i-PRO
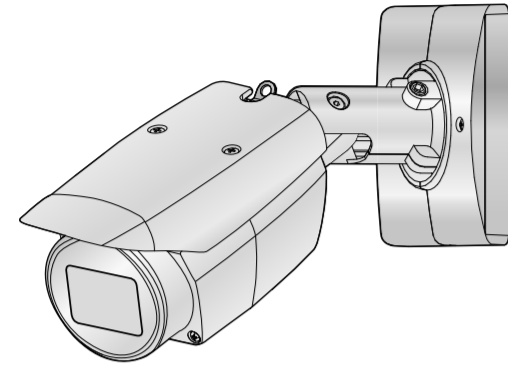
Installation Guide
Included Installation Instructions

Network Camera

Model No. **WV-S1531LNS**
(Heavy salt damage resistance)

● Before attempting to connect or operate this product, please read these instructions carefully and save this manual for future use.
● Before reading this manual, be sure to read the Important Information(included in the CD-ROM).
● For information about how to perform the settings and how to operate the camera, refer to the Operating Instructions on the provided CD-ROM.
● The model number is abbreviated in some descriptions in this manual.

Important safety instructions

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

9) Unplug this apparatus during lightning storms or when unused for long periods of time.
10) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Troubleshooting

Before requesting service, refer to the Important Information (included in the CD-ROM) and "Troubleshooting" in the Operating Instructions (included in the CD-ROM) and confirm the trouble.

Open Source Software

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

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

Model No. _____
Serial No. _____

Disposal of Old Equipment and Batteries
Only for European Union and countries with recycling systems

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must not be mixed with general household waste. For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points in accordance with your national legislation.
By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.
For more information about collection and recycling, please contact your local authority.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

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

About the user manuals

Product documentation is composed of the following documents.

● **Installation Guide (this document):** Explains installation, mounting, cable connections, and adjusting the field of view.
● **Important Information (included in the CD-ROM):** Provides basic information about the product.
● **Operating Instructions (included in the CD-ROM):** Explains how to perform the settings and how to operate this camera.

Adobe® Reader® is required to read these operating instructions on the provided CD-ROM.
When the Adobe Reader is not installed on the PC, download the latest Adobe Reader from the Adobe web site and install it.
The external appearance and other parts shown in this manual may differ from the actual product within the scope that will not interfere with normal use due to improvement of the product.

Standard accessories

Installation Guide (this document) ....1 set
IMPORTANT SAFETY INSTRUCTIONS..............1 pc.
CD-ROM*1.. 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. Use caution not to lose this label.

The following parts are used during installation procedures.
Camera mount bracket cover .... 2 pc.
Camera mount bracket cover fixing screw
(M3 × 6 mm {1/4 inches}) ....3 pcs.
(of them, 1 for spare)
Waterproof tape... 1 pc.
RJ45 waterproof connector cover .... 1 pc.
RJ45 waterproof connector cap .... 1 pc.
4P alarm cable .... 1 pc.
2P power cable .... 1 pc.
Safety wire .... 1 pc.

Wire lug fixing screw with a spring washer
M3 x 10 mm {3/8 inches} ....2 pcs.
(of them, 1 for spare)
Safety wire lug .... 1 pc.
Adapter box .... 1 pc.
Mounting screws for adapter box
(M5 × 20 mm {13/16 inches}) ....5 pcs.
(of them, 1 for spare)
Adapter box mounting screw
(M4 × 35 mm {1- 3/8 inches}) .... 1 pc.

Waterproof tape

Preparations

Other items that are needed (not included)

Tear off the blue tape attached on camera arm before installing the camera.
Prepare the required parts for each installation method before starting the installation. The following are the requirements for the various installation methods.
Prepare the foundation of the installation site, installation support, and any other installation setting with heavy salt damage resistance treatment.

Installation method	Recommended screw	Description of installation method
Directly mount the camera onto the ceiling or wall (when there is a space for wiring in the ceiling or the wall)	M5 screws/ 4pcs.	【Type 1】
Mount the camera to a junction box * Only use metal junction boxes.	M4 screws/ 4pcs.*2	【Type 2】
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/ 4pcs.	【Type 3】

*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:
● Please consider using anti-corrosive mounting screws or caulking.
● For the screws or anchor bolts used in the above methods (【Type 1】 to 【Type 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 location that the camera will be mounted to. In this case, wood screws and nails should not be used.
● If the mounting location such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Preparations

[1] Attaching the safety wire.
① Pass the safety wire (accessory) through the wire mounting hole in the safety wire lug (accessory).

Safety wire (accessory)
Wire fitting
Wire mounting hole
Safety wire lug (accessory)
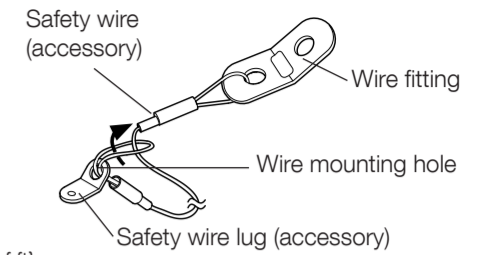
② Fit the Safety wire lug to the camera.
Recommended tightening torque: 0.59 N·m {0.44 lbf·ft}

Wire lug fixing screw with a spring washer (accessory) (M3 x 10 mm {3/8 inches})
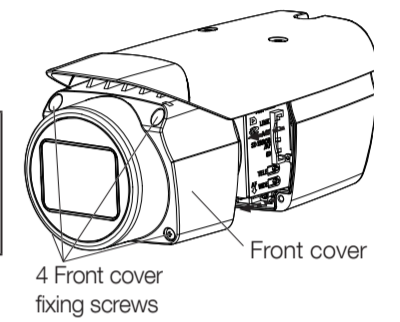Safety wire lug (accessory)
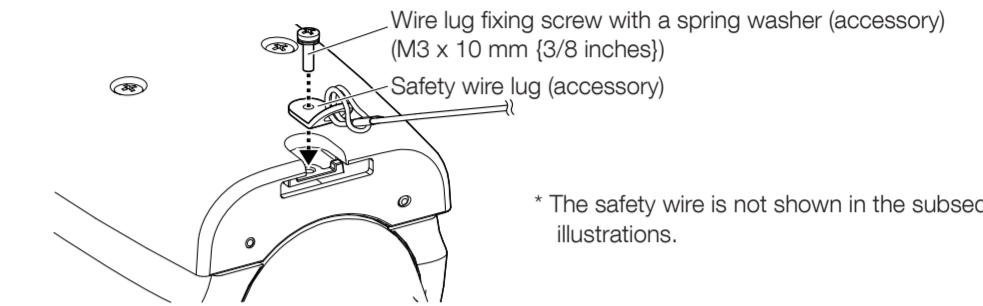
* The safety wire is not shown in the subsequent illustrations.

[2] Remove the front cover.
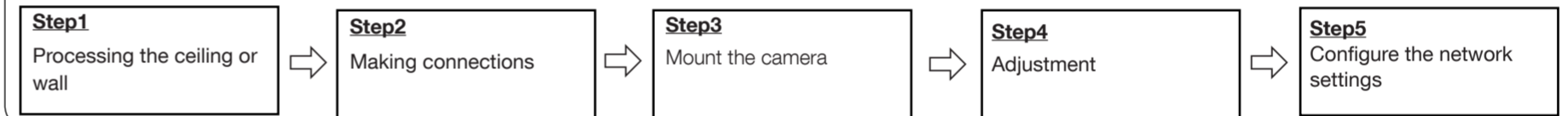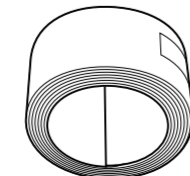Loosen the four front cover fixing screws and remove the front cover.

IMPORTANT:
● Because the front cover is temporarily removed when installing or adjusting the camera, make sure no liquid enters the camera at these times.

4 Front cover fixing screws
Front cover

Installation

The installation tasks are explained using 5 steps.   ● Remove the camera using the reverse order of the installation procedures.

Step1 Processing the ceiling or wall ⇒ **Step2** Making connections ⇒ **Step3** Mount the camera ⇒ **Step4** Adjustment ⇒ **Step5** Configure the network settings

Step 1 Processing the ceiling or wall
*There are 3 methods to install the camera to a ceiling or wall.

【Common】 Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the TILT lock screw by about 1 turn until the camera faces downward and then temporarily tighten the TILT lock screw.

IMPORTANT:
● Be sure to install the camera at least 2 m 80 cm {9.2 feet} from the floor (the distance between the lowest part of the installed camera and the floor).
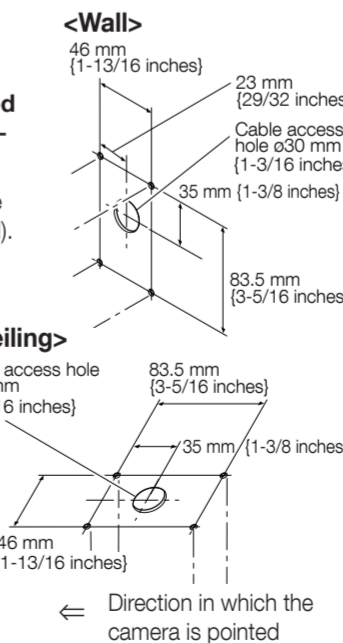
⇧ TOP/FRONT mark
Camera mount bracket
TILT lock screw
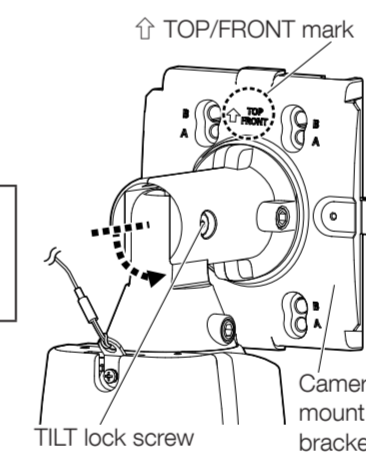
【Type 1】 Directly mount the camera onto the ceiling or wall.

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).

Note:
● When installing on a wall, drill a cable access hole closer to the top side.
● When installing on a ceiling, drill a cable access hole so that it comes to closer to the direction in which the camera is pointed.
● When running the cable using the side cable access hole of the camera, the "cable access hole" indicated in the right figure is not required. (For the side cable access hole of the camera, see the figure of ② in 【Type 1】 of "Step3 Mount the camera".)

<Wall>
46 mm {1-13/16 inches}
23 mm {29/32 inches}
Cable access hole ⌀30 mm {1-3/16 inches}
35 mm {1-3/8 inches}
83.5 mm {3-5/16 inches}

<Ceiling>
Cable access hole ⌀30 mm {1-3/16 inches}
83.5 mm {3-5/16 inches}
35 mm {1-3/8 inches}
46 mm {1-13/16 inches}
← Direction in which the camera is pointed

【Type 2】 Mount the camera to a junction box.
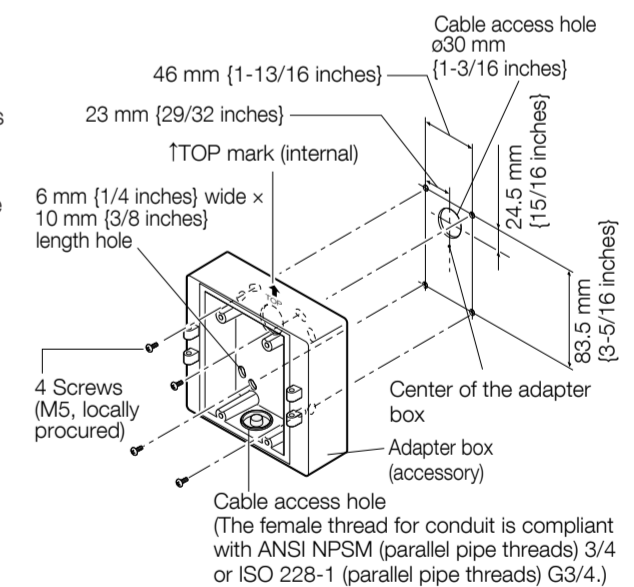No operation is required in processing the ceiling or wall.

Note:
● 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.)

【Type 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.
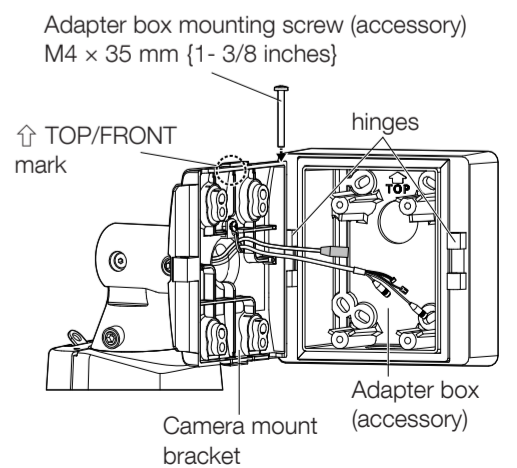
① Secure the adapter box to the wall.
● Drill pilot holes and a cable hole (see the illustration to the right for their dimensions). (Drill pilot holes only if making connections through the cable hole from the side.)
● Be sure to face "TOP" inside the adapter box upward.
● Use 4 screws (M5:locally procured) 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 cable pass holes.

Cable access hole ⌀30 mm {1-3/16 inches}
46 mm {1-13/16 inches}
23 mm {29/32 inches}
⇧TOP mark (internal)
6 mm {1/4 inches} wide × 10 mm {3/8 inches} length hole
24.5 mm {15/16 inches}
83.5 mm {3-5/16 inches}
4 Screws (M5, locally procured)
Center of the adapter box
Adapter box (accessory)
Cable access hole (The female thread for conduit is compliant with ANSI NPSM (parallel pipe threads) 3/4 or ISO 228-1 (parallel pipe threads) G3/4.)

② Temporarily secure the camera mount bracket and camera to the adapter box.
● Use the adapter box mounting screw (M4 × 35 mm {1- 3/8 inches}: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}

Adapter box mounting screw (accessory) M4 × 35 mm {1- 3/8 inches}
⇧ TOP/FRONT mark
hinges
Camera mount bracket
Adapter box (accessory)

Step2 Making connections

[1] RJ45 (female) Network cable
[3] Alarm input/output cable
[1] 12 V DC power supply terminal
[2] 2P power cable (accessory)
Ethernet cable (category 5e or better, straight)
[3] 4P alarm cable (accessory)
12 V DC (red)
GND (black)
[4] Audio input cable* (white)
[5] Audio output cable* (black)

*Make sure to use the stereo mini plug.

■ Refer to the Important Information on the provided CD-ROM for details about each cable.

IMPORTANT:
- Turn off each system's power supply (PoE hub or device to supply power to the camera) before making a connection.
- The 12 V DC power supply shall be insulated from the commercial AC power.

[1] Connect an Ethernet cable (category 5e or better, straight) to RJ45 (female) network cable. * The maximum cable length is 100 m {328 feet}.

IMPORTANT:
- If the procedure for the RJ45 waterproof connector (accessory) part is not correctly followed, the waterproofing may be compromised. Do not install the camera where the RJ45 waterproof connector is exposed to constant rain or moisture.
- The external dimensions of the Ethernet cable are from ø5 mm {ø3/16 inches} to ø6.5 mm {ø1/4 inches}.
- When you remove the RJ45 waterproof connector, be sure to follow the reverse order of the connecting procedures. (The RJ45 waterproof jack may be damaged when you try to remove the RJ45 waterproof connector cover with its "◁" mark matching "▶" mark of the RJ45 waterproof jack.)

① First pass the Ethernet cable through the RJ45 waterproof connector cap (accessory) and then through the RJ45 waterproof connector cover (accessory). Next, use a specialized tool (locally procured) to crimp the RJ45 plug (locally procured) to the end of the Ethernet cable.
- Take care not to remove the rubber parts from inside the RJ45 waterproof connector cover.
② Insert the RJ45 plug into the RJ45 waterproof jack connected to the camera.
③ Connect the RJ45 waterproof connector cover to the RJ45 waterproof jack and then rotate the RJ45 waterproof connector cover until the "◁" marks align.
④ Connect the RJ45 waterproof connector cap to the RJ45 waterproof connector cover and rotate the RJ45 waterproof connector cap until there is no gap between it and the RJ45 waterproof connector cover.
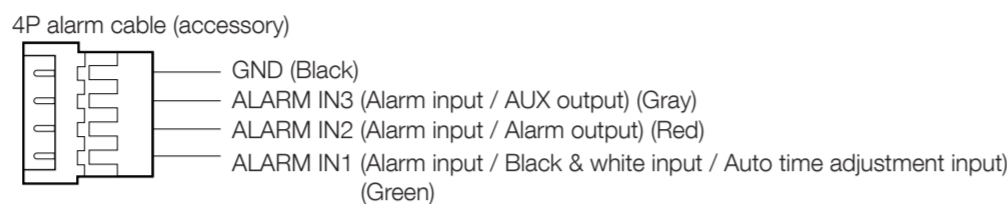
RJ45 plug (locally procured)
RJ45 waterproof connector cover (accessory)
RJ45 waterproof connector cap (accessory)
RJ45 waterproof jack
Ethernet cable
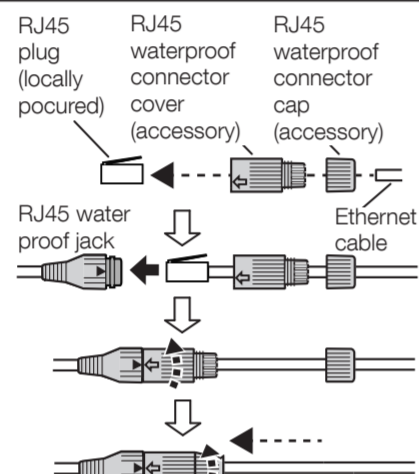
[2] When connecting an AC adaptor or an external power supply, use the 2P power cable (accessory) to connect it to the camera.

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).

Connect the output cable of the AC adaptor to the 2P power cable (accessory). (Red: 12 V DC side, Black: GND side)

[3] If needed, connect the 4P alarm cable (accessory).

4P alarm cable (accessory)
GND (Black)
ALARM IN3 (Alarm input / AUX output) (Gray)
ALARM IN2 (Alarm input / Alarm output) (Red)
ALARM IN1 (Alarm input / Black & white input / Auto time adjustment input) (Green)

Note:
- The default of EXT I/O terminals is "Off". Refer to the Operating Instructions on the provided CD-ROM for further information about the EXT I/O terminal settings.

[4] If needed, connect a microphone or the line out of an external device to the audio input cable.

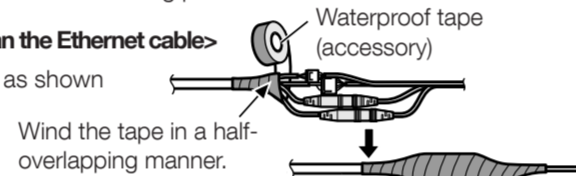**[5] If needed, connect a powered speaker to the audio output cable.**

Note:
- The audio output can be switched to the monitor output. Refer to the "Operating Instructions" on the provided CD-ROM for descriptions of how to switch the output.

[6] Adequate waterproof treatment is required for the cables when installing the camera with cables exposed.
The camera body is waterproof, but the cable ends, inside the adapter box (accessory) are not waterproof. Apply waterproof treatment on the connecting part as shown below.
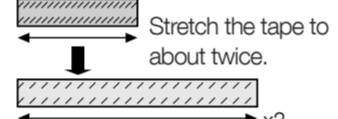
<Waterproof treatment for other cables than the Ethernet cable>
Apply some waterproof tape (accessory) as shown in the right.
Waterproof tape (accessory)
Wind the tape in a half-overlapping manner.

IMPORTANT:
- Stretch the tape by approx. twice (see the illustration) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing.
Stretch the tape to about twice.
x2

Step 3 Mount the camera
*There are 3 methods to install the camera to a ceiling or wall.

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

① Use the 2 upper screws (M5:locally procured) to secure the camera.
* 2 upper screws (M5), 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.

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.
- To run the cables to the side, pull out the cables from the side cable access hole provided at the side of the camera mount bracket (see the illustration of step ②).

Side B (upper)
⇧ TOP/FRONT mark
2 PAN lock screws (the other one is on the opposite side)
2 upper screws (M5:locally procured)
TILT lock screw
Camera mount bracket

② Loosen the PAN lock screw about 1 turn until the camera faces upward and use the 2 lower screws (M5:locally procured) to secure the camera.
* 2 lower screws (M5), 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.

Side cable access hole
2 lower screws (M5:locally procured)

③ Using the camera mount bracket cover fixing screws (M3×6 mm{1/4 inches}: accessory), install the camera mount bracket cover (accessory) with the camera facing downward.
Recommended tightening torque: 0.59 N·m {0.44 lbf ft}

Note:
- When wiring cables on the side, use a nipper to cut open a side cable access hole of the camera mount bracket cover, and then pass the cable through.

2 Camera mount bracket covers (accessory)
Side cable access hole
2 Camera mount bracket cover fixing screws (accessory)

[Type 2] Mount the camera to a junction box.
As shown in the illustration to the lower right, install the camera to a junction box using 4 fixing screws (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: 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:
- For installation procedures, refer to step ①, ②, and ③ in [Type 1].

Side B (upper)
4 fixing screws (M4:locally procured)
46 mm
Junction box
83.5 mm
Camera mount bracket

[Type 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 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}

Note:
- For installation procedures, refer to step ① and ② in [Type 1].

② Using 2 camera mount bracket cover fixing screws (M3 x 6 mm {1/4 inches}: accessory), secure the Camera mount bracket covers (accessory) to the Camera mount bracket.
Recommended tightening torque: 0.59 N·m {0.44 lbf ft}

4 Mounting screws for adapter box (M5 x 20 mm {13/16 inches}:accessory)
2 Camera mount bracket covers (accessory)
Adapter box (accessory)
Side A (lower)
2 Camera mount bracket cover fixing screws (accessory)

Step 4 Adjustment

[1] Change the direction the camera is facing from directly down to facing up and temporarily fix the camera in place.
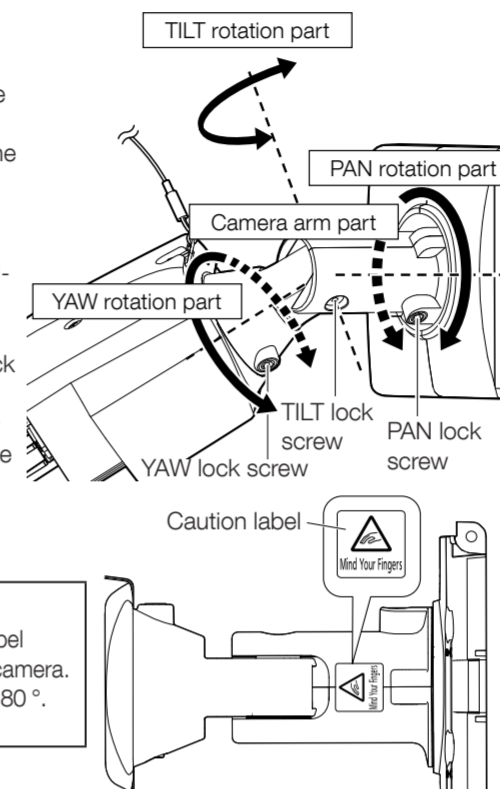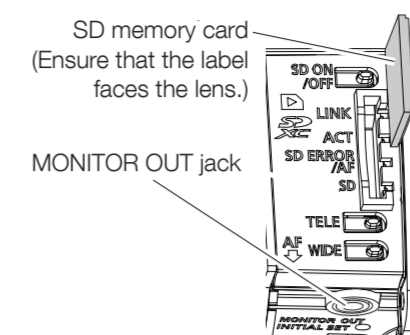
[2] Fit a pin cable (locally procured) to the MONITOR OUT jack on the camera and connect an adjustment monitor.

[3] Insert an SD memory card into the SD memory card slot, if necessary.
Refer to the "Important Information" on the provided CD-ROM for how to insert/remove the SD memory card.

[4] Turn on the camera.

[5] Adjust the angle of the camera.
① Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the PAN lock screw on the base of camera arm. To direct the camera to the left, turn the camera arm part clockwise when viewed from the front. To direct the camera to the right, turn it counterclockwise. (Panning range: ±180 °)
② Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the TILT lock screw in the middle of camera arm and roughly adjust the direction of the camera. (Tilting range: 0 ° to 100 °)
③ Temporarily tighten PAN lock screw and TILT lock screw to prevent the camera from moving.
④ Using a 5 mm {3/16 inches} hex wrench (locally procured), loosen the YAW lock screw and rotate the camera to adjust the tilt of the camera. (Yawing range: -190 ° to +100 °)

SD memory card (Ensure that the label faces the lens.)
MONITOR OUT jack
TILT rotation part
PAN rotation part
Camera arm part
YAW rotation part
TILT lock screw
PAN lock screw
YAW lock screw
Caution label

IMPORTANT:
- Avoid touching the tilting part near the caution label when you change the tilting angle to secure the camera.
- Do not adjust the PAN rotation part more than ±180 °. This may cause cables to be wrenched.

Note:
- Any of the PAN, TILT and YAW lock screw can be adjusted by loosening them about 1 turn. Do not unscrew them more than necessary.
- Make sure the camera is supported by hand when loosening lock screws and adjusting the direction of the camera.

[6] Adjust the zoom and focus.
① Adjust the viewing angle by pressing the WIDE or TELE buttons as shown in the right figure.
② Adjust the focus by pressing the auto focus (AF) button.

TELE button
WIDE button
Auto focus button (AF)
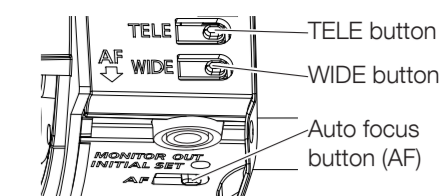
**[7] Fix each part by tightening the corresponding lock screw.**
Adjust the camera angle and field of view by repeating steps [5] through [6]. When the desired angle and field of view are achieved, fix each part by tightening the corresponding lock screw.
Recommended tightening torque：
PAN lock screw: 2.7 N·m {2.0 lbf·ft}
TILT lock screw: 9.0 N·m {6.6 lbf·ft}
YAW lock screw: 2.7 N·m {2.0 lbf·ft}

[8] Remove a pin cable.

[9] Mount the front cover to the camera, and then fasten it with the 4 fixing screws.
Recommended tightening torque: 0.69 N·m {0.51 lbf·ft}
*As shown in the right figure, fasten the front cover fixing screws along the diagonal direction.
Front cover
4 Front cover fixing screws
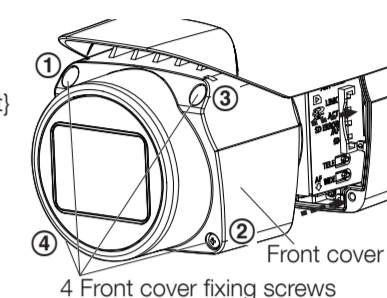
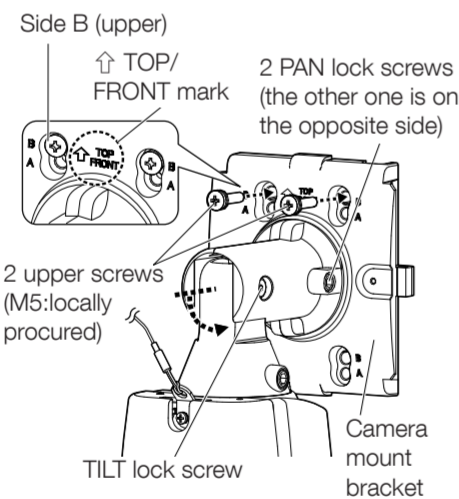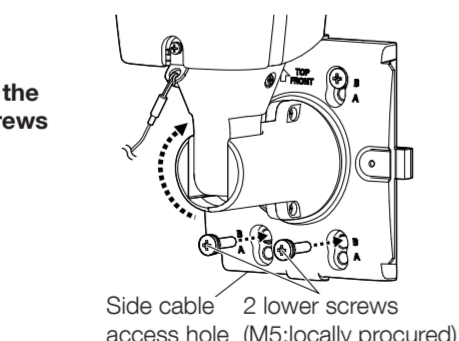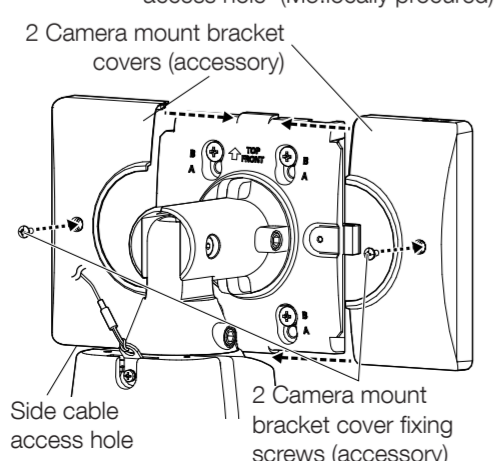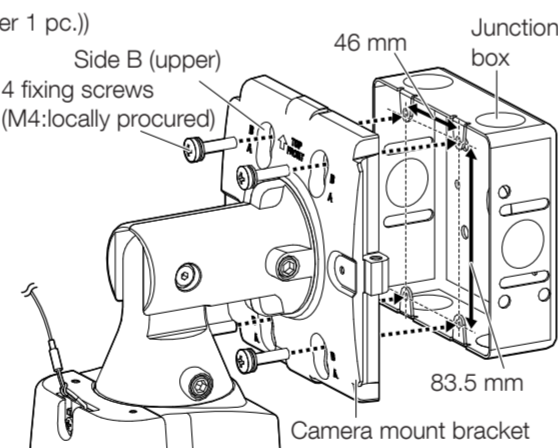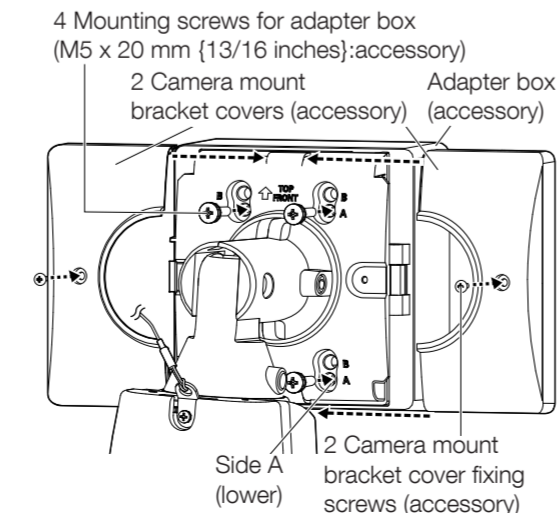**[10] Secure the safety wire (accessory) to the ceiling or wall.**

IMPORTANT:
- Each bolt and nut or anchor (M6: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.
- For the M6 bolt and nut or anchor (locally procured) to be used for fixing the safety wire (accessory), use the ones with heavy salt damage resistance treatment.

■ When the camera is installed to the ceiling
Bolt and nut or anchor (M6:locally procured)
Safety wire (accessory)

■ When the camera is mounted on the wall
Bolt and nut or anchor (M6:locally procured)
Safety wire (accessory)
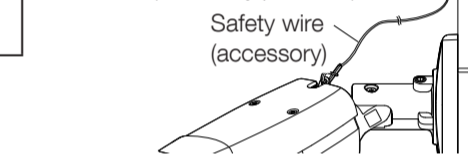
[11] Remove the Protection cover.
When the camera has been installed, remove the protection cover from the front cover. After removal, be sure not to touch the clear part of the front cover.

Step5 Configure the network settings

Download and start [IP Setting Software] <Control No.: C0123> or [i-PRO Configuration Tool (iCT)] <Control No.: C0133> on our technical information support site (https://i-pro.com/global/en/surveillance/training_support/support/technical_information), and connect to the network.