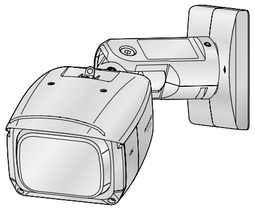
Panasonic

Installation Guide

Included Installation Instructions

Network Camera

Model No. WV-SPV781L



- This manual describes the installation procedures, network camera installation, cable connections, and field-of-view adjustment.
- Before reading this manual, be sure to read the Important Information.

For U.S. and Canada:

Panasonic System Communications Company of North America, Unit of Panasonic Corporation of North America
www.panasonic.com/business/
For customer support, call 1.800.528.6747
Two Riverfront Plaza, Newark, NJ 07102-5490

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

For Europe and other countries:

Panasonic Corporation
http://www.panasonic.com

Panasonic System Networks Co., Ltd.
Fukuoka, Japan

Authorised Representative in EU:

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

PGQX1821YA Cs0615-1075 Printed in China

Standard accessories

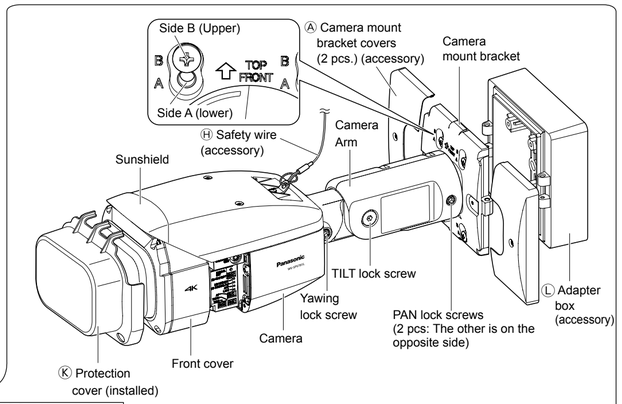
Important Information	1 pc.	Installation Guide (this document)	1 set
Warranty card	1 set	CD-ROM*1	1 pc.
Code label*2	1 pc.	Camera caution label	1 pc.

*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.

The following parts are used during installation procedures.

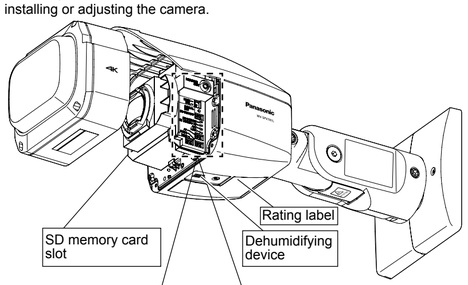
Ⓐ Camera mount bracket cover	2 pcs.	Ⓘ Wire lug fixing screw M3 x 10 mm {3/8 inches} (incl. 1 spare)	2 pcs.
Ⓑ Camera mount bracket cover fixing screw (M3 x 6 mm {1/4 inches}) (incl. 1 spare)	3 pcs.	Ⓙ Safety wire lug	1 pc.
Ⓒ Waterproof tape	1 pc.	Ⓚ Protection cover	1 pc.
Ⓓ LAN connector cover	1 pc.	Ⓛ Adapter box	1 pc.
Ⓔ 4P alarm cable	1 pc.	Ⓜ Mounting screws for adapter box (M5 × 20 mm {13/16 inches}) (of them, 1 for spare)	5 pcs.
Ⓕ 2P power cable	1 pc.		
Ⓖ MONITOR OUT conversion plug*3	1 pc.	Ⓝ Adapter box mounting screw (M4 × 35 mm {1- 3/8 inches})	1 pc.
Ⓗ Safety wire	1 pc.		

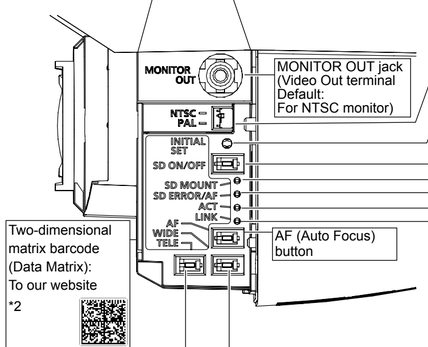
*3 The audio/monitor output cable can be switched to be used as MONITOR OUT using the software. The MONITOR OUT conversion plug is used to connect the camera to the audio/monitor output cable and to convert a stereo mini jack (ø3.5 mm) {1/8 inches} into an RCA pin output jack.



Major operating controls

The component names of the camera are as follows. Refer to the illustration when installing or adjusting the camera.





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

*2 Depending on the scanning application used, the Data Matrix may not be able to be read correctly. In this case, access the site by directly entering the following URL.
http://security.panasonic.com/pss/security/support/qr_sp_select.html

NTSC/PAL switch

- Switches the MONITOR OUT terminal output between NTSC and PAL.

Note:
- Use a thin, non-conductive tool to press the switch.

INITIAL SET button

- How to initialize the camera

Follow the steps below to initialize the network camera.
① Turn off the power of the camera. When using a PoE hub, disconnect the LAN cable from the camera. When using an external power supply, disconnect the 2P power cable plug from the camera.
② Turn on the power of the camera while holding down the INITIAL SET button, and then keep holding down the button for 5 seconds or more. About 2 minutes after you have released the INITIAL SET button, the camera will start up and the settings including the network settings will be initialized.

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

SD ON/OFF button

① When the SD ON/OFF button is pressed for less than 1 second, the SD MOUNT indicator is lit green and data can be saved to the SD memory card*1.
② When the SD ON/OFF button is held down for about 2 seconds, the SD MOUNT indicator goes out, and the SD memory card can be removed.

SD MOUNT indicator

• When an SD memory card is inserted and could be recognized	Lights off → Blinks green → Lights off
• When data can be saved after the SD memory card is inserted and the SD ON/OFF button is pressed (for less than 1 second)	Lights off → Lights green
• When data can be saved to the SD memory card	Lights green
• When the SD memory card is removed after holding down the SD ON/OFF button for about 2 seconds	Lights green → Blinks green → Lights off (recording)
	Lights green → Lights off (waiting for recording)
• When data cannot be saved to the SD memory card because an abnormality was detected or the SD memory card is configured not to be used	Lights off

SD ERROR/AF indicator

• When AF (Auto Focus) operation is being executed	Blinks red (about once per second)
• When the camera is being started	Lights red
• When an SD memory card is recognized normally	Lights red → Lights off
• When the SD memory card slot is not used or an abnormality is detected in SD memory card after the camera has started	Lights red → Stays red

ACT indicator

• When data is being sent via the network camera	Blinks green (accessing)

LINK indicator

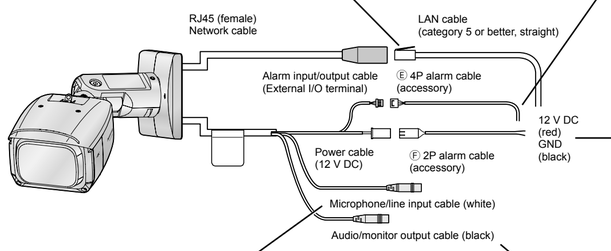
• When the camera is able to communicate with the connected device	Lights orange

Making connections

Turn off each system's power supply before making a connection. Before making connections, prepare the required peripheral devices and cables.

Connect a LAN cable (category 5 or better, straight)

IMPORTANT:
- Use all 4 pairs (8 pins) of the LAN cable (category 5 or better, straight).
- The maximum cable length is 100 m {328 feet}.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard.
- When connecting both the 12 V DC power supply and the PoE device for power supply, 12 V DC will be used for power supply*.
  *If a 12 V DC power supply and a PoE hub or router are used at the same time, network connections may not be possible. In this case, disable the PoE settings. Refer to the operating instructions of the PoE hub or router in use.
  *Depending on the PoE device used, if you stop the 12 V DC power supply after operating it and a PoE hub or router at the same time, the power supply may stop, causing the camera to restart.
- When the LAN cable is disconnected once, reconnect the cable after around 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.
- When cables are used outdoors, there is a chance that they may be affected by lightning. In this case, install a lightning arrester just before where the LAN cable connects to the camera.



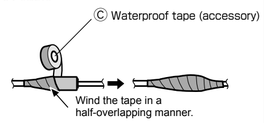
Microphone/line input cable

Connect a stereo mini plug (ø3.5 mm {1/8 inches}).
- Input impedance: Approx. 2 kΩ (unbalanced)
- Recommended cable length: Less than 1 m {3.28 feet} (for microphone input) Less than 10 m {32.8 feet} (for line input)
- Recommended microphone: Plug-in power type (option)
  • Supply voltage: 2.5 V ±0.5 V
  • Recommended sensitivity of microphone: -48 dB ±3 dB (0 dB=1 V/Pa,1 kHz)
- Input level for line input: Approx. -10 dBV

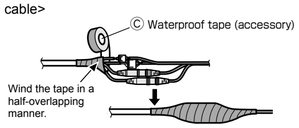
Waterproof treatment for the cable joint sections

Adequate waterproof treatment is required for the cables when installing the camera with cables exposed or installing it under the eaves.
The camera body is waterproof, but the cable ends are not waterproof. Be sure to use the supplied waterproof tape at the points where the cables are connected to apply waterproof treatment in the following procedure.
Failure to observe this or use of a tape other than the provided waterproof tape (such as a vinyl tape) may cause water leakage resulting in malfunction.

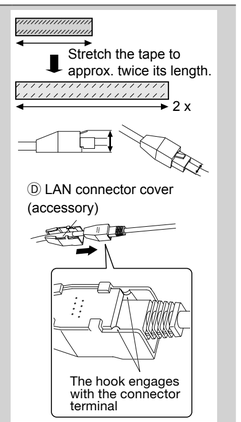
<LAN cable>



<Alarm input/output cable, power cable, microphone/line input cable, audio/monitor output cable>

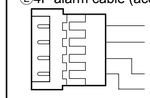


IMPORTANT:
- Also waterproof the Ⓕ 2P power cable (accessory), Ⓔ 4P alarm cable (accessory), and external connections in the same way.
- Stretch the tape to approx. twice its length (see the illustration) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing.
- To prevent the LAN cable hook from coming loose easily, fit the Ⓓ LAN connector cover (accessory) onto the pigtail cable as illustrated, and then slide it in the direction indicated by the arrow. The connector of the LAN cable used with this camera must meet the following restrictions.
  Height when inserted (From bottom to hook.):
  Max. 16 mm {5/8 inches}
  Connector width: Max. 14 mm {9/16 inches}
- To install this product outdoors, be sure to waterproof the cables.
  Waterproof grade (IEC IP66 or equivalent) is applied to this product only when it is installed correctly as described in these operating instructions and appropriate waterproof treatment is applied.
  The camera mount bracket is not waterproof.



Connect the alarm input/output cable

Ⓔ 4P alarm cable (accessory)



<Ratings>
- ALARM IN1 (DAY/NIGHT IN), ALARM IN2, ALARM IN3
  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 (DAY/NIGHT 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)
  * The default of EXT I/O terminals is "Off".

IMPORTANT:
- Be sure to use the Ⓔ 4P alarm cable (accessory) provided with this product.
- Install external devices so that they do not exceed the ratings above.
- When using the external I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.

Note:
- Off, input, and output of the external I/O terminal 2 and 3 can be switched by configuring the setting. Refer to the Operating Instructions on the provided CD-ROM for further information about the external I/O terminal 2 and 3 (ALARM IN2, 3) settings ("Off", "Alarm input", "Alarm output", "AUX output" or "DAY/NIGHT switching output").

Connect the power cable

Caution:
- A READILY ACCESSIBLE DISCONNECT DEVICE SHALL BE INCORPORATED TO THE EQUIPMENT POWERED BY 12 V DC POWER SUPPLY.
- ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).

Power cable	
	12 V DC
Red	Positive
Black	Negative

Connect the output cable of the AC adaptor to the Ⓕ 2P power cable (accessory).

IMPORTANT:
- Use 12 V DC power supply that is insulated from the commercial AC power.
- Be sure to use the Ⓕ 2P power cable (accessory) provided with this product.
- Be sure to fully insert the Ⓕ 2P power cable (accessory) into the 12 V DC power supply terminal. Otherwise, it may damage the camera or cause malfunction.
- When installing the camera, make sure that excessive force is not applied to the power cable.
- Be sure to use an AC adaptor compliant with the specifications (written in the indication label on the bottom side of this unit) regarding power source and power consumption.

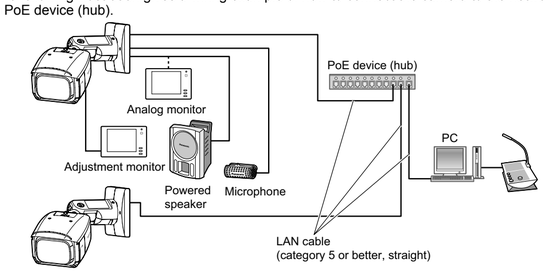
Connect an external amplifier-embedded speaker to the audio/monitor output cable

Connect a stereo mini plug (ø3.5 mm {1/8 inches}).* *Use an external powered speaker.
- Output impedance: Approx. 600 Ω (unbalanced)
- Recommended cable length: Less than 10 m {32.8 feet}
- Output level: -20 dBV (can switch to monitor output)

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.
- Make sure that the stereo mini plug is connected to this cable. When a monaural mini plug is connected, audio may not be heard. When connecting a monaural speaker with amplifier, use a locally procured conversion cable (mono-stereo).

When connecting to a network using a PoE hub

Before starting the installation, check the entire system configuration.
The following illustration gives a wiring example of how to connect the camera to the network via a PoE device (hub).



<Required cable>
LAN cable (category 5 or better, straight)
Use a LAN cable (category 5 or better, cross) when directly connecting the camera to a PC.

IMPORTANT:
- The adjustment monitor is used to adjust the field of view when installing or servicing the camera. It is not provided for recording/monitoring use.
- Depending on the adjustment monitor, some characters (camera title, preset ID, etc.) may not be displayed on the screen.
- Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.
- If a PoE hub is not used, each network camera must be connected to a 12 V DC power supply.
- When using 12 V DC, power supply from a PoE hub or router is not required.

Installation

The installation tasks are explained using 5 steps.

Step1 Preparations ⇨ **Step2** Attaching the safety wire ⇨ **Step3** Fixing the camera ⇨ **Step4** Adjusting the camera ⇨ **Step5** Perform camera settings (see the separate leaflet)

Step1 Preparations

There are 3 methods to install the camera to a ceiling or wall as described below. Prepare the required parts for each installation method before starting the installation. The following are the requirements for the various installation methods.

Installation method	Recommended screw	Minimum pull-out strength
[1] Directly mount the camera onto the ceiling or wall (when there is a space for wiring in the ceiling or the wall)	M5 screws x 4	724 N {163 lbf} (per 1 pc.)*1
[2] Mount the camera to a junction box * Only use metal junction boxes.	M4 screws x 4*2	724 N {163 lbf} (per 1 pc.)*1
[3] Mount the camera onto the ceiling or wall using the adapter box (approx. 510 g {1.13 lbs}) (when there is no space for wiring in the ceiling or the wall)	M5 screws x 4	724 N {163 lbf} (per 1 pc.)*1

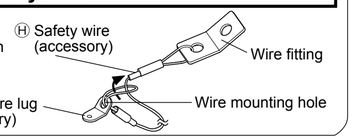
*1 To mount the camera onto the ceiling or wall, the Ⓗ safety wire (accessory) must be attached. Have an M6 bolt and nut or anchor (with the minimum pull-out strength of 724 N {163 lbf}) ready for securing the safety wire.

*2 Prepare a M4 screw with a washer with a diameter of 7.5 mm {5/16 inches} to 10 mm {3/8 inches} and a spring washer.

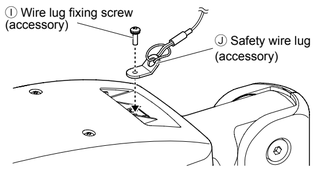
IMPORTANT:
- For the screws or anchor bolts used in the above methods ([1] to [3]), be sure to secure the minimum pull-out strength of 724 N {163 lbf} per screw or bolt.
- Select screws according to the material of the ceiling or wall that the camera will be mounted to. In this case, wood screws and nails should not be used.
- If a ceiling or wall board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.
- Because the front cover is temporarily removed when installing or adjusting the camera, make sure no liquid enters the camera at these times.

Step 2 Attaching the safety wire

① Pass the Ⓗ safety wire (accessory) through the wire mounting hole in the Ⓙ Safety wire lug (accessory).



②Fit the Safety wire lug to the camera.

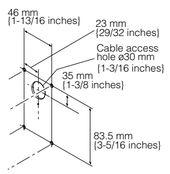


Recommended tightening torque: 0.6 N·m {0.44 lbf·ft}

* The safety wire is not shown in the subsequent illustrations.

Step 3 Fixing the camera

[1] Directly mount the camera onto the ceiling or wall



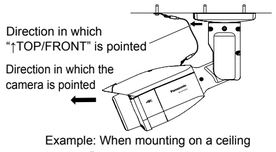
① Determine the position where the camera is to be mounted on the ceiling or wall and drill a hole for securing the camera and wiring as shown in the illustration to the right.
* Determine the diameter and depth of the hole according to the size of fixing screws or anchors (4 M5 screws, locally procured).

② Connect the cables coming from the camera and coming through the ceiling or wall according to the instructions in “Making connections”. Waterproof the connections according to the instructions in “Waterproof treatment for the cable joint sections”.

③ Secure the camera to the camera mount bracket by attaching the 2 upper M5 screws or anchors (M5 x 4, locally procured) and then the 2 lower ones into the holes on side B on the camera mount bracket in the order shown in the illustrations above explanations [1]-1 to [1]-3 in the lower left.

④ Secure the Ⓐ camera mount bracket cover (accessory) to the camera mount bracket by using M3 x 6 mm {1/4 inches} Ⓑ Camera mount bracket cover fixing screws (accessory).

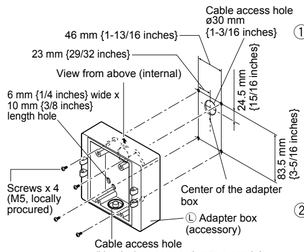
Note:
- When installing on a wall, install the camera mount bracket so that “↑ TOP/FRONT” faces upward.
- When installing on a ceiling, install the camera mount bracket so that “↑ TOP/FRONT” is aligned with the direction in which the camera is pointed.



Example: When mounting on a ceiling

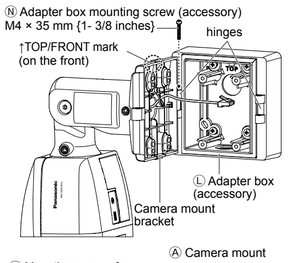
[3] Mount the camera onto the ceiling or wall using the Ⓛ Adapter box (accessory)

* The following explains an example of mounting the camera on a wall.



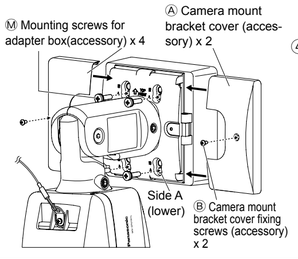
① Secure the adapter box to the wall.
- Drill pilot holes and a cable hole (see the illustration to the left for their dimensions). (Drill pilot holes only if making connections through the cable hole from the side.)
- Be sure to face “TOP” inside the adapter box upward.
- Use 4 screws (locally procured) to directly secure the adapter box to the wall. Minimum pull-out strength: 724 N {163 lbf} (per 1 pc.)
- To install this product outdoors, be sure to waterproof the screws and their holes.

② Temporarily secure the camera mount bracket and camera to the adapter box.
- After referring to [1]-1 and adjusting the camera to face down, temporarily secure the camera, and then use the M4 × 35 mm {1- 3/8 inches} Ⓝ Adapter box mounting screw (accessory) for installing the camera to temporarily install the camera mount bracket to the left or right hinge of the adapter box so that it can be opened and closed.
- Secure the camera mount bracket with “↑TOP/FRONT” facing upward.
- When the wall is on one side or the other, install the adapter box to the hinge on the opposite side of the wall.
- Secure the camera mount bracket to the hinge of the adapter box using the following tightening torque. Recommended tightening torque: 0.78 N·m {0.58 lbf·ft}

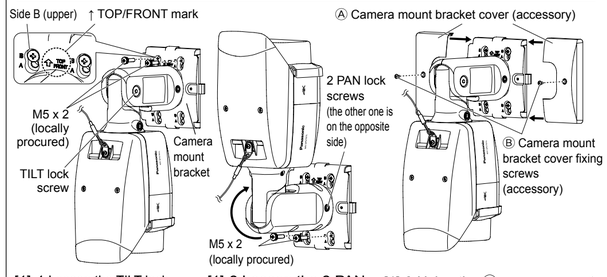


③ Connect the cables.
- Connect the cables coming from the camera and coming through the wall according to the instructions in “Making connections”.
- Waterproof the connections according to the instructions in “Waterproof treatment for the cable joint sections”.

④ Secure the camera mount bracket to the adapter box.
- Using 4 M5 x 20 mm {13/16 inches} Ⓜ Mounting screws for adapter box (accessory), secure the camera mount bracket to the adapter box via the holes in side A of the camera mount bracket in the order of the top 2 holes to bottom 2 holes. Recommended tightening torque: 1.86 N·m {1.37 lbf·ft} (Refer to [1]-1 and [1]-2.)
- Using 2 M3 x 6 mm {1/4 inches} Ⓑ camera mount bracket cover fixing screws (accessory), secure the Ⓐ Camera mount bracket cover (accessory) to the Camera mount bracket. Recommended tightening torque: 0.6 N·m {0.44 lbf·ft}



Step 3 Fixing the camera (continued from upper right)



[1]-1 Loosen the TILT lock screw by about 1 turn until the camera faces downward and then temporarily tighten the TILT lock screw. After this, use the 2 upper M5 screws (locally procured) to secure the camera.

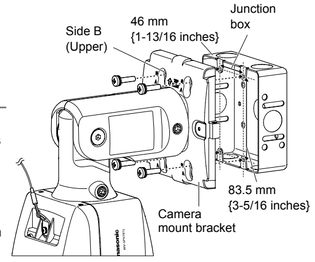
[1]-2 Loosen the 2 PAN lock screws about 1 turn until the camera faces upward and use the 2 lower M5 screws (locally procured) to secure the camera.

[1]-3 Using the Ⓑ camera mount bracket cover fixing screws (accessory), install the Ⓐ camera mount bracket cover (accessory) with the camera facing downward. Recommended tightening torque: 0.6 N·m {0.44 lbf·ft}

* M5 x 4 screws, Minimum pull-out strength: 724 N {163 lbf} (per 1 pc.). Secure the camera through the holes in side B of the camera mount bracket.

[2] Mount the camera to a junction box

As shown in the illustration to the right, install the camera to a junction box using 4 M4 fixing screws (locally procured) via the holes in side B of the camera mount bracket. (Minimum pull-out strength: 724 N {163 lbf} (per 1 pc.))

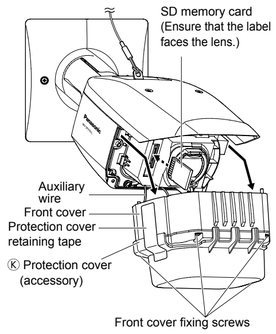


Note:
- The procedure for fitting screws in the holes for connections and fixing screws is the same as for ②, ③, and ④ in [1] Directly mount the camera onto the ceiling or wall.
- When junction boxes or the like are used, it is recommended that 2 pieces be used side by side. (Securing the camera to one junction box and making connections to the other makes cable connections easy.)

Step 4 Adjusting the camera ①, ②, ③, ④, ⑤

① Change the direction the camera is facing from directly down to facing up (as shown in the illustration on the lower right) and temporarily fix the camera in place. After this, loosen the 4 fixing screws on the camera front cover and remove the front cover together with the Ⓚ Protection cover (accessory).

IMPORTANT:
- The front cover is connected to the camera via the auxiliary wire for mounting the front cover as well as the IR LED cable. Do not remove the auxiliary wire and IR LED cable.
- Do not remove the Ⓚ Protection cover (accessory) from the front cover.



* The front cover, including the cables and wires, and the front cover protector are not shown in the subsequent illustrations.

② Fit a pin cable (locally procured) to the MONITOR OUT jack on the camera and connect an adjustment monitor.

③ Turn on the camera.

④ Insert an SD memory card into the slot, if necessary.
Insert the SD memory card with its label facing the lens.
- To remove the SD memory card, hold down the SD ON/OFF button for about 2 seconds. When the blinking SD MOUNT indicator goes out, you can remove the SD memory card.
- After the SD memory card has been replaced, press the SD ON/OFF button (for less than 1 second), and make sure the SD MOUNT indicator is continually lit.
- If you do not press the SD ON/OFF button after replacing the SD memory card, the SD MOUNT indicator is automatically lit approximately 5 minutes later.

⑤ Adjust the camera field of view.

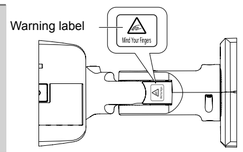
Adjust the direction of the camera with the PAN, TILT and YAW parts, and press the WIDE or TELE button until the desired field of view is achieved.

A) Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the PAN lock screw on either side of the base of camera arm. To direct the camera to the left, turn the screw clockwise when viewed from the front. To direct the camera to the right, turn it counterclockwise. (Panning range: + 180° to - 180°)

B) Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the TILT lock screw in the center of camera arm and roughly adjust the direction of the camera. (Tilting range: 0° to 115°)

C) Temporarily tighten 2 PAN lock screws and 1 TILT lock screw to prevent the camera from moving.

IMPORTANT:
- Avoid touching the tilting part near the warning label when you change the tilting angle to secure the camera.
- If the TILT or PAN lock screw is loosened, the camera may not be held in place when it is secured to the wall or ceiling. If this is the case, temporarily tighten the appropriate lock screws to keep the camera from moving.



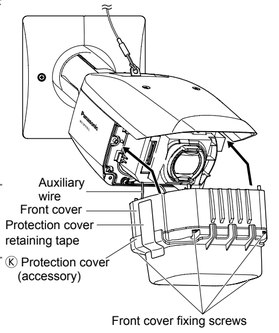
Step 4 Adjusting the camera (continued) ⑥, ⑦, ⑧, ⑨

⑥After adjusting the focus by pressing the AF button, remove the adjustment monitor.

⑦Attach the front cover.

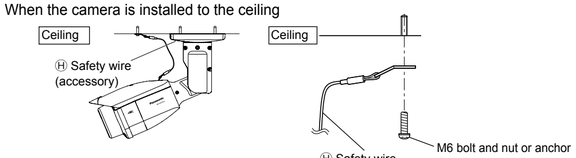
IMPORTANT:
- Securely tighten the 4 front cover fixing screws. Failure to do so may cause the camera to fall or waterproof failure. Recommended tightening torque: 0.6 N·m {0.44 lbf·ft}

Note:
- When closing the front cover, be sure not to allow the IR LED cable to be caught in the cover.

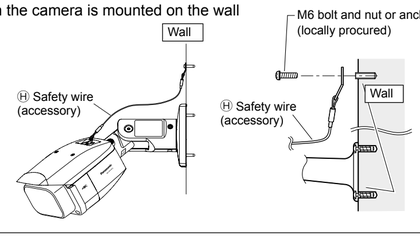


⑧Secure the Ⓗ safety wire (accessory) to the ceiling or wall.

■ When the camera is installed to the ceiling



■ When the camera is mounted on the wall



D) Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the Yawing lock screw, turn the camera until the sunshield faces up and adjust the tilt of the camera.
(Yaw range: -115° to +200°)

E) Press the WIDE or TELE button to adjust the field of view.

F) Adjust the camera angle and field of view by repeating steps A) through E). When the desired angle and field of view are achieved, tighten the 2 PAN lock screws, TILT lock screw and Yawing lock screw.
Recommended tightening torque PAN lock screw: 2.7 N·m {2.0 lbf ft}
TILT lock screw: 4.3 N m {3.2 lbf ft}
Yawing lock screw: 2.7 N m {2.0 lbf ft}

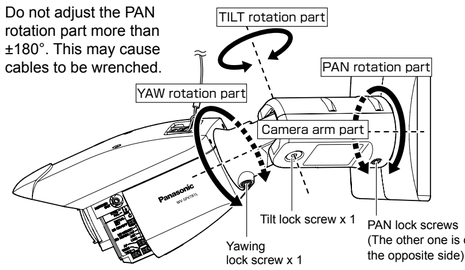
IMPORTANT:
- After adjustment, be sure to tighten the PAN, TILT and Yawing lock screws.

Note:
- Any of the PAN, TILT and YAW lock screws can be adjusted by loosening them about 1 turn. Do not unscrew them more than necessary.
- Make sure the camera is supported when loosening screws and adjusting the direction of the camera.
- When the image size is adjusted using the WIDE or TELE button, the camera focus is adjusted accordingly by the auto-focus coarse adjustment function.
- When the camera is mounted on the wall, adjust the camera direction by turning the PAN, TILT and YAW parts as shown in the illustration below.
- The range of angles that the camera can actually be turned to in regards to a wall or ceiling is as follows.

	Wall mounting		Ceiling mounting	
	Angle	Adjustment part	Angle	Adjustment part
Horizontal	±115°	TILT rotation part*	±180°	PAN rotation part
Vertical	±115°	TILT rotation part*	0° to 115°	TILT rotation part
Yaw	from -115° to +200	YAW rotation part	from -115° to +200	YAW rotation part

* You can change between horizontal and vertical angles by adjusting the PAN rotation part.

* Do not adjust the PAN rotation part more than ±180°. This may cause cables to be wrenched.



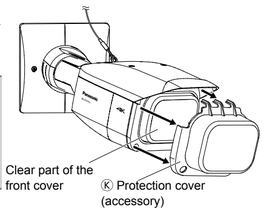
* The front cover, including cables and wires, and Protection cover are not shown in the illustration.

IMPORTANT:
- Each M6 bolt and nut or anchor (locally procured) for securing the Ⓗ safety wire (accessory) must have the minimum pull-out strength of 724 N {163 lbf}.
- Be sure to secure the Ⓗ safety wire (accessory) to the foundation of a structure or an area that is strong enough.
- Be sure to install the camera at least 2m 80 cm {9.2 feet} from the floor (the distance between the lowest part of the installed camera and the floor).
- When installing on a wall, secure the Ⓗ safety wire (accessory) to an area above the camera and the location where the camera is installed.
- Attach the Ⓗ safety wire so that if the camera were to become detached, it would not fall on nearby people.

⑨ Remove the Ⓚ Protection cover (accessory).

When the camera has been installed, remove the protection cover from the front cover. After removal, be sure not to touch the clear part of the front cover.

IMPORTANT:
- Once the front cover is installed, the camera may be slightly out of focus. After installing the front cover and Ⓚ Protection cover (accessory), use the auto focus via the settings menu.



Note:
- When removing the camera, perform removal by following the installation procedure in the reverse order.
- After the installation is complete, store the Ⓚ Protection cover (accessory) for use during servicing.

Step 5 Configuring the settings of the camera (see the leaflet)

When the installation of the camera is complete, perform camera settings while referring to the included “Configure the settings of the camera” (leaflet).