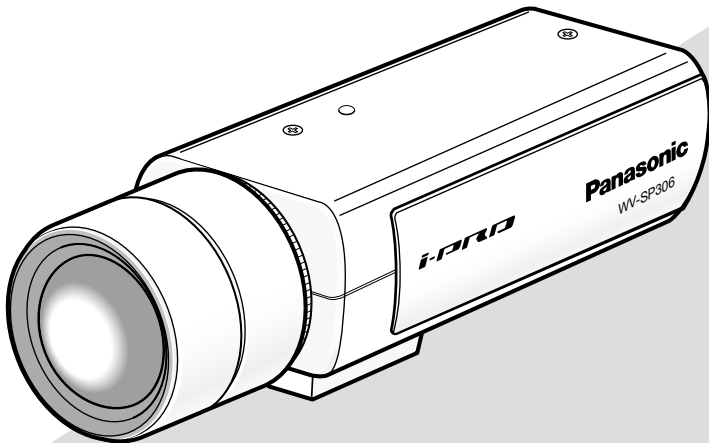# Panasonic

Installation Guide

Network Camera

Model No. WV-SP306, WV-SP305
WV-SP302
WV-SP306E, WV-SP305E
WV-SP302E

Lens: Option
(This illustration represents WV-SP306.)

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.

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3

Contents

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) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) 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.

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

14) 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.

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 (7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE.

Preface

The network cameras WV-SP300 series 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.

WV-SP306
- Maximum image capture size (1280 x 960 (Aspect ratio of 4:3), 1280 x 720 (Aspect ratio of 16:9))
- Compatible with the auto back focus (ABF) function, color mode / black & white mode switching

WV-SP305
- Maximum image capture size (1280 x 960 (Aspect ratio of 4:3), 1280 x 720 (Aspect ratio of 16:9))
- Compatible with the focus assist (F. A.) function, simple black & white mode

WV-SP302
- Maximum image capture size (800 x 600 (Aspect ratio of 4:3), 640 x 360 (Aspect ratio of 16:9))
- Compatible with the focus assist (F. A.) function, simple black & white mode

---

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.

SP306 The functions with this notation are available when using the model WV-SP306.

SP305 The functions with this notation are available when using the model WV-SP305.

SP302 The functions with this notation are available when using the model WV-SP302.

Main functions

H.264/MPEG-4 and JPEG triple encoding
H.264/MPEG-4 dual stream output and JPEG output can be simultaneously provided.
* Either H.264 or MPEG-4 is selectable.

Wide dynamic range function
This function compensates brightness so that it produces clearer images even if objects have various illumination intensities.

Important:
- When the wide dynamic range function is activated, noise may be increased in the dark area of the object.

Auto back focus (ABF) function `SP306`

Auto Back Focus (ABF) ensures easy installation and stable focus in both color and black & white modes.

Focus assist (F. A.) function `SP305` `SP302`

During the manual focus adjustment, this function indicates the best focus position.

Color mode / black & white mode switching available `SP306`

Images will be displayed clearly even at night since the camera will be automatically switched from the color mode to the black and white mode under low illumination condition.

Important:
- The operating sound might be heard during the mode change, however it does not indicate any malfunction.

Power over Ethernet function

When connecting with a PoE (Power over Ethernet) device, power will be supplied by simply connecting a LAN cable. (IEEE802.3af compliant)

Interactive communication with audio

By using the audio output connector and the microphone in connector, receiving audio from the camera on a PC and transmitting audio from the PC to the camera is available.

SDHC/SD memory card slot equipped

It is possible to save H.264 videos and JPEG images on the SDHC/SD memory card manually at an alarm occurrence or on a web browser.
It is also possible to save JPEG images at a network failure occurrence. (Download is possible.)
* Recommended SDHC/SD memory card (☞ page 34)

About the user manuals

There are 2 sets of operating instructions for the WV-SP306, WV-SP305, WV-SP302 (NTSC model), WV-SP306E, WV-SP305E, WV-SP302E (PAL model) as follows.
- Installation Guide: Explains how to install and connect devices.
- Operating Instructions (PDF): Explains how to perform the settings and how to operate this camera.

Adobe® Reader® is required to read these operating instructions (PDF) 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.
"WV-SP306, WV-SP305, WV-SP302" or "SP306, SP305, SP302" shown in the instructions and illustrations used in these operating instructions indicate the WV-SP306, WV-SP305, WV-SP302, WV-SP306E, WV-SP305E, WV-SP302E.
The screens used in these operating instructions show the case of NTSC model.

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 Professional (64-bit)
                     Microsoft® Windows® 7 Professional (32-bit)
                     Microsoft® Windows Vista® Business SP1 (32-bit)
                     Microsoft® Windows® XP Professional SP3
Web Browser: Windows® Internet Explorer® 8.0
                     (Microsoft® Windows® 7 Professional (32-bit/64-bit))
                     Windows® Internet Explorer® 7.0
                     (Microsoft® Windows Vista® Business SP1 (32-bit))
                     Microsoft® Internet Explorer® 6.0 SP3
                     (Microsoft® Windows® XP Professional SP3)
Other: 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 read the operating instructions 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® XP Professional 64-bit Edition is not supported.
- When using IPv6 for communication, use Microsoft® Windows® 7 or Microsoft® Windows Vista®.

Note:
- Refer to "Notes on Windows Vista® / Windows® 7" (PDF) for further information about system requirements for a PC and precautions when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.

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About copyright and license

Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this unit are expressly 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 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 this product or the smell of smoke comes from this product, stop the operation immediately and contact your dealer.
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 the apparatus.
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.
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 bracket 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 measures of protection against a fall of this product shall be taken.
Failure to observe this may cause a drop resulting in injury.
Be sure to install the safety wire.

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 shall 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.

Do not rub the edges of metal parts with your hand.
Failure to observe this may cause 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.

Turn the power off when cleaning of this product.
Failure to observe this may cause injury.

[Precautions for use]

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

This product has no power switch.
When turning off the power, turn off a circuit breaker.

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 camera to direct heat sources such as a heater.

Handle this camera with care.
Do not drop this camera, nor apply shock or vibration to this camera. Failure to observe this may cause trouble.

About the PC monitor
Displaying the same image on a CRT type 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
Images saved on the SDHC/SD memory card 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 the hard disk drives.

Cleaning this product body
Be sure to turn off the power before cleaning. Do not use strong abrasive detergent when cleaning this camera. Otherwise, it may cause discoloration.
When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

When the dirt is hard to remove, use a mild detergent and wipe gently.
When the dirt is hard to remove, use a mild detergent and wipe gently. Then, wipe off the remaining detergent with a dry cloth.

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

About SDHC/SD memory card
- Before inserting the SDHC/SD memory card, turn off the power of this product first. Otherwise, it may cause malfunction or damage data recorded on the SDHC/ SD memory card. Refer to page 20 for descriptions of how to insert/remove an SDHC/SD memory card.
- When using an unformatted SDHC/SD memory card, format it using this camera. Recorded data on the SDHC/SD memory card will be deleted when formatted.
  If an unformatted SDHC/SD memory card or an SDHC/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 (PDF) for how to format a SDHC/SD memory card.

- When some SDHC/SD memory cards are used with this product, the product may not work properly or performance deterioration may be caused.Use the SDHC/SD memory cards recommended in page 34.

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.

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 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 by mounting the camera on the pan/tilt head, objects crossing the shooting area may look to be bending askew.

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This product is licensed under the MPEG-4 Visual Patent Portfolio License for the personal and non-commercial use of a consumer for (i) encoding video in compliance with the MPEG-4 Visual Standard ("MPEG-4 Video") and/or (ii) decoding MPEG-4 Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed by MPEG LA to provide MPEG-4 Video. No license is granted or shall be implied for any other use. Additional information including that relating to promotional, internal and commercial uses and licensing may be obtained from MPEG LA, LLC.
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SEE 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 camera 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.

Installation place

Do not place the unit 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 humidity, dust, steam and oil smoke
- Locations in a specific environment where a solvent or a flammable atmosphere exists
- 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 –10 °C to +50 °C {14 °F to 122 °F}.
- 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

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. *

* PAL models only

Before installation

- The camera mount bracket described on page 23 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 23. 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.

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 visual check to ensure tightening is enough and there is no backlash.

Fall prevention measures

When the external safety wire is connected, select a connection point resulting in that nothing will hit people after the mount bracket is damaged. The wire length shall be adjusted to remove slack.

Angle adjustment

Be sure to loosen the screw of this product mount bracket when the camera angle is adjusted. If the camera angle is changed when the screw is tight, excessive force is applied to the camera mount bracket and camera, and accordingly they may be damaged. Be sure to tighten the screw securely after camera angle adjustment.

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 (PDF) 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 (PDF)" on the provided CD-ROM for descriptions of how to perform the settings.

Major operating controls

\<Side view>

ALC lens connector

Lens (option)

Slide cover

SDHC/SD memory card slot

Panasonic

F.A.

SDCARD LOCK

ABF

SDCARD LOCK

Auto back focus button **SP306**

Tripod mount base

Focus assist button **SP305** **SP302**

Clamp for SDHC/SD memory card

\<Rear view>

Network connector

Audio output connector

Access indicator (blinking at accessing)

Microphone/line input connector

INITIAL SET button

Link indicator (lighting at linking)

Power indicator

Monitor for adjustment Output connector

12 V DC power supply terminal

EXT I/O terminals

SDHC/SD memory card error indicator/ ABF indicator (Blinks when ABF is being activated) **SP306**

SDHC/SD memory card error indicator/ F.A. indicator (Lights when the focus assist function is activated or when the focus ring is positioned near the best focus position.)

SP305 **SP302**

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. Before initializing the settings, it is recommended to write down the settings in advance.

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Lens mounting

Slowly rotate the lens clockwise to mount the lens and connect the lens cable to the ALC lens connector of the camera.

Important: `SP305` `SP302`
• It is impossible to use lenses without the focus adjustment function or zoom lenses.

ALC lens connector

Zoom lock knob
CS-mount lens (option)

Focus ring

Protruded portion from mount face: ø20 mm {25/32 inches} or less

Protruded portion from flange face: 4.5 mm {5/32 inches} or less
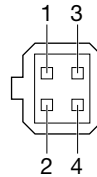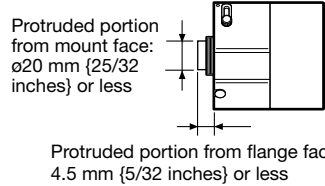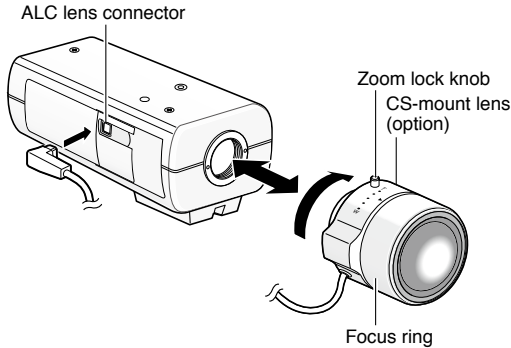
Pin No.

Pin No.	
1	Dump $\ominus$
2	Dump $\oplus$
3	Drive $\oplus$
4	Drive $\ominus$

Optional dedicated lens

Product name	Model number
ALC lens for 1/3 type CCD cameras 2x vari-focal (High resolution)	WV-LZA62/2

* If a lens for 1/3 type video camera other than the above is mounted and the camera is used at resolution of 1280 x 720 or higher, the camera cannot achieve full performance of high resolution. It is recommended to use a dedicated high-resolution lens especially when the illuminance level of the photographic subject is low and the camera is used with the lens iris open.

How to adjust the focus `SP306`

1 Before adjustment, reset the back focus position by holding down the auto back focus button for 5 seconds or more when the power is on. (This operation can also be performed on the setup menu. Refer to the Operating Instructions (PDF).)

2 Adjust the view angle and focus coarsely by adjusting the zoom and focus of the lens to center a subject in the screen, and then press the auto back focus button on the side of the camera (☞ page 16) or perform the auto back focus function from the setup menu.
Refer to the Operating Instructions (PDF) for how to perform the auto back focus function from the setup menu.

Note:

- The most common use of a varifocal lens and a zoom lens
  Note that the adjustment method is different depending on the type. For further information, refer to the operating instructions for the lens to be used.
  Adjust the back focus after positioning the zoom ring at the "T" end and positioning the focus ring at a step short of the "F" end.
- Depending on the lens to be used, if the zoom ring is fully rotated in the "W" direction, the periphery may become dark. In such a case, rotate the zoom ring in the "T" direction for readjustment.
- When images in the near-infrared light area change from the color mode to the black & white mode, out-of-focus may be occurred according to the nature of optical property. In this case, the focus can 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 (PDF) for how to configure the "Adjusting method" setting on the setup menu.
- When shooting in the following place or the following subjects, it may have difficulty adjusting the back focus position automatically.
  In this case, adjust the back focus position manually from the setup menu.
  Refer to the Operating Instructions (PDF) for how to perform the auto back focus function from the setup menu.
  - Place there the lens easily becomes dirty
  - Subj. moving frequently
  - Subj. with large illuminance change
  - Subj. with low illuminance
  - Subj. with reflection or extra brightness
  - Subj. through a window
  - Subj. with less contrast such as white wall
  - Subj. with heavy flicker

How to adjust the focus SP305 SP302

The focus is adjusted using the focus assist function.
The angle of view and focus can be adjusted 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 adjust the angle of view (angular field of view) in accordance with the photographic subject by moving the zoom lock knob and focus ring.

Note:

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


```
┌──────────────────────────────────┐
│  FOCUS ADJUSTMENT                │
│                                  │
│                                  │
│                                  │
│ LOW                      HIGH    │
│ ··············|·······           │
│ INDICATOR     620    BEST        │
│ PEAK HOLD     635    FOCUS       │
└──────────────────────────────────┘
```

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2 Fasten the zoom lock knob.

3 Press the focus assist button.
→ "FOCUS ADJUSTMENT" menu will be displayed.
The focus assist function will be activated to perform the optimum adjustment.

4 When the focus ring is positioned near the best focus position, the position will automatically be memorized as the "PEAK HOLD" position.

5 When the focus ring is moved, the current focus position will be indicated on "INDICATOR" Adjust the focus position so that the indicator value goes close to the "PEAK HOLD" position.

6 When the indicator value goes to the best focus position, "BEST FOCUS" will be displayed in reverse at the lower right corner of the screen.

7 Press the focus assist button again to close the "FOCUS ADJUSTMENT" menu. (No operation for 3 seconds also closes the menu.)

Note:
- The most common use of a varifocal lens
  Note that the adjustment method is different depending on the type. For further information, refer to the operating instructions for the lens to be used.
- Depending on the lens to be used, if the zoom ring is fully rotated in the "W" direction, the periphery may become dark. In such a case, rotate the zoom ring in the "T" direction for readjustment.
- When shooting the following subjects, close the "FOCUS ADJUSTMENT" menu by pressing the focus assist (F.A.) button again, and adjust the focus to obtain the best focus position while monitoring images from the camera.
  - Place where the lens easily becomes dirty
  - Subj. moving frequently or having large illuminance change
  - Subj. with low illuminance
  - Subj. with reflection or extra brightness
  - Subj. through a window
  - Subj. with less contrast such as white wall
  - Subj. with heavy flicker
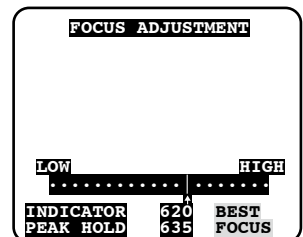- In case the angular field of view has changed during adjustment, close the "FOCUS ADJUSTMENT" menu once by pressing the focus assist (F.A.) button. (When the angular field of view changes, the indicator values of "PEAK HOLD" and "INDICATOR" also change.) After fixing the angular field of view, retry Step 3.

Insert/remove an SDHC/SD memory card

Important:
- Before inserting an SDHC/SD memory card, turn off the power of the camera first.
- When inserting an SDHC/SD memory card, make sure the direction.
- Before removing the SDHC/SD memory card, select "Not use" for "About SD memory card" on the [SD memory card] tab of "Basic" on the setup menu first. Turn off the power after "Not use" selection, and then unload the SDHC/SD memory card. When the SDHC/SD memory card is inserted or removed with the power on, data in the SDHC/SD memory card may be damaged. (☞ Operating Instructions)

1 Open the slide cover on the side of the camera, and then insert an SDHC/SD memory card into the SDHC/SD memory card slot.

Label face downward
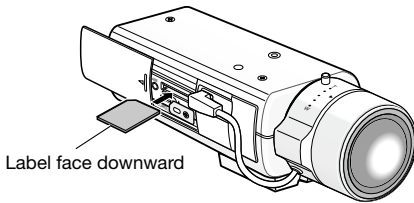
2 If necessary, loosen the screw of the clamp for SDHC/SD memory card and tighten the screw after rotating the clamp 90 ° clockwise.
(Recommended tightening torque: 0.19 N·m {0.14 lbf·ft})

Screw of the clamp for
SDHC/SD memory card

ABF
SDCARD LOCK

(This illustration
represents WV-SP306.)
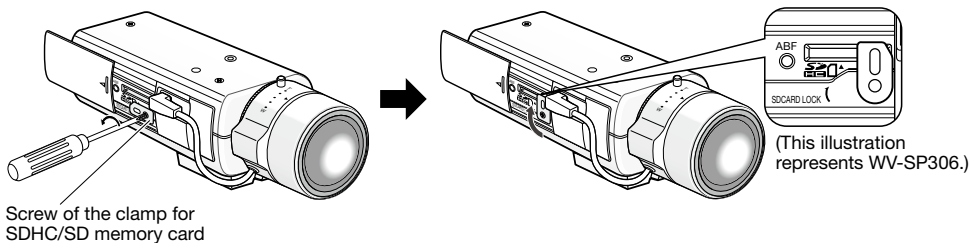
3 Close the slide cover on the side of the camera.

4 To remove the SDHC/SD memory card, rotate the clamp for SDHC/SD memory card 90 ° counterclockwise, push the memory card to unlock it, and remove the memory card from the SDHC/SD memory card slot.

Installation

Connect the safety wire

The following is an example of safety wire connection.

Important:
- Be sure to install the safety wire. Ask your dealer for installation.

For mounting on ceiling

1 Remove the tripod mount base on the top of the camera.

2 Align the tripod mount base with the safety wire plate for ceiling (accessory) and attach them to the camera with the mounting screws.

Mounting screws

Tripod mount base

Safety wire plate for ceiling (accessory)

Wire engaging hole (rear)

Wire engaging hole (front)
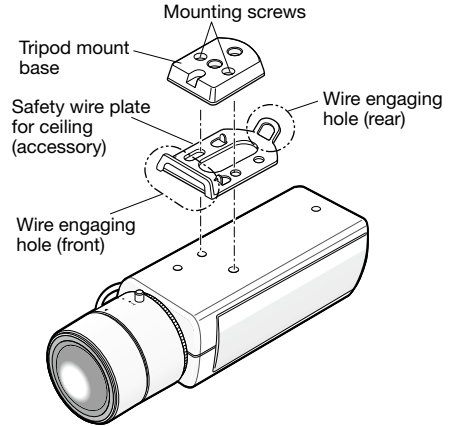
Important:
- Use the detached mounting screws to attach the tripod mount base. When using different length screws, it may damage the camera or cause the camera to fall.
  (Recommended tightening torque: 0.39 N·m {0.29 lbf·ft})

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3 Engage the safety wires (2 pieces) with the wire engaging holes (front and rear) respectively.
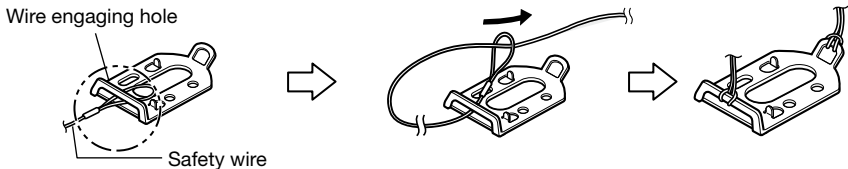
Wire engaging hole

Safety wire

① Pass the ring part of the safety wire through the wire engaging hole.

② Pass the other end of the safety wire through the ring part of the safety wire.

For mounting on wall

1 Put the tripod mount base on the bottom of the camera.

Secure the safety wire lug for wall (accessory) to the camera mount screw hole with the wire lug fixing screw (accessory).

Important:
• Be sure to use the provided fixing screws for the safety wire lug and the removed screws for the camera mount base.

When using different length screws, it may damage the camera or cause the camera to fall.

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

Wire engaging hole

Wire lug fixing screw (accessory)

Safety wire lug for wall (accessory)

Fixing screw hole

* Leave these holes untouched.

Mounting screws

Tripod mount base
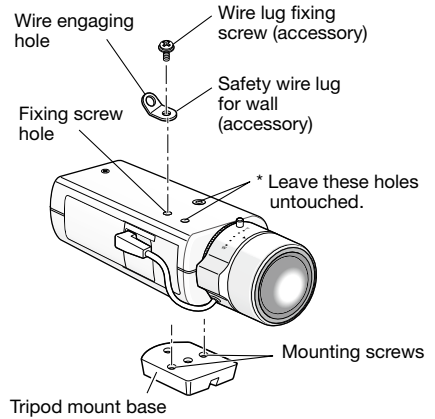
2 Engage the safety wire with the wire engaging hole.
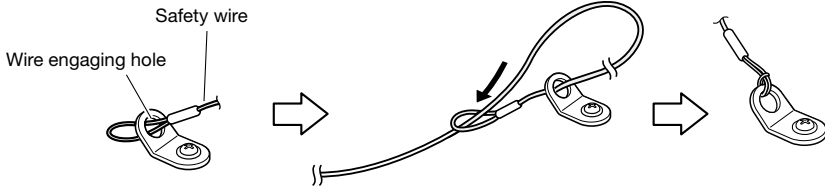
Safety wire

Wire engaging hole

① Pass the ring part of the safety wire through the wire engaging hole.

② Pass the other end of the safety wire through the ring part of the safety wire.

Camera mounting

The camera is mounted on the camera mount bracket and the safety wire is secured.

Important:
- The installation area shall be strong enough to hold the camera and camera mount bracket.
- The camera mount bracket shall be mounted on the foundation part of the construction or a part with adequate strength.
- To prevent the mounting strength from becoming lower, do not use wooden screws to secure the camera mount bracket.

---

1 Secure the camera mount bracket to an installation position, and mount the camera on the camera mount bracket.

Prepare mounting screws according to the material of the area where the camera mount bracket is to be installed. The installation method may be different depending on the material of the area where the bracket is to be installed.
- When installing on steel: Fix with bolts and nuts (M6 or M8)
- When installing on concrete: Fix with anchor bolts (M6 or M8)

Important:
- When the camera mount bracket is mounted on a wall, be sure to observe the mounting height described on the illustration.

2 m 90 cm {9.5 feet} or more

Floor

---
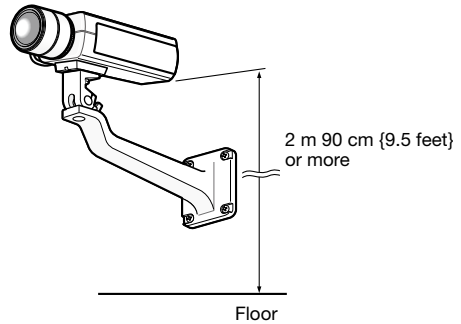
2 Put the connection hook of the safety wire on the safety wire plate or the safety wire lug secured on the foundation part of the construction or a part with adequate strength.

Important:
• The safety wire shall be adjusted to remove slack.

<For mounting on ceiling>

<Mounting sample>

Foundation part of construction
or part with adequate strength

Safety wire plate

Connection hook   Connection hook

Camera mount bracket

Safety wire

<For mounting on wall>

<Mounting sample>

Recommended screw M6
Minimum pull-out strength
196 N {44.06 lbf}

Safety wire

Safety wire lug

Foundation part of
construction or part
with adequate strength

Safety wire
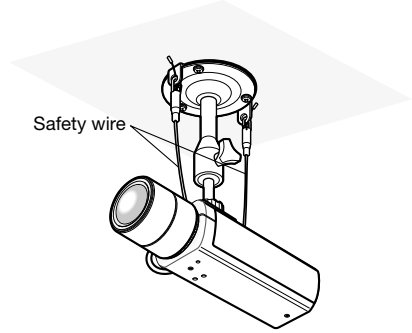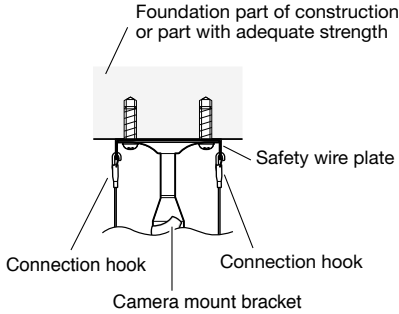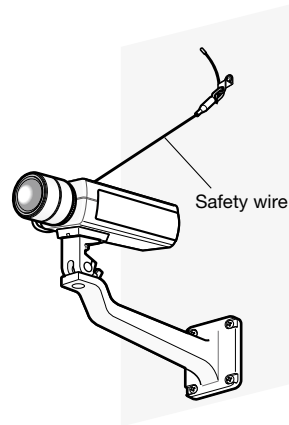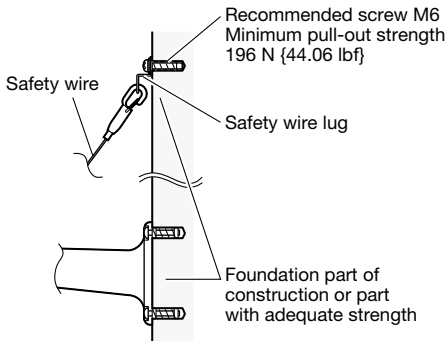
Connection

Caution:
- FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY.

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

1 Connect the RCA pin cable to the monitor output connector for adjustment on the rear (only for adjustment of the angle field of view).

Connect to the video monitor, etc.
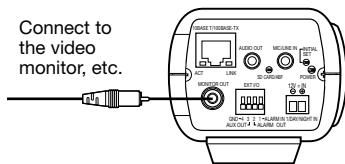
(This illustration represents WV-SP306.)

Important:
- The monitor output connector is provided only for checking the adjustment the angle field of view on the video monitor when installing the camera or when servicing. It is not provided for recording/ monitoring use.
- Black bands may appear at the top, bottom, right and left of the screen. (There is no problem with adjustment since the angle field of view is not affected.)
- 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).
Input impedance: Approx. 2 kΩ
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 (ø3.5 mm).
- Supply voltage: 2.5 V ±0.5 V
- Recommended sensitivity of microphone: –48 dB ±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).
Connect a stereo mini plug (ø3.5 mm) (Audio output is monaural.).
- Recommended cable length: 10 m {33 feet} or less

25

4 Connect external devices to the EXT I/O terminal.

When connecting an external device, remove 9 mm - 10 mm {11/32 inches - 13/32 inches} of the outer jacket of the cable and twist the cable core to prevent the short circuit first.
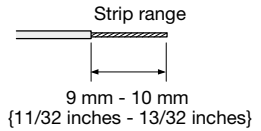
Specification of cable (wire): 22 AWG - 28 AWG

Single core, twisted

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

Strip range

9 mm - 10 mm
{11/32 inches - 13/32 inches}

④ GND
③ AUX OUT

4 3 2 1

① ALARM IN / DAY/NIGHT IN*
② ALARM OUT
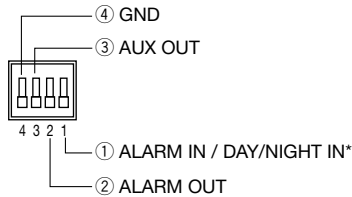
* DAY/NIGHT IN is only for WV-SP306.

Important:

• Do not connect 2 wires or more directly to a terminal. When it is necessary to connect 2 or more wires, use a splitter.
• Connect an external device with verifying that the ratings are within the specifications above.
• 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 / DAY/NIGHT 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)
   * DAY/NIGHT IN is only for WV-SP306.

5 Connect a LAN cable (category 5 or better, STP*) to the network connector on the rear of the camera.
   * PAL models only

LAN cable
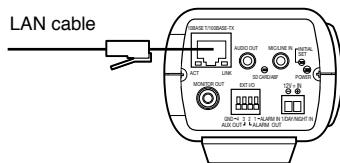
(This illustration represents WV-SP306.)

6 Connect the power supply.

Important:

• The 12 V DC power supply shall be insulated from the commercial AC power.
• The operating sound might be heard when the power is turned on, however it does not indicate any malfunction.

When using 12 V DC power supply*

① Loosen the screw 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 to 7 mm {1/8 inches to 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
   • Check whether the stripped part of the wire is not exposed and is securely connected.
③ Tighten the screw of the power cord plug.
④ Connect the power cord plug to the 12 V DC power supply terminal on the rear of the camera.

   * FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY.

To 12 V DC power supply*

(This illustration represents WV-SP306.)

12 V DC power cord plug (accessory)

+ (12 V DC)

(GND)
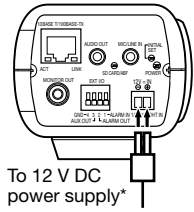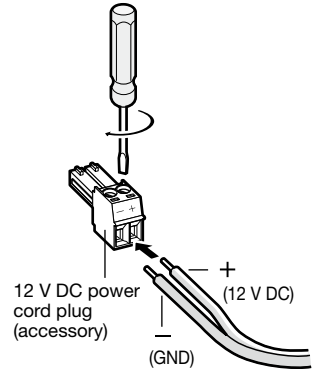
Important:
• Be sure to use the power cord plug provided with this product.
• Be sure to fully insert the power cord plug into the 12 V DC power supply terminal. Otherwise, it may damage the camera or cause malfunction.
• When installing the camera, make sure that excessive force is not applied to the power cable.
• Be sure to use an AC adaptor compliant with the Specifications regarding power source and power consumption (☞ page.32).

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.
* PAL models only.

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, PoE will be used for power supply.
• When disconnecting the LAN cable once, reconnect the cable after around 2 seconds. When the cable is quickly connected, the power may not be supplied from the PoE device.

Connection example when connecting to a network using a PoE hub

Video monitor (for adjustment use only)

Speaker with amplifier (option)

PoE device (hub)

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

Microphone (option)

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

PC

Speaker with amplifier (option)

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

Microphone (option)

Video monitor (for adjustment use only)
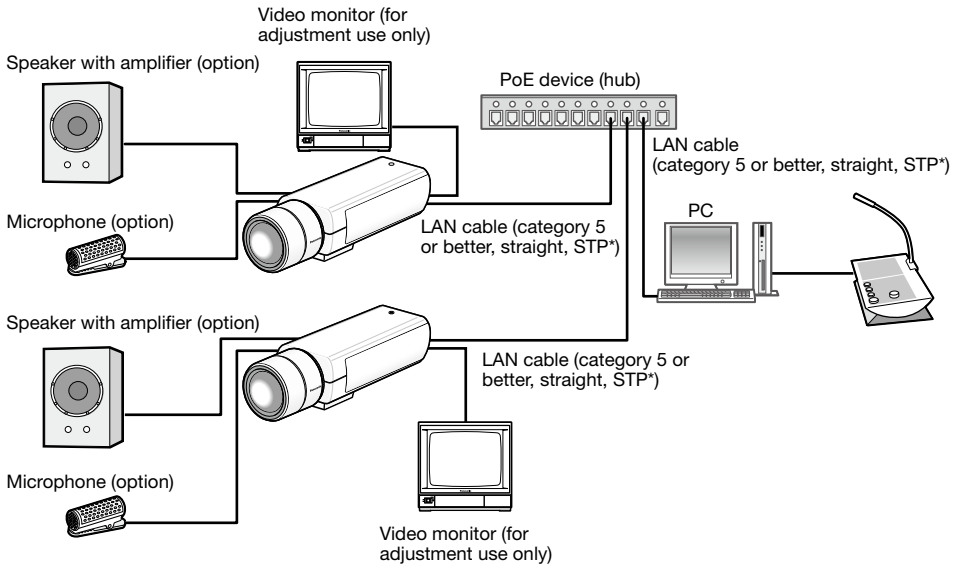
\<Required cable\>
LAN cable (category 5 or better, straight, STP*)
* PAL models only

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.

Configure the network settings

Install the software

Before installing the software, read the readme file on the provided CD-ROM first.

Software included on the provided CD-ROM
- Panasonic IP setting software
  Configure the network settings of the camera. Refer to the following for further information.
- Viewer Software "Network Camera View 4"
  It is necessary to install the viewer software "Network Camera View 4" to display images on a PC. Install the viewer software by double-clicking the "nwcv4setup.exe" icon on the provided CD-ROM.

Configure the network settings of the camera using the Panasonic IP setting software

It is possible to configure the network settings of the camera using the IP setup software on the provided CD-ROM.

When using multiple cameras, it is necessary to configure the network settings of each camera independently.

If the Panasonic IP setting software does not work, configure the network settings of the camera and the PC individually on the "Network" page of the setup menu. Refer to the Operating Instructions (PDF) for further information.

Important:
- When using Microsoft Windows Vista, the "Windows Security Alert" window may be displayed when starting the IP setup software. In this case, disable "User Account Control" from the control panel.
- For the security enhancement, the MAC address/IP address of the camera to be configured will not be displayed when around 20 minutes have passed after turning on the power of the camera. (when the effective period is set to "20min only" in the Easy IP setup)
- Panasonic IP setting software is inoperable in other subnets via the same router.
- This camera cannot be displayed or set with an older version of the IP setup software (version 2.xx).

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1 Start the Panasonic IP setting software by double-clicking the "EasyIpSetup.exe" icon on the provided CD-ROM.

2 Click the [IP setting] button after selecting the MAC address/IP address of the camera to be configured.
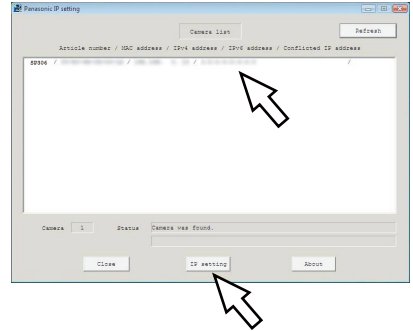
Note:
- When using a DHCP server, the IP address assigned to the camera can be displayed by clicking the [Refresh] button of the IP setting software.
- When a duplicate IP address is used, the corresponding MAC address/IP address will be displayed shaded.

3 Complete each network setup item and click the [Apply] button.

Note:
- When using a DHCP server, it is possible to set "DNS" to "AUTO".
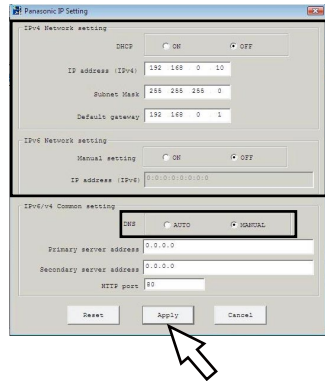
Important:
- It may take for around 2 minutes to complete to upload the settings to the camera after clicking the [Apply] button. The settings may be invalidated when the 12 V DC power supply is cut or when the LAN cable is disconnected before completing the upload. In this case, perform the settings again.
- When using a firewall (including software), allow access to all UDP ports.

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.	**When using DC power supply** • 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. **When using a PoE device for power supply** • 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.	26 - 27
The focus cannot be adjusted.	• Is the zoom ring turned to the "W" (or "T") end? → Adjust the focus again by slightly moving the zoom ring to the direction of "T" (or "W").	18 - 19

Specifications

● Basic

Power source:	12 V DC, PoE (IEEE802.3af compliant)
Power consumption:	WV-SP306
	12 V DC*: 350 mA, PoE: 4.4 W (Class 2 device)
	WV-SP305, WV-SP302
	12 V DC*: 270 mA, PoE: 3.4 W (Class 2 device)
	* FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC
	CLASS 2 POWER SUPPLY.
Ambient operating temperature:	–10 °C to +50 °C {14 °F to 122 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
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:	ALARM IN / DAY/NIGHT IN*
	ALARM OUT
	AUX OUT
	x1 each
	* DAY/NIGHT IN is only for WV-SP306.
Microphone/Line input:	ø3.5 mm monaural mini jack
	Input impedance: Approx. 2 kΩ
For microphone input:	Applicable microphone: Plug-in power type
	Supply voltage: 2.5 V ±0.5 V
For line input:	Input level: Approx. –10 dBV
Audio output:	ø3.5 mm stereo mini jack (monaural output)
	Output impedance: Approx. 600 Ω
	Line level
Dimensions:	75 mm (W) x 65 mm (H) x 132.5 mm (D) {2-31/32 inches (W) x 2-9/16 inches (H) x 5-1/4 inches (D)} (excluding connectors/terminals)
Mass:	WV-SP306: Approx. 410 g {0.91 lbs}
	WV-SP305, WV-SP302: Approx. 390 g {0.86 lbs}
Finish:	Fine silver (501)

● Camera

Image sensor:	1/3 type MOS image sensor
Effective pixels:	Approx. 1.3 megapixels
Scanning area:	4.80 mm (H) × 3.60 mm (V) {3/16 inches (H) × 5/32 inches (V)}
Scanning system:	Progressive
Minimum illumination:	WV-SP306
	Color: 0.3 lx {0.03 footcandle}
	(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)
	0.019 lx {0.0019 footcandle}
	(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
	BW: 0.05 lx {0.005 footcandle}
	(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)
	0.003 lx {0.0003 footcandle}
	(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
	* Converted value
	WV-SP305
	Color: 0.3 lx {0.03 footcandle}
	(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)

		0.019 lx {0.0019 footcandle}

0.019 lx {0.0019 footcandle}
(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
BW: 0.2 lx {0.02 footcandle}
(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)
0.013 lx {0.0013 footcandle}
(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
* Converted value
WV-SP302
Color: 0.2 lx {0.02 footcandle}
(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)
0.013 lx {0.0013 footcandle}
(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
BW: 0.13 lx {0.013 footcandle}
(F1.4, Auto slow shutter: Off (1/30 s), AGC: High)
0.009 lx {0.0009 footcandle}
(F1.4, Auto slow shutter: max. 16/30 s, AGC: High)*
* Converted value

Wide dynamic range:	On/Off
Gain (AGC):	On(Low)/ On(Mid)/ On(High)/ Off
Adaptive black stretch:	On/Off
Light control mode setting:	Indoor scene/ Outdoor scene/ ELC/ Fix shutter
Shutter speed:	Off(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
Auto slow shutter:	Off, Max. 2/30s, Max. 4/30s, Max. 6/30s, Max. 10/30s, Max. 16/30s
Black & white mode*:	On/ Off/ Auto1/ Auto2 * Only for WV-SP306
Simple black & white mode*:	Off/Auto * Only for WV-SP305 and WV-SP302
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low
Video analytics	
Face detection:	On/Off (with the XML notification setting)
Privacy zone:	On/Off (up to 2 zones available)
Camera title on screen:	Up to 16 characters (alphanumeric characters, marks) On/Off
VMD alarm:	On/Off, 4 areas available
Auto back focus*:	Auto/ Preset/ Fix * Only for WV-SP306
ALC lens drive:	DC drive
Lens mount:	CS-mount

● Network

Network:	10BASE-T/100BASE-TX, RJ45 connector
Resolution:	Aspect ratio: 4:3
(WV-SP306, WV-SP305)	H.264 1280 × 960/ VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	MPEG-4 VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	JPEG 1280 × 960/ VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	Aspect ratio: 16:9
	H.264 1280 × 720/ 640 × 360/ 320 × 180, max. 30 fps
	JPEG 1280 × 720/ 640 × 360/ 320 × 180, max. 30 fps
	* MPEG-4 is not supported.

Resolution:	Aspect ratio: 4:3	
(WV-SP302)	H.264	800 × 600/ VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	MPEG-4	VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	JPEG	800 × 600/ VGA (640 × 480)/ QVGA (320 × 240), max. 30 fps
	Aspect ratio: 16:9	
	H.264	640 × 360/ 320 × 180, max. 30 fps
	JPEG	640 × 360/ 320 × 180, max. 30 fps
	* MPEG-4 is not supported.	
Image compression method: *1 *2	H.264/MPEG4	
		Image quality: Low/ Normal/ Fine
		Transmission type: Unicast/Multicast
		Video bit rate:
		Constant bit rate: 64kbps/ 128kbps/ 256kbps/ 384kbps/ 512kbps/ 768kbps/ 1024kbps/ 1536kbps/ 2048kbps/ 3072kbps/ 4096kbps/ *8192kbps/ Unlimited
		* only in H.264 mode
		Frame rate priority:
		1fps/ 3fps/ 5fps/ 7.5fps/ 10fps/ 12fps (PAL models)/ 15fps/ 20fps/ 30fps
	JPEG	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
Transmission interval:	0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264/MPEG-4 images.)	
Audio compression method:	G.726 (ADPCM) 32kbps/16kbps	
Bandwidth control:	Unlimited/ 64kbps/ 128kbps/ 256kbps/ 384kbps/ 512kbps/ 768kbps/ 1024kbps/ 2048kbps/ 4096kbps/ 8192kbps	
Protocol:	IPv6: TCP/IP, UDP/IP, HTTP, RTP, FTP, SMTP, DNS, NTP, SNMP IPv4: TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP	
OS *3 *4:	Microsoft Windows 7 Professional (64-bit) Microsoft Windows 7 Professional (32-bit) Microsoft Windows Vista Business SP1 (32-bit) Microsoft Windows XP Professional SP3	
Browser:	Windows Internet Explorer 8.0 (Microsoft Windows 7 Professional (32-bit/64-bit)) Windows Internet Explorer 7.0 (Microsoft Windows Vista Business SP1 (32-bit)) Microsoft Internet Explorer 6.0 SP3 (Microsoft Windows XP Professional SP3)	
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 SDHC/SD memory card is available.)	
Multi-screen:	Up to 16 camera images can be displayed simultaneously on a multi-screen.	
Compatible SDHC/SD memory card (option):	Manufactured by Panasonic SDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB	

SD memory card: 256 MB, 512 MB, 1 GB, 2 GB
(except miniSD card and microSD card)

*1 Either H.264 or MPEG-4 is selectable.
*2 Transmission for 2 streams can be individually set in the same compression method.
*3 Refer to "Notes on Windows Vista®/ Windows® 7" (PDF) for further information about system requirements for a PC and precautions when using Microsoft Windows 7 or Microsoft Windows Vista.
*4 When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.

Standard accessories

Installation Guide (this document) .... 1 pc.
Warranty card*1 .... 1 pc.
CD-ROM*2 .... 1 pc.
Code label*3 .... 1 pc.

*1 NTSC models only
*2 The CD-ROM contains the operating instructions (PDFs) and the software.
*3 This label may be required for network management. The network administrator shall retain the code label.

The following parts are used during installation procedures.
Power cord plug .... 1 pc.
Safety wire plate for ceiling .... 1 pc.
Safety wire lug for wall .... 1 pc.
Wire lug fixing screws (M2.5 x 8 mm {5/16 inches}) .... 2 pcs. (of them, 1 for spare)

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.

Cd

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.

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
Three Panasonic Way, Secaucus,
New Jersey 07094 U.S.A.

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

Importer's name and address to follow EU rules:

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