Canon

Network Camera

VB-M641VE / VB-M640VE 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
Ceiling Plate
Power Interface Cable M641VE
I/O Interface Cable (BK2-0035-000) M641VE

Template
Warranty Card
Safety Wire, Screws (M4) x 1

Installation Guide (This document)
Notice
Dedicated wrench

Symbols Indicating Camera Model

Camera specific functions will be listed using the symbols below.
M641VE : VB-M641VE   M640VE : VB-M640VE

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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 M641VE
Dedicated accessory attached to the interior of VB-M641VE to maintain operation temperature within the dome and achieve stable operation even in extremely cold environments.

Conduit Adapter CA640-VB
Dedicated accessory used to protect the wiring cable to connect the pipe and the body.

Canon AC Adapter PA-V18 M641VE
Dedicated AC adapter for this camera.

Symbols Indicating 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.

⚠ Warning	Failure to follow the instructions accompanied by this symbol may result in death or serious injury.
⚠ Caution	Failure to follow the instructions accompanied by this symbol may result in injury.
Caution	Failure to follow the instructions accompanied by this symbol may result in property damage.
Important	This symbol indicates important or restricted items.
Note	Contains reference information for operation or additional explanations.

Safety Precautions

Installation Precautions

⚠ **Warning**

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.

• M641VE Insulate the ends of cables you are not using.
Failure to insulate will cause fire or electric shock.

Notes on Power Supply
• M641VE 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 supply).
• M641VE 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**

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 that it is sufficiently reinforced.
• 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.
• Take care not to catch your fingers when installing.
Failure to do so may result in injuries.

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

Caution

• 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 as necessary, 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 camea outdoors, observe the following precautions to retain waterproof/dustproof capabilities.
• Use the sunshade cover (sold separately) when installing in a location with direct sunlight.
• Waterproof the cable connections and the ends of cables you are not using, including their connectors.
• When mounting the camera onto a wall or other upright surface, position the cables straight down to prevent rain infiltration.
• If wiring by connecting the camera to the composite pipe (3/4 inch NPSM threaded hole), bridge the gap using the conduit adapter (sold separately). When connecting the conduit adapter and the pipe, wrap Teflon tape around the tip of the pipe to prevent water getting in as necessary, clear any debris, and firmly tighten. If necessary, apply silicon sealant to seal it tightly 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.

Conduit Adapter (sold separately)

Precautions for Use

⚠ **Warning**

• 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.

Camera

Lens	2.4 optical zoom (4x digital zoom) lens (electric drive)
Viewing Angle	For 16:9 aspect ratios
	Horizontal: 111.5° (W) – 46.2° (T)
	Vertical: 60.5° (W) – 25.9° (T)
	For 4:3 aspect ratios
	Horizontal: 111.5° (W) – 46.2° (T)
	Vertical: 81.7° (W) – 34.6° (T)
Min. Subject Illumination	Day Mode (color):
	0.02 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE)
	Night Mode (monochrome):
	0.001 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE)
	When using the Dome Unit (Smoked) (sold separately)
	Day Mode (color):
	0.04 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE)
	Night Mode (monochrome):
	0.002 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE)
Pan Angle Range	350° (±175°)
Tilt Angle Range	150° (±75°)
Rotation Angle Range	350° (±175°)

Interface

Network Terminal	LAN x 1 (RJ45, 100Base-TX (auto/full-duplex/half-duplex))
Audio Input Terminal M641VE	φ3.5 mm (φ0.14 in.) mini-jack connector (monaural)
(Common for LINE IN & MIC IN)	LINE IN (connect to an amplifier microphone) or
	MIC IN (connect to a microphone w/o amplifier)
	Switch LINE IN/MIC IN in the setting page.
Audio Output Terminal M641VE	φ3.5 mm (φ0.14 in.) mini-jack connector (monaural)
(LINE OUT)	LINE OUT (connect to an amplifier speaker)
External Device I/O Terminal M641VE	Input x 2, Output x 2
Memory Card *	microSD Memory Card, microSDHC Memory Card, microSDXC Memory Card Compatible.
	Recorded Content: Log, Video (Event, Manual, ONVIF, Timer, Upload)
	Frame Rate: Max. 1 fps (JPEG)
	Max. 30 fps (H.264)
	* Use Class 10 cards. Cards under Class 10 may not have sufficient performance for tasks such as video recording.

Others

Operating Environment M641VE	Temperature:
	– Sunshade Cover (sold separately) necessary when under direct sun exposure
	When the heater unit (sold separately) is installed
	AC: -40°C – +55°C (-40°F – +131°F)
	DC, PoE: -10°C – +55°C (+14°F – +131°F)
	Start-up Temperature Range (including direct sun exposure) :
	AC: -30°C – +55°C (-22°F – +131°F)
	DC, PoE: -10°C – +55°C (+14°F – +131°F)
	When the heater unit (sold separately) is not installed
	AC, DC, PoE: -10°C – +55°C (+14°F – +131°F)
	Humidity: 5% – 85% (without condensation)
M640VE	Temperature:
	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 M641VE	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
M640VE	PoE: PoE power supply via LAN connector (IEEE802.3at Type1 compliant)
Power Consumption M641VE	PoE: Max. approx. 8.9 W
	AC Adapter PA-V18: Max. approx. 10.5 W (100 V AC)
	Max. approx. 10.6 W (240 V AC)
	DC: Max. approx. 9.5 W
	AC: Max. approx. 9.1 W
	Max. approx. 21.7 W*
	* When the heater unit (sold separately) is installed
M640VE	PoE: Max. approx. 8.9 W
Weight M641VE	Approx. 1620 g (3.58 lb.)
M640VE	Approx. 1590 g (3.51 lb.)

Impact Resistance   IK10 (20J)
Dust-resistant/
Waterproof Specification IP66 rated

Part Names

Serial_____
MAC_____

1. Dome case lock screw / 2. Interface cover / 3. Dome case / 4. LED / 5. Lens unit / 6. Reset switch / 7. Reboot switch / 8. Memory card slot / 9. Power connection terminal M641VE / 10. External device I/O terminals M641VE / 11. Audio input terminal (Black) (common LINE IN and MIC IN) M641VE / 12. Audio output terminal (White) (LINE OUT) M641VE / 13. 100Base-TX LAN connector

External Dimensions

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

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".

Removing the dome case and the lens rotation prevention tape

Remove the dome case, then remove the tape preventing the lens from rotating which was attached for shipping.

Dedicated wrench   Dedicated wrench

Using a Memory Card

Memory card slot

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" > "Setting Page" > "Memory Card").
• Always unmount the memory card before removing it (please refer to "Operation Guide" > "Setting Page" > "Memory Card").

Using the Heater Unit (sold separately) M641VE

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

Smoked dome cover

Dome cover holder

Dedicated wrench

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. The dome case lock screws can be removed by pressing and loosening from the inside of the case.
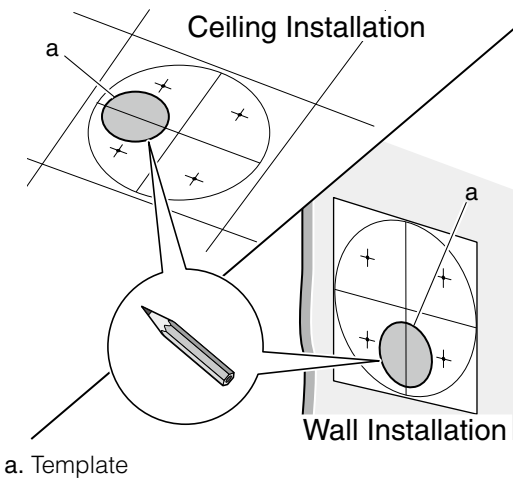

Dedicated wrench

Installing the Camera

1

Directly attached to ceilings/Directly attached to walls

1-1

Ceiling Installation

a

1-2

Wall Installation

a. Template
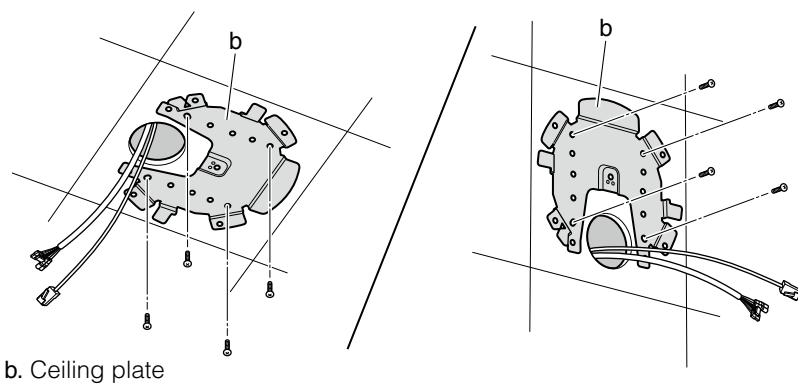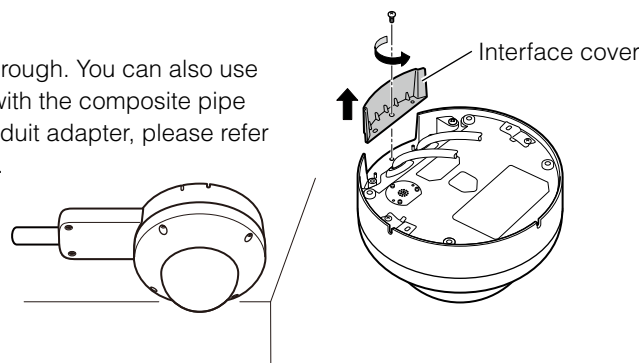
1-3

b

b

b. Ceiling plate
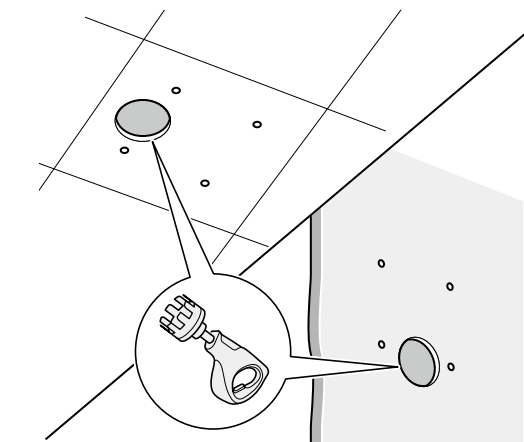
If the cables cannot be stored above a ceiling

Remove the interface cover and pass the cable through. You can also use the conduit adapter (sold separately) to connect with the composite pipe (3/4 inch NPSM threaded hole). If you use the conduit adapter, please refer to the Installation Guide included with the adapter.

Interface cover

Attaching to a junction box

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

Ceiling pendant mounting

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

1-1

> 2.5 cm (1.0 in.)
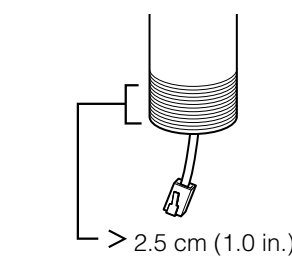
Pass necessary cables for connecting the camera through the pipe.

1-2

②
③
①
M3*
④

M4* × 4
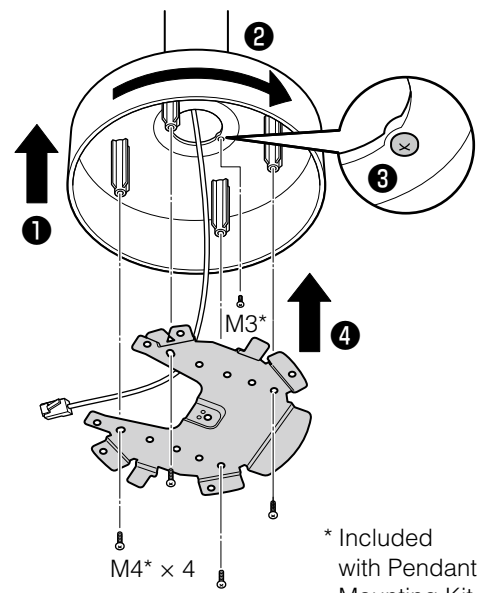
* Included with Pendant Mounting Kit

2

①
M4
Screws (included)

②
c
③

c. Safety wire

3

d
e
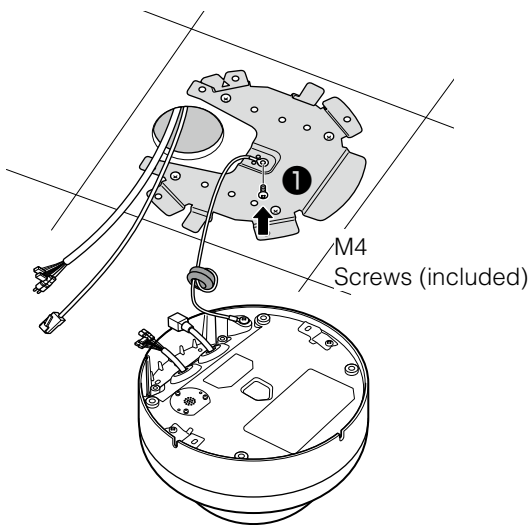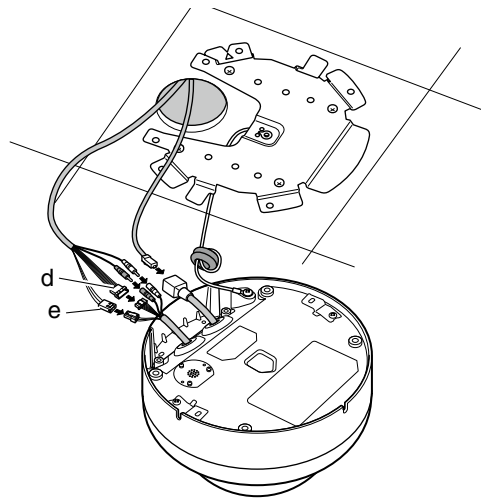
d. I/O interface cable
e. Power interface cable

4

②
①

5

Dedicated wrench

6
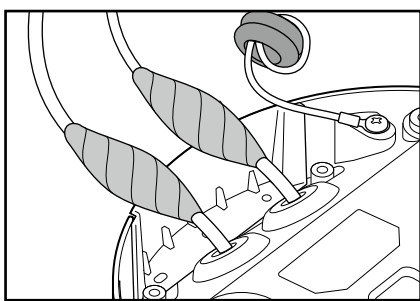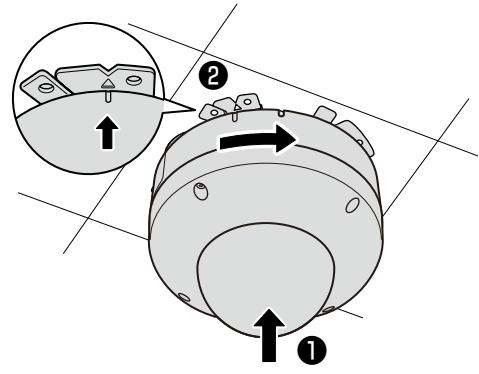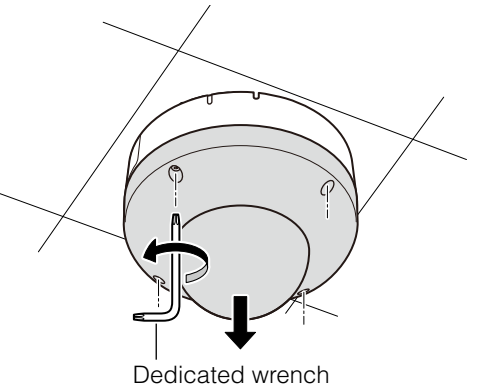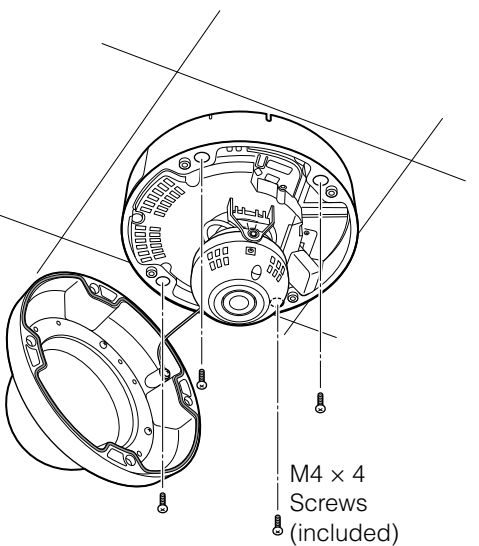
M4 × 4 Screws (included)

7

Dedicated wrench
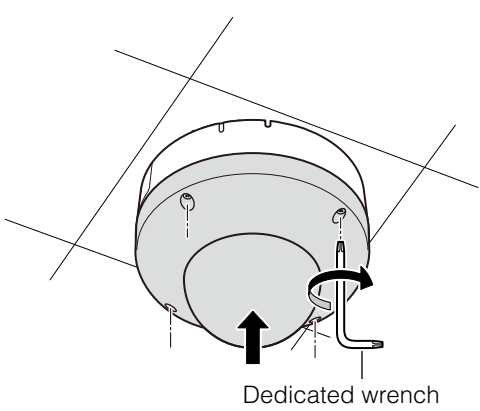
Attaching the sunshade cover (sold separately)

Dedicated wrench
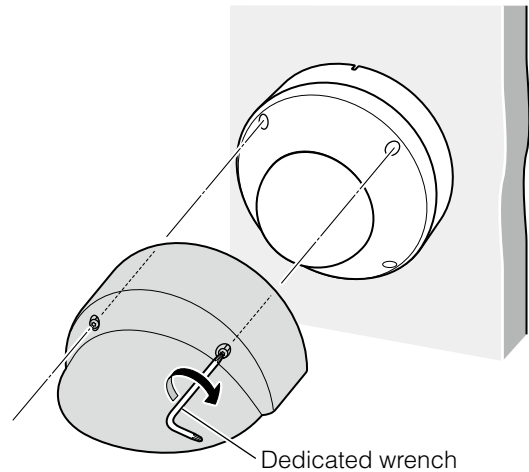
8

When the installation has finished, please adjust the angle using the "Camera Angle Setting Tool", found in the Setup CD-ROM.

Rebooting/resetting the camera

■ Rebooting

To reboot the camera by turning its power off and on, remove the dome case and press the reboot switch.

📋 Note

Rebooting can be done from the camera settings page as well (please refer to "Operation Guide" > "Setting Page" > "Maintenance").

LED
Reboot switch
Reset switch

■ Resetting

To reset the camera to its factory default settings, press the reset switch and reboot switch while checking the LED display in the following order.
1) Hold the reset switch down, and press the reboot switch with a pointed object.
2) After holding down the reset switch for at least three seconds, release the reboot switch.
3) After the LED starts to blink, release the reset switch. When the blinking has stopped, the unit has finished resetting.

Connecting the Camera

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.
- M641VE Please only use 24 V AC as a power source when using the Heater Unit HU641-VB (sold separately) . PoE, 12 V DC and AC Adapters can not 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.

⚠ 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 currents 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 limits for the total current 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.
- M641VE 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. When a problem has occurred, either shut off the PoE HUB power supply setting or use the AC adapter that is sold separately as the external power supply.

■ External Power Supply M641VE

12 V DC or 24 V AC input can be used. Use the included interface cable to connect to the camera power connection terminal.

1: BROWN Power 24 V AC / 12 V DC non-polar
2: BLUE   Power 24 V AC / 12 V DC non-polar
3: GREEN   FG (frame ground)

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 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
Conductor size	mm (in.)	φ0.52 (φ0.020)	φ0.65 (φ0.026)	φ0.82 (φ0.032)	φ1.03 (φ0.041)	φ1.30 (φ0.051)
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 M641VE

Please use the dedicated AC adapter (sold separately).
Remove the power connector with the attached AC adapter, then connect the power interface cable from the power connector included in the package, as shown in the following diagram. Wrap the cable connection with waterproof tape.

AC Adapter
Power Interface Cable
Green Brown Black
Blue White
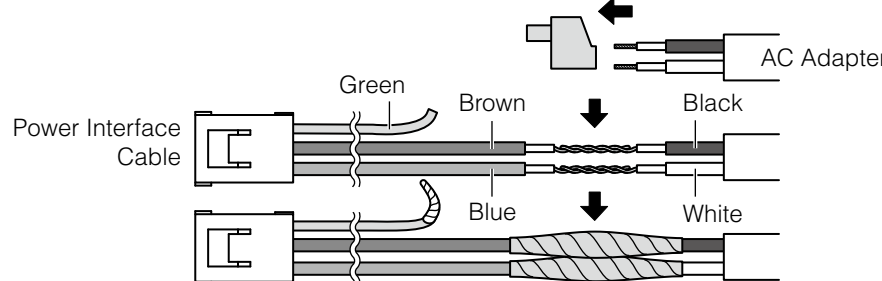
External Device I/O Terminals M641VE

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" > "External device output operation" and "Event display panel."). Use the included I/O interface 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: BLACK   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.

■ 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
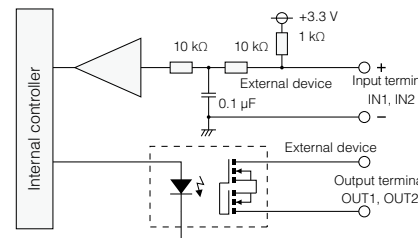
Audio Input/Output Terminals M641VE

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 φ3.5 mm (φ0.14 in.) monaural mini-jack connector to connect an audio input/output device.

■ 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" > "Audio Input"). LINE IN is selected by default.
Input terminal: φ3.5 mm (φ0.14 in.) mini jack (monaural)
• Dynamic MIC IN
　Input impedance: 1.75 kΩ ±20%
　* Supported microphones: Output impedance: 400 – 600 Ω
• Condenser MIC IN
　Input impedance (microphone bias resistance): 2.2 kΩ ±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: φ3.5 mm (φ0.14 in.) mini jack (monaural)
Output level: Max. 1 Vp-p
* Use a speaker with an amplifier.