

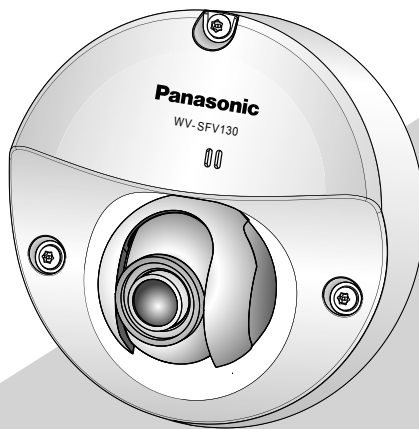
Panasonic®

Installation Guide

Included Installation Instructions

Network Camera

Model No. **WV-SFV130/WV-SFV110**
WV-SFV130M/WV-SFV110M



WV-SFV130

* For information about how to perform the settings and how to operate the camera, refer to the operating instructions on the provided CD-ROM.

* This manual takes WV-SFV130 for example for illustration.



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.

WARNING:

- To prevent injury, this apparatus must be securely attached to the wall/ceiling in accordance with the installation instructions.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunlight, fire or the like.

CAUTION:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- The network camera is only intended for a connection to an ethernet or PoE network without routing to the outside plant.

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.

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 yksinomaissella 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.

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 Canada

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

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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) Only use attachments/accessories specified by the manufacturer.
- 8) 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.



- 9) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 10) 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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- (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 dome type network cameras WV-SFV130 / WV-SFV110 / WV-SFV130M / WV-SFV110M 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.

<Outdoor Vandal resistant & waterproof model>

SFV130

Full-HD type:

The functions with this notation are available when using the model WV-SFV130 / WV-SFV130M.

SFV110

HD type:

The functions with this notation are available when using the model WV-SFV110 / WV-SFV110M.

Main functions

Compact body for installing in tight places

Transmission loads reduction with the built-in high-sensitivity MOS sensor and smart coding technology*¹

Reduction in transmission loads is achieved by reducing the data size in the parts of images that have limited movement, as well as by removing noise in low illumination conditions.

*¹ A technology developed by Panasonic for reducing the data loads.

H.264 quartet stream and JPEG (MJPEG) triple encoding

H.264 quartet stream output and JPEG (MJPEG) triple output can be simultaneously provided.

The equipped enhanced Super Dynamic function makes it possible to achieve 122 dB dynamic range.

By combining images taken at different shutter speeds and using pixel level brightness correction, more natural looking pictures can be taken even when objects have large differences in illumination.

Equipped with SD memory card*² slot

It is possible to save H.264 videos and JPEG images on the SD memory card manually when an alarm occurs, during the period of the schedule, or on a Web browser. (Downloading is possible.) It is also possible to save JPEG images if a network failure occurs.

*² SDXC/SDHC/SD memory card is described as SD memory card.

Extension software support

Installing extension software makes it possible to add functions that use image data.

* For further information about the Extension software supported by this camera, refer to our web-site (<http://security.panasonic.com/pss/security/support/info.html>).

The camera conforms to the IP66*³ and Type 4X (UL50)*⁴, is compliant with NEMA 4X*⁵ ratings, and provides high dust resistance and waterproof performance.

Waterproofing treatment is not required for the camera body.

*³ IP66 rating: The applicable product has "Dust tight (6)" protection against foreign solids and has "Powerful water jets (6)" against water (IEC60529).

*⁴ Type 4X (UL50): "4X" is a grade of the waterproofing standard of UL.

*⁵ NEMA: Dust resistance and waterproof performance standards set by National Electrical Manufacturers Association (United States).

About the user manuals

There are 2 sets of operating instructions for the WV-SFV130 / WV-SFV110 / WV-SFV130M / WV-SFV110M 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.

The external appearance and other parts shown in this manual may differ from the actual product within the scope that will not interfere with normal use due to improvement of the product.

English screens are used in these operating instructions and leaflets.

System requirements for a PC

CPU:	Intel® Core™ 2 Duo 2.4 GHz or faster recommended
Memory:	A minimum of 1 GB or more (for 32-bit OSs), 2 GB or more (for 64-bit OSs) memory is required.
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® 10 Microsoft® Windows® 8.1 Microsoft® Windows® 8 Microsoft® Windows® 7
Web browser:	Windows® Internet Explorer® 11 (32-bit) Windows® Internet Explorer® 10 (32-bit) Windows® Internet Explorer® 9 (32-bit) Windows® Internet Explorer® 8 (32-bit)
Others:	CD-ROM drive (It is necessary to read the operating instructions and use the software on the provided CD-ROM.) Adobe® Reader® (It is necessary to view the PDF file on the provided CD-ROM.)

IMPORTANT:

- 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>.
- 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 RT, Microsoft Windows 7 Starter and Microsoft Edge are not supported.
- When using Microsoft Windows 8.1, Microsoft Windows 8, use it in the desktop. The software cannot be used in the Modern UI design.

Note:

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

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- Android is a trademark of Google Inc.
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- This product contains open source software licensed under GPL (GNU General Public License), LGPL (GNU Lesser General Public License), etc.
- Customers can duplicate, distribute and modify the source code of the software under license of GPL and/or LGPL.
- Refer to the “readme.txt” file on the provided CD-ROM for further information about open source software licenses and the source code.
- Please note that Panasonic shall not respond to any inquiries regarding the contents of the source code.

Copyright

Except for open source software licensed under GPL/LGPL and so on, distributing, copying, disassembling, reverse compiling and reverse engineering of the software provided with this product are all expressly prohibited. In addition, exporting any software provided with this product violating export laws is prohibited.

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 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 experience. 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, or damage to the product. In this case, 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.

Fire or electrical shock may be caused if water or any foreign objects, such as metal objects, enter inside the unit.

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 this product to fall down or topple over, resulting in injury or accidents.

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 the product may occur.

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 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 do wiring of this product.

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

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

Otherwise, they may swallow the cards by mistake.
In this case, consult a doctor immediately.

Do not install or clean the camera, or touch this product, the power cable or the connected cables during thunder storms.

Failure to observe this may cause electric shock.

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

Failure to observe this may cause injury.

Do not hang down from this product or use this product as a pedestal.

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

Correctly perform all wiring

Short circuits in the wiring or incorrect wiring may cause fire or electrical shock.

Turn the power off when cleaning this product.

Failure to observe this may cause injury.

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

Failure to observe this may cause injury.

[Precautions for use]

To keep on using with stable performance

Do not use this product 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.

This product has no power switch.

When turning off the power, disconnect the Ethernet cable from the PoE device or turn off the power of the PoE device.

Handle this product 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 enclosure, it may cause damage or allow water to enter this product.

About the battery

A battery is installed inside the camera. Do not leave the battery exposed in environments of excessive heat as a result of sunlight or fire.

Do not touch the dome cover directly with your bare hands.

A dirty dome cover causes deterioration of picture quality.

About the PC monitor

When displaying the same image on the monitor for a long time, the monitor may be damaged. 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.

About the automatic status detection function

When this product malfunctions due to exogenous noise, etc. for 30 seconds or more, the product will automatically reset and will return to normal state. When the product is reset, initialization will be carried out as when the power of the product is turned on. When the product repeatedly resets, exogenous noise level around the product may be high and that may cause malfunction. Contact your dealer for instructions.

Transmission interval

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

Periodically images on the screen appear to be distorted

When the camera is installed in a location where it is subject to small vibrations (for example, when it is installed near devices that vibrate), images may appear distorted and stretched lengthways. This phenomenon is a characteristic of image pickup devices that use MOS sensors and is caused by the relationship between the periodic movements of the camera and the timing that the image sensor reads images. This is not a problem with the camera. To reduce the possibility of this phenomenon occurring, install the camera in a secure location.

About SD memory card

- To remove the SD memory card from the unit, press the [Set] button on the “Live” page, select the [SD memory card] tab, and set the SD memory card operation to “Not use”. Then, remove the SD memory card.
- When using an 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 an 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 on the provided CD-ROM for how to format an 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. Use the compatible SD memory cards. (ℹ page 36)
- When using an SD memory card supporting Class 10 of the speed class, use a UHS-I (Ultra High Speed-I) compliant card.

We shall not be liable for content compensation, losses of recorded or edited content and any direct or indirect consequent damages caused by failure to record or edit due to faults with this unit or the SD memory card. In addition, the same provisions apply after unit is repaired.

Operating temperature

Only turn the power on for the camera when the temperature is -30 °C {-22 °F} or warmer. This product can be used in low temperature outdoor environments that get as cold as -40 °C {-40 °F}. However, when this product is installed and operated in temperatures below -30 °C {-22 °F}, normal images may not be obtained immediately after startup.

What to do if “WARMING UP-PLEASE WAIT” appears on the display.

This message indicates that the temperature inside the camera has become extremely low. Wait until the internal temperature of the camera rises (for around 2 hours or more in temperatures below -30 °C {-22 °F}), turn the power off once, then turn it back on again.

About the MOS image sensor

- When continuously shooting a bright light source such as a spotlight, the color filter of the MOS image sensor may become deteriorated and this 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 objects crossing the shooting area may look to be bending askew.

About the built-in microphone

- If moisture attach to the peristome of built-in microphone, the volume may decrease. Please leave it to air dry sufficiently before use.
- When cleaning the peristome of built-in microphone, do not use any sharp-ended object to stab it. Doing so may result in failure or submerging.

Cleaning this product body

Be sure to turn off the power before cleaning. Failure to observe this may cause injury. Do not use benzine, thinner, alcohol, or any other types of solvents or detergents. 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.

Cleaning of the dome cover

Use lens cleaning paper (used to clean camera or spectacles lenses) to remove any dirt on the dome cover.

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

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.

Equipment classification and power source indication label

Refer to the indication label on the bottom side of this unit for the equipment classification, power source, and other information.

: **Direct current symbol**

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.

When abandoning the memory media, it is recommended to destroy it physically after deleting data by PC.

Flickering

Due to the influence of lighting, flickering may sometimes happen. In this case, select "Indoor scene" for "Light control mode". Select "Indoor scene(50Hz)" or "Indoor scene(60Hz)" in accordance with the power supply frequency in your locality. Refer to the Operating Instructions (included in the CD-ROM) for further information about the setting.

Under extremely strong lighting, flickering may happen even when "Indoor scene" is selected for "Light control mode".

When the brightness (illuminance) level on the screen is set to a relatively low level with the [Brightness] buttons, flickering may frequently happen. In such cases, either of the following can reduce flickering.

- Moderate the illumination intensities of objects by changing the camera direction.
- Set the brightness (illuminance) level on the screen to a brighter level with the [Brightness] buttons.

White-out on images caused by the effect of light control mode

When "Indoor scene" is selected for "Light control mode", the tone of the brighter parts on the screen may be deteriorated than the case when "ELC" is selected.

Color blurring on detailed drawing patterns

When there are detailed drawing patterns on images, color blurring may happen over these parts.

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.

In order to prevent injury, the product must be securely mounted to a wall or ceiling according to Installation Guide.

Power supply

This product has no power switch. When turning off the power, disconnect the power supply from the PoE device.

Installation area for this product

Select an appropriate place for the installation area (such as a strong wall or ceiling) 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.
- Do not mount the product on a plaster board or a wooden section because they are too weak. If the product is unavoidably mounted on such a section, the section shall be sufficiently reinforced.

Install the product in areas that do not receive direct sunlight.

Do not place this product in the following places:

- 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 near coasts directly subjected to sea breezes, or locations subject to corrosive gases such as from hot springs, volcanic regions, etc.
- Locations where the temperature is not within the specified range (☞ page 32)
- Locations subject to vibrations, such as on vehicles, marine vessels, or above product lines (This product is not designed for on-vehicle use.)
- Locations subject to vibrations that exceed the railway specifications (EN50155)
- Locations subject to condensation as the result of severe changes in temperature (In case of installing the product in such locations, the dome cover may become foggy or condensation may be caused on the cover.)

Sulfurization caused by rubber products

Do not place the product near rubber products (packing, rubber feet, etc.) that contain sulfur. There is a risk that sulfur components in rubber products may cause electrical parts and terminals, etc. to become sulfurized and corrode.

Check before installation

Compatibility of devices is restricted. Before installation, check the ratings and dimensions of the devices to be used. Contact your dealer for details.

Protection from lightning

When cables are used outdoors, there is a chance that they may be affected by lightning. In such a case, install a lightning arrestor close to the camera, and make the length of the network cable between the camera and lightning arrestor as short as possible to prevent the camera from being damaged by lightning.

Before installation

- When installing the product to a ceiling or wall, either directly mount it to a wall or ceiling, or install it using a mount bracket (accessory).
- Anchor bolts and screws used to mount the camera on the ceiling or wall are not supplied. Prepare anchor bolts and screws that match the structure and materials of the installation location and satisfy the performance and reliability specifications shown below.

Required screws: M4 (3 pcs.)

Minimum pull-out strength: 196 N {44 lbf} (per 1 pc.) (When securing the camera to a wall or ceiling using the mount bracket, make sure to use ø10 mm flat washers.)

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.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws or bolts, perform checks to ensure that the tightening is sufficient enough so that there is no movement or looseness.

PoE (Power over Ethernet)

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

Take notice of humidity

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

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 may be produced.

Router

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

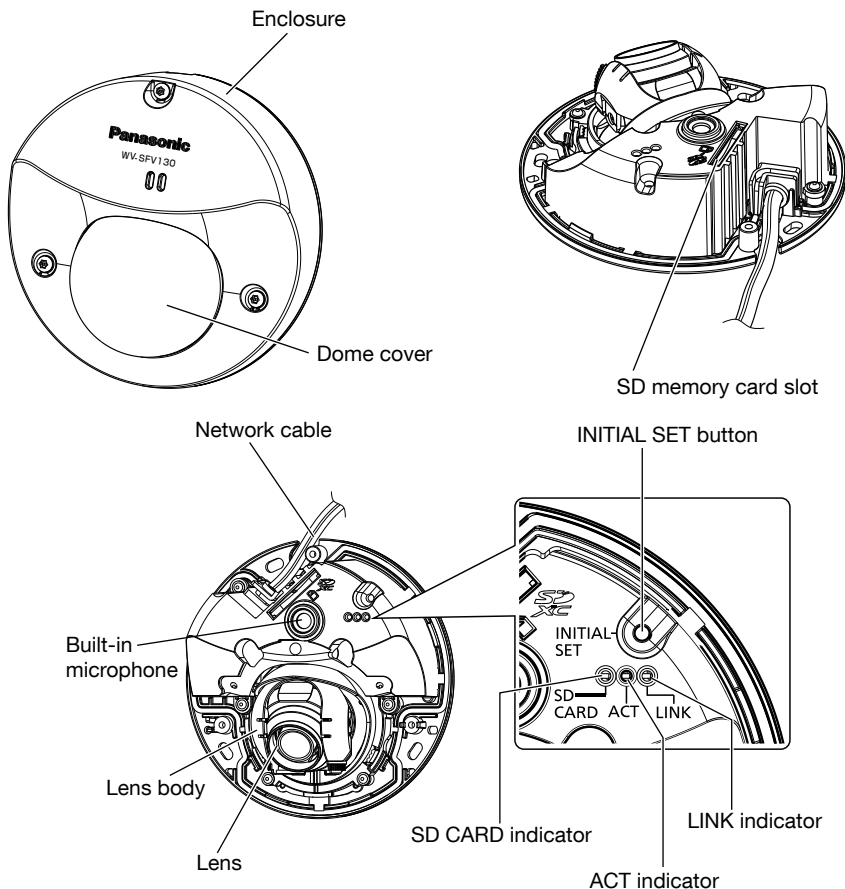
Refer to the operating instructions on the provided CD-ROM for further information about the port forwarding function.

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.

Make sure to remove this product if it will no longer be used.

Parts and functions



About the initial set button

Follow the steps below to initialize the network camera.

- ① Turn off the power of the camera. (Disconnect the Ethernet cable from the camera.)
- ② Turn on the power of the camera while holding down the INITIAL SET button, and then keep holding down the button for 10-15 seconds. In about 2 minutes later, the camera will start up and the settings including the network settings will be initialized.

IMPORTANT:

- When the camera is initialized, the settings including the network settings will be initialized. Note that the CRT key (SSL encryption key) used for the HTTPS protocol will not be initialized.
 - Before initializing the settings, it is recommended to write down the settings in advance.
 - Do not turn off the power of the camera during the process of initialization. Otherwise, it may fail to initialize and may cause malfunction.
-

Preparations

When installing the camera on a ceiling or a wall, there are three methods as specified below.

- Directly mounting to a ceiling or a wall
- Use the supplied mount bracket
- Use the one-gang junction box

IMPORTANT:

- Procure 3 screws (M4) to secure the camera or the mount bracket (accessory) to a ceiling or a wall according to the material of the installation area. Do not use wood screws and nails. For mounting a camera on a concrete ceiling, 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})
 - Mount the mount bracket in consideration of the camera angle in accordance with the instructions (page 24).
 - 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.
-

The mounting conditions of the camera are described as follows:

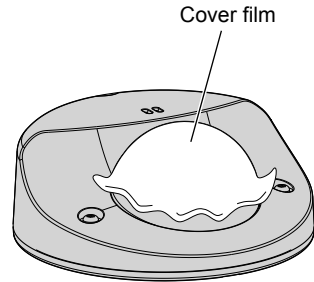
Installation place	Installation method	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	(direct mounting)	M4	3 pcs.	196 N {44 lbf}
Ceiling/wall*	Mount bracket (accessory)	M4	3 pcs.	196 N {44 lbf}
Ceiling/wall	One-gang junction box	M4	2 pcs.	196 N {44 lbf}

* The conditions for mounting the camera onto the ceiling or wall with a mount bracket.

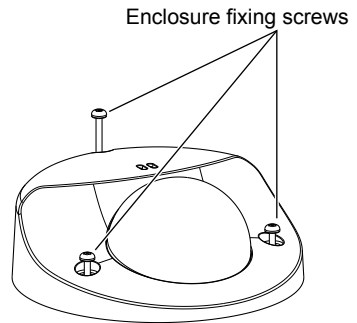
■ Removing the enclosure

IMPORTANT:

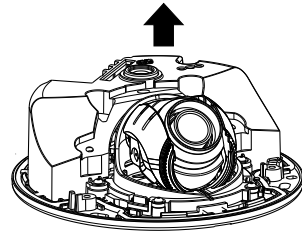
- Remove the cover film attached to the dome cover after the camera installation is completed.



- 1 Loosen the 3 enclosure fixing screws (M3) using the bit (accessory) (Hex wrench, screw size 6.35 mm {1/4 inches} T10).



- 2 Remove the enclosure.

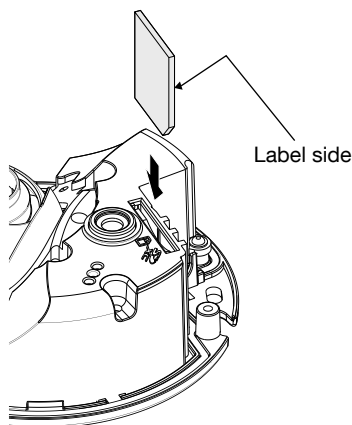


■ Insert an SD memory card

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

IMPORTANT:

- When inserting an SD memory card, make sure the direction.
-



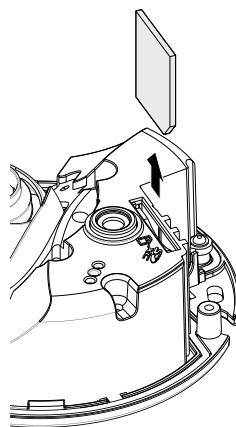
How to remove an SD memory card

When removing the SD memory card from the SD memory card slot, remove the enclosure (see page 17), and push the card until a click is heard. After the SD memory card is removed, attach the enclosure to the camera again.

(see Page 29)

IMPORTANT:

- Before removing the SD memory card, select "Not use" for "SD memory card" on the [SD memory card] tab of the setup menu first. (see Operating Instructions (included in the CD-ROM))
-

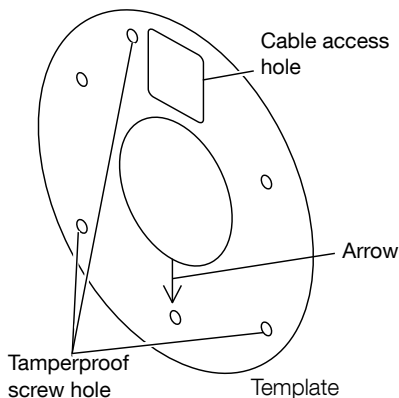


Processing the ceiling or wall

■ Installing the camera directly on the ceiling or wall

Note:

- Use the template (accessory) with the side with the arrow facing you.
- Ceiling installation:
Place the template so that the arrow is pointing to the front of the camera (the lens side).
- Wall installation:
Place the template so that the arrow is pointing down.



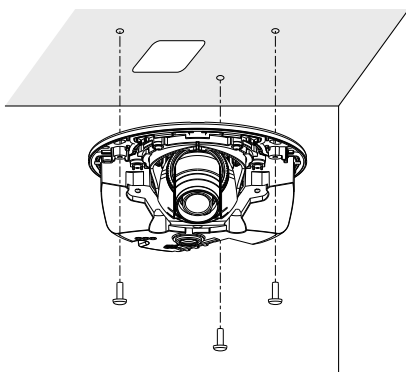
<Connecting the cable through holes opened in the ceiling or wall>

Place the template (accessory) on the ceiling or wall, mark the hole for the cable to be passed through and for the fixing screws (3 places), then open the holes.

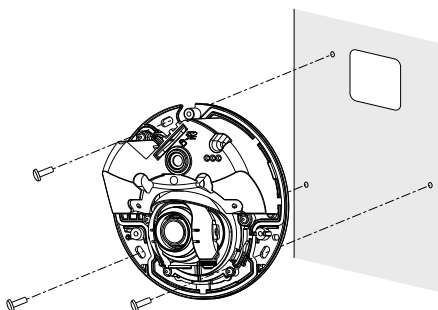
<Connecting the cable through the side cable access hole>

Place the template (accessory) on the ceiling or wall, mark the holes for the fixing screws (3 places), then open the holes.

■ Ceiling



■ Wall

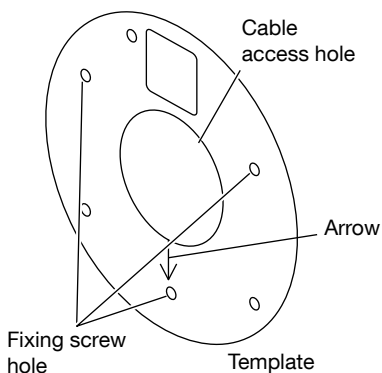


■ Using the mount bracket (accessory)

When conduits are used for wiring, or when there is no space available for wiring in the ceiling or the wall, the mount bracket is used.

Note:

- Use the template (accessory) with the side with the arrow facing you.
- Ceiling installation:
Place the template so that the arrow is pointing to the front of the camera (the lens side).
- Wall installation:
Place the template so that the arrow is pointing down.



<Connecting the cable through holes opened in the ceiling or wall>

Place the template (accessory) on the ceiling or wall, mark the hole for the cable to be passed through and for the fixing screws (3 places), then open the holes.

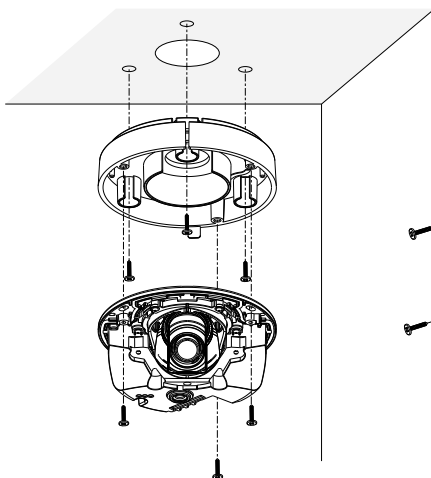
IMPORTANT:

- The camera supports pipe attachments (locally procured) for 3/4 inch ANSI NPSM (parallel pipe threads) as well as G3/4 of ISO 228-1. Open the cable access hole according to the pipe attachment.

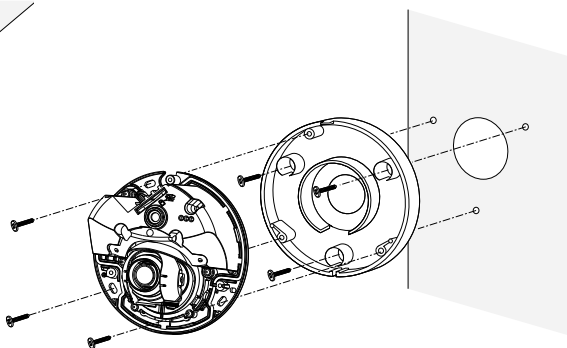
<Connecting the cable through the side cable access hole>

Place the template (accessory) on the ceiling or wall, mark the holes for the fixing screws (3 places), then open the holes.

■ Ceiling



■ Wall



Connection

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

IMPORTANT:

- The maximum cable length is 100 m {328 feet}.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard.
- When the Ethernet 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.

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

■ WV-SFV130/WV-SFV110

IMPORTANT:

- Use all 4 pairs (8 pins) of the Ethernet cable.
- The external dimensions of the Ethernet cable are from $\varnothing 5$ mm { $\varnothing 3/16$ inches} to $\varnothing 6.5$ mm { $\varnothing 1/4$ inches}.
- If the procedure for the RJ45 waterproof connector (accessory) part is not correctly followed, the waterproofing may be compromised. Do not install the camera where the RJ45 waterproof connector is exposed to constant rain or moisture.

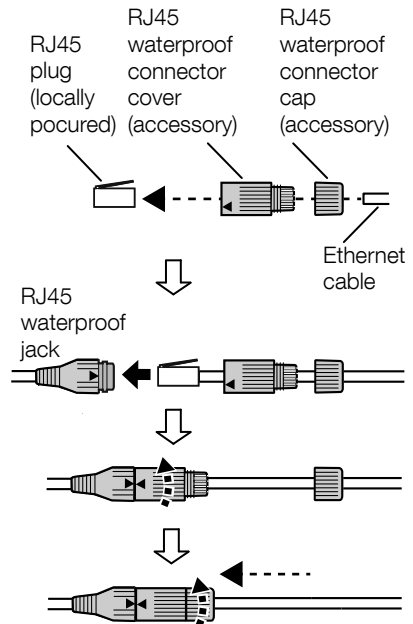
- ① First pass the Ethernet cable through the RJ45 waterproof connector cap (accessory) and then through the RJ45 waterproof connector cover (accessory). Next, use a specialized tool (locally procured) to crimp the RJ45 plug (locally procured) to the end of the Ethernet cable.

- Take care not to remove the rubber parts from inside the RJ45 waterproof connector cover.

- ② Insert the RJ45 plug into the RJ45 waterproof jack connected to the camera.

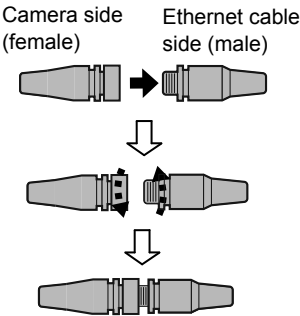
- ③ Connect the RJ45 waterproof connector cover to the RJ45 waterproof jack and then rotate the RJ45 waterproof connector cover until the "▲" marks align.

- ④ Connect the RJ45 waterproof connector cap to the RJ45 waterproof connector cover and rotate the RJ45 waterproof connector cap until there is no gap between it and the RJ45 waterproof connector cover.

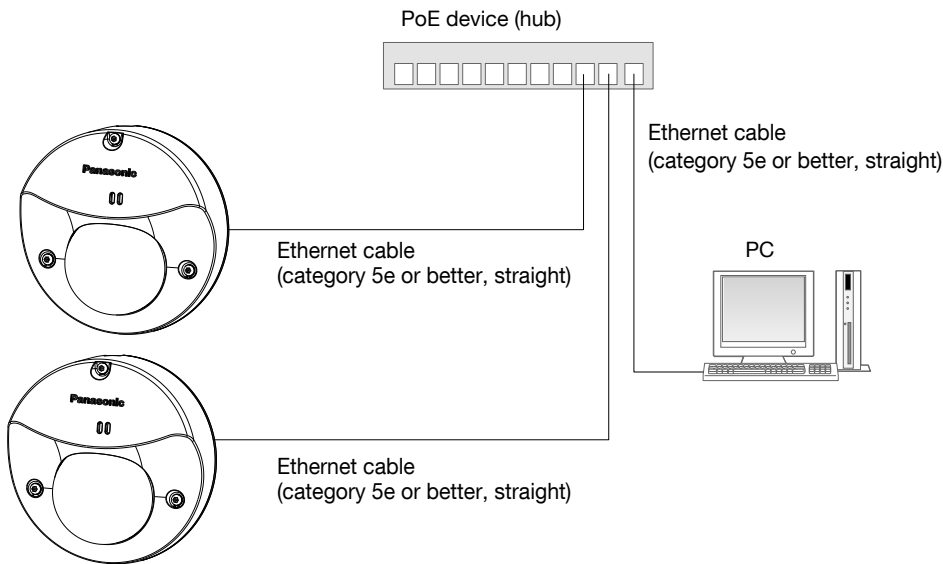


■ WV-SFV130M/WV-SFV110M

- ① Insert the M12 plug into the M12 jack connected to the camera.
- ② Tightly fasten the connector by rotating both rings in opposite directions



■ When connecting to a network using a PoE hub



<Required cable>

Ethernet cable (category 5e or better, straight)
Use a Ethernet cable (category 5e or better, cross) when directly connecting the camera to a PC.

IMPORTANT:

- Use a switching hub which is compliant with 10BASE-T/100BASE-TX.

Installation

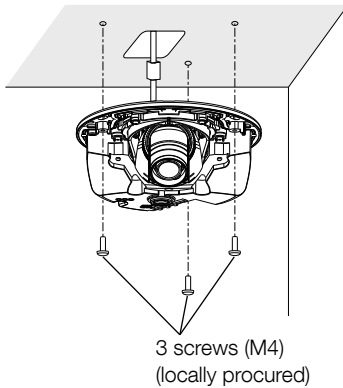
■ Installing the camera directly on the ceiling or wall

Secure the camera with 3 screws (M4) (locally procured).

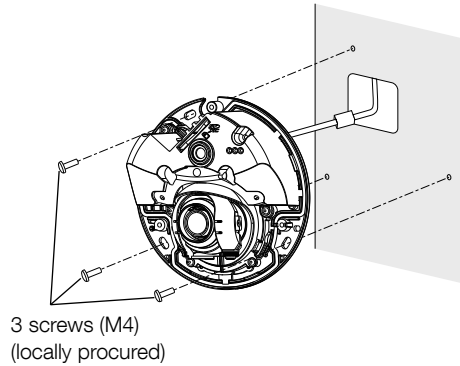
IMPORTANT:

- Required pull-out capacity of a single screw/bolt is 196 N {44 lbf} or more.
 - Do not touch the lens.
 - When tightening the screws (locally procured), be careful to ensure that the cables does not tangle the cable.
-

■ Ceiling



■ Wall

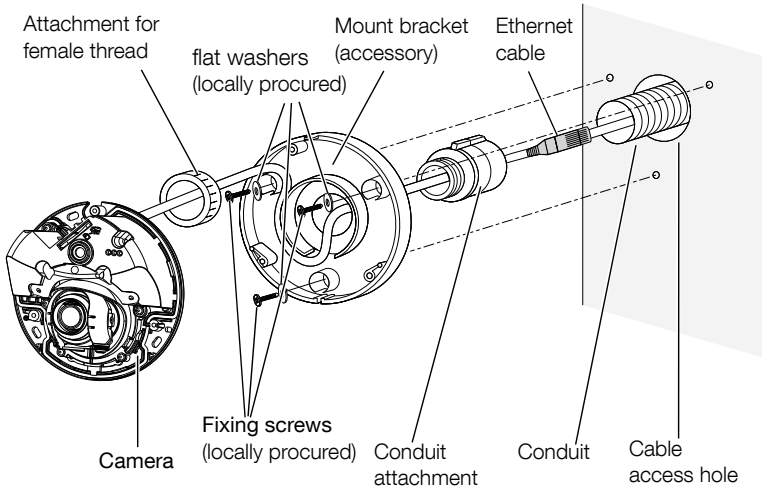


■ Using the mount bracket

- 1 Connect the conduit attachment (locally procured) to the conduit.
- 2 Secure the mount bracket (accessory) to the conduit attachment with the attachment for female thread (locally procured).
- 3 Mount the mount bracket to either a ceiling or a wall. (3 screws (M4) (locally procured))
(Required pull-out capacity of a single screw/bolt is 196 N {44 lbf} or more.)

IMPORTANT:

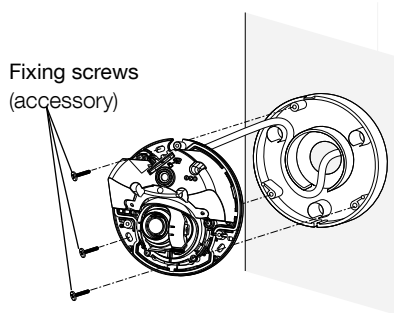
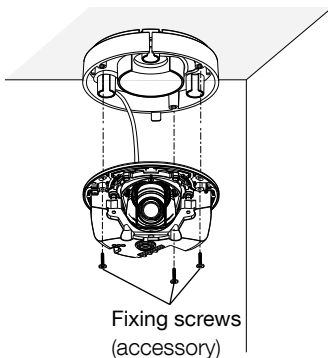
- Make sure to use $\varnothing 10$ mm {13/32 inches} flat washers (locally procured).
-



- 4 Secure the camera to the mount bracket with 3 fixing screws (accessory).
(Recommended tightening torque: 1.4 N·m {1 lbf·ft})

■ Ceiling

■ Wall



■Using a one-gang junction box

Secure the mount bracket (accessory) to the one-gang junction box built in a ceiling or a wall.

1 Secure the mount bracket to the one-gang junction box. (2 screws (M4) (locally procured))

Note:

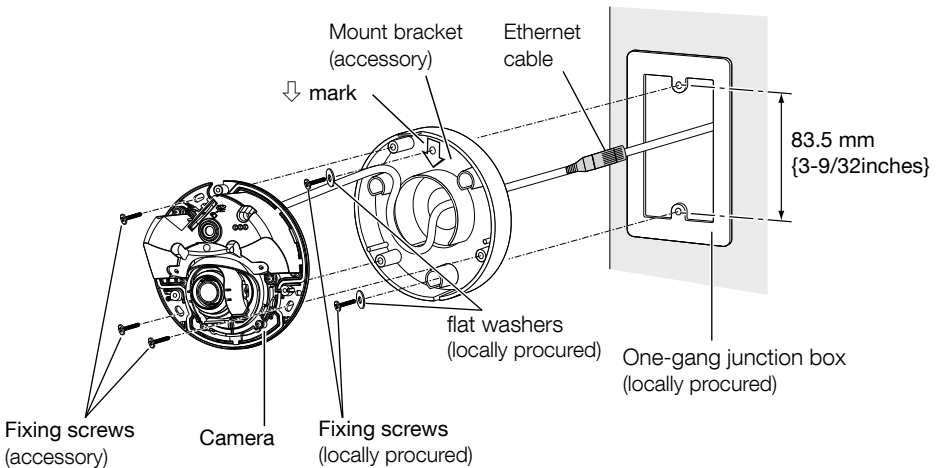
- When using a one-gang junction box, use the holes from positions shown in the mount bracket illustration below.
- Ceiling installation:
The mount bracket shall be mounted with aligning the front side (the lens side) of the camera with the position of the arrow in "↓".
- Wall installation:
The mount bracket shall be mounted with "↓" facing downward.

IMPORTANT:

- Make sure to use $\varnothing 10$ mm {13/32 inches} flat washers (locally procured).

2 Secure the camera to the mount bracket with 3 fixing screws (accessory).

(Recommended tightening torque: 1.4 N·m {1 lbf·ft})

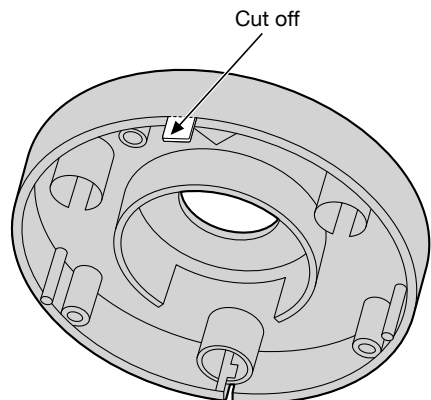


■Using the side cable access hole

When installing the camera directly on the ceiling or wall with cables exposed, cut off a portion of the mount bracket to open a cable access hole.

IMPORTANT:

- To prevent injury and protect cables, smooth the cut off parts of the mount bracket with a file or other tool.



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 (①) you want to configure, and click [Access Camera] (②).



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 When the administrator registration screen is displayed, follow the displayed instructions to register the administrator's user name and password. Please keep your user name and password in a safe place free from public view to ensure security. For further information, refer to the "Preface" section in the Operating Instructions on the provided CD-ROM.
- 5 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.

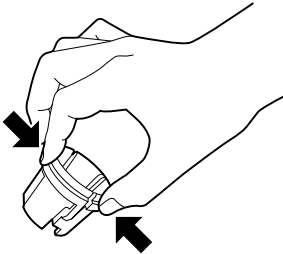
Note:

- 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.
- When changing settings related to the network settings, such as connection mode, IP address, and subnet mask, click the [Network Settings] button in [Panasonic IP Setting] 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>).

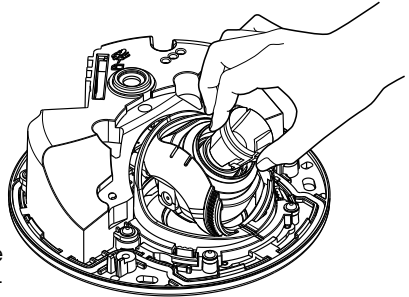
Adjustment

■ Adjust the camera angle.

- 1 When adjusting the camera angle, making sure not to touch the lens, face the wider end of the lens adjuster towards you and then attach it to the lens.



When attaching or removing the lens adjuster, squeeze the wider end of the lens adjuster as shown in the illustration to open the narrower end of the lens adjuster.



- 2 When determining the camera angle, repeat fine adjustments by gradually moving the horizontal angle and vertical angle.

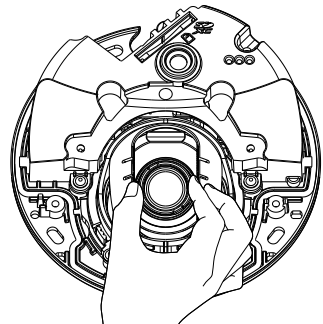
Note:

- Make adjustments to the direction of the lens while confirming the picture displayed on computer's monitor.
- When the camera is installed to a wall, the image is reversed in the default settings. To correct the way the image is displayed, select "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).
- Depending on the vertical/horizontal angle used, the edges of the camera may be projected.
- Use Extra zoom when you want to adjust the angular field of view on the "Tele" side. When VGA (640x480) or a lower resolution is selected, the angular field of view can be adjusted without deterioration in the image quality.
- When a resolution higher than VGA is used, image quality may deteriorate depending on the zoom rate of the Extra zoom.
- When a strong light shines on the front of the camera, part of the lens may be reflected on the inside of the dome cover and be visible in images. Adjust the camera angle so that there are no reflections.

Hold the lens with the lens adjuster still attached to it and then adjust the angle of the lens.

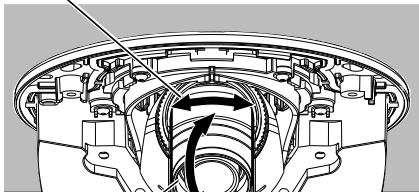
Note:

- When adjusting the horizontal angle of cameras mounted to a ceiling, adjust the direction of the lens by moving the lens holding the indentations on the sides of the lens.



■ Ceiling

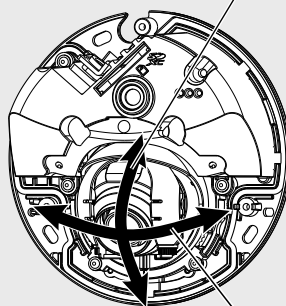
Horizontal : -20° to +20°



Vertical : -20° to 0° (right under)
to +90° (right beside)

■ Wall

Vertical : -20° to 0° (right beside)
to +90° (right under)



Horizontal : -90° to +90°

3 Rotate the lens adjuster (accessory) to adjust the focus of the lens.

Note:

- When the focus is difficult to adjust, set the [Zoom] button on the "Live" page to [x2].

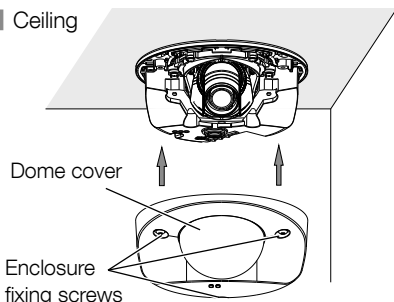
■ Attaching the enclosure.

1 Remove the packaging from the rear of the dome cover, and then attach the enclosure to the camera by using the bit (accessory) to tighten the 3 enclosure fixing screws (M3).
(Recommended tightening torque: 0.8 N·m {0.59 lbf·ft})

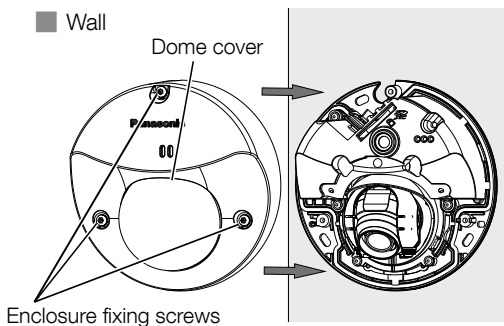
IMPORTANT:

- When attaching the enclosure the focus may be slightly disturbed. If this occurs, remove the enclosure and make the necessary adjustments.
- Before attaching the enclosure, make sure that the subject is present.
- Securely tighten all the fixing screws (x3) of enclosure. Otherwise, water exposure may cause damage or malfunction of camera, or camera dropping may result in injury.
(Recommended tightening torque: 0.8 N·m {0.59 lbf·ft})

■ Ceiling



■ Wall



2 Remove the cover film from outside of the dome cover.

IMPORTANT:

- Remove the cover film attached to the dome cover after the camera installation is completed.
After removing the cover film, do not touch the dome cover with your hands.

Troubleshooting

Before asking for repairs, check the symptoms with the following table.

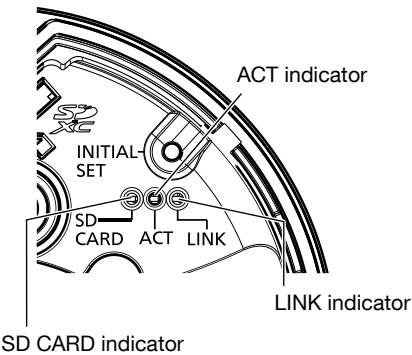
Contact your dealer if a problem cannot be solved even after checking and trying the solution in the table or a problem is not described below.

Symptom	Cause/solution	Reference pages
Power is not turned on.	• Are the PoE device and the network connector connected using a Ethernet cable (category 5e or better)? 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.	21-22
The LINK indicator does not light in orange even when the Ethernet cable is connected to the camera.	• Is the Ethernet cable connected appropriately? Connect the Ethernet cable appropriately. • Is the hub or router connected to the camera operating appropriately? Check if the hub or router in use is operating appropriately. • Isn't the Ethernet cable connected to the camera broken? Replace the cable with another one.	21-22
SD CARD indicator lights up red.	This indicator lights up red when data cannot be saved on the SD memory card. • Isn't the write protect switch of the inserted SD memory card set to "LOCK"? Unlock the write protect switch of the SD memory card. • Hasn't the inserted SD memory card been formatted on a PC? Use an SD memory card formatted on the camera. Or install the software to format the SD memory card on the PC. Refer to our website (http://security.panasonic.com/pss/security/support/info.html) for further information about the supported software. • Isn't the inserted SD memory card faulty? Replace the card with a normal one.	18

About the indicator

The indicator will light or blink as follows depending on the camera status.

Indicator type and operation state	Change of indicator indication
ACT indicator	
When data is being sent via the network camera	Blinks green (accessing)
LINK indicator	
When the camera is able to communicate with the connected device	Lights orange
SD CARD indicator	
• When the camera is being started	Lights red
• When an SD memory card is recognized normally	Lights red → Lights off
• When the SD memory card slot is not used or if an SD memory card error is detected after start-up	Lights red → Lights off → Lights red



Specifications

• Basic

Power source *1:	PoE (IEEE802.3af compliant)
Power consumption *1:	PoE 48 V DC : 90 mA / Approx. 4.3 W (Class 2 device)
Operating environment	
Ambient operating temperature:	−40 °C to +60 °C {−40 °F to 140 °F} (Power On range: −30 °C to +60 °C {−22 °F to 140 °F})
Ambient operating humidity:	10 % to 90 % (no condensation)
Storage environment	
Storage temperature:	−40 °C to +60 °C {−40 °F to 140 °F}
Storage humidity:	10 % to 95 % (no condensation)
Built-in microphone:	Nondirectional electret condenser microphone
Waterproof *2:	Main body: IP66 (IEC60529), Type 4X (UL50), NEMA 4X compliant
Shock resistance:	Compliant with 50 J (IEC 60068-2-75) / IK10 (IEC 62262)
Dimensions:	Installing using the mount bracket: ø109 mm × 70 mm (H) {ø4-9/32 inches × 2-3/4 inches (H)} Dome diameter 54 mm {2-1/8 inches} Installing on a wall or a ceiling directly: ø109 mm × 47 mm (H) {ø4-9/32 inches × 1-27/32 inches (H)} Dome diameter 54 mm {2-1/8 inches}
Mass:	Installing using the mount bracket: Approx. 410 g {0.9 lbs} Installing on a wall or a ceiling directly: Approx. 350 g {0.77 lbs}
Finish:	Main body: Aluminum die cast, Light gray Dome cover: Polycarbonate resin, Clear
Others:	Tamper-resistant enclosure*3

*1 Refer to our website (<http://security.panasonic.com/pss/security/support/info.html>) for further information about Power source and Power consumption.

*2 Only when installation work is properly performed according to the instructions guide and appropriate waterproof treatment is performed.

*3 Component that has a structure on which the screws that are accessible after installation cannot be screwed or unscrewed using an ordinary screwdriver.

• Camera

Image sensor:	Approx. 1/3 type MOS image sensor
Effective pixels:	SFV130 Approx. 2.4 mega pixels SFV110 Approx. 1.3 mega pixels
Scanning area:	SFV130 5.28 mm (H) × 2.97 mm (V) {7/32 inches (H) × 1/8 inches (V)} SFV110 4.86 mm (H) × 3.65 mm (V) {3/16 inches (H) × 5/32 inches (V)}
Scanning system:	Progressive
Minimum illumination:	SFV130 Color: 0.1 lx {0.00929 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: High) 0.007 lx {0.00065 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: High)* BW : 0.08 lx {0.00743 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: High) 0.005 lx {0.00046 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: High)* SFV110 Color: 0.04 lx {0.00372 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: High) 0.003 lx {0.00028 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: High)* BW : 0.03 lx {0.00279 footcandle} (F2.3, Maximum shutter: Off (1/30 s), AGC: High) 0.002 lx {0.00019 footcandle} (F2.3, Maximum shutter: max. 16/30 s, AGC: High)* * Converted value
Super Dynamic:	On (High)/ On (Normal)/ Off
Dynamic range:	122 dB typ. (Super Dynamic: On)
Face SD (Super Dynamic):	On/ Off (only when Super Dynamic: On)
Gain (AGC):	On (High)/ On (Mid)/ On (Low)/ Off
Adaptive black stretch:	On/ Off (only when Super Dynamic: Off)
Back light compensation (BLC):	On/ Off (only when Super Dynamic: Off)
Fog compensation:	On/ Off (only when Super Dynamic/ Adaptive black stretch: Off)
High light compensation (HLC):	On/ Off (only when Super Dynamic/ Back light compensation: Off)
Light control mode setting:	ELC/Indoor scene (50 Hz)/ Indoor scene (60 Hz)
Maximum shutter:	max. 1/10000 s, max. 1/4000 s, max. 1/2000 s, max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/120 s, max. 1/100 s, max. 2/120 s, max. 2/100 s, max. 3/120 s, max. 3/100 s, max. 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 (Electrical):	Off/ Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/ Low
Privacy zone:	On/ Off (up to 8 zones available)
VIQS:	On/ Off (up to 8 zones available)
Camera title on screen:	On/ Off Up to 20 characters (alphanumeric characters, marks)
Video Motion Detection (VMD):	On/ Off, 4 areas available

• Lens

Zoom ratio:	1x Optical SFV130 3x Extra zoom (2 mega pixel [16:9] mode) SFV110 2x Extra zoom
Digital (electronic) zoom:	Choose from 3 levels of x1, x2, x4
Focal length:	2.8 mm {1/8 inches}
Maximum aperture ratio:	1:2.3
Focusing range:	0.5 m to ∞
Angular field of view:	SFV130 [16:9 mode] Horizontal: 108 ° Vertical: 60 ° [4:3 mode] Horizontal: 89 ° Vertical: 66 ° SFV110 [16:9 mode] Horizontal: 100 ° Vertical: 55 ° [4:3 mode] Horizontal: 100 ° Vertical: 73 °
Adjusting angle:	Installing on a ceiling: Horizontal: -20 ° to +20 ° Vertical: -20 ° to 0 ° (right under) to +90 ° (right beside) Installing on a wall: Horizontal: -90° to +90° Vertical: -20 ° to 0 ° (right beside) to +90 ° (right under)

• Network

Network:	10BASE-T/100BASE-TX, RJ45 connector (WV-SFV130, WV-SFV110) M12 connector (WV-SFV130M, WV-SFV110M)
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Resolution: H.264 JPEG (MJPEG)	SFV130 2 mega pixel [16:9] 1920×1080, 1280×720, 640×360, 320×180, 160×90 *"1920x1080"mode is only available for H.264(1), H.264(2). 2 mega pixel [4:3] 1600×1200, 1280×960, 800×600, VGA, 400×300, QVGA, 160×120 *"1600x1200"mode is only available for H.264(1), H.264(2). 3 mega pixel [16:9] 2048×1536^{*1}, 1280×960, 800×600, VGA, 400×300, QVGA, 160×120 *"2048x1536"mode is only available for H.264(1), H.264(2). SFV110 1.3 mega pixel [16:9] 1280×720, 640×360, 320×180, 160×90 1.3 mega pixel [4:3] 1280×960, 800×600, VGA, 400×300, QVGA, 160×120
Image compression method: H.264*2	Transmission priority: Constant bit rate/ Variable bit rate/ Frame rate/ Best effort/ Advanced VBR Frame rate: <When Variable bit rate, Frame rate, or Advanced VBR is selected> 1 fps/ 3 fps/ 5 fps*/ 7.5 fps*/ 10 fps*/ 12 fps*/ 15 fps*/ 20 fps*/ 30 fps* * The frame rate is limited to "bit rate". When a value with an asterisk (*) is selected, the actual frame rate may be lower than the value selected. Max bit rate (per client): 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*/ 16384 kbps*/ 20480 kbps*/ 24576 kbps*/ 30720 kbps*/ 40960 kbps* * The available range of the H.264 bit rate varies depending on the setting selected for "image capture size". Image quality: <When Constant bit rate or Best effort is selected> Low/ Normal/ Fine <When Variable bit rate is selected> 0 Super fine/1 Fine/ 2/ 3/ 4/ 5 Normal/ 6/ 7/ 8/ 9 Low Transmission type: Unicast/ Multicast Image quality: 0 Super fine/ 1 Fine/ 2/ 3/ 4/ 5 Normal/ 6/ 7/ 8/ 9 Low (10 steps: 0-9) Transmission type: Pull/ Push Refresh interval: 0.1 fps – 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.)
JPEG (MJPEG)	

Cropping function* ³ :	• Off/ JPEG (1)/ JPEG (2)/ JPEG (3)/ H.264 (1)/ H.264 (2)/ H.264 (3)/ H.264 (4)/ H.264 (all) • Alarm action On/ Off
Audio compression method:	G.726 (ADPCM) 32 kbps/ 16 kbps, G.711 64 kbps, AAC-LC* ⁴ 64 kbps, AAC-LC (HIGH QUALITY)* ⁵ 64 kbps/ 96 kbps/ 128 kbps
Bandwidth control:	Unlimited/ 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 2048 kbps/ 4096 kbps/ 8192 kbps
Protocol:	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP
OS* ⁶ :	Microsoft Windows 10 Microsoft Windows 8.1 Microsoft Windows 8 Microsoft Windows 7
Browser* ⁶ :	Windows Internet Explorer 11 (32-bit) Windows Internet Explorer 10 (32-bit) Windows Internet Explorer 9 (32-bit) Windows Internet Explorer 8 (32-bit)
Maximum concurrent access number:	14 (Number of sessions that can connect to cameras at the same time) * 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.)
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 * ⁷ * ⁸ * ⁹ :	Manufactured by Panasonic (SD speed class 4 or higher) SDXC memory card: 64 GB, 128 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
Mobile terminal compatibility: (As of February, 2016)* ¹⁰	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals

*1 Used by super resolution techniques.

*2 Transmission for 4 streams can be individually set.

*3 Cropping setting is not possible for stream set to maximum resolution.

*4 Only use AAC-LC (Advanced Audio Coding - Low Complexity) when recording audio on an SD memory card.

*5 When "AAC-LC (HIGH QUALITY)" is selected, there are limitations about the following function.

- "SD memory card" is not available.
- "Audio detection" is not available.
- HTTPS is not available.
- The maximum concurrent access number is limited to 5.

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

- *7 Refer to our website (<http://security.panasonic.com/pss/security/support/info.html>) for latest information about the compatible SD memory cards.
- *8 When repeatedly recording images on an SD memory card using the auto overwrite function, make sure to use an SD memory card with high reliability and durability.
- *9 Use the SD memory card that complies with UHS-1 (Ultra High Speed-1) in the case of SD Speed Class 10.
- *10 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 pc.
Warranty card*1	1 pc.
CD-ROM*2	1 pc.
Code label*3	1 pc.

The following parts are used during installation procedures.

Mount bracket	1 pc.
Fixing screws for mount bracket(M4 x 8 mm)	4 pcs. (of them, 1 for spare)
Template	1 pc.
Bit (Hex wrench, screw size 6.35 mm {1/4 inches} T10)	1 pc.
Lens adjuster	1 pc.
RJ45 waterproof connector cover (WV-SFV130, WV-SFV110)	1 pc.
RJ45 waterproof connector cap (WV-SFV130, WV-SFV110)	1 pc.

- *1 This product comes with several types of warranties. Each warranty is only applicable to the products purchased in the regions indicated on the relevant warranty.
- *2 The CD-ROM contains the operating instructions and different kinds of tool software programs.
- *3 This label may be required for network management. The network administrator shall retain the code label.

Optional accessories

Dome Cover (Smoke type)	WV-CW6SA
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- * If the instructions for attaching the WV-CW6SA to the camera are not listed in the operating instructions for the WV-CW6SA, refer to the attachment instructions in the WV-SW150 series manuals.

Disposal of Old Equipment and Batteries

Only for European Union and countries with recycling systems



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must 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.

By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.

For more information about collection and recycling, please contact your local municipality.

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



Note for the battery symbol (bottom symbol)

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.

For U.S. and Canada:

Panasonic i-PRO Sensing Solutions Corporation of America

800 Gessner Rd, Suite 700 Houston, TX 77024
<https://www.security.us.panasonic.com/>

Panasonic Canada Inc.

5770 Ambler Drive, Mississauga, Ontario, L4W 2T3 Canada
1-877-495-0580
<https://www.panasonic.com/ca/>

For Europe and other countries:

Panasonic Corporation

<http://www.panasonic.com>

Panasonic i-PRO Sensing Solutions Co., Ltd.
Fukuoka, Japan

Authorised Representative in EU:

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

