Canon

ENGLISH

Network Camera
VB-H652LVE Installation Guide

Please be sure to read the "Safety Precautions" section for correct use. After reading this Installation Guide, keep it in a readily accessible location for future reference.
* Some cameras are not available in certain countries or regions.

⚠ **Caution** Request a professional installer for all installation work. Never try to install the camera yourself. Doing so may result in unforeseen accidents such as dropping the camera or electric shock.

Check Included Items

Camera	Template	Installation Guide (This document)
Setup CD-ROM	Warranty Card	Ceiling Plate
Safety Wire, Screws (M4) x 2	Dedicated wrench	RJ45 Coupler
LAN Cable Cap	Packing Attachment	Waterproof Packing
Zip Tie	GND Screw (M3) x 1	Multi-Cable
Waterproofing Tape	Waterproofing explanation sheet	

Accessories

The following accessories can be purchased separately as necessary. Some accessories are not available in certain countries or regions.

Pendant Mounting Kit PC640-VB

Dedicated accessory used to install the camera to the end of pipe that extends from high ceilings, such as in big-box stores.

Dome Unit DU652-S-VB

Smoked dome cover.

Sunshade Cover SC640-VB

Dedicated accessory to protect the camera body from direct sunlight.

Heater Unit HU652-VB

Dedicated accessory attached to the interior to maintain operation temperature within the dome and achieve stable operation even in extremely cold environments.

Canon AC Adapter PA-V18

Dedicated AC adapter for this camera.

Safety Precautions

This Installation Guide uses the following symbols to indicate important information the user should know in order to use the product safely. Explanations are provided for each symbol so that users will understand the level of importance for each. Be sure to observe these items.

Installation Precautions

⚠ **Warning** Failure to follow the instructions may result in death or serious injury.

Do not install in the following places:
• Places in strong direct sunlight, near heat-generating objects, or locations subject to high temperatures
• Places near fire sources or flammable solvents (alcohol, thinner, fuel, etc.)
• Places subject to oily smoke or steam
• Confined or enclosed places
Failure to do so may result in fire or electric shock.

• Insulate the ends of cables you are not using.
Failure to insulate may result in fire or electric shock.

Notes on Power Supply
• Only use the dedicated AC adapter (sold separately) for AC power.
• Do not set any heavy objects on the power cable (or the LAN cable for a PoE+/PoE power supply).
• Do not pull, forcibly bend, scratch, or modify the power cable (or the LAN cable for a PoE+/PoE power supply).
• Do not cover or wrap the AC adapter (sold separately) with cloth or blankets.
Failure to do so may result in fire or electric shock.

⚠ **Caution** Failure to follow the instructions may result in injury.

For installation or inspection of this camera, consult the dealer where you purchased the product.
• This installation should be made by a qualified service person and should conform to all local codes.
• When installing, make sure the surface is capable of withstanding the total weight of the camera and accessories, and sufficiently reinforce if necessary.
• Be sure to use installation screws designed for the type of surface the camera is to be installed.
• Periodically check the parts and screws for rust and loosening, in order to prevent injuries and equipment damage due to falling items.

• Do not install in unstable places, places subject to significant vibration or impact, or places subject to salt damage or corrosive gas.
• Do not install in places subject to strong winds.
• Do not install where snow can accumulate directly on the camera.
• Be sure to attach the safety wire when installing the camera.
Failure to do so may result in the camera falling or other accidents.

• Do not touch the edges of metal parts with bare hands.
• Be careful not to get your fingers caught when installing.
Failure to do so may result in injuries.

• Avoid looking directly at the infrared illumination at close distances for long periods of time.
Intense infrared illumination can cause eye damage.

⚠ **Caution** Failure to follow the instructions may result in property damage.

• Do not install on an unstable surface.
• To maximize shock resistant specifications, do not install on insufficiently strong surfaces or surfaces subject to significant vibration.
• After turning off the power, do not turn the power on again for at least five seconds.
• Take measures to remove static electricity before performing any procedures.
• If there is condensation, please wait to power on, until the condensation dissipates.
• Please waterproof and dust-proof camera, when installing outdoors.
Failure to do so may result in malfunctions.

• Take care not to damage wiring or piping.
Failure to do so may result in damage to peripheral items.

📓 **Important**

We recommend the installation of a lightning arrester (a surge protection device) as a measure against failures caused by lightning strikes. Please refer to our website for details.

The contents of this guide are subject to change without any prior notice.

Precautions for Installing the Camera Outdoor

When installing the camera outdoors, observe the following precautions to retain waterproof/dustproof capabilities.
• Use the sunshade cover (sold separately) when installing in a location with direct sunlight.
• Completely wrap the cable connections and the ends of cables you are not using, including the connectors, with waterproof tape up to the cable jacket, so as not to allow water to enter. Please refer to the waterproofing explanation sheet for details on how to wrap the waterproofing tape.
• When mounting the camera onto a wall or other upright surface, make sure that the cables and composite pipe are facing down to prevent rain infiltration.
• If wiring the camera through the wiring hole on the bottom, use silicone sealant or a rubber mat to ensure waterproofing. Also use an insect repellent sponge if necessary.
• Firmly fix the dome case to the main unit of the camera with the lock screws, taking care not to pinch cables between the main unit and dome case.

Precautions for Use

⚠ **Warning** Failure to follow the instructions may result in death or serious injury.

• If you discover defective conditions such as smoke, strange sounds, heat or strange odors, immediately stop using the camera and contact your nearest dealer.
Fire or electric shock may result from continued use of the product.

• If thunder starts, stop installation or inspection etc. and do not touch the camera or continue connecting the cable.
• Do not disassemble or modify the camera.
• Do not damage the connecting cable.
• Do not insert foreign objects such as water or metal into the camera.
• Do not use flammable sprays near the camera.
• Do not leave LAN cables, external power supply, or the power connector for the AC adapter (sold separately) connected when the camera is not in use for long periods.
• Do not use flammable solvents such as alcohol, paint thinner or benzine when cleaning the camera.
Failure to do so may result in fire or electric shock.

Specifications

Please refer to the installation procedures or the Appendix – Specifications for specifications not listed below.

Lens	2.4x optical zoom (4x digital zoom) lens (electric drive)
Viewing Angle	For 16:9 aspect ratios Horizontal: 122.1° (W) – 50.1° (T) Vertical: 65.9° (W) – 28.1° (T) For 4:3 aspect ratios Horizontal: 89.2° (W) – 37.5° (T) Vertical: 65.9° (W) – 28.1° (T)
Pan Angle Range	360° (±180°)
Tilt Angle Range	90° (-15° – +75°) – Camera is at 0° when attached to the ceiling and facing straight down
Rotation Angle Range	350° (+220°/-130°) +: Clockwise
Network Terminal	LAN x 1 (RJ45, 100Base-TX (auto/full-duplex/half-duplex)) – Use a category 5 or better LAN cable, 100 m (328 ft.) or less in length.
Audio Input Terminal (Common for LINE IN & MIC IN)	ɸ3.5 mm (ɸ0.14 in.) mini-jack connector (monaural)
Audio Output Terminal (LINE OUT)	ɸ3.5 mm (ɸ0.14 in.) mini-jack connector (monaural)
External Device I/O Terminal	Input x 2, Output x 2 Analog Video Output x 1
Memory Card	microSD Memory Card, microSDHC Memory Card, microSDXC Memory Card Compatible.
Operating Environment	Temperature: When the heater unit (sold separately) is installed Operating Temperature Range: AC, PoE+: -40°C – +55°C (-40°F – +131°F) Start-up Temperature Range: AC, PoE+: -30°C – +55°C (-22°F – +131°F) – Sunshade cover (sold separately) necessary when under direct sun exposure When the heater unit (sold separately) is not installed AC, DC, PoE+, PoE: -10°C – +55°C (+14°F – +131°F) – Sunshade cover (sold separately) necessary when under direct sun exposure Humidity: 5% – 85% (without condensation)
Storage Environment	Temperature: -30°C – +60°C (-22°F – +140°F) Humidity: 5% – 90% (without condensation)
Installation Method	Ceiling mount/Surface mount
Power Supply	PoE: PoE power supply via LAN connector (IEEE802.3at Type1/Type2 compliant) AC Adapter: PA-V18 (100 – 240 V AC) (sold separately) External power source: 24 V AC/12 V DC
IR Illumination Range	20 m (65.6 ft.)
Power Consumption	PoE+: Max. approx. 12.4 W[*1] Max. approx. 23.1 W[*1] [*2] PoE: Max. approx. 12.4 W[*3] AC Adapter PA-V18: Max. approx. 15.2 W (100 V AC) Max. approx. 15.2 W (240 V AC) DC: Max. approx. 13.8 W AC: Max. approx. 12.7 W Max. approx. 24.1 W[*2] *1 Class 4 power sourcing equipment (requests 30.0 W) *2 When the heater unit (sold separately) is installed *3 Class 0 power sourcing equipment (requests 15.4 W)
Weight	Approx. 1850 g (4.08 lb.)
Impact Resistance	IK10 (20J)
Dust-resistant/Waterproof Specification	IP66

Part Names

1. Dome case lock screw / 2. Dome case / 3. Reboot switch / 4. Installation adjustment switch / 5. Power connection terminal / 6. GND screw hole / 7. Analog video output terminal / 8. Audio I/O terminal / 9. Lens unit / 10. 100Base-TX LAN connector / 11. Heater connection terminal / 12. LED (Blue)* / 13. External device I/O terminals / 14. Fan / 15. Visible light sensor / 16. Memory card slot / 17. Infrared illumination / 18. Connection slot
* On: when powered on, during reboot / Off: during normal use

External Dimensions

Camera mounting tab slots

Unit: mm (in.)

*1 Ceiling/Wall mount holes
*2 Junction box fixing holes
*3 Ceiling/Wall mount holes position
*4 Junction box fixing holes position

Unit: mm (in.)

Before Installing the Camera

Set the IP address and other network information on the camera using the "Camera Management Tool" on the Setup CD-ROM. For details on how to operate the "Camera Management Tool", please refer to the "Camera Management Tool User Manual".

Preparing the analog monitor

The analog video output video image is used by this camera to adjust the camera's viewing angle.

Attaching the packing attachment and removing the dome case

Remove the outer tape. Attach the included packing attachment to the connection slot that the cable will pass through, and attach the connection slot cover to the connection slot that the cable will not pass through. Use a coin to remove the connection slot cover.
Remove the dome case and remove the tape and polystyrene foam attached to the lens for shipping purposes.

When guiding cables through the side

When guiding cables through the bottom

Dedicated wrench

Packing Attachment

Guiding the LAN cable through the waterproof packing

Using a Memory Card

Remove the dome case and place the memory card in the memory card slot. To remove the memory card, push it in all the way until the card slightly pops out and remove.

📓 **Important**

• Insert a memory card before installing the camera.
• When using a memory card with the camera for the first time, it is recommended to format the card after inserting it into the camera (please refer to "Operation Guide").
• Always unmount the memory card before removing it (please refer to "Operation Guide").

Memory card slot

Using the Heater Unit (sold separately)

Connect the two heater cables included with the heater unit to the terminals on the camera side. Next, attach the heater unit to the camera body and then tighten the screws. Finally, connect the cables to the heater unit.

Using the Dome Unit (sold separately)

Remove the dome case from the camera, then remove the dome cover holder and dome flange, and replace with the smoked dome.

📓 **Important**

• Take care when replacing so as not to scratch the dome cover.
• For proper protection against water and dust, please make sure the screws are firmly tightened during installation.

Dome flange
Rubber seal
Dome cover
Dome cover holder
Smoked dome cover

Using the Sunshade Cover (sold separately)

The sunshade cover is attached to the camera body together with the dome case. In order to install it, of the four lock screws for the dome case, remove the two located at the top of the dome case beforehand. Remove the dome case lock screws by pressing the screws from the inside of the case and using the dedicated wrench to loosen them.
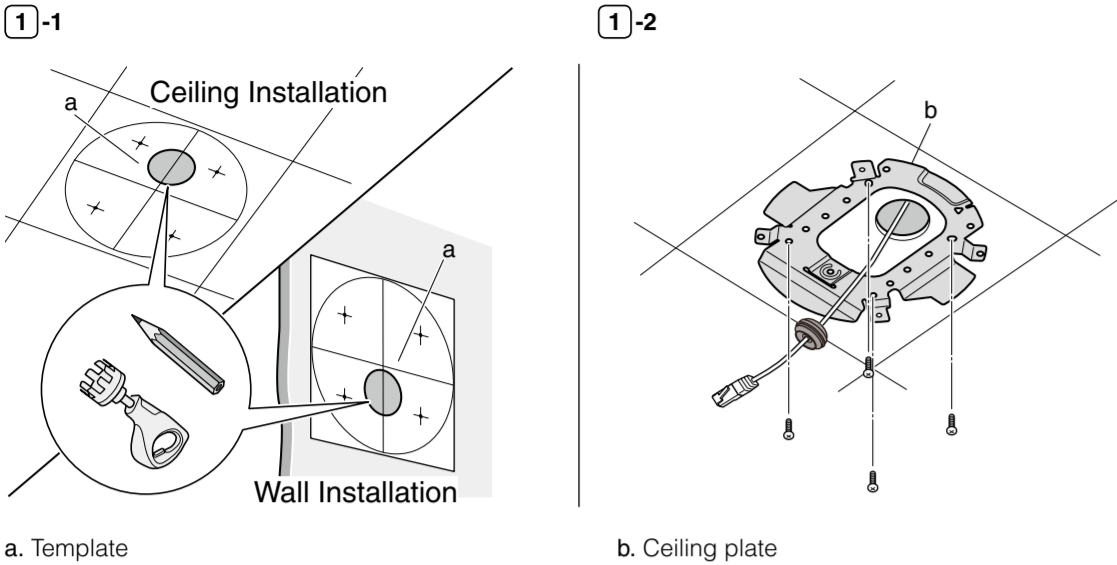

Dedicated wrench

Installing the Camera

1

Ceiling Installation/Wall Installation

Using the template, make holes for affixing the camera unit.

1 -1

Ceiling Installation

Wall Installation

a. Template

**1 -2**

b. Ceiling plate

When using the composite pipe

The composite pipe (3/4 inch NPSM threaded hole) can be connected to the connection slot.
Wrap the sealing tape around where the pipe connects as necessary to prevent rainwater or other moisture from seeping in, clear away any debris and then tighten it firmly. Also, apply silicon sealant or a similar substance as necessary to seal the pipe tightly after attachment.

When using the composite pipe, the included multi-cable cannot be used.

10 mm (0.39 in.) or more
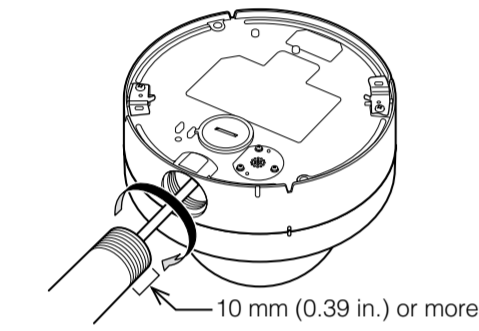
Ceiling pendant mounting

Mount using the Pendant Mounting Kit (sold separately).
For details please refer to the Installation Guide included with the kit.

M3*

M4* × 4

* Included with Pendant Mounting Kit
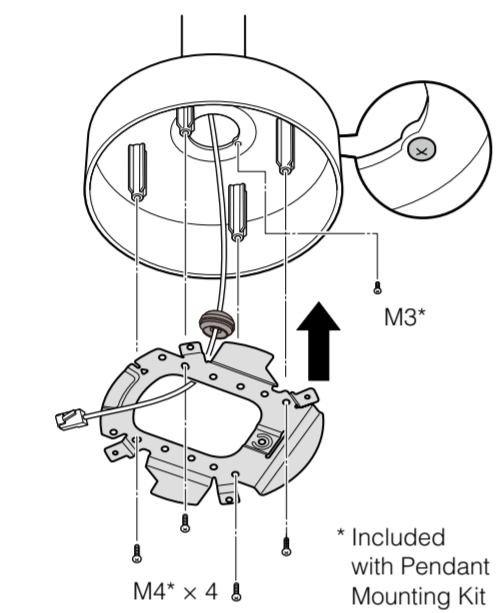
Attaching to a junction box

Attach the ceiling plate to the junction box after confirming the fixing holes locations with the external dimensions diagram.

2

M4 Screws (included)

M4 Screws (included)

c. Safety wire   d. LAN cable

3

4

e. Waterproof packing   f. Zip tie

❶ Attach the waterproof packing while firmly pressing and spreading it so that there are no gaps.
❷ The zip tie is intended for waterproofing, so ensure that it is tightly fastened. Snip the base of the protruding portion, so that the tip of the zip tie is no longer pointed.
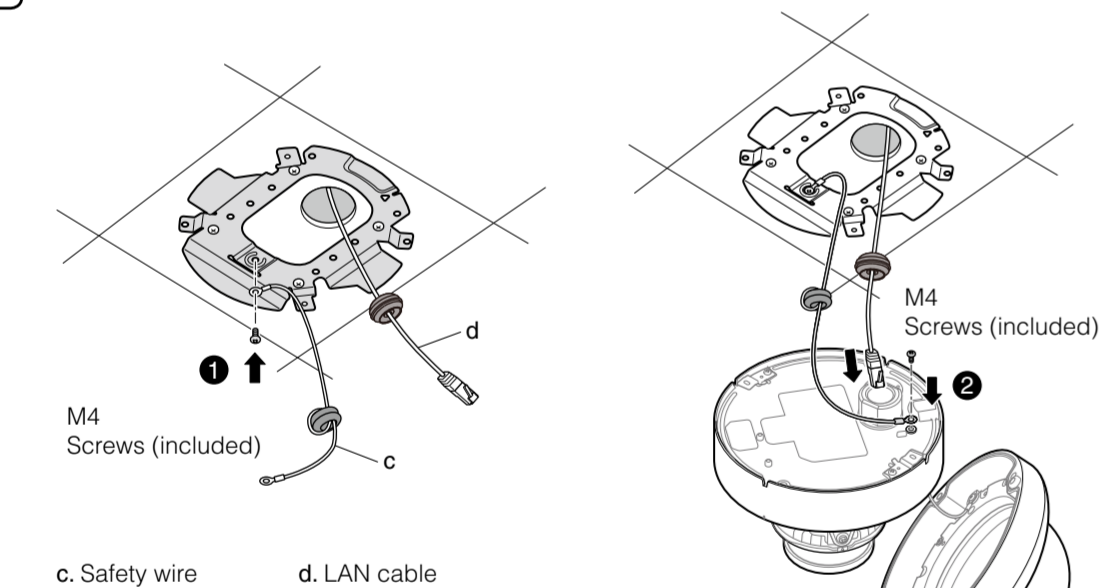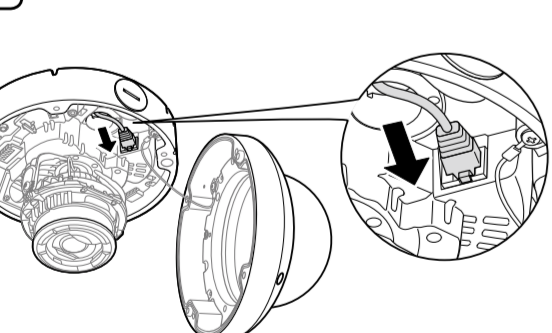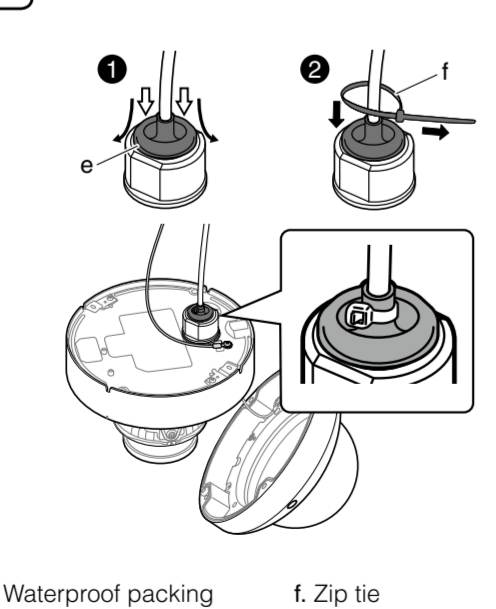
5

Attach the camera to the ceiling plate
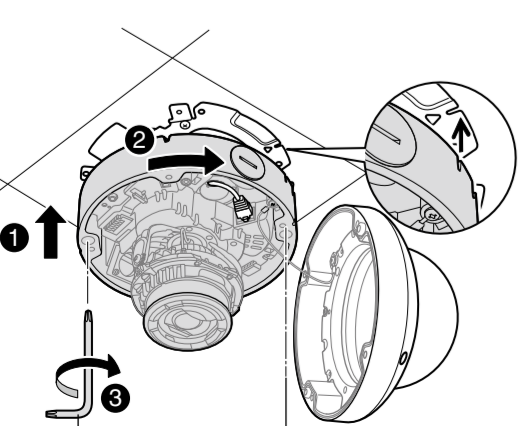
❶ Attach it in two places, using the dedicated wrench.

Using the multi-cable (included)
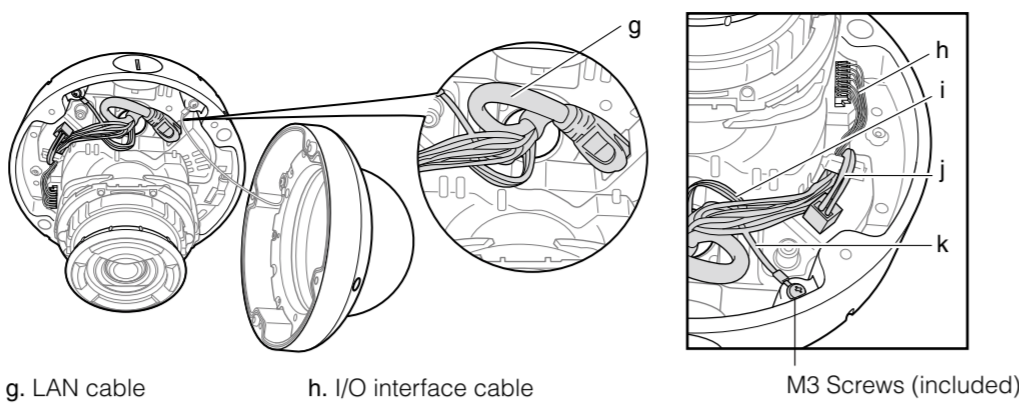
g. LAN cable
i. Audio interface cable
k. GND
h. I/O interface cable
j. Power cable

M3 Screws (included)

Connect all of the cables to the connector on the camera side.

> **Note**
> • Guide the I/O interface cable under the tab.
> • Connect the cable after hooking around the tab, to prevent accidental removal.

6

Outputting a video image to an analog monitor
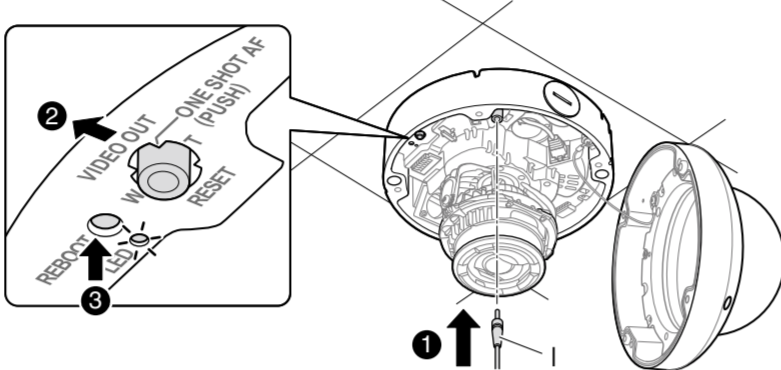
l. Analog video cable
❶ Connect the analog video cable to the analog video output terminal.
❷ Incline the installation adjustment switch in the [VIDEO OUT] position and hold it there.
❸ Press the reboot switch with a pointed object and release it.
  Release the installation adjustment switch about three seconds after the LED lights up.

> **Note**
> • A few minutes after completing the operation, the internal fan will begin operating, the camera will reboot, and the video image will be output to the monitor.
> • The camera will be automatically rebooted and will return to the normal mode after 30 minutes have elapsed and entering the analog video output mode. The analog video output mode will be disabled when the camera is rebooted, so it is necessary to incline the installation adjustment switch to the [VIDEO OUT] position before 30 minutes have elapsed if it is to be used for longer than this.

Installation adjustment switch

The following functions have been assigned to the installation adjustment switch.

1. One-shot AF (push)
2. Video output
3. Zoom (telephoto)
4. Reset
5. Zoom (wide-angle)
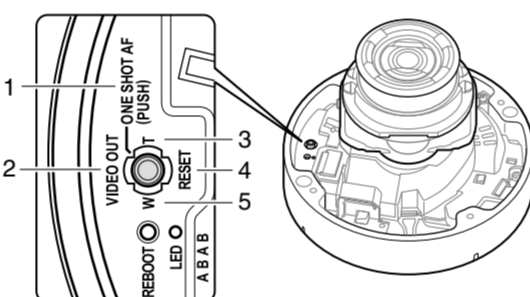
7

Loosen the tilt angle fixing screws (2 locations)

Dedicated wrench
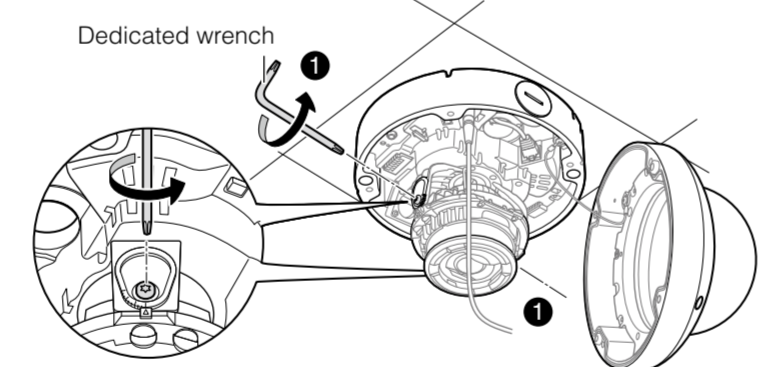
8

Adjusting the pan tilt rotation

Wall Installation
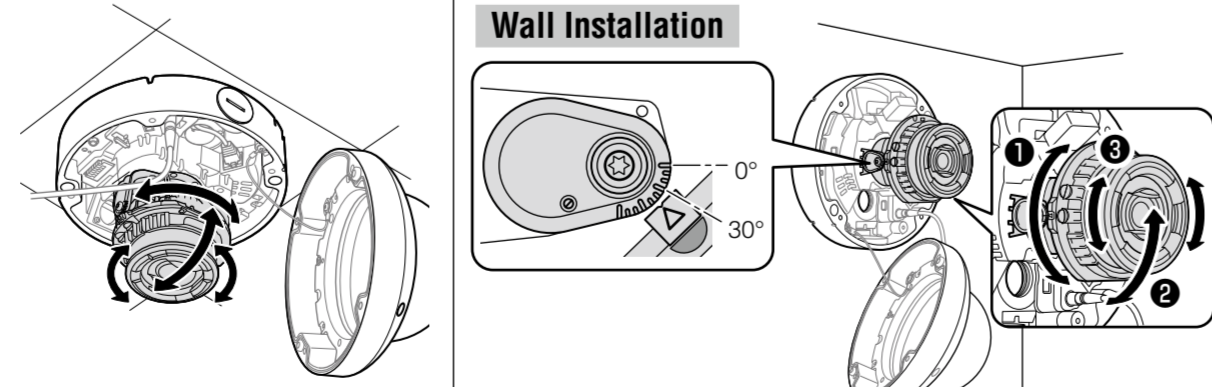
> **Note**
> • Adjust the angle of view while making sure not to touch the lens and the lens connection cable, visible light sensor or infrared illumination.
> • Adjust the tilt angle by aligning it in increments of 10° with the supports on the left and right of the lens unit.
> • There are cases in which infrared illumination is obstructed by external camera parts when specific viewing angles are used.
> • When using the sunshade cover, setting the tilt angle at 30° or less may cause the sunshade cover to be visible in the video image, infrared reflections, and auto-day-night switching problems.

9

Setting zoom and focus with the installation adjustment switch

❶ To zoom, incline the switch in the [W] or [T] direction.

❷ Push to adjust focus.
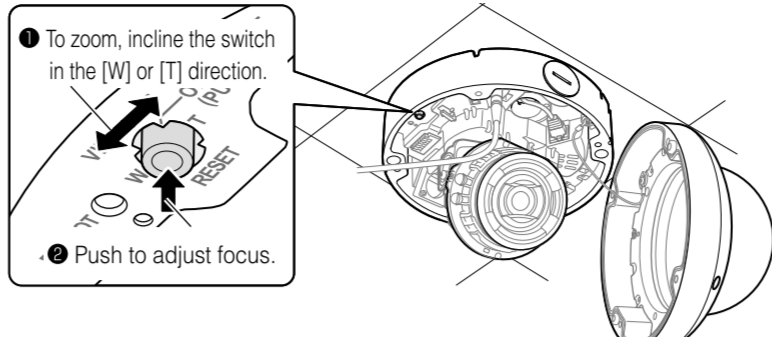
> **Note**
> The LED will light up, while the zoom and focus are being adjusted.

10

Tighten the tilt angle fixing screws (in 2 locations)*, and detach the analog video cable.

* Recommended tightening torque: 0.6 N m

11

Press the reboot switch to reboot the camera.

> **Note**
> • Please be sure that the LED is off, before rebooting the camera.
> • A few minutes after this operation has been completed, the camera will be rebooted.
> • The camera can be rebooted from the camera's Setting Page (please refer to "Operation Guide").

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Attaching the dome cover.

Dedicated wrench
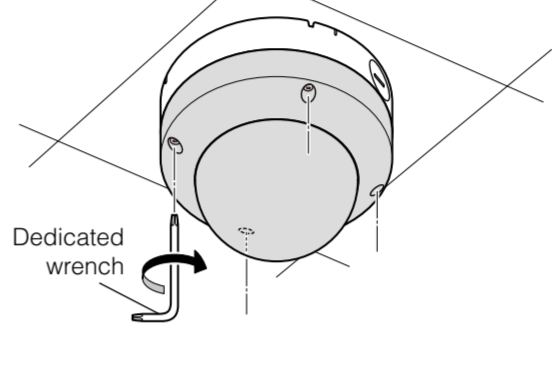
Attaching the sunshade cover (sold separately)

Dedicated wrench
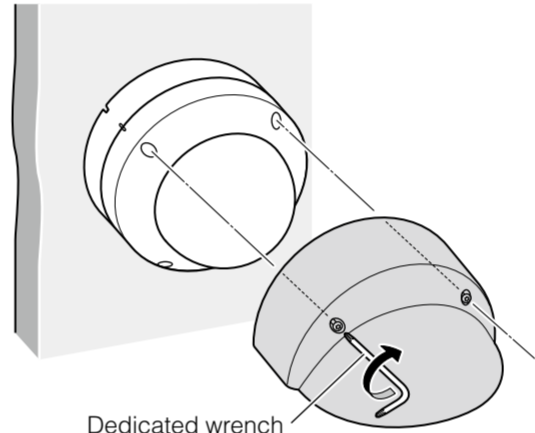
Resetting the Camera
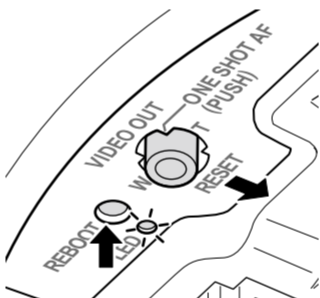
■ Resetting

To restore factory settings, follow these steps.

1) Incline the installation adjustment switch to the [RESET] position and press the reboot switch with a pointed object.
2) Keep inclining the installation adjustment switch for at least three seconds, release the reboot switch.
3) After the LED starts to blink, release the installation adjustment switch. When the blinking has stopped, the unit has finished resetting.

Connecting the Camera

Multi-Cable

To prevent cable connections from shorting out, wrap each individual connection with insulating tape, and then wrap all of the cables with waterproofing tape.

RJ45 Coupler (included)

OUT (White)

IN (Black)
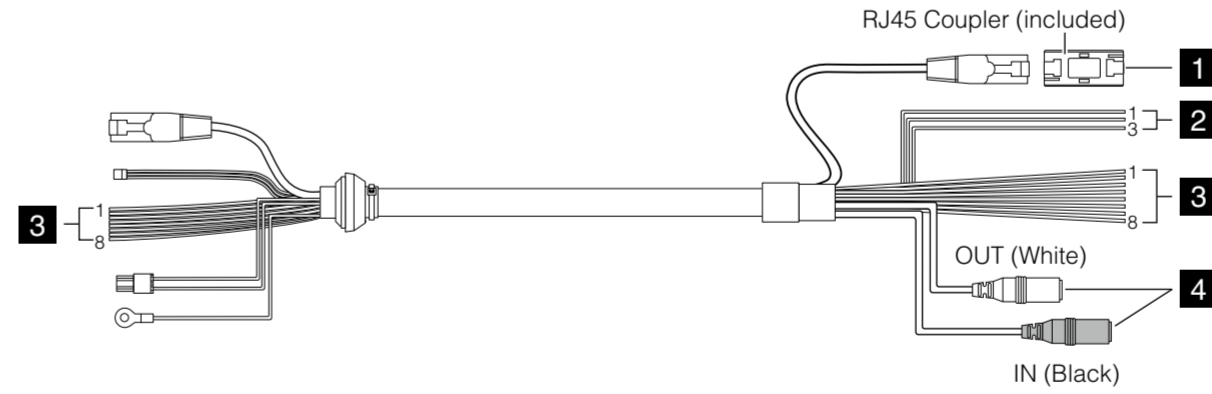
Power Connection

Power can be supplied to the camera in the three ways described below. Please be sure to read the user manual for the dedicated power supply before use.

> **Note**
> • Power supply should conform to all local codes.
> • The power supply should also comply with IEC/UL60950-1 (SELV/LPS) standards.
> • Please use 24 V AC or PoE+ as a power source when using the Heater Unit HU652-VB (sold separately). PoE, 12 V DC and AC Adapters cannot be used.

■ PoE+/PoE (Power over Ethernet)

Power can be supplied to the camera by using a LAN cable connected to a PoE+/PoE HUB that conforms to the IEEE802.3at Type2 (PoE+)/Type1 (PoE) standard.
Power can also be supplied to the camera by using the included multi-cable **1**.

> **Important**
> • Check with your dealer for more information about PoE+/PoE HUB and Midspan technology.
>   Midspan (a LAN cable power supply device) is a device that, like a PoE+/PoE HUB, supplies power to the camera via a LAN cable.
> • Some PoE+/PoE HUBs allow the limitation of power for each port, but applying limits may interfere with performance. If using this type of PoE+/PoE HUB, do not limit the operating power.
> • Some PoE+/PoE HUBs have limits for the total power consumption for the ports which can interfere with performance when multiple ports are in use. For more information, check the instruction guide for your PoE+/PoE HUB.
> • When the camera is connected to both a PoE+/PoE HUB and an external power supply (12 V DC or 24 V AC), power will be supplied in the following order of precedence.
>   External power supply (24 V AC) > PoE+/PoE HUB > External power supply (12 V DC)
>   However, when connecting power from both, certain combinations could cause problems such as unstable network connections. If a problem arises, disable one of the power supplies.

■ External Power Supply **2**

12 V DC or 24 V AC input can be used. Use the included multi-cable to connect to the camera power connection terminal. 12 V DC can be connected in a non-polar configuration.
  1: BROWN (fat) 24 V AC / 12 V DC non-polar
  2: BLUE (fat) 24 V AC / 12 V DC non-polar
  3: GREEN (fat) FG (frame ground)

> **Important**
> • The power supply should be within the following voltage range.
> • 24 V AC: Voltage fluctuation within ±10% of 24 V AC (50 Hz or 60 Hz ±0.5 Hz or less)
>   Current supply capacity of at least 2.0 A per camera
> • 12 V DC: Voltage fluctuation within ±10% of 12 V DC
>   Current supply capacity of at least 1.5 A per camera
> • When using a 12 V DC battery power supply, be sure to connect resistors of at least 0.5 – 1.0 Ω/20 W in series to the power line.
> • For an external power supply, use a double-insulated device.

Recommended Power Cables [Reference]

Cable (AWG)	24	22	20	18	16
12 V DC maximum cable length m (ft.)	5 (16.4)	9 (29.5)	14 (45.9)	23 (75.5)	32 (105.0)
24 V AC maximum cable length m (ft.)	11 (36.1)	18 (59.1)	29 (95.1)	46 (150.9)	64 (210.0)

Use UL cable (UL-1015 or equivalent) for 12 V DC or 24 V AC wiring.

■ AC Adapter

Please use the dedicated AC adapter (sold separately).
Remove the power connector attached to the AC adapter, then connect the multi-cable included in the package to the power connector, as shown in the following diagram.

AC Adapter

Green (fat) Blue (fat) White

Multi-Cable **2**

Brown (fat) Black

Insulate
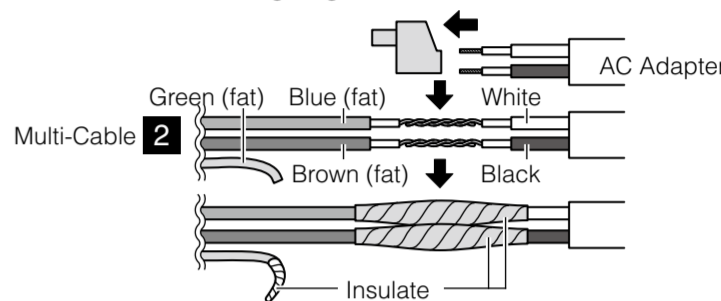
External Device I/O Terminals **3**

External device I/O terminals consist of two input and output systems each. Viewer can be used to check external device input status and control output to an external device (please refer to "Operation Guide").
Use the included multi-cable to connect to external device input/output terminals.

1: BROWN External device input 1 IN1 (+)
2: BLACK External device input 1 IN1 (-)
3: RED External device input 2 IN2 (+)
4: GRAY External device input 2 IN2 (-)
5: ORANGE External device output 1 OUT1
6: YELLOW External device output 1 OUT1
7: GREEN External device output 2 OUT2
8: BLUE External device output 2 OUT2

■ External Device Input Terminals (IN1, IN2)

External device input terminals consist of two sets (IN1, IN2) of two terminals, with the negative terminals connected to the camera interior GND. Connecting cables to the positive and negative terminals and opening or closing the circuit notifies the Viewer.

> **Important**
> • When connecting sensors and switches, connect terminals that are electrically isolated from the respective power and GND.
> • Do not push the external device I/O terminal button with too much force. Doing so may cause the button to remain pushed-in.

### ■ External Device Output Terminals (OUT1, OUT2)

External device output terminals consist of two sets (OUT1, OUT2) of two terminals. The sets have no polarity.
Controls from the Viewer can be used to open and close the circuit between the terminals. Using optical couplers, the output terminals are isolated from the camera's internal circuit.

The load connected to the output terminals should be within the following rating range.
Rating between output terminals:
    Maximum voltage 50 V DC
    Continuous load current at or below 100 mA
    On resistance: Max. 30 Ω
Cable strip should be approx. 11 mm (0.43 in.).

Internal Connection Diagram
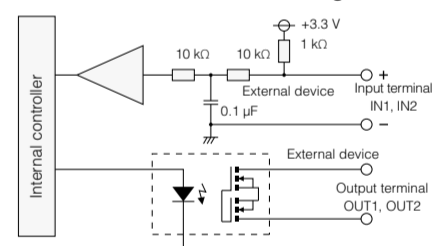
Audio Input/Output Terminals **4**

Each audio input/output terminal has one input system and one output system.
Connecting the camera to an audio input/output device such as a microphone or a speaker with an amplifier allows you to send/receive audio through the Viewer.
Use the included multi-cable to connect audio input/output devices to the camera.
Use the ❸3.5 mm (❸0.14 in.) monaural mini-jack connector to connect an audio input/output device with the multi-cable.

■ Audio Input Terminal Common LINE IN/MIC IN (monaural input)

Although the camera only has a single audio input system, it supports two types of microphone input: LINE IN and MIC IN. Before using the audio input, please confirm the [Audio Input] on the Setting Page (please refer to "Operation Guide"). LINE IN is selected by default.
Input terminal: ❸3.5 mm (❸0.14 in.) mini jack (monaural)
• Dynamic MIC IN
    Input impedance: 1.5 kΩ ±5%
    Supported microphones: Output impedance: 400 – 600 Ω
• Condenser MIC IN
    Input impedance (microphone bias resistance): 2.2 kΩ ±5%
    Microphone power supply: plug-in power (voltage: 2.3 V)
    Supported microphones: Condenser microphones with plug-in power support
• LINE IN
    Input level: Max. 1 Vp-p
    - Use a microphone with an amplifier.

■ Audio Output Terminal LINE OUT (monaural output)

Connect the camera to a speaker with an amplifier. Audio can be sent to the speaker from Viewer.
Output terminal: ❸3.5 mm (❸0.14 in.) mini jack (monaural)
Output level: Max. 1 Vp-p
- Use a speaker with an amplifier.