

# TOSHIBA

## INSTRUCTION MANUAL

DOME CAMERA

ZEIM-4000100G A.1

# IK-DF02A

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

Record in space provided below the Model # and the Serial # as found on the label on the bottom of this unit.	
Model # IK-DF02A	Serial # _____
Retain this information for future reference.	

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<p>For information on the latest our products and peripheral devices, refer to the following Web page.</p> <p>■ <a href="http://www.ipvideo.toshiba.com">http://www.ipvideo.toshiba.com</a></p>
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The above URL is subject to change without prior notice. If the URL changes, refer to the Toshiba website (<http://www.toshiba.com>.)

# 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. Warnings

Comply with all warnings on the product and in the instruction manual.

## 4. Follow Instructions

Follow all operating and use instructions.

## 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. Some examples are: near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

## 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 person, or 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. If this product is placed in a built in installation verify that there is proper ventilation so that the camera temperature operates within the recommended temperature range.

## 10. Power Sources

This video product should be operated only from the type of power source indicated on the information label. If you are not sure of the type of power supply at your location, consult your product dealer.

## 11. Power-Cord Protection

Power cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, screws and the point where they exit the product.

## 12. Installation

Install this video product on a secure part of the ceiling or wall. If installed on a unsecured location the camera could fall causing injury and damage.

## 13. Lightning

For additional protection on 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. If lightning occurs, do not touch the unit or any connected cables in order to avoid electric shock.

## 14. Overloading

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

## 15. Object and Liquid Entry

Never push objects of any kind into this video product through openings as they may touch dangerous electrical points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the video product.

## 16. Servicing

Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous electrical or other hazards. Refer all servicing to qualified service personnel.

## 17. 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 cover has been damaged.
- When the video product exhibits a distinct change in performance which indicates a need for service.

## 18. Replacement Parts

When replacing parts be sure the service technician uses 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.

## 19. 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 camera.

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.



The lightening 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."

**FCC (USA)-INFORMATION**

**NOTE :** 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.

## **Disclaimer**

We disclaim any responsibility and shall be held harmless for any damages or losses incurred by the user in any of the following cases:

1. Fire, earthquake or any other act of God; acts by third parties; misuse by the user, whether intentional or accidental; use under extreme operating conditions.
2. Malfunction or non-function resulting in indirect, additional or consequential damages, including but not limited to loss of expected income and suspension of business activities.
3. Incorrect use not in compliance with instructions in this instruction manual.
4. Malfunctions resulting from misconnection to other equipment.
5. Repairs or modifications made by the user or caused to be made by the user and carried out by an unauthorized third party.
6. Notwithstanding the foregoing, Toshiba's liabilities shall not, in any circumstances, exceed the purchase price of the product.

## **Copyright and Right of Portrait**

There may be a conflict with the Copyright Law and other laws when a customer uses, displays, distributes, or exhibits an image picked up by the camera without permission from the copyright holder. Please also note that transfer of an image or file covered by copyright is restricted to use within the scope permitted by the Copyright Law.

## **Protection of Personal Information**

Images taken by the camera that reveal the likeness of an individual person may be considered personal information. To disclose, exhibit or transmit those images over the internet or otherwise, consent of the person may be required.

## **Usage Limitation**

The product is not designed for any "critical applications." "Critical applications" means life support systems, exhaust or smoke extraction applications, medical applications, commercial aviation, mass transit applications, military applications, homeland security applications, nuclear facilities or systems or any other applications where product failure could lead to injury to persons or loss of life or catastrophic property damage. Accordingly, [Toshiba/TAIS] disclaims any and all liability arising out of the use of the product in any critical applications.

# 1. FEATURES AND DESCRIPTION

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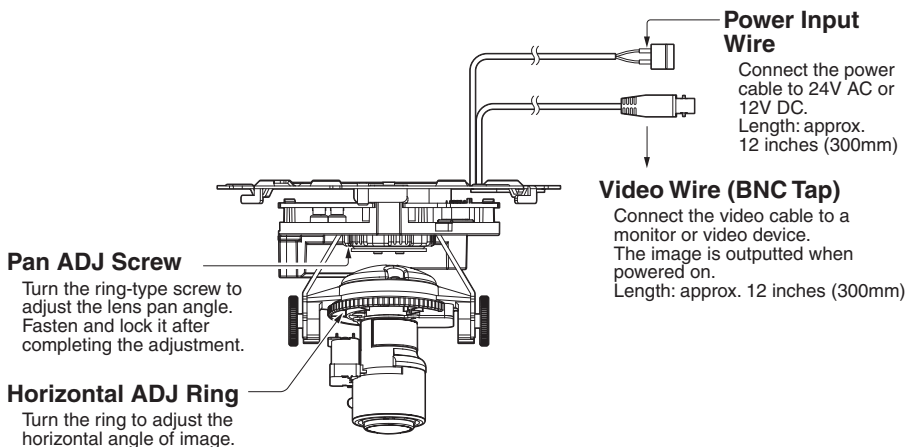
- 1. 24V AC/12V DC dual-voltage capability extends power options.
- 2. Camera has the ability to automatically switch to color in daylight or black and white at night.
- 3. Camera synchronization mode is selectable between internal and line lock.
- 4. Back Light Compensation (BLC) adjusts for strong backlight conditions.
- 5. White balance is automatically adjusted depending on color temperature variations (AWB).
- 6. Built-in varifocal lens with auto-iris. Focal length 2.8 ~ 10 mm.
- 7. Built-in 1/3 inch high resolution CCD.
- 8. Minimum illumination of 0.5 lux with smoke cover.
- 9. S/N ratio of 50dB.

# 2. COMPONENTS

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- (1) Camera ..... 1
- (2) Accessories
  - (a) Instruction Manual ..... 1
  - (b) Screws ..... 4
  - (c) Monitor Out Harness Wire ..... 1
  - (d) Instruction (Tamper Resistant) ..... 1
  - (e) Wire Tie ..... 2

### 3. PART NAMES AND FUNCTIONS



#### Lens Iris ADJ

Use to compensate for the iris level.  
Turn toward L (low) for a darker picture.  
Turn toward H (high) for a brighter picture.  
Optimum value is adjusted at the default setting.

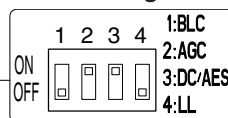
#### V Phase ADJ

Adjust the phase difference between this camera and other cameras in Line Lock mode.

#### Tilt ADJ Screws

Turn the screws to adjust the lens tilt angle. Fasten and lock them after completing the adjustment.

#### Mode Setting Switch



- 1: BLC (Backlight Compensation Control)**  
When switched on, it automatically adjusts to compensate for subjects that are lit from behind.
- 2: AGC (Auto Gain Control)**  
When switched on, it automatically adjusts the image in relation to the brightness of the subject.
- 3: DC/AES**  
Not available for this camera. Be sure to switch to ON.
- 4: LL (Line Lock)**  
When switched on, its function is activated. Line Lock is available with 24V AC only.

#### MON (Monitor Out)

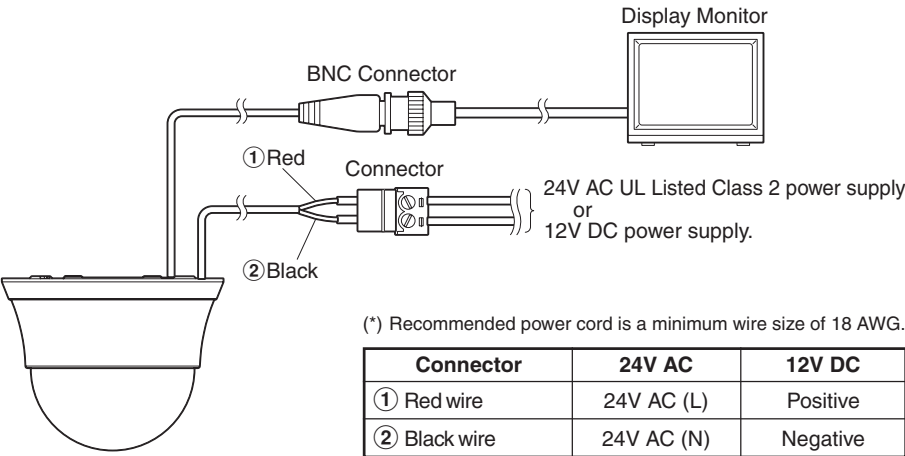
When installing the camera, it is available to check the image with monitor out harness wire.

# 4. CONNECTIONS

## Notes on connecting

- Power plugs of connected equipment must be disconnected before camera installation.
- A 75-ohm coaxial cable with connector (3C-2V or 5C-2V) is required for standard connection.
- For details of wiring and operation of equipment to be connected, refer to their operation manuals.
- A power supply with cable, connectors and coaxial cable are not supplied with the camera.

## 4-1. Basic connection single system configuration



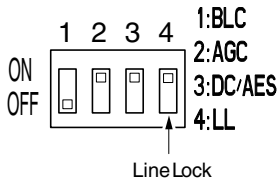
CAUTION: Never input 24V AC and 12V DC at the same time.

## Do not overload power supply

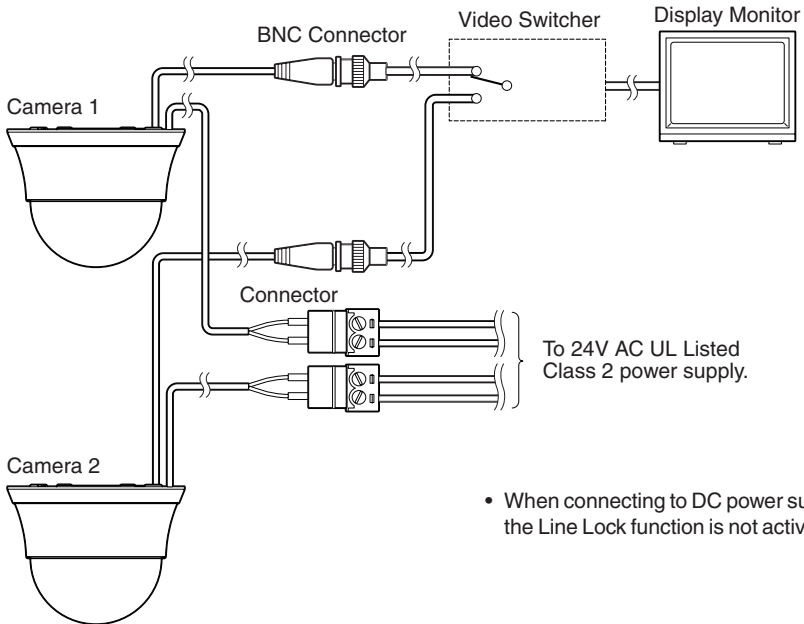
The recommended power supplies for this camera are 6 watt minimum for each 24V AC UL Listed Class 2 power supply or 12V DC power supply.

## 4-2. Line lock Control

- Matching the vertical synchronization with the power frequency is called the Line Lock.
- To activate the line lock, set the LL switch to ON.



- When two or more cameras are switched by the video switcher for viewing with a display monitor the vertical synchronization phase can be locked to the power frequency for a stable vertical synchronization.



- When connecting to DC power supply, the Line Lock function is not activated.

### Note:

- The camera is synchronized to the power frequency of  $60 \pm 1$  Hz covering a normal fluctuation of the power frequency. However, the camera may not cover a large fluctuation caused from the power generated by a generator, etc.
- It takes approximately 10 seconds or more until a stable synchronization is obtained after the power is turned on. This is normal, because several seconds are required to stabilize the camera against power noise.
- Refer to section 7. "LINE LOCK PHASE" for adjustment instructions.



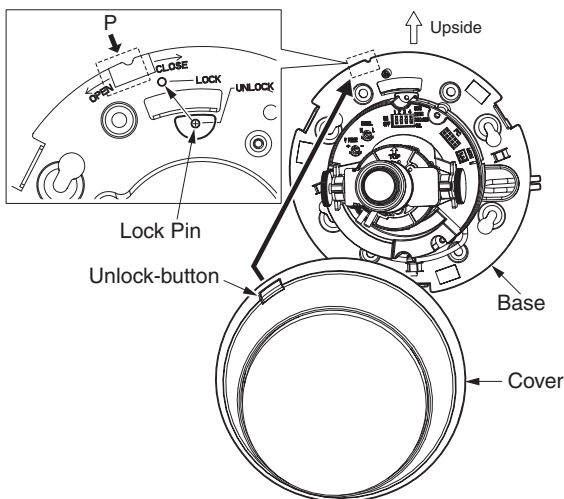
## 5. INSTALLATION

**Note:** The attached screws are used to install the camera to a solid surface. If installing to surfaces of loose or thin materials, use the appropriate anchors (not included) with the screws.

### 5-1. Installing the Camera

#### 5-1-1. Tamper Resistant Feature

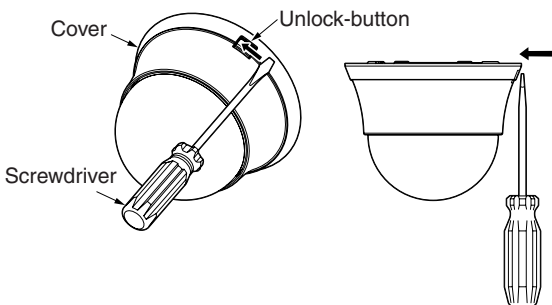
##### Enabling the Tamper Resistant Feature



1. To remove the cover, rotate the cover counter clockwise. Pull on the cover to remove it from the base.
2. Move "Lock Pin" with a screwdriver from "Unlock" position to "Lock" position.
3. Align the "Unlock-button" with position "P". (Refer to the left figure.)
4. Rotate the cover clockwise to lock the cover to the base.

##### Cover Removal with the Tamper Resistant Feature Enabled

**Caution:** Pulling on the cover with excessive force can cause the inner connector to break.



To remove the cover.

1. Unlock the cover by pressing the "Unlock-button" with a screwdriver.
2. While the "Unlock-button" is depressed rotate the cover counter clockwise.
3. Pull on the cover to remove it from the base.

### To Determine Which Set of Mounting Holes to Use

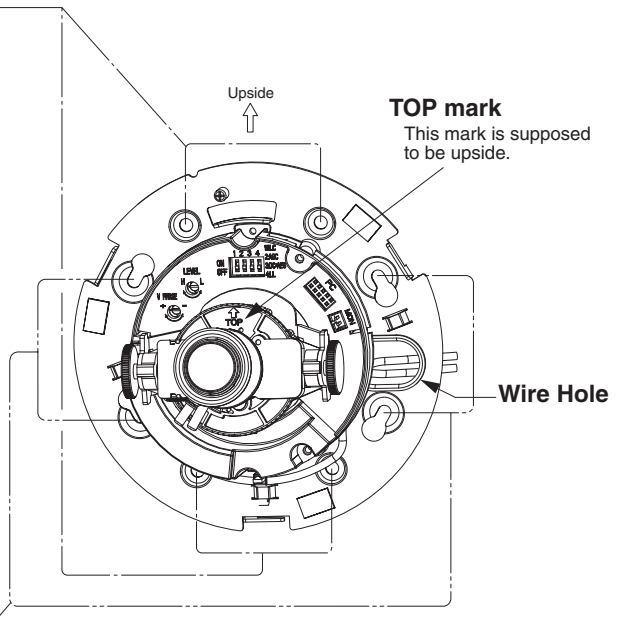
There are two different sets of mounting holes (i and ii).

The set to use depends if the camera is being mounted to a switch box or not and to a wall or ceiling.

**Note:** When determining the orientation of the switch box take into consideration the viewing angle of the unlock-button. If possible, conceal the unlock-button.

### Mounting Holes (i)

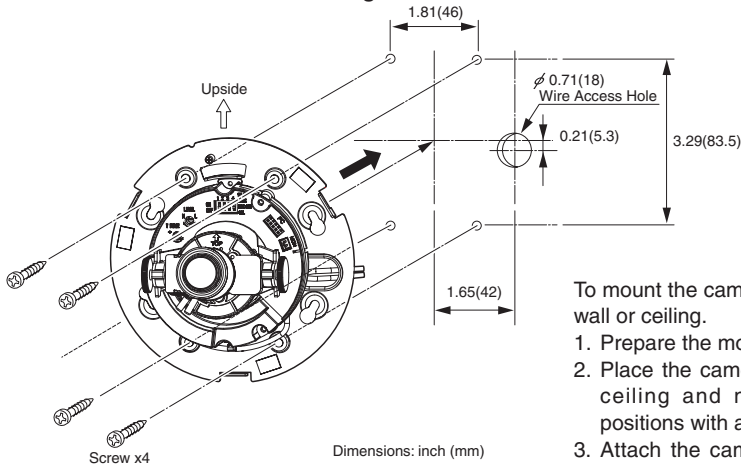
- Installation to a wall or ceiling. (Refer to section 5-1-2.)
- Installation to a switch box positioned normally on a wall. (Refer to section 5-1-3 (i).)
- Installation to a switch box attached to a ceiling. (Refer to section 5-1-3 (i) for switch box orientation.)



### Mounting Holes (ii)

- Installation to a switch box positioned sideways on a wall.  
(Refer to section 5-1-3 (ii).)
- Installation to a switch box attached to a ceiling.  
(Refer to section 5-1-3 (ii) for switch box orientation.)

## 5-1-2. Installation to a Wall or Ceiling



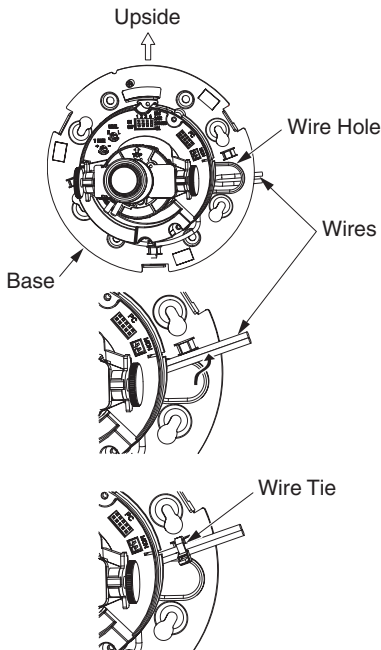
To mount the camera directly on the wall or ceiling.

1. Prepare the mounting space.
2. Place the camera on the wall or ceiling and mark four screw positions with a pen.
3. Attach the camera with the four screws to the wall or ceiling.
4. Fasten all the screws.

**Note:** Verify that the word "TOSHIBA" is on the visible side. When mounting on a wall, orient the camera to face the unlock-button.

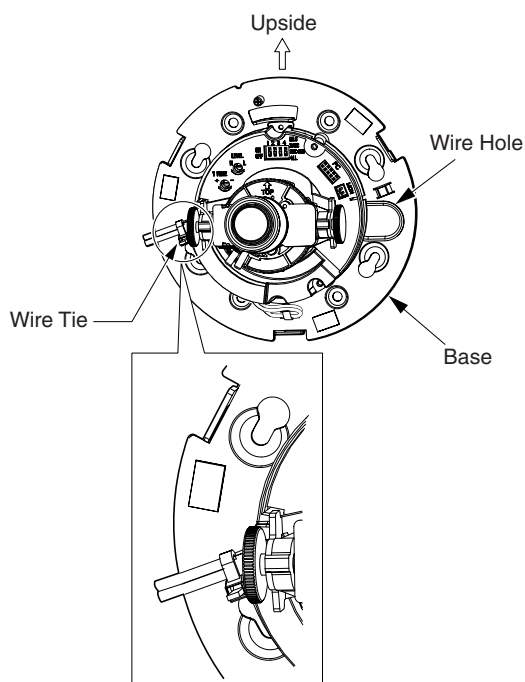
### (i) Rerouting the Wires for Flush Mounting the Camera

A: Routing the Wires to the Right Side



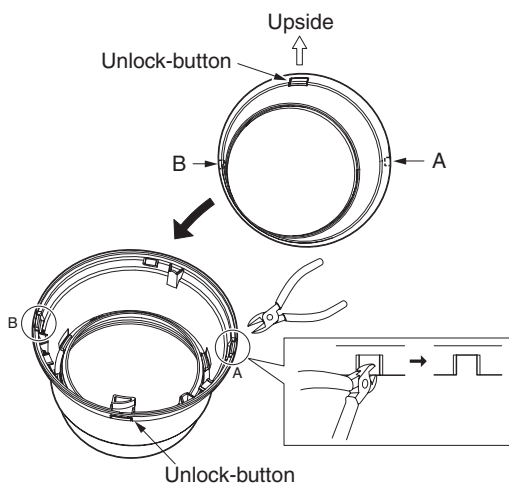
1. Remove the wires from the wire hole and position them to the right of the base.
2. Firmly secure the wires with the wire tie. Do not overtighten the wire tie.

## B: Routing the Wires to the Left Side



1. Remove the wires from the wire hole and position them to the left of the base.
2. Firmly secure the wires with the wire tie. Do not overtighten the wire tie.

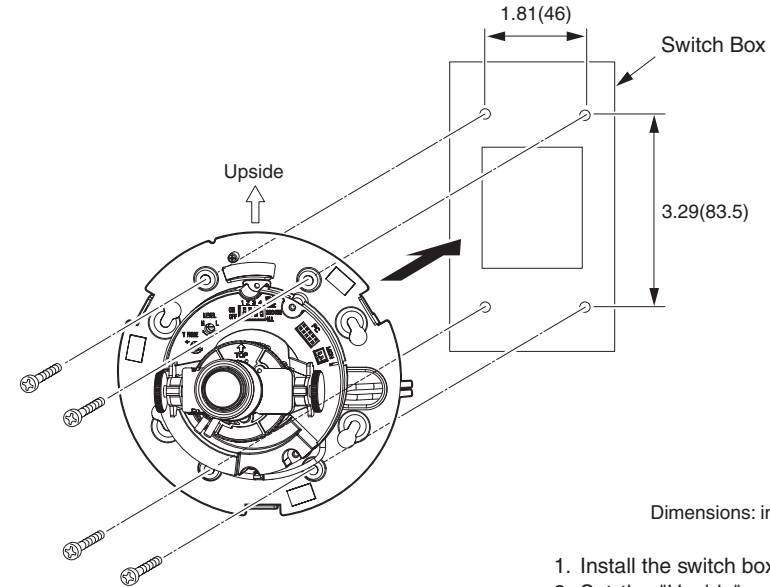
## (ii) Notching Out a Hole for the Wires



- Cut out the knock out, "A" for the right side or "B" for the left side, for the wires.

### 5-1-3. Installation to a Switch Box

#### (i) Mounting the Camera to a Switch Box Positioned Normally on a Wall

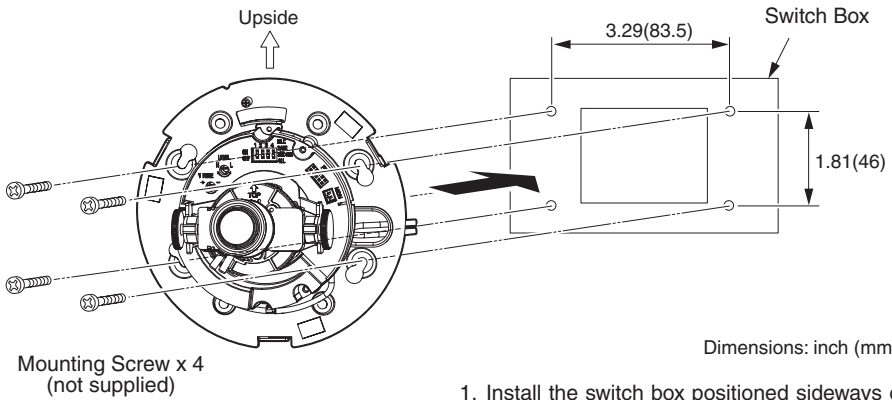


Dimensions: inch (mm)

Mounting Screw x 4  
(not supplied)

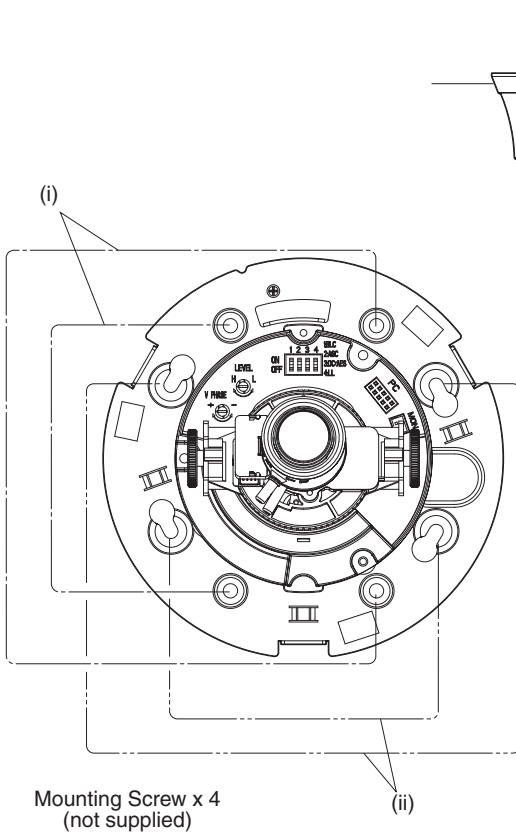
1. Install the switch box.
2. Set the "Upside" on the base to the up position.
3. Attach the camera to the switch box with the four mounting screws.

## (ii) Mounting the Camera to a Switch Box Positioned Sideways



1. Install the switch box positioned sideways on a wall.
2. Attach the four mounting screws to the switch box.
3. Positioning the "Upside" at the top, move the screws through the base and turn the base clockwise.
4. Fasten all the mounting screws.

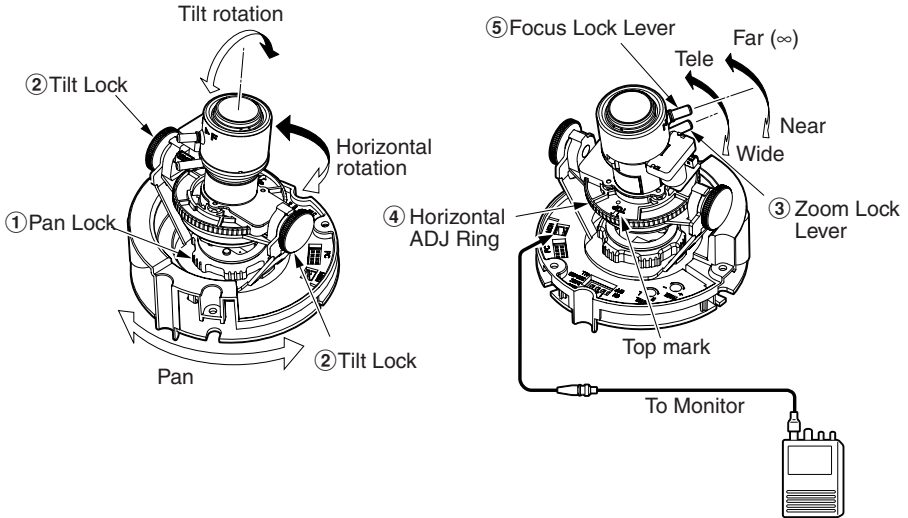
### (iii) Mounting the Camera to a Switch Box Attached to a Ceiling



1. Position the cover to conceal the unlock-button from the visible side.
2. Use the mounting holes (i) or (ii) depending on the direction of the switch box.  
(Refer to section 5-1-3 (i) or (ii).)
3. Attach the camera to the switch box with the four mounting screws.

**Note:** Verify that the word "TOSHIBA" is on the visible side.

## 5-2. Adjusting the Viewing Angle



- (1) To check the video image on the monitor, connect the "Monitor Out Harness Wire" to the connector "MON".
- (2) The lens pan direction can be adjusted by turning pan lock ① counter clockwise to loosen it without moving the lens. Retighten after adjusting.

**Note:**

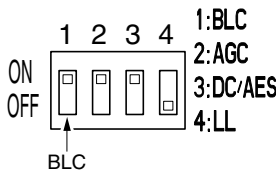
- Do not turn the lens over 360°, otherwise the inner connector may break and the camera will be damaged.

- (3) Tilt angle of the lens can be adjusted within the limit of -73° to +73° by loosening the tilt lock ②. After adjusting, tighten the tilt lock ②.
- (4) Adjust the zoom position by loosening the zoom lock lever ③. After adjusting, tighten the zoom lock lever ③.
- (5) When installing the camera on a wall, manipulate the horizontal ADJ ring ④ to adjust the inclination of the image.
- (6) Adjust the focus by loosening the focus lock lever ⑤. After adjusting, tighten the focus lock lever ⑤.
- (7) Repeat the adjustments from step (1) to step (5) till the optimum image appears.



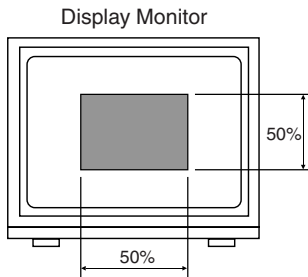
# 6. BACKLIGHT COMPENSATION (BLC)

To activate backlight compensation, set the BLC switch to ON.



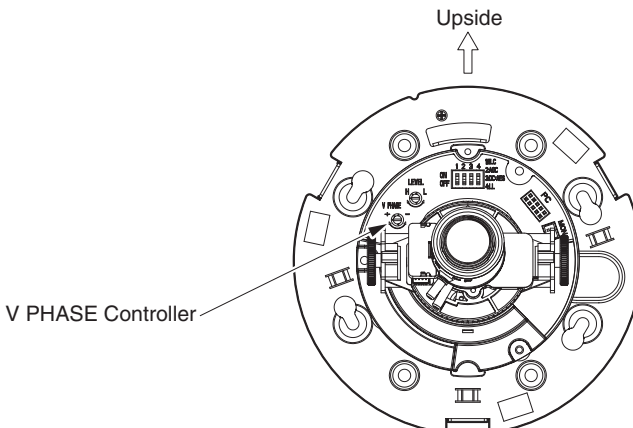
When the automatic electronic iris feature is used with an auto iris lens, the exposure adjustment is automatically performed so that a best picture is obtained at a monitor zone of about 50% in horizontal and about 50% in vertical direction.

This feature is effective when a strong light enters the portion other than this zone and auto iris lens closes and darkens the viewing area.



# 7. LINE LOCK PHASE

If two or more cameras within a system have different AC line phases and they are switched by a video switcher, the picture on the display monitor will fluctuate vertically. Connect 24V AC input lines of all cameras so that they all share the same phase. If you still have vertical fluctuation, adjust the V PHASE controller.



**Note:** Refer to section 4-2. "Line Lock Control".

## 8. NOTES ON USE AND INSTALLATION

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- **Do not aim the camera at the sun**

Never aim the camera at the sun even with the camera power off.

- **Do not shoot intense light**

Intense light such as a spotlight may cause a bloom or smear. A vertical stripe may appear on the screen. However, this is not a malfunction.

- **Treat the camera with care**

Do not drop the camera or subject it to intense vibration.

- **Never touch internal parts**

Do not touch the internal parts of the camera other than the parts specified.

- **Do not splash water on the camera**

Install the camera where the camera can be kept dry. If the camera gets wet, turn off the power and contact your dealer.

- **Keep the camera installation away from video noise**

If cables are wired near electric lighting wires or a TV set, noise may appear in images. In this event, relocate cables or reinstall equipment.

- **Check the ambient temperature and humidity**

Avoid using the camera where the temperature is hotter or colder than the specified operating range. Doing so could affect the internal parts or cause the image quality to deteriorate. Special care is required to use the camera at high temperature and humidity.

- **Should you notice any trouble**

If any trouble occurs while you are using the camera, turn off the power and contact your dealer. If you continue to use the camera when there is something wrong with it, the trouble may get much worse and an unpredictable problem may occur.

## 9. IN CASE OF PROBLEMS

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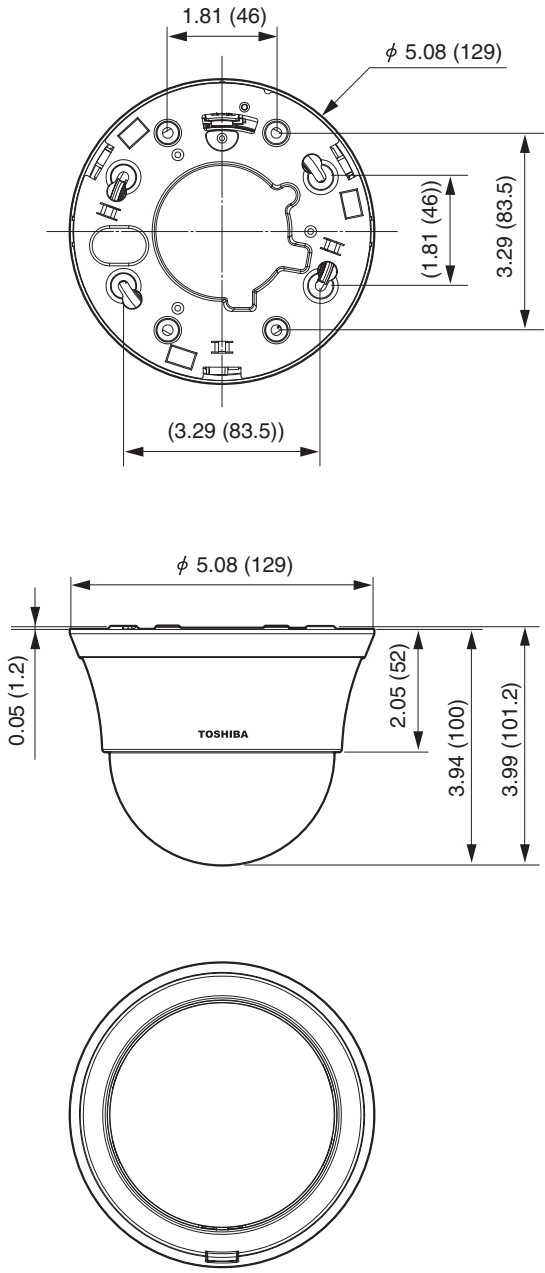
Condition	Check Points
No image	<ul style="list-style-type: none"><li>• Are the camera and connected equipment turned on?</li><li>• Is the mode setting switch DC/AES set to OFF? Be sure to set to ON.</li><li>• Are wires connected correctly?</li></ul>
Unnatural color	<ul style="list-style-type: none"><li>• Is the display monitor adjusted correctly?</li><li>• Is the lighting too dim?</li></ul>
The image is out of focus. The image is dark.	<ul style="list-style-type: none"><li>• Is the lens focus adjusted?</li><li>• Is the lens or cover dirty?</li><li>• Are there any large barrier or bright illumination near the camera?</li><li>• Is the iris of lens adjustment volume correctly set?</li></ul>

## 10. SPECIFICATIONS

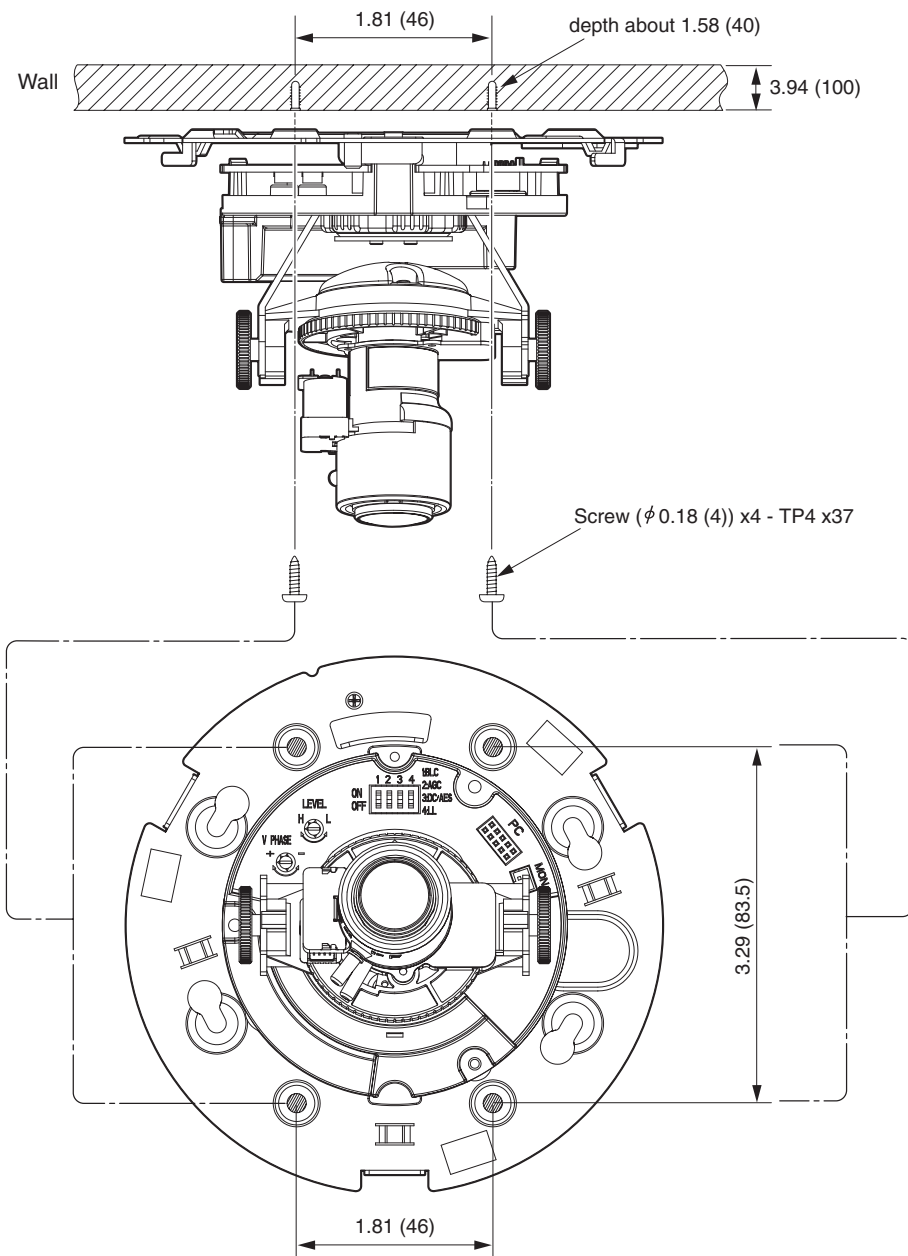
1. Image System	
Image Device	1/3 inch CCD image sensor
Pixel Elements	768 (H) x 494 (V)
2. Electrical	
TV System	2:1 Interlace, 15.734 KHz horizontal, 59.94 Hz vertical
Horizontal Resolution	520 TV lines
S/N Ratio	50 dB
Minimum Illumination	0.5 lux (More than 10 % of image output, Smoke cover)
Auto Gain Control (AGC)	Average AGC
Iris Control Mode	Auto Iris Lens
White Balance	Auto
White Balance Range	2,500 K to 10,000 K
Gamma compensation	0.45
Backlight Compensation (BLC)	ON / OFF (DIP-SW)
Video Output Signal	VBS (1.0 Vp-p, 75 ohms unbalanced, BNC)
Synchronization System	Line Lock, Internal manually switchable
3. Mechanical	
Weight	0.738 lbs (360 g)
Dimension	ø5.08 (D) x 3.94 (H) inches (ø129 (D) x 100 (H) mm)
4. Optical	
Built-in Lens	Varifocal lens f = 2.8 ~ 10 mm, F 1.3 : Auto Iris
View Angle	Wide : 129 °(D), 100 °(H), 73 °(V) Tele : 34 °(D), 27 °(H), 20 °(V)
Focus Length	0.3 m ~ ∞
5. Power	
Input Voltage	24V AC ± 10 % 60 Hz / 12V DC ± 10 %
Power Consumption	3.5 W
6. Environmental	
Operating Temperature	14 °F to 122 °F (-10 °C to +50 °C), 20 % to 90 % RH

Design and specifications are subject to change without notice.

11. EXTERIOR VIEW



Dimensions: inch (mm)



Dimensions: inch (mm)

# ***MEMO***

# LIMITED WARRANTY

## CCD SECURITY CAMERA IK-DF02A

The Imaging System Division ("ISD") of Toshiba America Information Systems, Inc. makes the following limited warranties with regard to this CCD Camera Model IK-DF02A ("Product"). These limited warranties extend to the Original End-User ("You[r]").

**Three (3) Year Limited Warranty of Labor and Parts** ISD warrants that this Product will perform in accordance with specifications for a period of three (3) years from the date of purchase by the Original End-User. During this three (3) year period, ISD will repair or replace the Product, if it does not perform as warranted. In order to take advantage of this Limited Warranty, You must: (a) call (877) 855-1349 to receive a RMA number; and (b) pay all transportation and insurance charges for shipment of the Product to the ASP or Toshiba Exchange Center. ISD reserves the right to substitute factory refurbished parts in place of those in need of repair.

**Instruction Manual (Owner's Manual):** You should read the Instruction Manual (Owner's Manual) thoroughly before operating this Product. Before seeking warranty service, you should check the troubleshooting guide in the Instruction Manual (Owner's Manual) and follow the instructions to correct the problem.

**How to Obtain Warranty Service Step-by-step Procedures:** To obtain warranty service, You should:

1. Contact Toshiba at (877) 855-1349 to first verify operation or installation assistance. (877) 855-1FIX
2. If technical support determines that the unit is defective, an RMA will be issued with return instructions for repair.
3. Securely pack the Product in the original carton and external shipping pack, include a letter explaining the problem with a copy of the bill of sale or proof of purchase.
4. Prepay all transportation and insurance costs.

**Your Responsibilities:** This Limited Warranty is subject to the following conditions:

1. You must provide the bill of sale or proof of purchase at the time that warranty service is required.
2. You must notify (877) 855 1349 within (30) days after you discover that the product does not perform in accordance with specifications during the Limited Warranty period.
3. You must pack the Product in its original carton using the original packing material. Then insert the original carton containing the Product into another carton with additional packing material before shipping the Product to an ASP or Toshiba Exchange Center.

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