



Network Camera VB-H730F/VB-M720F Installation Guide

Thank you for purchasing a Canon Network Camera (hereafter referred to as the camera). The camera is for indoor use only. 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 of the camera. 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. 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 check our website.
- * Some cameras are not sold in some countries or regions.

WARNING To reduce a risk of fire or electric shock, do not expose this 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.

Check Included Items

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

- | | |
|-------------------------|---------------------------------------|
| 1. VB-H730F or VB-M720F | 4. Installation Guide (This document) |
| 2. Power connector | 5. Warranty card |
| 3. Setup CD-ROM | 6. Notice |

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

Serial number	_____
MAC Address	_____

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.

Notes on Privacy and Publicity Rights Regarding the Use of Video/Audio

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.

Accessories

The following dedicated accessories can be purchased separately as necessary. Some accessories are not sold in some countries or regions.

Canon AC Adapter PA-V18

A dedicated AC adapter for this camera.

Symbols 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.
	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

Warning
<p>Do not install in the following places:</p> <ul style="list-style-type: none"> • 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 <p>Fire or electric shock may result.</p>

Caution
<p>For installation or inspection of this camera, consult the dealer where you purchased the product.</p> <ul style="list-style-type: none"> • 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 mounting bracket 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, as this may result in malfunction.
- Failure to do so may result in the camera falling or other accidents.**

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

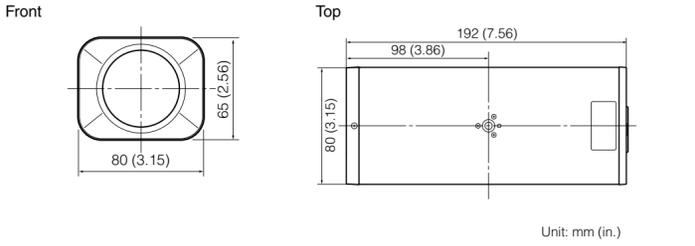
Caution
<ul style="list-style-type: none"> • Do not install the camera on an unstable or inclined surface. • If there is condensation, please wait to power on, until the condensation dissipates. <p>Malfunction may result.</p> <ul style="list-style-type: none"> • Take care not to damage wiring or pipes in the room. <p>Damage to peripheral items may result.</p>

Precautions for Use

Warning
<ul style="list-style-type: none"> • If you discover defective conditions such as smoke, strange sounds, heat or strange odors, immediately stop using the camera and contact your closest dealer. <p>Fire or electric shock may result from continued use of the product.</p> <ul style="list-style-type: none"> • 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 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 the camera. <p>Fire or electric shock may result.</p>

External Dimensions

Camera



Notes on Power Supply

Warning
<ul style="list-style-type: none"> • 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. <p>Fire or electric shock may result.</p>

Caution
<ul style="list-style-type: none"> • 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.

User Manuals

- Installation Guide (This document)
This guide provides notes on camera installation and explains the main camera specifications.
- 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.

H730 : VB-H730F **M720** : VB-M720F

Main Specifications

Camera	
Image Sensor	1/3 type CMOS (primary color filter)
Number of Effective Pixels	H730 Approx. 2.1 million pixels M720 Approx. 1.3 million pixels
Scanning Method	Progressive
Lens	3x optical (4x digital zoom) zoom lens (electric drive)
Focal Length*1	2.8 (W) – 8.4 mm (T)
F-number	F1.2 (W) – F2.0 (T)
Viewing Angle	For 16:9 aspect ratios Horizontal: 112.6° (W) – 36.7° (T) Vertical: 60.8° (W) – 20.6° (T) For 4:3 aspect ratios Horizontal: 82.3° (W) – 27.5° (T) Vertical: 60.8° (W) – 20.6° (T) Auto/Day Mode/Night Mode
Day/Night Switch	
Min. Subject Illumination	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)
Day Mode (color)	0.008 lux (F1.2, shutter speed 1/2 sec., when smart shade control is on, 50IRE) 0.015 lux (F1.2, shutter speed 1/30 sec., when smart shade control is off, 50IRE) 0.001 lux (F1.2, shutter speed 1/2 sec., when smart shade control is off, 50IRE) 0.0005 lux (F1.2, shutter speed 1/2 sec., when smart shade control is on, 50IRE)
Night Mode (monochrome)	One-shot AF/Manual/Fixed at infinity Day Mode: 0.3 m (12 in.) – infinity 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, 1/16000 sec. Auto/Auto (Flickerless)/Auto (Shutter-priority AE)/Manual (Shutter Speed, Aperture, Gain)
White Balance	Auto/Light Source (Daylight Fluorescent/White Fluorescent/Warm Fluorescent/Mercury Lamp/Sodium Lamp/Halogen Lamp)/Manual (One-shot WB/R Gain/B Gain)
Metering Mode	Center-Weighted/Average/Spot
Exposure Compensation	9 levels
Smart Shade Control	Auto/Manual/Disable Auto: 3 levels Manual: 7 levels Brightens shaded areas of a video
Haze Compensation	Auto/Manual/Disable Auto: 3 levels Manual: 7 levels 5 levels
AGC Limit	
Server	
Video Compression Method	JPEG, H.264
Video Size	H730 JPEG, H.264: 1920 x 1080, 960 x 540, 480 x 270 1280 x 720, 640 x 360, 320 x 180 1280 x 960, 640 x 480, 320 x 240 M720 JPEG, H.264: 1280 x 720, 640 x 360, 320 x 180 1280 x 960, 640 x 480, 320 x 240

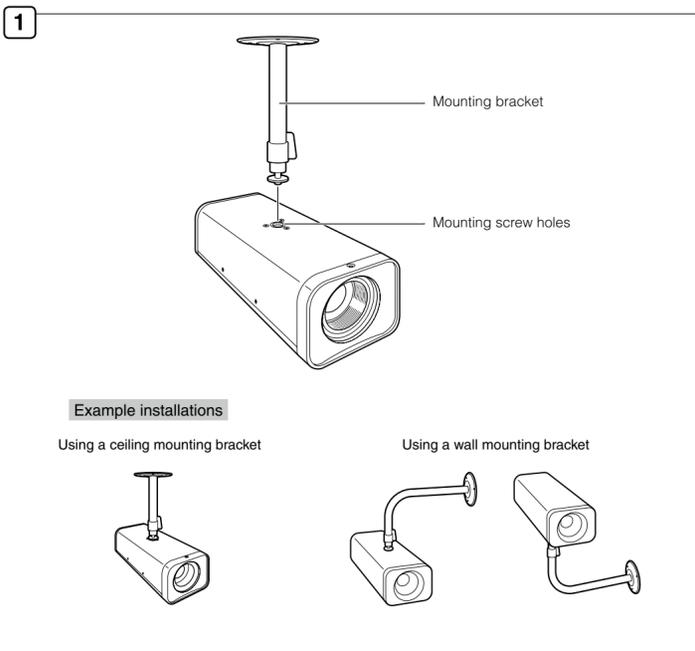
Video Quality	JPEG, H.264: 5 levels
Frame Rate*2	JPEG: 0.1 – 30 fps H.264: 1/2/3/5/6/10/15/30 fps H730 When streaming JPEG, H.264 (1920 x 1080): 30 fps When used in the following combinations: When streaming H.264(1) (1920 x 1080) and H.264(2) (all sizes) simultaneously: 15 fps When streaming H.264(1) (all sizes) and H.264(2) (1920 x 1080) simultaneously: 15 fps When streaming H.264(1) (1280 x 960) and H.264(2) (1280 x 960) simultaneously: 15 fps When streaming H.264(1) (1280 x 720) and H.264(2) (1280 x 720) simultaneously: 15 fps M720 When streaming JPEG, H.264 (1280 x 960): 30 fps When used in the following combinations: When streaming H.264(1) (1280 x 960) and H.264(2) (1280 x 960) simultaneously: 15 fps When streaming H.264(1) (1280 x 720) and H.264(2) (1280 x 720) simultaneously: 15 fps 0.5/1/1.5/2/3/4/5 sec. Max. 30 Clients + 1 Admin Client H.264: Max. 10 Clients
Max. Frame Rate	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) EAP-MD5, EAP-TLS, EAP-TTLS, EAP-PEAP IPv4: TCP/IP, UDP, HTTP, FTP, SNMPv1/v2c/v3 (MIB2), SMTP (Client), DHCP (Client), DNS (Client), mDNS, ARP, ICMP, POP3, NTP, SMTP authentication, RTSP, WV-HTTP (Canon proprietary), ONVIF IPv6: TCP/IP, UDP, HTTP, FTP, SMTP (Client), DHCPv6 (Client), DNS (Client), mDNS, ICMPv6, POP3, NTP, SMTP authentication, RTSP, WV-HTTP (Canon proprietary), ONVIF
I-Frame Interval	Available G.711 μ-law (64 kbps)
Simultaneous Client Access	Full-duplex (two-way) Echo cancellation function compliant Sound Transfer Protocol by Canon
Camera Control	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) Max. 20 positions
Access Control	<Video> Detection Types: moving object detection, abandoned object detection, removed object detection, camera tampering detection, and passing detection Detection Settings: Max. 15
Encrypted Communications	<Volume> Volume Detection
IEEE 802.1X Protocol	External Device Input, Intelligent Function (Video), Intelligent Function (Volume), Timer FTP/HTTP/SMTP (e-mail) Temporary storage memory in camera: Max. approx. 5 MB Frame Rate: Max. 10 fps (JPEG) Max. 30 fps (H.264)
Audio File Playback*3	HTTP/SMTP (e-mail)
Privacy Mask	Digital PTZ Cropping sizes: 640 x 360/512 x 288/384 x 216/256 x 144/128 x 72 640 x 480/512 x 384/384 x 288/256 x 192/128 x 96
Preset	Available Available Number of registers: 4 Items to Reg.: Exposure, Smart Shade Control, Haze Compensation, Focus, White Balance, Image Quality Adjustment, Day/Night
Intelligent Function	German/English/Spanish/French/Italian/Russian/Turkish/Chinese (Simplified)/Japanese
Event Trigger Type	"ONVIF" is a trademark of ONVIF Inc.
Image Upload	
Event Notification	
Image Cropping Function	
On-Screen Display	
Daylight Saving Time	
Custom Settings	
Language	

Interface

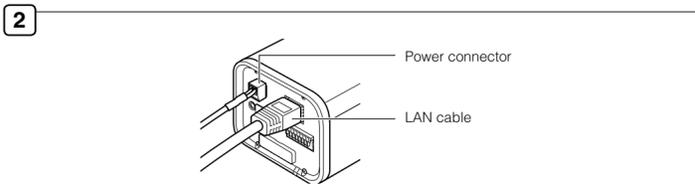
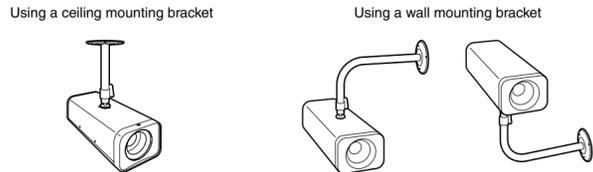
Network Terminal*4	LAN x 1 (RJ45, 100Base-TX (auto/full-duplex/half-duplex))
Audio Input Terminal (common for LINE IN & MIC IN)	Φ3.5 mm (Φ0.14 in.) mini-jack connector (monaural) Switch LINE IN/MIC IN in the setting page. LINE IN x 1 (connect to an amplifier microphone) or MIC IN x 1 (connect to a microphone w/o amplifier)
Audio Output Terminal (LINE OUT)	Φ3.5 mm (Φ0.14 in.) mini-jack connector (monaural)
External device I/O Terminal	LINE OUT x 1 (connect to an amplifier speaker) Input x 2, Output x 2
Memory Card	SD Memory Card, SDHC Memory Card, SDXC Memory Card Compatible. Frame Rate: Max. 1 fps (JPEG) Max. 30 fps (H.264)

Others

Operating Environment	Temperature: -10°C – +50°C (+14°F – +122°F) Humidity: 5% – 85% (without condensation)
Power Supply	POE: PoE power supply via LAN connector (IEEE802.3af Class 0 compliant) AC Adapter: PA-V18 (100 – 240 V AC) (sold separately) External power source: 24 V AC/12 V DC When using PoE: Max. approx. 6.9 W*5 When using AC Adapter PA-V18: Max. approx. 7.5 W (100 V AC) Max. approx. 7.8 W (240 V AC)
Power Consumption	When using DC: Max. approx. 7.0 W When using AC: Max. approx. 6.5 W (H x W x D) 65 x 80 x 192 mm (2.56 x 3.15 x 7.56 in.) Approx. 670 g (1.48 lb.)
Dimensions	*1 (W): maximum wide angle, (T): maximum telephoto
Weight	*2 Values represent streaming performance from the camera. The frame rate may be reduced due to Viewer PC's specs, the number of clients accessing at the same time, network loads, video quality setting, type or movement of the subject or other reasons. *3 A third-party amplifier speaker is necessary. *4 Use a category 5 or better LAN cable, 100 m (328 ft.) or less in length. *5 Class 0 power sourcing equipment (requests 15.4 W)

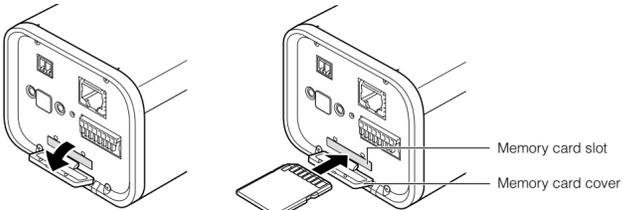


Example installations



Using a Memory Card

Open the memory card cover as shown in the diagram to insert or remove the memory card. Firmly shut the memory card cover after inserting or removing the memory card.



Inserting the card

Push the memory card as far as possible into the memory card slot.

Removing the card

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

Important

- Insert the memory card before installing the camera.
- Make sure the memory card is not write-protected.
- When using an 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").

Installing the Camera

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", see "Camera Management Tool User Manual".

1 Mount the camera to the mounting bracket

Use the mounting screw holes on the camera to securely fix the camera to the mounting bracket.

Important

- You must consult your retailer or provide the mounting bracket yourself.
- A tripod mounting screw (1/4-20 UNC) will fit the fixing screw hole.
- Be sure to use a mounting bracket with a mounting screw shorter than 5.5 mm (0.22 in.). Using a mounting bracket with a mounting screw 5.5 mm (0.22 in.) or longer may damage the camera.

2 Connect the cables to the camera

Connect the LAN cable.

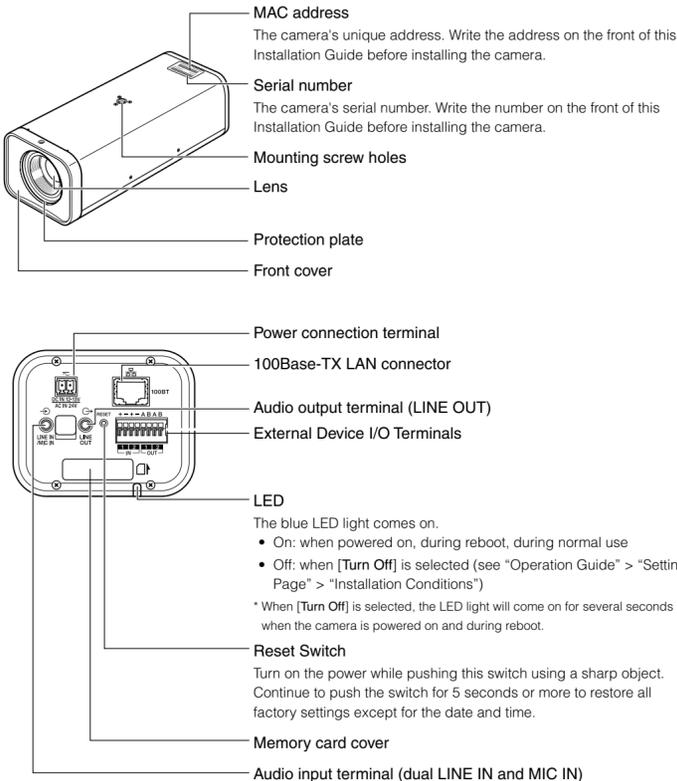
If AC Adapter (sold separately) or an external power supply is used, connect the power connector to the camera.

Connect cables to the external device I/O terminals and audio input/output terminals as necessary.

3 Set the camera angle

When installation is complete, use the Camera Angle Setting Tool to check the image on the camera and manually adjust the camera angle. Zoom and focus can be adjusted with the Camera Angle Setting Tool (see "Operation Guide" > "Camera Angle Setting Tool").

Part Names



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

- 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").

PoE (Power over Ethernet)

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.

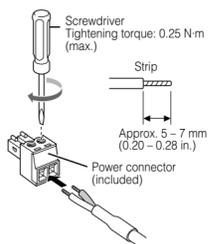
Important

- 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 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.
- 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).

External Power Supply

12 V DC or 24 V AC input can be used.

Connect the included power connector as shown below.



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 $\pm 10\%$ 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 $\pm 10\%$ 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 diameter	mm (in.) $\phi 0.52$ ($\phi 0.020$)	$\phi 0.65$ ($\phi 0.026$)	$\phi 0.82$ ($\phi 0.032$)	$\phi 1.03$ ($\phi 0.041$)	$\phi 1.30$ ($\phi 0.051$)
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

Use the dedicated AC Adapter (sold separately).

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

- 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)

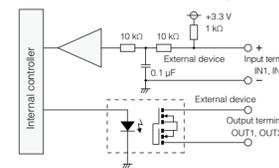
External device output terminals consist of two sets (OUT1, OUT2) of two terminals. The sets have no polarity. Controls from the viewer can be used to open and close the circuit between the terminals. Using optical couplers, the output terminals are isolated from the camera's internal circuit.

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

Internal Connection Diagram



Note

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.

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: $\phi 3.5$ mm ($\phi 0.14$ in.) mini-jack (monaural)
- Dynamic MIC IN
Input impedance: 1.75 k Ω $\pm 20\%$
* Supported microphones: Output impedance: 400 Ω - 600 Ω
- Condenser MIC IN
Input impedance (microphone bias resistance): 2.2 k Ω $\pm 20\%$
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: $\phi 3.5$ mm ($\phi 0.14$ in.) mini-jack (monaural)

Output level: Max. 1 Vp-p

* Use a speaker with an amplifier.

Important

- Using incorrect settings for [Audio Input] may damage the camera and/or microphone. Be sure to configure the 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.