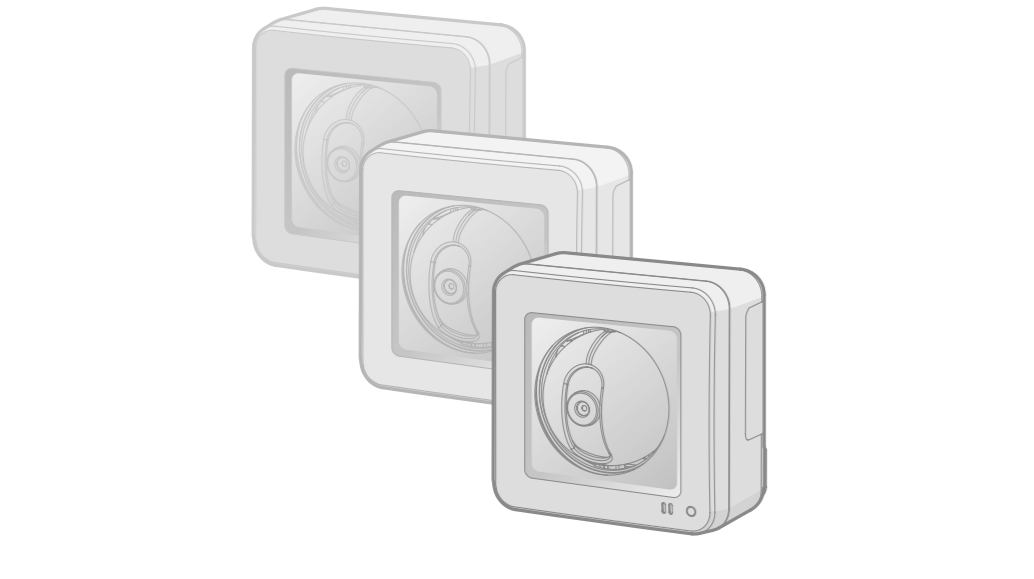


Installation Guide

Network Camera

Model No. **WV-ST165/WV-ST162**
WV-ST165E/WV-ST162E



For U.S. and Canada:	For Europe and other countries:
Panasonic System Networks Company of 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 Corporation http://panasonic.net Importer's name and address to follow EU rules: Panasonic Testing Centre Panasonic Marketing Europe GmbH Winsberging 15, 22525 Hamburg FR, Germany www.panasonic.ca

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WARNING:

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

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate/

For U.S. and Canada: WV-ST165/WV-ST162
For Europe and other countries: WV-ST165E/WV-ST162E

UL listed model No. WV-ST165/WV-ST162

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

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.

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.



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.

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.

Vi verklaar 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 følgebestemmelserne i direktiv 2004/108/EC.

Vi deklarerer 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.

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- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Only use attachments/accessories specified by the manufacturer.
- 10) Use only the cord, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 11) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 12) 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.

Main functions

- **H.264 and JPEG triple encoding**
A total of 3 outputs, comprising of 2 H.264 outputs and 1 iJPEG output, can be provided.
- **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)
- **Adaptive darkness correction mode**
Corrects the blacked-out parts of dark areas of objects that have different illumination intensities.
- **Panning/tilting function and preset position function**
A single camera provides wide area monitoring.
- **Interactive communication with audio**
By using the audio output connector and the microphone in connector, receiving audio from the cameras on a PC and transmitting audio from the PC to the cameras 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, during the period of the schedule, or on a web browser. It is also possible to save iJPEG images at a network failure occurrence. (Download is possible).

Standard accessories

Confirm the following items are included in the camera's packaging.

Main Unit (1 pc.)	Flexible Stand (1 pc.)	Screw A (1 pc.)	Screw B (4 pcs.)
Washer S (1 pc.)	Washer L (1 pc.)	Safety Wire (1 pc.)	SD Card Cover (1 pc.)
Power cable plug (1 pc.)	Installation Guide (this document) (1 pc.) Warranty card (P model) (1 pc.) CD-ROM (1 pc.) Code label ² (1 pc.)		

*1 The CD-ROM contains the operating instructions and different kinds of tool software programs.
*2 This label may be required for network management. The network administrator shall retain the code label.

Option

You will need the following additional items to install and configure the camera.

- [Locally procured]**
- PoE device (When supplying the power using the PoE device)
 - A PC (see the system requirements in the Important Information document)
 - LAN cable (CAT-5 straight cable)
 - AC Adaptor (1 pc.)
- *FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY.

About the user manuals

There are 2 sets of operating instructions for the WV-ST165, WV-ST162 (P model), WV-ST165E, WV-ST162E (E model) as follows.

- **Installation Guide:** Explains how to install and connect devices, as well as how to connect and configure the network.
 - **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.

"WV-ST165, WV-ST162" or "ST165, ST162" shown in the instructions and illustrations used in these operating instructions indicates the WV-ST165, WV-ST162, WV-ST165E, WV-ST162E. The screens used in these operating instructions show the cases of P models.

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- (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 THAT THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES REGISTERED OR IS USED FOR ANY PURPOSE;
- (7) LOSS OF PUBLIC DATA CAUSED BY ANY FAILURE.

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
Monitor: Image capture size: 1024 x 768 pixels or more
Color: 24-bit True color or better
Microsoft® Windows® 7
Microsoft® Windows Vista[®]
Microsoft® Windows® XP SP3
Windows® Internet Explorer® 9.0 (32-bit)
Windows® Internet Explorer® 8.0 (32-bit)
Windows® Internet Explorer® 7.0 (32-bit)
Microsoft® Internet Explorer® 6.0 SP3

OS:
Windows® 7
Microsoft® Windows Vista[®]
Microsoft® Windows® XP SP3
Windows® Internet Explorer® 9.0 (32-bit)
Windows® Internet Explorer® 8.0 (32-bit)
Windows® Internet Explorer® 7.0 (32-bit)
Microsoft® Internet Explorer® 6.0 SP3

Others:
CD-ROM drive
(It is necessary to read the operating instructions and use the software on the provided CD-ROM.)
DirectX[®] 9.0c or later
Adobe® Reader[®]
(It is necessary to view PDF file on the provided CD-ROM.)

IMPORTANT

- When using a PC that does not meet the above requirements, displaying of images may become slower or the web browser may become inoperable.
- Microsoft Windows 7 Starter, Microsoft Windows Vista Starter and Microsoft Windows XP Professional 64-bit Edition are not supported.
- When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.

Note

- Refer to "Notes on Windows 7/Internet Explorer[®] versions" (included in the CD-ROM) for further information about system requirements for a PC and precautions when using Microsoft Windows 7, Microsoft Windows Vista or Internet Explorer.
- If using Microsoft Windows XP screen tearing may occur when the shooting scene drastically changes (for example, while shooting fast-moving subjects) due to the GD1 restrictions of the OS. A phenomenon in which portions of the screen are displayed out of alignment.
- For information on the operation verification of the supported operating systems and web browsers, refer to our website at http://panasonic.net/psp/security/support/index.html.

Specifications

● Basic	Power source: PoE (IEEE802.3af compliant), 12 V DC Power consumption: PoE: 130 mA (Class 2 device), 12 V DC: 430 mA Ambient operating temperature: 0 °C to +40 °C (32 °F to 104 °F) Ambient operating humidity: Less than 90 % (no condensation)
Monitor output:	VBS: 1.0 V (p-p)/75 Ω, composite (BNC), ø3.5 mm mini jack
EXT I/O terminal cable:	ALARM IN 1, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT, GND, 12 V DC
Microphone/Line input:	ø3.5 mm monaural mini jack Input impedance: Approx. 2.2 kΩ For microphone input: Applicable microphone: Plug-in power type Supply voltage: 3.3 V ±0.5 V Input level: Approx. -10 dBV
Audio output:	ø3.5 mm stereo mini jack (monaural output) Output impedance: Approx. 560 Ω Line level
Dimensions:	100 mm (W) x 100 mm (H) x 74 mm (D) [3-47/50 inches (W) x 3-47/50 inches (H) x 2-23/25 inches (D)] (excluding projection)
Mass:	Main body: 345 g (0.76 lbs)
Finish:	Main body : PC/ABS resin, sail white Dome section: Clear polycarbonate resin
● Camera	
Image sensor:	1/4 type MOS image sensor
Effective pixels:	Approx. 1.3 megapixels
Scanning area:	3.52 mm (H) x 2.64 mm (V) [7/50 inches (H) x 1/10 inches (V)]
Scanning system:	Progressive
Minimum illumination:	Color: 0.6 lx [0.05 footcandle] (F2.2, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.039 lx (0.0038 footcandle) (F2.2, Auto slow shutter: Max. 16/30 s, Gain: On (High)) BW: 0.5 lx [0.05 footcandle] (F2.2, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.031 lx (0.0031 footcandle) (F2.2, Auto slow shutter: Max. 16/30 s, Gain: On (High)) * Converted value
Wide dynamic range:	On/Off
Face WDR:	On/Off
Gain (AGC):	On (Low)/ On (Mid)/ On (High)/ Off
Adaptive black stretch:	On/Off
Light control mode setting:	Indoor scene [50Hz/60Hz]/ELC
ELC (Maximum exposure time):	ELC1(1/30 s), ELC3(1/100 s), ELC3(1/20 s), ELC2(1/100 s), ELC2(1/20 s) ELC1(1/100 s), ELC1(1/20 s), ELC1(1/250 s), ELC1(1/500 s) ELC1(1/1000 s), ELC1(1/2000 s), ELC1(1/4000 s), ELC1(1/10000 s)
Auto slow shutter:	Off (1/30 s), Max. 2/30s, Max. 4/30s, Max. 6/30s, Max. 10/30s, Max. 16/30s
Day & Night (electrical):	Off/Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low
Video analytics:	On/Off (with the XML notification setting)
Face detection:	On/Off
Privacy zone:	On/Off (up to 2 zones available)
Camera title on screen:	Up to 20 characters (alphanumeric characters, marks), On/Off
Video motion detection (VMD alarm):	On/Off, (available at each preset)
● Lens	
Zoom ratio:	Extra zoom: 2x (under VGA resolution)
Digital (electronic) zoom:	8x (Max 16x combined with Extra Optical Zoom under VGA)
Focal length:	1.95 mm
Maximum aperture ratio:	1: 2.2
Focus range:	∞ - 0.5 m
Angular field of view:	Horizontal: 85°, Vertical: 68°
● Panning/tilting platform	
Panning range:	-47.5° ~ +47.5°
Panning speed:	Manual: Approx. 5 °/s - 80 °/s, Preset: Up to approx. 80 °/s
Tilting range:	-45° ~ to +10°
Tilting speed:	Manual: Approx. 5 °/s - 80 °/s, Preset: Up to approx. 80 °/s
Number of the preset positions:	64
Map shot:	Preset map-shot
Self return:	10 s/ 20 s/ 30 s/ 1 min/ 2 min/ 3 min/ 5 min/ 10 min/ 20 min/ 30 min/ 60 min

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Network security

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

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

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

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm 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

⚠ WARNING

- **Refer installation work to the dealer.**
Installation work requires technique and experiences. Failure to observe this may cause fire, electric shock, injury, or damage to the product.
 - Be sure to consult the dealer.
- **Stop the operation immediately when something is wrong with this product.**
When smoke goes up from the product, the smell of smoke comes from the product, or the exterior of the product has deteriorated, continued use will cause a fire or fall of the product resulting in injury, or damage to the product.
 - Turn the power off immediately and contact qualified service personnel for service.
- **Select an installation area that can support the total weight.**
Selecting an inappropriate installation surface may cause this product to fall down or topple over, resulting in injury.
 - Installation work shall be started after sufficient reinforcement.
- **Periodic inspections shall be conducted.**
Rust on the metal parts or screws may cause a fall of the product resulting in injury or accidents.
 - Consult the dealer for the inspections.
- **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.
- **The measures of protection against a fall of this product shall be taken.**
Failure to observe this may cause a drop resulting in injury or accidents. Be sure to install the safety wire.
- **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.
- **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.
- **Do not attempt to disassemble or modify this product.**
Failure to observe this may cause fire or electric shock. Consult the dealer for the repair or inspections.
- **Do not insert any foreign objects.**
This could permanently damage this product. Turn the power off immediately and contact qualified service personnel for service.
- **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.
- **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.
- **Do not touch this product or the connected cables during thunder. (even in the process of work)**
Failure to observe this may cause electric shock.
- **Keep SDHC/SD memory cards (option) away from infants and children.**
Otherwise, they may swallow the cards by mistake.
 - In this case, consult a doctor immediately.

⚠ CAUTION

- **Turn the power off when cleaning 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, disconnect the power supply from the 12 V DC power supply or the PoE device. (When using both the 12 V DC power supply and the PoE device for power supply, disconnect both the connections.)

To keep on using with stable performance
Do not use this camera in hot and humid conditions for a long time. Failure to observe this causes component degradation resulting in life shortening of this product.

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

Do not touch the lens cover with your bare hands.
A dirty lens cover causes deterioration of picture quality.

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

Cleaning this product body
Be sure to turn off the power before cleaning. Failure to observe this may cause injury. Do not use strong abrasive detergent when cleaning this product. Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product. When the dirt is hard to remove, use a damp cloth and wipe the dirty areas. Then, wipe with a dry cloth to remove any moisture.

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

About SD memory card
● When using an unformatted SD memory card, format it using this camera. 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 (included in the CD-ROM) for how to format a SD memory card.
● When some SD memory cards are used with this product, the product may not work properly or performance deterioration may be caused. Use the SD memory cards recommended.

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, objects crossing the shooting area may look to be bending askew.

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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 (luminance) 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 (luminance) 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.

Consumable parts
The following are consumables: Replace them in accordance with their lives. Their lives vary depending on use environment and conditions. Lifetime is just an indication when using the camera at +20 °C (68 °F).

- Panning motor, tilting motor, flat cable for tilting: Approx. 3.7 million operations.

Lens and pan/tilt head
If a lens and pan/tilt head are not performed for a long period of time, the grease coating inside these parts may become sticky. That may obstruct the parts from moving. To prevent this, move the lens or pan/tilt head periodically.

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
Power is not turned on.	<ul style="list-style-type: none"> ● Are the PoE device and the network cable of the camera connected using a LAN cable? → 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.

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

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

Note for the battery symbol (bottom two symbol examples):
This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

1 Check the installing place

Determining the mounting position

IMPORTANT
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.

IMPORTANT
Do not install this on locations subject to vibrations.

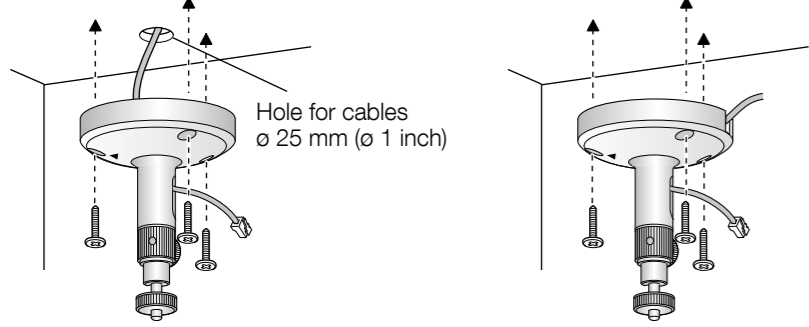
IMPORTANT
Do not install near any heat sources.

IMPORTANT
Do not install this by products that generates a strong radio wave or a strong magnetic field.

IMPORTANT
Do not install on locations subject to humidity and oil smoke.

Determining how to wire the cable

It is necessary to make a hole in the ceiling or wall to pass the cables through. Make a hole 25 mm (31/32") in diameter.



Determining the length of the cable

Confirm the distance from the camera's installation position to the computer and then prepare the necessary length of LAN cable (locally procured).

Determining how to mount the camera

Installing the camera on the ceiling or wall
Make sure the flexible stand is firmly mounted on a beam of wood (25 mm [1 inch] and greater) etc. When there is no beam, apply a board on the other side of the ceiling or wall to make sure the camera does not drop.

At least 25 mm (1 inch)
Beam of wood

When mounting on a mortar or concrete surface
Prepare anchors for 4 mm (3/16 inch) diameter screws for mounting. Mortar ceilings or walls break easily when drilling. Be careful of pieces of mortar which may become loose and fall.

- Place the flexible stand on the ceiling or wall where you plan to mount the flexible stand and mark the points where you are going to make holes.
- Make holes with an electric drill. Insert anchors (locally procured) into the holes and push them inside the holes with a hammer.
- Mount the flexible stand using the screws.

Drill for concrete (in case of tile, use a drill for tile) Perform waterproof treatment (caulking)

Tripod Mount
It is also possible to mount the camera on a standard tripod stand (locally procured).

2 Major operating controls

<Front view>

<Side and bottom view>

<Rear view>

External I/O terminals

Pin	Function
6	DC power output • Power output voltage 10.5 V - 13 V • Power output current 100 mA
5	GND
4	GND
3	EXT I/O terminal 3 (ALARM IN 3/ AUX OUT)
2	EXT I/O terminal 2 (ALARM IN 2/ ALARM OUT)
1	EXT I/O terminal 1 (ALARM IN 1)

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 3 minute 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. The initialization will be complete when the live indicator stops blinking orange and lights off. Note that the preset position settings and the CRT key (SSL encryption key) used for the HTTPS protocol will not be initialized.

IMPORTANT
Do not turn off the power of the camera during the process of initialization. Otherwise, it may fail to initialize and may cause malfunction.

About the [RESTART] button
When the camera is on, you can also restart the camera by pressing the RESTART button. Press and hold the RESTART button for about one second with a pointed object. Restarting is completed when the camera's pan/tilt performs its initial movement.

3 Connections

When connecting the camera using PoE (Power over Ethernet)

To the power supply

To the hub or the router

LINK indicator

PoE indicator

Indicator

LAN cable

Note

- If the indicator does not turn green, see "Troubleshooting" in the Operating Instructions on the provided CD-ROM.
- Refer to the operating instructions of the product in use about the operations of the PoE device.

IMPORTANT

- Use a 4-pair UTP/STP cable.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard.
- For information on recommended PoE devices, refer to our website at (<http://panasonic.net/pss/security/support/info.html>).

When connecting the camera using 12 V DC power supply

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

- Loosen the screw of the power cord plug (accessory).
- 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.
- Tighten the screw of the power cord plug.
- Connect the power cord plug to the 12 V DC power supply terminal on the rear of the camera.

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.

External I/O terminals

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

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.
- Input and output of the external I/O terminal 2 and 3 can be switched by configuring the setting. The default of EXT I/O terminal 2 is "ALARM IN 2" and of EXT I/O terminal 3 is "ALARM IN 3". It is possible to determine whether or not to receive input from EXT I/O terminal 2 and 3 (ALARM IN 2, 3) by selecting "OFF", "Alarm input", "Alarm output" or "AUX output" for "Terminal alarm 2" or "Terminal alarm 3" on the [Alarm] tab on the "Alarm setup" page. Refer to the Operating Instructions (included in the CD-ROM) for further information.
- The default of EXT I/O terminals is "Off". When "Off" is selected, it is possible to connect external devices as well as the input setting.
- When using the EXT I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.

<Ratings>

- ALARM IN 1, ALARM IN 2, ALARM IN 3
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)
- 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 (maximum drive current: 50 mA)

Microphone/line input connector - Audio output terminal

You can connect an external microphone and external speaker to the camera to use the Listen and Talk features, respectively. The microphone cable should be no longer than 7 m (23 feet). If you use an external microphone, excessive cable length or a poor quality cable can cause degradation in audio quality.

Monitor out connector for adjustment

Connect a monaural mini plug (6.35 mm) (only for checking if images are displayed on the monitor).

IMPORTANT

- The monitor out connector for adjustment is provided only for checking the adjustment of the angular field of view on the video monitor when installing the camera or when servicing. It is not provided for recording/monitoring use.
- Black bands may appear at the top and bottom or right and left of the screen. (That does not affect the adjustment because the angular field of view is not changed.)

Insert a SD memory card

- Open the cover on the side of the camera.
- Insert the SD memory card with the label facing the rear of the camera and the pins facing the front of the camera. Gently push the card with your finger until it clicks.
- Close the cover.

Note

- If the camera's indicator turns red, remove the SD memory card and confirm that the card is not write-protected. If the indicator is still red, the card must be formatted before it can be used.

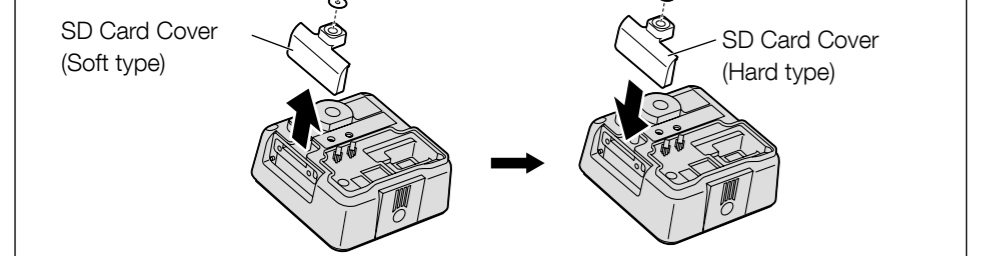
Remove a SD memory card

- Close the slide cover on the side of the camera.
- Press the FUNCTION button. When the FUNCTION button is pressed, recording stops and the green light turns off. Confirm that the FUNCTION button green light has turned off before proceeding to step 3.
- Push the card slightly to eject it, then remove the card.
- Close the cover.

Note

To suit the area in which you will install the camera, you can attach the provided SD Card Cover (Hard type), in order to help prevent SD card theft.

- Not all forms of theft can be prevented.



IMPORTANT

- Make sure that SD memory card recording has stopped and that the card is not being accessed before removing the card. (The FUNCTION button will light while images are being recorded to the card.) We recommend pressing the FUNCTION button to stop SD memory card recording before ejecting the card.
- If the SD memory card is removed while it is being recorded to or accessed, the card may become unreadable and may need to be formatted (i.e., erased) again before use.

4 Configure the settings of the camera

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

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.

- 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

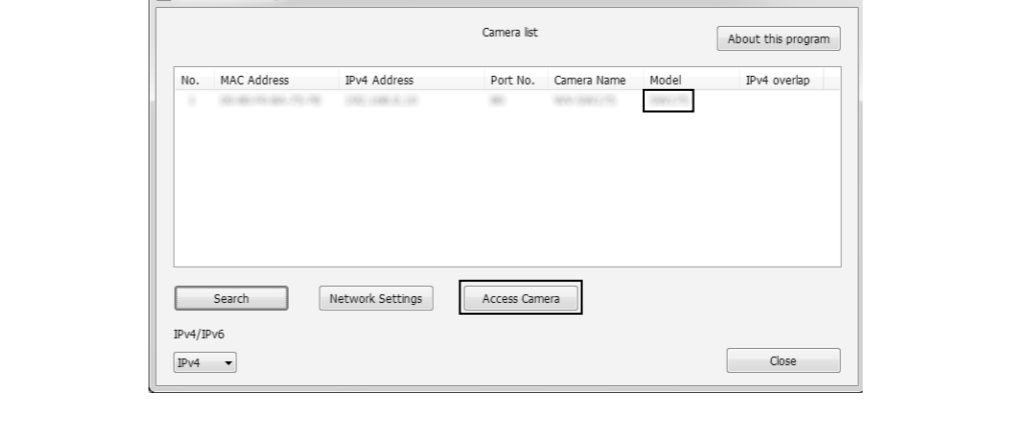
- Refer to "About the CD-ROM" in the Operating Instructions on the provided CD-ROM for further information about CDLauncher.



- Click the [Run] button next to [IP Setting Software]. "Panasonic IP Setting Software" page will be displayed. Click the [Network Settings] button after selecting the MAC address/IP address of the camera to be configured.
- Select the camera you want to configure, and click [Access Camera].

Note

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



When the [Access Camera] button is clicked, live images of the selected camera will be displayed.



Note

- When no image is displayed on the "Live" page, refer to "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 "Access the camera using the HTTPS protocol" in the Operating Instructions on the provided CD-ROM.
- Click the [Setup] button on the "Live" page, the user authentication window will be displayed. Enter the default user name and password as follows, and log in. User name: admin Password: 12345

5 Mounting the Camera

Adjust the camera to a suitable position/direction while confirming the images actually displayed on the computer screen.

Wiring without making a hole for a cable in the ceiling or wall

- Place the flexible stand (accessory) on the ceiling or wall, and determine the mounting position of the stand. Make sure the flexible stand is firmly mounted on a beam of wood (25 mm [1 inch] and greater) etc. When there is no beam, apply a board on the other side of the ceiling or wall to make sure the camera does not drop.
- Secure the safety wire (accessory) to the camera using screw A (accessory) and washer S (accessory).
- Remove the tab on the flexible stand.
- Pass the cables through the notch. When there are many cables to pass through the notch, pass through the larger cables first.

IMPORTANT
If the cables cannot be passed through the notch, wrap the cables to the stand shaft using tape (locally procured) or other materials.

Mount the flexible stand firmly to the ceiling or wall with screw B (accessory).

When mounting the flexible stand to the wall, position the flexible stand so that the '▲' marker is facing upward.

Ceiling **Wall**

At least 165 mm

Keep a distance of 165 mm (0.54 feet) or more from a ceiling. Otherwise the camera cannot be mounted properly.

Screw B (accessory)

Attach the camera by screwing the threaded mount into the stand mounting hole.

Ceiling **Wall**

Threaded mount Stand/tripod mounting hole

Grip Indicator

Threaded mount Grip

* It is possible to attach the stand to the stand mounting hole, the rear of the camera.

Pass the cables through the connector cover, and then connect all necessary cables (AC adaptor, LAN, audio/video, etc.). Refer to "Connections".

IMPORTANT

When installing the camera, hook the cord of the AC adaptor (locally procured) and the cables for the external speaker/external sensor/mic/video, etc. around the hooks when making connections.

Adjust the camera position and tighten the flexible stand grip and the tightening screw firmly.

The fixing position of the tightening screw can be adjusted according to the direction the camera is facing and its angle.

Ceiling **Wall**

Grip Tightening screw

Tightening screw

Adjust the length of the safety wire when it is taut, and secure it to the ceiling or wall using screw B (accessory) and washer L (accessory).

Attach the safety wire in a position so that if the camera were to become detached, it would not fall on nearby people.

Ceiling **Wall**

Washer L (accessory) Screw B (accessory)

Wiring through a hole made in the ceiling or wall

Make a hole for cables in the ceiling or wall. Secure the safety wire to the camera and pass the cables through the notch. Then follow steps 2, 4 to 9. It is not necessary to remove the tab on the flexible stand.

Ceiling **Wall**

Hole for cables ø 25 mm (ø 1 inch)

Screw B