGE	OFF
EXIT CANCEL	DEFAULT

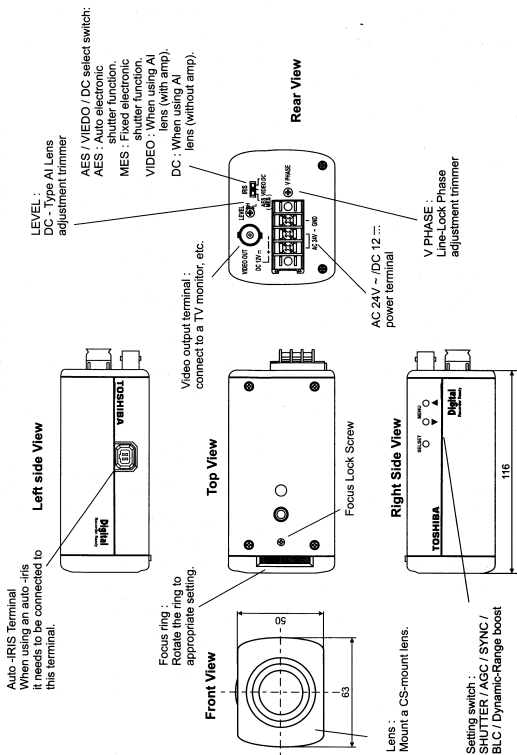
6. SPECIFICATION :

IK-540A

CCD CAMERA EIA SYSTEM

Image Area	4.96mm(V) x 6.0mm(H)
Pickup Elements	768(H) x 494(V) Pixels 1/3" Interline Transfer CCD
Scanning System	2 : 1 Interface EIA, V : 60Hz, H : 15.750kHz
Sync System	L/L and INT selectable
Video Output	1V (p-p) Composite Output, 75ohms
Lens Mount	CS Mount
Resolution	570 TV Lines (Horizontal)
Gamma Correction	0.45
Minimum Illumination	0.015LUX (F1.2, 3200°K, AGC WIDE)
S/N Ratio	50dB
Power Requirement	AC 24V ~ / DC 12V ∴
Power Consumption	3.5W (max) with AI Lens
Ambient	-10 ~ 50°C / 30 ~90% RH
Dimensions	116(L) x 63(w) X 50(H)mm 4.56(L) x 2.74(W) x 1.97(H) inch
Weights	450g
Shutter Control	Auto : 1/60 To 1/100000 Sec.
Iris Control	Video Out / Iris Driver Circuit Built in
Gain Control	Average AGC , On (18dB) , Wide (32dB)

7. PART NAMES & FUNCTIONS :



TOSHIBA

LIMITED WARRANTY TOSHIBA CCD CAMERA

Imaging Systems Division of Toshiba America Information Systems, Inc. ("ISD") makes the following limited warranties. These limited warranties extend to the Original End-User Purchaser.

Limited One (1) Year Warranty of Labor and Parts

ISD warrants this product and its parts against defects in materials or workmanship for a period of one year after the date of original retail purchase.

During this period, ISD will repair a defective product or parts, without charge to you. You must deliver the entire product to a ISD Authorized Service Provider.

You pay for all transportation and insurance charges for the product to the Authorized Service Provider.

Instruction Manual

You should read the instruction manual thoroughly before operating this product.

Your Responsibility

The above warranties are subject to the following conditions:

1. You must retain your bill of sale or provide other proof of purchase.
2. You must notify ISD Authorized Service Provider within thirty(30) days after you discover a defective product or parts.
3. All warranties of this product must be made by ISD Authorized Service Provider.
4. These warranties are effective only if the products is purchased and operated in the U.S.A.
5. Labor service charges for installation and adjustment of customer controls are not covered by this warranty.
6. Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or to damage to product or parts caused by misuse, accident, improper installation, improper maintenance or use in violation of instructions furnished by us; or to units which have been altered or modified without authorization of ISD or to damage to product or parts there of which have had the serial number removed, altered, defaced or rendered illegible.

Step-By-Step Procedures - How to Obtain Warranty Service

To obtain warranty servicing, you should:

1. Arrange for the delivery of the product to ISD Authorized Service Provider. Products shipped to the Authorized Service Provider must be insured and safely and securely packed, preferably in the original shipping carton, and a transportation and insurance charges must be prepaid by you.
2. If you have any question about service, please contact the ISD service department at the following address :

Address TOSHIBA AMERICA INFORMATION SYSTEMS, INC.
IMAGING SYSTEMS DIVISION ("ISD")
9740 Irvine Boulevard
Irvine, California 92618-1697
Telephone (714)461-4989, 4992

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IN NO EVENT SHALL ISD BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages may not apply to you.

No person, agent, distributor, dealer, Service station or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of ISD arising under this warranty or under any statute, or law of the United States or any state there of, is here by limited to one year from the date you discover or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law. Some states do not permit limitation of the time within which you may bring an action beyond the limits provided by state law so the above provision may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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