BIE-7175-000

Canon

Network Camera

VB-H651VE 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, Screws (M4) x 4
Setup CD-ROM
Safety Wire, Screws (M4) x 2
LAN Cable Cap
Zip Tie
Waterproofing Tape
Template
Warranty Card
Ceiling Plate
Packing Attachment
GND Screw (M3) x 1
Waterproofing explanation sheet
Installation Guide (This document)
Dedicated wrench
RJ45 Coupler
Waterproof Packing
Multi-Cable

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 DU640-S-VB

Smoked dome cover.

Sunshade Cover SC640-VB

Dedicated accessory to protect the camera body from direct sunlight.

Heater Unit HU641-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

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 power supply).
- Do not pull, forcibly bend, scratch, or modify the power cable (or the LAN cable for a 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.

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

- Do not move the lens unit by hand.
- 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.

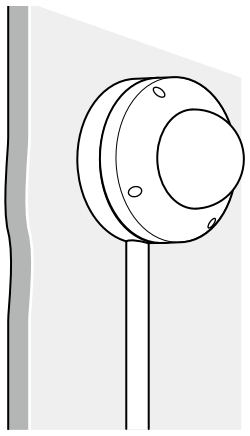
- Take care not to damage wiring or piping.

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.

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 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: 65.8° (W) – 28.2° (T) For 4:3 aspect ratios Horizontal: 89.2° (W) – 37.6° (T) Vertical: 65.8° (W) – 28.2° (T)
Pan Angle Range	350° (±175°)
Tilt Angle Range	150° (±75°)
Rotation Angle Range	350° (±175°)
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)	ϕ3.5 mm (ϕ0.14 in.) mini-jack connector (monaural)
Audio Output Terminal (LINE OUT)	ϕ3.5 mm (ϕ0.14 in.) mini-jack connector (monaural)
External Device I/O Terminal	Input x 2, Output x 2
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: -40°C – +55°C (-40°F – +131°F) Start-up Temperature Range: AC: -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: -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 compliant) AC Adapter: PA-V18 (100 – 240 V AC) (sold separately) External power source: 24 V AC/12 V DC
Power Consumption	PoE: Max. approx. 8.9 W*1 AC Adapter PA-V18: Max. approx. 10.2 W (100 V AC) Max. approx. 10.4 W (240 V AC) DC: Max. approx. 9.3 W AC: Max. approx. 8.7 W Max. approx. 21.7 W*2

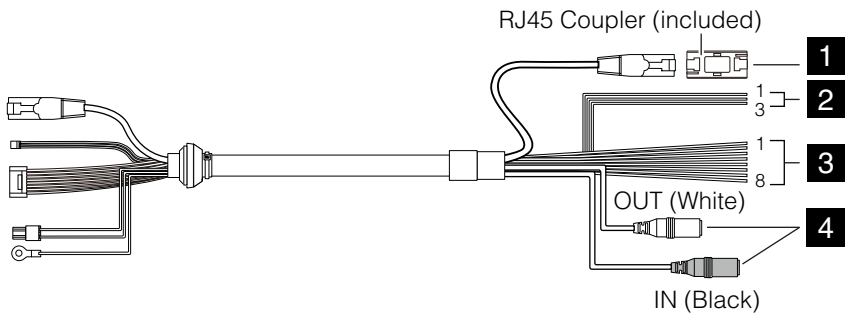
*1 Class 0 power sourcing equipment (requests 15.4 W)
*2 When the heater unit (sold separately) is installed

Weight	Approx. 1710 g (3.77 lb.)
Impact Resistance	IK10 (20J)
Dust-resistant/ Waterproof Specification	IP66

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.



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 as a power source when using the Heater Unit HU641-VB (sold separately). PoE, 12 V DC and AC Adapters cannot be used.

■ PoE (Power over Ethernet)

The camera supports PoE functions. Power can be supplied to the camera by using a LAN cable connected to a PoE HUB that conforms to the IEEE802.3at Type1 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 HUB and Midspan technology. Midspan (a LAN cable power supply device) is a device that, like a PoE HUB, supplies power to the camera via a LAN cable.
- Some PoE HUBs allow the limitation of power for each port, but applying limits may interfere with performance. If using this type of PoE HUB, do not limit the operating power.
- Some 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 HUB.
- When the camera is connected to both a PoE HUB and an external power supply (12 V DC or 24 V AC), power from the power supply first connected is given priority. But when both power supplies are connected, according to the combination, problems such as failure of the network connection may occur. 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 1.0 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.

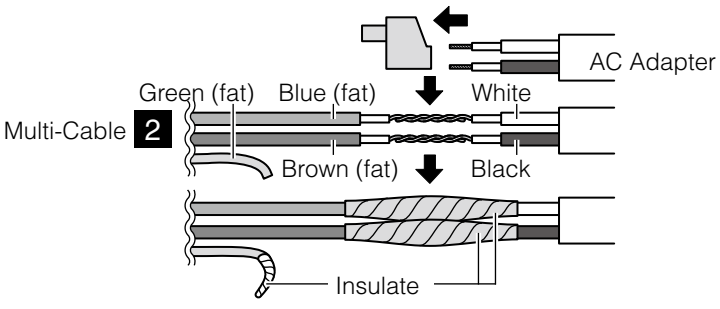
Recommended Power Cables [Reference]

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



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

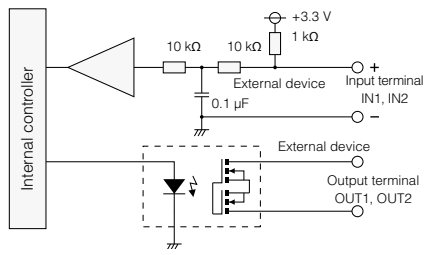
When connecting sensors and switches, connect terminals that are electrically isolated from the respective power and GND.

■ 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

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 ϕ3.5 mm (ϕ0.14 in.) monaural mini-jack connector to connect an audio 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] in the Setting Page (please refer to "Operation Guide"). LINE IN is selected by default.
Input terminal: ϕ3.5 mm (ϕ0.14 in.) mini jack (monaural)

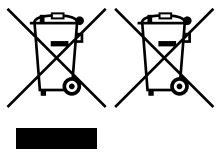
- Dynamic MIC IN
  Input impedance: 1.5 kΩ ±5%
  Supported microphones: Output impedance: 400 – 600 Ω
- Condenser MIC IN
  Input impedance (microphone bias resistance): 2.2 kΩ ±5%
  Microphone power supply: plug-in power (voltage: 2.3 V)
  Supported microphones: Condenser microphones with plug-in power 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: ϕ3.5 mm (ϕ0.14 in.) mini jack (monaural)
Output level: Max. 1 Vp-p
– Use a speaker with an amplifier.

Only for European Union and EEA (Norway, Iceland and Liechtenstein)

These symbols indicate that this product is not to be disposed of with your household waste, according to the WEEE Directive (2012/19/EU), the Battery Directive (2006/66/EC) and/or national legislation implementing those Directives.



If a chemical symbol is printed beneath the symbol shown above, in accordance with the Battery Directive, this indicates that a heavy metal (Hg = Mercury, Cd = Cadmium, Pb = Lead) is present in this battery or accumulator at a concentration above an applicable threshold specified in the Battery Directive.
This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling waste electrical and electronic equipment (EEE) and batteries and accumulators. Improper handling of this type of waste could have a possible impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. Your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources.
For more information about the recycling of this product, please contact your local city office, waste authority, approved scheme or your household waste disposal service or visit www.canon-europe.com/weee, or www.canon-europe.com/battery.

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