

Panasonic®

Installation Guide

Included Installation Instructions

Network Camera

Model No. **WV-SF549/WV-SF548**
WV-SF539/WV-SF538



WV-SF549



WV-SF539



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.
This document is the Installation Guide for use in other countries except Japan.

WARNING:

- To prevent injury, this apparatus must be securely attached to the floor/wall/ceiling in accordance with the installation instructions.
- To prevent fire or electric shock hazard, do not expose this apparatus to rain or moisture.
- The installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.

For Canada

CAN ICES-3(A)/NMB-3(A)

For U.S.A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For U.S.A

The model number and serial number of this product may be found on the surface of the unit.

You should note the model number and serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

For Europe

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.

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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.

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* SDXC/SDHC/SD memory card is described as SD memory card.

Important safety instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Only use attachments/accessories specified by the manufacturer.
- 10) 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.



- 11) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Limitation of liability

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IN NO EVENT SHALL Panasonic System Networks Co., Ltd. BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

- (1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- (3) ALL MALFUNCTIONS OR TROUBLES FROM UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER, REGARDLESS OF THE CAUSE OF THE MALFUNCTION OR TROUBLE;
- (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;
- (7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE.

Preface

The network cameras WV-SF549/WV-SF548/WV-SF539/WV-SF538 are designed to operate using a PC on a network (10BASE-T/100BASE-TX). By connecting to a network (LAN) or the Internet, images and audio from the camera can be monitored on a PC via a network.

Note:

- It is necessary to configure the network settings of the PC and its network environment to monitor images from the camera on the PC. It is also necessary to install a web browser on the PC.

About notations

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

SF549: The functions with this notation are available when using the model WV-SF549.

SF548: The functions with this notation are available when using the model WV-SF548.

SF539: The functions with this notation are available when using the model WV-SF539.

SF538: The functions with this notation are available when using the model WV-SF538.

Main functions

H.264 and JPEG triple encoding

H.264 dual stream output and JPEG output can be simultaneously provided.

- * H.264 stream1: 1920x1080/ max. 30 fps
- H.264 stream2: 640x360/ max. 30 fps

Cropping function (the function of cutting out the image capture area)

At the same time as providing the whole image, it is possible to provide the part cut out from whole image. Up to 4 image capture areas can be specified, and it is also possible to control the sequence.

- * It is possible to control its sequence and transmit the image cut out only when H.264 stream2 is provided.

VIQS function (Variable Image Quality on Specified area)

It is possible to provide specified areas with high quality image without changing the overall size of the data. Up to 2 areas can be specified.

SDXC/SDHC/SD memory card slot equipped **SF549** **SF539**

It is possible to save H.264 videos and JPEG images on the SDXC/SDHC/SD memory card manually at an alarm occurrence, during the period of the schedule, or on a web browser. It is also possible to save JPEG images at a network failure occurrence. (Download is possible.)

(Recommended SDXC/SDHC/SD memory card  page 44)

Super Dynamic

( Operating Instructions (included in the CD-ROM))

Super Dynamic compensates brightness on a pixel-to-pixel basis so that it produces clearer images even if objects have various illumination intensities.

Auto focus (AF) function

It is possible to adjust the focus automatically by moving the focus ring of the lens with the operation button of this camera or the setup menu.

About the user manuals

There are 2 sets of operating instructions for the WV-SF549, WV-SF548, WV-SF539, WV-SF538 as follows.

- Installation Guide: Explains how to install and connect devices.
- Operating Instructions (included in the CD-ROM): Explains how to perform the settings and how to operate this camera.

Adobe® Reader® is required to read these operating instructions on the provided CD-ROM.

When the Adobe Reader is not installed on the PC, download the latest Adobe Reader from the Adobe web site and install it.

"SF549, SF548, SF539, SF538" shown in the instructions and illustrations used in these operating instructions indicates the WV-SF549, WV-SF548, WV-SF539, WV-SF538.

English screens are used in these operating instructions.

System requirements for a PC

CPU:	Intel® Core™ 2 Duo 2.4 GHz or faster recommended
Memory:	512 MB or more (A minimum of 1 GB memory is required when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.)
Network Interface:	10BASE-T/100BASE-TX 1 port
Audio Interface:	Sound card (when using the audio function)
Monitor:	Image capture size: 1024 x 768 pixels or more Color: 24-bit True color or better
OS:	Microsoft® Windows® 7 Microsoft® Windows Vista® Microsoft® Windows® XP SP3
Web browser:	Windows® Internet Explorer® 9.0 (32-bit) Windows® Internet Explorer® 8.0 (32-bit) Windows® Internet Explorer® 7.0 (32-bit) Microsoft® Internet Explorer® 6.0 SP3
Others:	CD-ROM drive (It is necessary to read the operating instructions and use the software on the provided CD-ROM.) DirectX® 9.0c or later Adobe® Reader® (It is necessary to view the PDF file on the provided CD-ROM.)

IMPORTANT:

- When using a PC that does not meet the above requirements, displaying of images may become slower or the web browser may become inoperable.
 - Audio may not be heard if a sound card is not installed on a PC. Audio may be interrupted depending on the network environment.
 - Microsoft Windows 7 Starter, Microsoft Windows Vista Starter and Microsoft Windows XP Professional 64-bit Edition are not supported.
 - When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.
-

Note:

- For further information about PC system requirements and precautions for when using Microsoft Windows 7, Microsoft Windows Vista, or Windows Internet Explorer, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows® / Internet Explorer® versions".
- If using Microsoft Windows XP, screen tearing* may occur when the shooting scene drastically changes (for example, while shooting fast-moving subjects) due to the GDI restrictions of the OS.
* A phenomenon in which portions of the screen are displayed out of alignment
- For information on the operation verification of the supported operating systems and web browsers, refer to our website at <http://security.panasonic.com/pss/security/support/index.html>.

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Network security

As you will use this unit connected to a network, your attention is called to the following security risks.

- ① Leakage or theft of information through this unit
- ② Use of this unit for illegal operations by persons with malicious intent
- ③ Interference with or stoppage of this unit by persons with malicious intent

It is your responsibility to take precautions such as those described below to protect yourself against the above network security risks.

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm E-mail information, FTP server information and DDNS server information.
- After the unit is accessed by the administrator, make sure to close the browser.
- Change the administrator password periodically.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.

Precautions

Refer installation work to the dealer.

Installation work requires technique and experiences. Failure to observe this may cause fire, electric shock, injury, or damage to the product. Be sure to consult the dealer.

Stop the operation immediately when something is wrong with this product.

When smoke goes up from the product, the smell of smoke comes from the product, or the exterior of the product has deteriorated, continued use will cause a fire or fall of the product resulting in injury, accidents, 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 a fall of the product resulting in injury or accidents. Consult the dealer for the inspections.

Do not use this product in an inflammable atmosphere.

Failure to observe this may cause an explosion resulting in injury.

Avoid installing this product in the locations where salt damage occurs or corrosive gas is produced.

Otherwise, the mounting portions will deteriorate and accidents such as a fall of this product may occur.

The exclusively designed mount bracket shall be used.

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

Use the exclusively designed mount bracket for installation.

The screws and bolts must be tightened to the specified torque.

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

Do not install this product in locations subject to vibration.

Loosening of mounting screws or bolts may cause a fall of the product 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 fire or injury.

Turn the power off when wiring this product.

Failure to observe this may cause electric shock. In addition, short circuit or wrong wiring may cause fire.

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.

Keep SDXC/SDHC/SD memory cards (option) away from infants and children.

Otherwise, they may swallow the cards by mistake.

In this case, consult a doctor immediately.

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 of this product.

Failure to observe this may cause injury.

[Precautions for use]

**This product is designed to be used indoors.
This product is not operable outdoors.**

This product has no power switch.

When turning off the power, disconnect the power supply from the 12 V DC power supply or the PoE device. (When using both the 12 V DC power supply and the PoE device for power supply, disconnect both the connections.)

To keep on using with stable performance

Do not use this camera in hot and humid conditions for a long time.

Failure to observe this causes component degradation resulting in life shortening of this product.

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

Do not touch the dome cover with your bare hands.

A dirty dome cover causes deterioration of picture quality.

Handle this camera with care.

Do not drop this product, nor apply shock or vibration to the product. Failure to observe this may cause trouble. If a strong shock or vibration is applied to the dome cover, it may cause damage.

About the PC monitor

Displaying the same image on a monitor for a long time may damage the monitor. It is recommended to use a screen-saver.

When an error is detected, this product will restart automatically.

This product will be inoperable for around 2 minutes after the restart just as when the power is turned on.

Product disposal/transfer

Data saved on this product or a storage device used with this product may lead to personal information leakage. When it is necessary to dispose or give this product to someone, even when for repair, make sure that there is no data on this product.

Cleaning this product body

Be sure to turn off the power before cleaning. Failure to observe this may cause injury. 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 alcohol solvent and do not use a thinner or a glass cleaner.

Transmission interval

Image transmission interval may become slow depending on the network environment, PC performance, shooting subject, access number, etc.

About SD memory card

- Before removing the SD memory card, make sure to select “Not use” for “SD memory card” on the [SD memory card] tab of “Basic” page on the setup menu first. (☞ Operating Instructions (included in the CD-ROM))
Refer to page 22 for descriptions of how to insert/remove an SD memory card.
- When using a SD memory card, format it using this product. Recorded data on the SD memory card will be deleted when formatted. If an unformatted SD memory card or a SD memory card formatted with other devices is used, this product may not work properly or performance deterioration may be caused. Refer to the Operating Instructions (included in the CD-ROM) for how to format a SD memory card.
- When some SD memory cards are used with this product, the product may not work properly or performance deterioration may be caused.

Code label

The code labels (accessory) are required at inquiry for trouble. Use caution not to lose these labels. It is recommended to paste one of the labels onto the CD-ROM case.

Discoloration on the color filter of the MOS image sensor

- When continuously shooting a bright light source such as a spotlight, the color filter of the MOS image sensor 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.
- When shooting fast-moving subjects or performing panning/tilting operations, objects crossing the shooting area may look to be bending askew.

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SEE [HTTP://WWW.MPEGLA.COM](http://www.mpegla.com)

Precautions for Installation

Panasonic assumes no responsibility for injuries or property damage resulting from failures arising out of improper installation or operation inconsistent with this documentation.

This camera is designed to be used indoors.

This product is not operable outdoors.

Do not expose this camera to direct sunlight for hours and do not install the product near a heater or an air conditioner. Otherwise, it may cause deformation, discoloration and malfunction. Keep this camera away from water and moisture.

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

Do not place this product in the following places:

- Locations where it may get wet from rain or water splash
- Locations where a chemical agent is used such as a swimming pool
- Locations subject to moisture or oil smoke such as a kitchen
- Locations that have a specific environment that is subject to an inflammable atmosphere or solvents
- Locations where a radiation, an X-ray, a strong radio wave or a strong magnetic field is generated
- 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 the specified range (page 40).
- 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 (In case of installing the camera in such locations, the dome cover may become foggy or condensation may be caused on the cover.)

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

Shielded (STP) LAN cables must be used with this unit to ensure compliance with EMC standards. *

* For Europe

Before installation

- The camera mount bracket described on page 19 shall be used to mount the camera.
- When this camera and camera mount bracket are mounted on a ceiling or a wall, use the screws described on page 19. The screws to be used are not provided. 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.
- Ensure that the mounting surface, anchor and screws are sufficiently strong.
- Do not mount this product on a plaster board or a wooden section because they are too weak. If this product is unavoidably mounted on such a section, the section shall be sufficiently reinforced or use an optional ceiling mount bracket (WV-Q105).

About the network connection

When connecting to a network using the network cable of this product, observe the following.

- When wiring for the network, design and engineer not to be affected by thunder.

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. Use of an impact driver may damage the screws or cause tightening excessively.
- Tighten screws at a right angle to the surface. After tightening screws, perform checks to ensure that the tightening is sufficient enough so that there is no movement or looseness.

Procure fixing screws separately.

The screws that secure this product are not supplied. Prepare them according to the material and strength of the area where the product is to be installed.

Radio disturbance

When this product is used near TV/radio antenna, strong electric field or magnetic field (near a motor, a transformer or a power line), images may be distorted and noise sound may be produced.

PoE (Power over Ethernet)

Use a PoE hub/device that is compliant with IEEE802.3af standard.

Router

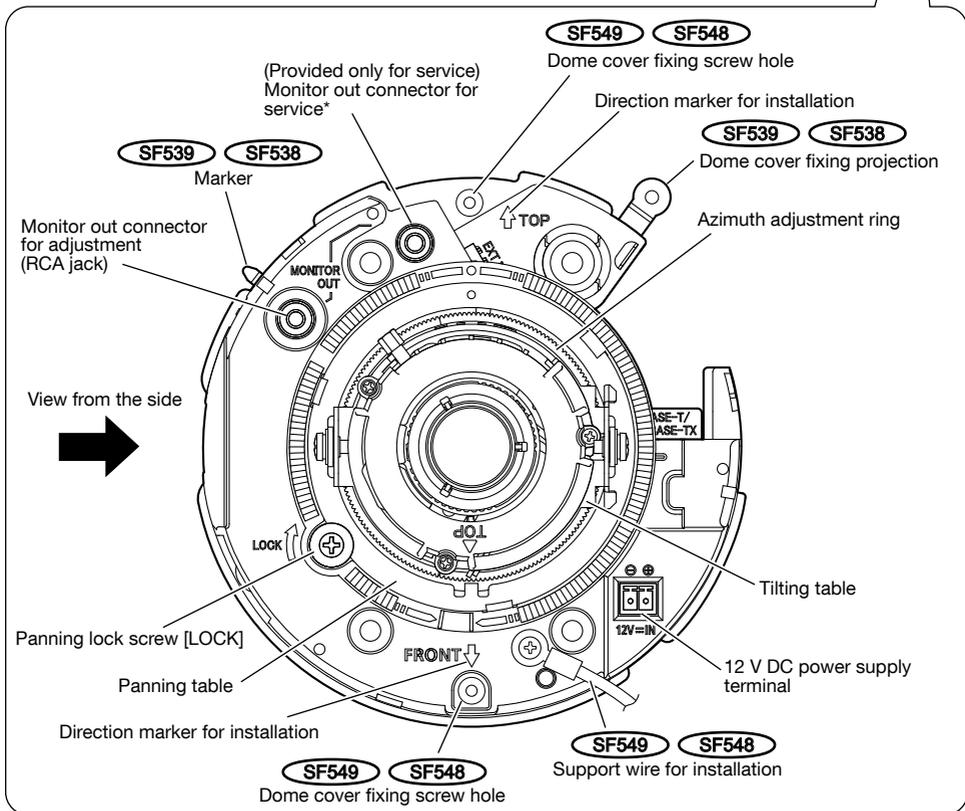
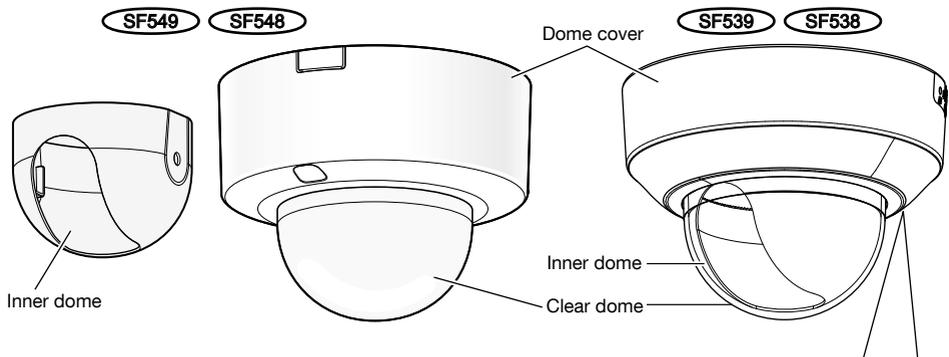
When connecting this product to the Internet, use a broadband router with the port forwarding function (NAT, IP masquerade).

Refer to the Operating Instructions (included in the CD-ROM) for further information about the port forwarding function.

Time & date setting

It is necessary to set the time & date before putting this product into operation. Refer to the Operating Instructions on the provided CD-ROM for descriptions of how to perform the settings.

Major operating controls

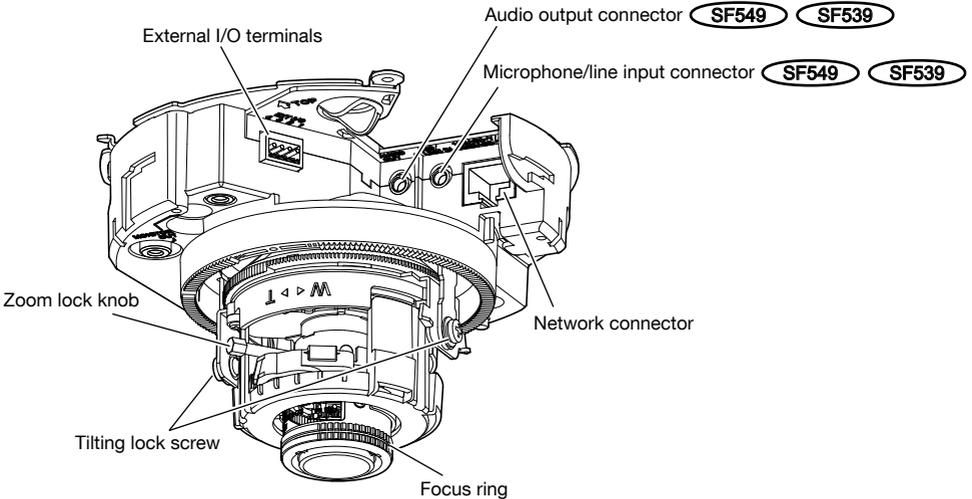
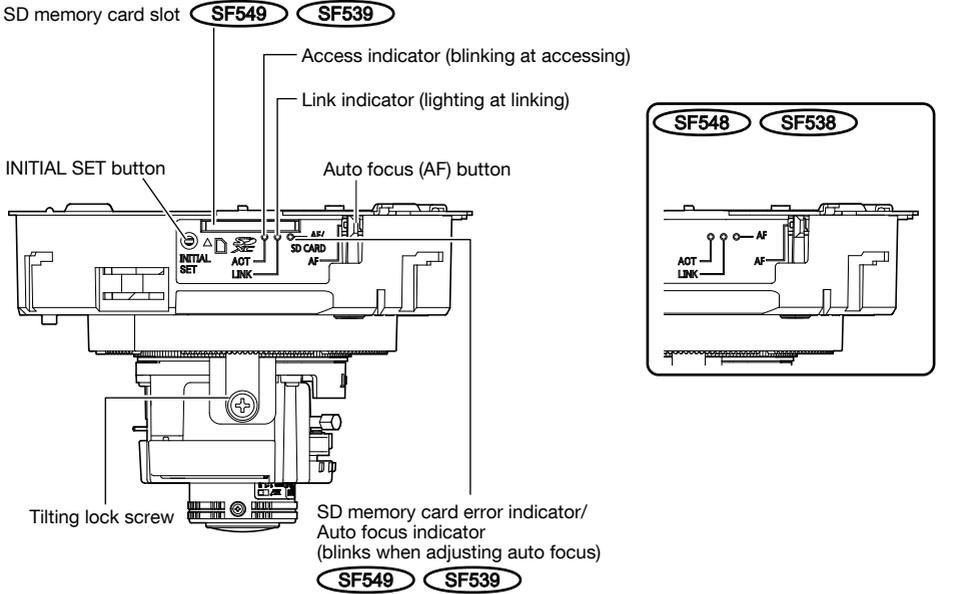


* This connector is provided only for service. Do not use the connector for checking the adjustment of the angular field of view on the video monitor.

IMPORTANT:

- Do not hold the inner dome while working on the camera. The inner dome may come off of the camera. **SF549** **SF548**

<Side view>



About the [INITIAL SET] button

After turning off the power of the camera, turn on the power of the camera while holding down this button, and wait for around 5 seconds or more without releasing this button. Wait around 2 minutes after releasing the button. The camera will start up and the settings including the network settings will be initialized. Do not turn off the power of the camera during the process of initialization. Before initializing the settings, it is recommended to write down the settings in advance.

Detaching the dome cover

Detach the dome cover from the camera by loosening the dome cover fixing screws.

SF549

SF548

The following procedure is required when using WV-SF549 or WV-SF548. Refer to page 18 when using WV-SF539 or WV-SF538.

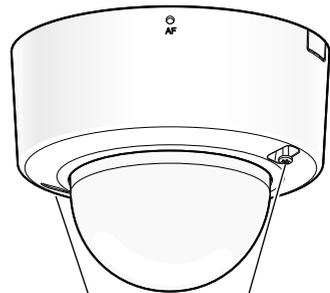
IMPORTANT:

- Remove the cover film from the dome section of the dome cover after the installation is complete. Do not touch the dome section by hand directly after removing the cover film.
-

- 1** Loosen the dome cover fixing screws using the bit for tamperproof screw (accessory).

Note:

- The dome cover and the camera are jointed with an assist wire. Do not remove the assist wire.
-



Dome cover fixing screw

Detach the dome cover from the camera by removing the dome cover fixing screw.

SF539

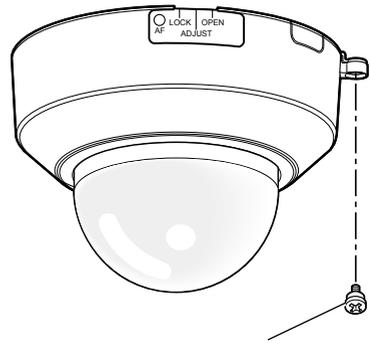
SF538

The following procedure is required when using WV-SF539 or WV-SF538. Refer to page 17 when using WV-SF549 or WV-SF548.

IMPORTANT:

- After removal, retain the dome cover fixing screw so as not to lose. The screw is required when attaching the dome cover. (Page 34)
- Remove the cover film from the dome section of the dome cover after the installation is complete. Do not touch the dome section by hand directly after removing the cover film.

- 1** Remove the dome cover fixing screw (M3, step screw, x1).

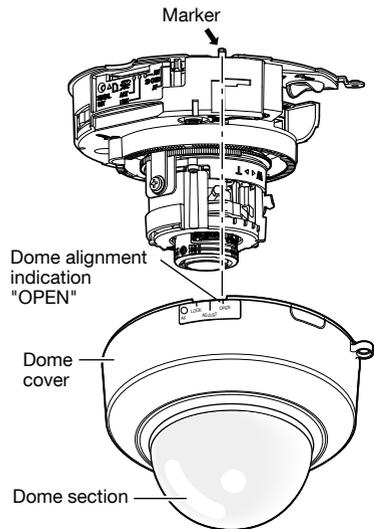
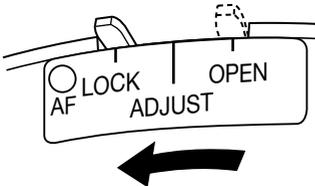


Dome cover fixing screw (M3, step screw)

- 2** Rotate the dome cover counterclockwise two steps, and align the indication "OPEN" to the marker of the camera to detach the dome cover.

Note:

- Before the camera is installed, the dome cover can be removed more easily when putting a finger over the opening on the bottom of the camera.



Preparations

When installing the camera on a wall or a ceiling, there are four methods as specified below. (☞ Pages 20 and 21)

- Using the two-gang junction box
- Installing the camera directly on the ceiling or wall
- Using the optional ceiling mount bracket WV-Q174 (for embedded installation on a ceiling)
SF539 SF538
- Using the optional ceiling mount bracket WV-Q105*1 (for direct mounting on a ceiling)

IMPORTANT:

- Procure 4 screws (M4) to secure the camera to a wall or a ceiling according to the material of the installation area. In this case, wood screws and nails should not be used. For mounting a camera on a concrete wall, use an anchor bolt (for M4) or an AY plug bolt (M4) for securing. (Recommended tightening torque: 1.6 N·m {1.18 lbf·ft})
 - Required pull-out capacity of a single screw/bolt is 196 N {44 lbf} or more.
 - If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced or the optional ceiling mount bracket for the camera, WV-Q105, must be used.
-

The mounting conditions of the camera are described as follows:

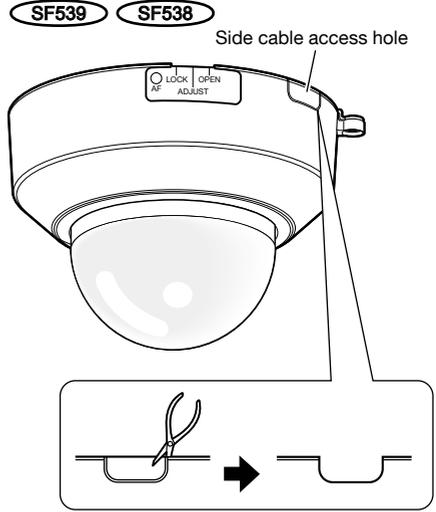
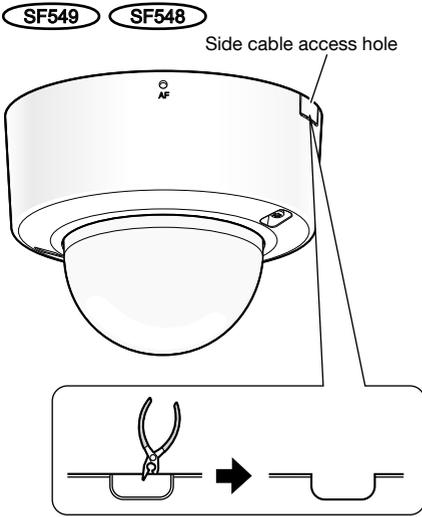
Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	Two-gang junction box	M4	4 pcs.	196 N {44 lbf}
Ceiling/wall	(Direct mounting)	M4	4 pcs.	196 N {44 lbf}
	SF539 SF538			
Ceiling	WV-Q174 (approx. 280 g {0.62 lbs})	–	–	*2
Ceiling	WV-Q105*1 (approx. 150 g {0.33 lbs})	–	–	*2

*1 For Europe

*2 Make sure that the installed mount bracket can support more than 5 times of the weight of the camera.

Using the side cable access hole

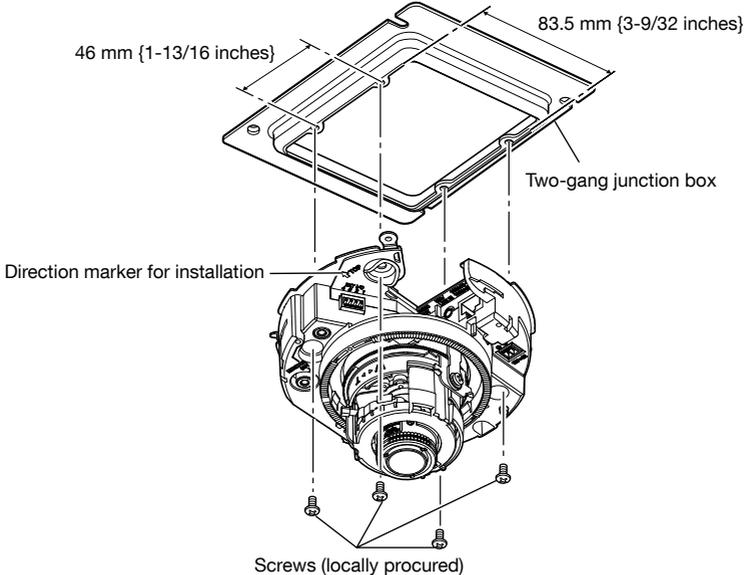
When installing the camera directly on the ceiling or wall with cables exposed, cut out a portion of the dome cover to open a cable access hole.



The above procedure is also required when mounting the camera using the ceiling mount bracket WV-Q174 (option).

Method of camera installation Using the two-gang junction box

Mount the camera on the two-gang junction box by fixing 4 screws (locally procured). (☞ Page 29)

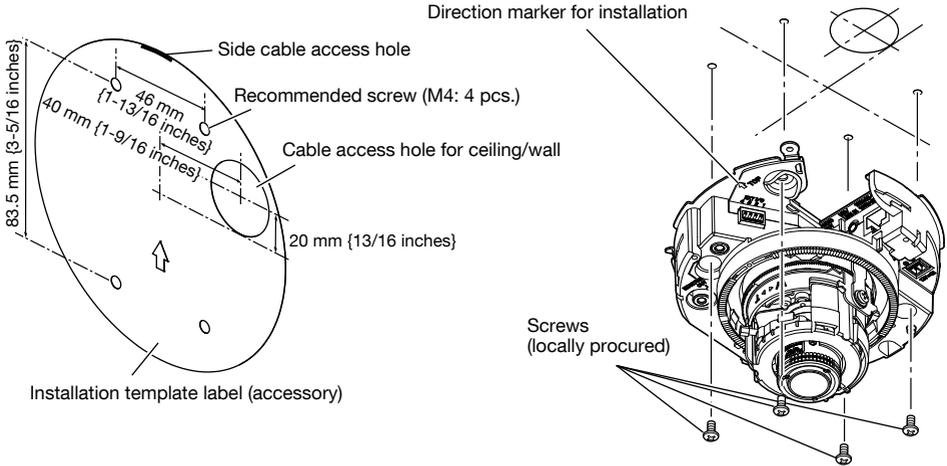


Installing the camera directly on the ceiling or wall

Place the installation template label (accessory) on the ceiling or wall, and make a hole to pass the cable.

Remove the template label, and mount the camera by fixing 4 screws (locally procured).

(☞ Page 29)

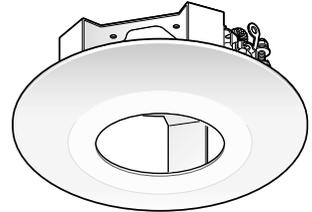


Using the optional ceiling mount bracket WV-Q174

SF539

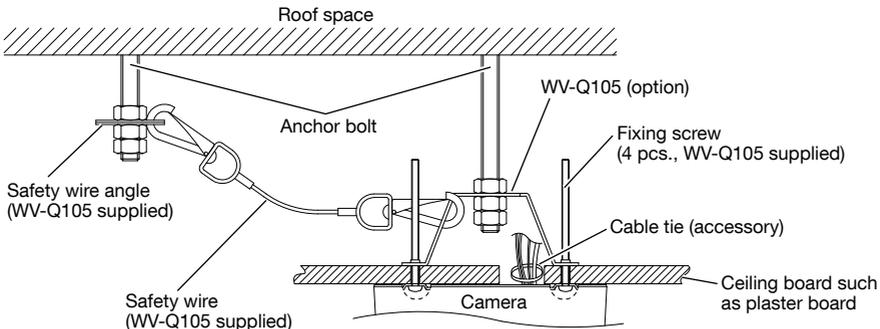
SF538

It is possible to reduce the exposed portion of the camera body using the optional ceiling mount bracket. Refer to WV-Q174 Operating Instructions or "Installation" (☞ page 29) for how to mount the camera.



Using the optional ceiling mount bracket WV-Q105 (For Europe)

Refer to WV-Q105 Operating Instructions and "Installation" (☞ page 29) for how to mount the camera in case of using the optional ceiling mount bracket.



Insert/remove an SD memory card (WV-SF549/WV-SF539 only)

IMPORTANT:

- When inserting an SD memory card, make sure the direction.
- Before removing the SD memory card, make sure to select “Not use” for “SD memory card” on the [SD memory card] tab of the “Basic” page on the setup menu first.
(☞ Operating Instructions (included in the CD-ROM))

1 Detach the dome cover.

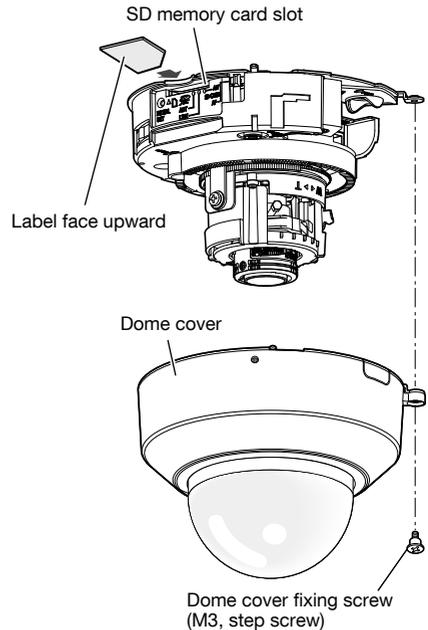
SF549 (☞ Page 17)

SF539 (☞ Page 18)

2 Insert an SD memory card fully into the SD memory card slot until a click is heard.

3 Attach the dome cover. (☞ Page 34)

4 When removing the SD memory card from the SD memory card slot, detach the dome cover (☞ page 17), and push the card until the lock is released. After removal, attach the dome cover. (☞ Page 34)



Connection

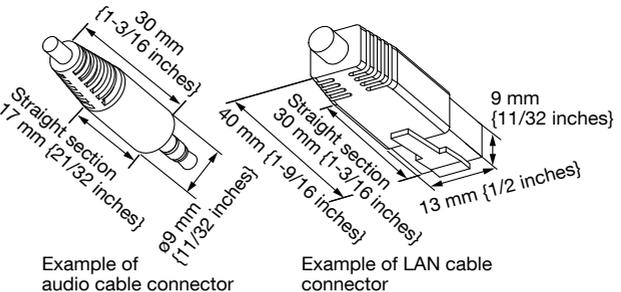
Caution:

- ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).

Before starting the connection, turn off the power of this camera and the devices to be connected. Check and prepare the required devices and cables for connection.

Note:

- Since the connector storage section does not have a sufficient space, use audio cables and a LAN cable that do not exceed the sizes described in the illustrations.



- 1 Connect the RCA pin cable to the monitor out connector for adjustment (only used for adjustment of the angular field of view).

IMPORTANT:

- The monitor out connector for adjustment is provided only for checking the adjustment of the angular field of view on the video monitor when installing the camera or when servicing. It is not provided for recording/monitoring use.
- When checking the adjustment of the angular field of view on the video monitor, be sure to use the RCA jack of the main body for connection with video monitor.
- Black bands may appear at the top and bottom or right and left of the screen. (That does not affect the adjustment because the angular field of view is not changed.)
- The video output on the monitor for adjustment does not guarantee the video performance or image quality.

- 2 Connect the microphone to MIC/LINE IN (for use of the audio reception function). **SF549** **SF539**

Input impedance: Approx. 2 k Ω

Recommended cable length:

1 m {3.3 feet} or less (for microphone input)

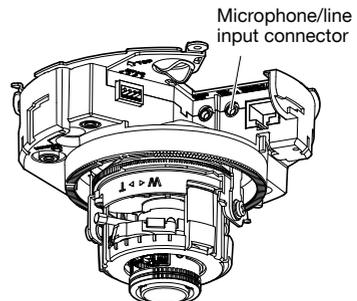
10 m {33 feet} or less (for LINE input)

Recommended microphone:

Plug-in power type microphone (option)

Connect a monaural mini plug (\varnothing 3.5 mm).

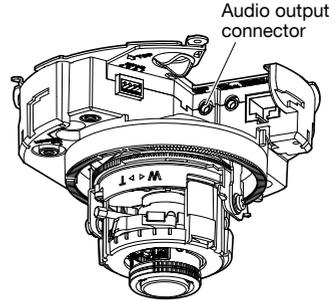
- Supply voltage: 2.5 V \pm 0.5 V
- Recommended sensitivity of microphone: -48 dB \pm 3 dB (0 dB=1 V/Pa, 1 kHz)



IMPORTANT:

- Connect/disconnect the audio cables and turn on the power of the camera after turning off the power of the audio output devices. Otherwise, loud noise may be heard from the speaker.

- 3** Connect an external speaker with amplifier to the audio output connector (for use of the audio transmission function). **SF549** **SF539**
Connect a stereo mini plug (ø3.5 mm) (audio output is monaural).
- Recommended cable length: 10 m {33 feet} or less



- 4** Connect the cables of external devices to the EXT I/O terminal plug (accessory).

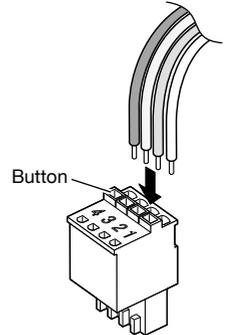
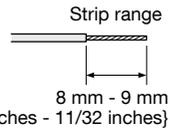
- ① When connecting an external device, remove 8 mm - 9 mm {5/16 inches - 11/32 inches} of the outer jacket of the cable and twist the cable core to prevent the short circuit first.

Specification of cable (wire):

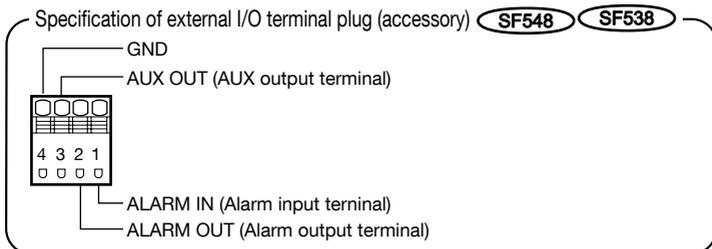
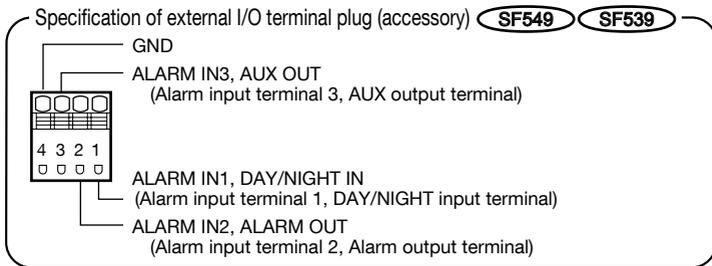
20 AWG - 26 AWG, Single core, twisted

- ② Push down the button of the desired terminal on the external I/O terminal plug with a ballpoint pen, and release the button when the cable of the external device is fully inserted into the terminal hole.

* Check whether the stripped part of the wire is not exposed and is securely connected.

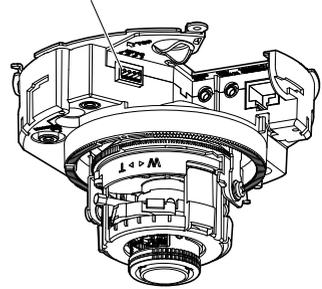


External I/O terminal plug (accessory)



- ③ After the cable connection, connect the external I/O terminal plug to the external I/O terminals of the camera.

External I/O terminals



IMPORTANT:

- Do not connect 2 wires or more directly to a terminal. When it is necessary to connect 2 wires or more, use a splitter.
 - Input and output of the EXT I/O terminal 2 and 3 can be switched by configuring the setting. "Off" is selected by default. It is possible to determine whether or not to receive input from EXT I/O terminal 2 and 3 (ALARM IN2, 3) by selecting "Off", "Alarm input", "Alarm output" or "AUX output" for "Terminal 2" or "Terminal 3" on the [Alarm] tab on the "Alarm" page. Refer to the Operating Instructions (included in the CD-ROM) for further information.
 - Connect an external device with verifying that the ratings are within the specifications below.
 - When using the EXT I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.
-

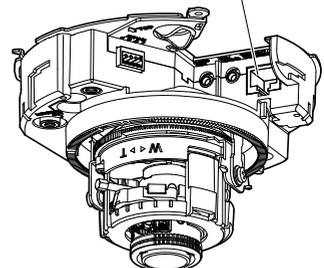
<Ratings>

- ALARM OUT, AUX OUT
Output specification: Open collector output (maximum applied voltage: 20 V DC)
Open: 4 V - 5 V DC by internal pull-up
Close: Output voltage 1 V DC or less (50 mA or less)
- ALARM IN
Input specification: No-voltage make contact input (4 V - 5 V DC, internally pulled up)
OFF: Open or 4 V - 5 V DC
ON: Make contact with GND (required drive current: 1 mA or more)

- 5** Connect a LAN cable (category 5 or better, straight, STP*) to the network connector.
* For Europe

- 6** Connect the power supply.

Network connector



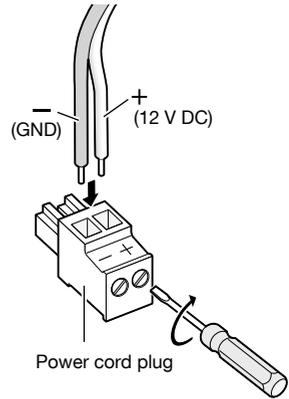
IMPORTANT:

- The 12 V DC power supply shall be insulated from the commercial AC power.
-

When using 12 V DC power supply*

- ① Loosen the screws of the power cord plug (accessory).
- ② Connect the cable of the 12 V DC power supply* to the power cord plug.
Strip 3 mm - 7 mm {1/8 inches - 9/32 inches} from the end of the wire, and twist the stripped part of the wire sufficiently to avoid short circuit.
Specification of cable (wire):
16 AWG - 24 AWG, Single core, twisted
- ③ Tighten the screws of the power cord plug.
(Recommended tightening torque: 0.34 N·m {0.25 lbf·ft})
- ④ Connect the power cord plug to the 12 V DC power supply terminal.

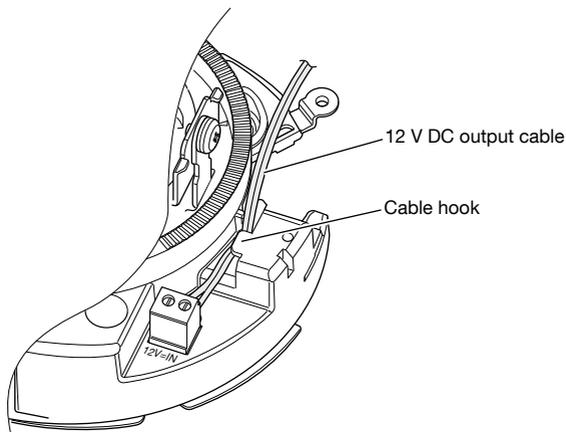
* ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).



IMPORTANT:

- Be sure to use the power cord plug provided with this product.
 - Be sure to fully insert the power cord plug (accessory) into the 12 V DC power supply terminal. Otherwise, it may damage the camera or cause malfunction.
 - When installing the camera, make sure that excessive force is not applied to the power cable.
 - Be sure to use an AC adaptor compliant with the Specifications regarding power source and power consumption. (☞ Page 40)
-

- ⑤ Run the 12 V DC output cable through the gap of the cable hook.



When using PoE (IEEE802.3af compliant)

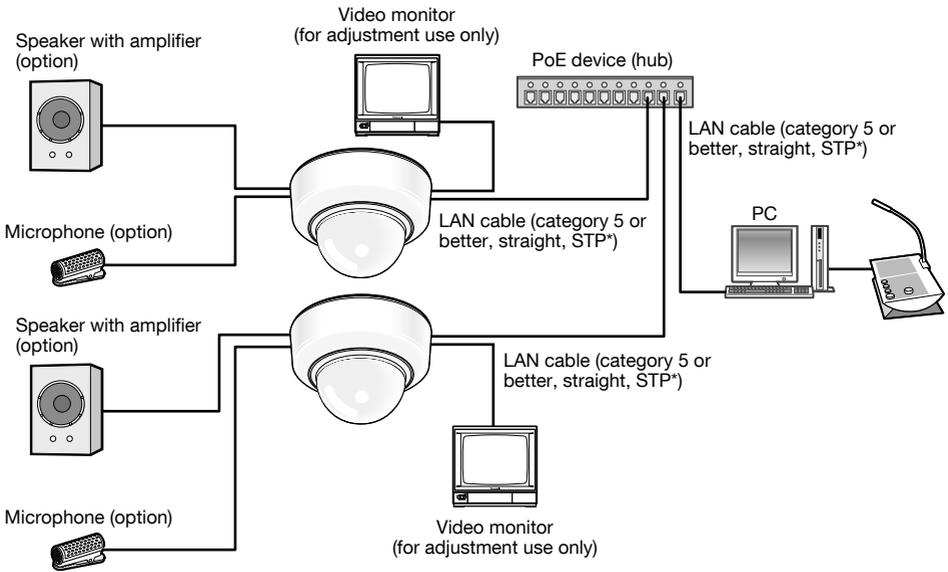
Connect a LAN cable (category 5 or better, straight, STP*) between a PoE device (such as a hub) and the network connector of the camera.

* For Europe

IMPORTANT:

- Use all 4 pairs (8 pins) of the LAN cable.
 - The maximum cable length is 100 m (328 feet).
 - Make sure that the PoE device in use is compliant with IEEE802.3af standard.
 - When connecting both the 12 V DC power supply and the PoE device for power supply, 12 V DC will be used for power supply. Depending on the PoE device used, the power supply lamp may not light and the network connections may not be possible. In this case, disable the PoE device setting, and refer to the operating instructions of the PoE device in use.
 - When the LAN cable is disconnected once, reconnect the cable after about 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.
-

Connection example when connecting to a network using a PoE hub



<Required cable>

LAN cable (category 5 or better, straight, STP*)

* For Europe

IMPORTANT:

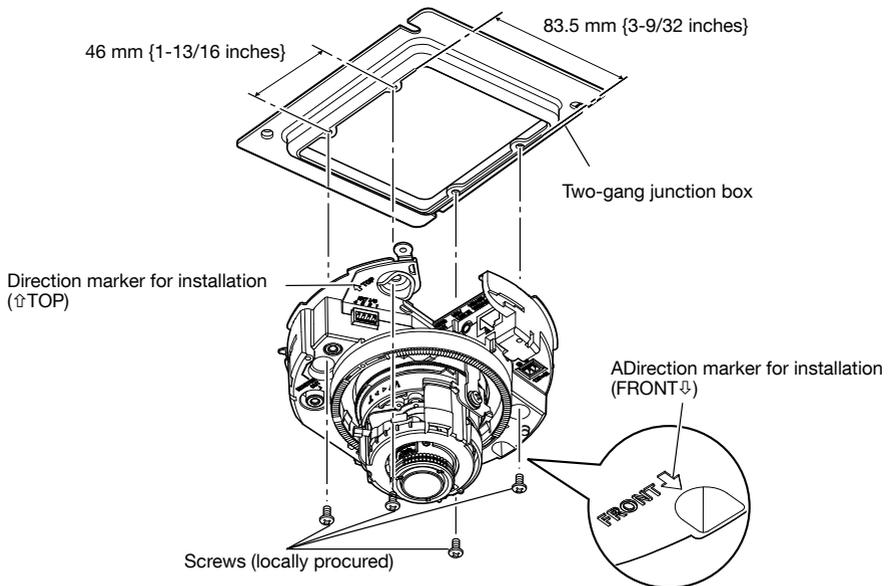
- The video monitor is used for checking the adjustment of the angular field of view when installing the camera or when servicing. It is not provided for recording/monitoring use.
 - Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.
 - Power supply is required for each network camera. When using a PoE device (hub), 12 V DC power supply is unnecessary.
-

Installation

Camera mounting

Installation shall be conducted after turning off each device.

- 1** Detach the dome cover. (☞ Page 17)
- 2** Connect the cables to the camera. (☞ Pages 23 - 28)
As necessary, use a cable tie (accessory) to assemble the cables.
- 3** Mount the camera. (The illustration represents the case in which a two-gang junction box is installed.)
Fix the camera with 4 screws (M4, locally procured).



IMPORTANT:

- When tightening the screws, be careful to ensure that the cables does not tangle the cables.
-

Note:

- For ceiling mounting
Select which direction to face the front (the side where the Panasonic logo and "FRONT↓" are) of the camera. Refer to the "Adjustment" section (☞ pages 30 - 33) for further information about adjustment.
 - For wall mounting
The camera shall be mounted with the "↑TOP" marker facing upward.
-

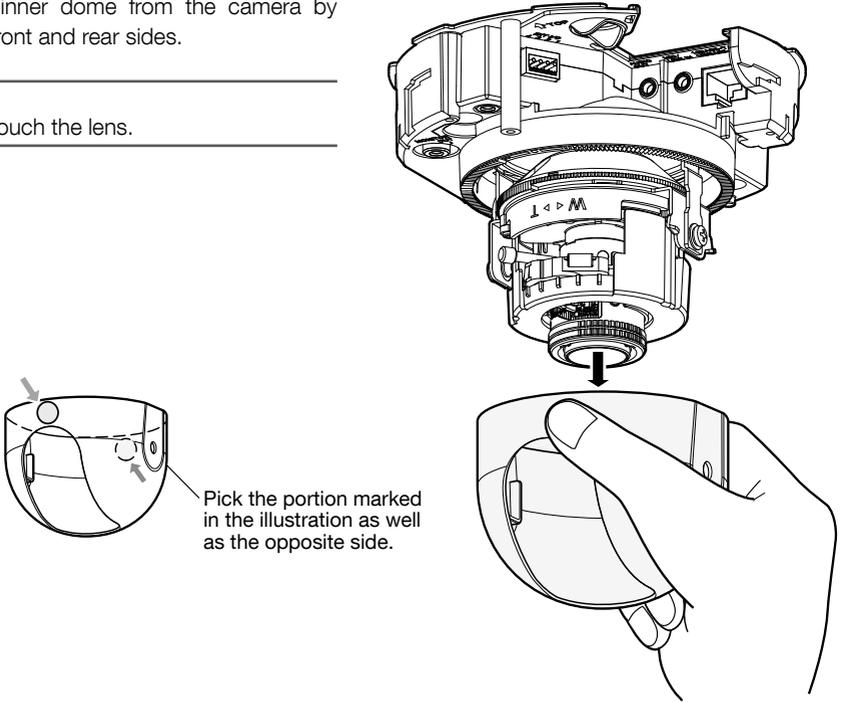
Adjustment

Perform the following procedures before adjusting the camera angle. SF549 SF548

Detach the inner dome from the camera by picking the front and rear sides.

Note:

- Do not touch the lens.



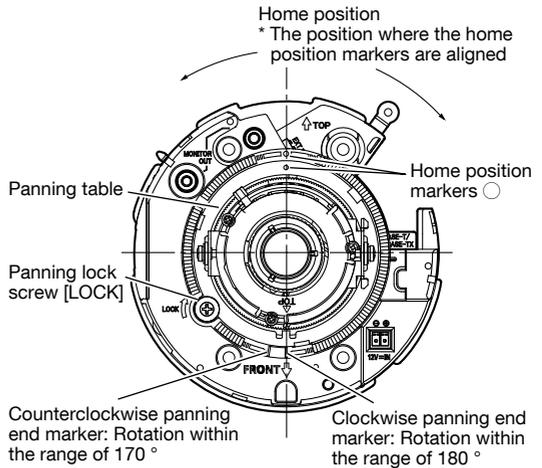
Pick the portion marked in the illustration as well as the opposite side.

- 1 Adjust the camera angle. When determining the camera angle, repeat fine adjustments by gradually moving the panning table, tilting table, and azimuth adjustment ring.

Horizontal position (Panning)

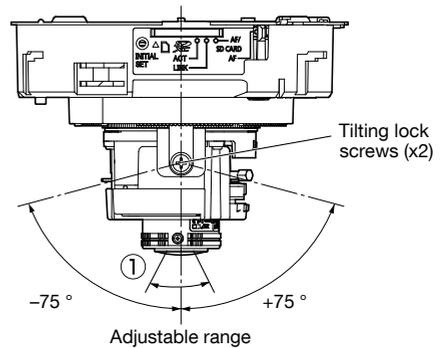
Loosen the panning lock screw, rotate the panning table to adjust the pan direction. (Adjustable range: 350 °)
Panning is possible within the range of 180 ° (when panning clockwise) and 170 ° (when panning counterclockwise). After adjustment, tighten the panning lock screw to fix the panning table.

(Recommended tightening torque: 0.39 N·m {0.29 lbf·ft})



Vertical position (Tilting)

Loosen the tilting lock screws (x2), and rotate the tilting table to adjust the tilting direction. (Adjustable range: $\pm 75^\circ$) Since a variable focal lens is used, it is possible to change the angular field of view. This lens can also be rotated in the reverse direction, but the image azimuth is reversed. In this case, the image azimuth can be modified when the panning table is rotated to the direction of clockwise panning (180°).



<Lens angular field of view (① Angle)>

Horizontal: 24.20° (TELE) to 86.60° (WIDE)

After adjustment, tighten the tilting lock screws (x2) to fix the tilting table.

(Recommended tightening torque: $0.59 \text{ N}\cdot\text{m}$ { $0.44 \text{ lbf}\cdot\text{ft}$ })

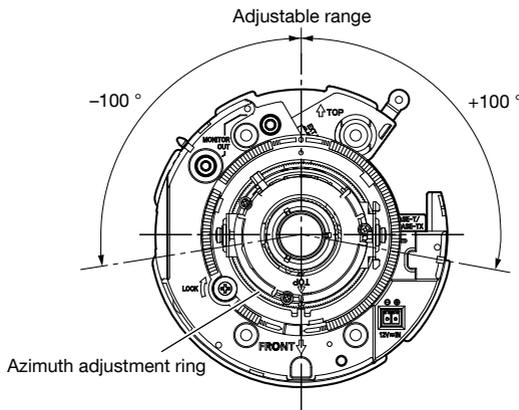
Note:

- When the tilting table is turned to the edge of the adjustable range ($\pm 75^\circ$), it must be noted that the shadow of the dome cover may be projected.
 - When the camera is installed to a wall, the image is turned upside down in the default settings. The way the image is displayed can be corrected in two ways: rotating the panning table 180° clockwise, or selecting "On" for "Upside-down" from the setup menu. For information about performing the "Upside-down" setting from the setup menu, refer to the Operating Instructions (included in the CD-ROM).
-

Image tilt adjustment

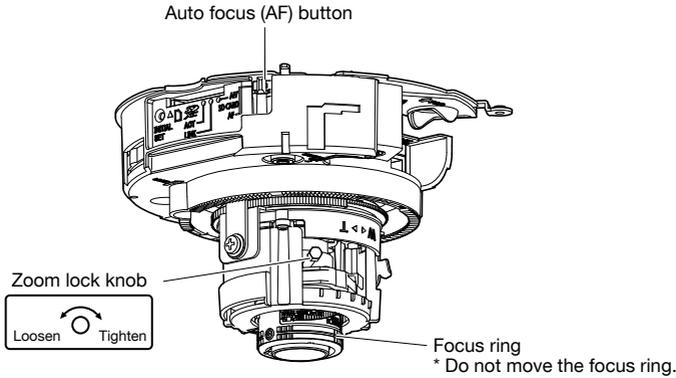
Rotate the azimuth adjustment ring to adjust the azimuth angle of the image.

(Adjustable range: $\pm 100^\circ$)



2 Adjust the angular field of view and the focus.

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 lock knob and move the knob between TELE and WIDE to obtain the appropriate angle of view.
- ② Press the auto focus (AF) button twice quickly to perform basic adjustments. The lamp blinks during auto focus (AF) adjusting. When the adjustment is completed, adjust the viewing angle while watching the screen.

Note:

- The focus may not be adjusted appropriately when the zoom lock knob is positioned at the "W" (or "T") end. In this case, adjust the focus again by slightly moving the zoom lock knob to the direction of "T" (or "W").

- ③ To adjust the angular field of view with a higher zooming effect even after turning the zoom lock knob almost fully in the "T" direction, adjust the zoom ratio to the "Tele" side on the [Extra optical zoom] tab on the setup menu. For information about performing the "Extra optical zoom" setting from the setup menu, refer to the Operating Instructions (included in the CD-ROM).
- ④ Tighten the zoom lock knob.
- ⑤ After fixing the viewing angle, press the auto focus (AF) button once. The auto focus lamp lights for about 10 seconds, and a detailed adjustment for the focus is automatically performed.

IMPORTANT:

- Do not move the focus ring by hand.
- Defocus may be caused by the reinstalled dome cover. In this case, perform the auto focus function from the setup menu.
- Press the auto focus (AF) button twice quickly to perform basic adjustments in a short time. For more accurate adjustments use the detailed adjustments.
- After performing basic adjustments, make sure to press the auto focus (AF) button once to perform detailed adjustments. (When basic adjustments are performed precise adjustments are not made and the focus may change in situations such as when the power is turned off then on again.)

Note:

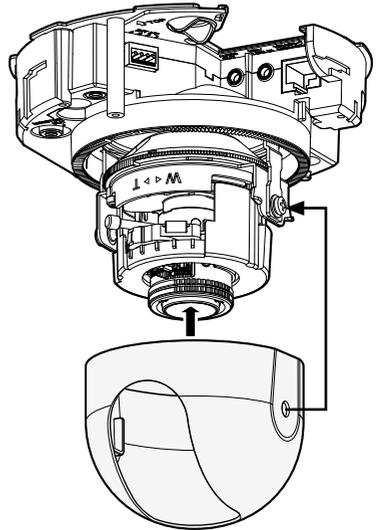
- If the zoom lock knob is fully turned in the "W" direction, the periphery may become dark. In such a case, turn the zoom lock knob in the "T" direction for readjustment.
 - If the zoom lock knob is slightly tightened before the zoom is adjusted, the knob will become stable, making fine adjustments easier to perform.
 - When shooting in the following place or the following subjects, focus may not be adjusted automatically. In this case, adjust the focus manually from the setup menu. Refer to the Operating Instructions (included in the CD-ROM) for how to perform the manual focus adjustment from the setup menu.
 - Subj. moving frequently
 - Subj. with large illuminance change
 - Subj. with low illuminance
 - Subj. with reflection or extra brightness
 - Subj. through a window
 - Place where the dome cover easily becomes dirty
 - Subj. with less contrast such as white wall
 - Subj. with heavy flicker
 - When images in the near-infrared light area change from color to black & white, out-of-focus may be occurred according to the nature of optical property. In this case, the focus can automatically be corrected by selecting "Auto" or "Preset" for "Adjusting method" on the setup menu (The focus will not automatically be adjusted according to the illumination level change once the focus is corrected). Refer to the Operating Instructions (included in the CD-ROM) for how to set "Adjusting method" on the setup menu.
 - It may be difficult to tighten the zoom lock knob depending on the position of the azimuth adjustment ring. In this case, adjust the azimuth adjustment ring after tightening the zoom lock knob.
-

Attaching the dome cover

Attach the dome cover to the camera. **SF549** **SF548**

The following procedure is required when using WV-SF549 or WV-SF548. Refer to page 35 when using WV-SF539 or WV-SF538.

- 1 Attach the inner dome to the camera in the same manner as the procedure in page 30. Make sure that the tilting lock screws of the camera and the holes on the inner dome are correctly fit together.

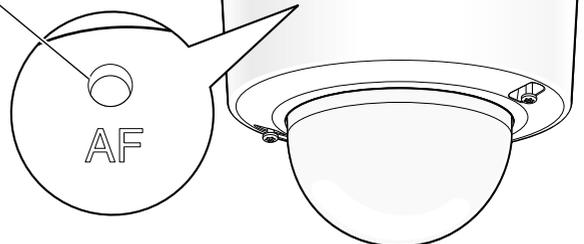


- 2 Attach the dome cover using the bit for tamperproof screw (accessory). (Recommended tightening torque: 0.59 N·m {0.44 lbf·ft})

- 3 After the installation is complete, remove the cover film from the dome section.

- 4 Push down the auto focus (AF) button with a ballpoint pen to adjust the focus again. Refer to page 30 for further information about adjustment.

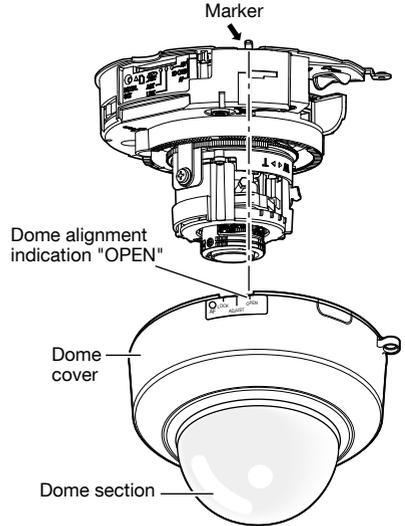
Auto focus (AF)
button



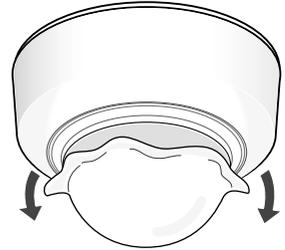
Attach the dome cover to the camera. (SF539) (SF538)

The following procedure is required when using WV-SF539 or WV-SF538. Refer to page 34 when using WV-SF549, WV-SF548.

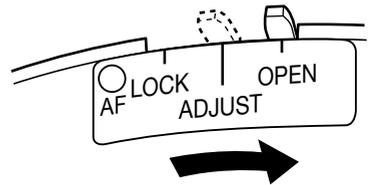
- 1 Align the indication "OPEN" to the marker of the camera to attach the dome cover.



- 2 Remove the cover film from the dome cover except the dome section.



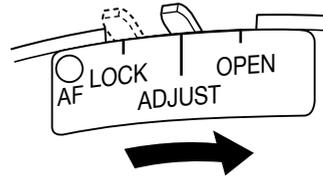
- 3 Adjust the direction of the inner dome.
Rotate the dome cover clockwise to adjust the marker to "ADJUST". The clear dome and the inner dome can rotate together in this state. Rotate the dome section of the dome cover to adjust the direction so that no eclipse may be caused.



IMPORTANT:

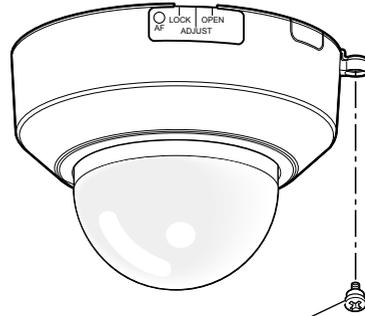
- For inner dome adjustments, adjust the marker to the "ADJUST" position. If the dome section is moved with unreasonable force from the "LOCK" position, this may be a cause of destruction.

- 4** Rotate the dome cover clockwise to adjust the marker to "LOCK".



- 5** Fix the dome cover and the camera with the dome cover fixing screw (M3, step screw, x1) that has been removed in the procedure of "Detaching the dome cover" (☞ page 17).

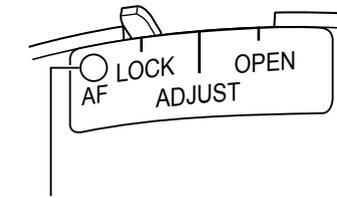
(Recommended tightening torque:
0.59 N·m {0.44 lbf·ft})



Dome cover fixing screw
(M3, step screw)

- 6** After the installation is complete, remove the cover film, which was removed halfway in Step 2, completely from the dome section.

- 7** Push down the auto focus (AF) button with a ballpoint pen to adjust the focus again. Refer to page 30 for further information about adjustment.



Auto focus (AF) button

Configure the network settings

Configuring the camera so that it can be accessed from a PC

The following are descriptions for when the camera with default settings is configured. If you are using firewall software on your PC, the Setup Program may not be able to find any cameras on your network. Configure the setting of the camera after temporarily invalidating the firewall software. Contact the network administrator or your Internet service provider for information about configuring the settings of the network.

- 1 Insert the provided CD-ROM into the CD-ROM drive of your PC.
 - The License Agreement will be displayed. Read the Agreement and choose “I accept the term in the license agreement”, and click [OK].
 - The launcher window will be displayed. If the launcher window is not displayed, double click the “CDLauncher.exe” file on the CD-ROM.

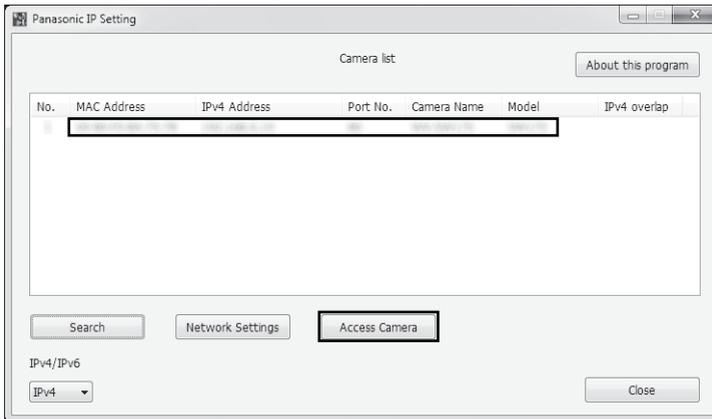


Note:

- Refer to “Using the CD-ROM” in the Operating Instructions on the provided CD-ROM for further information about CDLauncher.
-

- 2 Click the [Run] button next to [IP Setting Software].
[Panasonic IP Setting] screen will be displayed. Click the [Network Settings] button after selecting the MAC address/IP address of the camera to be configured.

- 3 Select the camera you want to configure, and click [Access Camera].



Note:

- When cameras are displayed in [Panasonic IP Setting] screen, click the camera with same MAC address as the MAC address printed on the camera that you want to configure.

- 4 If the installation screen of the viewer software “Network Camera View 4S” is displayed, follow the instructions of the wizard to start the installation. (The viewer software is installed from the camera.)
- The “Live” page will be displayed.
 - If you cannot install the viewer software “Network Camera View 4S” or if images are not displayed, click the [Install] button next to [Viewer Software] on the launcher window to install the software.
 - Perform the [Time & date] settings in the “Setup” - “Basic” page before using the camera.

Note:

- When no image is displayed on the “Live” page, refer to the Troubleshooting in the Operating Instructions on the provided CD-ROM.
- It is possible to enhance the network security by encrypting the access to cameras using the HTTPS function. Refer to the Operating instructions on the provided CD-ROM for how to configure the HTTPS settings.
- Click the [Setup] button on the “Live” page, the user authentication window will be displayed. Enter the default user name and password as follows, and log in.
User name: admin
Password: 12345
- When changing settings related to the network settings, such as connection mode, IP address, and subnet mask, click the [Network Settings] button in [IP Setting Software] screen as shown in step 3, then change each setting.
- Due to security enhancements in “IP Setting Software”, “Network settings” of the camera to be configured cannot be changed when around 20 minutes have passed after turning on the power of the camera. (When the effective period is set to “20 min” in the “Easy IP Setup accommodate period”.)
However, settings can be changed after 20 minutes for cameras in the initial set mode.
- “Network Camera Recorder with Viewer Software Lite” which supports live monitoring and recording images from multiple cameras is available. For further information, refer to our website (<http://security.panasonic.com/pss/security/support/info.html>).

Troubleshooting

Before asking for repairs, check the symptoms 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 pages
<p>Power is not turned on.</p>	<p>When using DC power supply</p> <ul style="list-style-type: none"> • Is 12 V DC power supply connected to the power supply terminal? → Check whether the connection is appropriately established. • Is the AC adaptor in use compliant with the Specifications? → Check the Specifications regarding AC adaptor. <p>When using a PoE device for power supply</p> <ul style="list-style-type: none"> • Are the PoE device and the network connector on the rear of the camera connected using a LAN cable (4-pair)? → Check whether the connection is appropriately established. • Depending on the PoE device, the power supply will stop when the demanded power exceeds its total power limit for all PoE ports. → Refer to the operating instructions of the PoE device in use. 	<p>26 - 27</p>
<p>The focus cannot be adjusted.</p>	<ul style="list-style-type: none"> • Is the zoom lock knob turned to the "W" (or "T") end? → Adjust the focus again by slightly moving the zoom lock knob to the direction of "T" (or "W"). 	<p>32 - 33</p>

Specifications

• Basic

Power source:	12 V DC, PoE (IEEE802.3af compliant)
Power consumption:	<p>SF549 SF539 12 V DC*: 530 mA, PoE 48 V: 120 mA (Class 2 devices)</p> <p>SF548 SF538 12 V DC*: 510 mA, PoE 48 V: 115 mA (Class 2 devices)</p> <p>* ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/ CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).</p>
Ambient operating temperature:	-10 °C to +50 °C {14 °F to 122 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
Shock resistance:	<p>SF549 SF548 Compliant with 20 J (IEC 60068-2-75)/IK10 (IEC 62262)</p>
Monitor output (for adjusting the angular field of view):	VBS: 1.0 V [p-p]/75 Ω, composite signal, RCA jack
External I/O terminals:	<p>SF549 SF539 ALARM IN1/ DAY/ NIGHT IN, ALARM IN2/ ALARM OUT, ALARM IN3/ AUX OUT (x1 for each)</p> <p>SF548 SF538 ALARM IN, ALARM OUT, AUX OUT (x1 for each)</p>
Microphone/line input cable:	<p>SF549 SF539 ø3.5 mm monaural mini jack Input impedance: Approx. 2 kΩ</p> <p>For microphone input: Applicable microphone: Plug-in power type Supply voltage: 2.5 V ±0.5 V</p> <p>For line input: Input level: Approx. -10 dBV</p>
Audio output cable:	<p>SF549 SF539 ø3.5 mm stereo mini jack (monaural output) Output impedance: Approx. 600 Ω Line level</p>
Dimensions:	<p>SF549 SF548 ø132 mm x 102.5 mm (H) {ø5-3/16 inches x 4-1/32 inches (H)}</p> <p>SF539 SF538 ø129.5 mm x 93 mm (H) {ø5-1/8 inches x 3-11/16 inches (H)}</p>
Mass:	<p>SF549 SF548 Approx. 710 g {1.57 lbs}</p> <p>SF539 SF538 Approx. 450 g {0.99 lbs}</p>

Finish:	SF549 SF548 Main body: Aluminum die cast, sail white Dome section: Clear polycarbonate resin SF539 SF538 Main body: ABS resin, sail white Dome section: Clear acrylic resin
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• **Camera**

Image sensor:	1/3-type MOS image sensor
Effective pixels:	Approx. 3.1 megapixels
Scanning area:	4.51 mm (H) × 3.38 mm (V) {3/16 inches (H) x 1/8 inches (V)}
Scanning system:	Progressive
Minimum illumination:	SF549 SF539 Color: 0.5 lx {0.05 footcandle} (F1.3, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.03 lx {0.003 footcandle} (F1.3, Auto slow shutter: max. 16/30 s, Gain: On(High))* BW: 0.06 lx {0.006 footcandle} (F1.3, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.004 lx {0.0004 footcandle} (F1.3, Auto slow shutter: max. 16/30 s, Gain: On(High))* SF548 SF538 Color: 0.5 lx {0.05 footcandle} (F1.3, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.03 lx {0.003 footcandle} (F1.3, Auto slow shutter: max. 16/30 s, Gain: On(High))* BW: 0.3 lx {0.03 footcandle} (F1.3, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.02 lx {0.002 footcandle} (F1.3, Auto slow shutter: max. 16/30 s, Gain: On(High))* * Converted value
Super-Dynamic:	On/Off
Dynamic range:	52 dB typ. (only at Super-Dynamic On)
Gain (AGC):	On(High)/ On(Mid)/ On(Low)/ Off
Adaptive black stretch:	On/Off (only at Super-Dynamic Off)
Light control mode setting:	Outdoor scene/Indoor scene (50 Hz/60 Hz)/ Fix shutter
Shutter speed:	1/30, 3/100, 3/120, 2/100, 2/120, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (only at Super-Dynamic Off)
Auto slow shutter:	Off (1/30 s), max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s
Day & Night (IR):	SF549 SF539 On/ Off/ Auto1/ Auto2
Day & Night (electrical):	SF548 SF538 Off/Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low

Video analytics Face detection*1:	On/Off (with the XML notification setting)
Privacy zone:	Gray/Off (up to 2 zones available)
VIQS:	On/Off (up to 2 areas available)
Camera title on screen:	Up to 20 characters (alphanumeric characters, marks) On/Off
Video motion detection (VMD alarm):	On/Off, (up to 4 areas available)

*1 To use the "XML notification" and "Face detection" functions, you need to install the extension software.

• Lens

Zoom ratio:	3.6x Extra optical zoom: 10.8x (Imaging mode: 2 megapixel, at 640x360 resolution)
Focal length:	2.8 mm - 10 mm
Maximum aperture ratio:	1:1.3 (WIDE) - 1:3.0 (TELE)
Angular field of view:	<ul style="list-style-type: none"> ■ Image capture mode: 2 mega pixel [16 : 9], 1.3 mega pixel [16 : 9] Horizontal: 24.20° (TELE) – 86.60° (WIDE) Vertical: 13.50° (TELE) – 47.57° (WIDE) ■ Image capture mode: 3 mega pixel [4 : 3] Horizontal: 25.56° (TELE) – 93.15° (WIDE) Vertical: 19.30° (TELE) – 68.49° (WIDE) ■ Image capture mode: 1.3 mega pixel [4 : 3] Horizontal: 20.18° (TELE) – 71.48° (WIDE) Vertical: 15.14° (TELE) – 53.19° (WIDE)
Adjusting angle:	Horizontal: 180 ° (clockwise), 170 ° (counterclockwise) Vertical: ±75 ° Image tilt adjustment range: ±100 °

• Network

Network:	10BASE-T/100BASE-TX, RJ45 connector
Resolution:	<p>Imaging mode: 2 megapixel [16:9] H.264 1920x1080/ 640x360/ 320x180 max.30 fps JPEG(MJPEG) 1920x1080/ 640x360/ 320x180 max.30 fps</p> <p>Imaging mode: 1.3 megapixel [16:9] H.264 1280x720/ 640x360/ 320x180 max.30 fps JPEG(MJPEG) 1280x720/ 640x360/ 320x180 max.30 fps</p> <p>Imaging mode: 1.3 megapixel [4:3] H.264 1280x960/ VGA(640x480)/ QVGA(320x240) max.30 fps JPEG(MJPEG) 1280x960/ VGA(640x480)/ QVGA(320x240) max.30 fps</p> <p>Imaging mode: 3 megapixel [4:3] H.264 1280x960/ max.15 fps JPEG(MJPEG) 2048x1536/ max.15 fps</p>

Image compression method*1:	<p>H.264</p> <p>Image quality: Low/ Normal/ Fine</p> <p>Transmission type: Unicast/Multicast</p> <p>Bit rate:</p> <p>Constant bit rate/Best effort: 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 1536 kbps/ 2048 kbps/ 3072 kbps/ 4096 kbps/ 6144 kbps/ 8192 kbps/ 10240 kbps/ 12288 kbps/ 14336 kbps</p> <p>Frame rate:</p> <p>1 fps/ 3 fps/ 5 fps/ 7.5 fps/ 10 fps/ 12 fps/ 15 fps/ 20 fps/ 30 fps</p> <p>JPEG (MJPEG)</p> <p>Image quality:</p> <p>0 SUPER FINE/ 1 FINE/ 2/ 3/ 4/ 5 NORMAL/ 6/ 7/ 8/ 9 LOW (10 steps: 0-9)</p> <p>Transmission type: PULL/PUSH</p>
Transmission interval:	0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.)
Cropping function:	<p>2 megapixel [16:9]</p> <p>H.264 640x360/ 320x180 max.30 fps</p> <p>MJPEG 640x360/ 320x180 max.30 fps</p> <p>1.3 megapixel [16:9]</p> <p>H.264 640x360/ 320x180 max.30 fps</p> <p>MJPEG 640x360/ 320x180 max.30 fps</p> <p>1.3 megapixel [4:3]</p> <p>H.264 VGA(640x480)/ QVGA(320x240) max.30 fps</p> <p>MJPEG VGA(640x480)/ QVGA(320x240) max.30 fps</p>
Picture in picture function:	<p>Off/ Live/ Alarm action 1/ Alarm action 2/ Alarm action 3</p> <p>/ Alarm action 4</p> <p>(only at Cropping function Off)</p>
Audio compression method:	<p>G.726 (ADPCM) 32 kbps/ 16 kbps</p> <p>G.711 64 kbps</p>
Bandwidth control:	Unlimited/ 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 2048 kbps/ 4096 kbps/ 8192 kbps
Protocol:	<p>IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, MLD, ICMP, ARP</p> <p>IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP</p>
OS*2*3:	<p>Microsoft Windows 7</p> <p>Microsoft Windows Vista</p> <p>Microsoft Windows XP SP3</p>
Browser:	<p>Windows Internet Explorer 9.0 (32-bit)</p> <p>Windows Internet Explorer 8.0 (32-bit)</p> <p>Windows Internet Explorer 7.0 (32-bit)</p> <p>Microsoft Internet Explorer 6.0 SP3</p>
Maximum concurrent access number:	14 (Depends on network conditions)
FTP client:	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SD memory card is available. SF549 SF539)

Multi-screen:	Up to 16 camera images can be displayed simultaneously on a multi-screen. (Including the camera itself)
Compatible SDXC/SDHC/SD memory card (option):	SF549 SF539 Manufactured by Panasonic (SD speed class 4 or higher) SDXC memory card: 64 GB SDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB SD memory card: 2 GB (except miniSD card and microSD card)
Cellular phone compatibility:	JPEG image, AUX control (by access level)
Mobile terminal compatibility: (As of October, 2013)*4	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals

*1 Transmission for 2 streams can be individually set to transmission.

*2 For further information about PC system requirements and precautions for when using Microsoft Windows 7, Microsoft Windows Vista, or Windows Internet Explorer, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows® / Internet Explorer® versions".

*3 When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.

*4 For further information about compatible devices, refer to our website (<http://security.panasonic.com/pss/security/support/info.html>).

Standard accessories

Installation Guide (this document)	1 set
Warranty card	1 set
CD-ROM*1	1 pc.
Code label*2	1 pc.

The following parts are used during installation procedures.

Power cord plug	1 pc.
External I/O terminal plug	1 pc.
Installation template label	1 pc.
Cable tie	2 pcs. (incl. 1 spare)
Bit for tamperproof screw SF549 SF548	1 pc.

*1 The CD-ROM contains the operating instructions and different kinds of tool software programs.

*2 This label may be required for network management. The network administrator shall retain the code label.

Optional accessories

User License Accessory (For H.264)	BB-HCA8A BB-HCA8CE
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Dome cover (Smoke type) SF539 SF538	WV-CF5S
Ceiling Mount Bracket SF539 SF538	WV-Q174 or WV-Q174A*1
Ceiling Mount Bracket	WV-Q105 (For Europe) or WV-Q105A*2

*1 WV-Q174A and WV-Q174 are the same, even though the model numbers are different.

*2 WV-Q105A and WV-Q105 are the same, even though the model numbers are different.

Information for Users on Collection and Disposal of Old Equipment and used Batteries



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you 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.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

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



For business users in the European Union

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

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.



Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

Cd

For U.S. and Canada:

Panasonic System Communications Company of North America, Unit of Panasonic Corporation of North America

www.panasonic.com/business/
For customer support, call 1.800.528.6747
Two Riverfront Plaza, Newark, NJ 07102-5490

Panasonic Canada Inc.

5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3 Canada
(905)624-5010
www.panasonic.ca

For Europe and other countries:

Panasonic Corporation

<http://panasonic.net>

Panasonic System Networks Co., Ltd.
Fukuoka, Japan

Authorised Representative in EU:

Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, Germany

