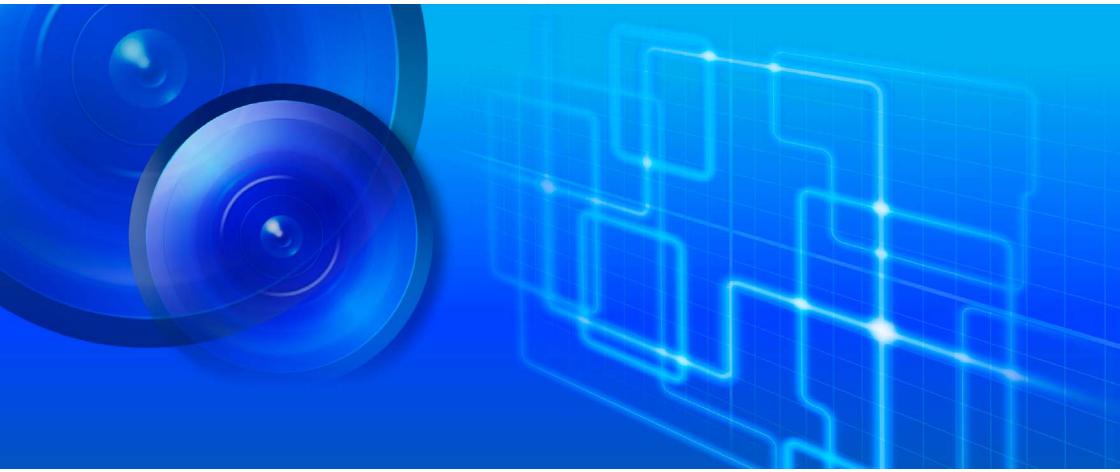
Canon

Network Camera

Setup Guide



ME20F-SHN

HDMI

This User Manual should be read before using the network camera.

ENGLISH

Highlights of the ME20F-SHN

The Canon ME20F-SHN Network Camera boasts numerous features that allow it to excel in a variety of situations. The following highlights some of the ways that this camera can meet your needs.

HD Video

High-sensitivity 35mm full-frame CMOS sensor and DIGIC DV 4 image processor

The camera is equipped with a high-sensitivity 35mm full-frame CMOS sensor that features improved noise reduction circuitry and pixels measuring a relatively large 19 µm* square in size. Combined with the DIGIC DV 4 image processor, the camera is capable of shooting video in dim environments (minimum subject illumination: less than 0.0005 lux**) with little video noise.

* Micrometer. Also referred to as a micron, it is one millionth of a meter.

** Under the following conditions: color, no light accumulation, f/1.2, shutter speed 1/30, 50 IRE, maximum gain 75 dB (ISO equivalent of 4 million).

Interchangeable lenses

Enjoy the versatility of using interchangeable lenses to achieve the look you want. The camera is equipped with an EF lens mount, which allows you to use a variety of high-quality lenses (EF Lens, EF-S Lens or EF Cinema Lens series). For more details on compatible lenses, visit your local Canon website.

Custom picture settings and Canon Log gamma

With custom picture settings, you can enjoy unparalleled image control to deliver the look you want by adjusting parameters, such as gamma and sharpness. You can even select the Canon Log and Wide DR gamma settings found on Canon Cinema EOS cameras. In addition, the Crisp Img gamma setting which is suitable for monitoring use helps you obtain a clear, high-resolution image drawing by strengthening sharpness in a well-lit environment. In a low-light environment, you can achieve a data size with less impact on the network bandwidth by performing noise reduction according to the intensity of illumination.

Network Connection

By connecting to the network, it is possible to perform monitoring and control the camera from a distance, as well as to use the various intelligent functions of the camera or perform monitoring from your mobile terminal. (📖 *Network Operation Guide*)

Intelligent functions to detect problems in various situations

The camera is standardly equipped with intelligent functions that can output and record video to external devices. These functions help you to realize an automatic monitoring system that does not depend on the eyes and ears of a person and contributes to monitoring efficiency.

Mobile camera viewer

You can perform monitoring from your mobile terminal, such as a smart phone and tablet. Video from the camera can be easily checked from anywhere.

Table of Contents

1 Introduction

Types of User Manuals

Before Using This Camera (Included)
This describes safety precautions, disclaimers, etc. that should be read before using the product.

Setup Guide (This Guide)
This describes the names of parts, setup procedures, accessories, etc.

Network Operation Guide
This explains how to operate the camera when using it over the network.

Button Operation Guide
This explains how to operate the camera using buttons on the rear side.

Mobile Camera Viewer Operation Guide
This explains details on how to use the Mobile Camera Viewer.

Specifications
This lists the camera specifications.

Camera Management Tool User Manual
This explains details on how to use the Camera Management Tool.

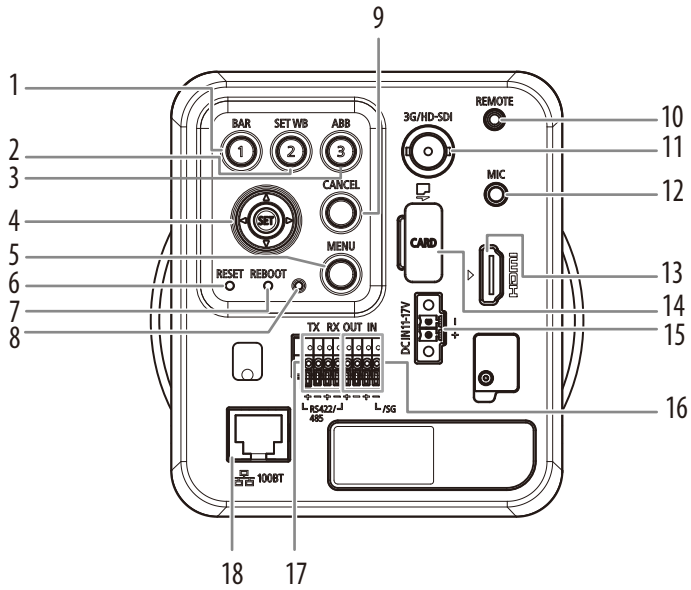
Recorded Video Utility User Manual
This explains details on how to use the Recorded Video Utility.

Conventions Used in this Manual

- IMPORTANT: Precautions related to the camera's operation.
- NOTES: Additional topics that complement the basic operating procedures.
- : Reference page number.
- The following terms are used in this manual.
  "Screen" refers to the screen of an external monitor connected to the camera.
  "Shooting screen" refers to the screen in which the shooting image and onscreen displays appear.
- Some screenshots have been altered to make them easier to read.
- Illustrations in the manual show the camera with a Canon EF 70-200mm f/2.8L IS II USM lens or Canon CN7x17 KAS S/E1 lens attached.

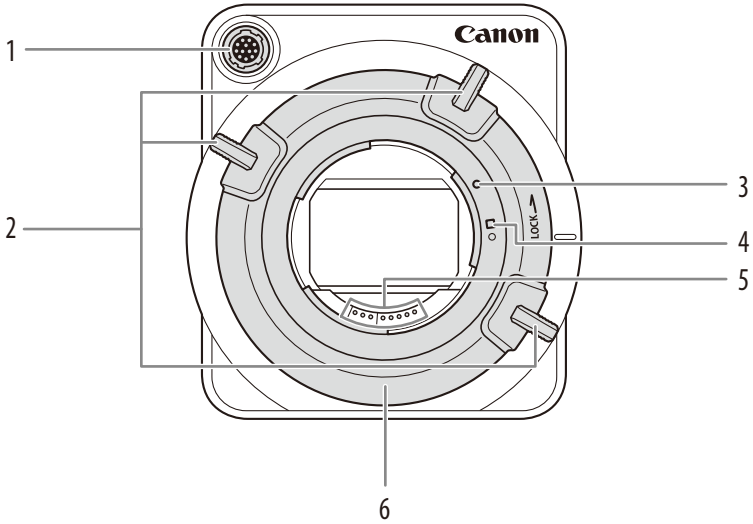
Names of Parts

Back view



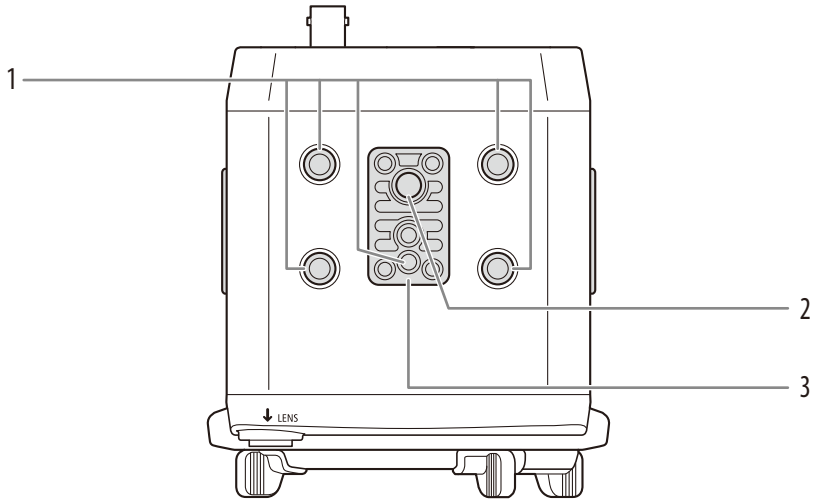
1 BAR (color bars) button/Assignable button 1 (📖 *Button Operation Guide*)
2 SET WB (custom white balance) button/ Assignable button 2 (📖 *Button Operation Guide*)
3 ABB (automatic black balance) button/ Assignable button 3 (📖 17)
4 Joystick (📖 *Button Operation Guide*)
5 MENU button (📖 *Button Operation Guide*)
6 RESET switch (📖 24)
7 REBOOT switch (📖 24)
8 POWER indicator (📖 24)
On: when powered on, during reboot, during normal use / Off: when powered off (📖 *Button Operation Guide* or *Network Operation Guide*)
9 CANCEL button (📖 *Button Operation Guide*)
10 REMOTE (remote control) terminal (📖 31)
For connecting to the optional RC-V100 Remote Controller's REMOTE terminal.
11 3G/HD-SDI terminal (📖 16, 26)
12 MIC (microphone) terminal (📖 30)
13 HDMI OUT terminal (📖 16, 26)
14 Memory card slot cover (for microSD cards) (📖 20)
15 DC IN 11-17 V terminal (📖 13)
16 External device I/O terminals (📖 29)
17 RS-422/485 terminals (📖 28)
18 100Base-TX LAN connector (📖 15)

Front view



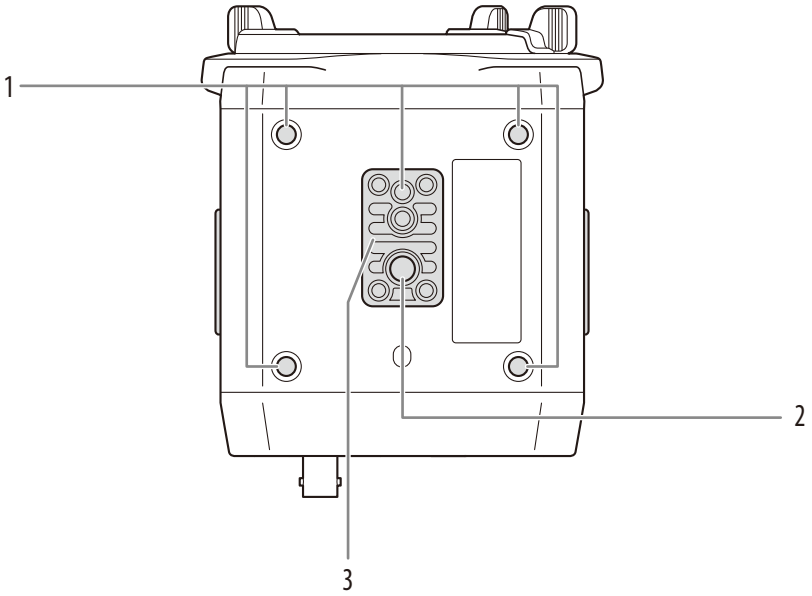
1 LENS terminal (📖 19)
2 Lens mount handle (📖 18)
3 EF lens mount index (📖 18)
4 EF-S lens mount index (📖 18)
5 EF lens contacts
6 EF lens mount (📖 18)

Top view



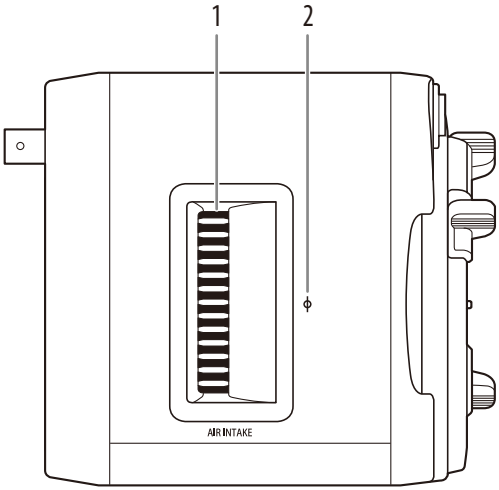
1 Socket for 0.64 cm (1/4") screws (22)
2 Socket for 0.95 cm (3/8") screws (22)
3 TB-1 Tripod Adapter Base for tripods with 0.95 cm (3/8") screws (22)

Bottom view

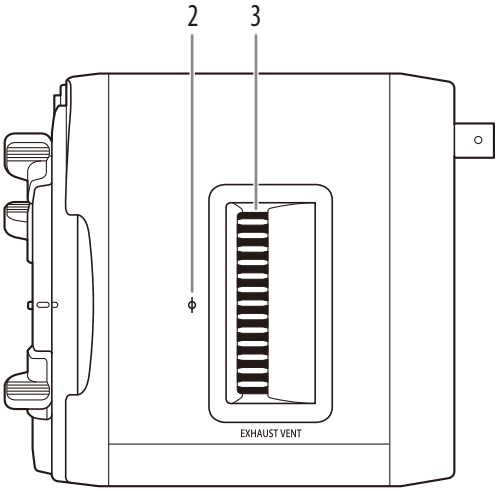


1 Socket for 0.64 cm (1/4") screws (22)
2 Socket for 0.95 cm (3/8") screws (22)
3 TB-1 Tripod Adapter Base for tripods with 0.95 cm (3/8") screws (22)

Right side view



Left side view

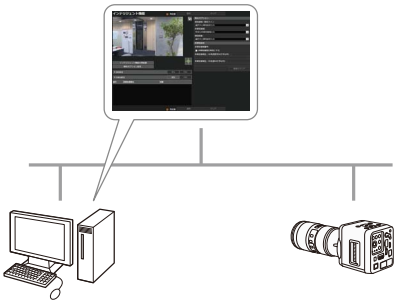


1 Air intake vent (22)
2 ϕ Focal plane mark
3 Exhaust ventilation outlet (22)

Operating Methods of the Camera

There are two ways to operate the camera. You can operate it using the computer from a remote location via the network or directly operate it using the buttons on the back of the camera. Each method has different features as described below. Select a method according to your needs.

Operation via the Network



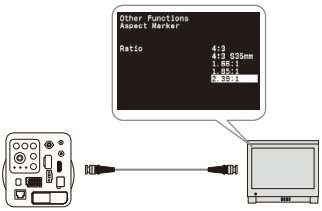
By connecting to the network, it is possible to perform monitoring and control the camera from a distance, as well as to use the various intelligent functions of the camera or perform monitoring from your mobile terminal.

<Operation guides for reference>

Setup procedure
Setup Guide (This Guide)

Operation/Setting procedure
Network Operation Guide

Operation Using the Buttons



Since the camera is directly connected to the external monitor, you can adjust images on the screen by directly operating the camera.

* RC-V100 Remote Controller (optional) can also be used (31).

<Operation guides for reference>

Setup procedure
Setup Guide (This Guide)

Operation/Setting procedure
Button Operation Guide

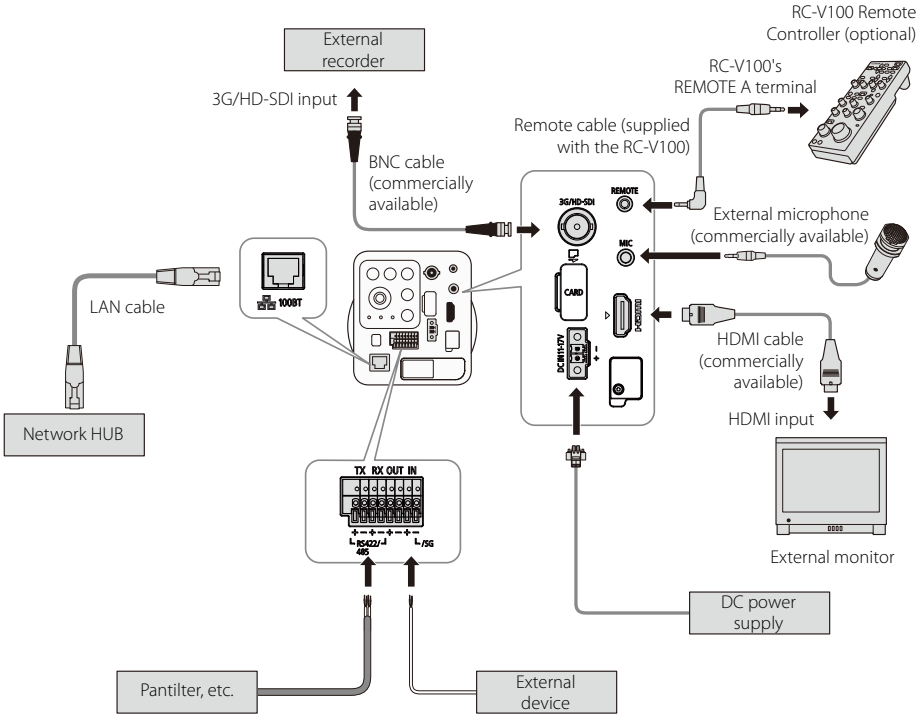
NOTES

- Some setting items can be configured using only one of the operating methods. For details, refer to *List of Setting Items for Each Operating Method* (34).
- If you configured the same setting in both operating methods, the setting you configured last is enabled.
- You can disable the operation using the buttons. (*Network Operation Guide*)

2 Setup

Example Configuration

The following example configuration illustrates how to connect the camera to external devices such as a monitor (16) or video recorder (26).



NOTES

- When connecting the optional RC-V100 Remote Controller to the camera, make sure that the remote controller's terminal selection switch is set to REMOTE A.
- If a network HUB is the power supply, use a network HUB that supports PoE+.

Connecting the Power Supply

Power can be supplied to the camera in the two ways described below. Please be sure to read the user manual for the dedicated power supply before use.

IMPORTANT

- EF Cinema lenses are not available when using PoE+ power supply. Use an external power supply (DC power supply) for the camera with an EF Cinema lense attached.

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 Type2 standard.

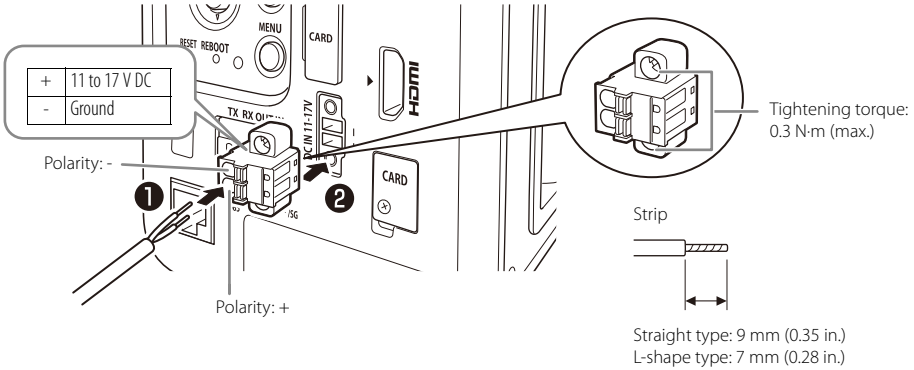
IMPORTANT

- 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 power for each port, but applying limits may interfere with performance. If using this type of PoE+ HUB, do not limit the operating power.
- Some PoE+ HUBs have limits for the total power consumption for the ports, which can interfere with performance when multiple ports are in use. For more information, check the instruction guide for your PoE+ HUB.
- When the camera is connected to both a PoE+ HUB and an external power supply (11 V DC – 17 V DC), power from the external power supply is given priority. The power supplied to the camera stops if the external power supply is removed while both power supplies are connected. In this case, the power will be supplied again by disconnecting and reconnecting the LAN cable.

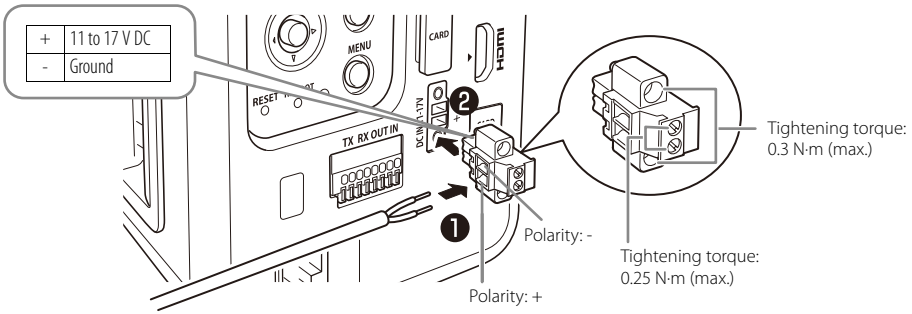
External Power Supply (DC IN)

11 V DC – 17 V DC input can be used.
Connect the provided power connector as shown below.
When connecting, fix it with screws while observing the limitation of tightening torque.

Straight screw-in type



L-shape screw-in type



IMPORTANT

- You can power the camera using a commercially available external power supply connected to the DC IN 11-17 V terminal (via a commercially available power cable, using the supplied power connector).

  External power supply (commercially available)
  Power supply (output): 11 to 17 V DC
  Current (output): 3 A or higher

  Power cable (commercially available)
  Power cable rating: 3 A or higher (current-carrying capacity) / 30 V DC (rated)
- 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.
- Make sure to use an external power supply that meets the standards of the country/region where it is used.
- Make sure the external power supply is a double-insulated device and is insulated for commercial power use.

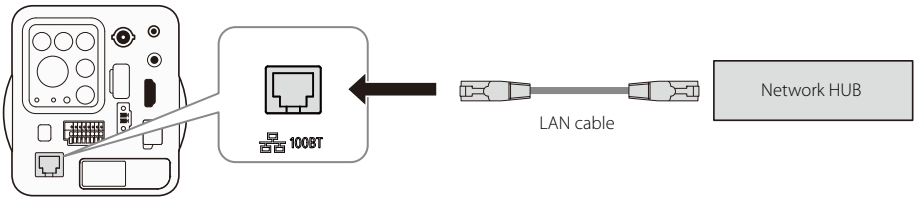
Recommended Power Cables [Reference]

Cable (AWG)		24	22	20	18	16
12 V DC maximum cable length	m (ft.)	1 (3.3)	2 (6.6)	4 (13.1)	6 (19.7)	9 (29.5)
17 V DC maximum cable length	m (ft.)	11 (36.1)	17 (55.8)	27 (88.6)	43 (141.0)	62 (203.4)

Use UL cable (UL-1015 or equivalent) for wiring.

Connecting to the Network

When connected to the network, the camera not only enables you to remotely operate it, but also allows you to record the video and perform monitoring with various intelligent functions.
Also with PoE+ functions supported, the camera can be supplied with power via a LAN cable connected to a PoE+ HUB (12).



Use a category 5 or better LAN cable, 100 m (328 ft.) or less in length.

NOTES

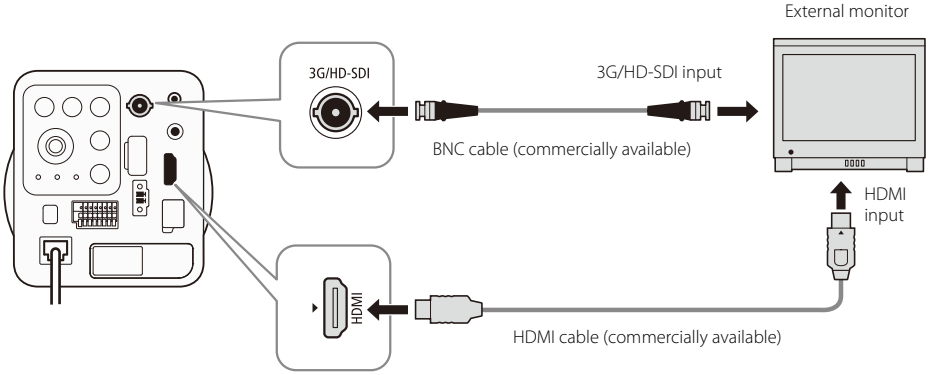
- To connect a camera to the network, it is necessary to first set the administrator account for the camera, then configure the network settings such as an IP address. Use the Camera Management Tool to configure such initial settings as above for using the camera via the network. Refer to *Network Operation Guide* or *Camera Management Tool User Manual* for more details.
- Only the following combination is available for video output via a network.
  System frequency: 59.94 Hz
  Frame rate: 29.97P
  Resolution: 1920 x 1080

Connecting to an External Monitor

If you operate the camera using the buttons, you will need an external monitor connected to the camera. Connect the camera to an external monitor using the 3G/HD-SDI terminal or HDMI OUT terminal. Use the terminal on the camera that matches the one you wish to use on the monitor.
Video and audio will be output as a digital signal from the aforementioned terminals.

Connection Diagram

Refer to the following connection diagram. When connecting the camera using the 3G/HD-SDI terminal, use a commercially available BNC cable; when using the HDMI OUT terminal, use a commercially available HDMI cable.



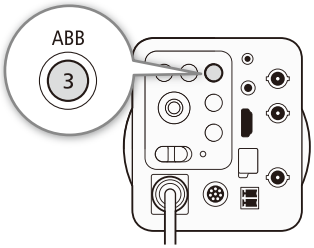
NOTES

- When the camera's video output does not appear on the external monitor's screen:
  Check the [System Frequency], [Frame Rate], and [3G-SDI Mapping] settings. The factory default setting is set to system frequency 59.94 Hz, frame rate 29.97P, and resolution 1920 x 1080.
  - You can check and change the settings from the Setting Page via the network (📖 *Network Operation Guide*).
  - If you have an external monitor with an HDMI terminal, you can also try connecting the camera using the HDMI OUT terminal to check the settings.
- For external monitors that support only 480P or 576P input, connect the camera using the HDMI OUT terminal.
- When the output signal is 480P or 576P, onscreen displays will not be superimposed on the video signal.
- On-screen display or privacy mask settings specified via the network are not displayed in the video output to the external monitor that is connected using the 3G/HD-SDI terminal or HDMI OUT terminal (📖 *Network Operation Guide*).

Adjusting the Black Balance

The first time you use the camera or if there is a noticeable change in the blacks of the video signal (such as when ambient temperature changes considerably), it is recommended to have the camera adjust the black balance.
You will need an external monitor connected to the camera, because the black balance can be adjusted only by using buttons.

1 Turn off the camera.
   - The camera does not have a power switch. To turn the camera on or off, connect or disconnect the power cable.
   - **When using a compatible EF Cinema lens (33)**: Attach the lens (18).
     When using other lenses: Remove the lens if one is attached to the camera, and attach the body cap to the lens mount.



2 Turn on the camera.

3 Press the ABB button.
   - Alternatively, you can use the [Camera Setup] [ABB] setting.

4 Select [OK] and then press SET.
   - The automatic black balance procedure will start. It will take approximately 40 seconds when the frame rate is set to 23.98P.

5 When the message [Process completed successfully.] appears, press SET.
   - If the sensor is not completely shielded from light, [ABB error] will appear on the screen. Press SET and repeat the procedure from the beginning.

NOTES

- Adjusting the black balance is necessary in the following cases:
  - After a long period of not using the camera.
  - After sudden or extreme changes in ambient temperature.
  - After resetting the camera's settings.
- During the adjustment of the black balance, you may notice some irregular displays appear on the screen. This is not a malfunction.
- After adjusting the black balance with an EF Cinema lens attached to the camera, you will need to readjust the aperture.

Preparing the Lens

As much as possible, attach and remove the lens quickly and in a clean environment free of dust. Refer also to the instruction manual of the lens used.

IMPORTANT

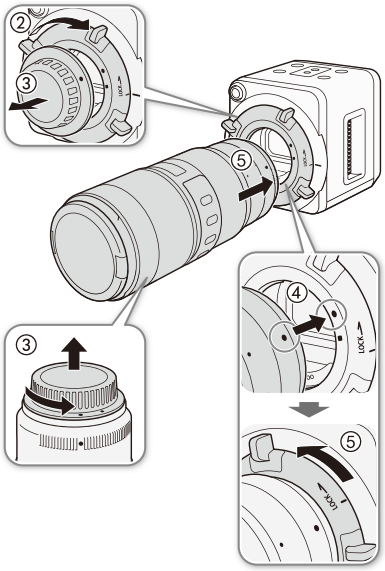
- Avoid direct sunlight or strong light sources. Also, be careful not to drop the camera or lens.
- Make sure to turn off the camera before this operation.

NOTES

- After removing a lens or when a lens is not attached to the camera:
  - Do not touch the lens's surfaces, the lens mount or any components inside the lens mount area.
  - Place the body cap back on the lens mount and the dust caps back on the lens. Clean any dust or dirt from the body cap and dust caps before using them.

Attaching an EF Lens

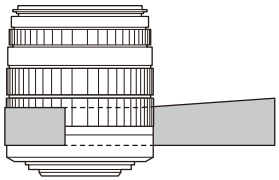
1 Turn off the camera.
   - The camera does not have a power switch. To turn the camera on or off, connect or disconnect the power cable.
2 Turn the lens mount handle clockwise until it stops.
3 Remove the body cap from the camera and any dust caps from the lens.
4 Align the lens and mount making sure that the index marks are aligned.
   - EF lenses: Align the red mark on the lens with the red EF Lens mount index mark on the camera.
   - EF-S lenses: Align the white mark on the lens with the white EF-S Lens mount index mark on the camera.
5 After the lens is attached to the camera, without turning the lens, turn the lens mount handle counter-clockwise until it is tightened firmly.



IMPORTANT

- **When using a zoom lens**
  - Zoom position may be changed depending on the installation circumstances. Fix it by applying tape on the zoom ring as illustrated. (Be careful not to fix the focus ring. If you do so, focusing will be unavailable.)
  - Use tape which is less likely to peel off and has less adhesive residue, such as plastic film tape.

Apply tape on the zoom ring full circle to fix.

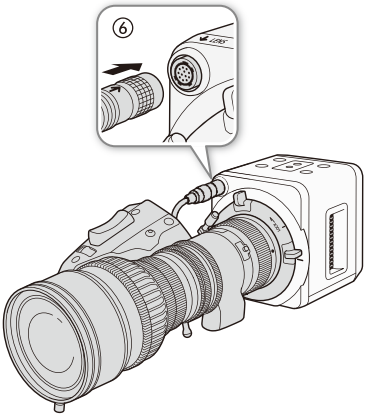


Only when using a compatible EF Cinema lens (**33**)

6 Connect the lens's 12-pin cable to the camera's LENS terminal.

7 Turn on the camera.

8 On the lens's MENU screen, select the signal path for data communication with the camera.
- In the [Info] screen, set [I/Fprior] to [Mount].

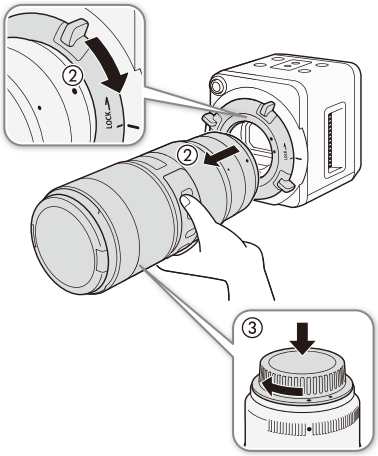


Removing an EF Lens

1 Turn off the camera.
- If an EF Cinema lens is connected to the camera's LENS terminal, disconnect the 12-pin cable after turning off the camera.
- The camera does not have a power switch. To turn the camera on or off, connect or disconnect the power cable.

2 While holding the bottom of the lens, turn the lens mount handle clockwise until it stops and remove the lens.
- Make sure not to drop the lens when removing it.

3 Place the body cap back on the lens mount and the dust caps back on the lens.



NOTES

- **About using an EF-S lens or compatible EF Cinema lens:** This camera's sensor is larger than the sensor size for which these lenses are designed (APS-C or Super 35mm). When using these lenses with the camera, you may notice peripheral illumination fall-off or vignetting. To prevent this, you can use the [EF-S Lens] setting to change the sensor area that is used for producing the image (*Network Operation Guide* or *Button Operation Guide*). This setting digitally enlarges the image by a factor of approx. 1.55 so the image quality will deteriorate.
- Depending on the lens's characteristics, the corners of the picture may seem darker due to light fall-off or illumination drop. You can have the camera compensate if it has the correction data available for the lens (*Network Operation Guide* or *Button Operation Guide*).
- If you are using a compatible lens*, you can use the [Camera Setup] ❯ [Zoom-Iris Correct.] setting to have the camera adjust the aperture while zooming** (*Button Operation Guide*).

  * Some EF lenses and EF Cinema lenses are not compatible with this function.

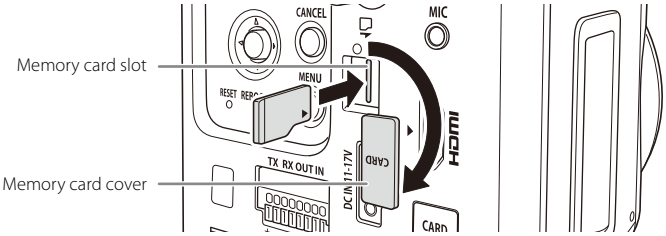
  ** This setting is available only by using the buttons.

Using a Memory Card

Insert a memory card before installing the camera.

NOTES

- For recording onto a memory card, the following settings are required.
  System frequency: 59.94 Hz
  Frame rate: 29.97P
  Resolution: 1920 x 1080



Removing the Memory Card Cover

Place your fingers on the left edge of the memory card cover and pull to remove.

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

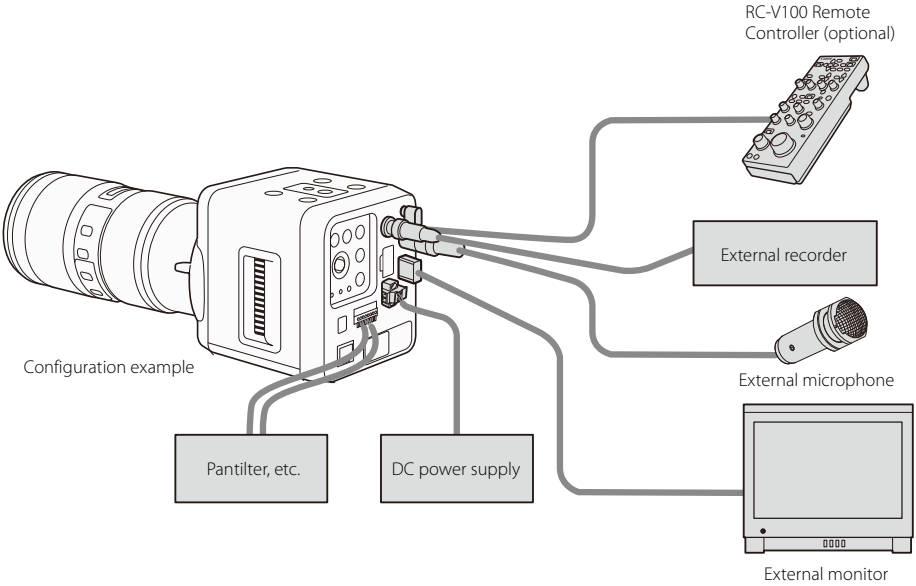
- Make sure to turn off the camera before this operation.
- When using a memory card with the camera for the first time, it is recommended to format the card after inserting it into the camera (📖 *Network Operation Guide*).
- Always unmount the memory card before removing it (📖 *Network Operation Guide*).

Overview of Connecting to External Devices

There are many ways in which you can configure the camera by connecting external devices. You can connect an external monitor, external recorder, optional RC-V100 Remote Controller, external microphone, pantilter, etc., as necessary. Refer to the following pages for more details.

IMPORTANT

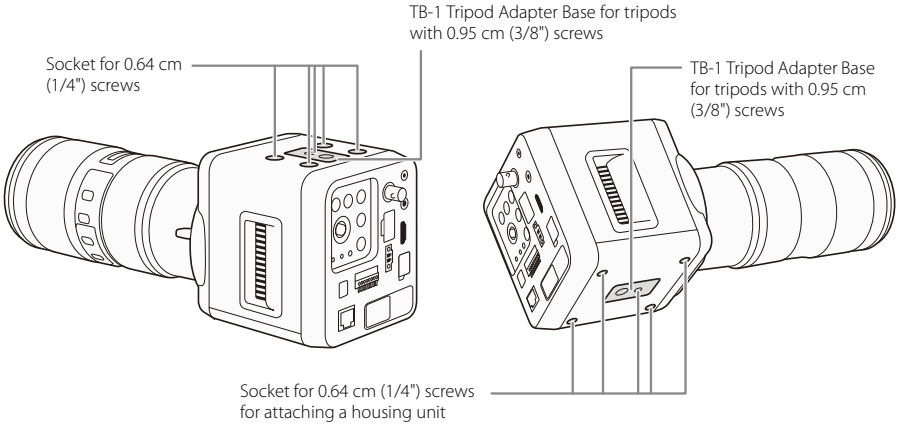
- Make sure to turn off the camera before connecting to external devices.



- For an external monitor, refer to *Connecting to an External Monitor* (16).
- For an external recorder, refer to *Connecting to an External Recorder* (26).
- For a pantilter, refer to *Connecting to RS-422/485 Terminals* (28).
- For external devices, refer to *Connecting to External Devices* (29).
- For an external microphone, refer to *Audio Input and Output* (30).
- For an optional RC-V100 Remote Controller, refer to *Using the Optional RC-V100 Remote Controller* (31).

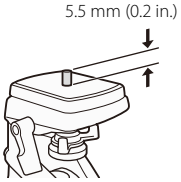
Installing the Camera

Depending on where you install the camera, you may want to use a commercially available tripod, pantilter, housing unit or other accessory. The camera is shipped with two TB-1 Tripod Adapter Bases for tripods and accessories with 0.95 cm (3/8") screws. In addition, the camera body itself is equipped with sockets for 0.64 cm (1/4") screws.



IMPORTANT

- You can mount the camera on a tripod or similar accessory but do not use accessories with mounting screws longer than 5.5 mm (0.2 in.).



Tips for Shooting Video

Please note the following at the time of shooting.

IMPORTANT

- Be careful not to obstruct in any way the fan's air vents.

NOTES

Color bars and audio reference signal

- If the [Camera Setup] ❯ [Color Bars] ❯ [Activate] setting is set to [On], video output via a network will not be available.
- You can have the camera output color bars using the following controls or settings.
  - Press the BAR button.
  - Use the [Camera Setup] ❯ [Color Bars] ❯ [Activate] setting (📖 *Button Operation Guide*).
  - When an optional RC-V100 Remote Controller is connected to the camera, you can press the remote controller's BARS button.

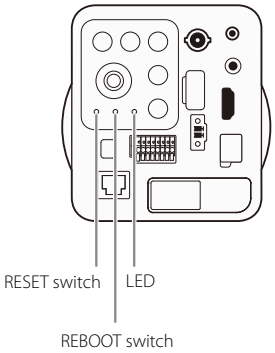
- You can select the type of color bars using the [Camera Setup] ❯ [Color Bars] ❯ [Type] setting (📖 *Button Operation Guide*).
- You can use the [Audio/Video Setup] ❯ [1kHz Tone] setting to output a 1-kHz audio reference signal with the color bars (📖 *Button Operation Guide*).

Ventilation fan

- You can set the speed of the cooling fan with the [Other Functions] ❯ [Fan Speed] setting (📖 *Button Operation Guide*).
- While the fan is running, the exhaust vent will emit warm air.
- If the cooling fan is not working properly, a warning is displayed on the external monitor, or you can check the log information when using the camera via the network (📖 *Network Operation Guide* or *Button Operation Guide*).

Rebooting/Resetting the Camera

This section describes how to operate the REBOOT switch and the RESET switch.
To reboot/reset the camera by menu operation with the buttons* or via the network, refer to the respective operation guide.
* Rebooting is not available by menu operation with the buttons.



Rebooting

To reboot the camera, press the REBOOT switch.

Resetting

To reset the camera to its factory default settings, press the RESET switch and REBOOT switch while checking the LED in the following order.
1) Hold the RESET switch down, and press the REBOOT switch.
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 (it may take a few minutes).

NOTES

- If you restore factory default settings, you will become unable to connect to the network because the administrator account is also initialized.
  Use the Camera Management Tool to configure the initial settings.

Difference of Reset Items between Operating Methods

The items that can be reset differ depending on the operating method as described in the table below. Refer to *Network Operation Guide* or *Button Operation Guide* for more details.

Items to be reset	Operating methods/Setting items
All settings	• RESET/REBOOT switch • Via the network ([Maintenance] ❯ [General] ❯ [Initialization] ❯ [Network Settings] ❯ [Do not save] on the Setting Page)
Settings other than the following network settings: • Administrator name • Administrator password • Network settings • NTP server • HTTP server • Host access restrictions • Time zone • Certificates • Private key • IPsec	• Via the network ([Maintenance] ❯ [General] ❯ [Initialization] ❯ [Network Settings] ❯ [Save] on the Setting Page) • Button operation ([Other Functions] ❯ [Reset] ❯ [All Settings])
The following camera settings only: • White balance • Iris • Gain • Shutter speed • ND filter • Custom picture • Focus limit, etc.	• Button operation ([Other Functions] ❯ [Reset] ❯ [Camera Settings])

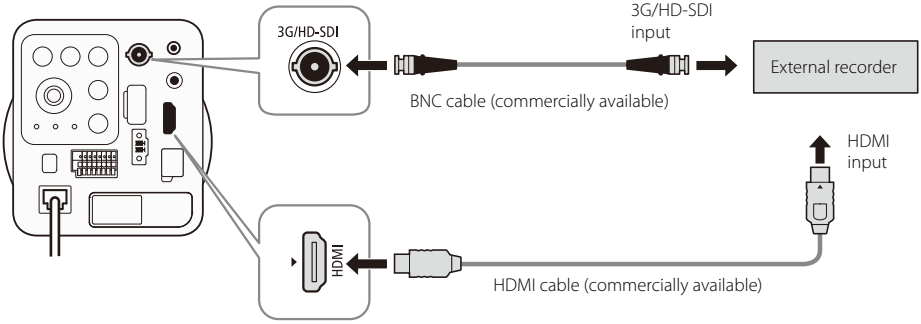
NOTES

- None of the above methods will reset the date/time and hour meters. The hour meters can be reset by the button operation (📖 *Button Operation Guide*).

3 External Connections

Connecting to an External Recorder

Connect the camera to an external recorder using the 3G/HD-SDI terminal or HDMI OUT terminal. Use the terminal on the camera that matches the one you wish to use on the external recorder. For details on compatible external recorders, consult the retail dealer from whom you purchased the camera or contact a Canon Service Center. For details on connecting the camera to an external monitor, refer to *Connecting to an External Monitor* (16).



Outputting a Recording Command to an External Recorder

You can use an assignable button set to [External Rec] or an optional RC-V100 Remote Controller to output a recording command to an external recorder connected to the camera to start or stop recording.

1 Set an assignable button to [External Rec].
[Other Functions] ❯ [Assignable Buttons] ❯ Desired button ([1] to [4 (Remote)]) ❯ [External Rec] (*Button Operation Guide*)

2 Press the assignable button to output a recording command to start recording.
- Alternatively, when an optional RC-V100 Remote Controller is connected to the camera, you can press the remote controller's START/STOP button.
- [Rec] will appear on the right of the screen.

3 Press the assignable button again to output a recording command to stop recording.
- [Rec] will disappear.

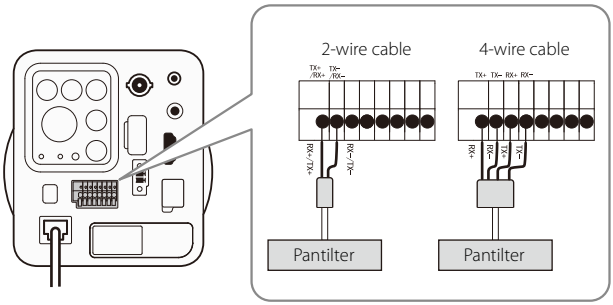
NOTES

- If the recording command does not seem to be output when you press the assignable button, make sure that the [Audio/Video Setup] ❯ [Rec Command] ❯ [Activate] setting is set to [On] (*Button Operation Guide*).
- You can use the [Audio/Video Setup] ❯ [Rec Command] ❯ [Remove OSD] setting to automatically turn off the camera's onscreen displays whenever a recording command is being output (*Button Operation Guide*).

- While a recording command is being output, the following settings are not available to be changed.
  - [Camera Setup] ❯ [ABB]
  - [Audio/Video Setup] ❯ [3G-SDI Mapping], [Rec Command]
  - [Other Functions] ❯ [Reset], [Time Zone], [Set Clock] ❯ [Date/Time], [Assignable Buttons], [System Frequency], [Frame Rate], [Resolution], [Camera Name]

Connecting to RS-422/485 Terminals

Connect the camera to external devices such as a pantilter (commercially available) using the RS-422/485 terminals.



IMPORTANT

- Do not push the RS-422/485 terminal button with too much force. Doing so may cause the button to remain pushed-in.

NOTES

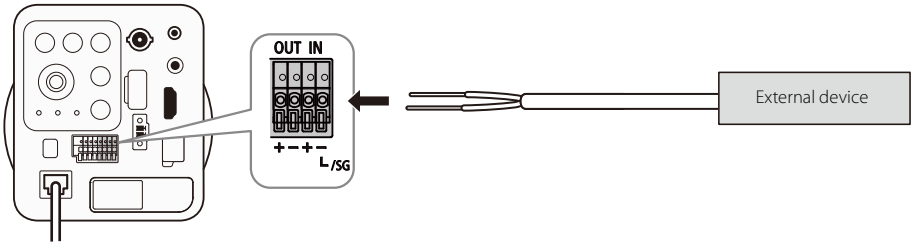
- Adaptive wiring for cables: Solid wire/Stranded wire AWG No. 26 – 20
- Cable strip should be approx. 11 mm (0.43 in.).
- The recommended maximum length of cable is 30 m (98.4 ft.).

Connecting to External Devices

External device I/O terminals consist of one input system and one output system. Viewer can be used via the network to check external device input status and control output to an external device (📖 *Network Operation Guide*). Be careful of the polarity when connecting.

IMPORTANT

- 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 Input Terminals (IN)

External device input terminals consist of two terminals (positive and negative), with the negative terminal connected to the camera interior GND. Connecting a 2-wire cable to the positive and negative terminals and opening or closing the circuit notifies the Viewer.

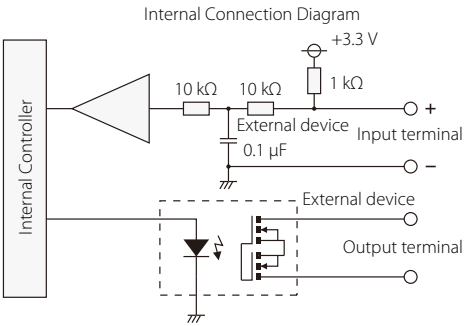
IMPORTANT

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

External Device Output Terminals (OUT)

External device output terminals consist of two terminals (positive and negative). The pair has 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.

Rating range of the load connected to the output terminals
Rating between output terminals:
Maximum voltage 50 V DC
Continuous load current at or below 100 mA
On resistance: Max. 30 Ω



NOTES

Adaptive wiring for external device cables
Solid wire/Stranded wire AWG: No. 26 – 20
Cable strip should be approx. 11 mm (0.43 in.).

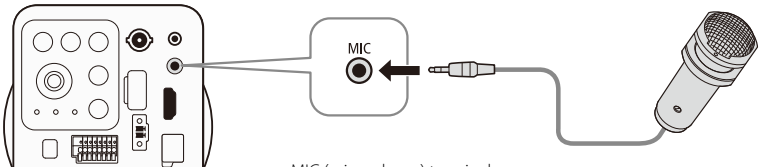
Audio Input and Output

You can connect a commercially available microphone with a ∅ 3.5 mm stereo mini plug to the MIC terminal. The audio from the external microphone will be output from the 3G/HD-SDI terminal or HDMI OUT terminal, or via the network.

Audio Input

Connection Diagram

If you connect a commercially available plug-in power microphone (generally, an electret condenser microphone that requires external power), you will need to perform the procedure below to supply power to the MIC terminal.



MIC (microphone) terminal
φ3.5 mm (φ0.14 in.) stereo mini jack for plug-in power microphones
Supplied voltage: 2.8 V DC (bias resistance 2.2 kΩ)
Sensitivity: -72 dBV (full scale -18 dB) / 600 Ω

Supplying Power to a Plug-in Power Microphone

When using the camera via the network, refer to *Network Operation Guide*.

1 Open the [MIC Power] submenu.
[Audio/Video Setup] ❯ [MIC Power]

2 Select [On] and then press SET.

[Audio/Video Setup]
▽
[MIC Power]
▽
[Off]

IMPORTANT

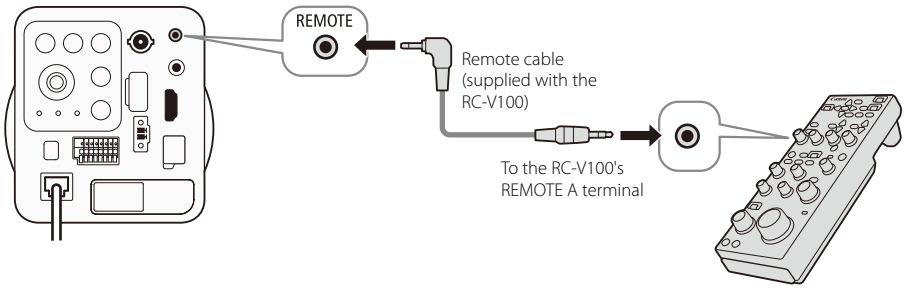
- Supplying power to a microphone without plug-in power functionality may damage the microphone.

Audio Output

The camera features 2-channel linear PCM audio output from the 3G/HD-SDI terminal or HDMI OUT terminal. The sampling frequency is 48 kHz and the audio bit depth is 16 bit. The audio output also from the network terminal is of 1-channel (monaural) G.711 μ-law format (sampling frequency 8 kHz, audio bit depth 8 bits). The audio from the external microphone will be output with the video signal and can be recorded with an external recorder connected to the camera.

Using the Optional RC-V100 Remote Controller

You can connect the optional RC-V100 Remote Controller to control the camera. In addition to turning the camera on and off and navigating the menu, you can control various shooting-related functions, such as aperture, shutter speed, and custom picture settings, like knee and sharpness. For details on how to connect and use the remote controller, refer to its instruction manual. Visit your local Canon website to download the latest version.



NOTES

- The following controls on the remote controller will not operate the camera: ONSCREEN button, (review recording) button, SHUTTER SELECT button, AGC button, AUTO KNEE button, AF button and AUTO IRIS button.
- The ZOOM dial on the remote controller can operate the camera only when a compatible EF Cinema lens (33) is attached to the camera and the lens's zoom operation change-over knob is set to SERVO.
- To turn on the camera on its body side after turning it off using the remote controller, press the REBOOT switch, or disconnect and reconnect the LAN cable.
- You can disable the operation from the remote controller (*Network Operation Guide*).

Maintenance and Others

Built-in Rechargeable Lithium Battery

The camera has a built-in rechargeable lithium battery to keep the date/time and other settings. The built-in lithium battery is recharged while you use the camera; however, it will discharge completely if you do not use the camera for about 3 months.

To recharge the built-in lithium battery: Power the camera with an external power supply for 24 hours.

Cleaning

Camera Body

- Use a soft, dry cloth to clean the camera's body. Never use chemically treated cloths or volatile solvents such as paint thinner.

Lens

- Remove any dust or dirt particles using a non-aerosol type blower.
- Use a clean, soft lens-cleaning cloth to gently wipe the lens. Never use tissue paper.

Compatible Lenses and Functions

Following is a list of lenses compatible with this camera and the various functions that can be used depending on the lens. Depending on the lens's purchase date, you may need to update the lens's firmware to use these functions. For details, consult a Canon Service Center.
Visit your local Canon website for the latest information about compatible lenses.

IMPORTANT

- Image stabilization mechanism of the lens does not work with this camera.
- EF Cinema lenses are not available when using PoE+ power supply. Use an external power supply (DC power supply) for the camera with an EF Cinema lense attached.

Lens	12-pin interface cable	Iris control from the camera		Focus control from the camera	
		Manual	Push auto iris*	Manual**	AF
EF lenses		●	●	●	●
EF Cinema lenses					
CN7x17 KAS S/E1	Required***	●	●	●	●
CN20x50 IAS H/E1	Required***	●	●	●	–
CN-E18-80mm T4.4 L IS KAS S		●	●	●	●

* Not available via the network.
** When an optional RC-V100 Remote Controller is connected to the camera, or used via the network
*** If the lens's drive unit is powered from an independent power source, the connection to the camera is not required.

List of Setting Items for Each Operating Method

Available setting items are different depending on the operating method. The following table lists the setting items that can be configured using only one of the operating methods.
Setting items that are not listed here can be configured in both operating methods. For details, refer to *Network Operation Guide* or *Button Operation Guide*.

Setting Items Available Only via the Network

Setting item	Menu item
LAN/IPv4/IPv6/DNS/mDNS	[Basic] ❯ [Network]
Administrator Account / Authorized User Account / User Authority	[Basic] ❯ [User Management]
Synchronize with computer time	[Basic] ❯ [Date and Time] ❯ [Settings] ❯ [Settings Method]
Synchronize with NTP server	[Basic] ❯ [Date and Time] ❯ [Settings] ❯ [Set NTP Server Settings Automatically] [Basic] ❯ [Date and Time] ❯ [Settings] ❯ [NTP Server] [Basic] ❯ [Date and Time] ❯ [Settings] ❯ [Synchronization Interval]
Daylight Saving Time	[Basic] ❯ [Date and Time] ❯ [Settings] ❯ [Daylight Saving Time]
JPEG Video Quality, Video Size / H.264 Video Quality, Video Size	[Basic] ❯ [Video]
Default Page / User Authentication / Rotate Video Display / H.264 for Guest Users	[Basic] ❯ [Viewer]
Output control / Input control / Camera Position Control / Device Name of External Input/Output Device	[Basic] ❯ [System]
Adjusting the Focus	[Camera] ❯ [Camera] ❯ Near/Far buttons
Register Preset (Digital PTZ Position / Camera Settings / Preset Name)	[Camera] ❯ [Preset] ❯ [Register Preset]
ADSR / On-screen display / Privacy Mask	[Video and Audio]
Server (Video Server / Audio Server / RTP Server, etc.)	[Server]
Memory Card Operations/Information	[Video Record] ❯ [Memory Card] [Memory Card] ❯ [Memory Card]
External Device Output/Input (Operation Mode / Active Event Operation / Infrared Switching)	[Event] ❯ [External Device]
Timer (Timer Event / Start/End Time / Video Record, etc.)	[Event] ❯ [Timer]
Intelligent Function	[Event] ❯ [Intelligent Function]
Preset when Switching to Normal Capture	[Event] ❯ [Infrared Switching]
Preset when Switching to Infrared	
Security (User Management / Host Access Restrictions / IPsec, etc.)	[Security]
Device Information (Model Name / Firmware Version / Serial Number, etc.) / Reboot	[Maintenance] ❯ [General]
Backup / Restore	[Maintenance] ❯ [Backup / Restore]

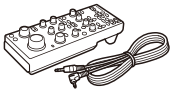
Setting item	Menu item
Update Firmware	[Maintenance] ❯ [Update Firmware]
View Logs / Log Notifications	[Maintenance] ❯ [Log]

Setting Items Available Only by Using the Buttons

Setting item	Menu item
AE Response/Shockless WB/Zoom-Iris Correct./Focus Limit/ Focus Control/Auto Black Balance/Color Bars	[Camera Setup]
Custom Picture (Chroma Key Corr.)	[Custom Picture] ❯ [Fine Tuning]
1kHz Tone/3G-SDI Mapping/Rec Command	[Audio/Video Setup]
Assignable Buttons/Fan Speed/Aspect Marker/Custom Display/ Reset Hour Meter/Displaying the firmware version of the camera	[Other Functions]
Push Auto Iris	Assignable buttons

Optional Accessories

The following optional accessories are compatible with this camera. Some accessories are not available in certain countries or regions.



RC-V100
Remote Controller

TB-1 Tripod Adapter Base

For our customers in the USA: Call or visit your local retailer/dealer for genuine Canon video accessories. You can also obtain genuine accessories for your Canon camera by calling:
1-800-828-4040, Canon U.S.A. Information Center.

Use of genuine Canon accessories is recommended.
This product is designed to achieve excellent performance when used with genuine Canon accessories.

This mark identifies genuine Canon video accessories.

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