JVC

BULLET HD IP CAMERA

VN-H157WPU

Instructions (Installation)

For Customer Use:
Enter below the Model No. which is located on the body.
Retain this information for future reference.

Model No. _____

Serial No. _____

Thank you for purchasing this product.
Before operating this unit, please read the instructions carefully to ensure the best possible performance.

The standard camera installation procedure can be found on the back side of this page. ➤➤➤

Safety precautions

The power rating is AC 24 V, 50/60 Hz or PoE. Use the correct voltage.
Always use the AC 24 V power source that is insulated from the primary power supply.
A level of supplied power that exceeds the ratings may result in failures, smoke or fire. If the camera breaks down, turn off the power and contact our service center immediately.
If a level of power that exceeds the ratings is supplied, the internal components may be damaged even if no abnormalities are observed in the appearance and/or operation of the camera. Contact our service center immediately to arrange for an inspection (charged separately).

Attachments and accessories

Instructions 2	WRENCH 1
CD-ROM 1	WASHER 2
WARRANTY CARD (For USA) 1	SPRING WASHER 2
SCREW (M4) 2	MOUNTING BRACKET 1

Operating Precautions

Storage and Operating Environment
● Do not install the camera in the following environments. Doing so may result in malfunctions or failure.
  • Hot or cold locations beyond the allowable operating temperature range (-10 °C to 50 °C).
  • Locations beyond the allowable operating humidity range (20 %RH to 90 %RH) (no condensation allowed).
  • Near equipment that emits strong magnetic fields, such as transformers or motors.
  • Near equipment that emits radio waves, such as transceivers and mobile phones.
  • Locations in which excessive dust or sand exist.
  • Locations that are subject to excessive vibration.
  • Locations prone to moisture, such as near windows.
  • Special environment where a flammable atmosphere is present.
  • Locations that may contain steam or oil, such as kitchens.
  • Locations that are subject to radiation emissions, X-rays or corrosive gases.
  • Locations where chemicals are used, such as swimming pools.
● Use of this camera and cables connected to this camera at locations where strong electrical or magnetic waves are generated (e.g. near a radio, TV, transformer, monitor, etc.) may result in images being affected by noise interference or colors being changed.
● Do not install this camera at locations where cold air is circulated, such as near the air vent of an air conditioner. The drastic change in temperature may fog up the front cover lens.
● Do not install this camera at a location that traps heat. This camera discharges heat from the surface of the main unit. Do not install it at locations that may trap heat, such as wall corners.
● This camera is IP66 compliant. However, we do not guarantee that water has no harmful effects in all environments.

Handling Precautions
● Do not block the vents.
  Inadequate heat ventilation may cause this camera to malfunction. Be sure not to block the vents around the camera.

Copyright Protection
● With the exception of the user being the copyright holder or when permission such as for duplication has been granted by the copyright holder, permission is required in principle to duplicate, modify or transmit copyrighted material.
● Unauthorized duplication, modification or transmission of copyrighted material may constitute a copyright infringement, and the user may be liable to pay compensation for damages. When using copyrighted material, be sure to check the license agreement or the copyrighted material thoroughly.
● When rights or rights holders are involved with regard to the targeted subject of duplication, permission may be required for shooting or using (processing) it. Be sure to check the licensing conditions thoroughly.

Disclaimer
● The motion detection feature is not a feature to prevent theft or fire. Our company shall not be liable for any loss or damage resulting from the use of this feature.
● We shall not be responsible for any loss or damage caused in the event of privacy invasion as a result of camera footage created by this product.
● Use of recorded materials without first gaining the prior consent of the author is forbidden under copyright law except in cases of personal use.

Maintenance
● Turn off the power before performing maintenance.
● Wipe off dirt on the front cover lens with a lens-cleaning cloth (or soft cloth). For dirt that cannot be easily removed, wipe using a neutral detergent diluted with water. Following that, wipe with a dry cloth. Do not use thinner or benzene. The surface of the front cover may dissolve or fog up.

Saving Energy
● If the camera is not going to be used for a long period of time, turn off the power or the system for safety reasons and to conserve energy.

Others
● This camera has a built-in AGC circuit. Setting AGC to "Mid" or "High" increases the sensitivity of a dark image, and the screen may appear grainy. This is not a malfunction.
● When this camera is used with the white balance set to "ATW" (Auto Tracking White Balance), the color tone of some objects may differ slightly from the actual color due to the principle of the automatic tracking white balance circuit. This is not a malfunction.
● For regions with a commercial power frequency of 50 Hz, switch to the Flickerless mode during use under fluorescent lights (excluding inverter lighting equipment) to prevent flickers.
● When the electronic sensitivity enhancement feature is enabled, the screen may appear grainy and more white spots may appear because the sensitivity has increased. However, this is not a malfunction.
● If the power supply voltage is momentarily cut off or reduced due to lightning or the power supply to the air conditioner being turned on, the image may be disrupted or noise interference may occur.
● This camera may become inoperable if it is brought from a cold location to a warm location (indoors, etc.) and condensation forms on the camera. If this occurs, leave the camera at room temperature for 1 hour, and then turn on the power.
● When using multicast, make use of an IGMPv2-compliant network switch.
● Some hubs/switches of products that are equipped with intelligent features may include a broadcast/multicast suppression function. If this function is enabled, viewing of multicast images on this camera may fail.
● We recommend the use of a shielded LAN cables for connection with this camera. The safety and reliability of this camera has been checked by using shielded cables.
● During viewing using the Built-in Viewer, the video and audio may appear out of sync. This is not a malfunction.
● Do not point the lens toward a strong light source, such as the sun. This may result in damage.
● Under halogen lamps, light bulbs and other light sources that emit strong infrared light, black objects may look almost purple in the recording. It is an inherent characteristic of this camera and not a defect.

SAFETY PRECAUTIONS

FOR USA
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.

FOR USA AND CANADA

⚡ ⚠️

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRICK SHOCK. DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡ The lightning flash wish 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 age" 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.

Information for USA
This device complies with part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment. 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.

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 undesired operation.

INFORMATION (FOR CANADA)
RENSEIGNEMENT (POUR CANADA)

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

Cet appareil num rique de la Class A est conforme á la norme NMB-003 du Canada.

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

FOR EUROPE
WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Dear Customer
This apparatus is in conformance with the valid European directives and standards regarding electromagnetic compatibility and electrical safety.
European representative of JVC KENWOOD Corporation is:
JVC Technical Services Europe GmbH
Postfach 10 05 04
61145 Friedberg
Germany

Sehr geehrter Kunde, sehr geehrte Kundin, dieses Gerät stimmt mit den gültigen europäischen Richtlinien und Normen bezüglich elektromagnetischer Verträglichkeit und elektrischer Sicherheit überein.
Die europäische Vertretung für die JVC KENWOOD Corporation ist:
JVC Technical Services Europe GmbH
Postfach 10 05 04
61145 Friedberg
Deutschland

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.

Attention:
This symbol is only valid in the European Union.

(Business users)
If you wish to dispose of this product, please visit our web page http://www.jvc.eu 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.

● 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. The unit is to be powered by a Listed Class 2 power supply or using the PoE.
● The AC 24 V power supply should conform to the following: Class 2 only (For USA), Isolated power supply only (For Europe and other).
● Any Mention in this manual of Alarm inputs have not been evaluated by UL to be used for Burglar Alarm Functionality.
● Special technique is required when installing this product. Please refer to your dealer for installation.
● Rating label is pasted at the bottom or top of the camera unit.
● JVC is not liable for any compensation if you drop the camera due to insecure mounting by not following the installation description. Pay careful attention during installation.
● When mounting this product to a ceiling or wall, select a location strong enough to support the weight of this camera. If the location is not strong enough to support the weight, be sure to reinforce the ceiling or wall before installation.
● The camera may drop if the mounting screws are not tightened securely. Check that the screws are tightened appropriately and securely.
● Do not install the camera near lighting fixtures of high temperature, such as spot lights. It might result in failure or fires.
● It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable program and in any literary, dramatic musical, or artistic work embodied therein.
● The latest version
  Please visit V.NETWORKS web site to check the latest firmware at http://www3.jvckenwood.com/english/pro/vnetworks/index.html

Mounting the camera

Read before starting work.
- Special skills are required to install this unit.
- If you install the camera on a rainy day, be sure that rainwater does not get inside the camera.
- The camera's mass is approx. 2.3 kg (including the mounting bracket). Take care to avoid dropping the camera during installation.
- Hold the camera by the stay cover while performing installation work.
- When you mount the camera body to the ceiling, be sure to wear safety goggles to protect your eyes from falling objects.

Create a hole in the ceiling

When mounting the camera to a wall, follow these instructions while replacing "ceiling" with "wall".

Note
- Verify the strength of the ceiling. Insufficient strength may cause the camera to fall. If ceiling strength is insufficient, make sure to increase the strength before installation.
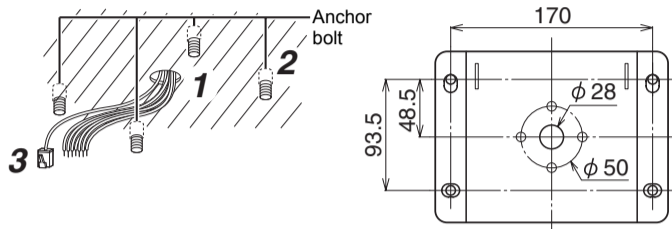
1. **Create a hole in the ceiling (approx. Φ 28 mm).**
2. **Set up the anchor bolts on the ceiling.**
   Set up 4 anchor bolts (M8 x 35 mm or greater) on the ceiling to attach the mounting bracket (supplied) of the camera.
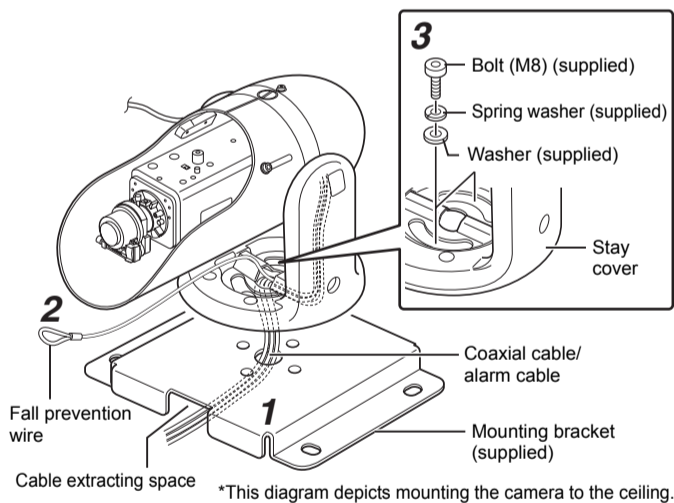3. **Pull out the cables from the hole in the ceiling.**

Removing the Front Cover

Remove the front cover to configure the switches.
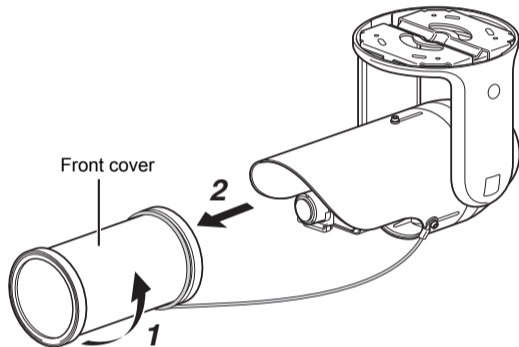
1. **Rotate the front cover counterclockwise.**
2. **Remove the front cover in the direction of the lens.**

Attach the camera to the mounting bracket

*This diagram depicts mounting the camera to the ceiling.

1. **Pass the cable from the camera through the hole of the mounting bracket.**
2. **Pull out the fall prevention wire from the center hole of the stay cover.**
3. **Attach the camera to the mounting bracket with 2 bolts (M8).**
   Tighten the bolts with the supplied wrench.

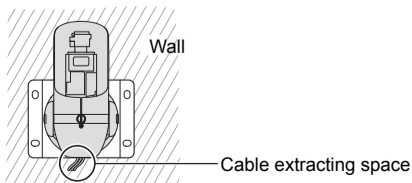### When you mount the camera on the ceiling

Turn the camera so that the camera lens faces the cable extracting space, and attach the camera to the mounting bracket.

When you mount the camera on the wall

Turn the camera so that the camera lens faces opposite the cable extracting space, and attach the camera to the mounting bracket.
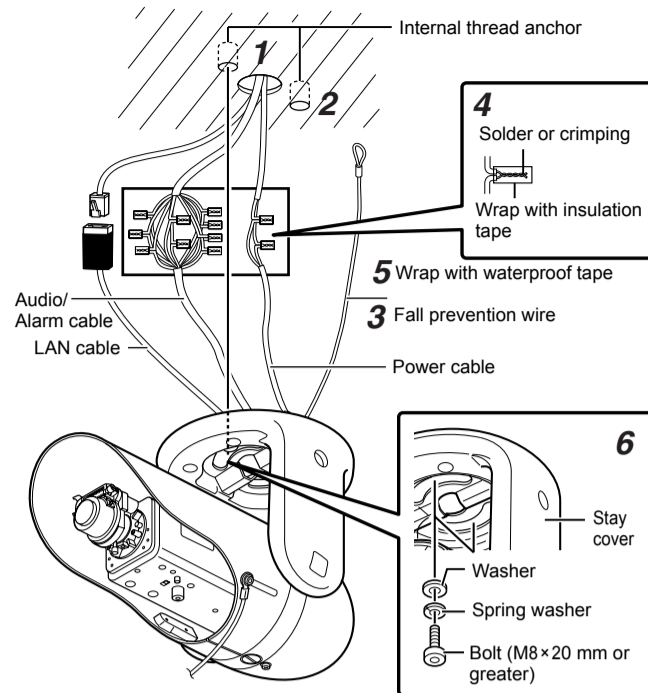
Memo
- When mounting the camera to a wall, the direction of the camera when you attach it is different from when you attach the camera to the ceiling. To protect against water penetration, mount the camera so that the cable extracting space is facing downward.

Note
- Be sure not to pinch the fall prevention wire when attaching the camera to the mounting bracket. Gather all the cables in the indentation of the stay cover.

Mounting the camera on the ceiling without the mounting bracket

Cabling

Connect the AC 24 V power cable, alarm cable, and audio cable to their respective connectors by crimping them or soldering them.
Wrap unused connectors and the ends of unused cables with insulation tape and waterproof tape.
Make sure the LAN cable is completely inserted into the connector. After confirming the connection, wrap it with waterproof tape.

Note
- If you use both the AC 24 V power cable and the PoE-based LAN cable simultaneously, the camera may fail. Always supply power using either method.

Mounting the camera on the ceiling

Use nuts, washers and spring washers to attach the camera to the anchor bolts. Also attach the fall prevention wire when mounting the camera.
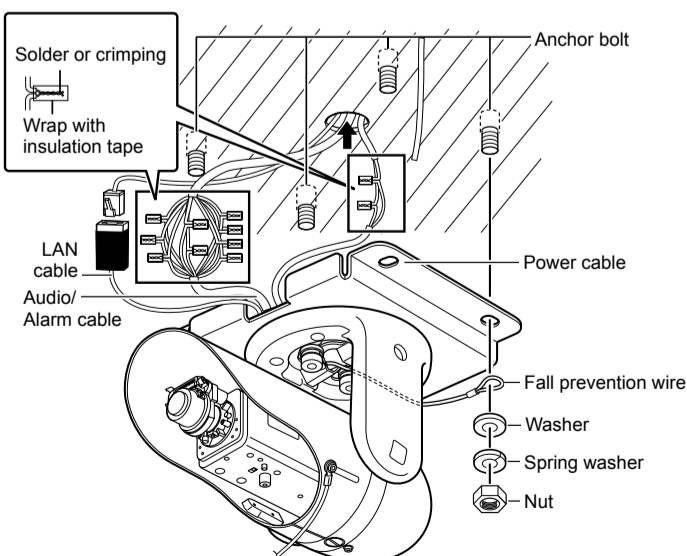
Note
- Use stainless nuts, washers and spring washers. If you use steel parts, apply rust-proofing, for example, by painting them after installation.

1. **Create a hole (approx. Φ 28 mm) in the ceiling, and pull the cables out from the ceiling.**
2. **Insert 2 internal thread anchors (M8) for mounting the camera.**
3. **Connect the camera to the ceiling, and attach the fall prevention wire.**

Note
- Attach the fall prevention wire coming out of the camera to a location of sufficient strength, such as a ceiling slab, etc.
- Take note of the length and strength of the fall prevention wire. Use wire made of insulated material. Make the wire length as short as possible.

4. **Connect the cables. (☞ [Cabling])**
5. **Wrap the cables with waterproof tape.**
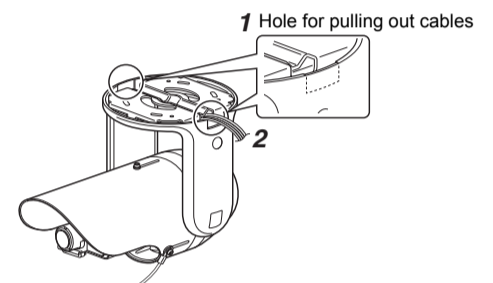6. **Mounting the camera.**
   Tighten the bolts (M8 x 20 mm or greater) with the cables through the ceiling.

Note
- The provided bolts are for use with the mounting bracket only. Do not use the provided bolts for mounting the camera.
- Use stainless bolts, washers and spring washers. If you use steel parts, apply rust-proofing, for example, by painting them after installation.

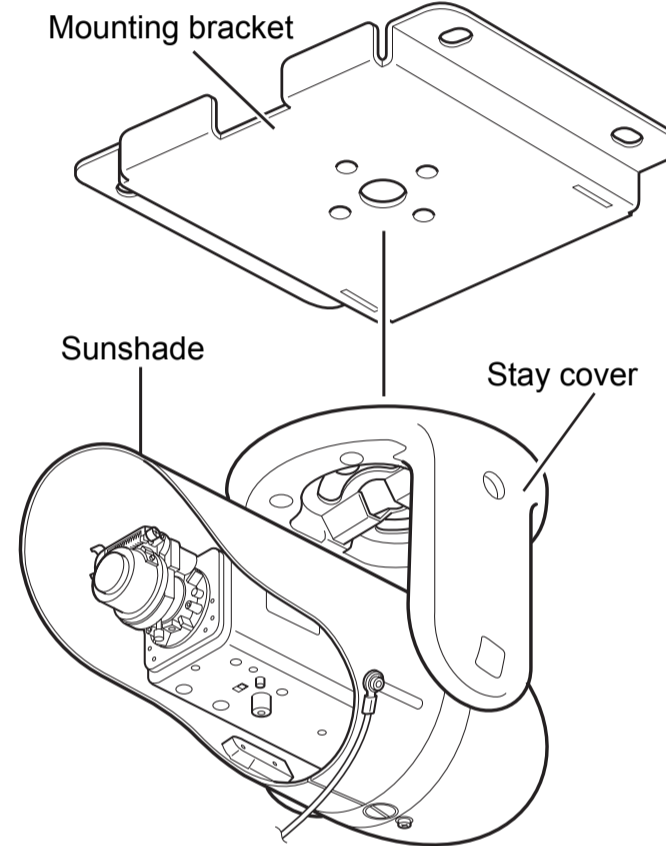## When mounting the camera with cables pulled out from the side

When directly mounting the camera to a ceiling or wall, you can pull cables out from the side and avoid creating a hole for them. The method for mounting the camera is the same as [Mounting the camera on the ceiling without the mounting bracket].

1. **Cut the hole for pulling out cables using a nipper, and then break it off using needle-nose pliers.**
   Create an opening on the side from which you will pull out the cables.
2. **Pull out the cables.**
3. **Perform steps 2 to 6 in [Mounting the camera on the ceiling without the mounting bracket].**

When mounting the camera using an electrical box

For details, contact the dealer from which you purchased this camera.

Turn on the power

After all connections and installations are completed, turn on the power of the unit. When the camera is booting, the [STATUS] indicator lights up orange. It lights up green after booting.
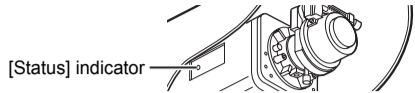
[Status] indicator

Memo
• The lighting status of the [STATUS] indicator can be checked via the opening on the side of the camera.

Image Adjustment

Adjust images by watching them on the monitor.
* The diagram depicts the camera directly mounted on the ceiling for explanation purposes.
  The same procedures are performed when mounting the camera on the wall with the cables pulled out.

Note
• Before you touch the camera, be sure to touch the metal surface of the monitor terminal first in order to discharge static electricity. Otherwise, static electricity may cause the camera to malfunction.

Adjust the shooting direction of the camera

1 Connect a test monitor to the [MONITOR] terminal.

2 After checking that the [MONITOR] selection switch is set to "NTSC", press the [FOCUS ASSIST] button.

[Focus Assist] Button
[MONITOR] SELECT SW
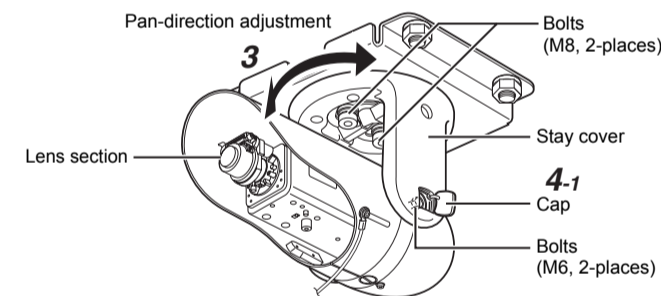NTSC
PAL
[MONITOR] terminal
75 Ω termination
Test monitor
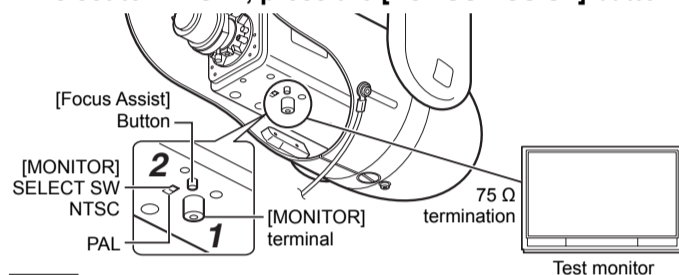
Memo
• The camera has a 16:9 aspect ratio. If the test monitor has a 4:3 aspect ratio, the camera image is converted into 4:3 ratio and displayed.
• Set to "NTSC" when connecting to an NTSC monitor, or set to "PAL" when connecting to a PAL monitor, then hold down the [RESET] button for approximately three seconds to reboot. While the camera is rebooting, the [STATUS] indicator lights up orange.
• If you keep pressing the [RESET] button for more than 5 s, the camera enters the Service mode. Do not press this button for more than 5 s.

3 Adjust the shooting direction of the camera.
❶ Loosen the 2 bolts (M8) which fix the camera to the mounting bracket with the wrench (provided).
❷ Adjust the pan-direction to face the lens toward the subject, holding the stay cover. The range of adjustment angle is about ± 50°.
❸ Fasten the two bolts to fix the camera direction.

Pan-direction adjustment
Bolts (M8, 2-places)
Lens section
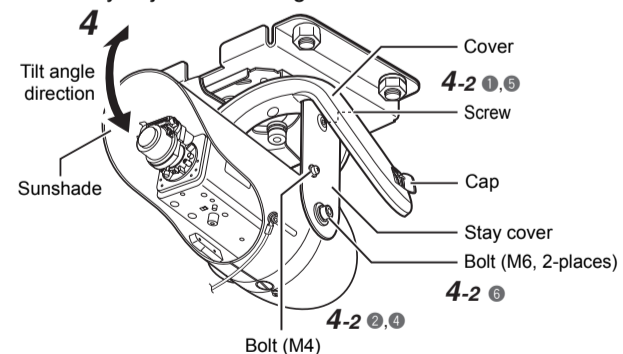Stay cover
4-1 Cap
Bolts (M6, 2-places)

4 Adjust the tilt angle direction of the camera.

4-1 Roughly adjust the tilt angle direction of the camera
❶ Open the cap (2-places) on the side of the stay cover.
❷ Loosen the 2 bolts (M6) with the wrench (supplied).
❸ Take the sunshade, and adjust the tilt angle.
  You can adjust by about 18 degrees for each step.
❹ If fine adjustment of the tilt angle is necessary, fasten the 2 bolts (M6) temporarily, and go to step **4-2**.
❺ If fine adjustment of the tilt angle is unnecessary, fasten the 2 bolts (M6) with the specified amount of torque, and fix the cap.

4-2 Finely adjust the tilt angle direction of the camera

Cover
Tilt angle direction
4-2 ❶,❺
Screw
Cap
Sunshade
Stay cover
Bolt (M6, 2-places)
4-2 ❷,❹
4-2 ❻
Bolt (M4)

❶ Loosen the screw on the right side of the Stay Cover, and open the cover.
❷ Loosen the bolt (M4) with torque wrench.
❸ Take the sunshade, and adjust the tilt angle. The range of adjustment is limited within 20 degrees (approx.).
❹ Fasten the bolt (M4) with the specified amount of torque.
❺ Set the cover on the stay cover opened in step 1, and fasten the screw.
❻ Securely fasten the 2 bolts (M6) that you fastened temporarily with the specified torque at 4 of step 4-1, and put on the cap.

Note
• Fine adjustment of the tilt angle should be done when the bolt (M4) is loose. If you adjust the tilt when the bolt is tightened, the bolt may become loose.
• After adjusting the tilt angle and deciding the tilt position, make sure to tighten the bolts (M6 and M4) on both sides of the stay cover to the torque specified below.
  -M6: Greater than 3.93 N•m; M4: Greater than 0.98 N•m

Adjust the field angle and focus

1 Adjust the zoom ratio.
❶ Loosen the fastening screw of the zoom adjustment ring, then move the ring to the right and left to adjust the zoom ratio. After completing the adjustment, tighten the setscrew.
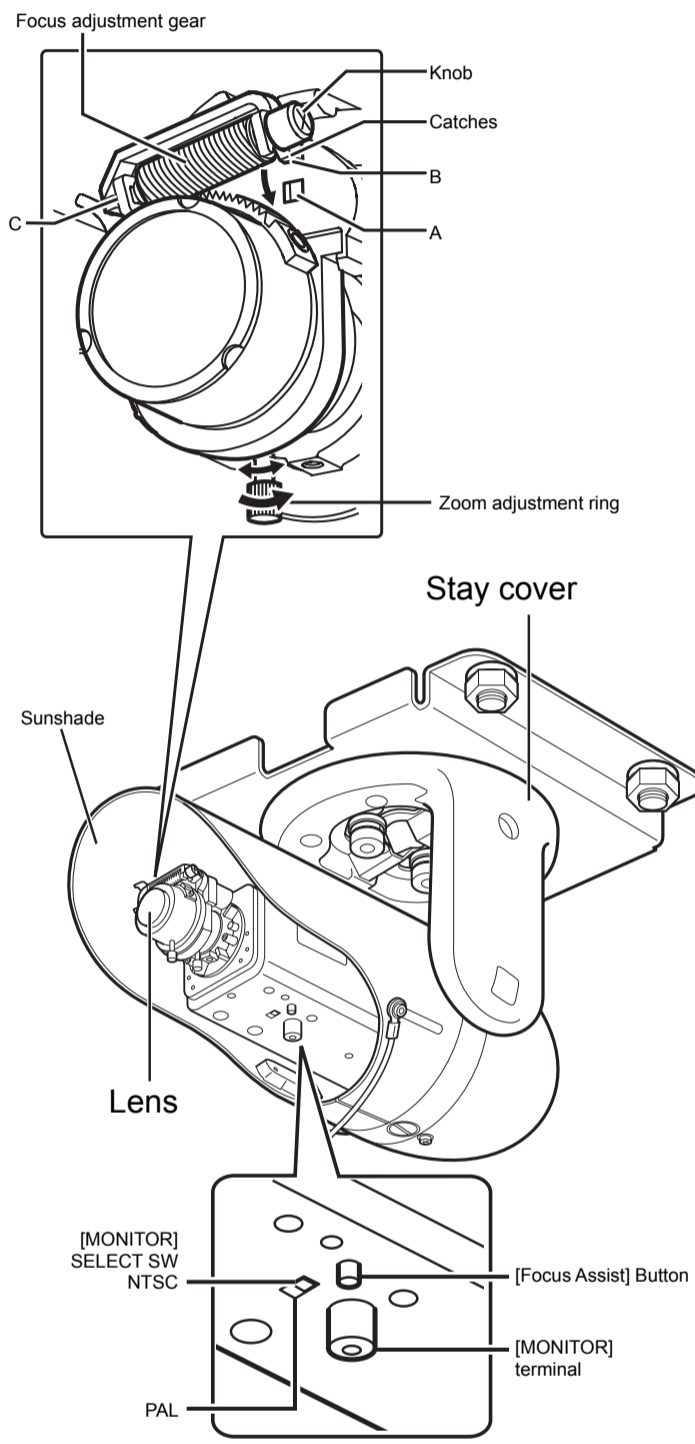
Note
• Applying force on the zoom adjustment ring while adjusting the image size may cause damage.
  Moving the zoom adjustment ring beyond its adjustable range may cause the performance of this camera to deteriorate.

2 Roughly adjust the focus.
❶ Lift the focusing gear control, release the catch from position A and insert it into position B to disengage the gear.
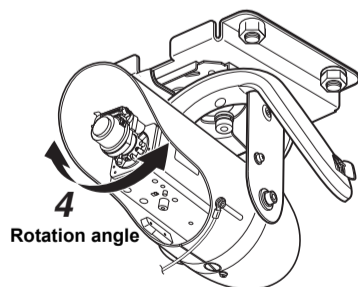
Note
• If you open the gear beyond position B, the gear shaft is released from the bearing (C in the figure on the left) to prevent it from being damaged. In this case, correctly re-insert the shaft into bearing C and return it to the original position before using it.

Focus adjustment gear
Knob
Catches
B
C
A
Zoom adjustment ring
Stay cover
Sunshade
Lens
[MONITOR] SELECT SW
NTSC
[Focus Assist] Button
[MONITOR] terminal
PAL

5 Adjust the rotation angle of the camera (When the camera is mounted on the wall only)

Adjust the rotation angle of this camera to level the image of the camera. The range of rotation adjustment is about 110 degrees.

Rotation angle

Note
• Do not hold the lens section when adjusting the direction of the camera. Applying force to the zoom adjustment ring while adjusting the image size may result in damage.
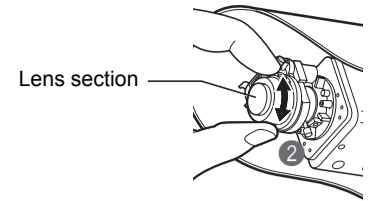
6 Rotate the sunshade. (When the camera is mounted on the wall only)

Rotate the sunshade after adjustment of the rotation angle. The procedure is below.

Rotation the direction of the sunshade
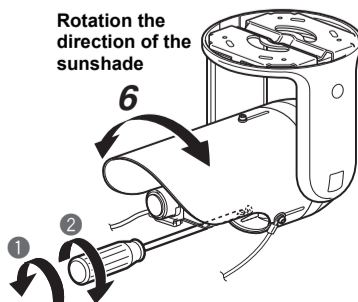
❶ Loosen the screw at the bottom of the camera, and rotate the sunshade.
❷ Fasten the screw after the adjustment.

❷ Rotate the lens section at the tip to roughly adjust the focus.

Lens section

Note
• Do not hold the lens section when adjusting the direction of the camera. The lens section may be damaged if you apply force to it. Also, exercise care not to leave your finger prints on the lens when you rotate the lens section.
❸ Return the catch to its original position, and then return the focusing adjustment gear to its original position.

3 Connect the camera to a computer, and open the Built-in Viewer.
• For details about computer settings and methods for connecting the camera to a computer, refer to "Instructions (IP Address Settings)".

4 Select "Day Focus Adjust" from the "Focus" page in "Advanced Settings".
• The focus position is automatically adjusted.
• For details on back focus, refer to "Instructions (Setting)" on the supplied CD-ROM.

Note
• It may be difficult to acquire focus the following places.
  – Too bright places.
  – Too dark places.
  – Places where brightness always flickering; people are passing by
  – Places where there is little contrast
  – Places where there are repeating
• The focus position can be manually adjusted by using the Built-in Viewer installed on your computer connected to the camera.
  (☞ "Instructions (Setting)") Resort to this method if it is difficult to acquire focus automatically.

Adjust the sunshade

Adjust the sunshade.

Sunshade
Front cover
1
3,5
4
3,5
2
6
3,5
Screws for fixing sunshade (3-places)
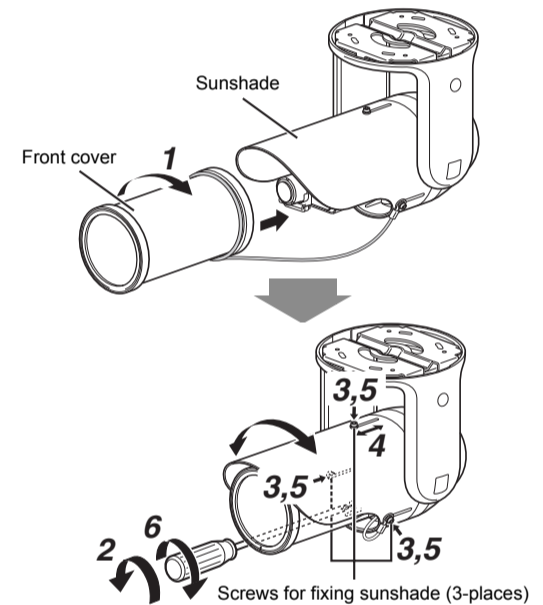
1 Turn the front cover clockwise, and attach it to the camera.
Confirm that the front cover is securely attached.

2 Loosen the screw on the bottom of the camera.
Memo
• Use a long screw driver to avoid damaging the front cover.

3 Loosen the 3 sunshade fixing screws.
Turn the sunshade slightly if it is hard to loosen the screws.
Memo
• If you remove the sunshade fixing screws, the fall prevention wire comes off. Do not remove the sunshade fixing screws.

4 Move the sunshade back and forth, and adjust the position.
Memo
• Adjust the sunshade when flares or ghosting appear.
• The sunshade may appear in the image of the camera due to the angle of the lens and the position of the sunshade.

5 Fasten the sunshade fixing screws after adjustment.

6 Rotate the sunshade to a suitable position, and fasten the screw on the bottom of the camera.

Dustproofing, waterproofing

Perform dustproofing and waterproofing

For dustproofing, insert sealing material (GE silicon) into the cable extracting space and gaps of the mounting bracket, as well as the center hole of the stay cover.

Sealing material
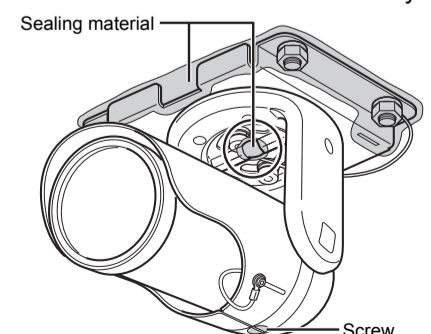
Screw

Note
• Do not loosen the screw on the bottom of the camera. Loosening or removing it may lead to water and moisture getting inside and fogging the lens and the front cover.

☞ Continued overleaf
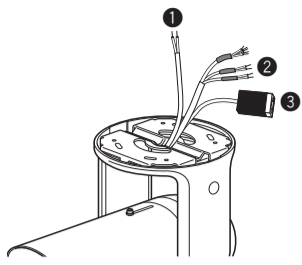
Cables

Cable type	Color		Signal name
❶ Power cable	Red		AC 24 V
	Black		AC 24 V
❷ Audio/Alarm cable	Alarm	Brown	INPUT 1 (ALARM)
		Red	INPUT 2 (ALARM)
		Orange	OUTPUT 1 (ALARM)
		Yellow	OUTPUT 2 (ALARM)
		Black	GND (ALARM)
	Audio	White	MIC IN
		Black	GND (MIC IN)
		Light Green	LINE OUT
		Black	GND (LINE OUT)
❸ LAN cable	Black (Shielded cable)	RJ-45	10BASE-T/ 100BASE-TX

● **Connecting the power cable to AC 24 V source**

Conductor diameter (mm)	1.0 mm dia or more	1.6 mm dia or more	2.0 mm dia or more
Max cable distance (meters) (Reference value)	90	240	370

Note
- For safety reasons, turn on the power only after confirming that all the connections are completed.
- Be sure to turn off the camera before connecting cables.
- If you use both the AC 24 V power cable and the PoE-based LAN cable simultaneously, the camera may fail. Always supply power using either method.
- To use an AC 24 V power supply, remove the factory-installed tape from the power cable, connect to an AC 24 V power supply, and wrap the connector with new insulation tape and waterproof tape.

● **LAN cable**
- When connecting to a switching hub: Use a straight cable.
- When connecting to a computer: Use a crossing cable.
- A 100-meter or less length and Category-5 or higher grade STP (shielded) cable is recommended.

Note
- The crossing cable may not be used for some computer models. Check the LAN specifications of the computer when you directly connect this unit to the computer.

● **Alarm cable**
- A 50-meter or less length shielded cable is recommended.

Audio cable connection

Connect the audio cable for an audio device.

Audio cable (White and Black) (MIC IN) : Connect to a condenser microphone that has a plug-in power system, etc.

Audio cable (Light Green and Black) (LINE OUT) : Connect to a speaker with a built-in amp, etc.

Memo
- A shielded audio cable is recommended.

Alarm cable connection

Alarm input
Connect an infrared sensor, door sensor, metal sensor, a manual switch or other device.
- To avoid noise entering the internal circuit, enter the non-voltage contact signal in the Alarm IN terminal.
- Do not supply voltage.
- The alarm can be set to be activated during close contact (MAKE) or during open contact (BREAK) can be set from the menu.
- The alarm signal should last for at least 500 msec. If the alarm signal is short, it may not be recognized.

● **Input conditions**
- Connect non-voltage a contact or NPN open collector output circuit (For details on how to set polarities, please refer to "Instructions (Setting)".)
- Low level terminal current below 1 mA
- High level terminal current 3.3 V

(Alarm input equivalent circuit)
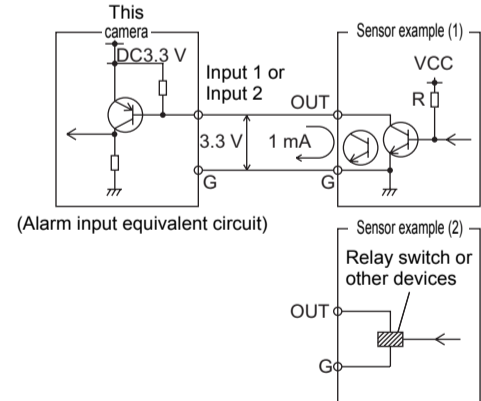
Alarm output
Connect an alarm device, indicator, lighting, buzzer or other device.
- An alarm output signal is an open collector output. You can configure the menu to set the alarm to sound when contacts short circuit (MAKE) or when the contacts are open (BREAK). (Pressure resistance lower than 16V, 30 mA)
- This terminal has different polarities. The output voltage at the positive terminal must always be higher than the output voltage at the negative terminal. Otherwise, the circuit may be damaged.

● **Output conditions**
- Equivalent to NPN open collector output (For details on how to set the output logic, please refer to "Instructions (Setting)".)
- Safe excitation voltage: DC12 V or lower
- Allowable surge current: 50 mA
- Momentary (100 ms to 5000 ms) output (For details on how to set the time, please refer to "Instructions (Setting)".)

(Alarm output equivalent circuit)
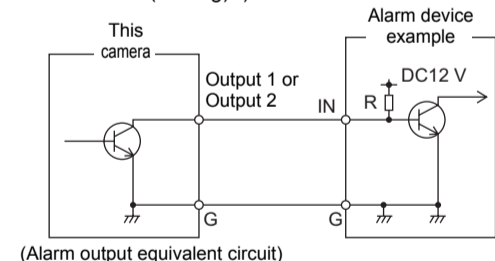
Note
- Connect the G terminal cable of this camera to the GND of the alarm device.
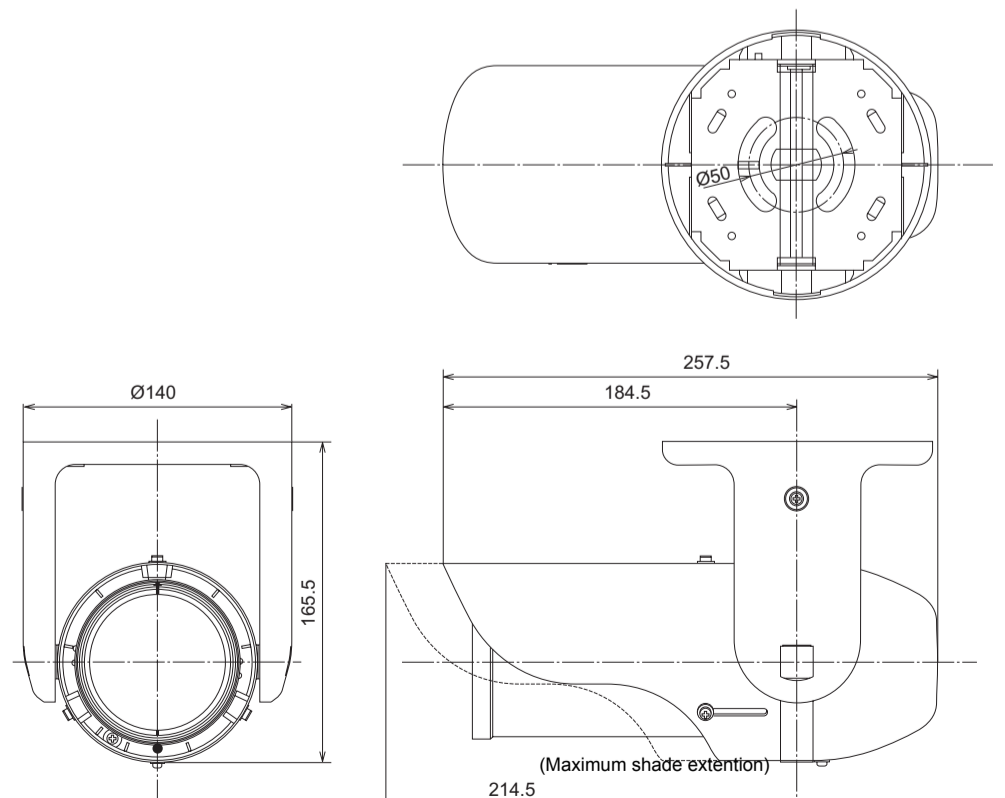
Troubleshooting

Symptom	Causes and Countermeasures
Movement of network image is not smooth	• If the monitor image output is turned ON, a lower frame rate is set for network images. • If you turned the monitor image output to OFF, set the frame rate again.(☞ "Instructions (Setting)" - "Internet Explorer Setting" - "Encoding Page")
No monitor image is output.	The image output may be turned Off on Internet Explorer. Check the monitor output setting.
The external mic sound is not heard.	• Check the MIC connection. • Is the audio setting turned off? (☞ "Instructions (Setting)" - "Audio Page")
Lens is out of focus	Is the focus adjustment gear engaged? Check the location of the catch.

Specifications

* The specifications and appearance of this unit are subject to change for purposes of improvement without prior notice.

Camera section	Image sensor	1/3-inch Square-Pixel Progressive Scan CMOS (elementary color filter)
	Effective pixels	Approximately 2,120,000 pixels 1944 (H) × 1092 (V)
	Minimum illuminance of subject	(50%, AGC High, 1/30 s) Color: 0.3 lx (typ.) Black and White 0.03 lx (typ.)
Monitor output		75 Ω, 1.0 Vp-p NTSC or PAL (switch selectable)
Audio input	Input	Can connect to a microphone that has a plug-in power system
	Reference voltage	DC2.47 V(typ.)
	Impedance	2.2 kΩ (typ.)
Audio output		Line OUT (200 Ω, Max 1.9 Vp-p)
Network output	Image compression format	JPEG, H.264 High Profile, H.264 Baseline Profile, MPEG-4
	Frame size	1920 x 1080 1280 x 960 1280 x 720 640 x 480 640 x 360 320 x 240
	Audio compression formats	µ-Law(64 kbps), AD/DA 16bits, Fs = 8 kHz, monaural
	Network interface	RJ-45 100BASE-TX/10BASE-T/FULL/HALF/Auto-negotiation enabled
Alarm input		No-voltage a contact input, PNP open collector input, low level, latch/momentary (500 msec or longer) (1 mA circuit current at low level, and 3.3 VDC applied voltage at high level)
Alarm output		NPN open collector-output (16 VDC safe excitation voltage, and 30 mA allowable sink current)
Alarm record		16 MB
Lens	Focal length	f = 3 mm to 9 mm
	Maximum aperture ratio	F 1.2 (f =3 mm) to F 2.1 (f =9 mm)
	Aperture range	F 1.2 to F 360
	Zoom ratio	3 x
LAN standards	Standards	Compliant with IEEE802.3, IEEE802.3u and IEEE802.3af
	Communication protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, SMTP, RTP, RTSP, IPv4, IPv6, DSCP, HTTPS, SNMP
General	Power supply voltage	AC24 V 50 Hz/60 Hz, or PoE(DC-48 V)
	Current consumption	AC24 V 0.5 A, or PoE 150 mA (7.2 W)
	Ambient temperature	-10 °C to 50 °C (Operation) 0 °C to 40 °C (Recommended)
	Ambient humidity	20 %RH to 90 %RH (without condensation)
	Mass	Approx. 1.8 kg
	Dustproof/Waterproof	IP66 compliant

External dimensions (unit: mm)

Ø50

Ø140

165.5

257.5

184.5

(Maximum shade extention)

214.5

LST1238-001B

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