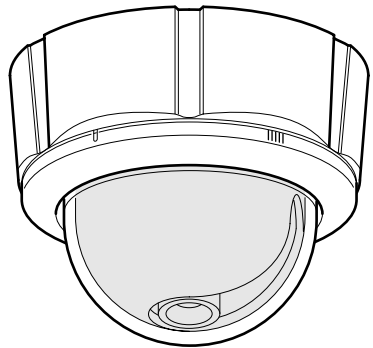




DOME CAMERA

TK-C215V4

INSTRUCTIONS (A)



For Customer Use:

Enter below the Serial No. which is located on the body.
Retain this information for future reference.

Model No. TK-C215V4

Serial No. _____

LST0420-001A

Safety Precautions



Attention:

This symbol is only valid in the European Union.

Information for Users on Disposal of Old Equipment

[European Union]

This symbol indicates that the electrical and electronic equipment should not be disposed as general household waste at its end-of-life. Instead, the product should be handed over to the applicable collection point for the recycling of electrical and electronic equipment for proper treatment, recovery and recycling in accordance with your national legislation.

By disposing of this product correctly, you will help to conserve natural resources and will help prevent potential negative effects on the environment and human health which could otherwise be caused by inappropriate waste handling of this product. For more information about collection point and recycling of this product, please contact your local municipal office, your household waste disposal service or the shop where you purchased the product.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.



(Business users)

If you wish to dispose of this product, please visit our web page www.jvc-europe.com to obtain information about the take-back of the product.

[Other Countries outside the European Union]

If you wish to dispose of this product, please do so in accordance with applicable national legislation or other rules in your country for the treatment of old electrical and electronic equipment.

FOR USA AND CANADA

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
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 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.

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

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

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

INFORMATION (FOR CANADA) RENSEIGNEMENT (POUR CANADA)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Class Best conforme a la norme NMB-003 du Canada.

INFORMATION FOR USA

■ INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

■ CAUTION

CHANGES OR MODIFICATIONS NOT APPROVED BY JVC COULD VOID USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

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 UNDESIRE OPERATION.

- The unit is to be powered by a DC 12 V or an AC 24 V power supply.
- The unit is to be powered by a UL Listed DC 12 V or an AC 24 V power supply.
- The AC 24 V and 12 V DC power supply shall conform to the following: Class 2 only .
- This installation should be made by a qualified service person and should conform to all local codes.

- This installation shall be in accordance with the National Electrical Code, ANSI/NFPA 70.
- Any Mention in this manual of Alarm inputs have not been evaluated by UL to be used for Burglar Alarm Functionality.
- Embedding of cameras in the ceiling may not be allowed due to regulations in some regions. Please consult your nearby authorized JVC dealer for more details.
- The ceiling to mount the camera has to be strong enough to support the weight of this product. If the ceiling is not strong enough, make sure to apply reinforcement to the ceiling before installation.
- Be sure to tighten the screws and nuts securely. Insufficient tightening may cause the unit to fall from its mount.
- The rating label is displayed on the side of the camera unit.
- The camera unit may fall if the mounting screws and nuts are not properly tightened. Ensure that the screws and nuts are properly tightened.
- We do not accept liability for any damage to the camera in cases when it is dropped because of incomplete installation due to not observing the installation instructions correctly. Please be careful when installing the camera.
- Do not install the camera near lighting equipment with a high temperature, such as spotlights. Doing so may cause malfunction or fire.

- Before starting an important recording, be sure to perform a test recording in order to confirm that a normal recording is possible.
- We will not provide any compensation whatsoever for the contents to be recorded or loss of opportunities when recording is not properly performed due to malfunction of the video camera, VTR, hard disk recorder or video tape.
- Prior to adjusting the shooting direction of the camera, touch the metal surface of the [MONITOR] terminal with your hand to discharge static electricity from your body.

Introduction

These are general IMPORTANT SAFEGUARDS and certain items may not apply to all appliances.

IMPORTANT SAFEGUARDS

1. Read all of these instructions.
2. Save these instructions for later use.
3. All warnings on the product and in the operating instructions should be adhered to.
4. Unplug this appliance system from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use attachments not recommended by the appliance manufacturer as they may cause hazards.
6. Do not use this appliance near water - for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
7. Do not place this appliance on an unstable cart, stand, or table. The appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance.
Use only with a cart or stand recommended by the manufacturer, or sold with the appliance. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer. An appliance and cart combination should be moved with care.
Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
8. Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to insure reliable operation of the appliance and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the appliance on a bed, sofa, rug, or other similar surface.
This appliance should never be placed near or over a radiator or heat register. This appliance should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
9. This appliance 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 supplied to your home, consult your dealer or local power company. For appliance designed to operate from battery power, refer to the operating instructions.
10. For added protection for this 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 antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
11. Do not allow anything to rest on the power cord. Do not locate this appliance where the cord will be abused by persons walking on it.
12. Follow all warnings and instructions marked on the appliance.
13. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
14. Never push objects of any kind into this appliance through cabinet slots 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 appliance.
15. Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
16. Unplug this appliance from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power cord or plug is damaged or frayed.
 - b. If liquid has been spilled into the appliance.
 - c. If the appliance has been exposed to rain or water.
 - d. If the appliance does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to normal operation.
 - e. If the appliance has been dropped or the cabinet has been damaged.
 - f. When the appliance exhibits a distinct change in performance - this indicates a need for service.
17. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
18. Upon completion of any service or repairs to this appliance, ask the service technician to perform routine safety checks to determine that the appliance is in safe operating condition.

PORTABLE CART WARNING
(symbol provided by RETAC)



Thank you for purchasing this product.
(These instructions are for: TK-C215V4U.)
Before beginning to operate this unit, please read the instruction manual carefully in order to make sure that the best possible performance is obtained.

Characteristics

■ Realizing a High Picture Quality

This camera realizes 540 TV lines and S/N50 dB by employing a highly sensitive CCD with 380,000 pixels and a high-resolution video processing circuit.

■ Enlarged Shooting Range

The adjustment range of the shooting direction is wide and mounting of the camera to the wall is possible with the employment of 3 axis rotation mechanism.

■ Non Camera-Like Design

Dome-type design allows application in various locations.

■ Embedding in Ceiling Without Use of Metal Fittings

There is no need to use a separate recess bracket when embedding this camera to the ceiling.

■ High Magnification Varifocal/Zoom Lens

The built-in x3.6 varifocal lens enables detailed supervision.

■ Easy DAY & NIGHT Feature


A Easy DAY & NIGHT feature is available, which switches automatically to a black-and-white image when the object is dark. This is useful for supervision in a dark environment.

How to Use This Manual

■ Characters and symbols used in this manual

CAUTION : Points to pay attention to during operation.

NOTE : Details for reference, such as functions or constraints during use.

 : Pages or items to refer to.

- All product names that appear in this document are the trademarks or registered trademarks of their respective companies. Marks and symbols such as TM, [®] and [©] do not appear in this document.

Contents

Introduction

Safety Precautions	2
Characteristics	5
Contents	6
Operating Precautions	7
Name of Parts	8
Camera	8
Camera (Interior)	9
Setting the Lens and Switches	10

Installation and connection

About Connection Cables	12
Video signal cables	12
DC 12 V or AC 24 V power supply cable	12
System diagram	13
Mounting the Camera	13
Getting Started	13
Selecting a mounting method	13
Embedding the camera to the ceiling	14
When mounting the camera directly to the ceiling or on the wall	16
When mounting the camera to the electrical box	18
Mount by allowing the cable to exit from the side	18

Adjusting Image

Adjusting Images	19
Mounting the test monitor	19
Adjusting the camera direction	19
Adjusting the field angle/focus/ brightness	20
Mounting the Inner Dome	21
Mounting the Dome Cover	21
White-spot correction	21

Others

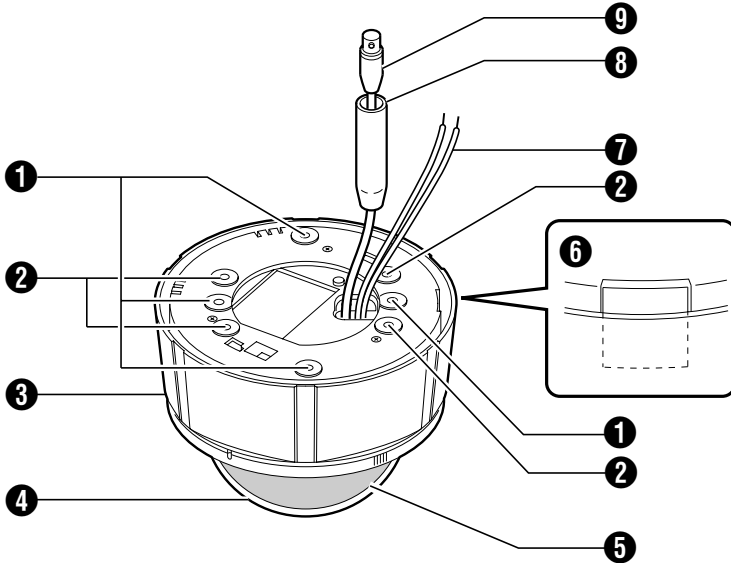
Specifications	22
----------------------	----

Operating Precautions

- To save energy, when it is not being used turn the system's power off.
- This camera has been designed for indoor use. It cannot be used outdoors.
- Do not install or use the camera in the following places.
 - In a place exposed to rain or moisture.
 - In a place with vapor or oil soot, for example in a kitchen.
 - In a temperature outside the operating temperature range (-10°C to 50°C).
 - Near a source of radiation, X-rays, strong radio waves or magnetism.
 - In a place where corrosive gasses are generated.
 - In a place subject to vibration.
 - In a place with excessive dirt.
 - In an environment where there is cold air or near the air outlet of an air conditioner.
- If this camera and the cables connected to this camera are used where there are strong electromagnetic waves or where there is magnetism present, for example near a radio or TV transmitter, power transformer or an electric motor, the picture may produce noise and the colors may be affected.
- This camera incorporates an AGC circuit. As a result, when it is used under low light conditions, the camera sensitivity is automatically boosted and the picture may look uneven. This is not a malfunction however.
- When this camera is used in the ATW mode, the recorded colors may be slightly different from the actual colors due to the operational principles of the auto-tracking white balance circuit. This is however not a malfunction.
- If a high-intensity object (such as a lamp) is shot, the image on the screen may have vertical lines (smear) or blur (blooming) at its periphery. This is a characteristic of the CCD, and is not a defect.
- Observe the following when carrying out camera maintenance.
 - Turn the power OFF before proceeding to carry out maintenance.
 - Clean the dome cover lens using a lens wiper cloth (or a tissue). If it is contaminated seriously, clean the contaminated part with a cloth (or a tissue) which has been soaked in a solution of water and a neutral detergent.
- If the DAY/NIGHT switch is turned on, the mode changes automatically to black and white in dark places. As the sensitivity increases, the image may look grainy and white spots may appear. When changing modes, bright portions of image may be emphasized but this is not a failure of the camera.
- When the supply voltage of the camera is low, the input protection circuit within the camera may be triggered and the power of the camera may turn off automatically. Make sure to use a supply voltage for the camera that is within -10% of the rated voltage.)
- When the camera is moved from a cold area to room temperature, condensation may occur causing the camera to malfunction as a result. In this case, turn on the power after waiting for a few hours.
- This unit enlarges the rotation angle to support wide range set up. For TK-C215V4, when the zoom of the lens is set to WIDE end and the tilt angle is set around $\pm 80^{\circ}$, the dome cover can be visible into the image depending on the rotation angle. In this case, adjust the image angle if necessary. (pg. 19)
- All Interconnecting Equipment must be UL Listed.

Name of Parts

Camera



1 Mounting hole (elliptical) x 4

Use these when mounting the camera to the electrical box. (☞ pg. 18)

NOTE:

When installing the camera onto the electric box, install it using the supplied adaptor ring.

2 Mounting hole (round) x 4

Use these when mounting the camera to the ceiling or wall. (☞ pg. 14, 16)

3 Outer Case

Use this in the following cases:

- When mounting the camera directly to the ceiling or on the wall. (☞ pg. 16)
- When mounting the camera to the electrical box. (☞ pg. 18)

4 Dome Cover

The dome cover is fragile. Take care when handling it.

5 Inner Dome

Before mounting the camera, remove it and perform switch setting and image angle setting. (☞ pg. 14, 16)

6 Wiring Hole

Break and use this when drawing the cable from the camera unit without drilling a hole in the ceiling. (☞ pg. 18)

7 Input Power cable

DC 12 V Input: Red (+12 V), Black (GND)
AC 24 V Input: Non-polar. (☞ pg. 12)

8 Protection Cover

Upon connecting the coaxial cable, protect it by insulating the metal part of the BNC connector from the ceiling structure.

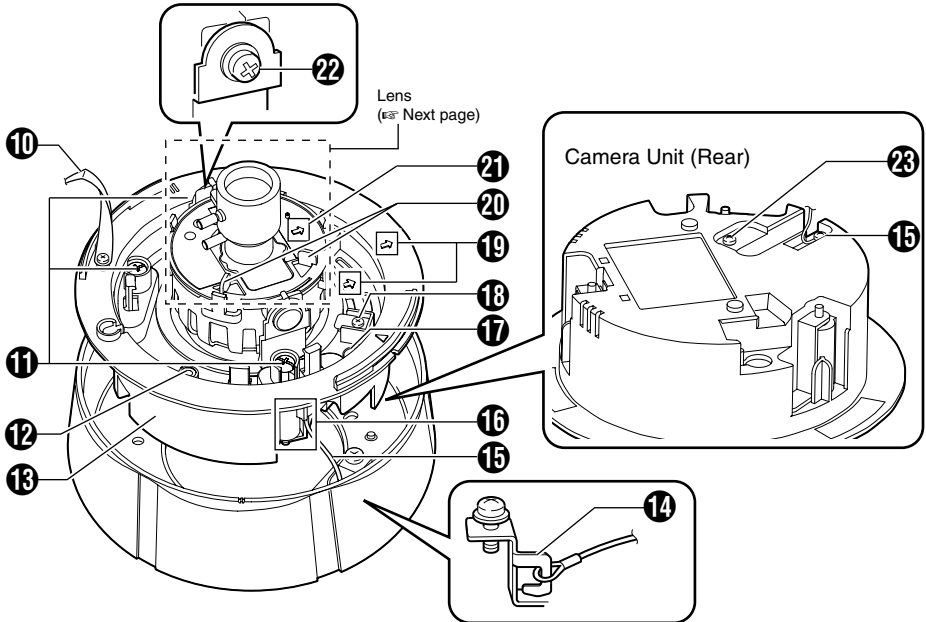
9 Video signal output connector (BNC)

(☞ pg. 12)

Camera (Interior)

The dome cover, inner dome and outer case are removed.

Procedures for removal. (☞ pg. 14 “Embedding the camera to the ceiling”, Step 3. to Step 5.)



10 Strap

A plate to connect the camera unit and the dome cover.

11 Fastening Screw (x 3)

When embedding the camera in the ceiling, turn this screw to secure the camera. This screw belongs to a part of the ceiling mount bracket 17.

12 [MONITOR] terminal (RCA pin)

(☞ pg. 19)

13 Camera Unit

14 Fall Prevention Wire Fastening Hook

15 Fall Prevention Wire (Supplied) and Wire Mounting Screw

These are the wires and screws connecting the camera unit 18 and the outer case 3. One end of the wire is connected to the hook 14 securing the safety wire.

16 Ceiling Mount Bracket (x 3)

This is used as a bracket when embedding the camera to the ceiling. (☞ pg. 14)

17 Camera Fastening Screw

Use this to fasten the camera unit 18 to the outer case 3. To remove (☞ pg. 14, 16).

18 Pan fastening Screw

Ensure to loosen the screw before setting. Further tighten the screw to ensure that camera's shooting direction does not go out of alignment only when it is used in a location with strong vibration. (☞ pg. 20)

19 Imaging Direction mark

Install the camera by aligning the imaging direction with the arrow mark.

20 Rotation Knob

Rotate the lens unit to adjust the inclination of the image (to be turned).

21 Rotation Center Mark

(☞ pg. 20)

22 Tilt Lock screw

Tighten the screw to ensure that camera's shooting direction does not go out of alignment when it is used in a location with strong vibration. (☞ pg. 20)

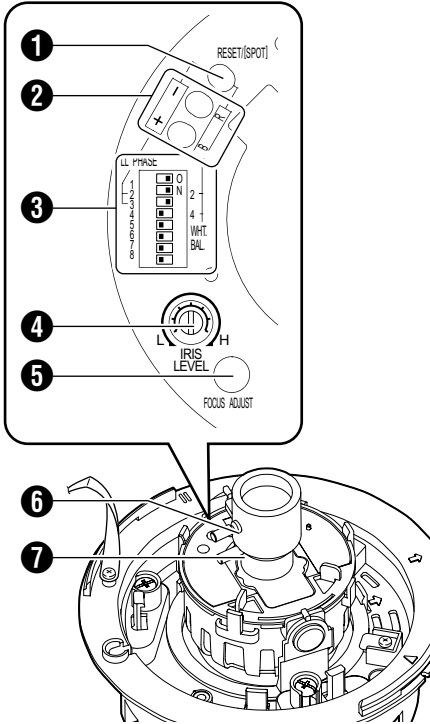
23 Fall Prevention Wire mounting hole & Screw

(Fall Prevention Wire not included.)

Setting the Lens and Switches

Set the video setting switches on the camera unit before mounting it.

To set the switches, use a fine-tipped screwdriver.



Function selection switch setting table
(Items in bold are factory position)

	OFF <input type="checkbox"/>	<input type="checkbox"/> ON
1 AGC	OFF	ON
2 SELECT	PHASE	WHT. BAL.
3 SYNC	LL	INT
4 WHT. BAL.	ATW	MANU
5 BLC	OFF	ON
6 DAY/NIGHT	OFF	ON
7 RESERVED	<input type="checkbox"/> SET TO OFF	
8 RESET/SPOT	RESET	SPOT

❶ [RESET/SPOT] RESET/SPOT button

When this button is pressed, the value of the white balance or phase adjusted manually is reset to the default value.

- When the 2 [SELECT] switch is set to WHT. BAL., the white balance is reset to the default value.
When the switch is set to PHASE, the phase is reset to the default value.
- When setting to SPOT:
When this button is pressed, white spots are corrected.
For instructions on correcting white spots, see “White-spot correction” (pg. 21).

❷ [R/B, +/-] R/B, +/- adjustment button

This button is pressed when manually adjusting the white balance or when adjusting the vertical phase of the line lock.
The function of this button is selected using the 2 [SELECT] switch.

- When manually adjusting the white balance:
Press the R button to increase the red tint and decrease the blue tint.
Press the B button to increase the blue tint and decrease the red tint.
- When adjusting the phase:
Press the + or – button to adjust the phase.

❸ Function selection switches

1. [AGC] Auto-gain control switch.

Setting this switch to “ON” automatically increases the sensitivity even when the brightness of the subject is insufficient.
(Default setting: ON)

2. [SELECT] WHT. BAL./PHASE setting switch.

WHT. BAL.:

The ❷ [R/B, +/-] buttons are used as [R/B] adjustment buttons.

PHASE:

The ❷ [R/B, +/-] buttons are used as [+/-] adjustment buttons.
(Default setting: WHT. BAL.)

3. [SYNC] Synchronization system selection switch.

This switch sets the synchronizing system for the camera.

INT:

This is set for internal synchronization

LL (Line Lock):

The camera’s vertical synchronization is locked to the AC 24 V 60 Hz power line frequency. When switching between multiple cameras using a switcher, selecting this mode and adjusting the vertical phase can reduce the monitor sync disturbances occur that when the camera image is switched.
(Default setting: INT)

4. [WHT.BAL.] ATW/MANUAL selection switch.

For selecting whether to adjust the white balance automatically or manually. When the setting is changed from manual to ATW, the setting values in the manual mode will be reset. The camera switches to the same mode as with pressing the [RESET] button.

(Default setting: ATW)

NOTE:

- The white balance of this camera is preset to use under sunlight or halogen lamps, and may not be properly adjusted when used under artificial lights such as fluorescent lights.

5. [BLC] Backlight compensation switch.

When the object is placed against the light, setting this to "ON" increases the iris aperture by 1 stop and the object will appear clearer. (Default setting: OFF)

6. [DAY/NIGHT] Easy Day & Night switch.

To capture a subject with continually changing brightness (day/night), set this switch to "ON".

The camera automatically captures the image in color when the subject is bright, and in black and white mode when it is dark.

(Default setting: OFF)

NOTE:

- When this item is set to "ON", the AGC feature will automatically be set to "ON" regardless of the [AGC] Switch 1 setting.
- The Easy DAY & NIGHT feature on this camera uses a sensitized black and white mode unlike other black and white surveillance cameras that use infra-red lighting.
- Sensitivity increases in the case of black-and-white images. The screen may therefore appear rougher and white spots may increase.

7. [RESERVED]

Not used. Ensure to set this to "OFF" before using the camera.

(Default setting: OFF)

8. [RESET/SPOT] RESET/SPOT CORRECTION selection switch.

RESET:

The [RESET/SPOT] button is used as a [RESET] button.

SPOT:

The [RESET/SPOT] button is used as a [SPOT] button. (pg. 21)

(Default setting: RESET)

4 [IRIS LEVEL] Iris level adjustment

For adjusting the level of the automatic aperture control lens. This adjustment only needs to be made when required. Use this to accommodate particular shooting conditions. To darken image: Counterclockwise (L side)
To brighten image: Clockwise (H side)

NOTE:

Prior to adjusting the aperture level, ensure to set the [AGC] Switch 1 of the function selection switch ③ to "OFF". Otherwise, when the level is turned too far toward L, the AGC function activates increasing sensitivity and the picture may look uneven.

5 [FOCUS ADJUST] focus adjustment button

Use this to adjust the lens focus.

Upon pressing, the lens aperture will open up for about 30 seconds such that the depth of field becomes shallower, thus enabling focus to be easily adjusted. (pg. 20)

NOTE:

The electronic shutter functions automatically upon pressing the focus adjustment button and the screen may flicker. However, this is not a malfunction.

6 Focus adjustment ring

Move this to the left/right to adjust the focus.

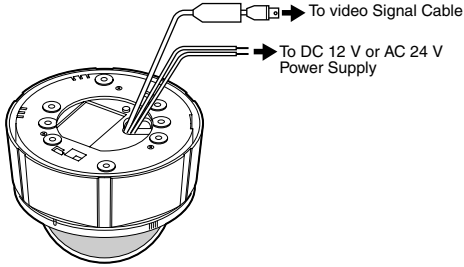
7 Zoom adjustment ring

Move this to the left/right to adjust the field angle.

About Connection Cables

The maximum connection distance varies with the type of cable used. Please refer carefully to the table for each cable during connection.

* Be sure to turn off the power of devices before connecting cables.



Video signal cables

Connect the coaxial cables (BNC) to the video signal output connector (BNC).

Cable	Maximum extension (No cable compensator)
RG-59	200 m
RG-6	350 m
RG-11	450 m

DC 12 V or AC 24 V power supply cable

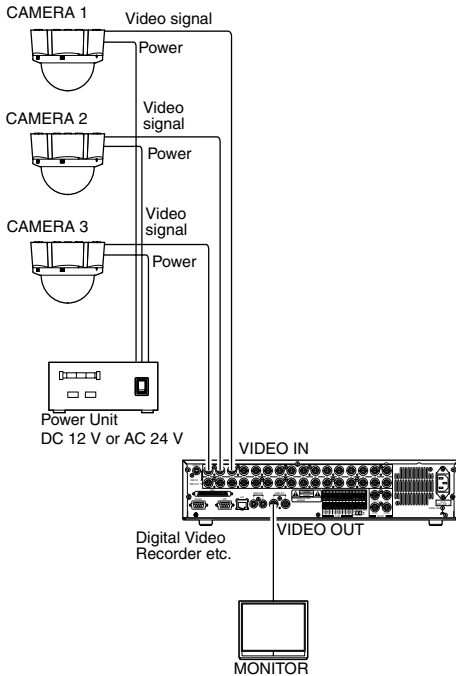
Connect the DC 12 V or the AC 24 V power supply to the DC 12 V/AC 24 V terminals on the terminal board. To prevent connection errors or a cable disconnection, we recommend the use of lug plates for the connections. The following table shows the connection distances and connection cables provided that 2-conductor VVF cables (vinyl-insulated vinyl sheath cables) are used.

Conductor diameter (mm)	ø 1.0 mm (AWG18)	ø 1.6 mm (AWG14)	ø 2.0 mm (AWG12)	
Maximum extension	DC12V	50 m (160ft)	140 m (450ft)	220 m (720ft)
	AC24V	130 m (420ft)	350 m (1100ft)	550 m (1800ft)

CAUTION:

- If thin cables are used (i.e. with a high resistance), a significant voltage drop will occur when the unit is at its maximum power consumption. Either use a thick cable to restrict the voltage drop at the camera side to below 10 %, or place the power supply near to the camera. When the voltage is low, the protection circuit within the camera may be triggered and the power of the camera may turn off automatically.
- Do not allow input from both a DC 12 V and AC 24 V power supply at the same time.
- When using a DC 12 V power supply, ensure that the polarities of the cable are correct.
- The product shall be powered by Class 2 only.

System diagram



NOTE:

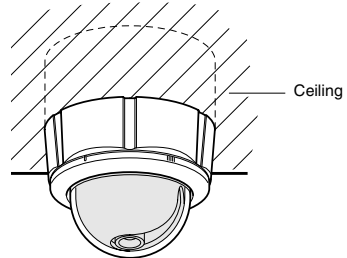
- Turn OFF the power supply to all equipment to be used before making connections.
- Read the Instruction Manual for each piece of equipment to be used before making connections.

Mounting the Camera

Getting Started

CAUTION:

- When mounting the camera to the ceiling, ensure to wear safety glasses to protect the eye from any falling object.
- Attachment of an embedded cover in the ceiling (recess bracket) may be mandatory in certain regions. If this is so, ensure that the embedded cover (recess bracket) is securely attached before installing the camera.
- Please refer to the instruction manual for the cover in use for details on installation of the embedded cover (recess bracket).
- For detail related to embedded cover (recess bracket), please contact JVC.



Embedded Cover in Ceiling (recess bracket)

Selecting a mounting method

Select a method for mounting the camera according to the intended purpose.

- ◆ “Embedding the camera to the ceiling” (☞ pg. 14)
- ◆ “When mounting the camera directly to the ceiling or on the wall” (☞ pg. 16)
- ◆ “When mounting the camera to the electrical box” (☞ pg. 18)
- ◆ “Mount by allowing the cable to exit from the side” (☞ pg. 18)

Mounting the Camera (continued)

Embedding the camera to the ceiling

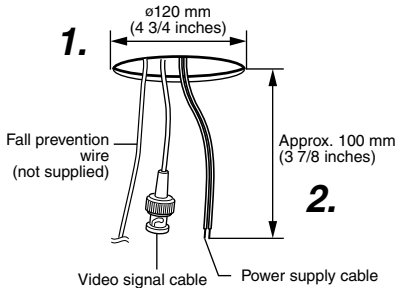
* Make use of a ceiling material with a thickness between 9.5 mm to 22 mm.

■ Setup

1. Open a hole in the ceiling. (ø120 mm, 4 3/4 inches)
2. Draw the fall prevention wire mounted to the ceiling slab and the cable out from the ceiling in advance.

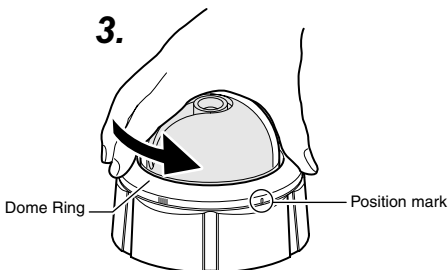
CAUTION:

- Select a suitable fall prevention wire based on length, strength, location, material (insulation property), etc.
- Use a ring on the fall prevention wire for mounting to the camera unit with an internal diameter of at least ø3.1 mm or and not larger than ø5.5 mm, and an external diameter that is not larger than ø 9 mm.



3. Remove the dome cover.

As illustrated in the diagram, hold the dome ring such that the position mark comes between the thumb and index finger. Turn the ring in the counterclockwise direction to remove.



4. Remove the inner dome

The inner dome is secured with claws (3 locations). Hold the inner dome and remove it from the claws.

5. Remove the outer case.

(This method does not require an outer case.)

- ① Loosen the camera fastening screw with a screwdriver
- ② To remove, turn the camera unit in the counterclockwise direction

6. Dismantle the supplied fall prevention wire

Unfasten the mounting screw for the fall prevention wire at the rear of the camera unit

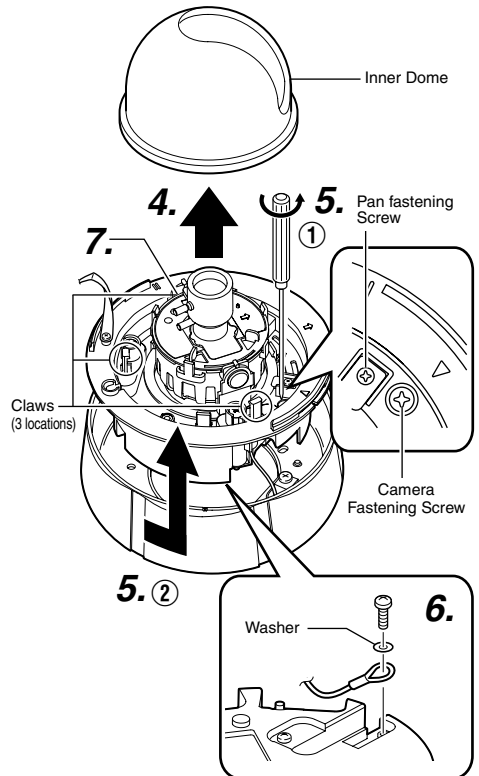
7. Loosen the pan fastening screw.

CAUTION:

Moving the lens unit without loosening the pan fastening screw may damage the lens unit.

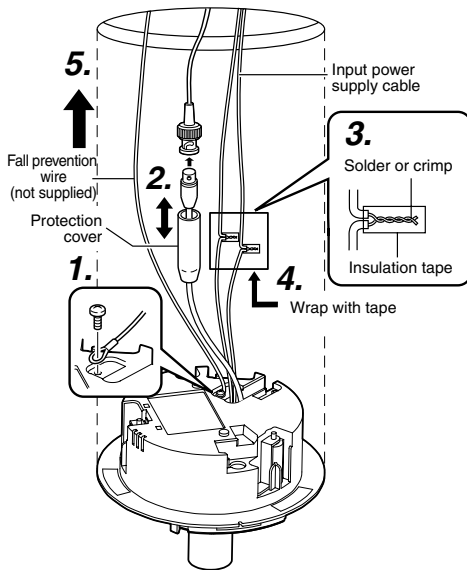
8. Set the switches for video images.

(☞ pg. 10)



■ Connecting

- 1. Attach the fall prevention wire to the camera, followed by attaching it to the ceiling slab (Fall prevention wire is not included.)**
- 2. Connect the video signal cable. (☞ pg. 12)**
Lower the cover and connect the connectors. Upon connecting, cover the connectors using the protection cover.
- 3. Connect the input power supply cable. (☞ pg. 12)**
- 4. Wrap insulation tape around cables.**
- 5. Insert the camera unit into the ceiling hole.**

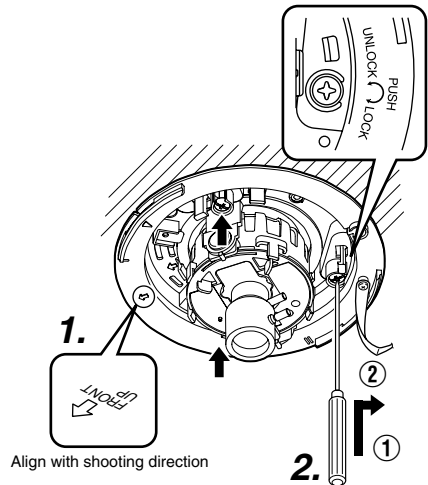


■ Mounting

- 1. Align ↑ with the shooting direction when mounting the camera.**
- 2. Fasten the camera. (x3 locations)**
 - ① Press the screw head of the ceiling mount bracket all the way in using a cross screwdriver.
 - ② With the screw pressed in using the screwdriver, turn about 90° in the clockwise direction, followed by pulling out the screwdriver.
 - ③ The ceiling mount bracket is attached to the ceiling and the camera fastened.

NOTE:

Dismantle the camera upon turning the screw heads of the ceiling mount bracket (x3) by 90° in the counterclockwise direction.



■ Adjusting Images

After mounting is completed, adjust the images while checking the actual image. (☞ pg. 19 "Adjusting Images")

Mounting the Camera (continued)

When mounting the camera directly to the ceiling or on the wall

When mounting to a wall, replace areas indicated as "ceiling" in the procedures by "wall".

■ Setup

1. Open a hole in the ceiling. (ø 30 mm, 1 1/8 inches)

Make use of the template supplied to open a hole.

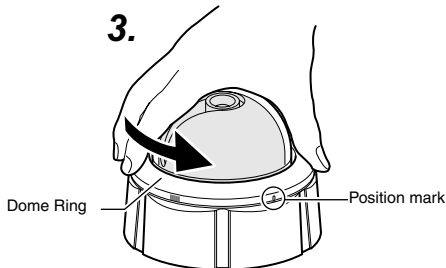
2. Draw the fall prevention wire mounted to the ceiling slab and the cable out from the ceiling in advance.

CAUTION:

- Select a suitable fall prevention wire based on length, strength, location, material (insulation property), etc.
- Use a ring on the fall prevention wire for mounting to the camera unit with an internal diameter of at least ø 3.1 mm or and not larger than ø 5.5 mm, and an external diameter that is not larger than ø 9 mm.

3. Remove the dome cover.

As illustrated in the diagram, hold the dome ring such that the position mark comes between the thumb and index finger. Turn the ring in the counterclockwise direction to remove.



4. Remove the inner dome

The inner dome is secured with claws (3 locations). Hold the inner dome and remove it from the claws.

5. Remove the outer case.

- ① Loosen the camera fastening screw with a screwdriver.
- ② To remove, turn the camera unit in the counterclockwise direction.
- ③ Dismantle the fall prevention wire.

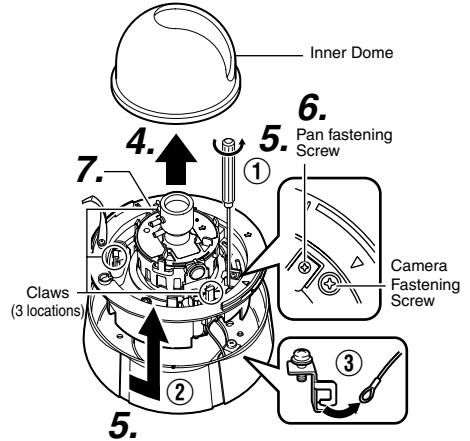
6. Loosen the pan fastening screw.

CAUTION:

- Moving the lens unit without loosening the pan fastening screw may damage the lens unit.

7. Set the switches for video images.

(☞ pg. 10)



■ Connecting

1. Align ↑ with the shooting direction when mounting the outer case to the ceiling.

Notes on outer case mounting screws (not supplied):

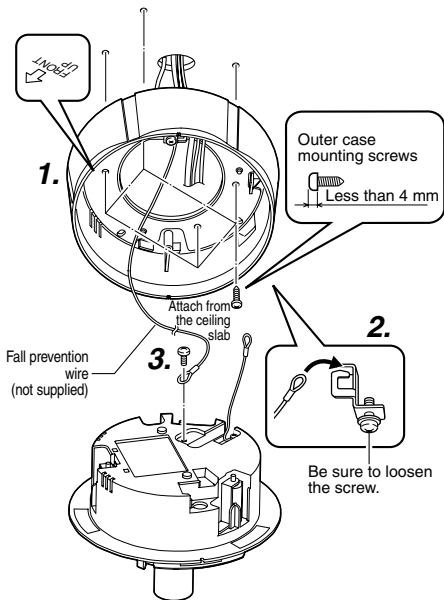
- Height of screw head should be less than 4 mm.
- The diameter of the attachment hole of outer case is ø 4.5 mm (3/16 inch).
- Do not use flathead screws.
- When using an impact screwdriver, do not tighten the screws fully. Tighten using your hand instead. Failure to do so may damage the outer case.

2. Hang the fall prevention wire that has been dismantled in Step 4 ③ of the setup procedures to the hook.

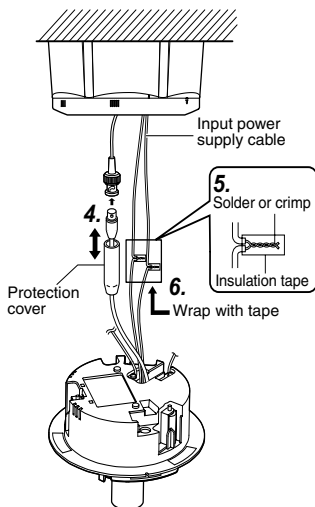
3. Attach the fall prevention wire to the camera. (Fall prevention wire is not included)

CAUTION:

- Tighten all screws securely. Otherwise the camera may come loose and fall.



4. Connect the video signal cable. (☞ pg. 12)
Lower the protection cover and connect the connectors. Upon connecting, restore the protection cover to cover the connectors.
5. Connect the input power supply cable. (☞ pg. 12)
6. Wrap insulation tape around cables.



■ Mounting

1. Align the position mark of the fastened outer case with that of the camera unit.

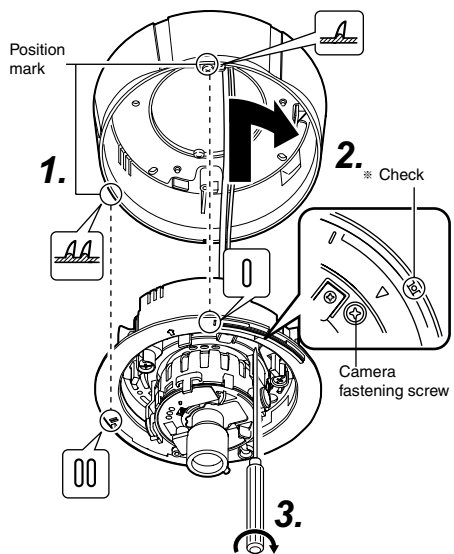
NOTE:

When doing so, be careful not to catch the cables in the outer case.

2. Turn the camera unit in the clockwise direction.

※ When doing so, ensure that the ○ mark is visible. (See illustration below)

3. Fasten the camera by tightening the camera fastening screw.



■ Adjusting Images

After mounting is completed, adjust the images while checking the actual image. (☞ pg. 19 “Adjusting Images”)

Mounting the Camera (continued)

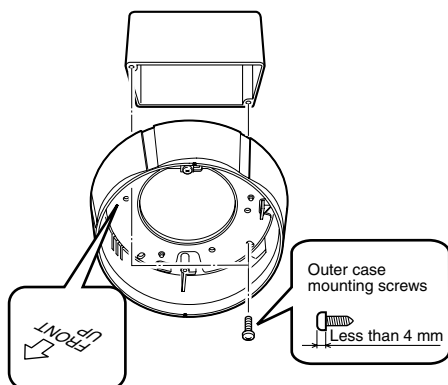
When mounting the camera to the electrical box

NOTE:

Before mounting the camera to electrical boxes, please refer to local building codes for box type to use for low-voltage wiring.

■ Connecting

1. Align ↑ with the shooting direction when mounting the cover to the electrical box.



Align with shooting direction

2. Follow steps 2 to 7 of “When mounting the camera directly to the ceiling or on the wall” (■ Connecting) (☞ pg. 16).

■ Mounting

1. Attach the camera to the outer case that has been fastened to the electrical box.

Follow steps 1 to 3 of “When mounting the camera directly to the ceiling or on the wall” (■ Mounting) (☞ pg. 17)

■ Adjusting Images

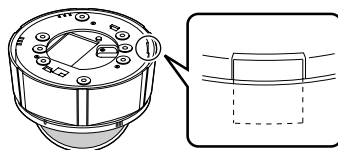
After mounting is completed, adjust the images while checking the actual image. (☞ pg. 19 “Adjusting Images”)

Mount by allowing the cable to exit from the side

When mounting the camera to the ceiling or a wall, it is possible to guide the cable from the side without opening any holes.

The basic mounting method is identical to steps in “When mounting the camera directly to the ceiling or on the wall” (☞ pg. 16).

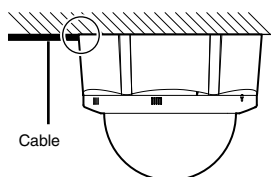
1. Break the cable extraction hole using a pair of long-nose pliers



2. Pull out the cable from the extraction hole and mount it to the ceiling or wall

3. Connecting the cable

Follow steps 4 to 7 of “When mounting the camera directly to the ceiling or on the wall” (■ Connecting) (☞ pg. 17)



4. Adjusting Images

After mounting is completed, adjust the images while checking the actual image. (☞ pg. 19 “Adjusting Images”)

Adjusting Image

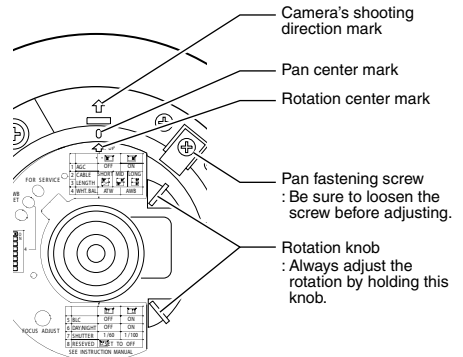
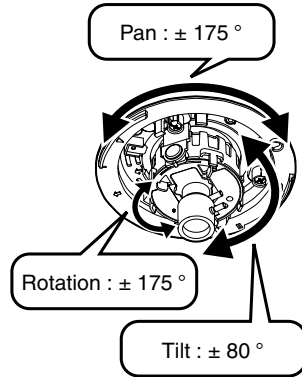
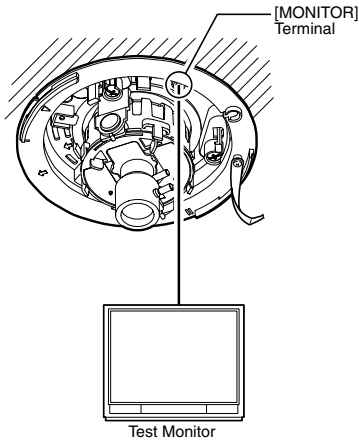
Adjusting Images

Upon mounting the camera, adjust the images while checking the actual image.

Mounting the test monitor

Connect the [MONITOR] terminal of this camera to a test monitor to adjust the camera's shooting direction, image and focus.

* The power to the camera body must be ON when adjustments are performed.



Adjusting the camera direction

The camera unit can be adjusted horizontally or vertically and rotated. Adjust the camera in the direction of the object.

CAUTION:

- Please discharge a static electricity by touching to a [MONITOR] Terminal by hand before adjust the angle of view.
- Before adjusting the shooting direction of the camera, ensure that the pan fastening screw is loosened. Moving the lens unit without loosening the pan fastening screw may damage the lens unit.

NOTE:

- Pan rotation of $\pm 175^\circ$ is possible from each of the camera's shooting direction mark, pan center mark and rotation center mark. When adjusting the rotation, do not hold the lens unit. Always adjust by holding the rotation knob.
- When using the camera at locations with strong vibration, stabilize by tightening the tile fastening screw and pan fastening screw to prevent distortion of the camera's field angle.

CAUTION:

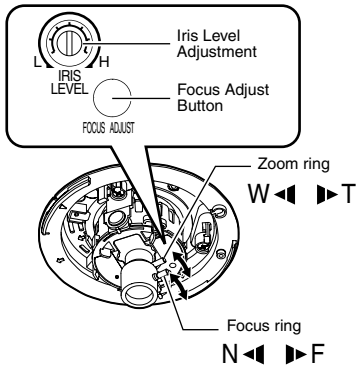
- Moving the camera beyond its adjustable range may cause failure in maintaining the performance of this camera.
- As this camera has a wide tilt/rotation range, a part of this camera may appear on the screen depending on the field angle and orientation. Do not hold the lens unit when adjusting the direction of the camera. Applying force on the lens unit may damage it

Adjusting Image

Adjusting Images (continued)

Adjusting the field angle/focus/ brightness

Upon determining the imaging direction, adjust the field angle, focus and iris level accordingly. The method of adjustment varies with the camera in use.



Adjusting field angle

Loosen the fastening screw for the zoom adjustment ring and move the ring to the left/right to adjust the image.

Adjusting focus

Press the FOCUS ADJUST button. The iris will be opened for 30 seconds. Loosen the fastening screw for the focus adjustment ring and move the ring to the left/right to align the focus.

NOTE:

- Set by repeating “Adjusting field angle” and “Adjusting focus” for 2 to 3 times. After adjustment is completed, fasten by tightening each of the fastening screws.
- The electronic shutter functions automatically upon pressing the focus adjustment button and the screen may flicker. However, this is not a malfunction.

Adjusting brightness

This adjustment only needs to be made when required. Use this to accommodate particular shooting conditions.

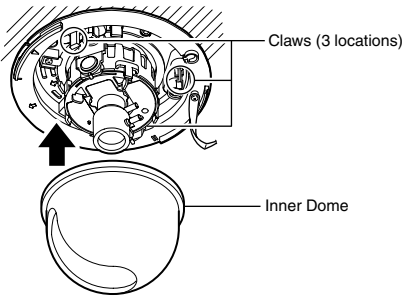
To darken image : Counterclockwise (L side)
To brighten image : Clockwise (H side)

NOTE:

- For adjusting the brightness, do not conduct it within 30 seconds after pressing the focus button.
- When adjusting the iris level, set the AGC switch to “OFF”. Otherwise, when the level is turned too far toward L, the AGC function activates increasing sensitivity and the picture may look uneven.

Mounting the Inner Dome

After setting is complete, mount the Inner dome.



1. Mount the inner dome .

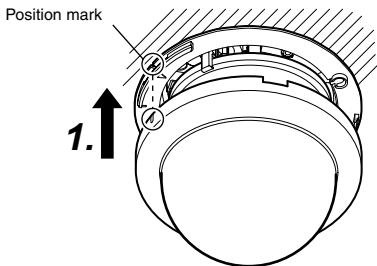
Mount the inner dome to the claws (3 locations).

CAUTION:

- Mount the inner dome such that it does not cover the lens.
- When mounting the inner dome, be careful not to move the lens position. The image angle set previously will go out of alignment.

Mounting the Dome Cover

After setting is complete, mount the dome cover.



1. Mount the dome cover.

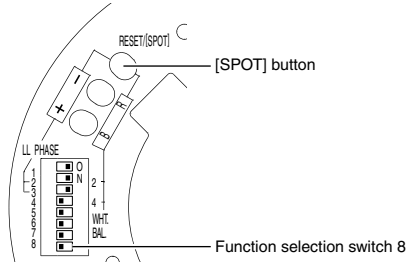
Align the position marks on the camera unit and dome cover, followed by pressing in directly to mount the cover.

CAUTION:

Press the dome over until a “click” sound is heard. Check that the cover is firmly mounted. Failure to mount the cover firmly may cause this cover to fall off.

White-spot correction

As a general characteristic unique to CCDs, white-spots may appear on the screen with age. In order to reduce this phenomenon, this unit is equipped with a white-spot correction feature. Switch on the camera power supply and wait for at least 30 minutes.



1. Remove the dome cover.

2. Cover the lens surface using a black sheet of paper, etc. so that light does not enter the lens.

3. Set the function selection switch 8 to [SPOT]. (see pg. 11)

4. Press and hold the SPOT CORRECTION button for more than 2 seconds.

- White-spot correction will start. Correction may take several seconds for completion.

NOTE:

- Maximum correction: 32
- The white-spot correction feature of this unit does not guarantee the correction of all white spots. Depending on the characteristic of white spots, correction may not be possible.
- When performing white-spot correction, accurate data may not be achieved in case of highly detailed pixels since correction is made using the information of surrounding pixels.
- The result of white-spot correction is maintained until the next correction is performed.

Specifications

■ Camera

Signal system Based on NTSC standard

Scanning frequencies

: 15.734 kHz (Horizontal),
59.94 Hz (Vertical)

Image device: 1/4" IT CCD

Effective picture elements:

: 380,000 pixels,
768 (H) x 494 (V)

Sync system: Line lock/Internal

Video S/N: 50 dB (AGC OFF, white 50 %
output)

Horizontal resolution:

: 540 TV lines (Center, Typ.)

Minimum illumination: (Typical)

Color mode : 2.5 lx (F1.3 AGC ON, 50%)
0.8 lx (F1.3 AGC ON, 25%)

Black and White mode

: 1.4 lx (F1.3 AGC ON, 50%)
0.4 lx (F1.3 AGC ON, 25%)

White balance: ATW/Manual (Switchable)

Color temperature range
2,300 K to 10,000 K

Backlight compensation

: ON/OFF (Switchable)

Easy DAY & NIGHT

: ON/OFF (Switchable)

■ Lens

Focal length : 2.8 mm to 10 mm (variable)

Zoom ratio : Approx. 3.6

Maximum aperture

: F1.3 (f = 2.8 mm) to F3.0
(f = 10 mm)

Angle adjustment range

Pan : ±175 °
Rotation : ±175 °
Tilt : ±80 °

Angle of vision : f = 2.8 mm

73 ° (H) x 54 ° (V)
f = 10 mm
20 ° (H) x 15 ° (V)

■ General

Power supply : AC 24 V ~ 60 Hz
DC 12 V =

Power consumption : 4.2 W

Ambient temperature

: 14 °F to 122 °F
(-10 °C to 50 °C) (Operation)
: 32 °F to 104 °F
(0 °C to 40 °C) (Recommended)

Mass

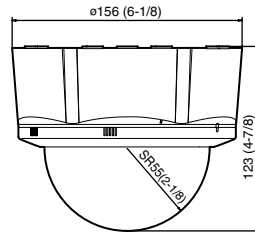
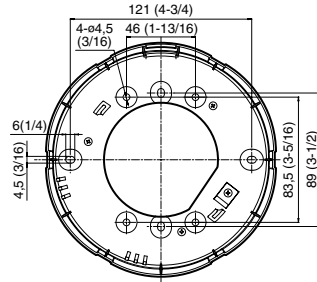
: Approx. 600 g

Accessories

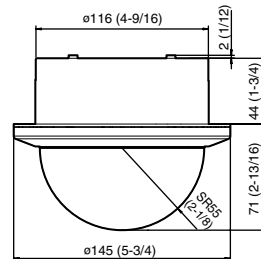
Instructions	1
Warranty Card.....	1
Service Information Card.....	1
Template	1

■ External Dimensions [Unit: mm (inches)]

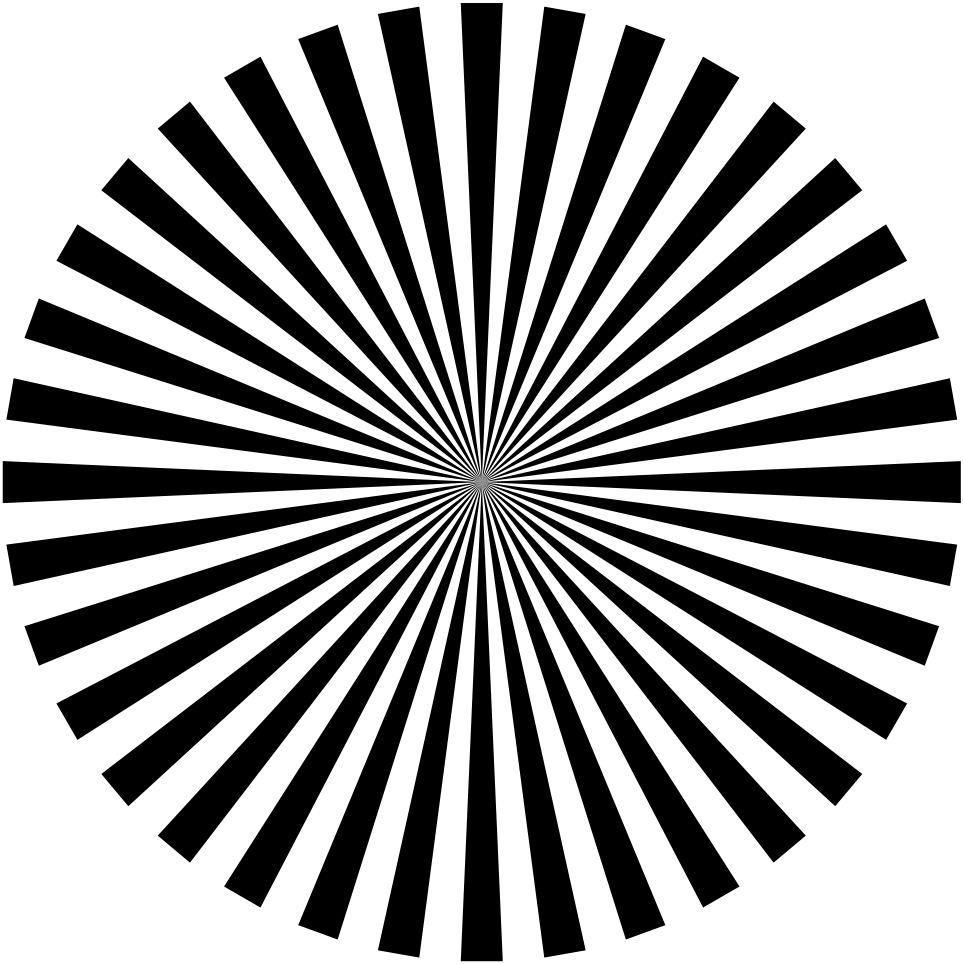
◆ When cover is attached



◆ When embedded



* Specifications and appearance of this unit and related products are subject to change for product improvement without prior notice.



Focus chart

JVC