Panasonic

Installation Guide

Network Camera (PoE Ready)

Please read this document before using the product, and save this document for future reference. **Panasonic Network Camera Website: http://panasonic.net/pcc/ipcam/**

Model No. **BB-HCM527** | Indoor Use Only
BB-HCM547 | Outdoor Ready

- **This manual is written for both the BB-HCM527 (Indoor Use Only) and the BB-HCM547 (Outdoor Ready). Available features and operations vary slightly depending on the model. You can confirm the model no. of your camera by checking the model no. printed on the front of the camera.**
- **Model number suffixes ("A" and "CE") are omitted from the following model numbers shown in this document, unless necessary.**
  BB-HCM527A, BB-HCM527CE, BB-HCM547A, BB-HCM547CE

Please read the included Important Information before proceeding.

Complete Operating Instructions and all other documentation can be found on the included CD-ROM.
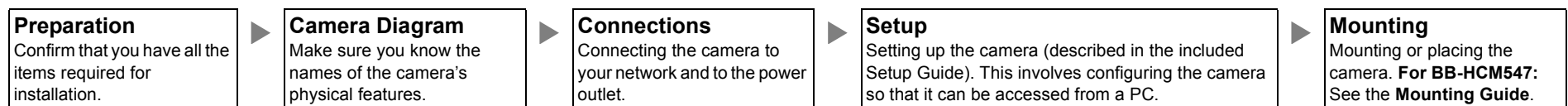
- This document (Installation Guide) explains how to physically connect the camera to the power supply and network, as well how to mount or place the camera for regular use.
- The **Setup Guide** describes how to set up the camera so that it can be accessed using a PC.
- **For BB-HCM547:** The **Mounting Guide** explains how to mount or place the camera for regular use.

- Refer to the **Operating Instructions** on the **CD-ROM** for details regarding the camera's features.
- Refer to the **Troubleshooting Guide** on the **CD-ROM** if you have any problems configuring or using the camera.
- The **Stand-alone SD Memory Card Recording Guide** describes how to record images to an SD memory card without using a PC.
- The camera illustrations in this document depict the BB-HCM547.

Abbreviations

- UPnP is the abbreviation for "Universal Plug and Play".
- The Network Camera is referred to as "the camera" in this document.
- The Setup CD-ROM is referred to as "the CD-ROM" in this document.
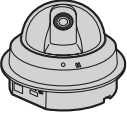
Installation Procedure Overview

The following is an overview of the steps required to install and setup the camera. All steps are explained in this document unless otherwise noted.

| **Preparation** Confirm that you have all the items required for installation. | ▶ | **Camera Diagram** Make sure you know the names of the camera's physical features. | ▶ | **Connections** Connecting the camera to your network and to the power outlet. | ▶ | **Setup** Setting up the camera (described in the included Setup Guide). This involves configuring the camera so that it can be accessed from a PC. | ▶ | **Mounting** Mounting or placing the camera. **For BB-HCM547:** See the **Mounting Guide**. |

Preparation

1. Confirm the following items are included in the camera's packaging.

Main Unit (1 pc.)	Washer A (1 pc.) Order No. XWG4F16VW Used when securing the safety wire to the ceiling.	Safety Wire (1 pc.) Order No. PQME10080Z Used to secure the camera when mounting it.
Important Information (1 pc.) Installation Guide (this document) (1 pc.) Setup Guide (1 pc.) Mounting Guide (1 pc.) [BB-HCM547 only] Stand-alone SD Memory Card Recording Guide (1 pc.)		Setup CD-ROM (1 pc.) Order No. PNQC1048Z Contains the Setup Program needed to configure the camera, as well as the camera's documentation.* *See the included Important Information for a description of each document.

BB-HCM527 Only

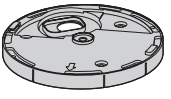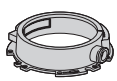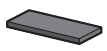| Ceiling Mounting Cover (1 pc.) Order No. PQKL10090Z1 Used when mounting the camera on a ceiling.	Screw A (6 pcs.) Order No. XTB4+20AFJ Used to secure the ceiling plate (3 pcs.) and the safety wire (1 pc.) to the ceiling, and used to secure the ceiling plate and the camera (2 pcs.).	Screw B (1 pc.) Order No. XTB26+10GFJ Used for connecting the safety wire to the camera.
Washer B (1 pc.) Order No. XWG26D12VW Used when securing the safety wire to the camera.	Ceiling Plate (1 pc.) Order No. PQMD10111Z Used to secure the camera to the ceiling.	

BB-HCM547 Only

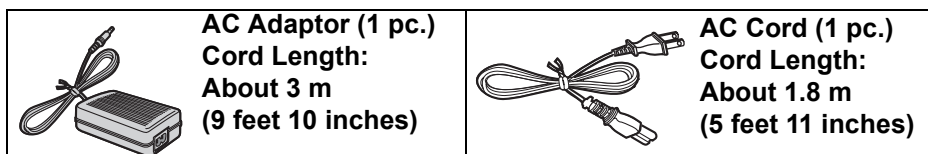| Ceiling Mounting Cover (1 pc.) Order No. PNKV1021Z1 Used when mounting the camera on a ceiling.	Screw A (2 pcs.) Order No. XTB4+20AVW Used to secure the ceiling plate and the camera.	Screw B (9 pcs.) Order No. XYN3+C8VW Used to secure the safety wire and the camera (1 pc.) and used to secure the ceiling plate and the inner cover (8 pcs.).	Screw C (8 pcs.) Order No. XTB4+35AVW Used to secure the base cover (3 pcs.) and the camera (4 pcs.) to the ceiling, and used to secure the safety wire and the ceiling plate (1 pc.).
Washer B (1 pc.) Order No. XWG3E10VW Used when securing the safety wire to the camera.	Ceiling Plate (1 pc.) Order No. PNZMHCM527A Used to secure the camera to the ceiling, and protect from water.		Base Cover (1 pc.) Order No. PNZC2HCM527A Used to secure the camera to the ceiling, and protect from water.
Inner Cover (1 pc.) Order No. PNZC1HCM527A Used to protect the camera from water.	Form Strip (1 pc.) Order No. PQHG10748Z Used to protect the camera from water.		Self Bonding tape (1 pc.) Order No. PSHG1235Z Used to protect the camera from water.

2. You will need the following additional items to install and configure the camera.

- a PC (see the system requirements in the Important Information document)
- a router
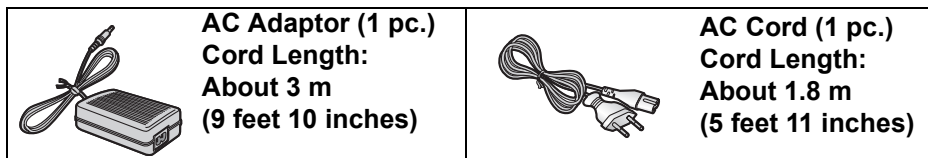- a LAN cable (CAT-5 straight cable)

Option

You can also connect the camera using the optional Panasonic BB-HCA3A, BB-HCA3CE or BB-HCA3E AC adaptor. The optional AC adaptor includes the following items.
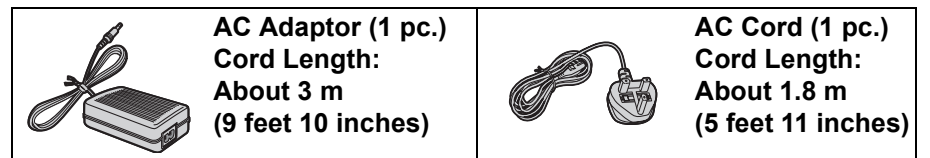
BB-HCA3A: BB-HCM527A/BB-HCM547A

AC Adaptor (1 pc.) **Cord Length:** **About 3 m** **(9 feet 10 inches)**	**AC Cord (1 pc.)** **Cord Length:** **About 1.8 m** **(5 feet 11 inches)**

BB-HCA3CE (2 pin AC cord): BB-HCM527CE/BB-HCM547CE

AC Adaptor (1 pc.) **Cord Length:** **About 3 m** **(9 feet 10 inches)**	**AC Cord (1 pc.)** **Cord Length:** **About 1.8 m** **(5 feet 11 inches)**

BB-HCA3E (3 pin AC cord): BB-HCM527CE/BB-HCM547CE

AC Adaptor (1 pc.) **Cord Length:** **About 3 m** **(9 feet 10 inches)**	**AC Cord (1 pc.)** **Cord Length:** **About 1.8 m** **(5 feet 11 inches)**

• The AC adaptor, the AC adaptor cord, and the AC cord are not splash resistant, and are intended for indoor use only. The AC adaptor, the AC adaptor cord, and the AC cord must be waterproofed for outside use.
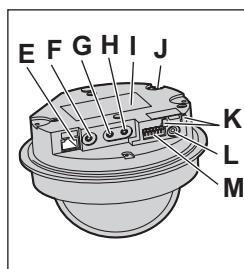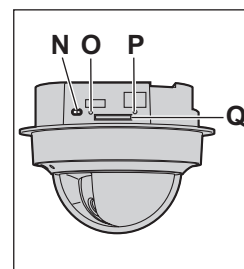
Camera Diagram

Front View
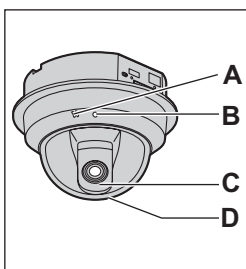
A Microphone
B Indicator*[1]
C Lens
D Lens cover

Rear View

E LAN port
F VIDEO OUT terminal
G AUDIO OUT terminal
H MIC terminal
I Serial number and MAC address label
J Safety wire hole
K Cable hook
L DC IN jack
M External I/O interface

Side View

N FUNCTION button/indicator
O RESTART button
P FACTORY DEFAULT RESET button
Q SD memory card slot

*1 See 1.1 Understanding the Camera Indicator in the Troubleshooting Guide on the CD-ROM for indicator meaning.
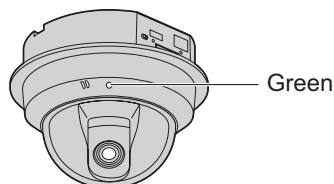
Connections

Before proceeding, confirm that your PC is connected to your router and can access the Internet. Also confirm that your router's UPnP™ feature is enabled. (Most routers have UPnP™ turned off by default.) Refer to the operating instructions included with your router or to the Panasonic Network Camera website (http://panasonic.net/pcc/ipcam/) for more information.

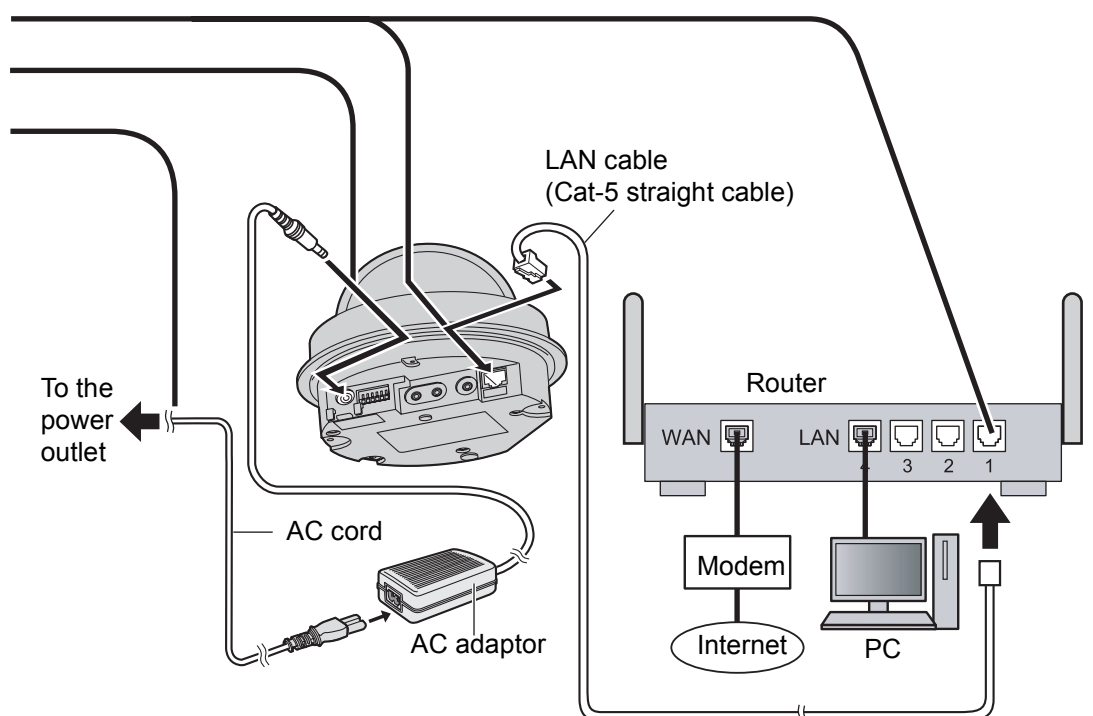### When connecting the camera using the AC adaptor (Optional)

Connect the camera to your router and the power outlet as described below.

• If using an AC adaptor, use only the optional Panasonic AC adaptor.

① Connect the LAN cable to the camera and the router.

② Connect the AC adaptor cord to the DC IN jack.

③ Connect the AC cord to the AC adaptor, then plug the AC cord into the power outlet.
  • The lens will pan and tilt when the camera is turned on.
  • Confirm that the indicator lights green after about 1 minute. If the indicator does not light green, see 1.2 Camera Indicator Issues in the Troubleshooting Guide on the CD-ROM.

Green

  • When you operate the camera, the power outlet should be near the camera and easily accessible.
  • When the lens pans or tilts, a sound can be heard from the camera. This is normal.

LAN cable (Cat-5 straight cable)

To the power outlet

AC cord

AC adaptor

Router
WAN   LAN   3 2 1

Modem
Internet   PC

When connecting the camera using PoE (Power over Ethernet)

Connect the camera to your PoE hub using a LAN cable (Cat-5 straight cable) as described below.

① Connect a LAN cable to the camera and to the PoE hub.
  • Your PoE hub must be connected to the router. Refer to the operating instructions included with the PoE hub for connection instructions.
  • The lens will pan and tilt when the camera is turned on.

② Connect a LAN cable to a LAN port of the PoE hub and to a LAN port of the router.
  • Confirm that the indicator lights green after about 1 minute. If the indicator does not light green, see 1.2 Camera Indicator Issues in the Troubleshooting Guide on the CD-ROM.
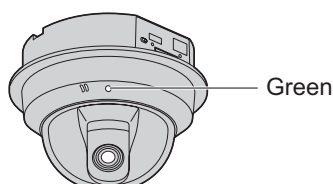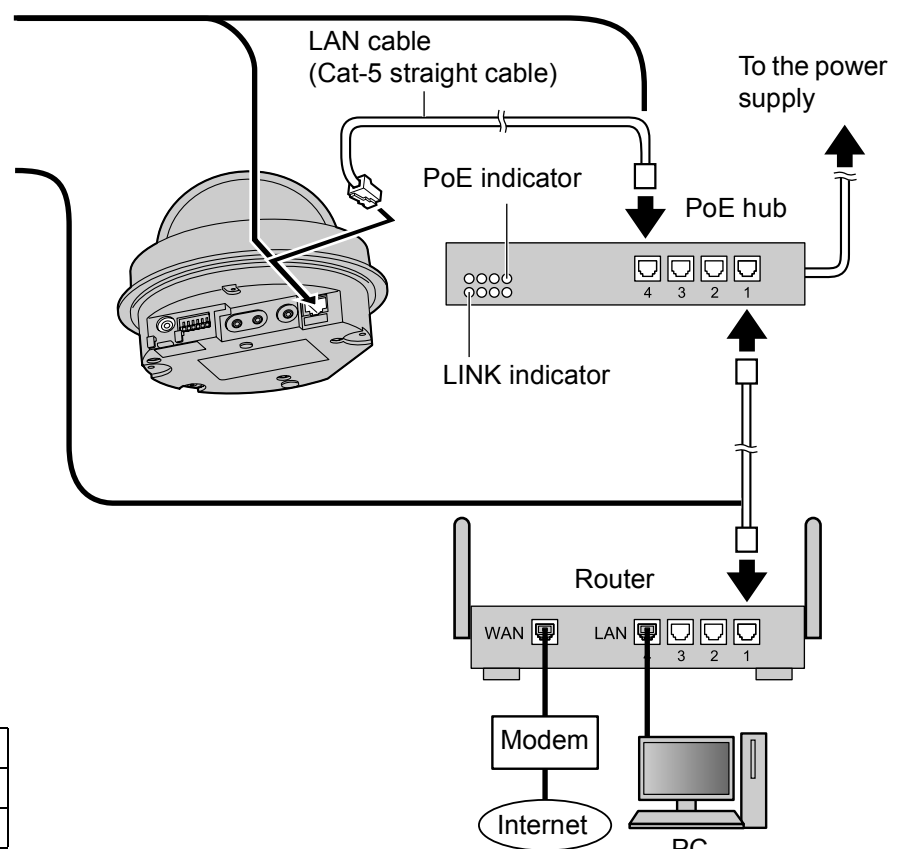

Green

  • When the lens pans or tilts, a sound can be heard from the camera. This is normal.
  • Use a 4-pair UTP/STP cable.
  • Do not use a relay connector or a hub between the camera and the PoE hub. These devices may disturb the data or electricity transmission.
  • If the PoE hub has indicators, the indicator lights as shown in the table below.

Indicator	Description
LINK	Turns on when the data is transmitted from the camera.
PoE	Turns on when the electricity is supplied to the camera.

LAN cable (Cat-5 straight cable)

To the power supply

PoE indicator

PoE hub
4 3 2 1

LINK indicator

Router
WAN   LAN   3 2 1

Modem
Internet   PC

  • If the PoE hub is turned off or power supply is temporarily cut off by the disconnection of the LAN cable, it may take time for the PoE hub's indicators to light.
  • The indicator display differs depending on manufacturers, refer to the manuals of the PoE hub.
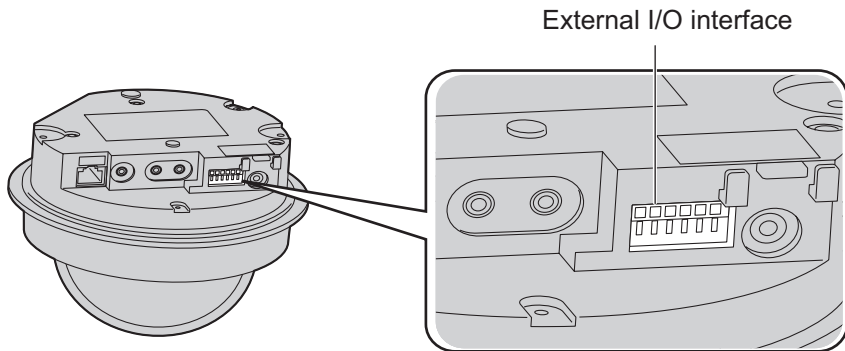
After the camera's indicator turns green, you may set up the camera. Continue by following the procedure described in the included Setup Guide.
• If the indicator does not turn green, see 1.2 Camera Indicator Issues in the Troubleshooting Guide on the included CD-ROM.

Read the following information after setting up the camera according to the procedure described in the Setup Guide.

Connecting External Sensors

The camera's external I/O interface allows you to connect 2 devices (such as sensors, motion detectors, etc.) that can be used to trigger the camera's image buffering and transferring features (see Section 2 Using Triggers to Buffer and Transfer Images in the Operating Instructions on the CD-ROM).
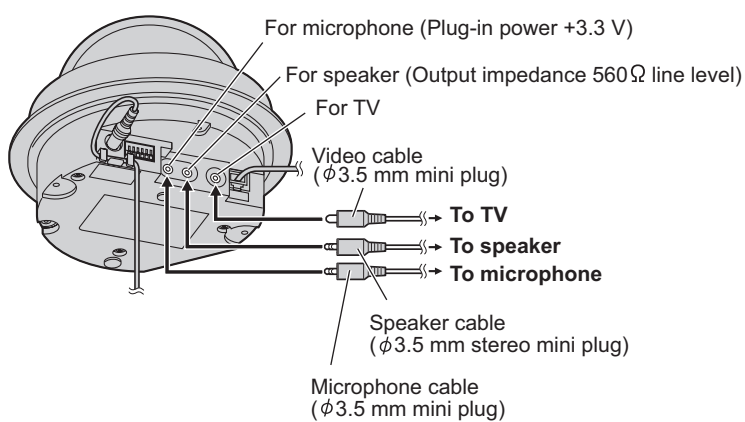The external I/O interface has 6 terminals.

External I/O interface

Circuit Diagram Example

Camera
12 V*
Relay   Light
4
3
2
G   Door Sensor 2 (Alarm 2)
1
G   Door Sensor 1 (Alarm 1)

*DC 10.5 V–13 V

Terminal	Description
G	GND terminal.
1	External sensor input 1. The camera can be triggered by either an open circuit or a GND short-circuit.
G	GND terminal.
2	External sensor input 2. The camera can be triggered by either an open circuit or a GND short-circuit.
3	External device control output. Allows you to control an external device using the output buttons in the camera's operation bar (for example, turning a light on or off). • This terminal's behavior can be changed (see 7.4 Controlling the External Output Terminal in the Operating Instructions on the CD-ROM). • This terminal is an open collector circuit. The maximum drawing current is the same as terminal 4. Do not exceed the voltage of the terminal 4.
4	DC power output terminal. • 10.5–13 V DC • Maximum load drive is 100 mA.

Caution
• The external I/O interface is not capable of connecting directly to devices that require large amounts of current. In some cases, a custom interface circuit (customer-provided) may have to be used. Serious damage to the camera may result if a device that exceeds its electrical capability is connected to the external I/O interface.
• Low voltage/current circuits and high voltage/current circuits are used in the camera circuit. All wiring should be performed by a qualified electrician. Incorrect wiring could damage the camera and cause a fatal electric shock.
• External devices connected to the camera's output terminals cannot be controlled in the event of a network error or failure. Keep this in mind when connecting door locks, heat-emitting devices, or other devices that may be dangerous if they cannot be controlled.
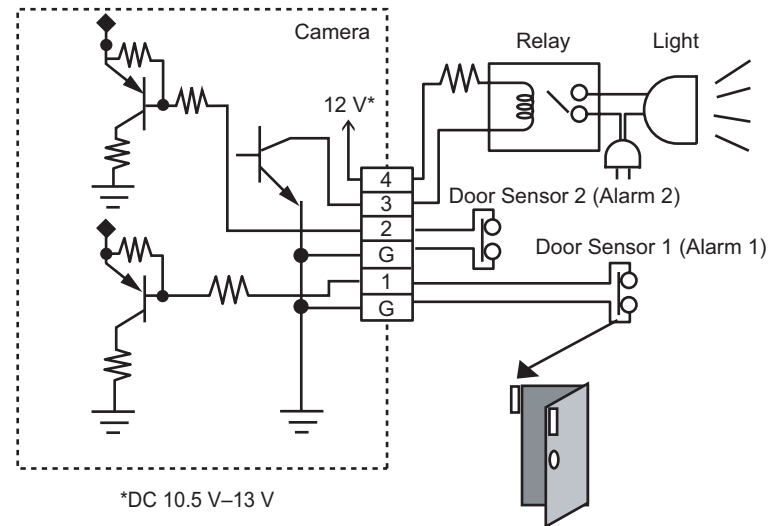
Note
• Do not push strongly on the external I/O interface with the pointed object. The external I/O interface may get stuck into the unit, and you may not be able to use it.

Connecting Audio/video Devices

You can connect an external microphone and external speaker to the camera to use the Listen and Talk features, respectively. For information about these features, see 1.2.11 Audio Features in the Operating Instructions on the CD-ROM. You can also connect a TV or other video device (NTSC or PAL format) to the camera to monitor or record camera images. Connect the devices as shown below.

For microphone (Plug-in power +3.3 V)
For speaker (Output impedance 560 Ω line level)
For TV
Video cable (φ3.5 mm mini plug)
→ To TV
→ To speaker
→ To microphone
Speaker cable (φ3.5 mm stereo mini plug)
Microphone cable (φ3.5 mm mini plug)

Note
• Analog video output is disabled by default. See 7.5 Controlling the Analog Video Output Signal in the Operating Instructions on the CD-ROM for more information.
• If you use an external microphone, excessive cable length or a poor quality cable can cause degradation in audio quality.
• The microphone cable should be no longer than 7 m (23 feet).
• Use a speaker with a built-in amplifier. The speaker connects to the camera with a stereo audio cable similar to that used by your PC. The output signal is mono.
• Make sure the camera and speaker are turned off when connecting or disconnecting the speaker cable, otherwise noise may be heard from the speaker.
• The external microphone input does not correspond to a line level. Audio may be distorted when the line level is input. Audio distortion will be solved if you insert the following circuits. Under no circumstance should high-level audio, such as from a speaker, be connected to this input terminal. Doing so is likely to damage the camera.

Resistor   Capacitor
Camera
Microphone Input   Audio Line Out
33 KΩ   1 μF
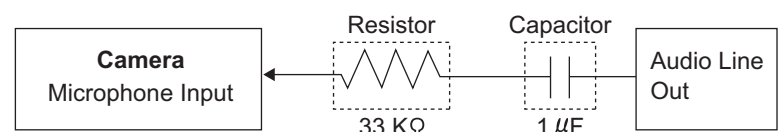
For BB-HCM527: Mounting the Camera

Important Information Regarding Camera Mounting

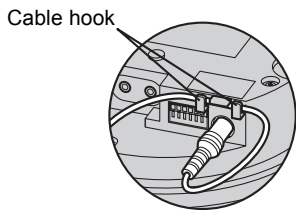Please read the following information before mounting the camera. Consult an authorized dealer for mounting.

For BB-HCM547: See the **Mounting Guide**.
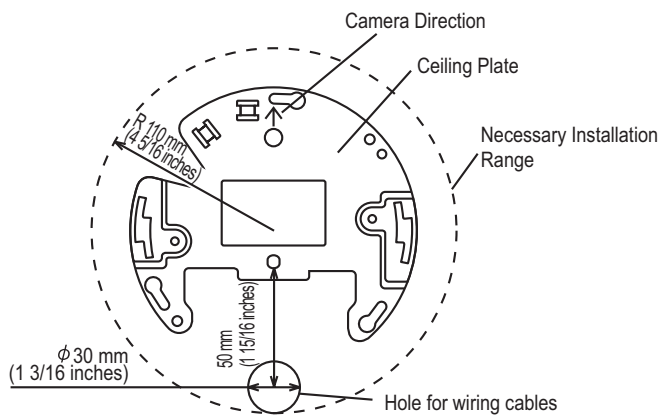
Caution

- Make sure you attach the safety wire when mounting the camera on a ceiling to prevent the camera from falling.

Note

- The camera is intended for indoor use only and should not be mounted outdoors.
- Use screws that are appropriate for the material of ceiling.
- The included screws are for use with wooden ceilings only.
- To ensure that camera images are displayed properly, mount the camera to a flat horizontal surface.
- The ceiling mounting cover must be removed in order to insert or remove the SD memory card.
- The camera's MAC address and serial number are printed on the bottom of the camera and are needed in order for camera configuration and maintenance. Make a note of both of them before mounting the camera.
- Mounting and cabling instructions described in this document follow generally accepted guidelines suitable for residential installations. In some areas, commercial and industrial installations are regulated by local or state ordinances. For such installations, contact your local building department or building inspector for more details.
- Camera images can be viewed in relatively dark areas, however, image quality decreases when viewing dark images. We recommend using supplemental lighting for best results.
- Prolonged exposure to direct sunlight or halogen light may damage the camera's image sensor. Mount the camera appropriately.
- When mounting the camera, make sure to wrap the AC adaptor cord (if used) around the hooks as shown to ensure secure connections.
- Do not directly touch the lens cover. Clean the lens cover with a dry and soft cloth if necessary.
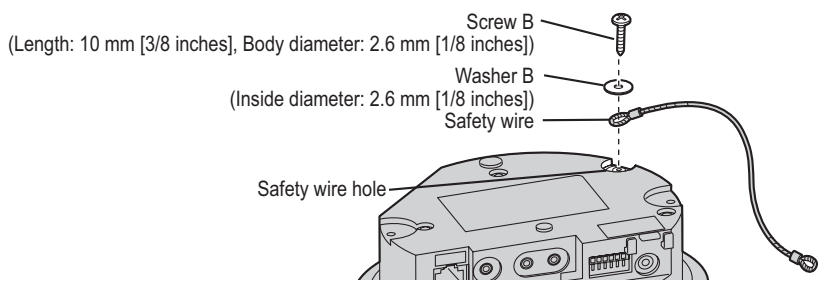
Cable hook

Mounting Reference Diagram (Bottom View)

Camera Direction
Ceiling Plate
Necessary Installation Range
R 110 mm (4 5/16 inches)
φ 30 mm (1 3/16 inches)
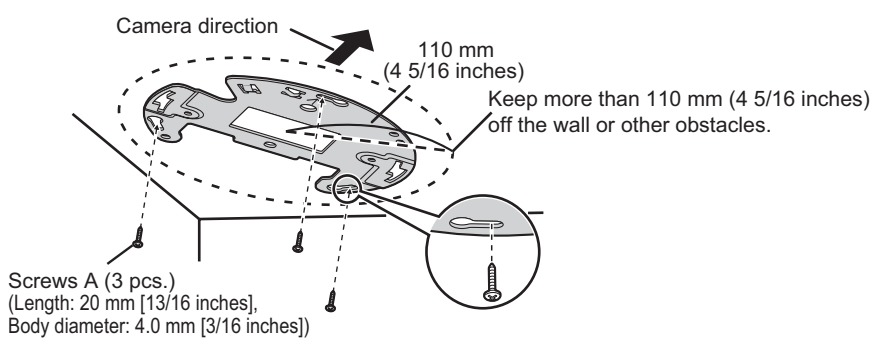50 mm (1 15/16 inches)
Hole for wiring cables

Mounting the Camera

1. Secure the safety wire to the camera using screw B (included) and washer B (included).
   - Make sure you attach the safety wire when mounting the camera on a ceiling to prevent the camera from falling.

Screw B
(Length: 10 mm [3/8 inches], Body diameter: 2.6 mm [1/8 inches])
Washer B
(Inside diameter: 2.6 mm [1/8 inches])
Safety wire
Safety wire hole

2. Secure the ceiling plate to the ceiling using screws A (included).
   - You will need to remove the ceiling plate later.
   - Make sure there is at least 110 mm (4 5/16 inches) of space, with no obstacles, from the center of the plate.
   - Do not drive the screws into a soft material. Drive the screws into a secure, 25 mm (1 inch) thick area of the ceiling, such as a crossbeam, otherwise the camera may fall. If there is no crossbeam, place a board on the other side of the ceiling to make sure the camera is securely mounted.

Camera direction
110 mm (4 5/16 inches)
Keep more than 110 mm (4 5/16 inches) off the wall or other obstacles.
Screws A (3 pcs.)
(Length: 20 mm [13/16 inches], Body diameter: 4.0 mm [3/16 inches])

3. If you plan to run the cables above the ceiling, make a 30 mm (1 3/16 inches) hole in the ceiling, as shown. Run all necessary cables (AC adaptor, LAN, audio/video, etc.) through the hole.
   - Make a φ 30 mm (1 3/16 inches) hole where is 50 mm (1 15/16 inches) away from the center in the plate.

50 mm (1 15/16 inches)
Hole for cables φ30 mm (1 3/16 inches)
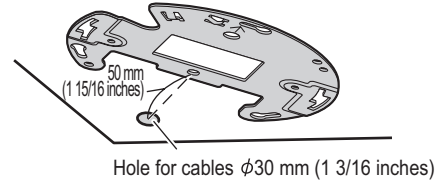
4. Loosen the screws slightly, turn the ceiling plate counter-clockwise, then remove the ceiling plate.

5. Align the two round protrusions on the camera and the holes on the ceiling plate, turn the screws A (included) to attach the ceiling plate firmly, and then pass the safety wire through the ceiling plate, as shown. Make sure you do not scratch the lens cover when performing this procedure.

Screws A (2 pcs.) (Length: 20 mm [13/16 inches], Body diameter: 4.0 mm [3/16 inches])
Fit the two holes in place.
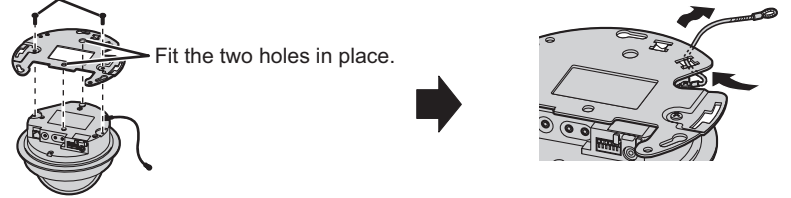
6. Connect all necessary cables (AC adaptor, LAN, audio/video, etc.).

7. Secure the ceiling plate to the ceiling again (using the screws A from step 2), turn the ceiling plate clockwise, then tighten the screws firmly.

Screws A (3 pcs.)
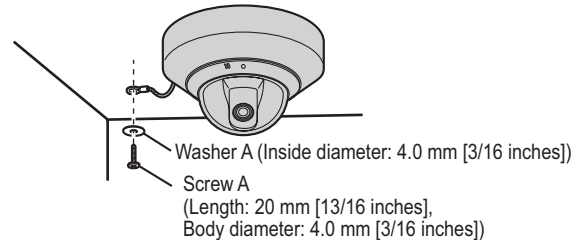(Length: 20 mm [13/16 inches], Body diameter: 4.0 mm [3/16 inches])
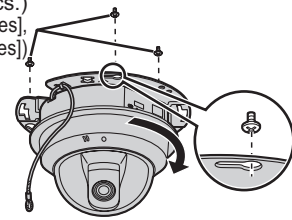
   - The camera should be mounted so that the arrow on the ceiling plate faces the front of the camera.

8. Pass the safety wire through the ceiling mounting cover as shown. Attach the ceiling mounting cover by first aligning the "∣" mark on the camera and cover, then turn the cover clockwise until the "∣" mark on the camera and the "∘" mark on the cover are aligned as shown.
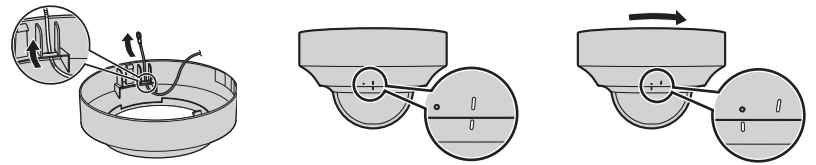
   - Be careful not to nip the cable etc.
   - When removing the ceiling mounting cover, move it in the counterclockwise direction. Adjust both "∣" and let down the main unit.
   - If you did not make a hole in the ceiling for the cables, remove the tab on the ceiling mounting cover and pass the cables through the opening as shown. The tab is divided into 3 sections; use a tool to cut and remove the sections of the tab as needed depending on the number of cables used.
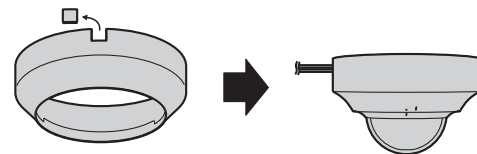
9. Secure the safety wire to the ceiling behind the camera using screw A (included) and washer A (included).
   - Secure the safety wire to the ceiling about 110 mm (4 5/16 inches) from the center of the ceiling plate.
   - Do not drive the screw into a soft material. Drive the screw into a secure, 25 mm (1 inch) thick area of the ceiling, such as a crossbeam, otherwise the camera may fall. If there is no crossbeam, place a board on the other side of the ceiling to make sure the camera is securely mounted.

Washer A (Inside diameter: 4.0 mm [3/16 inches])
Screw A
(Length: 20 mm [13/16 inches], Body diameter: 4.0 mm [3/16 inches])

When mounting the camera on a concrete or mortar ceiling

1. Place the ceiling plate against the ceiling and mark the points where you are going to make holes.

2. Make holes with an electric drill. Insert anchors (customer-provided) into the holes and push them inside the holes with a hammer.
   - Mortar ceilings break easily when drilling. Be careful of pieces of mortar which may become loose and fall.

Drill for concrete (in case of tile, use a drill for tile)
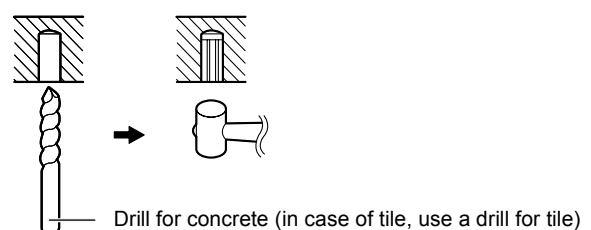
3. Mount the camera by following the instructions on this page.

4