

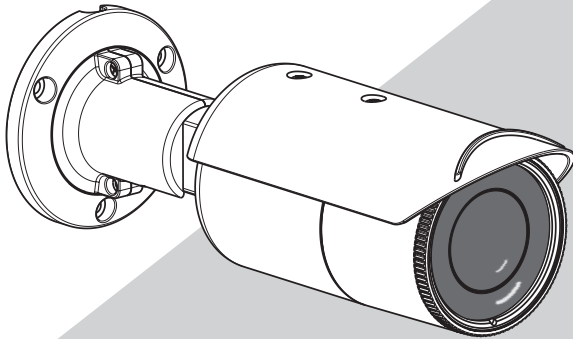
PRO

Installation Guide Color CCTV Camera

Model No: WV-CW324LE

WV-CW314LE

WV-CW304LE



This illustration represents WV-CW324LE, WV-CW314LE, WV-CW304LE.

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

The model number is abbreviated in some descriptions in this manual.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standard or other normative document following the provisions of Directive 2004/108/EC.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Norm oder normativen Dokument übereinstimmt. Gemäß den Bestimmungen der Richtlinie 2004/108/EC.

Nous déclarons sous notre propre responsabilité que le produit auquel se réfère la présente déclaration est conforme à la norme spécifiée ou à tout autre document normatif conformément aux dispositions de la directive 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con la norma u otro documento normativo siguiendo las estipulaciones de la directiva 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme al seguente standard o altro documento normativo conforme alle disposizioni della direttiva 2004/108/CE.

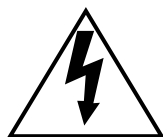
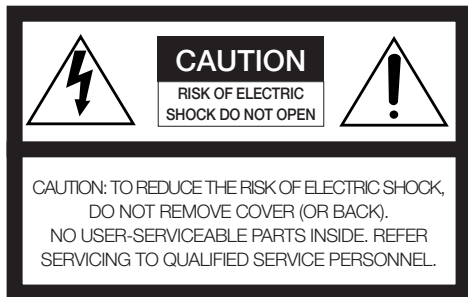
Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende norm of ander normatief document, overeenkomstig de bepalingen van Richtlijn 2004/108/EC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med standard eller andre normative dokumenter i følge bestemmelserne i direktiv 2004/108/EC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument eller annat normativt dokument som framställs i direktiv 2004/108/EC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavaa standardia tai muuta ohjeellista asiakirjaa, jotka noudattavat direktiivin 2004/108/EC säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende norm eller andre normgivende dokumenter som følger bestemmelsene i direktiv 2004/108/EC.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.






The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

- All work related to the installation of this product should be made by qualified service personnel or system installers.
- To prevent injury, this apparatus must be securely attached to the floor/wall/ceiling in accordance with the installation instructions.
- The installation shall be carried out in accordance with all applicable installation rules.
- This product has no power switch.
When turning off the power, turn off a Power Supply or remove a power cable.
- The connections should comply with local electrical code.

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Important safety instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 6) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 7) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 8) Only use attachments/accessories specified by the manufacturer.
- 9) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 10) Unplug this apparatus during lightning storms or when unused for long periods of time.

Limitation of liability

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- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- (3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- (4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
- (5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
- (6) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR ANY PURPOSE.

Preface

This product is a 1/3-type CCD D/N infrared CCTV camera. Connection of this product to a video monitor allows users to use this product as a monitoring camera.

- WV-CW324LE, WV-CW314LE: with function of color/black-and-white mode switch and back focus adjustment.
- WV-CW304LE: with function of color/black-and-white mode switch.

About notations

The following notations are used when describing the functions limited for specific models. The functions without the notations are supported by all models.

CW324L : The functions with this notation are available when using the model WV-CW324LE.

CW314L : The functions with this notation are available when using the model WV-CW314LE.

CW304L : The functions with this notation are available when using the model WV-CW304LE.

Features

Introduction of newly developed high-resolution CCD

The introduction of the newly developed CCD with 976 horizontal pixels has led to a horizontal resolution of as high as 650 TV lines.

Auto back focus (ABF) function **CW324L** **CW314L**

It is possible to adjust the back focus automatically by operating the set button of this camera or the setup menu.

Day/Night conversion function equipped

No setup change is required at night because the image automatically changes from the color mode to the black-and-white mode at low illuminance.

IR LED equipped

The equipped infrared LED makes it possible to monitor at zero lx.

Comply with Standard IP66/dustproof and waterproof

With dustproof and waterproof designing, the camera can be mounted under eaves or rainy and damp area or bad conditions with dust flying.

Motion detection function (VMD) equipped

The motion of an object is detectable. The acts of covering the camera with a cloth, a cap or other acts and changing the camera direction during surveillance can be detected.

Note:

- The VMD function is not the dedicated function to prevent thefts, fires, etc. We are not responsible for any accidents or damages caused by applying the function for the above purposes.
-

About the user manuals

The operating instructions of the camera consist of 2 sets: this book and operating instructions (PDF).

This book explains how to install the camera.

Refer to the "Operating Instructions (PDF)" on the provided CD-ROM for descriptions of how to perform the unit settings. Adobe® Reader® is required to read PDF. When the Adobe® Reader® is not installed on the PC, download the latest Adobe® Reader® from the Adobe web site and install it.

Trademarks and registered trademarks

Adobe, Acrobat Reader and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Precautions

Refer installation work to the dealer.

Installation work requires technique and experiences. Otherwise injury or damage to this product may result.

Be sure to consult the dealer.

Stop operation immediately when something is wrong with this product.

When smoke goes up from this product or the smell of smoke comes from this product, continued use will result in fire, injury, or damage to the product.

Turn the power off immediately and contact qualified service personnel for service.

Do not attempt to disassemble or modify this product.

Failure to observe this may cause fire or electric shock.

Consult the dealer for the repair or inspections.

Do not insert any foreign objects.

This could permanently damage this product.

Turn the power off immediately and contact qualified service personnel for service.

Select an installation area that can support the total weight.

Selecting an inappropriate installation surface may cause the product to fall down or topple over, resulting in injury.

Installation work shall be started after sufficient reinforcement.

Periodic inspections shall be conducted.

Rust on the metal parts or screws may cause the product to fall down resulting in injury or accidents.

Consult the dealer for the inspections.

Do not use this product in an atmosphere of flammable gases.

Failure to observe this may cause injury by explosion.

Avoid installing this product in locations where it is subject to damage by salt or corrosive gas.

Otherwise the mounting fixtures will deteriorate, causing the product to fall down and leading to accidents.

This product shall be installed in a vibration-free place.

Failure to observe this may cause screws and bolts to be loosened and consequently to fall resulting in injury.

Install this product in a location high enough to avoid people and objects from bumping the product.

Failure to observe this may cause a drop resulting in injury or accidents.

Do not strike or give a strong shock to this product.

Failure to observe this may cause injury or fire.

Turn the power off when do wiring of this product.

Failure to observe this may cause electric shock. A short circuit or wrong wiring may cause fire.

Tighten screws and mounting fixtures to the specified torque.

Failure to observe this may cause a drop resulting in injury or accidents.

Do not rub the edges of metal parts with your hand.

Failure to observe this may cause injury.

Do not touch this product, the power cord or the connected cables during thunder. (even in the process of work)

Failure to observe this may cause electric shock.

The measures of protection against snowfall shall be taken.

In areas where lots of snow accumulates, the weight of snow may cause the product to fall resulting in injury or accidents. Protect the product against snowfall by installing under eaves.

The screws and fixed parts must be securely tightened.

Failure to observe this may cause the product to fall resulting in injury.

The measures of protection against a fall of this product shall be taken.

Failure to observe this may cause a drop resulting in injury or accidents.

Do not damage the power cable.

Do not damage, fabricate, twist, stretch, bundle, or forcibly bend the power cable. Do not place heavy objects.

Keep away from heat sources.

Use of the damaged power cable may cause electric shock, short circuit, or fire.

Consult the dealer for repair.

Turn the power off when cleaning this product.

Failure to observe this may cause injury.

When adjusting the angle, do not touch the movable parts by hand.

Doing so may cause fingers to get caught, resulting in an injury.

[Precautions for use]

This product has no power switch.

When turning off the power, turn off a circuit breaker.

To keep on using with stable performance

Parts of this product may deteriorate and it may shorten the lifetime of this product when using in locations subject to high temperatures and high humidity. (Recommended operating temperature: -10 °C - 50 °C)

Do not expose this product to direct heat sources such as a heater.

Do not touch the front cover (transparent cover) with your bare hands.

A dirty cover causes deterioration of picture quality.

Handle this product with care.

Do not drop this product, nor apply shock or vibration to this product.

Failure to observe this may cause trouble.

If a strong shock or vibration is applied to the front cover, it may cause damage or allow water to enter this product.

Noise on monitor

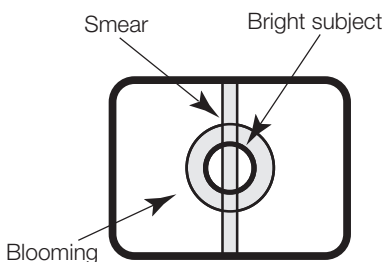
This product is equipped with a super sensitive CCD. Therefore, noise may appear on the monitor. This phenomenon is not trouble.

Discoloration on the CCD color filter

When continuously shooting a bright light source such as a spotlight, the color filter of the CCD may have deteriorated and it may cause discoloration. Even when changing the fixed shooting direction after continuously shooting a spotlight for a certain period, the discoloration may remain.

Do not aim this product at strong light sources.

A light source such as a spot light causes a blooming (light bleeding) or a smear (vertical lines).



Cleaning this product body

Turn the power off when cleaning this product. Do not use strong abrasive detergent when cleaning this product. Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

Cleaning the lens

Use a lens cleaning paper (used to clean camera lenses or lenses of spectacles). When using solvent, use an alcohols solvent and do not use a thinner or a glass cleaner.

Synchronous mode setting

Image synchronous mode of this camera indicates internal synchronization (INT) only. Set the multiplexed vertical drive (VD2) as OFF when the camera is connected to the system controller of the company.

Precautions for installation

i-PRO Co., Ltd. assumes no responsibility for injuries or property damage resulting from failures arising out of improper installation or operation inconsistent with this documentation.

Installing place

Contact your dealer for assistance if you are unsure of an appropriate place in your particular environment.

- Make sure that the installation area is strong enough to hold the product, such as a concrete ceiling.
- Install the camera in the foundation area of the architecture or where sufficient strength is assured.
- If a wall or ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Avoid installing this product in the following locations.

- Locations where a chemical agent is used such as a swimming pool.
- Locations subject to steam and oil smoke such as a kitchen.
- Locations near flammable gas or vapor.
- Locations where radiation or x-ray emissions are produced.
- Locations where corrosive gas is produced, Locations where it may be damaged by briny air such as seashores.
- Locations where the temperature is not within -10°C to $+50^{\circ}\text{C}$.
- Locations subject to vibrations (This product is not designed for on-vehicle use.)
- Locations subject to condensation as the result of severe changes in temperature.

Avoid installing this product in a place with a high level of noise.

Installation near an air conditioner, an air cleaner, a vending machine, or the like causes noise.

Avoid installing and connecting during a lightning storm. Otherwise, an electric shock or fire may be caused.

Do not damage the power plug or cable.

Keep the camera cable away from the lighting cable.

Failure to observe this may cause noise.

Be sure to remove this product if it is not in use.

Design and engineer the power supply system to turn on/off the power of this product.

The product has no power switch. When installing the product, use a power supply device equipped with the ON-OFF switch for servicing.

Screw tightening

- The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area.
- Do not use an impact driver. Failure to observe this may cause overtightening and consequently damage to the screws.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws or bolts, perform visual check to ensure tightening is enough and there is no backlash.

Locally procure the screws

Screws are not supplied with this product. Prepare the screws according to the material, structure, strength and other factors of the mounting area and the total weight of objects to be mounted.

Radio interference

When the camera is used near TV/radio antenna, strong electric field or magnetic field (near a motor or a transformer), images may be distorted and noise sound may be produced. In such a case, run the camera cable through specialized steel conduit tubes.

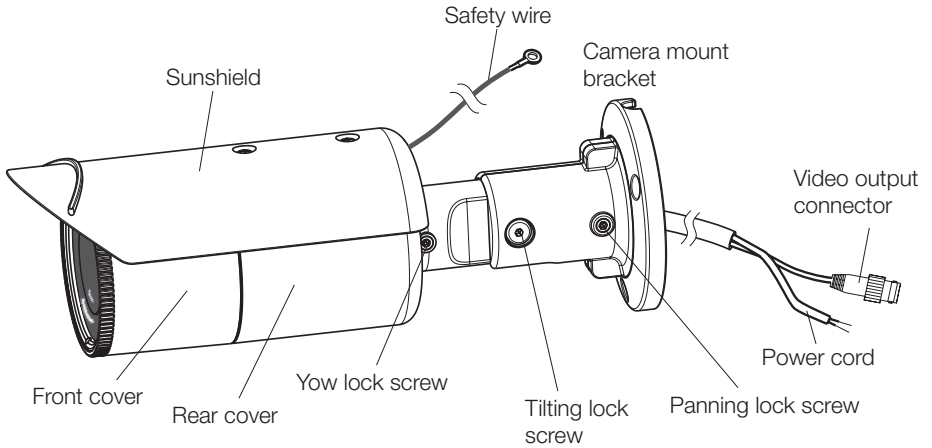
Take notice of humidity.

Install this product when the humidity is low. If this product is installed at a high humidity, the inside may be exposed to moisture and the front cover may become foggy.

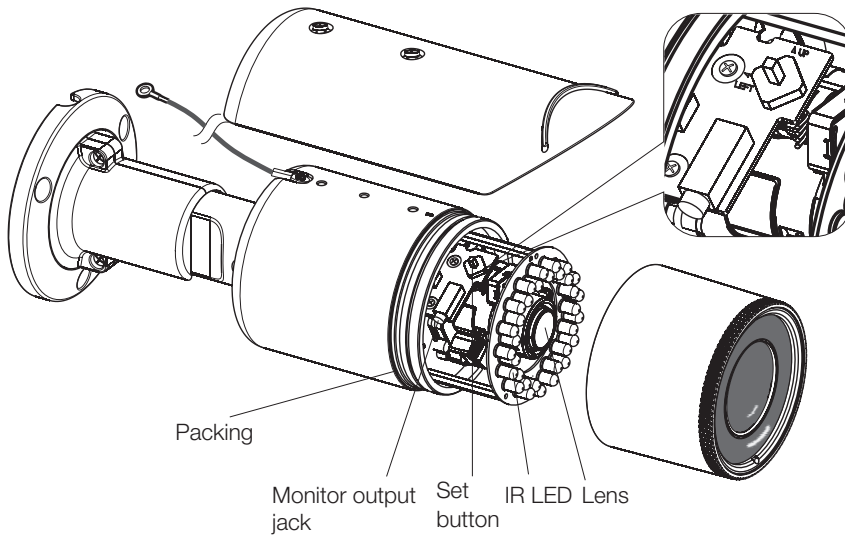
Conduit

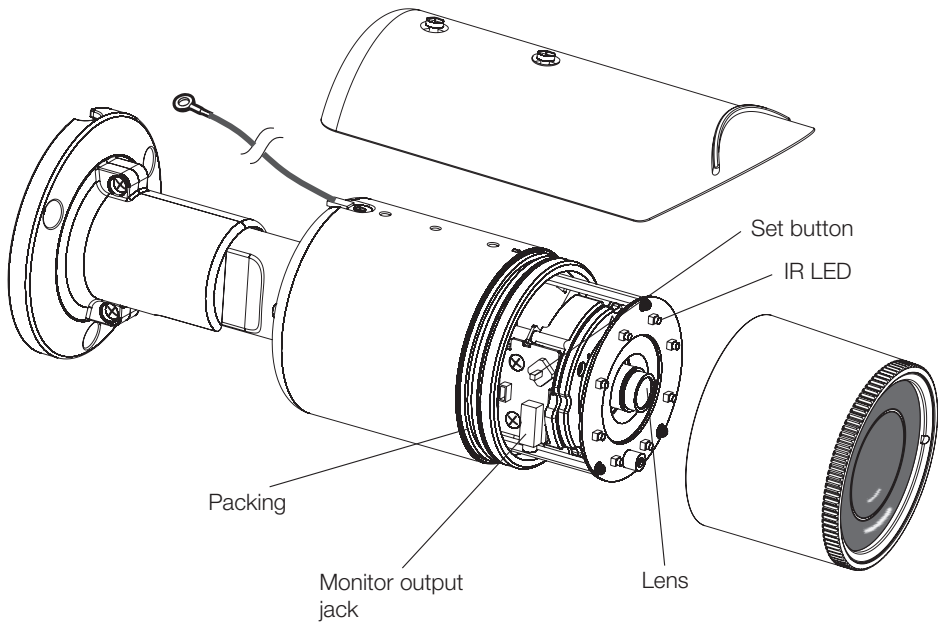
If the camera is used outdoors, be sure to use conduits and run the cables inside the tubes to protect the cables from direct sunlight.

Major operating controls



<WV-CW324LE, WV-CW314LE>





Preparations

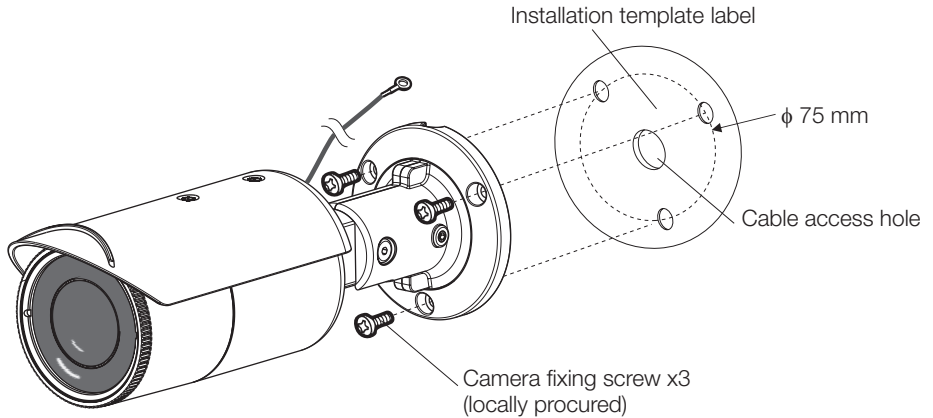
The camera can be directly mounted on the wall or ceiling.

Important:

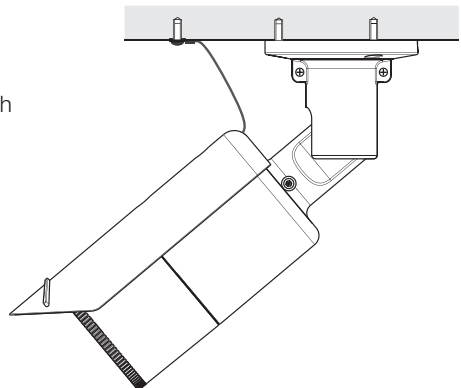
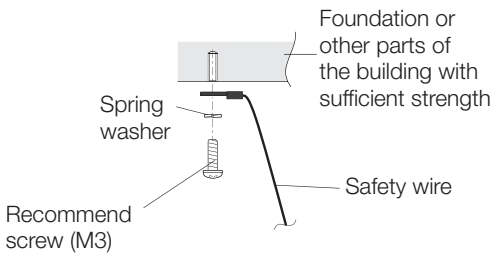
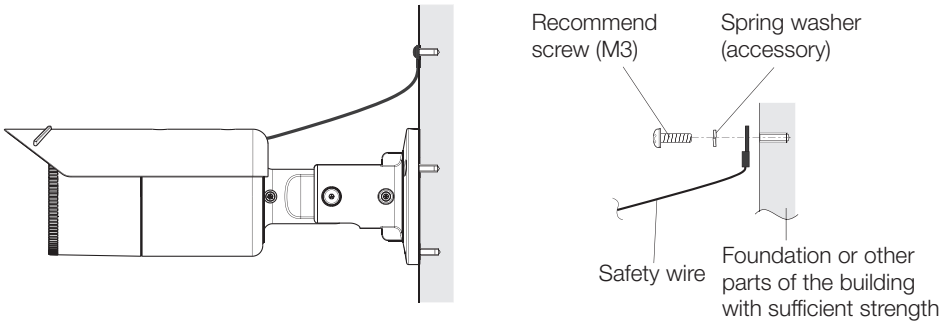
- Prepare the mounting screws according to the material of the area where the camera mount bracket is to be installed. In this case, wood screws and nails should not be used. Recommended tightening torque M4: 1.60 N·m {1.18 lbf·ft}
- Required pull-out capacity of a single screw/bolt is 196 N {44.06 lbf} or more.
- If a wall or ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Installation

Affix the installation template label (accessory) to the ceiling or wall, and use a pen to mark the positions of the screws and cable mounting hole in the ceiling or wall. Remove the installation template label and attach the camera with 3 screws (locally procured).



Prepare screws (locally procured) according to the condition of the attachment position. Attach the safety wire to the foundation or other parts of the building with sufficient strength.



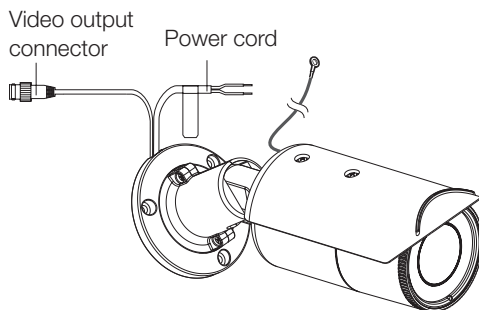
Connections

Connect the video output

Important:

- Be sure to turn off the power of each device before connecting.
- Be sure to secure the coaxial cable connectors.

Connect a coaxial cable (locally procured) to the video output connector.



Connect the power supply

Connect the two-color conductor cable of the camera to the power supply. The colors and functions of the conductors are shown below.

Color	12 V DC	24 V AC
Brown	Positive	Live
Blue	Negative	Neutral

Important:

- The power supply of 24 V AC/12 V DC shall be insulated against 220 to 240 V AC.
- The power supply is automatically switchover either 24 V AC or 12 V DC. No setting is required with this camera.

Connection of power cord

When connecting the power cord, use connectors that are designed for the power cord, and be careful not to let the power cord fall off.

In addition, waterproofing work is needed at the joint, e.g., wrapping waterproof tape around the joint.

Cable length and wire gauge

24 V AC

The recommended cable length and wire gauge are shown in the table for reference. The voltage supplied to the power terminals of the camera should be within 19.5 V AC and 28 V AC.

Copper wire size (AWG)	#24 (0.205 mm ²)	#22 (0.325 mm ²)	#20 (0.519 mm ²)	#18 (0.833 mm ²)	#16 (1.307 mm ²)
Length (approx.) (m)	20	30	45	75	120

12 V DC

Calculation of the relation among the cable length, resistance, and power supply.

The voltage supplied to the camera shall be between 10.8 V DC and 16 V DC.

$$10.8 \text{ V DC} \leq V_A - 2 (R \times I \times L) \leq 16 \text{ V DC}$$

L : Cable length (m)

R : Resistance of copper wire (Ω /m)

V_A : DC output voltage of power supply unit

I : DC current consumption (A)

See specifications.

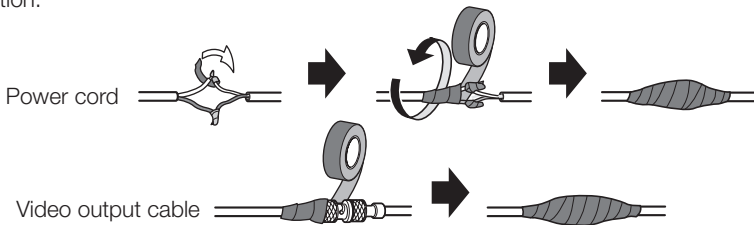
Resistance of copper wire [at 20 °C]

Copper wire size (AWG)	#24 (0.205 mm ²)	#22 (0.325 mm ²)	#20 (0.519 mm ²)	#18 (0.833 mm ²)	#16 (1.307 mm ²)
Resistance Ω /m	0.083	0.052	0.033	0.020	0.013

Waterproof treatment for the cable joint sections

Adequate waterproof treatment is required for the cables when installing the camera with cables exposed or installing it under the eaves. The camera body is waterproof, but the cable ends are not waterproof.

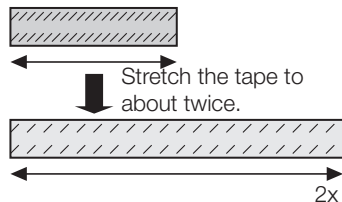
Be sure to use the supplied waterproof tape at the points where the cables are connected to apply waterproof treatment in the following procedure. Failure to observe this or use of a tape other than the provided waterproof tape (such as a vinyl tape) may cause water leakage resulting in malfunction.



Note:

How to wind the supplied waterproof tape (accessory)

- Stretch the tape by approx. twice (see the illustration) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing.
- To install this product outdoors, be sure to waterproof the cables. Waterproof grade (IEC IP66 or equivalent) is applied to this product only when it is installed correctly as described in these operating instructions and appropriate waterproof treatment is applied. The mount brackets are not waterproofed.

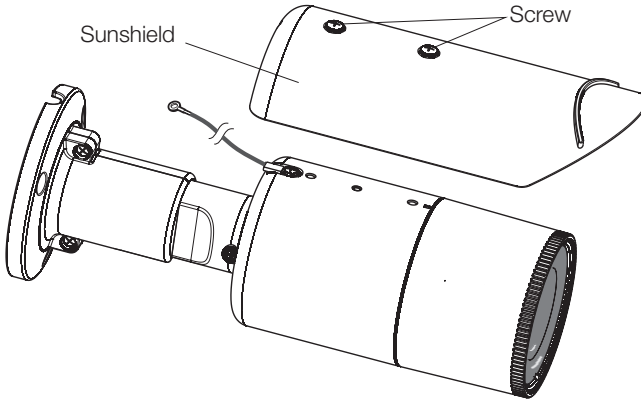


Adjustment

1 Be sure to view the monitor for adjustment when the camera angle is adjusted.

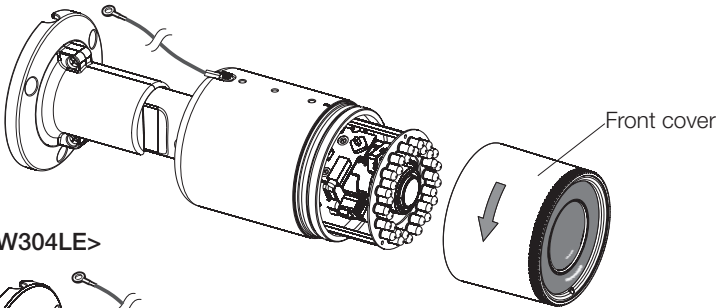
Supply power to this unit, connect the monitor for adjustment (e.g. a small LCD) to the monitor output jack, and adjust the camera angle (turn off the power after view angle adjustment for safety).

① Loosen the 2 fixing screws of the front cover to remove the front cover.

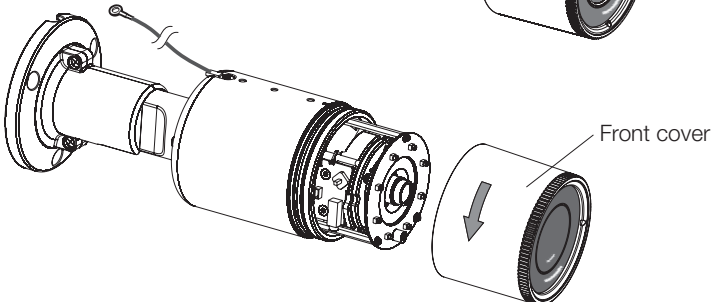


② Unscrew and remove the front cover.

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<WV-CW304LE>



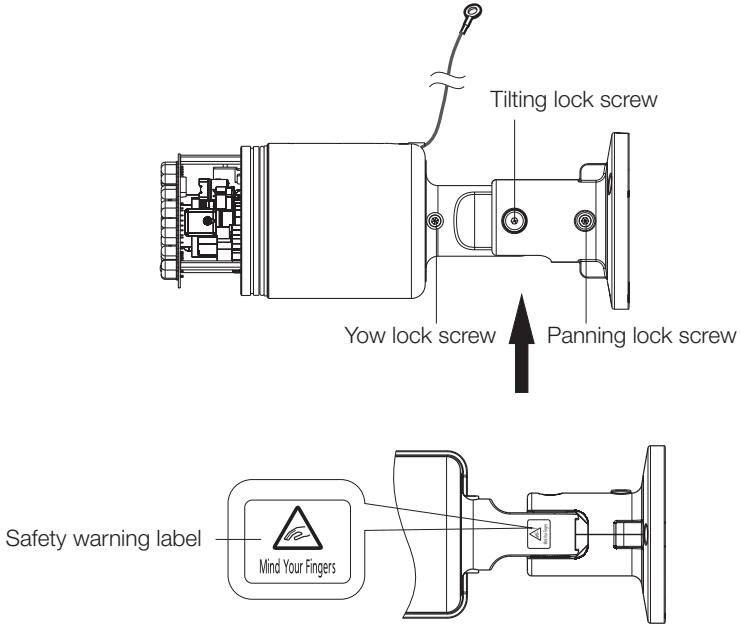
③ Connect the adjustment monitor output jack to monitor output jack with ϕ 3.5 mm miniature plug (mono channel) (locally procured).

Important:

- This video output is intended for confirmation of view angle, etc. during installation or repair service, and not for recording or monitoring.
-

Note:

- Monitor output jack has higher priority than video output connector. Video cannot be output through the video output cable after connecting the adjustment monitor.
-



- ④ Repeat the steps (1) and (2) to adjust the camera angle.
 - (1) Loosen the panning lock screw and rotate the camera head horizontally to adjust panning.
 - (2) Loosen the tilting lock screw and rotate the camera head vertically to adjust tilting.
 - (3) Loosen the yaw lock screw and rotate the camera head horizontally to adjust panning.
 - (4) Tighten the yaw lock screw, panning lock screw and tilting lock screw after camera angle adjustment.

Important:

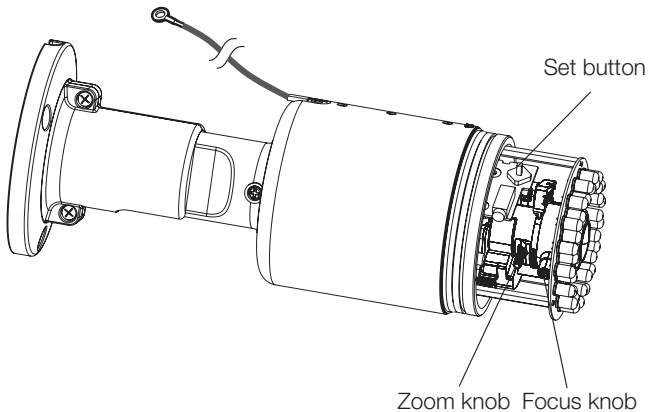
- After camera angle adjustment, the yaw lock screw, panning lock screw and tilting lock screw shall be securely tightened. Recommended tightening torque: 1.8 N·m {1.33 lbf·ft}
-

Note:

- Do not put your fingers on the movable part where the safety warning label is pasted when the camera angle is adjusted, unless your hands will be clamped when the front portion of camera hangs down.
 - Use a hexagonal wrench with width across flats of 3 mm (locally procured) to loosen or tighten the yaw lock screw, panning lock screw and tilting lock screw.
 - Approximately 1 rotation of loosening the yaw lock screw, panning lock screw and tilting lock screw allows camera angle adjustment. Do not loosen the screws beyond necessity.
 - The camera body shall be held when the yaw lock screw, panning lock screw or tilting lock screw is loosened.
 - Focus adjustment shall be performed at the same time panning and tilting adjustments are performed.
-

2 Adjust the angular field of view and the focus. CW324L CW314L

Adjust the angular field of view in accordance with the distance between the camera lens and a photographic subject. These adjustments shall be performed together with the camera angle adjustment.



- ① Loosen the zoom knob and adjust to the best view angle between TELE and WIDE.
-

Note:

- The focus may not be adjusted smoothly when the zoom adjustment ring is extremely close to the end of W direction (T direction). At this time, slightly adjust the zoom adjustment ring towards the T direction (W direction), and then adjust the focus.
-

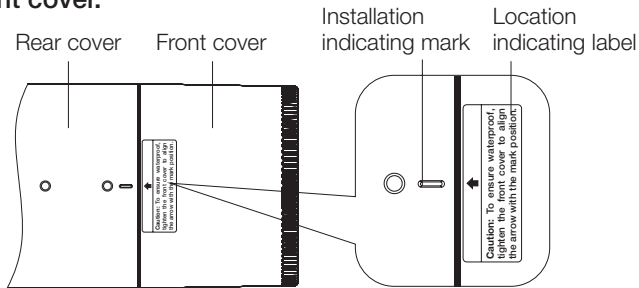
- ② Tighten the zoom knob.
③ Adjust the focus knob to get the optimal angular field of view between NEAR and FAR.
④ Press the set button on the side of the camera, which will automatically focus.
-

Note:

- Press the set button to enter into the ABF function.
 - If the set button is pressed continuously for more than 2 seconds, the setup menu will be displayed.
-

Note:

- The ABF function is not available over the entire focus range. Be sure to perform approximate adjustment of the view angle before manual focusing, and then press the [ABF] button to enable the ABF function.
 - For the following subjects, select ELC control method, and then manually adjust the focus.
 - Frequently moving subject
 - Subject with large illuminance change
 - Subject with low illuminance
 - Too bright or reflective subject
 - Subject through a window
 - Place where the lens easily becomes dirty
 - Subject with less contrast such as white wall
 - Subject with remarkable depth
 - Subject with heavy flicker
 - Subject with horizontally parallel lines such as a shutter
-

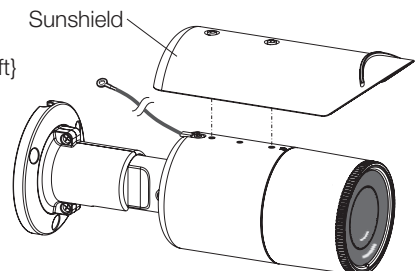
3 Install the front cover.

Important:

- Make sure that the arrow on the location indicating label is aligned with the installation indicator on the rear cover before the front cover is screwed tightly. Otherwise, the camera can not be water proofed.
 - Make sure that the sealing ring is not stripped or slanted, and if it occurs, please put the sealing ring to where it is.
 - Make sure there is no dust or other dirty things on the sealing rings, and if it occurs, please remove them.
 - Please strip the protective layer clung on the transparent portion of the front cover after completing the installation, and after that, do not touch the transparent portion of the front cover directly with your hands.
-

4 Install the sunshield.

Recommended tightening torque: 1.0 N·m {7.38 lbf·ft}



Setup menu

Performing each setting item in the setup menu should be completed in advance to use this unit. Perform the settings for each item in accordance with the installation conditions and customer requirements.

List of setup menu

Setup item	Description
CAMERA ID	This item specifies the camera title. The camera title that indicates the camera location and other information about the camera is created with alphanumeric characters and symbol, and then displayed on the screen.
CAMERA	Performs the camera operation settings.
SCENE 1/ SCENE 2	Selects a scene file. It is possible to register and save the settings as a scene file in case that it is necessary to change the settings such when shooting at night.
ALC/ELC	Selects the method of controlling the quantity of light in accordance with the lens to be used.
SHUTTER	Specifies the electronic shutter speed.
AGC	Specifies gain adjustment.
SENS UP	Specifies electronic sensitivity enhancement.
WHITE BAL	Specifies white balance adjustment.
DNR	Selects the level of the digital noise reduction function.
D&N (IR)	Performs each setting regarding the black-and-white mode such as switching between color and black-and-white images.
VMD	Performs settings regarding VMD (Video Motion Detection).
SYSTEM	Performs the settings regarding the camera system such as synchronization and privacy zone.
SYNC	Only INT method can be used.
PRIVACY ZONE	Hides undesired portions in the camera shooting area.
STABILIZER	Decides whether or not to enable the image stabilizer.
EL-ZOOM	Switches the electronic zoom on and off.
UPSIDE-DOWN	Flips the camera images vertically or horizontally.
LDC	Adjusts the Lens distortion correction to convert the image so that it matches the square monitor.
BACK-FOCUS	Selects the adjustment method and fine adjustment method for back focus.
CW324L CW314L	
SPECIAL	
CHROMA GAIN	Adjusts the chroma level (color density).
AP GAIN	Adjusts the aperture level.
PEDESTAL	Adjusts the pedestal (brightness) level.
PIX OFF	Corrects image defects such as flaws.
CAMERA RESET	Restores the settings in the setup menu to the default settings.
SER.NO.	Displays the serial number of this unit.
LANGUAGE	Selects a language to be used in the setup menu.

Basic operation

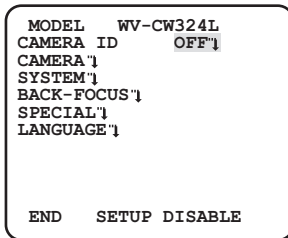
The operations in the setup menu are performed with the operation buttons after calling up the setup menu on the connected video monitor.

The description below explains how to operate the setup menu basically.

Screenshots of WV-CW324LE are shown as an example.

Screenshot 1

Hold down the [SET] button for about 2 seconds to call up the top screen of the setup menu.



Step 1

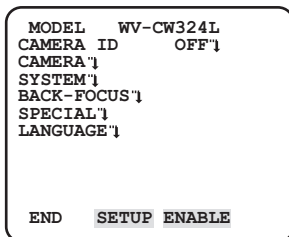
Press the [UP] or [DOWN] button to move the cursor to "END".

Step 2

Press the [RIGHT] button to move the cursor to "SETUP", and press the [SET] button to change the setup mode from "DISABLE" to "ENABLE".

Screenshot 2

The setup mode changes to "ENABLE", and the setup menu becomes ready to be set.

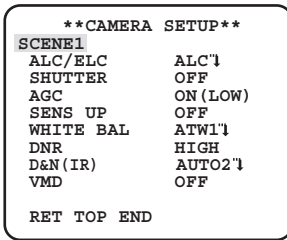


Step 3

Move the cursor to the item to be set, and press the [SET] button.

Screenshot 3

The selected setup screen in the setup menu appears on the screen.



Note:

- If the top screen of the setup menu is called up with the operation buttons while the camera is operated, the setup mode is always "DISABLE" to prevent operation errors.
To perform settings in the setup menu, change the setup mode to "ENABLE".
 - The cursor is a reversely highlighted part.
-

Step 4

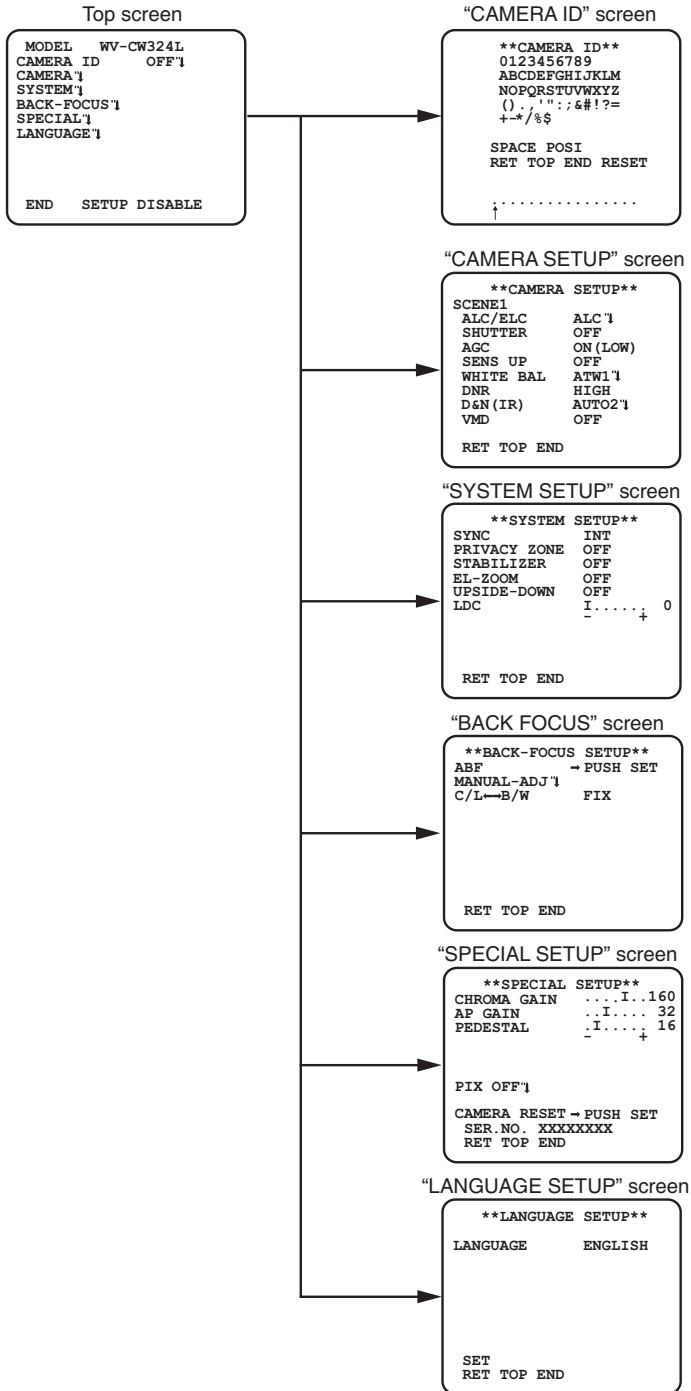
Perform the settings for each item.

- **Selection of setting item:**
Press the [UP] or [DOWN] button to move the cursor.
- **Change of settings:**
Press the [RIGHT] or [LEFT] button.
- **Display of advanced setup screen:**
Press the [SET] button when "↵" is attached to the target setting item.
- **Return to previous setup screen:**
Move the cursor to "RET" and press the [SET] button.
- **Return to the top screen:**
Move the cursor to "TOP" and press the [SET] button, to display the top screen of the setup menu.

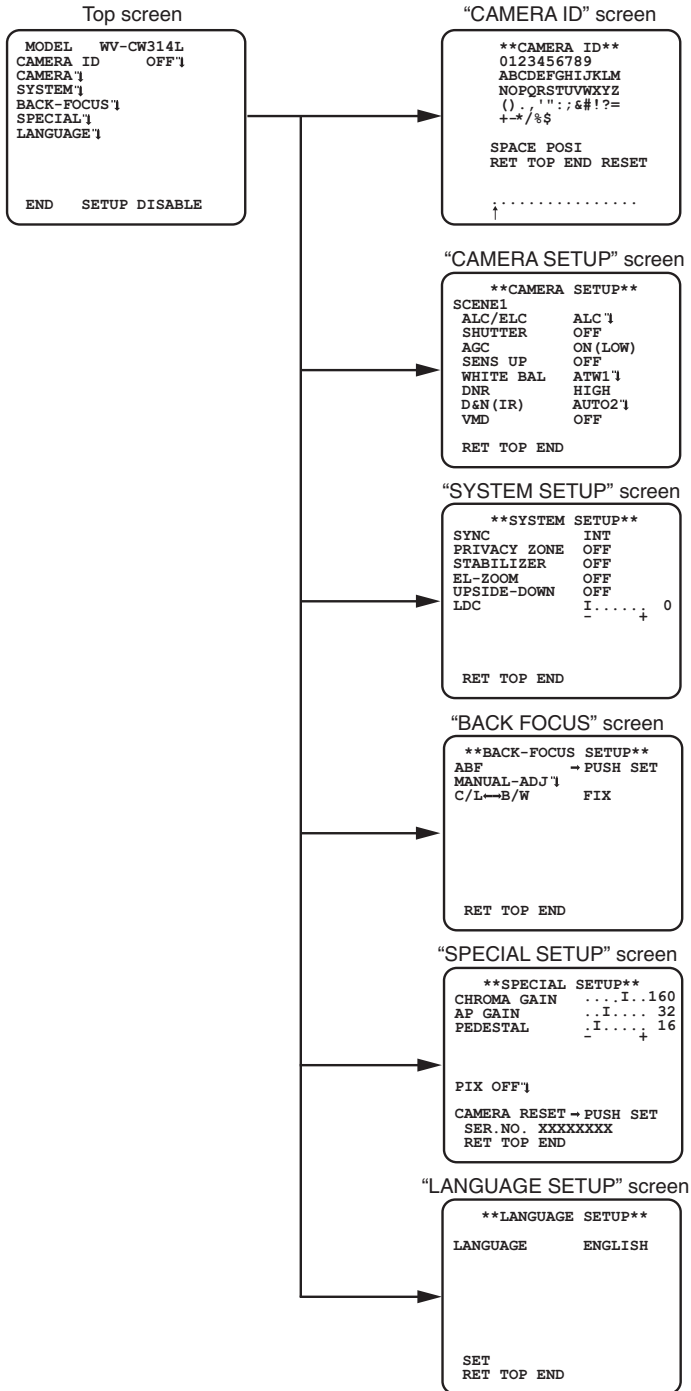
Step 5

Move the cursor to "END" and press the [SET] button to return to the camera image screen, or wait about 5 minutes and the setup menu will automatically close.

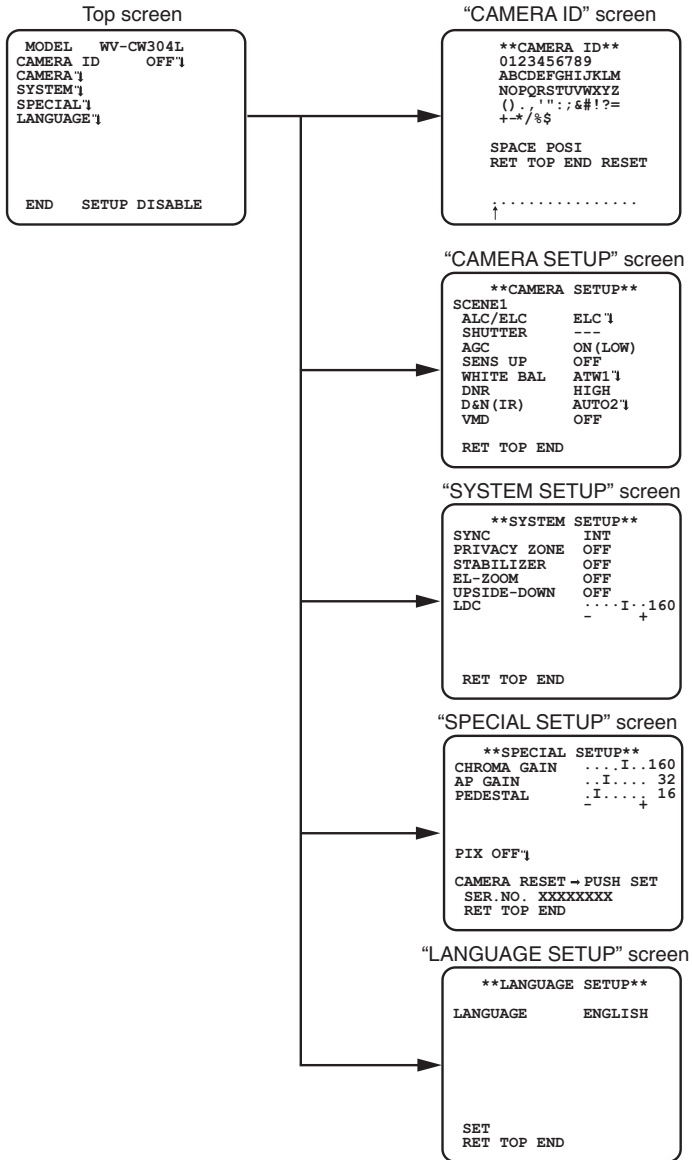
Screen transition diagram CW324L



Screen transition diagram CW314L



Screen transition diagram CW304L



Troubleshooting

Before asking for repairs, confirm the causes with the following table.

Contact your dealer if a problem cannot be solved even after checking and trying the solution in the table or a problem is not described below.

Symptom	Cause/solution	Reference page
When the IR LED lights a part or all of the screen appears blurred.	<ul style="list-style-type: none"> Is there a wall or other reflecting surface or object near the camera (including areas not displayed in images)? → Adjust the camera angle so that light from the IR LED is not reflected. 	18 (Operating Instructions)
When the IR LED lights the camera switches between color mode and black-and-white mode.	<ul style="list-style-type: none"> The subject may be too close to the camera. → Adjust the distance between the camera and the subject. → Make sure there is no other strong infrared light resource in external environment. 	18 (Operating Instructions)
No image displayed	<ul style="list-style-type: none"> Are the power cord and coaxial cable connected appropriately? → Check whether the connection is appropriately established. 	16~17
	<ul style="list-style-type: none"> Is the monitor connected? → Check whether the monitor is connected. 	—
Blurred image	<ul style="list-style-type: none"> Are there smudginess or damage on the transparent cover? → Check whether the transparent cover is clean. 	—
	<ul style="list-style-type: none"> Is the focus adjusted correctly? → Check if the focus is adjusted correctly. 	20
	<ul style="list-style-type: none"> Is the lens of the camera soiled with dirt or dust? → Check whether the lens of the camera is clean. 	—
Damaged power cord sheathing	<ul style="list-style-type: none"> The power cord, power connector, or power plug is damaged. Continuous use of the damaged cord, connector, or plug may cause electric shock or fire. Disconnect the power plug immediately and request repair from your dealer. 	—
Heated portion of power line consisting of power cord, connector, and power plug during use		
The temperature of power cord rises or falls when the power cord is bent or stretched during use		
Black line in image	<ul style="list-style-type: none"> Is the connected system controller set to multiplexed vertical drive (VD2)? → Check whether the connected system controller is set correctly. 	—

Specifications

General

	WV-CW324LE	WV-CW314LE	WV-CW304LE
Power source and power consumption	24 V AC 50/60 Hz: 5.2 W, 12 V DC: 560 mA		24 V AC: 3.2 W, 12 V DC: 320 mA
Image sensor	1/3-type interline transfer CCD		
Effective pixels	976 (H) × 582 (V)		
Scanning area	4.8 mm (H) × 3.6 mm (V)		
Scanning system	2:1 interlace		
Scanning line	625 lines		
Scanning frequency	Horizontal: 15.625 kHz, Vertical: 50.00 Hz		
Synchronization	Internal (INT) (Multiplexed vertical drive (VD2) cannot be set)		
Horizontal resolution	650 TV lines		
Vertical resolution	400 TV lines		
Video output	1.0 V [p-p] PAL composite video signal 75 Ω		
Signal-to-noise ratio	52 dB (AGC OFF)		
Minimum illumination	0.08 lx (color mode) 0.008 lx (black-and-white mode infrared LED light off) 0 lx (black-and-white mode infrared LED light on)		0.15 lx (color mode) 0.015 lx (black-and-white mode infrared LED light off) 0 lx (black-and-white mode infrared LED light on)
Focal length	9 mm - 22 mm	2.8 mm - 10.0 mm	2.8 mm
Aperture ratio	F1.6 (WIDE) - F3.0 (TELE)	F1.3 (WIDE) - F3.1 (TELE)	F2.0
Angular field of view	Horizontal: 30°57' (WIDE) - 12°25' (TELE) Vertical: 23°28' (WIDE) - 9°20' (TELE)	Horizontal: 100°50' (WIDE) - 27°39' (TELE) Vertical: 73°51' (WIDE) - 20°45' (TELE)	Horizontal: 101°30' Vertical: 75°
Adjusting angle	Horizontal: 360 ° Vertical: 0° - 90 ° Azimuth: -115 ° - 190 °		
Ambient operating temperature	-10 °C to +50 °C		
Ambient operating humidity	Less than 90 %		
Dimensions	79 mm (φ) × 245 mm (H)		
Mass	about 1050 g		
Camera title	English letter, numbers and symbols: up to 16 characters.		
Light control mode setting	ALC/ALC+/ELC		ELC
Back Light Compensation	ON/OFF		
ABS	ON/OFF		
Shutter speed	OFF (1/50), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/120000 (s)		---
Auto gain control	ON (HIGH, MID, LOW)/OFF		
Sensitivity up	OFF/AUTO (×2, ×4, ×6, ×10, ×16, ×32)/FIX (×2, ×4, ×6, ×10, ×16, ×32, ×64, ×128, ×256, ×512)		OFF/AUTO (×2, ×4, ×6, ×10, ×16, ×32)
White balance	ATW1/ATW2/AWC		

	WV-CW324LE	WV-CW314LE	WV-CW304LE
Digital noise reduction	LOW/HIGH		
Day&Night (IR)	AUTO1/AUTO2/ON/OFF		
IR LED irradiation distance	50 m		20 m
IR LED lights	OFF/AUTO/FIX		
Video motion detection	OFF/MOTION DETECTION/SCENE CHANGE		
Number of scene file	2		
Privacy zone	ON (1)/ON (2)/OFF		
Image stabilizer	ON/OFF		
Electronic zoom	ON (up to 2x)/OFF		
Upside-down	ON/OFF		
Lens distortion correction	0 to 255		
Back-focus setup	ABF/MANUAL		---
Waterproof	Camera: IP66 (IEC60529) * Only when installation work specified in this book is properly performed and appropriate waterproof treatment is performed.		
Finish	Main body: Aluminum die cast/resin, metallic silver coating Front cover section clear part: Polycarbonate resin		

※ Values of mass and dimensions are approximate. The specification is subject to change without notice.

Standard accessories

CD-ROM*	1 pc.
Installation Guide (this book)	1 pc.
Desiccant Instruction for Use	1 pc.

* The CD-ROM contains the operating instructions and installation guide (PDF).

The following parts are used during installation procedures:

Waterproof tape.....	1 pc.
Desiccant	1 pc.
Installation template label.....	1 pc.
Spring washer	1 pc.

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis.

Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

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

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If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

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