



ENGLISH

Printed in Taiwan

# Canon Network Camera

# VB-H610VE/VB-H610D/VB-M600VE/VB-M600D

# Installation Guide

#### Thank you for purchasing Canon Network Camera VB-H610VE/VB-H610D/VB-M600VE/VB-M600D (hereafter referred to as the camera)

VB-H610D/VB-M600D is designed for indoor use only. It is also possible to install the VB-H610VE/ VB-M600VE outdoors, such as underneath eaves.

Be sure to read "Installation Guide" (this document) and "Operation Guide" (included in the Setup CD-ROM) before use.

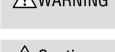
This "Installation Guide" explains the installation method for installing the camera on a ceiling or wall and the installation method using the separately sold junction box mounting kit PS600-VB. Be sure to read the "Safety Precautions" section for correct use. After reading this Installation Guide, keep it in a readily accessible location for future reference.

For the installation of this camera recessed into a ceiling or wall using the recessed mounting kit (sold separately), please read the "Recessed Mounting Kit SR600-VB Installation Guide" included with the recessed mounting kit

When using the heater unit (sold separately), please read the "Heater Unit HU600-VB User Manual" included with the heater unit.

The detailed procedures for using this camera are explained in the "Operation Guide". Read these guides carefully before using the camera to ensure correct use.

\* For the latest information (firmware and included software, user manuals, operating environment, etc.), please refer to the Canon Web Site.



WARNING [H610D] To reduce a risk of fire or electric shock, do not expose this M600D product to rain or moisture.

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

Write the serial number and MAC address of the camera (printed on the seal at the bottom of the camera) in the field below before storing this Installation Guide in a safe location. Serial number

MAC Address

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# Check Included Items

This product comes with the following items. If any item is missing, contact the dealer where you purchased the product. Camera 2. Power connector

4. Audio interface cable

6. Dome case lock screw wrench

(VB-H610VE/VB-M600VE only)

8. Installation Guide (This document)

- (VB-H610VE/VB-H610D/ VB-M600VE/VB-M600D)
- 3. Safety wire

5. Template

for VB-H610D/ for VB-H610VE/ VB-M600V /B-M600D

- 7. Setup CD-ROM
- Warranty card

10. Notice

# 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-forone 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. <u>com/weee</u>, or <u>www.canon-europe.com/battery</u>.

# otes on Privacy and Publicity Rights Regarding the Use of Video/Audi

When using the camera (for video or audio recording), it is the full responsibility of the user to protect privacy and avoid any violation of publicity rights. For example, obtain consent to install the camera in advance if specific buildings or rooms are to be monitored. Canon shall have no liability whatsoever in this regard.

## Legal Notice

In some cases, camera monitoring may be prohibited by law or regulation, the details of which differ by country or region. Before using the camera, check the laws or regulations of the country or region where the camera is used.

# ser Manuals

- Installation Guide (This document)
- This guide provides notes on camera installation and explains the procedures to install the camera onto a ceiling or wall.
- Operation Guide (Included in the Setup CD-ROM) This document explains the initial camera settings, Admin Tools settings, viewer operations and troubleshooting, etc.

### Symbols Indicating Camera Model

Camera specific functions will be listed using the icons below. H610VE : VB-H610VE H610D : VB-H610D M600VE : VB-M600VE M600D : VB-M600D

# Accessories

Accessories can be purchased separately as necessary.

#### Recessed Mounting Kit SR600-VB

This dedicated accessory is used to install the camera recessed into a wall or ceiling.

### Junction Box Mounting Kit PS600-VB

This dedicated accessory is used to mount the camera to a junction box.

### Heater unit HU600-VB

This dedicated accessory is attached to the interior of VB-H610VE/VB-M600VE to maintain operation temperature within the dome and achieve stable operation even in extremely cold environments.

### Canon AC Adapter PA-V17/PA-V18

A dedicated AC adapter for this camera.

# nbols Indicating Safety Precautions

This Installation Guide uses the following marks to indicate important information the user should know in order to use the product safely. Be sure to observe these items.

🕂 Warning	Inappropriate handling against the instruction accompanied by this sign may result in death or serious injury. Be sure to observe these warnings to ensure safety.
▲ Caution	Inappropriate handling against the instruction accompanied by this sign may result in injury. Be sure to observe these precautions to ensure safety.
Caution	Inappropriate handling against the instruction accompanied by this sign may result in property damage. Be sure to observe these precautions.
Important	This symbol indicates important or restricted items. Be sure to read this section.
P Note	Contains reference information for operation or additional explanations.

# Safety Precautions

This section explains precautions that must be observed when using the camera. If they are not observed, injury, death and/or property damage may occur. Read the following information carefully and be sure to observe the precautions.

# Installation Precautions

\land Warning

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

# the product.

• Take care not to damage wiring or pipes in the room. Damage to peripheral items may result.

- direct sunlight.
- rainfall.

- the camera.

# ▲ Caution

For installation or inspection of this camera, consult the dealer where you purchased

• This installation should be made by a qualified service person and should conform to all local codes.

• When installing on a ceiling, make sure the surface is capable of withstanding the total weight of the camera and ceiling plates and is sufficiently reinforced if necessary. • Periodically check the parts and screws for rust and to see if they have loosened, 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.

• 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 edge of metal parts with bare hands.

• Be careful not to trap your fingers during installation of the camera. Injury may result.

# Caution

Do not install the camera on an unstable surface.

• To maximize shock resistant specifications, do not install on insufficiently strong surfaces or surfaces subject to significant vibration (VB-H610VE/VB-M600VE). • Take measures to remove static electricity before performing any procedures. Malfunction may result.

### Precautions for Installing the Camera Outdoors (VB-H610VE/VB-M600VE)

When installing the VB-H610VE/VB-M600VE outdoors, observe the following precautions to retain waterproof/dustproof capabilities.

• Be sure to install the camera under eaves or other places out of

• Install the camera in a place unexposed to long periods of direct

• When mounting the camera onto a wall or other upright surface, position the wiring hole straight 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.

• If wiring with a composite pipe (NPT 3/4 inch threaded hole) attached to the wiring hole, wrap teflon tape around the tip of the pipe, clear any debris from the wiring hole and firmly tighten the

pipe. Apply silicone sealant after attaching the pipe.

• 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

# \Lambda Warning

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

Do not disassemble or modify the camera.

• Do not damage the connecting cable.

• Do not spill water or other liquid inside the camera, spray the camera with water, or otherwise make it wet.

Do not insert foreign objects into the camera.

• Do not use flammable sprays near the camera.

• Do not leave LAN cables, external power supplies or AC adapter (sold separately) power

connectors 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

Fire or electric shock may result.

## Notes on Power Supply

# **Warning**

 Only use the dedicated AC Adapter PA-V17/PA-V18 (sold separately) for AC power. • Do not set any heavy objects on the power cable.

• Do not pull, forcibly bend, scratch, or modify the power cable.

• Do not cover or wrap the AC adapter (sold separately) with cloth or blankets.

Fire or electric shock may result.

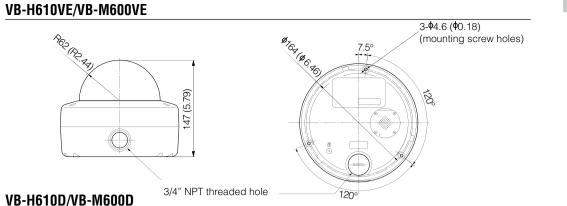
Be sure to read the user manual for the PA-V17/PA-V18 (sold separately) before use.

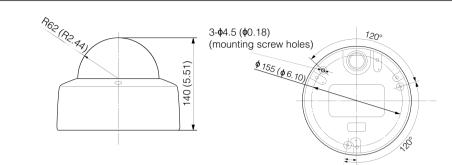
## Caution

• After turning off the power, wait for at least five seconds before turning the power on again. If the power is turned on again too quickly, the camera may operate poorly.

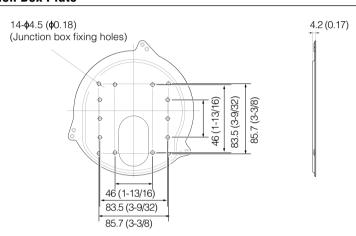
# External Dimensions

#### VB-H610VE/VB-M600VE









Focus Shooting Distance (from front of lens) Shutter Speed Exposure

> White Balance Metering Mode

Exposure Compensatio Smart Shade Control AGC Limit Pan Angle Range Tilt Angle Range

Rotation Angle Range

Moving Speed

Server Video Compression Method Video Size

Video Quality Frame Rate\*

Max. Frame Rate

I-Frame Interval Simultaneous Client Acces

Camera Control

Access Control Encrypted Communications Protocol

Audio Compression Method Audio Communication Method

Audio File Plavback\*3

Intelligent Function

Privacy Mask

Event Trigger Type Image Upload

**Event Notification** Image Cropping Function

On-Screen Display Daylight Saving Time Language "ONVIF" is a trademark of ONVIF Inc.

Unit: mm (in.)

# lain Specifications Camera

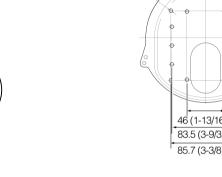
Image Sensor Number of Effective Pixels

Scanning Method Lens

Focal Length\*1 F-number Viewing Angle

Day/Night Switch Min. Subject Illumination Day Mode (color)

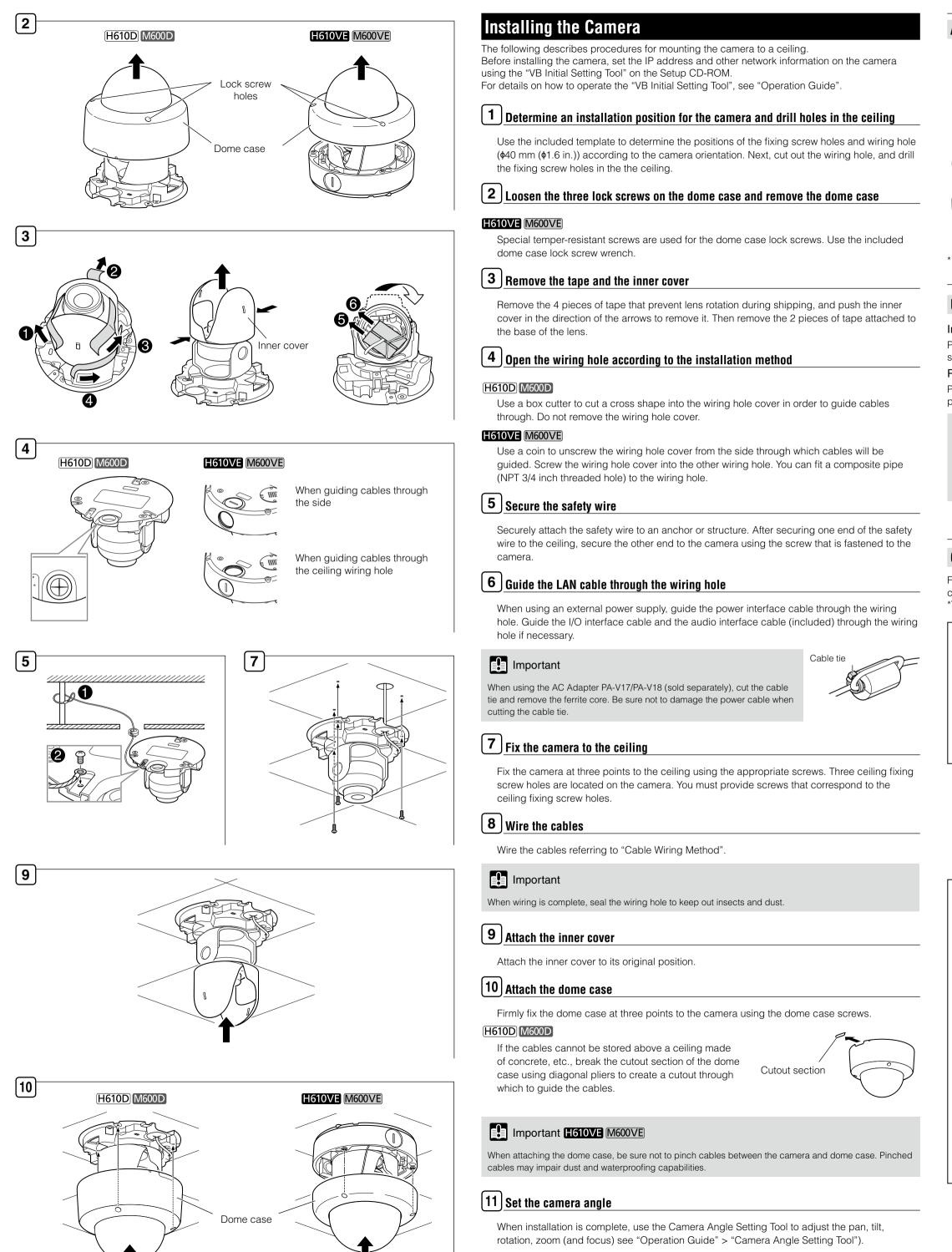
Night Mode (monochrome)



viring hole

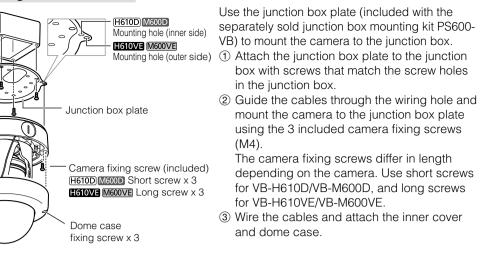
straight down

1/3 type CMOS (primary color filter) HG10VE (HG10D) Approx. 2.1 million pixels MG00VE (MG00D) Approx. 1.3 million pixels Progressive HG10VE (HG10D) 3x optical (4x digital) zoom lens (electric drive) (MG00VE (MG00D) 3x optical zoom lens (electric drive) 2.8 (W) – 8.4 mm (T) F1.2 (W) – F2.0 (T) HG10VE (HG10D) Horizontal: 111.0° (W) – 36.5° (T) Vertical: 60.1° (W) – 20.5° (T) (MG00VE (MG00D) Horizontal: 101.2° (W) – 33.7° (T) Vertical: 74.7° (W) – 25.3° (T) Auto/Manual	Interface Network Terminal <sup>*5</sup> Audio Input Terminal (common for LINE IN & MIC IN) Audio Output Terminal (LINE OUT) External Device I/O Terminal Memory Card	LAN x 1 (RJ45, 100Base-TX (auto/full-duplex/half-duplex)) \$\$\\$43.5 mm (\$\$\\$0.14 in.) mini-jack connector (monaural) Connect via an audio interface cable (included) Switch LINE IN/MIC IN in the setting page. LINE IN x 1 (connect to an amplifier microphone) or MIC IN x 1 (connect to a microphone w/o amplifier) \$\$3.5 mm (\$\$\\$0.14 in.) mini-jack connector (monaural) Connect via an audio interface cable (included) LINE OUT x 1 (connect to an amplifier speaker) Input x 2, Output x 2 SD Memory Card, SDHC Memory Card, SDXC Memory Card*4 Compatible. Capacity: M6007E M6007 Max. approx. 32 GB Frame Rate: Max. 1 fps
HG10VE(H610D) 0.3 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE) 0.02 lux (F1.2, shutter speed 1/2 sec., when smart shade control is off, 50IRE) 0.008 lux (F1.2, shutter speed 1/2 sec., when smart shade control is on, 50IRE)	Others Operating Environment	Temperature: -10°C – +50°C (+14°F – +122°F), Humidity: 5% – 85% (without condensation) FIGIOVE M600VE Temperature: -30°C – +50°C (-22°F – +122°F), Humidity: 5% – 85% (without condensation)*
M600VE M600D 0.25 lux (F1.2, Shutter Speed 1/30 sec., when Smart Shade Control is off) 0.07 lux (F1.2, Shutter Speed 1/8 sec., when Smart Shade Control is off)	Power Supply	*Equipped with separately sold Heater Unit HU600-VB PoE: PoE power supply via LAN connector (IEEE802.3af compliant) AC Adapter: PA-V17/PA-V18 (100 – 240 V AC) (sold separately) External power source: 24 V AC/12 V DC
<ul> <li>0.018 lux (F1.2, Shutter Speed 1/8 sec., when Smart Shade Control is on)</li> <li>(H610V3 (H610D) 0.015 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE)</li> <li>0.001 lux (F1.2, shutter speed 1/2 sec., when smart shade control is off, 50IRE)</li> <li>0.0005 lux (F1.2, shutter speed 1/2 sec., when smart shade control is on, 50IRE)</li> </ul>	Power Consumption	Image: Instruct With the second se
<ul> <li>M600VE M600D 0.008 lux (F1.2, Shutter Speed 1/30 sec., when Smart Shade Control is off)</li> <li>0.002 lux (F1.2, Shutter Speed 1/8 sec., when Smart Shade Control is off)</li> <li>0.001 lux (F1.2, Shutter Speed 1/8 sec., when Smart Shade Control is on)</li> <li>One-shot AF/Manual/Fixed at infinity</li> <li>Day Mode: 0.3 m (12 in.) – infinity</li> <li>Night Made: 10 m (22 in.) – infinity</li> </ul>		Max. approx. 10.8 W (240 V AC) When using AC Adapter PA-V18: [F6T0VE Max. approx. 9.9 W (100 V AC) Max. approx. 10.3 W (240 V AC) [H610D] Max. approx. 9.4 W (100 V AC) Max. approx. 9.2 W (240 V AC) [M600VE Max. approx. 9.6 W (100 V AC) Max. approx. 10.4 W (240 V AC) [M600D] Max. approx. 9.1 W (100 V AC) Max. approx. 9.3 W (240 V AC)
Night Mode: 1.0 m (3.3 ft.) – infinity 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/10000*4, 1/16000*4 sec. Auto/Auto (Flickerless)/Auto (Shutter-priority AE)/Manual (Shutter Speed, Aperture, Gain) Auto/Light Source (Doublet Elucroscont (Misite Elucroscont) (Marm Elucroscont)		When using DC:       HG10VE Max. approx. 9.0 W       HG10D Max. approx. 8.3 W         M600VE       M600VE M600D Max. approx. 9.0 W         When using AC:       HG10VE Max. approx. 8.1 W       HG10D Max. approx. 7.5 W         M600VE       M600VE M600D Max. approx. 8.3 W         HG10VE Max. approx. 18.7 W*       M600VE Max. approx. 18.9 W*
Auto/Light Source (Daylight Fluorescent/White Fluorescent/Warm Fluorescent/ Mercury Lamp/Sodium Lamp/Halogen Lamp)/Lock (One-shot WB)/Manual Center-Weighted/Average/Spot H610V9 H610D 9 levels (M600VE M600D 7 levels 7 levels (increases the brightness of shaded subjects in a video) H610V9 H610D 5 levels 350° (±175°)	Dimensions Weight	<ul> <li>*when separately sold Heater Unit HU600-VB installed</li> <li>(HG10VE) (Φ × H) Φ180 × 147 mm (Φ7.09 × 5.79 in.)</li> <li>(HG10D) (MG00D) (Φ × H) Φ186 × 140 mm (Φ7.32 × 5.51 in.)</li> <li>(HG10VE) Approx. 1920 g (4.24 lb.) (camera only) Approx. 162 g (5.8 oz.) (Junction Box Mounting Kit)</li> <li>(MG00VE) Approx. 1910 g (4.22 lb.) (camera only) Approx. 162 g (5.8 oz.) (Junction Box Mounting Kit)</li> </ul>
150° (±75°) 350° (±175°) Pan: 19.2°/sec., Tilt: 14.2°/sec., Rotation: 43.7 °/sec. When the Camera Angle Setting Tool is used	Impact Resistance	<ul> <li>(H610D) Approx. 1200 g (2.65 lb.) (camera only) Approx. 159 g (5.7 oz.) (Junction Box Mounting Kit)</li> <li>(M600D) Approx. 1200 g (2.65 lb.) (camera only) Approx. 159 g (5.7 oz.) (Junction Box Mounting Kit)</li> <li>(H610VE) M600VE External materials: aluminum alloy, Dome: polycarbonate plastics With lens shock absorbing mechanism</li> </ul>
JPEG, H.264 H610VE(H610D) JPEG: 1920 × 1080, 960 × 540, 480 × 270, 320 × 240 H.264: 1920 × 1080, 960 × 540, 480 × 270 M600VE(M600D) JPEG: 1280 × 960, 640 × 480, 320 × 240, 160 × 120	Dust-resistant/ Waterproof Specification	Estimated shock resistant: 50J (based on Canon's test method) H610VE M600VE IP66-rated (IEC60529) Only applies if properly installed and adequately waterproofed
H.264: 1280 x 960, 640 x 480, 320 x 240 JPEG, H.264: 5 levels JPEG: 0.1 – 30 fps <b>IGIOVE</b> (IGOD) H.264: 1/2/3/5/6/10/15/30 fps <b>IGIOVE</b> (IGOD) H.264: 10/15/30 fps <b>IGIOVE</b> (IGOD) 1.260 x 960 (when streaming): 30 fps <b>IGIOVE</b> (IGOD) 1.260 x 960 (when streaming): 30 fps <b>IGIOVE</b> (IGOD) 0.5/1/1.5/2/3/4/5 sec. Max. 30 Clients + 1 Admin Client H.264: Max. 10 Clients Administrator, Authorized user, Guest user (level of control varies depending on user) Max. 50 user names and passwords registered for authorized users. User authority (user name and password), Host Access Restrictions (IPv4, IPv6) SSL/TLS, IPsec (Auto Key Exchange/Manual) IPv4: TCP/IP, UDP, HTTP, FTP, SNMP (MIB2), SMTP (Client), DHCP (Client), DNS (Client), ARP, ICMP, POP3, NTP, SMTP authentication, RTSP, WV-HTTP (Canon proprietary), ONVIF IPv6: TCP/IP, UDP, HTTP, FTP, SMTP (Client), DHCPv6 (Client)*4, DNS (Client), ICMPv6, POP3, NTP, SMTP authentication, RTSP, WV-HTTP (Canon proprietary), ONVIF <b>IEGOVE</b> (IGOD) Available G.711 µ-law (64 kbps) <b>F</b> full-duplex (two-way) Echo cancellation function compliant Sound Transfer Protocol by Canon Available (audio files can be played back when an event is triggered by the intelligent function or external device input.) Number of registration: Max. 8 places, Number of mask colors: 1 (select from 9 colors) <b>IEGOVE</b> (IfoID) Max. 20 positions (Preset Tour capable) <video> Detection Types: moving object detection, abandoned object detection, removed object detection, camera tampering detection, and passing detection*4 Detection Settings: Max. 15 <volume></volume></video>	network loads, image qual *3 A third-party amplifier spe *4 VB-H610VE/VB-H610D sp	uced due to Viewer PC's specs, the number of clients accessing at the same time, ity setting, type or movement of the subject or other reasons. aker is necessary.
Volume Detection External Device Input, Intelligent Function (Video), Intelligent Function (Volume), Timer FTP/HTTP/SMTP (e-mail) Temporary storage memory in camera : [LG10VE [H610D] Max. approx. 5 MB [M600VE] [M600D] Max. approx. 4 MB		
(MB0000) Max. approx. 4 MB     Frame Rate: Max. 10 fps     HTTP/SMTP (e-mail)     (H61000) Digital PTZ Cropping sizes : 640 x 360/512 x 288/     384 x 216/256 x 144/128 x 72		
Available H610VB(H610D) Available English/German/French/Italian/Spanish/Japanese	Tr	e contents of this guide are subject to change without any prior notice.



\* Illustrations without icons are examples of VB-H610D/VB-M600D.

# Attaching a Junction Box



\* Diagram of VB-H610VE.

# Using an SD Memory Card

#### Inserting the card

Push the SD memory card as far as possible into the SD card slot with the label facing outward.

Removing the card

Push the SD memory card in all the way until the card slightly pops out. Pinch the card and remove.

# Important

IN1 -

• Insert the SD memory card before attaching the dome case.

• Make sure the SD memory card is not write-protected.

• When using an SD memory card with the camera for the first time, it is recommended to format the card after inserting it into the camera (see "Operation Guide" > "Setting Page" > "Memory Card").

box with screws that match the screw holes

mount the camera to the junction box plate

using the 3 included camera fixing screws

The camera fixing screws differ in length

depending on the camera. Use short screws

D card slot

for VB-H610D/VB-M600D, and long screws

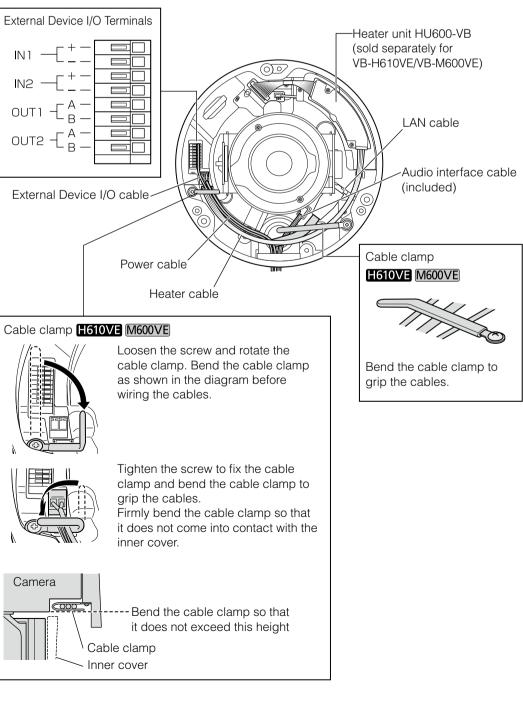
for VB-H610VE/VB-M600VE.

in the junction box.

and dome case.

# **Cable Wiring Method**

For VB-H610VE/VB-M600VE, secure the various cables with the cable clamps fastened to the camera to prevent damage to cables or connectors due to vibration, etc. \*The diagram is a wiring example for VB-H610VE/VB-M600VE.



# Part Names

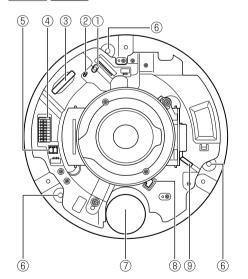
Dome Case/Inner Cover/Camera H610D M600D

# H610VE M600VE Dome case Dome case Lock screw Inner cover Lens (Electric Drive) -Wiring hole Bottom H610D M600D H610VE M600VE Wiring hole Safety wire attachment Attaches the included safety wire. Serial number he camera's serial number. Write the number

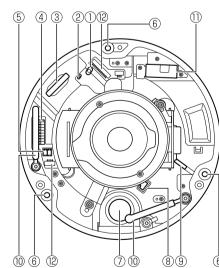
on the front of this Installation Guide before installing the camera. – MAC address – The camera's unique address. Write the address

on the front of this Installation Guide before installing the camera.

#### Top view of the camera interior H610D M600D







—Wiring hole

Reset switch

Turn on the power while pushing this switch using a sharp object. Continue to push the switch for 5 seconds or more to restore all factory settings except for the date and time.

- 2 LED
- The blue LED light comes on.
- On: When powered on, during reboot
- Off: During normal use
- ③ SD card slot
- ④ External device I/O terminals (5) Power connection terminal
- 6 Installation screw holes

Used when securing the camera to the installation surface, the junction box mounting kit (sold separately), or the recessed mounting kit (sold separately).

- ⑦ Wiring hole
- ⑧ Audio I/O terminal Connect the included audio interface cable here to connect audio input and output devices to the camera.
- (9) 100BT LAN connector
- 10 Cable clamps H610VE M600VE
- 1) Fan **H610VE** M600VE
- 12 Heater connection terminal H610VE M600VE

# onnecting the Camera

#### **Power Connection**

# PoE (Power over Ethernet)

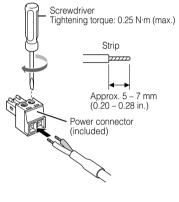
# Important

- camera via a LAN cable.

- connection when the camera is operating.

# External Power Supply

12 V DC or 24 V AC input can be used. Connect the included power connector as shown below.



Cable (AWG)		24	22	20	18	16
Conductor diameter	mm	<b>φ</b> 0.52	<b>ф</b> 0.65	<b>ф</b> 0.82	<b>φ</b> 1.03	<b>φ</b> 1.30
	(in.)	( <b>φ</b> 0.020)	( <b>ф</b> 0.026)	( <b>ф</b> 0.032)	( <b>φ</b> 0.041)	( <b>φ</b> 0.051)
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)

# AC Adapter

# 🗩 Note

## External Device I/O Terminals

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 (see "Operation Guide" > "Selecting the External Device Output" and "Displaying Event Status").

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

- respective power and GND.
- to remain pushed-in.

Power can be supplied to the camera in the three ways described below.

The camera supports PoE functions. Power can be supplied to the camera by using a LAN cable to connect it to a PoE HUB that conforms to the IEEE 802.3af standard.

• 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

• Some PoE HUBs allow current limits for each port, but applying limits may interfere with performance. If using this type of PoE HUB, do not limit the operating current.

• Some PoE HUBs have total consumption current limits for 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 a switching HUB, changing the connection while the camera is operating may cause the HUB learning function to interfere with communication. Do not change the

• The camera can also be connected to an AC adapter (sold separately) while receiving power from a PoE HUB. In such cases, the PoE power supply is given priority, and the camera does not use the power supply from the AC adapter (sold separately). When the PoE power supply is disconnected, power is supplied automatically from the AC adapter (sold separately).

> For 12 V DC and 24 V AC input, use a power supply insulated from 100 V AC

12 V DC can be connected in a non-polar configuration.

#### 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
- $60 \text{ Hz} \pm 0.5 \text{ Hz} \text{ or less}$ 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  $0.5 1.0 \Omega/20$  W in series to the power line.
- For an external power supply, use a double-insulated device.

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

#### Use the dedicated AC Adapter PA-V17/PA-V18 (sold separately).

• The camera does not have a power switch. Connecting and disconnecting the LAN cable (PoE power supply), AC adapter, or external power supply plug turns the power ON and OFF, respectively. • When the camera needs to be rebooted, perform the reboot operation from the camera setting page

(see "Operation Guide" > "Setting Page" > "Maintenance"). • When using the heater unit HU600-VB (sold separately), use 24 V AC for the VB-H610VE/VB-M600VE

power supply. PoE, 12 V DC and the AC adapter cannot be used.

• When connecting sensors and switches, connect terminals that are electrically isolated from the

• Do not push the external device I/O terminal button with too much force. Doing so may cause the button

#### 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

On resistance: Max. 30Ω

Internal Connection Diagram

Continuous load current at or below 100 mA



Adaptive wiring for external device cables

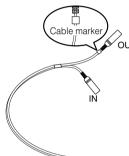
Solid conductor AWG: No. 28 – 22 Conductor size:  $\phi$ 0.32 –  $\phi$ 0.65 mm ( $\phi$ 0.013 –  $\phi$ 0.026 in.)

Cable strip should be approx. 8 – 9 mm (0.31 – 0.35 in.).

## Audio Input/Output Terminals

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 audio interface cable to connect audio input/output devices to the camera. Use the \$43.5 mm (\$0.14 in.) monaural mini-jack connector to connect an audio output device with the audio interface cable.



The long end (has cable marker) from the bifurcation point in the cable corresponds to the audio output terminal. The short end (does not have cable marker) from the bifurcation point in the cable corresponds to the audio input terminal.

#### Audio Input Dual LINE IN/MIC IN (monaural input)

Although the camera has a single audio input system, it supports two types of microphone input: LINE IN and MIC IN. Before using the audio input, change the [Audio Input] on the Setting Page (see "Operation Guide" > "Audio Input"). LINE IN is selected by default. Input terminal: \$43.5 mm (\$0.14 in.) mini-jack (monaural)

- Dynamic MIC IN
- Input impedance:  $1.75 \text{ k}\Omega \pm 20\%$
- \* Supported microphones: Output impedance:  $400\Omega 600\Omega$
- Condenser MIC IN
- Input impedance (microphone bias resistance): 2.2 k $\Omega$  ± 20% Microphone power supply: plug-in power (voltage: 1.8 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: \$43.5 mm (\$0.14 in.) mini-jack (monaural)

Output level: Max. 1 Vp-p

\* Use a speaker with an amplifier.

## Important

- Using the wrong settings in [Audio Input] may damage the camera and/or microphone. Be sure to configure settings correctly.
- Microphone characteristics may affect volume and sound quality.
- Images and audio do not always synchronize properly.
- Audio may be interrupted depending on PC characteristics and network environment.
- Video and audio can be streamed to up to 30 clients. However, audio may be interrupted when streaming to many clients or using SSL
- Audio may be interrupted when using antivirus software.
- Connecting and disconnecting the LAN cable interrupts the audio. Use the viewer to reconnect.