

Color Video Camera

Operating Instructions

Software Version 1.0

Before operating the unit, please read this manual thoroughly and retain it for future reference.

BRC-X1000/H800

Table of Contents

Overview

Using This Manual	4
Precautions for Preventing Access to the Camera by an Unintended Third Party	5
Features	6
Location and Function of Parts	7
Camera	7
Remote commander (supplied)	10
System Configuration	13
Operating the camera using the supplied remote commander	13
Operating the camera using the remote controller (not supplied)	13
Connecting multiple cameras to the remote controller (not supplied)	14

Installation and Connection

Installing the Camera	15
Installing the camera on a desk	15
Installing the camera at a high spot	16
Connecting the Camera	23
Connecting an AC power supply	23
Connecting the camera to a PoE+ (Power over Ethernet Plus) power supply device	24
Connecting a single camera to a switcher, recorder and monitor	25
Connecting a single camera to a single remote controller (not supplied)	26
Connecting a single camera to a single remote controller (not supplied)	26
Connecting multiple cameras to a single remote controller (not supplied)	27
Connecting a commercially available video switcher	28
Externally synchronizing a single camera	29

Adjusting and Configuring through On-Screen Menus

About On-Screen Menus	30
Main menu	30
Setting menu	30
How to Use Menus	31
Using the supplied remote commander	31
EXPOSURE Menu	32
COLOR Menu	34
DETAIL Menu	35
KNEE Menu	36
GAMMA/VISIBILITY ENHANCER Menu	36
GAMMA	36
VISIBILITY ENHANCER	37
FOCUS Menu	37
PICTURE/OPTICAL FILTER Menu	38
PAN TILT/ZOOM Menu	39
VIDEO OUT Menu	39
SYSTEM Menu	40
NETWORK Menu	41

Operations Using the Supplied Remote Commander

Before Starting Operations	42
Turning on the Power	42
Pan/Tilt and Zoom Operations	42
Panning and Tilting	42
Zooming	43
Operating multiple cameras with the remote commander	44
Adjusting the Camera	44
Focusing on a subject	44
Shooting with back lighting	44
Storing the Camera Settings in Memory – Presetting Feature	45

Upgrading the firmware

Before starting the operation	46
Setting-up the PC	46
Accessing the camera using the Web browser	46
Operation	47
Firmware update tab	47
Password tab	47

Appendix

Message List	48
Troubleshooting	49
Menu Configuration	50
Preset Items	53
Specifications	55
Dimensions	57
SYSTEM SELECT switch settings	58
Pin array of the VISCA RS-422 terminal and how to use it	58

Overview

Safety Regulations (Supplied)

Describes the important points for safe use of the camera.

Be sure to read it.

Operating Instructions (This document/ Web)

These operating instructions describe the names of the various parts of camera and installation, connection, and operation methods.

Using This Manual

The Operating Instructions is designed to be read on a computer display.

The content you need to know in order to use the camera is described here.

Read it before you operate the camera.

Jumping to a related page

When you read the instructions on a computer display and click on the related part of the relevant page that is being displayed, you jump to the related page. Relevant pages can be searched easily.

Software display examples

The software displays described in this manual are explanatory examples. Note that some displays may be different from the ones that actually appear.

The illustrations of the camera and menu display in the instructions show the BRC-X1000 as an example.

Printing the Operating Instructions

Depending on your system, certain displays or illustrations in the Operating Instructions, when printed out, may differ from those that appear on your screen.

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Precautions for Preventing Access to the Camera by an Unintended Third Party

The camera settings may be changed by an unintended third party on the network, depending on the usage environment.

The camera can be fraudulently accessed in a network environment where a device is connected or connectable to the network without the administrator's permission, or where a PC or other network device connected to the network can be used without any permission.

Connect to these environments at your own risk.

After configuring the camera, immediately change the password you use for upgrading the firmware on the camera with a Web browser on your PC. For how to change password, refer to "Password tab" (page 47) in "Updating the System".

Features

Pan/Tilt/Zoom CMOS video camera equipped with a small built-in pan-tilt head

- The camera unit is equipped with a 1.0-type Exmor R[®] CMOS sensor and an optical 12× zoom lens with pan/tilt/zoom features integrated into a small built-in pan-tilt head. This versatile camera can be used for various applications.
- The pan-tilt head can pan to the right or left by ±170 degrees and tilt upward to 90 degrees and downward to 30 degrees, which allows the camera to remotely shoot wide areas.
- The camera pans and tilts smoothly, even at low movement speed.
- The camera pans and tilts quietly, even at its maximum speed of 60 degrees per second.

High sensitivity and high resolution from built-in 1.0-type CMOS image sensor

With the built-in highly photosensitive 1.0-type Exmor R[®] CMOS sensor, high resolution shooting with less noise can be achieved. Highly sensitive shooting unique to the large sensor can be achieved. In addition, the camera is equipped with a ZEISS Vario-Sonnar T* built-in lens.

Supports multi-format

3840 × 2160/29.97p (2SI)*¹

1920 × 1080/59.94p, 1920 × 1080/59.94i, 1280 × 720/59.94p

3840 × 2160/25p (2SI)*¹

1920 × 1080/50p, 1920 × 1080/50i, 1280 × 720/50p

Switching possible with the SYSTEM SELECT switch

*¹ Compatible only with the BRC-X1000

Equipped with 3G-SDI and HDMI output

The camera can deliver 4K output for both Dual Link 3G-SDI × 2 (2SI) and HDMI.

Various installation environments are available in order to establish a connection with HDMI, in addition to the coaxial cable.

Equipped with PoE+ (Power Over Ethernet Plus)

The camera is compatible with PoE+ (Power Over Ethernet Plus), so a single LAN cable can be used for power provision and control.

Adopting VISCA Camera Protocol

- The camera is equipped with a RS-422 communication interface. The camera supports the industry-standard VISCA camera protocol. Hence, a maximum of seven cameras can be connected and remotely operated with high communication speed (38,400 bps).
- Remote controller (not supplied) allows easy camera operations.

Compatible with VISCA over IP protocol

An IP connection can be established between the camera and the remote controller.

Equipped with External Video Sync Function

The camera is equipped with an external video sync function to synchronize the camera images on multiple cameras.

Equipped with Tally Lamp Function

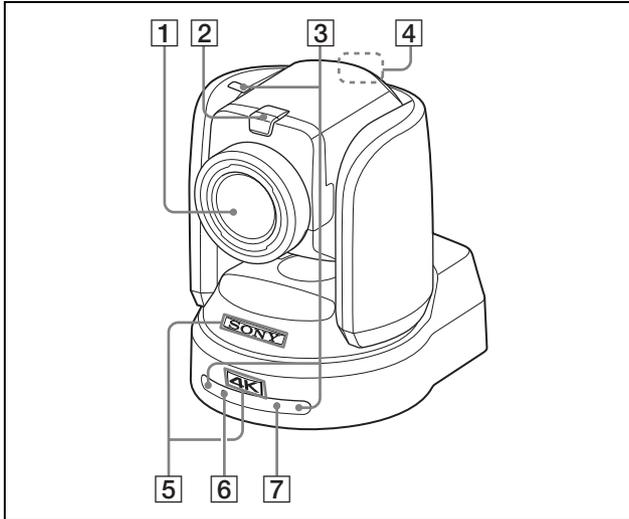
The camera is equipped with a Tally lamp that quickly distinguishes when the camera is in use.

The front Tally lamp is a large Tally lamp used for improving visibility. The camera is also equipped with a Tally lamp behind the camera block, in order to improve visibility from the rear side.

Location and Function of Parts

Camera

Front (BRC-X1000)



1 Lens

This is a 12× magnification optical zoom lens. When CLEAR IMAGE ZOOM in the PAN TILT ZOOM menu is turned on, the camera can zoom up to 18× for 4K and 24× for HD.

Note

Do not touch the part around the lens or the ring outside the lens when energized. It may cause a malfunction.

2 Tally lamp

Lights up in red when a VISCA Tally command is received or the camera is selected by the remote controller (not supplied) (depending on the setting mode). Brightness can be selected from HIGH, LOW, and OFF (the lights are turned off) in TALLY MODE in the SYSTEM menu.

3 Remote commander sensors

These are sensors for the supplied remote commander.

4 Back Tally lamp

Lights up in red when a VISCA Tally command is received or the camera is selected by the remote controller (not supplied) (depending on the setting mode). The back Tally lamp does not light up when TALLY MODE in the SYSTEM menu (page 41) is set to OFF.

If a fault inside the camera is detected, the lamp flashes at approximately 0.7 second intervals irrespective of the on/off status of the back Tally lamp. When a fault is detected, its content will be displayed in the menu (see page 48). If, however, “CAMERA FAULT” is shown, the back Tally lamp may not flash.

5 SONY nameplate, 4K or HD nameplate

Pull them out to turn them over and attach upside down if required.

4K: BRC-X1000

HD: BRC-H800

6 POWER lamp

Flashes in green when the camera is connected to an outlet using an AC adapter and power cord (not supplied), or when power is being supplied by connecting the camera and PoE+ Hub using a LAN cable. The green lamp stops flashing and lights up when start-up is complete.

The green lamp flashes when the camera receives an operation command from the supplied remote commander.

The orange lamp comes on when the POWER button on the supplied remote commander is pressed.

The yellow lamp flashes while upgrading the firmware.

The yellow lamp flashes during a user version upgrade.

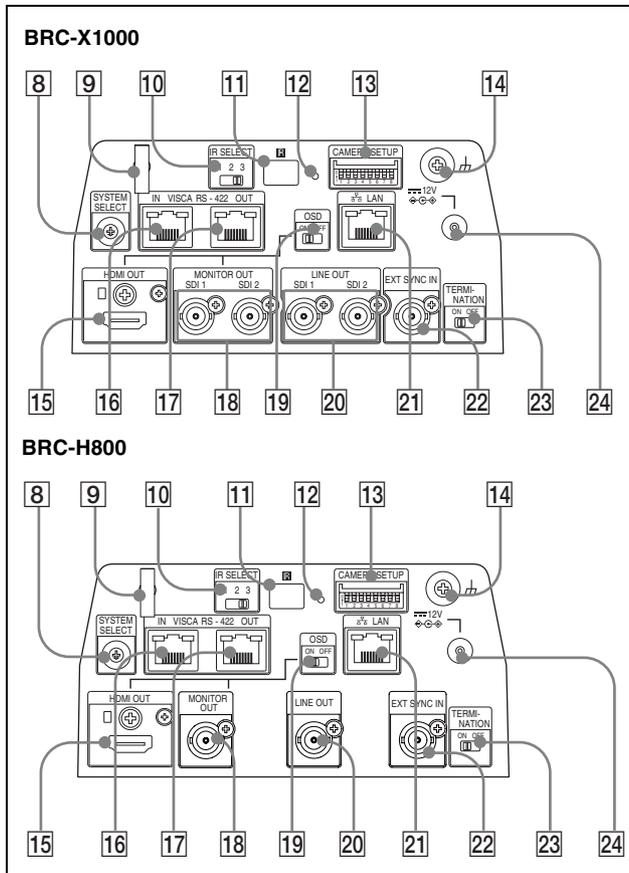
The orange lamp flashes when there are defects in the camera (for instance, when rotations of fan motor slow down or stop etc.).

7 Network lamp

Lamp flashes during initialization when it is connected to a PoE+ Hub using a LAN cable and power is being supplied from the PoE+ Hub. The lamp lights up when it is connected to the network once start-up is complete.

Lights up after start-up is complete if network is connected, when power is supplied to the camera from outlet using AC adapter and power cord. The lamp is unlit when not connected to the network. The lamp turns off while upgrading the firmware. The lamp flashes when there are defects in the camera (for example, when the fan motor stops).

Back



8 SYSTEM SELECT switch

Used for selecting the video format of the signal to be output from the HDMI OUT, MONITOR OUT, and LINE OUT terminals.
For details, see “SYSTEM SELECT switch settings” (page 58).

9 AC adapter cord clamper

Fix the cord of an AC adapter with the cord clamper so that it does not come out.

Note

Do not use any AC adapter other than the specified optional one. Otherwise, a fire or malfunction may occur.

10 IR SELECT switch

Select the camera number when you operate multiple cameras with the same remote commander.

11 Remote commander sensors

This is sensor for the supplied remote commander.

12 Network reset switch

This switch is for initializing network settings such as the IP address.
Press the switch for 5 seconds or longer with a pen point, etc., to initialize the network settings.
The camera will reboot, and the network settings will return to the factory default.

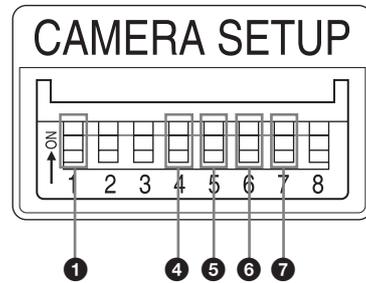
Factory settings for network

IP address: 192.168.0.100
Subnet mask: 255.255.255.0
Default gateway: 0.0.0.0
Name: CAM1
Password: Admin_1234

**13 CAMERA SETUP switches
SDI format/level settings**

The baud rate settings and camera address settings of RS-422 are set for VISCA communication.

CAMERA SETUP switch settings



Switch No.	Setting items
1	Setting up 3G-SDI level
2	System reserve
3	
4	Baud Rate settings of RS-422 for VISCA communication
5	VISCA Address settings for VISCA communication
6	
7	
8	System reserve

1 SDI format/level settings

Switch state	SDI format/level
ON	Level-B
OFF	Level-A

* Turn the power off or to standby, then turn the power on to reflect the changes after setting

4 Baud Rate settings of RS-422 for VISCA communication

Switch state	Baud Rate
ON	38,400 bps
OFF	9,600 bps

* Turn the power off and on to reflect the changes after setting

5 6 7 Camera address settings

Sets camera address.

It is normally set to “Auto”. When “Auto” is selected, an address is automatically assigned to the camera.

To set the address manually, set a value between “1” to “7” for this switch as indicated below.

Switch No.			Camera address
5	6	7	
OFF	OFF	OFF	Auto
ON	OFF	OFF	1
OFF	ON	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
ON	OFF	ON	5
OFF	ON	ON	6
ON	ON	ON	7

* Turn the power off and on to reflect the changes after setting

14 \earth (earth) terminal

15 HDMI OUT terminal

Supplies the images as an HDMI video signal.

* The contents of the menu screen, such as text, can be displayed in the output signal when the OSD switch is turned ON.

Notes

- When either 0 or 8 is selected for SYSTEM SELECT, 2K output from the HDMI output terminal results in lower quality images.
- When 7 is selected for SYSTEM SELECT, VGA output from the HDMI output terminal results in lower quality images.

16 VISCA RS-422 IN terminal

Connect with an remote controller (not supplied). When you connect multiple cameras, connect it to the VISCA RS-422 OUT terminal of the previous camera in the daisy chain connection.

17 VISCA RS-422 OUT terminal

When you connect multiple cameras, connect it to the VISCA RS-422 IN terminal of the next camera in the daisy chain connection.

18 MONITOR OUT

Outputs the image from the camera as a 4K or HD signal.

4K output:

Connect the SDI 1 (3G-SDI) output to the SDI 1 input and the SDI 2 (3G-SDI) output to the SDI 2 input respectively.

HD output:

Connect to SDI 1 (3G-SDI) or SDI 2 (3G-SDI).

* The contents of the menu screen, such as text, can be displayed in the output signal when the OSD switch is turned ON.

* For the BRC-H800, only HD output is available.

19 OSD (On Screen Display) switch

The contents of the menu screen, such as text, can be superimposed onto the video signal output to MONITOR OUT & HDMI OUT when the switch is turned ON.

20 LINE OUT

Outputs the image from the camera as a 4K or HD signal. OSD (screen display) is not superimposed, irrespective of the OSD switch setting.

Equivalent signals are delivered to both SDI 1 and SDI 2.

4K output:

Connect the SDI 1 (3G-SDI) output to the SDI 1 input and the SDI 2 (3G-SDI) output to the SDI 2 input respectively.

HD output:

Connect to SDI 1 (3G-SDI) or SDI 2 (3G-SDI).

* For the BRC-H800, only HD output is available.

21  LAN (network) terminal (RJ-45)

Network communication and PoE+* power supply are provided using the network cable (category 5e or higher, shielded twist pair).

For more information on the connection, refer to the instruction manual of the power supply system.

(*PoE+: an abbreviation of Power over Ethernet Plus, which complies with IEEE802.3at)

The indicator lights up or flashes when the camera is connected to the network.

The indicator is off when the camera is not connected to the network.

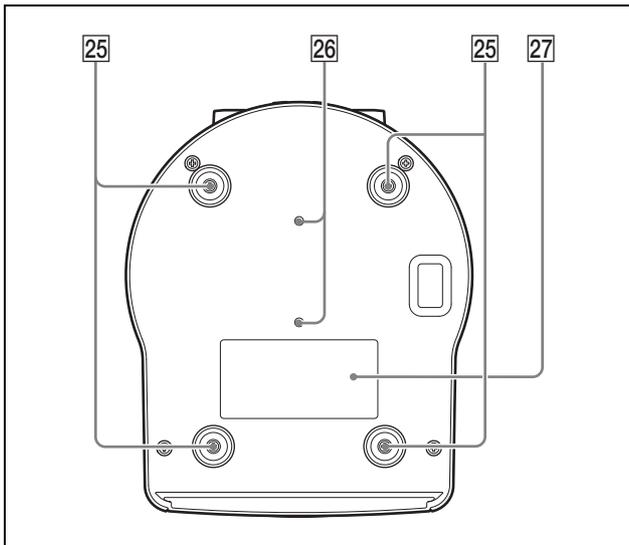
22 EXT SYNC IN

Accepts external video sync signals.

23 TERMINATION switch

24 12 V (DC power input) terminal
Connect the AC adapter (not supplied).

Bottom



25 Ceiling bracket mounting screw holes

When you install the camera to the ceiling, on a shelf, or in another high spot, secure the supplied ceiling bracket to these holes using four of the supplied screws.
The four feet are attached to the holes at the factory.

For installation, see “Installing the camera at a high spot” (page 16).

26 Tripod screw holes (1/4-20UNC)

Used to fix the camera to the camera tripod or something similar.

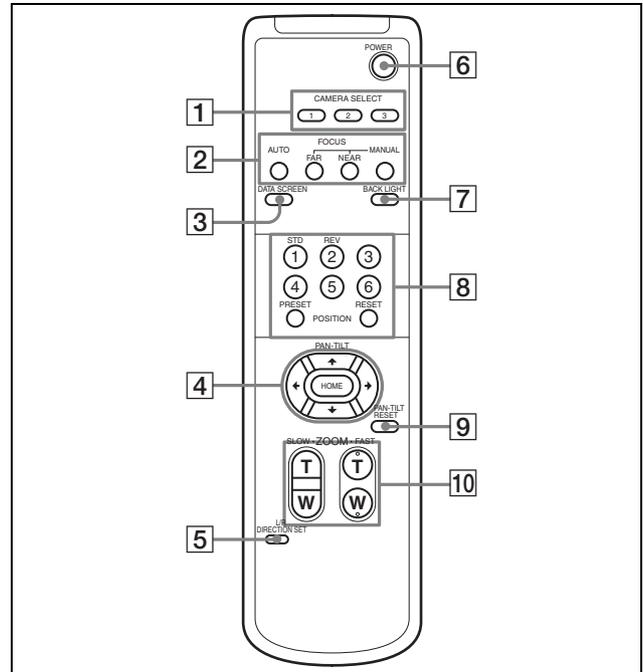
27 Rating label

This label shows the name of device and its electric rating.

Important

The product name and electric rating are located at the bottom of the unit.

Remote commander (supplied)



1 CAMERA SELECT buttons

Press the button corresponding to the camera you want to operate with the remote commander. The camera number can be set using the IR SELECT switch on the rear of the camera.

Note

If two or more cameras are adjacent and have the same camera number, they are operated simultaneously with the supplied remote commander. When you install the cameras close to each other, set different camera numbers.

For setting of camera No., see “Operating multiple cameras with the remote commander” (page 44).

2 FOCUS buttons

Used for focus adjustment.
Press the AUTO button to adjust the focus automatically. To adjust the focus manually, press the MANUAL button, and adjust it with the FAR and NEAR buttons.

Notes

Press the MANUAL button and adjust the focus manually when shooting the following objects.

- White walls and other objects without contrast
- Objects behind glass
- Objects with horizontal stripes
- Objects on which bright lights are cast or reflected
- Nightscapes and other dark objects with blinking lights
- Lit objects shot with darkened exposure adjustment or exposure compensation settings

3 DATA SCREEN button

Press this button to display the main menu PAGE. Press it again to close the menu. If you press the button when a lower-level menu is selected, the display goes back to a higher-level menu.

Notes

- You cannot perform pan/tilt/zoom operations while the menu is displayed.
- The menus are output through MONITOR OUT and HDMI OUT.
When you want to display the menus, turn on the OSD switch on the back of the camera.

4 PAN-TILT button

Press the arrow buttons to pan or tilt the camera. Press the HOME button to face the camera back to the front.
When the menu is displayed, use **▲** or **▼** to select the menu items and **◀** or **▶** to change the set values. Display the menu of selected items with the HOME button.
The selected setting menu is displayed by pressing the HOME button when the main menu is displayed.

5 L/R DIRECTION SET button

Hold down this button and press the REV button to change the direction of the camera movement to be opposite the direction of the arrows on the **◀** and **▶** buttons. To reset the direction of the camera movement, press the STD button while holding down this button.

6 POWER button

Press this button to turn on power or to put the camera in the standby mode.

7 BACK LIGHT button

Press this button to enable backlight compensation. Press it again to disable backlight compensation.

Note

The BACK LIGHT button is enabled when MODE in the EXPOSURE menu is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri.

8 POSITION buttons

Hold down the PRESET button and press button 1 to 6 to store the current camera direction, zoom, focus adjustment and backlight compensation in the memory of the pressed number button. To erase the memory contents, hold down the RESET button and press button 1 to 6.

Notes

- These buttons do not function when the menu is displayed.
- Some memory contents may not be erased even if you use the RESET button.
For details on items that can be stored by the PRESET button and erased by the RESET button, see “Preset Items” (page 53).

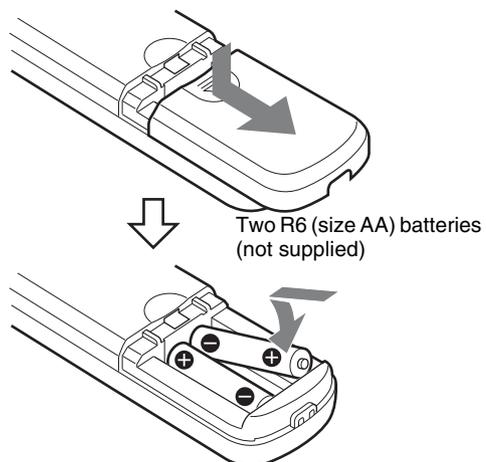
9 PAN-TILT RESET button

Press this button to reset the pan/tilt position.

10 ZOOM buttons

Use the SLOW button to zoom slowly, and the FAST button to zoom quickly.
Press the T (telephoto) side of the button to zoom in, and the W (wide angle) side to zoom out.

Installing Batteries in the remote commander



Installing batteries

Two R6 (size AA) batteries are required for the remote commander. To avoid the risk of explosion, use R6 (size AA) manganese or alkaline batteries.

Note

Danger of explosion if the batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. When you dispose of the batteries, you must obey the laws of your area or country.

R6 (size AA) batteries are not supplied.

System Configuration

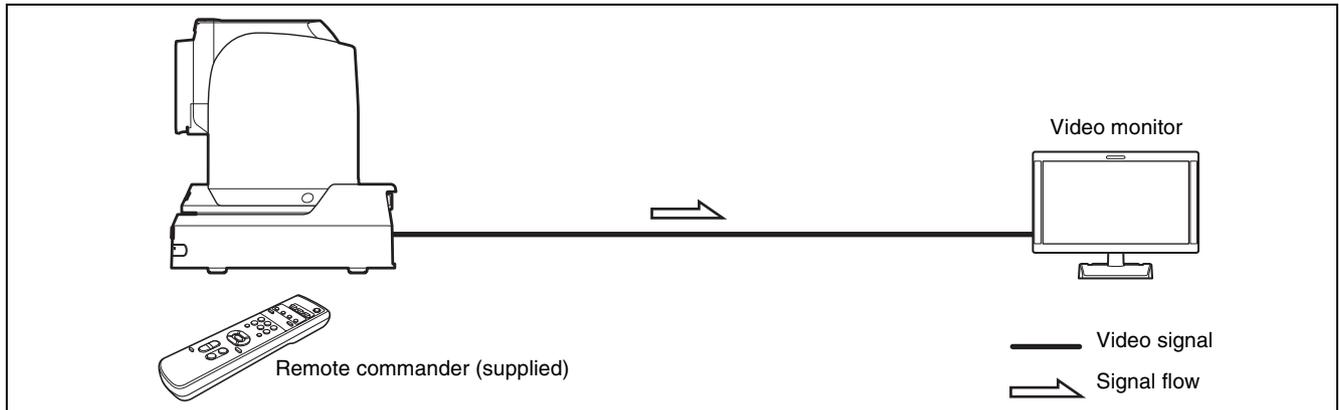
This camera can be arranged into various system configurations with other products (not supplied). This section describes typical system examples, with the required components and the main usage of each system.

Operating the camera using the supplied remote commander

What you can do with this system

Operate the camera readily from a short distance.

System Configuration

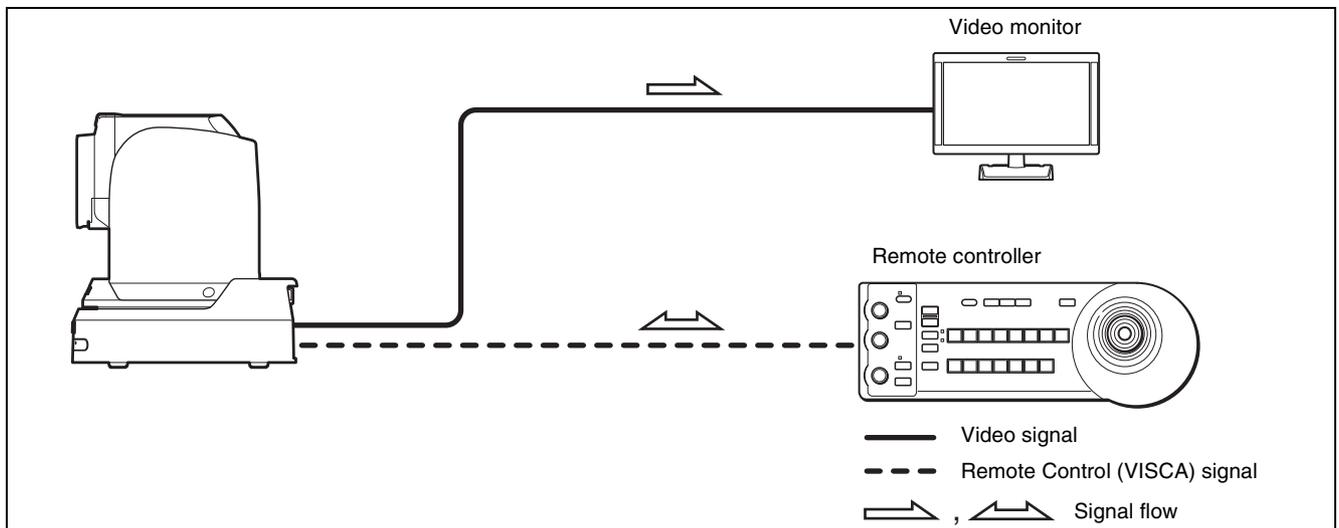


Operating the camera using the remote controller (not supplied)

What you can do with this system

Perform pan/tilt and zoom operations using the joystick of the remote controller.

System Configuration

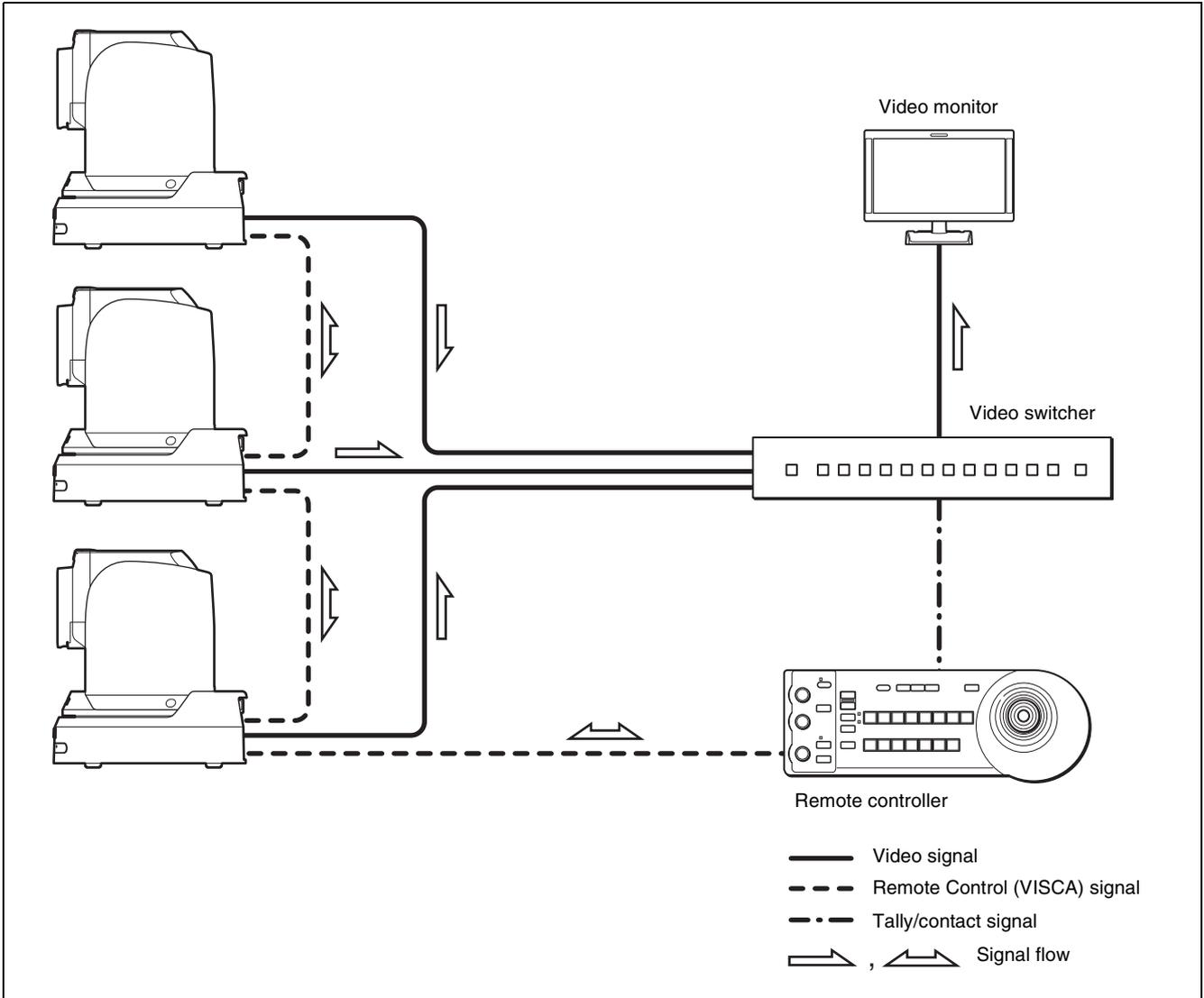


Connecting multiple cameras to the remote controller (not supplied)

What you can do with this system

- Operate up to seven cameras remotely using a single remote controller.
- Perform pan/tilt and zoom operations using the joystick.

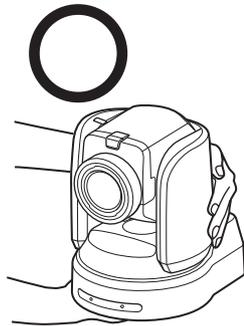
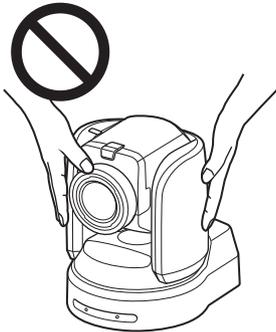
System Configuration



Installing the Camera

Notes

- Be sure to provide safety measures against falling when you mount the camera.
- Do not grasp the camera head when carrying the camera.
- Do not turn the camera head by hand. Doing so may result in a camera malfunction.

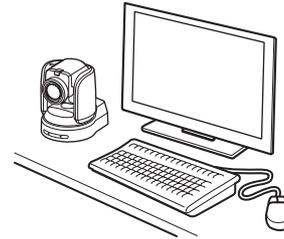


Installing the camera on a desk

Installing the camera on a desk

Place the camera on a flat surface.

If you have to place the camera on an inclined surface, make sure that the inclination is less than ± 15 degrees to guarantee pan/tilt performance, and take measures to prevent it from falling.

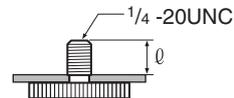


Attaching the camera to a tripod

Screw the tripod screw into a tripod screw hole on the bottom of the camera.

The tripod should be placed on a level surface, and tighten the screw firmly by hand.

The tripod screw should be compliant with the following standards.



$$l = 4.5 - 7 \text{ mm}$$

$$l = 0.18 - 0.27 \text{ inches}$$

Caution

Installation of the camera using the tripod screws and screw holes should not be done for installation on a ceiling, shelf, or other high spot.

Installing the camera at a high spot

The camera can be mounted on a ceiling or on a shelf or stand located at a high spot using the supplied ceiling bracket.

The surface on which the camera will be mounted should be level. If you have to mount the camera on a tilted surface, make sure that the angle is less than 15 degrees to ensure the camera can pan/tilt properly.

Caution

- When you want the camera to be mounted at a high spot, such as on a ceiling, have a professional contractor do the job.
- When you mount the camera at a high spot, make sure the attachment materials to which the camera will be mounted and the fittings (except for accessories) are capable of supporting a weight of 60 kg or greater and that the installation is done properly. If the installation is not strong enough, the camera may fall, resulting in a serious injury.
- As a fall prevention measure, be sure to attach the supplied wire rope to the camera securely.
- When you mount the camera at a high spot, inspect the installation once a year for any loosened parts. Depending on the operation conditions, inspect more frequently.

Before installing the camera

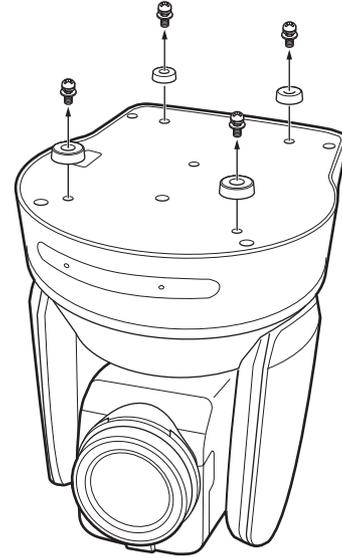
Decide which way the camera will shoot, and drill holes for the ceiling bracket (B) and the connecting cable in the ceiling or the shelf. For the dimensions of the ceiling bracket (B), refer to page 57.

Notes

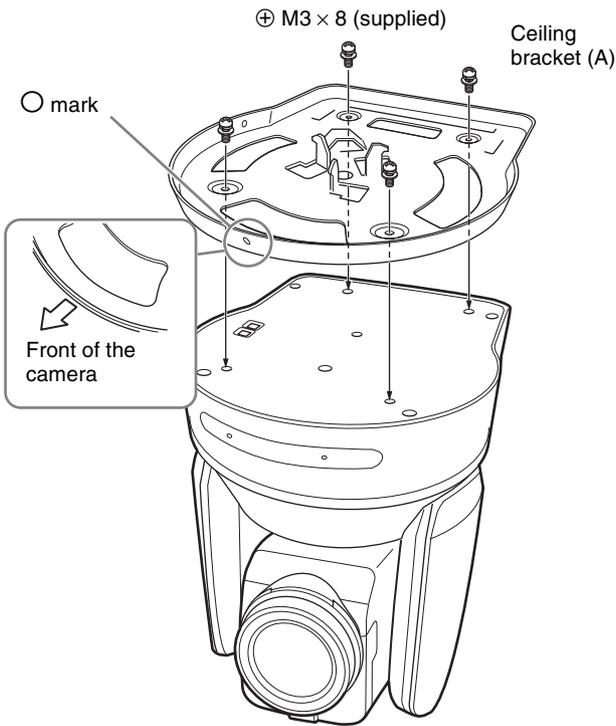
- Connection cables cannot be routed through the ceiling bracket (A). A hole to route wires through is needed in the ceiling or the shelf at the back of the camera.
- Do not mount anything other than the camera onto the ceiling bracket.
- The ceiling bracket cannot be mounted on a junction box.

Installing the camera on the ceiling (example)

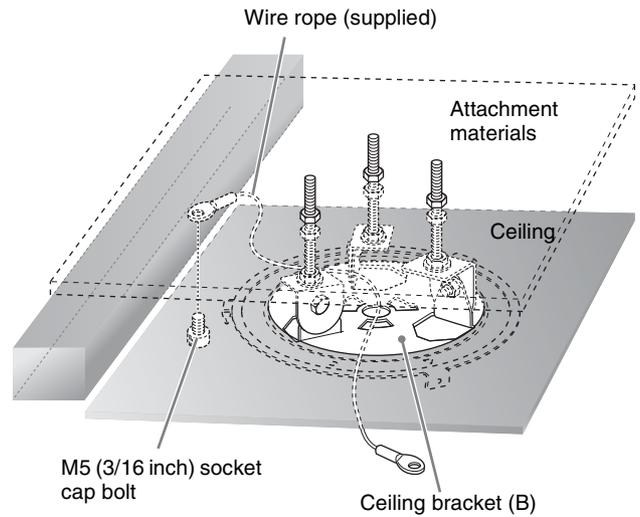
- 1 Turn on IMG FLIP in the SYSTEM menu.
- 2 Loosen the four screws at the bottom of the camera to remove the four feet.



- 3** Attach the ceiling bracket (A) to the bottom of the camera by using supplied four screws (⊕ M3 × 8). Align the ○ mark of the bracket (A) with the front of the camera as illustrated, with the screw holes of the bracket aligned to the screw holes of the camera.



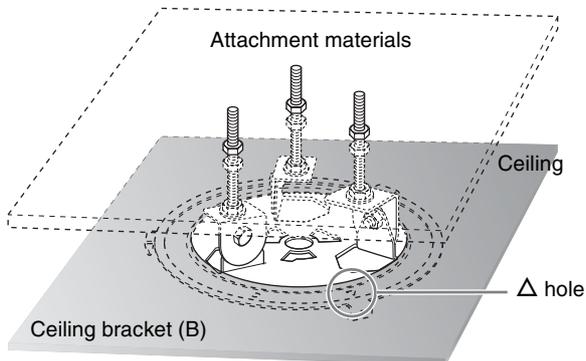
- 5** Attach the wire rope for fall prevention to the ceiling. Using an M5 (3/16 inches) socket cap screw (not supplied), attach it to the attachment materials different from the one to which the ceiling bracket (B) is attached.



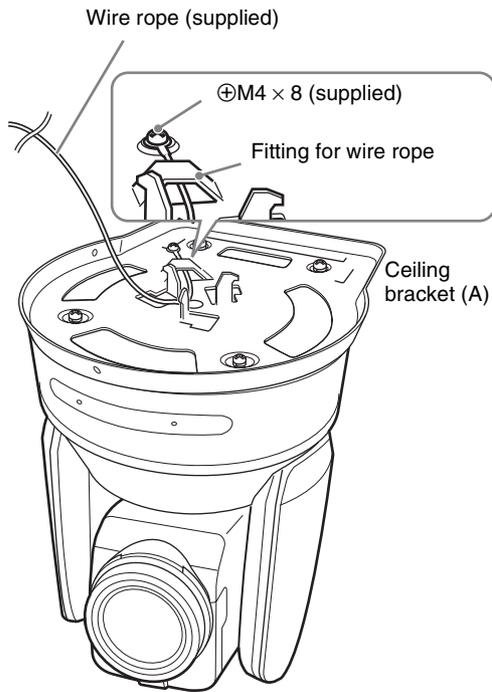
Caution

Use the supplied screws. Otherwise, you may break the internal parts of the camera.

- 4** Attach the ceiling bracket (B) to the attachment materials (not supplied) to mount the camera on the ceiling. Be sure to attach it so that the △ hole of the ceiling bracket (B) is placed where the front of the camera will face.



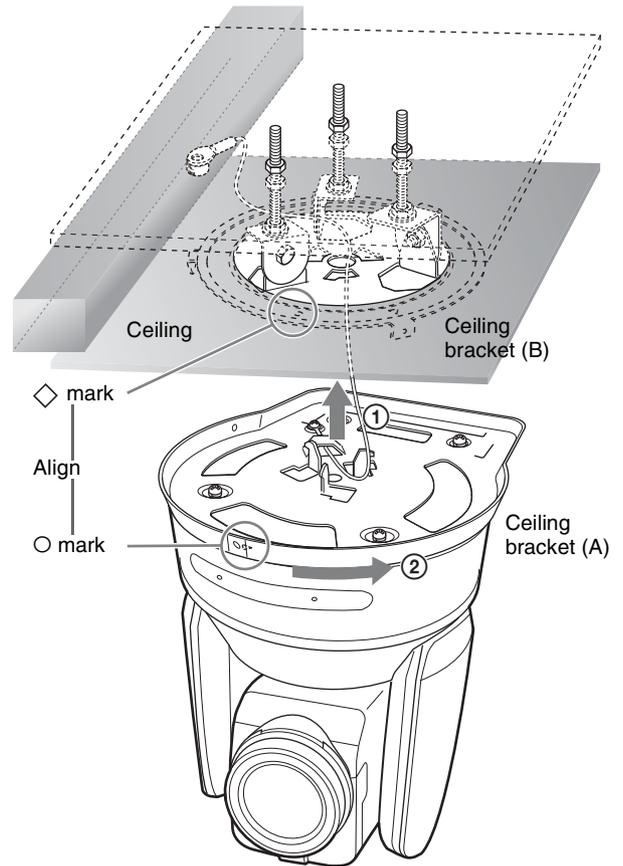
- 6** Attach the wire rope for fall prevention to the ceiling bracket (A).
Put the wire rope through the fitting for wire rope of the ceiling bracket (A) and securely attach it to the bracket using the supplied stainless steel screw (⊕ M4 × 8).



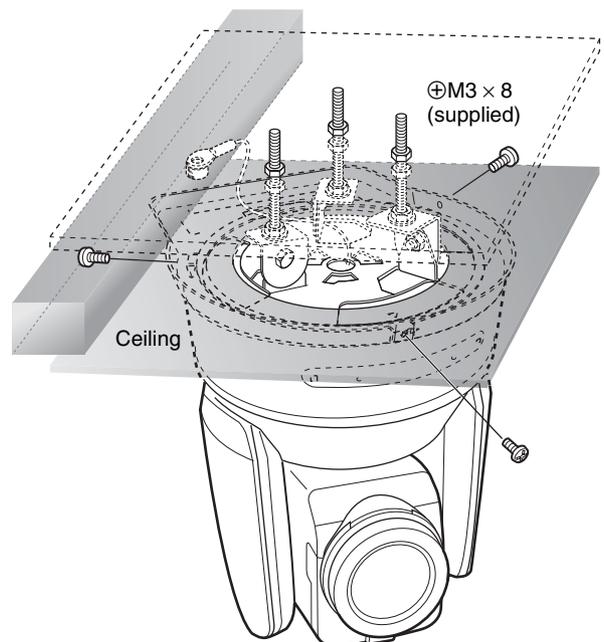
Caution

Use the supplied screw. Otherwise, the wire rope may not function properly.

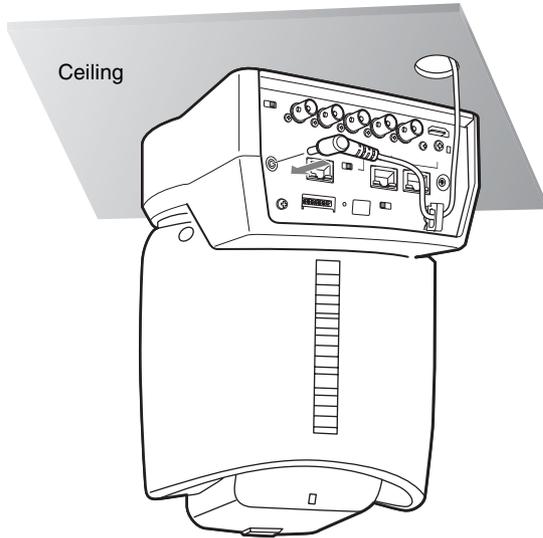
- 7** Aligning the ○ hole in the front of the ceiling bracket (A) to the ◇ hole of the ceiling bracket (B), push in the camera unit, and turn the camera with the ceiling bracket (A) clockwise to temporarily secure the camera.



- 8** Secure the ceiling brackets (A) and (B) using supplied three screws (⊕ M3 × 8).



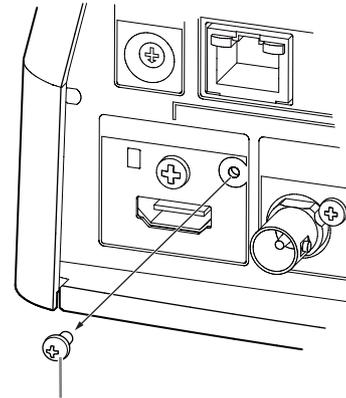
9-1 Connect the cables to the terminals at the back of the camera.



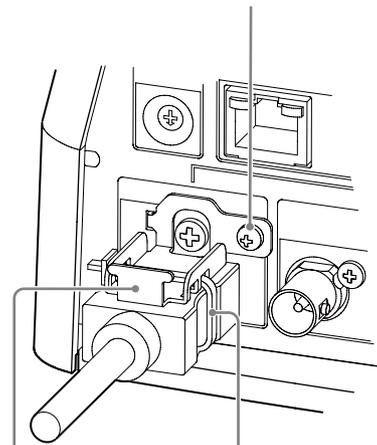
Notes

- Make sure no load is applied to connectors of the cables.
- For measures that prevent the cord of the AC adapter (not supplied) from being pulled out, refer to “Connecting the Camera” (page 23).
- For measures that prevent the HDMI cable from being pulled out, proceed to “9-2” after connecting the HDMI cable. Then, connect all the other cables.

9-2 To help prevent the HDMI cable from being pulled out, remove the HDMI cable locking screw (M2.6 × 6, black), and use it to attach the supplied HDMI cable fixing plate to the back of the camera. Secure the HDMI cable with a commercially available tie-wrap.



HDMI cable locking screw (M2.6 × 6, black)



HDMI cable fixing plate (supplied)
Tie-wrap (commercially available)

Note

Do not leave the HDMI cable attached to the camera if you do not use it.

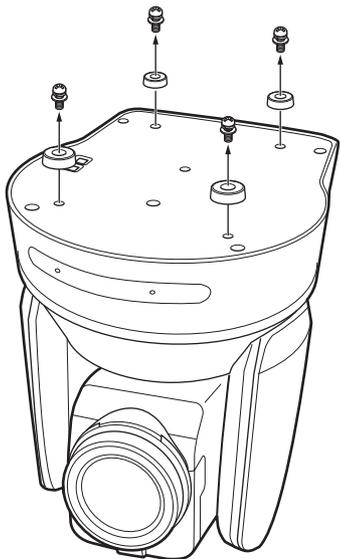
10 Flip the SONY nameplate and 4K or HD nameplate around as necessary.

How to remove the camera

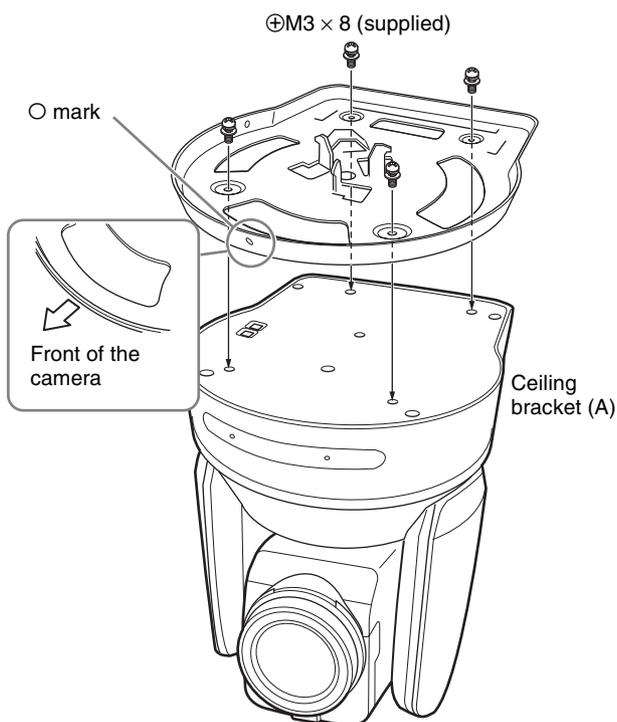
- 1** Remove the three screws which secured the camera in Step 8 of “Installing the camera on the ceiling (example)”.
- 2** Turn the camera unit counter-clockwise to remove it.

Installing the camera on a shelf located at a high spot (example)

- 1 Loosen the four screws at the bottom of the camera to remove the four feet.



- 2 Attach the ceiling bracket (A) to the bottom of the camera by using supplied four screws (⊕ M3 × 8). Align the ○ mark of the bracket (A) with the front of the camera as illustrated, with the screw holes of the bracket aligned with the screw holes of the camera.

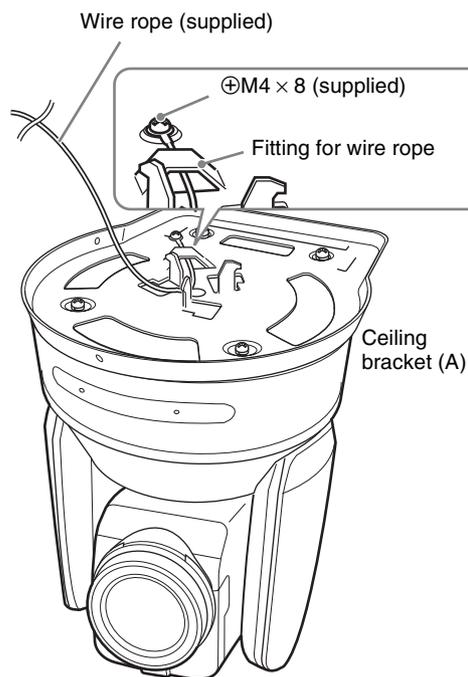


Note

Use the supplied screws. Otherwise, you may break the internal parts of the camera.

- 3 Attach the wire rope for fall prevention to the ceiling bracket (A).

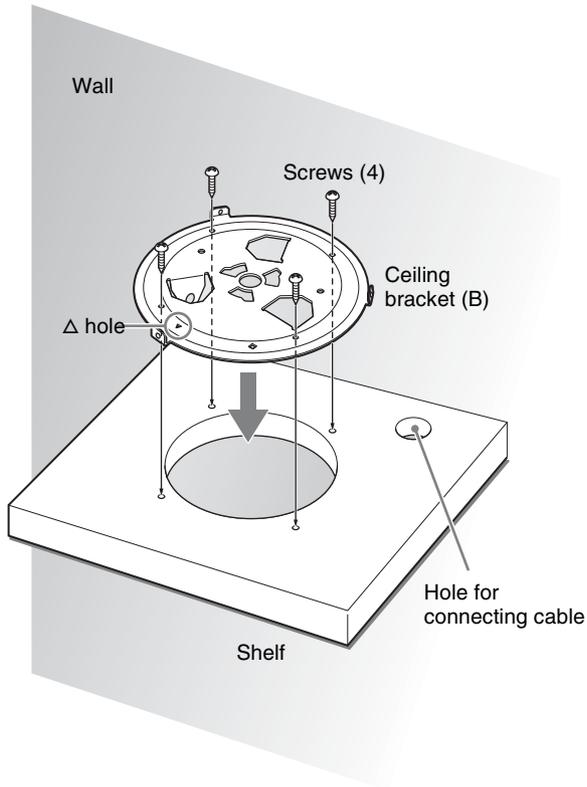
Put the wire rope through the fitting for wire rope of the ceiling bracket (A) and securely attach it to the bracket using the supplied stainless steel screw (⊕ M4 × 8).



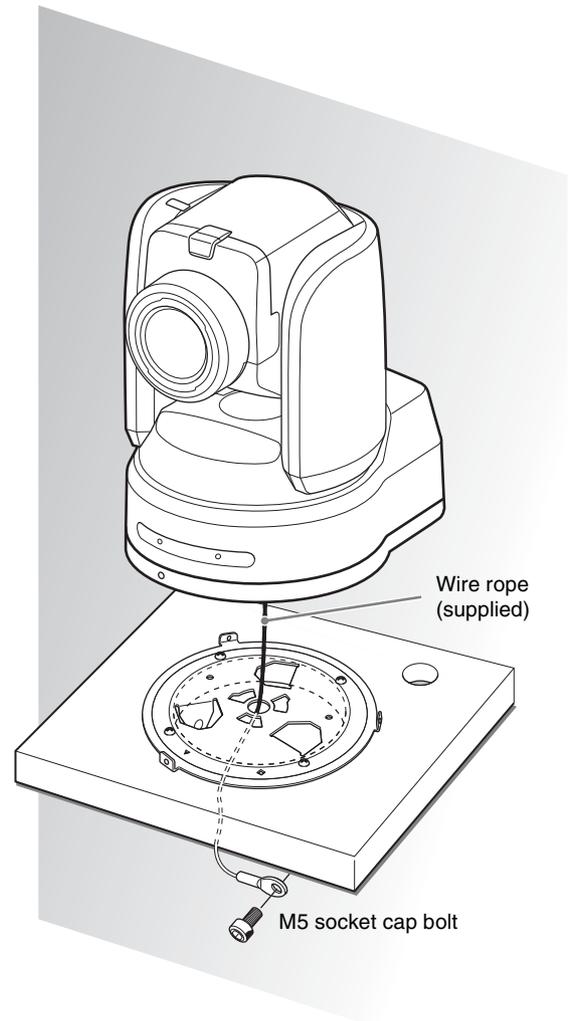
Caution

Use the supplied screw. Otherwise, the wire rope may not function properly.

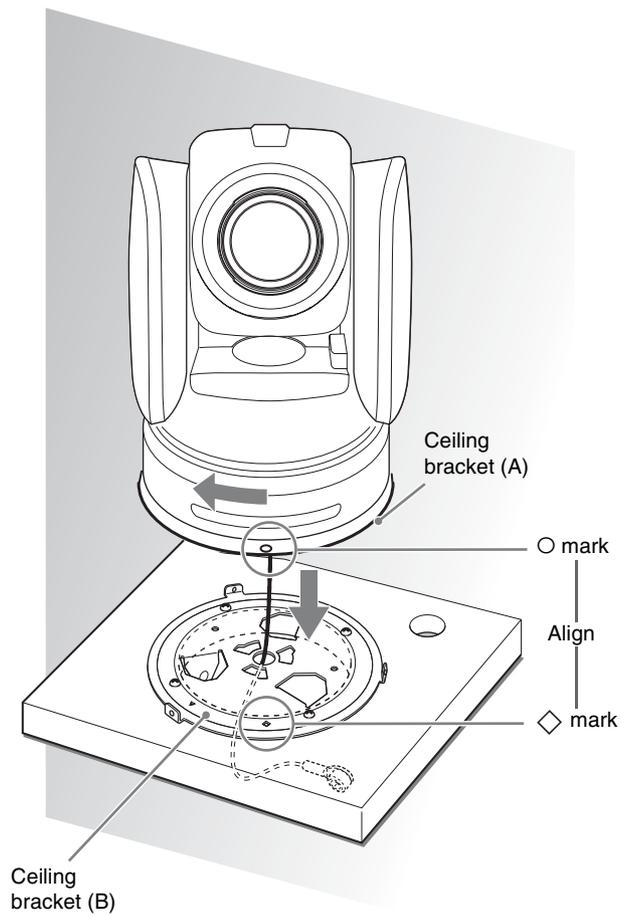
- 4** Mount the ceiling bracket (B) onto the shelf where the camera will be mounted. Use four screws (not supplied). Choose the right type of screws for the material of the shelf. Be sure attach it so that the Δ hole of the ceiling bracket (B) is placed where the front of the camera will face.



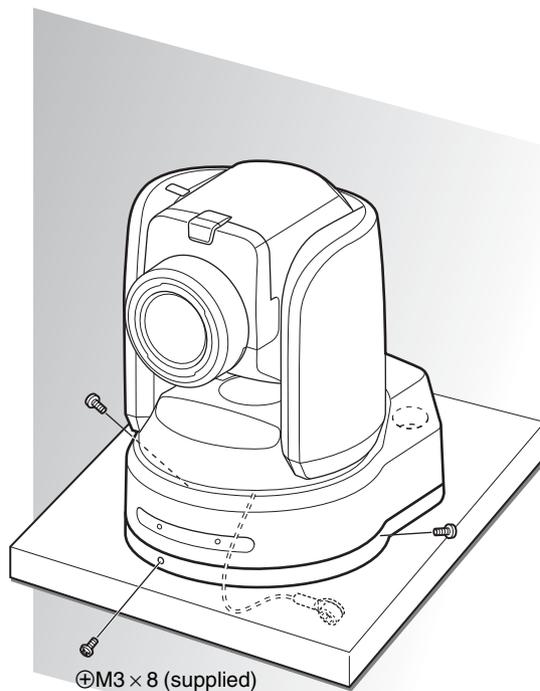
- 5** Attach the wire rope for fall prevention to the attachment materials on the shelf side. Using an M5 (3/16 inches) socket cap screw (not supplied), attach it to the attachment materials different from the one to which the shelf containing the ceiling bracket (B) is attached.



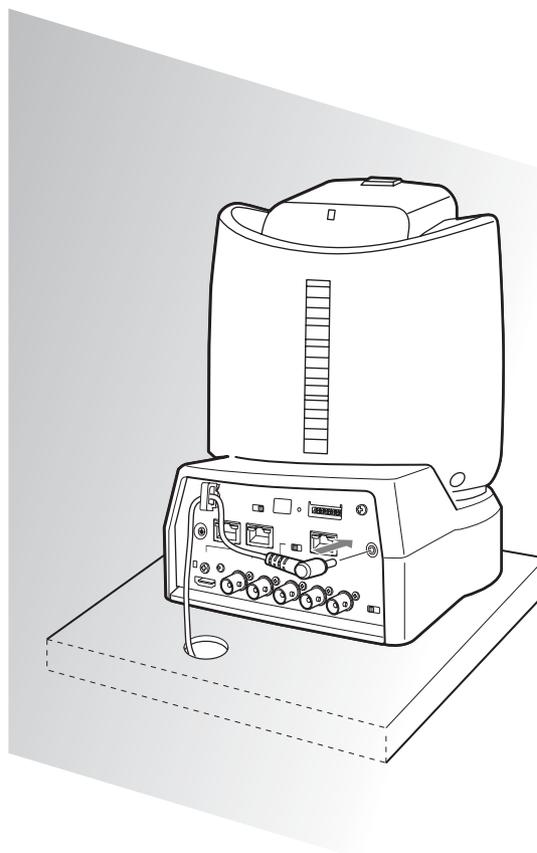
- 6** Aligning the ○ hole in the front of the ceiling bracket (A) to the ◇ hole of the ceiling bracket (B), push in the camera unit, and turn the camera with the ceiling bracket (A) clockwise to temporarily secure the camera.



- 7** Secure the ceiling brackets (A) and (B) using supplied three screws (⊕ M3 × 8).



- 8** Connect the cables to the terminals at the back of the camera.



Notes

- Make sure no load is applied to the connectors of the cables.
- For measures that prevent the cord of the AC adapter (not supplied) or HDMI cable from being pulled out, refer to “Connecting the Camera” (page 23).
- For measures that prevent the HDMI cable from being pulled out, follow the steps in “9-2” of “Installing the camera to the ceiling (example)” after connecting the HDMI cable. Then, connect all the other cables.

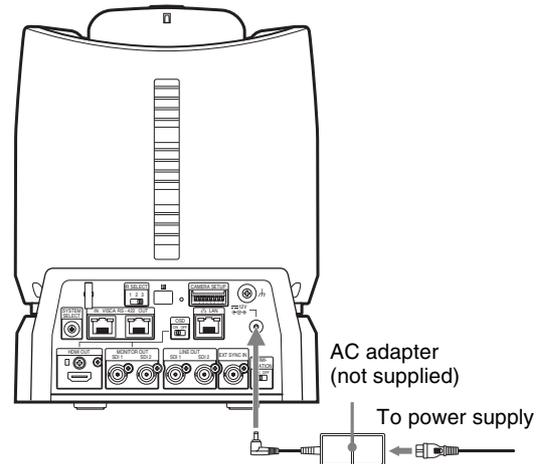
How to remove the camera

- 1 Remove the three screws which secured the camera in Step 7 of “Installing the camera on the shelf at a high spot (example)”.
- 2 Turn the camera unit counterclockwise to remove it.

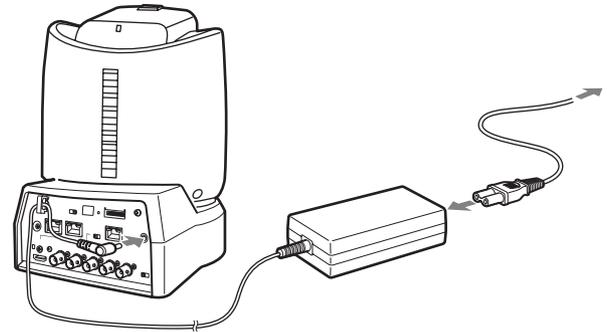
Connecting the Camera

Connecting an AC power supply

Connect the AC adapter (not supplied) to the AC power supply using a power supply cord.

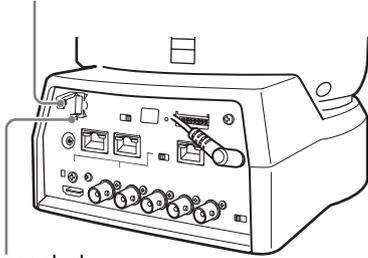


- 1 Connect the AC adapter (not supplied) and a power supply cord.



- 2** To prevent the cord of the AC adapter (not supplied) from being pulled out, use the cord clamber to secure it.
Unlock the cord clamber and put the cord through it.
Lock the cord clamber.

AC adapter cord clamber

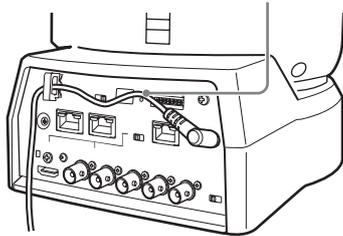


Cord clamber lock

- ① **Unlock the cord clamber lock.**



AC adapter cord



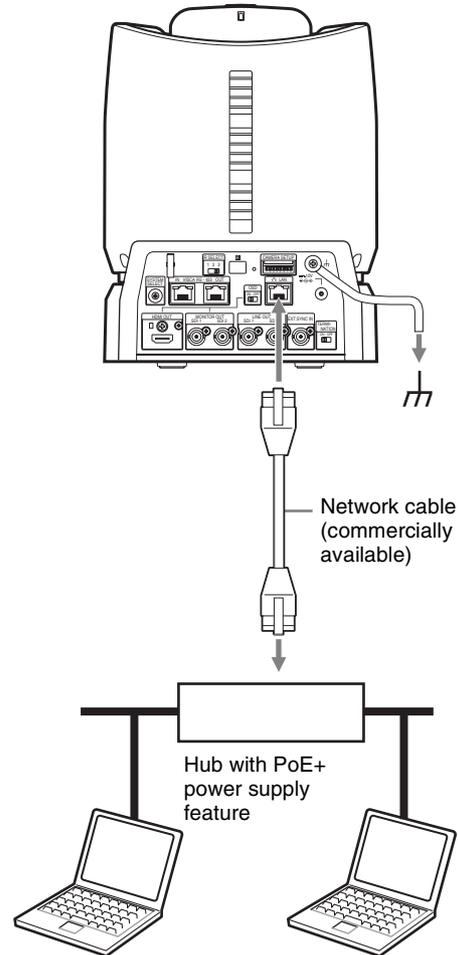
- ② **Put the AC adapter cord through the cord clamber and lock the cord clamber.**

Note

Do not use any cord other than the specified AC adapter (not supplied). Otherwise, a fire or malfunction may occur.

Connecting the camera to a PoE+ (Power over Ethernet Plus) power supply device

A PoE+ (IEEE802.3at compliant) power supply device supplies power through a commercially available network cable. For details, see the operating instructions of the power supply device.



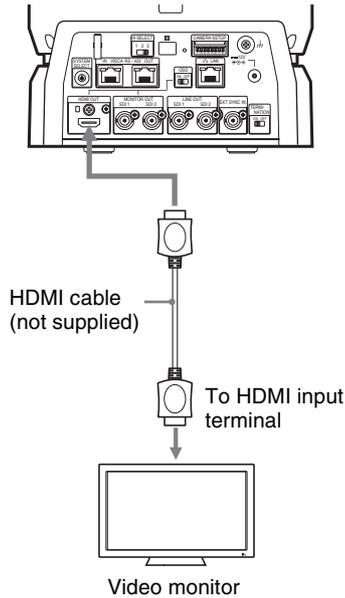
Notes

- When you supply power from a PoE+ power source, use a network cable of Category 5e or higher.
- When both the AC adapter and PoE+ power supply are connected, power is supplied through the AC adapter.
- When power is supplied from PoE+, both the POWER lamp (green) and NETWORK lamp (green) flash until the initial verification process is complete (approximately one minute, depending on the power supply device).
- When the network camera is powered by a PoE+ power supply, do not route the wiring outdoors. When you use PoE+ for the power supply, connect the ground wire.

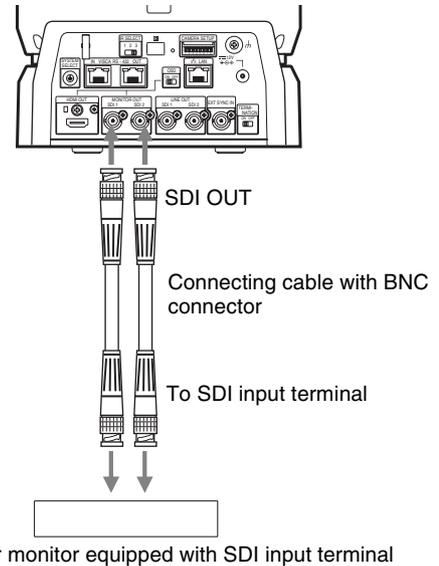
- If a non PoE+ compatible device is connected, both the POWER lamp (green) and NETWORK lamp (green) flash, and the camera won't start.
- When you turn the power off, wait at least 10 seconds before you turn it on again.
- Use an STP (shielded) network cable.

Connecting a single camera to a switcher, recorder and monitor

Devices equipped with an HDMI input terminal

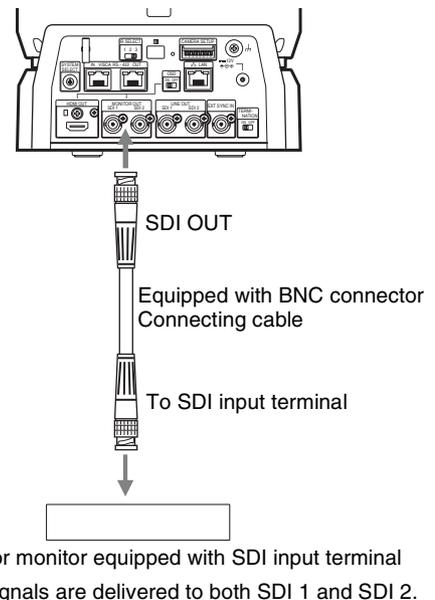


Devices equipped with an SDI input terminal (4K output): BRC-X1000

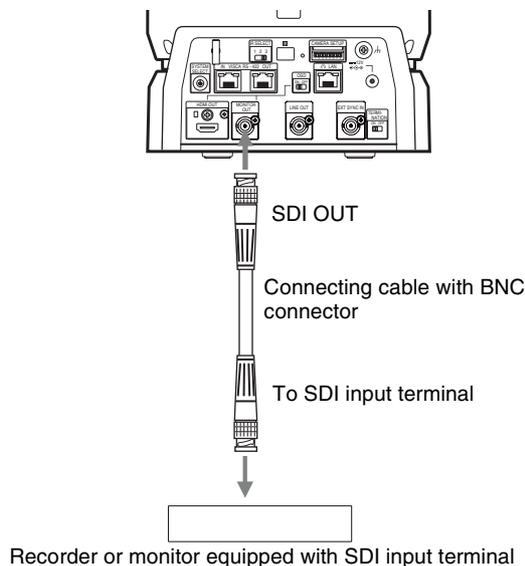


The image size (resolution and frame rate) of the signals delivered through the SDI OUTPUT terminal can be changed with the SYSTEM SELECT switch. For details, see “SYSTEM SELECT switch settings” (page 58).

Devices equipped with an SDI input terminal (HD output): BRC-X1000

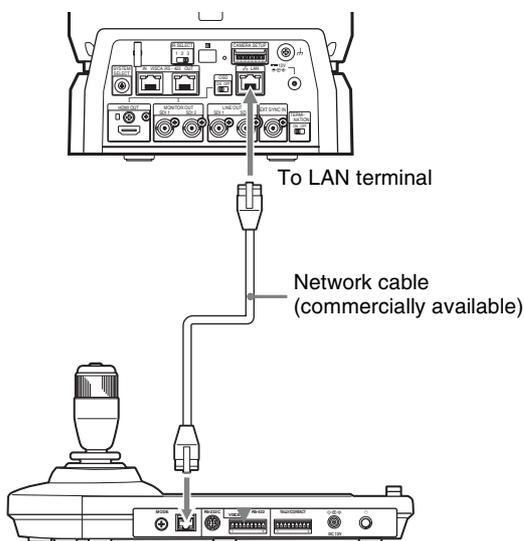


**Devices equipped with an SDI input terminal
(HD output): BRC-H800**



**Connecting a single camera to a
single remote controller (not
supplied)**

Using VISCA Over IP (LAN terminal)

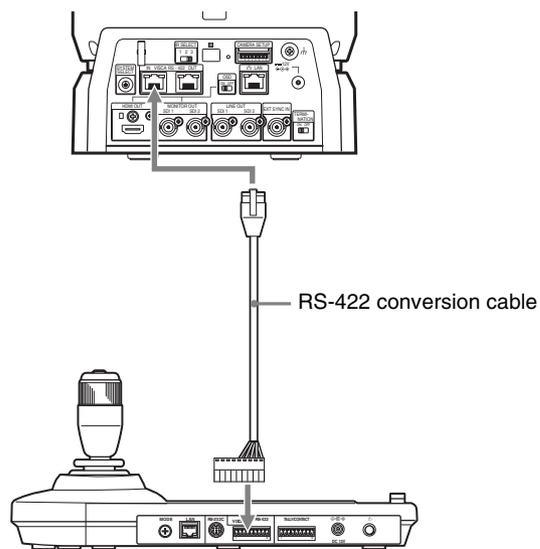


When you connect multiple cameras to a single remote controller or when you connect multiple cameras to multiple remote controllers with a PC, use a switching hub for the connection. When you directly connect them, use a cross network cable.
For details, see the operating instructions of the remote controller.

**Connecting a single camera to a
single remote controller (not
supplied)**

Using the VISCA RS-422 terminal

A remote controller can be connected via the VISCA RS-422 terminal. The VISCA RS-422 allows connections of up to 1.2 km in length. Using supplied RS-422 terminal board connectors and the remote controller, make a connecting cable. When you make the connecting cable, refer to the pin layout of the VISCA RS-422 terminal (page 58) and the VISCA RS-422 connection diagram (page 58). Check the setting of each switch of the remote controller. For details, see the operating instructions of the remote controller.



Connecting multiple cameras to a single remote controller (not supplied)

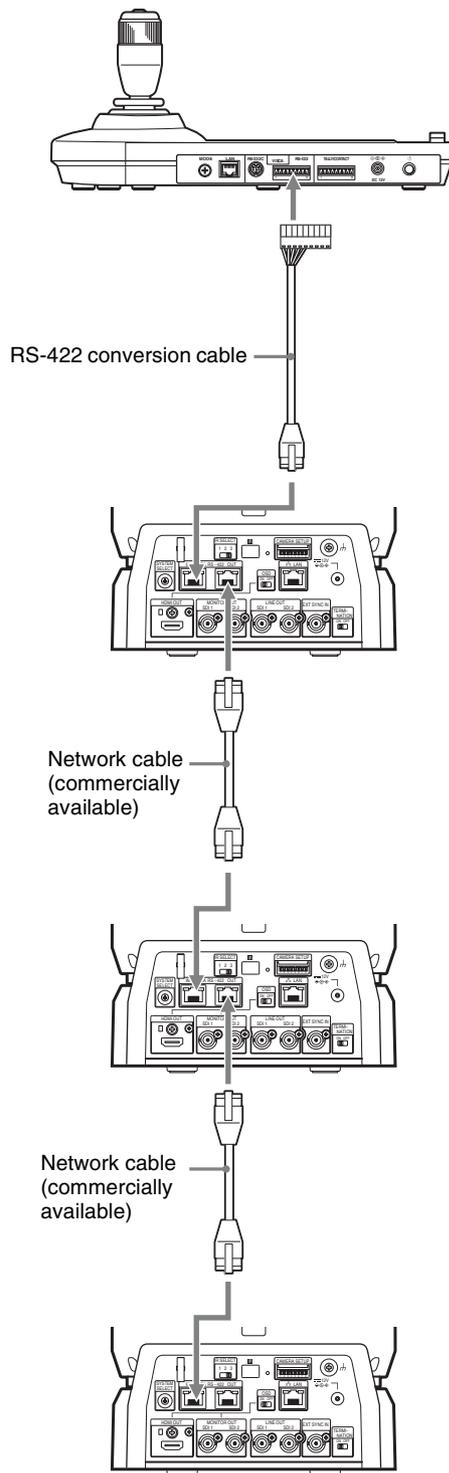
Using the VISCA RS-422 terminal

Multiple cameras can be connected via the VISCA RS-422 terminal. VISCA RS-422 allows connections of up to 1.2 km in length.

Using supplied RS-422 terminal board connectors and the remote controller, make a connecting cable.

When you make a connecting cable, refer to the pin layout of the VISCA RS-422 terminal (page 58) and the VISCA RS-422 connection diagram (page 58).

Check the setting of each switch of the remote controller. For details, see the operating instructions of the remote controller.



Use straight network cables.

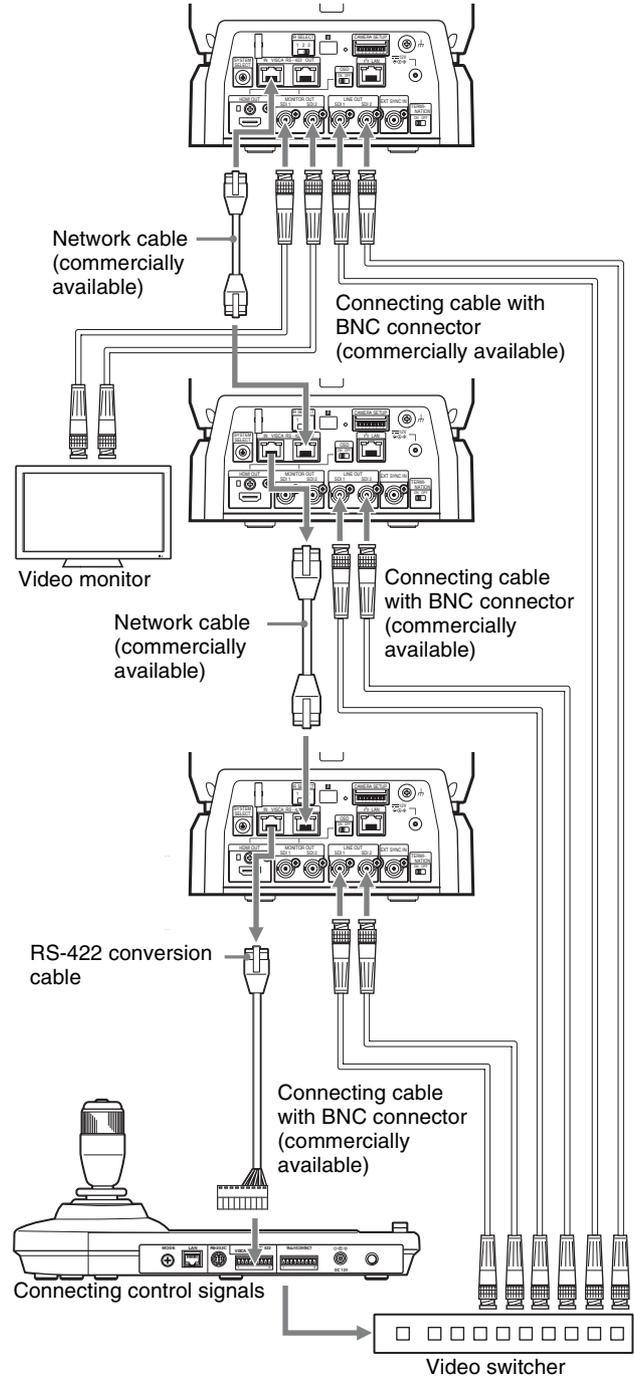
Connecting a commercially available video switcher

For 4K output

When you want to switch cameras, connect a commercially available video switcher.

For the connection to the video switcher, refer to the operating instructions of the switcher.

- * LINE OUT menu display is not output.
- * You can switch the MONITOR OUT menu display by turning the OSD switch on/off.
Depending on the application, you can choose the one you want.

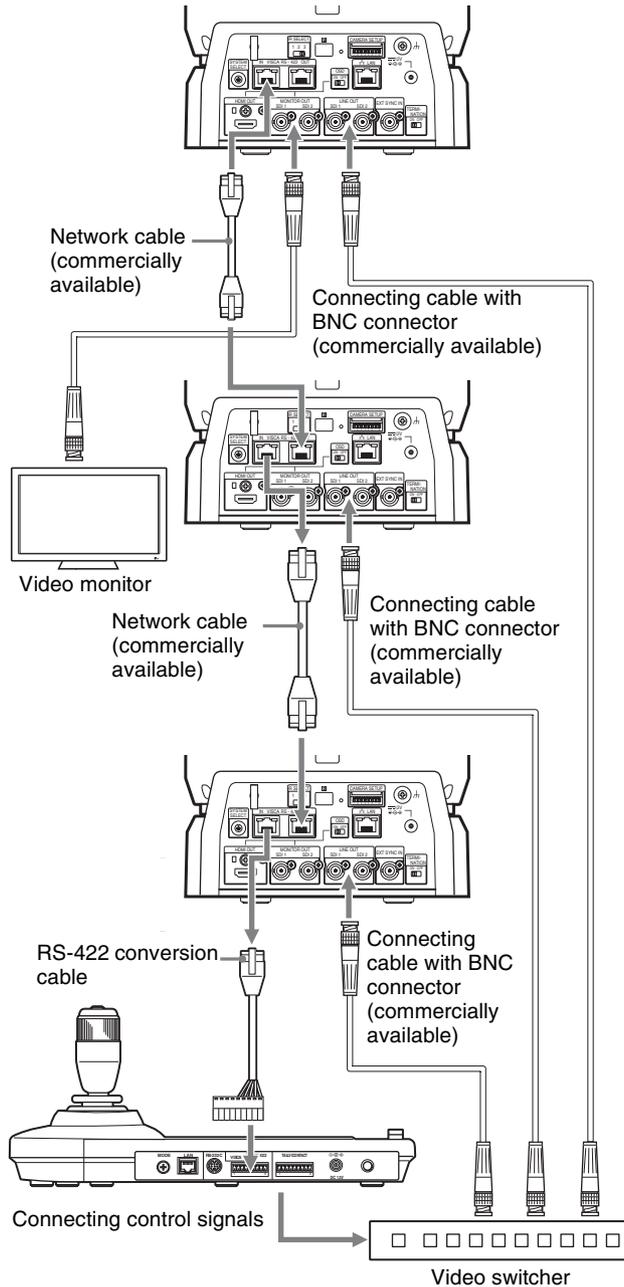


- * The BRC-H800 does not have MONITOR OUT SDI 2 LINE OUT SDI 2 terminal.
- * Use straight network cables.

For HD output

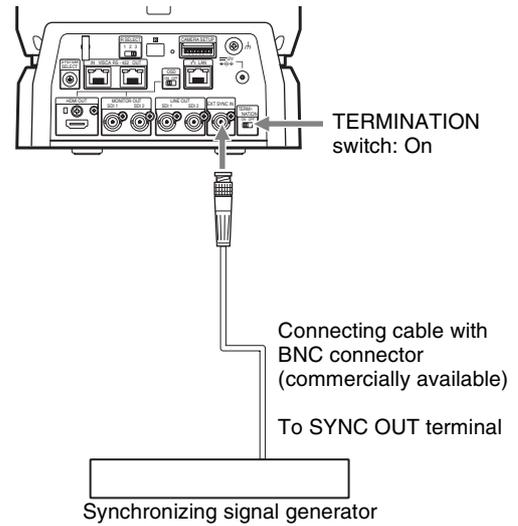
When you want to switch cameras, connect a commercially available video switcher.

For the connection to the video switcher, refer to the operating instructions of the switcher.



- * The BRC-H800 does not have MONITOR OUT SDI 2 LINE OUT SDI 2 terminal.
- * Use straight network cables.
- * Equivalent signals are delivered to both SDI 1 and SDI 2.

Externally synchronizing a single camera



External synchronization

Multiple cameras can be synchronized to a specific reference signal.

Providing a reference signal to the EXT SYNC IN terminal (page 9) allows the camera to be externally synchronized. Depending on the system frequency, the compatible reference signal varies.

System select	Compatible reference signals
0: 3840 × 2160/29.97p	1920 × 1080/59.94i
1: 1920 × 1080/59.94p	720 × 486/59.94i (NTSC)
2: 1920 × 1080/59.94i	
4,7: 1280 × 720/59.94p	1920 × 1080/59.94i 1280 × 720/59.94p 720 × 486/59.94i (NTSC)
8: 3840 × 2160/25p	1920 × 1080/50i
9: 1920 × 1080/50p	720 × 576/50i (PAL)
A: 1920 × 1080/50i	
C: 1280 × 720/50p	1920 × 1080/50i 1280 × 720/50p 720 × 576/50i (PAL)

Notes

- When the reference signal is unstable, the camera cannot be externally synchronized.
- Sub-carriers cannot be synchronized.

Adjusting and Configuring through On-Screen Menus

About On-Screen Menus

You can configure the shooting conditions and system setup of the camera from the menus displayed on an external monitor. The setting menu only displays items available for set up.

This section explains how to read the on-screen menus before starting menu operations.

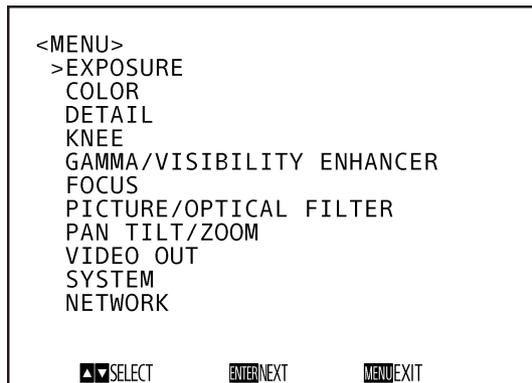
For the overall menu configurations, see page 50.

Notes

- You cannot perform pan/tilt/zoom operations while the menu is displayed.
- The menus are output through MONITORING OUT and HDMI OUT.
When you want to display the menus, turn on the OSD switch on the back of the camera.

Main menu

Press the DATA SCREEN button on the remote commander or MENU button on the remote controller (not supplied) to display the main menu.



1 Cursor

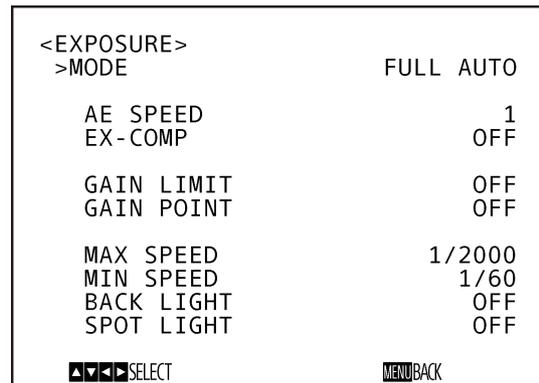
The cursor selects a setting menu.
Press the \uparrow or \downarrow button or move the joystick of the remote controller forward or backward to move the cursor up or down.

2 Menu items

Press the \uparrow or \downarrow button or move the joystick of the remote controller forward or backward to select a setting menu. Press the HOME button or the top button of the joystick to display the selected setting menu.

Setting menu

The setting menu selected on the main menu is displayed.



1 Setting menu

The name of the setting menu currently selected is displayed.

2 Cursor

The cursor selects a setting item.
Press the \uparrow or \downarrow button or move the joystick of the remote controller forward or backward to move the cursor up or down.

3 Setting items

The setting items for this setting menu are displayed.
Press the \uparrow or \downarrow button or move the joystick of the remote controller forward or backward to select a setting item. Press the \leftarrow or \rightarrow button of the remote controller or move the joystick right or left to change the set value.

4 Set value

The current set values are displayed.
Press the \leftarrow or \rightarrow button or move the joystick right or left to change the set value.

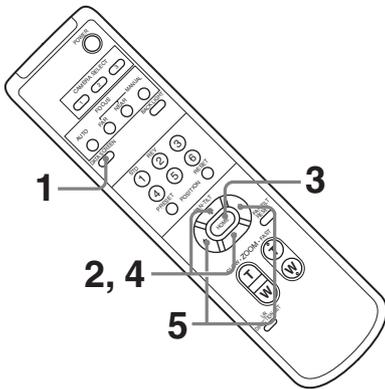
For the default value of each setting item, refer to “Menu Configuration” (page 50).

How to Use Menu

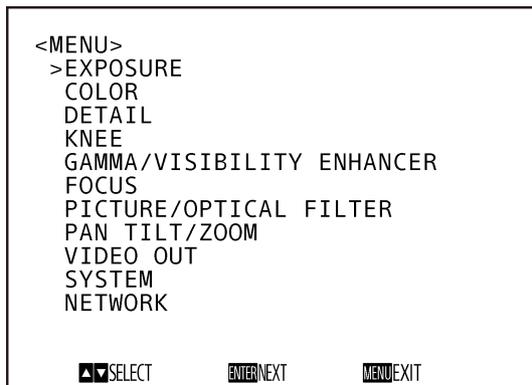
This section explains how to configure the camera using the supplied remote commander.

For details on the menu items, refer to page 32 through page 41.

Using the supplied remote commander

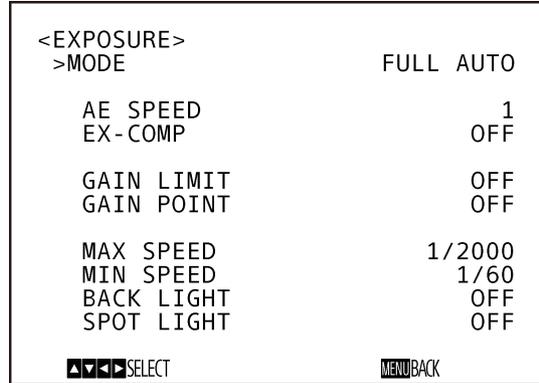


- 1 Press the DATA SCREEN button.
The main menu is displayed.



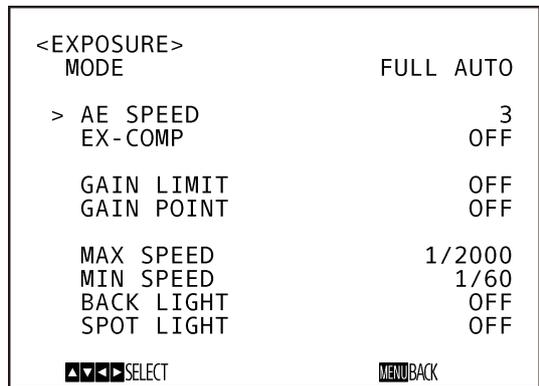
- 2 Use the \uparrow or \downarrow button to move the cursor to the menu item you want to change.

- 3 Press the HOME button.
The selected menu is displayed.



- 4 Use the \uparrow or \downarrow button to move the cursor to the setting item you want to change.

- 5 Use the \leftarrow or \rightarrow button to change the set value.



Note

You cannot turn off IR RECEIVE in the SYSTEM menu with the supplied remote commander. To turn off IR RECEIVE, use the remote controller (not supplied) or VISCA command.

To go back to the Main menu

Press the DATA SCREEN button.

To close the menu

When the main menu is displayed, press the DATA SCREEN button once. When a setting menu is displayed, press the DATA SCREEN button twice.

EXPOSURE Menu

The EXPOSURE menu is used to set the items regarding the exposure.

<EXPOSURE>	
>MODE	IRIS Pri
IRIS	F2.8
AE SPEED	3
EX-COMP	ON
LEVEL	0
GAIN LIMIT	OFF
GAIN POINT	ON
POINT POSITION	0dB
MAX SPEED	1/2000
MIN SPEED	1/60
BACK LIGHT	OFF
SPOT LIGHT	OFF
SELECT	
MENUBACK	

MODE (Exposure mode)

FULL AUTO: The exposure is adjusted automatically using the sensitivity, electronic shutter speed, and aperture setting.

MANUAL: You can manually adjust the sensitivity, electronic shutter speed, and aperture setting individually.

SHUTTER Pri: The exposure is adjusted automatically using the sensitivity and aperture setting. You can adjust the electronic shutter speed manually.

IRIS Pri: The exposure is adjusted automatically using the sensitivity and electronic shutter speed. You can adjust the aperture setting manually.

GAIN Pri: The exposure is adjusted automatically using the electronic shutter speed and aperture setting. You can adjust the sensitivity manually.

When you select any of the above modes, you will see available options for the selected mode among the following setting items.

GAIN: Select the gain.

When EXPOSURE MODE is either MANUAL or GAIN Pri, you can choose a value from -3 to 33 dB in 3 dB increments.

SPEED: When EXPOSURE MODE is either MANUAL or SHUTTER Pri, select the electronic shutter speed.

When the signal format is 2160/29.97p (the BRC-X1000 only), 1080/59.94p, 1080/59.94i, or 720/59.94p,

1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000,

1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000

When the signal format is 2160/25p (the BRC-X1000 only), 1080/50p, 1080/50i, or 720/50p,

1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

IRIS: When EXPOSURE MODE is either MANUAL or IRIS Pri, you can choose aperture setting.

You can choose a value from F2.8/F3.1/F3.4/F3.7/F4.0/F4.4/F4.8/F5.2/F5.6/F6.2/F6.8/F7.3/F8.0/F8.7/F9.6/F10/F11.

AE SPEED: Select the adjustment speed for exposure adjustment.

You can adjust the speed at which the camera reaches the optimum exposure setting from 1 (Standard) to 48 (Slow). Adjust this when the brightness of the object changes instantaneously. You can choose this when MODE is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri.

EX-COMP: Turn this ON when you want to correct brightness of a picture whose exposure is already automatically adjusted. This setting is enabled when MODE is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri. The LEVEL setting is displayed when this is turned ON.

LEVEL: Choose a level to adjust the brightness of a picture whose exposure is already automatically adjusted. Choose a value from -7 to +7 for the level.

This is not displayed when EX-COMP is turned OFF.

GAIN LIMIT: Set the maximum sensitivity when exposure is automatically adjusted using sensitivity. Choose a value from 9 dB to 24 dB (in 3 dB increments) or you can turn this OFF. When turned off, the maximum is not limited. This setting is enabled when MODE is FULL AUTO, SHUTTER Pri, or IRIS Pri. You cannot choose a value smaller than the POINT POSITION setting.

GAIN POINT: When you set MIN SPEED to be slower than the output image frame rate, the shutter speed controls exposure based on the GAIN POINT setting. Normally, when exposure is controlled with sensitivity, noise becomes prominent if sensitivity is increased to make the image brighter. You can decrease noise by adjusting the exposure through lower shutter speeds to cancel sensitivity adjustments. When you do this, turn on GAIN POINT and set the POINT POSITION to the sensitivity at which you want the shutter speed to change. When the shutter speed reaches MIN SPEED for exposure adjustment, increase sensitivity to adjust exposure. This setting is enabled when MODE is either FULL AUTO or IRIS Pri.

POINT POSITION: This becomes enabled when GAIN POINT is turned ON. When sensitivity during exposure adjustment reaches the value for POINT POSITION, exposure is adjusted through a slower shutter speed. This setting is enabled when MODE is either FULL AUTO or IRIS Pri. You cannot choose a value smaller than the GAIN setting.

MAX SPEED: This sets the maximum (fastest) shutter speed when exposure is adjusted with the electronic shutter.

When the signal format is 2160/29.97p (the BRC-X1000 only), 1080/59.94p, 1080/59.94i, or 720/59.94p,

1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, and 1/10000.

When the signal format is 2160/25p (the BRC-X1000 only), 1080/50p, 1080/50i, or 720/50p,

1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, and 1/10000.

This setting is enabled when MODE is FULL AUTO, IRIS Pri, or GAIN Pri. You cannot choose a value slower than MIN SPEED.

MIN SPEED: This sets the minimum (slowest) shutter speed when exposure is adjusted with the electronic shutter.

When the signal format is 2160/29.97p (the BRC-X1000 only), 1080/59.94p, 1080/59.94i, or 720/59.94p,

1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, and 1/10000.

When the signal format is 2160/25p (the BRC-X1000 only), 1080/50p, 1080/50i, or 720/50p,

1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, and 1/10000. This setting is enabled when MODE is FULL AUTO, IRIS Pri, or GAIN Pri. You cannot choose a value faster than MAX SPEED.

BACK LIGHT: This menu allows you to enable/disable backlight compensation so that exposure is optimized for backlight. You can choose either ON or OFF. This setting is enabled when MODE is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri.

SPOT LIGHT: This menu allows you to enable/disable spotlight compensation by adjusting the exposure darker when a part of the object is bright, such as a person's face in spotlight. You can choose either ON or OFF. The menu is enabled when MODE is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri. SPOT LIGHT becomes disabled when BACK LIGHT is ON.

COLOR Menu

The COLOR menu is used to adjust the white balance and the color.

<COLOR>	
>WHITE BALANCE MODE	AUTO1
SPEED	3
OFFSET	0
MATRIX	ON
SELECT	STD
LEVEL	4
PHASE	0
R-G	0
R-B	0
G-R	0
G-B	0
B-R	0
B-G	0
SELECT	MENU/BACK

WHITE BALANCE MODE

This setting allows you to select a white balance mode. You can choose from AUTO1, AUTO2, INDOOR, OUTDOOR, ONE PUSH, and MANUAL.

AUTO1: Automatically adjusts the color to be closest to the image you are viewing.

AUTO2: Automatically adjusts the white balance to reproduce the original colors of the objects, eliminating the influences of ambient illumination.

INDOOR: Fixes R/B GAIN when the color temperature is 3200 K.

OUTDOOR: Fixes R/B GAIN when the color temperature is 5800 K.

ONE PUSH: White balance is adjusted when you press the HOME button of the supplied remote commander or the top button or ONE PUSH AWB button on the joystick of a remote controller, while shooting a large white object.

MANUAL: Allows you to manually adjust the white balance.

When you select any of the above modes, you will see available options for the selected mode among the following setting items.

SPEED (white balance speed): You can adjust the speed at which the camera reaches the white convergence point when AUTO1 or AUTO2 is chosen. Choose a value from 1, 2, 3, 4, and 5. 5 is the fastest and 1 is the slowest.

OFFSET: The white convergence point can be shifted when WHITE BALANCE mode is AUTO1, AUTO2, or ONE PUSH. The range is from -7 to 0 to +7. White balance is shifted toward blue when a negative value is chosen, and it is shifted toward red when a positive value is chosen.

R. GAIN and B. GAIN: Displayed when MANUAL is chosen. White balance can be manually adjusted within the range from -128 to +127.

MATRIX

You can emphasize or weaken a specific color region while keeping the white convergence point unchanged. When you turn this ON, the following items are displayed for adjustment.

SELECT: You can choose an internal preset matrix for matrix calculation. You can choose from STD, HIGH SAT, and FL LIGHT. This becomes disabled when MATRIX is turned OFF.

LEVEL (color level): You can adjust the color density of the picture. Choose a value in the range from 0 to 14. The greater the number, the denser the colors, and vice versa. This becomes disabled when MATRIX is turned OFF.

PHASE: You can adjust the color tone of the entire picture. Choose a value from -7 to 0 to +7. This becomes disabled when MATRIX is turned OFF.

R-G, R-B, G-R, G-B, B-R, B-G: You can set a coefficient for each combination of RGB individually, to adjust the hue of the entire picture. Choose a value from -99 to 0 to +99. This becomes disabled when MATRIX is turned OFF.

DETAIL Menu

The DETAIL menu is used to adjust the image enhancer function.

<DETAIL>	
>MODE	MANUAL
LEVEL	0
BAND WIDTH	DEFAULT
CRISPENING	3
H/V BALANCE	0
B/W BALANCE	TYPE2
LIMIT	3
HIGHLIGHT DETAIL	0
SUPER LOW	3
SELECT	
MENU/BACK	

MODE

When you choose AUTO, contour correction signal is automatically added.

When you want to make adjustment by yourself, choose MANUAL.

Only LEVEL will be displayed when you choose AUTO.

LEVEL: You can set the volume of the contour correction signal. Choose a value from -7 to 0 to +8. The greater the value, the stronger the contour correction signal.

BAND WIDTH: You can set the bandwidth for signals undergoing contour emphasis. You can choose from DEFAULT, LOW, MIDDLE, HIGH, and WIDE. For example, when you choose MIDDLE, the middle range of the signals is elevated, and contours in that middle range are emphasized.

CRISPENING: You can choose the fineness of the objects subject to contour correction with contour correction signals.

Choose a value from 0 to 7. When you choose a higher value, minute contour correction signal elements are removed, and only the high level contour correction signals are left, which reduces noise. When you choose a lower value, minute contour correction signal elements are added to the picture, increasing noise.

H/V BALANCE: You can choose the ratio for horizontal and vertical contour correction signal elements. Choose a value from -2 to 0 to +2. When you choose a higher value, the horizontal contour correction elements become greater compared to the vertical elements.

B/W BALANCE: You can adjust the balance between contours in black on the low brightness side of the spectrum and contours in white on the high brightness side. Choose from TYPE1 to TYPE5. The ratio of contours in black is higher for TYPE1 while the ratio of contours in white is higher for TYPE5.

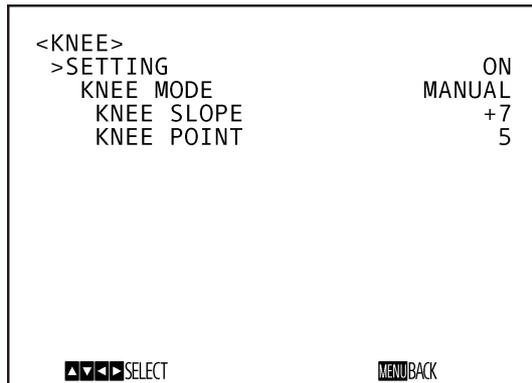
LIMIT: You can set the maximum value for the amount of contour emphasis in black on the low brightness side of the spectrum and in white on the high brightness side. Choose a value from 0 to 7.

HIGHLIGHT DETAIL: You can adjust the level of contour added to brightly-lit objects. Choose a value from 0 and 4. Adjust this when you want to emphasize the contour of a brightly-lit object in a bright background.

SUPER LOW: Emphasizes contours in the super low range. Choose a value from 0 to 7. The greater the value, the greater the contour emphasis. Contrast and resolution increase.

KNEE Menu

The KNEE menu is used to adjust the KNEE.



SETTING

When you turn this ON, the following KNEE MODE setting items are displayed for adjustment.

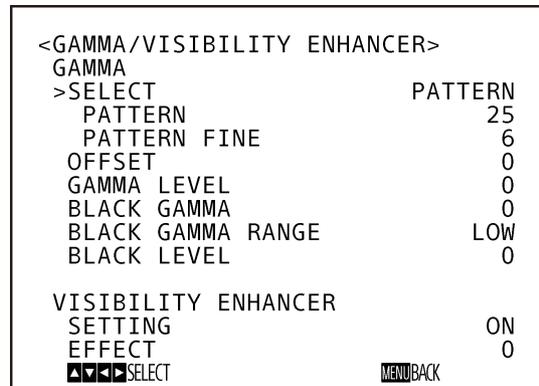
KNEE MODE: When you choose AUTO, the KNEE level is automatically calculated based on the brightness level of the picture being shot. When you choose MANUAL, you can manually adjust the KNEE level irrespective of the brightness level of the picture.

KNEE SLOPE: When KNEE MODE is MANUAL, you can adjust the gradient of KNEE (compression rate). Choose a value from -7 to 0 to +7. This is disabled when KNEE MODE is AUTO.

KNEE POINT: When KNEE MODE is MANUAL, you can adjust the knee point. Choose a value from 0 to 12. This is disabled when KNEE MODE is AUTO.

GAMMA/VISIBILITY ENHANCER Menu

The GAMMA/VISIBILITY ENHANCER menu is used to adjust GAMMA correction and VISIBILITY ENHANCER features.



GAMMA

SELECT

You can choose the type of basic curve for GAMMA correction.

STD: This is the standard setting.

STRAIGHT: This selects a straight GAMMA curve.

PATTERN: You can choose a gamma curve from 512 patterns stored in the camera. You can specify the pattern out of 512 patterns using PATTERN and PATTERN FINE. PATTERN defines the upper two digits of the pattern, and PATTERN FINE defines the last digit.

PATTERN: Choose a value from 0 to 51. This can be chosen when SELECT is PATTERN.

PATTERN FINE: Choose a value from 0 to 9. When PATTERN is 0, 0 cannot be chosen for PATTERN FINE. When PATTERN is 51, a value larger than 2 cannot be chosen for PATTERN FINE. This can be chosen when SELECT is PATTERN.

OFFSET: You can choose the offset of the output level of gamma curves.

Choose a value from -64 to 0 to +64.

LEVEL: You can adjust the correction level of the GAMMA curve. Choose a value from -7 to 0 to +7.

BLACK GAMMA: You can adjust the black gamma level to recreate gradation in the dark areas of the picture or to suppress noise with black-out. Choose a value between -7 to +7.

BLACK GAMMA RANGE: You can adjust the brightness range for which BLACK GAMMA becomes effective. Choose from LOW, MIDDLE, and HIGH. The range becomes small when LOW is chosen, and it becomes large when HIGH is chosen.

BLACK LEVEL: You can adjust the master BLACK LEVEL. Choose a value from -48 to +48.

VISIBILITY ENHANCER

SETTING

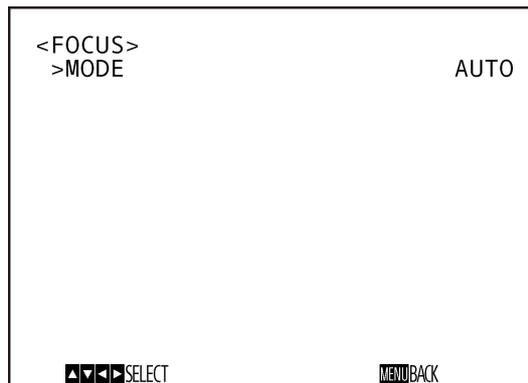
When this is turned ON, gradation correction is adaptively performed according to the scene being shot.

EFFECT

You can adjust the brightness of the shadows on the screen. Choose a value from -3 to 0 to +3.

FOCUS Menu

The FOCUS menu is used to select the focus mode.



MODE (Focus mode)

Select the focus mode.

AUTO: The camera focuses automatically.

MANUAL: You can focus manually. Press the FAR/NEAR buttons of the remote commander to focus.

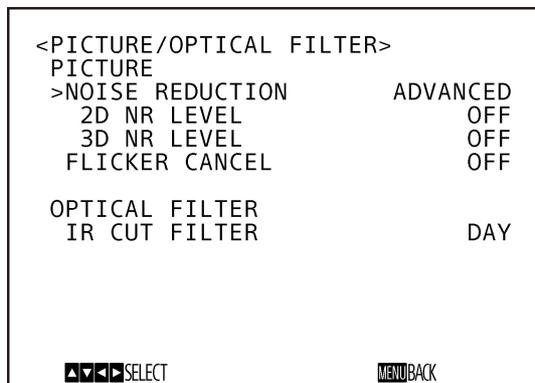
Notes

Press the MANUAL button and adjust the focus manually when shooting the following objects.

- White walls and other objects without contrast
- Objects behind glass
- Objects with horizontal stripes
- Objects on which bright lights are cast or reflected
- Nightscapes and other dark objects with blinking lights
- Lit objects shot with darkened exposure adjustment or exposure compensation settings

PICTURE/OPTICAL FILTER Menu

The PICTURE/OPTICAL FILTER menu is used to adjust picture quality improvement features and optical filters.



NOISE REDUCTION

You can obtain clearer images by removing unnecessary noise (fixed pattern and randomized noise) with NOISE REDUCTION. Choose from OFF or LEVEL 1 through LEVEL 5. When you select ADVANCED, you can set up 2D NR LEVEL and 3D NR LEVEL independently.

2D NR LEVEL

This is enabled when NOISE REDUCTION is ADVANCED. Choose from OFF or LEVEL 1 through LEVEL 5 for noise reduction.

3D NR LEVEL

This is enabled when NOISE REDUCTION is ADVANCED. Choose from OFF or LEVEL 1 through LEVEL 5 for noise reduction.

FLICKER CANCEL

When this is turned ON, the flicker correction feature becomes enabled.

When this is turned OFF, the flicker correction feature becomes disabled.

Note

Depending on conditions such as the type of illumination and shutter speed, the flicker correction feature may not be effective.

If the frame rate is close to the power supply frequency, the flicker correction feature may not be able to fully remove flickers, even if it is enabled. If this happens, use the electronic shutter.

We recommend turning OFF, FLICKER CANCEL under lights where no flicker is generated, such as outdoors.

IR CUT FILTER

You can choose either to enable or disable the IR CUT FILTER feature.

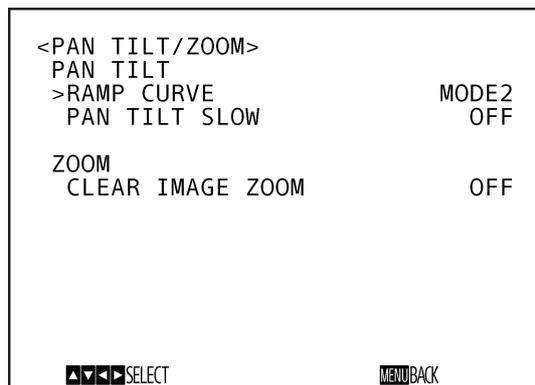
By disabling the IR CUT FILTER, the gain in the IR region is increased allowing the camera to capture images in shadow.

Day: IR CUT FILTER is enabled to remove unnecessary IR.

Night: IR CUT FILTER is disabled. The picture becomes monochrome.

PAN TILT/ZOOM Menu

The PAN TILT/ZOOM menu is used to select the pan/tilt/zoom mode.



RAMP CURVE (acceleration/deceleration curve)

You can set the acceleration/deceleration curve for pan and tilt.

MODE1: The camera accelerates/decelerates quicker than MODE2.

MODE2: This is the standard acceleration/deceleration curve.

MODE3: The camera accelerates/decelerates slower than MODE2.

PAN TILT SLOW (slow pan/tilt)

You can select slow speed panning/tilting.

OFF: The camera pans/tilts at the standard speed.

ON: The camera pans/tilts slower if the supplied remote commander is used.

The minimum speed is the same when the remote controller (not supplied) or VISCA command is used. However, the faster the speed, the greater the difference between ON and OFF.

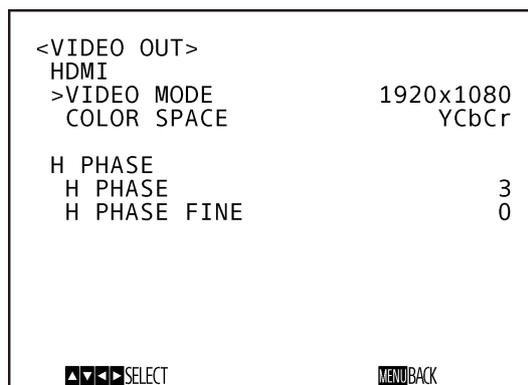
CLEAR IMAGE ZOOM

You can set the range of zooming.

OFF: This restricts zooming only to optical zooming.

ON: This allows zooming within the range of optical zooming and clear image zooming.

VIDEO OUT Menu



VIDEO MODE

This is the screen size for HDMI output. When the signal format is 3840×2160 , you can choose either 3840×2160 or 1920×1080 .

COLOR SPACE

You can set the color space of HDMI output.

H PHASE (horizontal phase adjustment)

This feature allows you to regulate phase differences in image signals from the external synchronizing signal as opposed to the image signal of the camera when a device which generates the synchronizing signal is connected. The adjustment range is from 0 to 1919 STEP.

When the video signal and the external video sync signal are not synchronized, the video signal can be advanced with + and delayed with -.

You can make adjustments with the following H PHASE and H PHASE FINE settings.

H PHASE

This allows you to adjust by 10 STEP increments. Choose a value from 00 to 03 to 191.

H PHASE FINE

This allows you to adjust by 1 STEP increments. Choose a value from 0 to 9.

If you increase the value beyond 9, the tens digit automatically increases (+1 to H PHASE).

If you decrease the value beyond 0, the tens digit automatically decreases (-1 to H PHASE).

Time adjustment of 1 STEP for H PHASE:

Signal format of the camera	H PHASE	H PHASE FINE
3840 × 2160/29.97p 3840 × 2160/25p 1920 × 1080/59.94p 1920 × 1080/50p	Approximately 0.067 microsecond	Approximately 0.0067 microsecond
1920 × 1080/59.94i 1920 × 1080/50i 1280 × 720/59.94p 1280 × 720/50p	Approximately 0.135 microsecond	Approximately 0.0135 microsecond

SYSTEM Menu

<SYSTEM>	
>IMG FLIP	OFF
PAN REVERSE	OFF
TILT REVERSE	OFF
IR RECEIVE	ON
TALLY MODE	LOW
VERSION	*.***
<div style="display: flex; justify-content: space-between;"> SELECT MENU BACK </div>	

IMG FLIP (vertical flipping of the image)

When IMG FLIP is turned ON, the picture from the SDI and HDMI outputs is flipped. The directions of pan and tilt are also reversed.

If you change the IMG FLIP setting, turn off the camera and turn it on again to activate the change.

Notes

- When you turn off the camera and turn it on again with IMG FLIP turned ON, PAN REVERSE and TILT REVERSE are turned ON. When you turn off the camera and turn it on again with IMG FLIP turned OFF, PAN REVERSE and TILT REVERSE are turned off.
- If the IMG FLIP setting is changed, the coordinates for pan and tilt are flipped and all preset values are reset.

PAN REVERSE

When this is turned ON, the PAN direction is reversed.

TILT REVERSE

When this is turned ON, the TILT direction is reversed.

IR RECEIVE

If this is turned OFF, the camera does not receive signals from the supplied remote commander.

Be sure to turn this ON when you use the supplied remote commander.

Note

You cannot turn OFF, IR RECEIVE when using the supplied remote commander. To turn off IR RECEIVE, use the remote controller (not supplied) or VISCA command.

TALLY MODE

This allows you to set up the Tally lamps on the front and back of the camera. Choose from HIGH, LOW, and OFF.

HIGH: When the Tally lamp is turned on, the one on the front of the camera comes on bright.

LOW: When the Tally lamp is turned on, the one on the front of the camera comes on dim.

OFF: When the Tally-lamp-on command is issued, the Tally lamps on the front and back of the camera do not come on.

Note

When TALLY MODE is turned off, both the front and back Tally lamps do not come on.

The brightness of the Tally lamp on the back of the camera cannot be adjusted. It comes on at the same brightness for LOW and HIGH.

VERSION

This indicates the version of the firmware installed on the camera.

NETWORK Menu

The NETWORK menu is used to configure Network settings.

```
<NETWORK>
IPv4 ADDRESS      192.168.0.100
SUBNET MASK       255.255.255.0
GATEWAY           0.0.0.0
MAC ADDRESS       ***-**-**-**-**
NAME              CAM1

▲▼◀▶SELECT      MENU▶BACK
```

IPv4 ADDRESS: Displays the IP address set up on the camera.

SUBNET MASK: Displays the subnet mask currently set up for the camera.

GATEWAY: Displays the default gateway address currently set up for the camera.

MAC ADDRESS: Displays the MAC address of the camera.

NAME: Displays the name currently set up for the camera.

Note

You should set up the IP address, subnet mask, and default gateway before you first use the Network features. Configure these settings using the setup application “RM-IP10 Setup Tool” on your PC. For details on the settings, refer to “RM-IP10 Setup Tool Guide”.

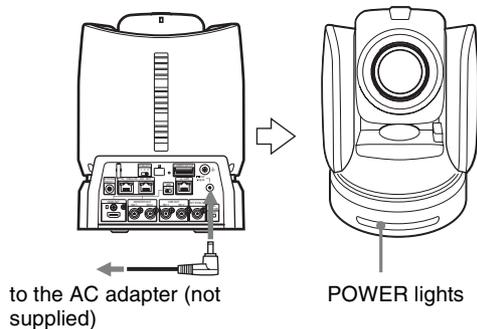
Operations Using the Supplied Remote Commander

Before Starting Operations

Before operating, check that the camera and peripheral devices are properly installed and connected.

For details, refer to “Installing the Camera” (page 15) and “Connecting the Camera” (page 23).

Turning on the Power



- 1 Connect the camera to an AC outlet using the AC adapter (not supplied) and power cord.
Or, connect the powered PoE+ Hub and the camera using a LAN cable.

The power is turned on and the POWER lamp turns green.

The camera will automatically pan and tilt and be reset to the position stored as POSITION 1.

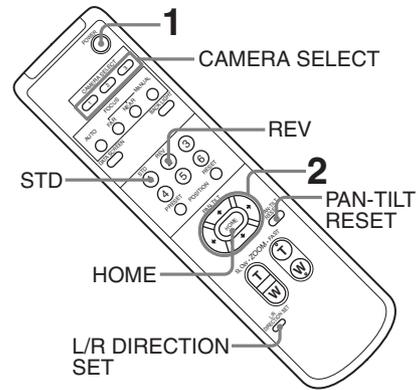
- 2 Turn on the peripheral devices.
If the POWER button on the remote commander is pressed while the camera is turned on, the camera goes into the standby mode. The POWER lamp turns from green to orange.

Note

Wait at least 10 seconds if you want to turn on the camera again after putting it in the standby mode.

Pan/Tilt and Zoom Operations

Panning and Tilting



- 1 Press the POWER button.
The camera will turn on and perform the pan/tilt reset action automatically.
- 2 Press the arrow button to pan or tilt the camera.
While checking the picture on the screen, press the appropriate arrow button.
To move the camera little by little, press the button just for a moment.
To move the camera in a wide range, press and hold the button.
To move the camera diagonally, press the **▲** or **▼** button while holding down the **◀** or **▶** button.

To face the camera back to the front

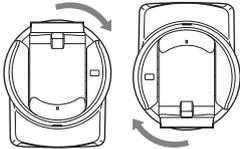
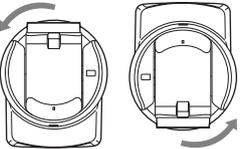
Press the HOME button.

If you accidentally move the camera with your hand

Press the PAN-TILT RESET button to perform the pan/tilt reset action.

If the camera moves in a different direction from what you intended

The camera is preset to face toward the right whenever the **➔** button is pressed. You might wish to reverse the direction in which the camera moves, for example, when you change the direction of the camera while checking the picture on the screen. In such cases, press the **2 (REV)** button while holding down the **L/R DIRECTION SET** button. To reset the setting, press the **1 (STD)** button while holding down the **L/R DIRECTION SET** button.

Arrow button	Movement of the camera	Setting
		 While holding down  Press
		 While holding down  Press

Note

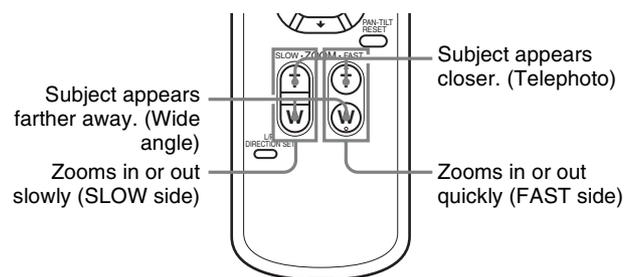
The above setting changes only the signal emitted from the remote commander, and does not change the setting of the camera itself. Therefore, repeat the setting process for each remote commander if you are using more than one remote commander.

If the POWER lamp and NETWORK lamp of the camera flash simultaneously, and PAN-TILT ERROR! is displayed on the menu screen

When the camera is moved or turned by hand or by external shock, the microcomputer inside the camera may not be able to recall the pan/tilt position properly, in which case the camera automatically stops. To reset the pan/tilt position, press the **PAN-TILT RESET** button or turn off the camera and turn it on again.

Zooming

Press either of the **ZOOM** buttons.



Note

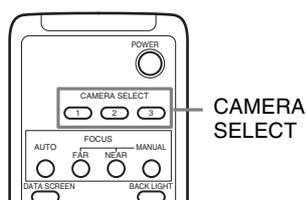
When you perform pan/tilt operations while the camera is in telephoto mode, the moving speed of the image on the screen may be a little jerky.

Operating multiple cameras with the remote commander

- 1 Set the IR SELECT switch on the rear of the camera you want to operate to 1, 2 or 3.

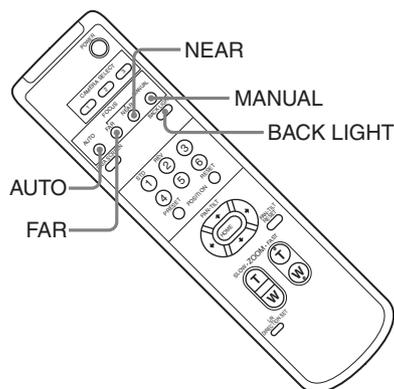


- 2 Press the CAMERA SELECT button on the remote commander that corresponds to the number set in step 1.



You can then operate the specified camera(s). Every time you operate the camera(s) using the remote commander, the CAMERA SELECT button pressed in step 2 lights up.

Adjusting the Camera



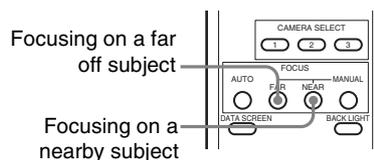
Focusing on a subject

To focus the camera on a subject automatically

Press the AUTO button. The camera focuses on the subject in the center of the screen automatically.

To focus the camera on a subject manually

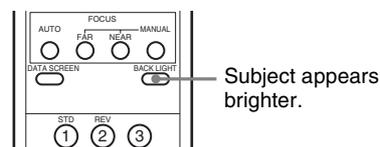
After pressing the MANUAL button, press either the FAR or the NEAR button to adjust the focus.



Shooting with back lighting

When you shoot a subject with a light source behind it, the subject becomes dark. In such cases, press the BACK LIGHT button.

To cancel the function, press the BACK LIGHT button again.



Note

The BACK LIGHT button is enabled when MODE in the EXPOSURE menu is FULL AUTO, SHUTTER Pri, IRIS Pri, or GAIN Pri.

Storing the Camera Settings in Memory

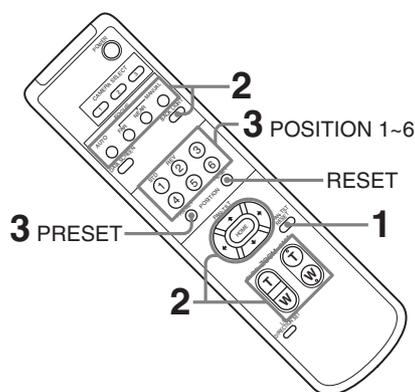
– Presetting Feature

Up to six combinations of settings (six positions) including camera position, zoom, focus, and backlighting, can be preset.

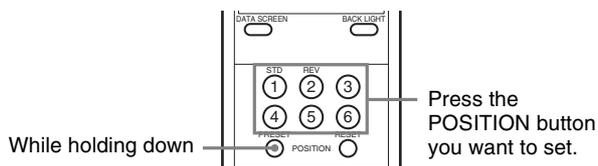
Note

The camera can store up to sixteen combinations of settings (sixteen positions) in the memory, but the supplied remote commander supports presetting of only six positions (POSITION 1 to 6). Use the remote controller (not supplied) to store the settings in POSITION 7 to 16.

For details on the camera settings that can be preset, see “Preset Items” (page 53).



- 1 Press the PAN-TILT RESET button to reset the pan/tilt position.
- 2 Adjust the position, zoom, focus, and backlighting of the camera. (See pages 43, 44.)
- 3 Hold down the PRESET button and press any of the POSITION buttons, 1 to 6, in which you want to store the settings.



Note

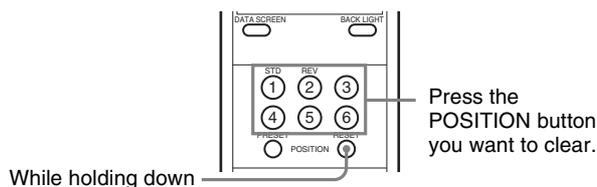
When you store the position, zoom, focus, etc. of the camera, make sure to install and secure the camera in place to use it properly. If you change the installation of the camera after storing the settings, differences may occur in the settings.

To recall the stored settings

Press any of the POSITION 1 to 6 buttons in which you have stored the settings.

To clear the preset memory

Hold down the RESET button and press the desired POSITION button from buttons 1 to 6 for which you want to clear the settings.



Notes

- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- If you want to retain the previous pan and tilt positions when the power is turned off and turned on again, store those positions in POSITION 1.
- Storing or clearing the settings in POSITION 1 takes about two seconds longer than for other positions.
- When you are storing or clearing the settings in one POSITION, you cannot restore, store or clear the settings in another POSITION.
- For details on the items that can be cleared from the memory, see “Preset Items” (page 53).

Upgrading the firmware

An IP address must be set for the camera to upgrade the firmware. For how to set an IP address of the camera, refer to “RM-IP10 Setup Tool Guide.”

You will also need a PC as you use a Web browser to upgrade the firmware.

Notes

- Do not turn off the camera while you are upgrading the firmware.
- It takes approximately 10 minutes to upgrade the firmware. You cannot access the camera while the upgrading is in progress. You also will not see any image while the upgrading is in progress.

Before starting the operation

Setting-up the PC

One of the following system configurations is required for the PC:

OS

Windows 8.1 Pro (32-bit version, 64-bit version)
Windows 10 Pro (32-bit version, 64-bit version)

Web browser

Windows Internet Explorer Ver. 11.0

Notes

- In the case of Windows 8.1, use the Internet Explorer desktop user interface (desktop UI) version.
- Turn off tablet mode when using Windows 10.
- Every page is optimized for Internet Explorer in Medium font size.
- The Web page displayed when you log in to the camera is made using JavaScript. The Web page may not display correctly if your computer uses certain software, such as anti-virus software.

Accessing the camera using the Web browser

Start the Web browser on the computer and type the IP address of the camera in the address bar.



Address

A user ID and password authentication is required to access the camera. The user ID and factory-set password of the camera are as follows:

User name: admin

Password: Admin_1234

Operation

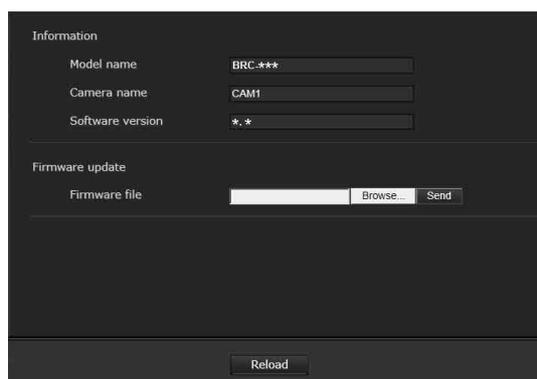
Firmware update tab

You can upgrade the firmware from this tab. The Model name of the camera, Camera name, and Software version are displayed.

Note

The password change screen is displayed when the camera is accessed using the factory-set password. You can view the Firmware update tab after changing the password.

Display sample: If the OS language is English



The screenshot shows a web interface with two main sections. The top section, titled "Information", contains three rows of data: "Model name" with the value "BRC-***", "Camera name" with "CAM1", and "Software version" with "*.*". Below this is the "Firmware update" section, which features a "Firmware file" input field, a "Browse" button, and a "Send" button. At the bottom of the interface is a "Reload" button.

Upgrading the firmware

You can upgrade the firmware as follows:

- 1 Click the **Browse...** button to select the firmware file.
- 2 Click the **Send** button.
- 3 Click the **OK** button when the "Start update?" message is displayed.
The message is closed and "Upgrading firmware" is shown instead. You cannot access the camera while the upgrading is in progress.

Checking the version after the update

It takes approximately 10 minutes to upgrade the firmware.

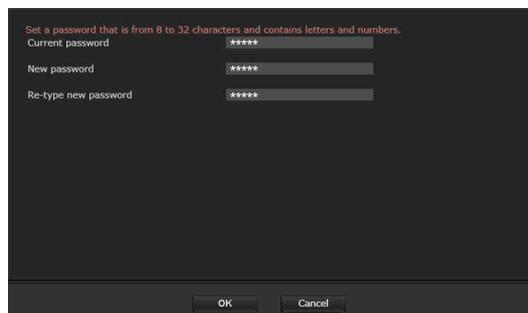
When the upgrading is completed, the camera automatically starts in the new upgraded version. Click the **Reload** button after the reboot. The firmware version after the update will be displayed in Software version on the screen.

Password tab

This tab is for changing the password. The length of the password should be between 8 to 32 characters. Alphanumeric characters, hyphens "-", and underscores "_" can be used in the password. The password must contain both letters and numbers.

The password can be changed as follows:

- 1 Enter your current password in the "Current password" field.
- 2 Enter your new password in the "New password" and "Re-type new password" fields.
- 3 Press the OK button.



The screenshot shows a password change screen with a dark background. At the top, it says "Set a password that is from 8 to 32 characters and contains letters and numbers." Below this are three input fields: "Current password", "New password", and "Re-type new password", each with a masked password "*****". At the bottom, there are "OK" and "Cancel" buttons.

Note

The user name cannot be changed.

Message List

The following messages and indications may appear on this camera. Perform the following as necessary.

Camera BRC-X1000/H800 Lamp Display

Lamp	Meaning and solution
Flashing of POWER lamp (orange) and NETWORK lamp (green)	An error has occurred in the camera. Details of the error are displayed in the camera menu. Deal with the error after confirming the details.
Flashing of back Tally lamp	Turn off the device as it may malfunction if used in this state. Contact the inquiry counter of your Sony Service Center or your licensed Sony dealer.

Camera BRC-X1000/H800 Screen Display (flashing in Main menu)

Message	Meaning and solution
⚠ FAN STOP! (BASE)	Turn off the device as it may malfunction if used in this state. Contact the Sony Service Center or your licensed Sony dealer.
⚠ PAN-TILT ERROR!	The movement of the camera has stopped due to an error in the pan-tilt driving unit. Reset the pan/tilt position. Or, restart the camera.
⚠ PAN-TILT FAULT!	Turn off the device as it may malfunction if used in this state. Contact the Sony Service Center or your licensed Sony dealer.
⚠ FPGA FAULT!	Turn off the device as it may malfunction if used in this state. Contact the Sony Service Center or your licensed Sony dealer.
⚠ CAMERA FAULT!	Turn off the device as it may malfunction if used in this state. Contact the Sony Service Center or your licensed Sony dealer.

Troubleshooting

Before bringing in your camera for service, check the following as a guide to troubleshooting the problem. If the problem cannot be corrected, consult your Sony dealer.

Symptom	Cause	Remedy
The power of the camera is not turned on.	The AC adapter (not supplied) is not firmly connected to the DC IN 12 V terminal.	Insert the power cord firmly as far as it will go.
	The power cord is not firmly connected to the AC adapter or the power outlet.	Insert the power cord firmly as far as it will go.
	The connection cable with the PoE+ Hub is not firmly connected.	Insert the connection cable firmly as far as it will go.
	A power supply device that is not compliant with PoE+ is connected.	Connect a PoE+ compliant power supply device.
The camera does not work, even when buttons on the remote commander are pressed.	IR RECEIVE on the SYSTEM menu is turned OFF.	Operate the menu using remote controller RM-IP10, and turn on IR RECEIVE (page 10).
	The remote commander's CAMERA SELECT button number and the camera's IR SELECT switch settings are different.	Press the CAMERA SELECT button that matches the IR SELECT switch setting (page 10).
The picture is not displayed on the connected video monitor.	The video cable is not connected properly.	Check the connection between the camera and video monitor.
	The exposure is not set correctly on the camera.	Check the exposure settings in the EXPOSURE menu.
Pan, tilt, or zoom cannot be operated.	The camera menu is displayed.	Close the menu by pressing the RM-IP10 MENU button on the remote controller or the DATA SCREEN button on the supplied remote commander.
The camera does not operate from the remote controller RM-IP10.	The VISCA RS-422 connection is incorrect.	Check the connections to the VISCA RS-422 terminal, and the wiring of the RS-422 cable.
	The camera address on the CAMERA SETUP switch at the back side of the camera is not set to 0 (AUTO).	Check the camera address, and select the same camera number with the CAMERA button on the remote controller.
	The communication baud rate settings are different.	Set the same baud rate (9,600 bps or 38,400 bps) with the DIP switch at the bottom of the remote controller and the CAMERA SETUP switch (page 8) at the back of the camera.
VISCA is not available, even when a computer is connected to the camera.	The computer is not correctly connected to the camera.	Make sure the connection between the computer and camera is made correctly.
		Confirm that the baud rate (9,600 bps or 38,400 bps) is correctly set on the CAMERA SETUP switch at the back of the camera (page 8) and in the PC settings.
		Check that the camera is not damaged by connecting the camera to the remote controller RM-IP10.
The camera cannot be operated at all.	-	Remove the plug of the power cord from the AC outlet, then reinsert it into the AC outlet after waiting a while.

Menu Configuration

The camera menu is configured as described below. For more details, refer to the pages in parentheses.

The initial settings of each item are in bold.

EXPOSURE (page 32)	MODE	FULL AUTO , MANUAL, SHUTTER Pri, IRIS Pri, GAIN Pri
	GAIN	-3dB, 0dB , 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 24dB, 27dB, 30dB, 33dB (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO or GAIN Pri.)
	SPEED	For the 59.94 frame rate of video output: 1/8, 1/15, 1/30, 1/60 , 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 For the 29.97 frame rate of video output: 1/8, 1/15, 1/30 , 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 For the 50 frame rate of video output: 1/6, 1/12, 1/25, 1/50 , 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000 For the 25 frame rate of video output: 1/6, 1/12, 1/25 , 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000 (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO or IRIS Pri.)
	IRIS	F2.8 /F3.1/F3.4/F3.7/F4.0/F4.4/F4.8/F5.2/F5.6/F6.2/F6.8/F7.3/F8.0/F8.7/F9.6/F10/F11 (Adjustable only when MODE in the EXPOSURE menu is set to MANUAL or IRIS Pri.)
	AE SPEED	1 ~ 48 (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri or IRIS Pri.)
	EX-COMP	OFF , ON (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri, SHUTTER Pri or IRIS Pri.)
	LEVEL	-7, -6, -5, -4, -3, -2, -1, 0 , +1, +2, +3, +4, +5, +6, +7 (Adjustable only when MODE in the EX-COMP menu is set to ON.)
	GAIN LIMIT	9dB, 12dB, 15dB, 18dB, 21dB, 24dB, OFF (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, SHUTTER Pri or IRIS Pri.)
	GAIN POINT	OFF , ON (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO or IRIS Pri.)
	POINT POSITION	0dB , 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO or IRIS Pri.)
	MAX SPEED	For the 59.94 frame rate of video output: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000 , 1/3000, 1/4000, 1/6000, 1/10000 For the 29.97 frame rate of video output: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000 , 1/3000, 1/4000, 1/6000, 1/10000 For the 50 frame rate of video output: 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750 , 1/2500, 1/3500, 1/6000, 1/10000 For the 25 frame rate of video output: 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750 , 1/2500, 1/3500, 1/6000, 1/10000 (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri or IRIS Pri.)
	MIN SPEED	For the 59.94 frame rate of video output: 1/8, 1/15, 1/30, 1/60 , 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 For the 29.97 frame rate of video output: 1/8, 1/15, 1/30 , 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 For the 50 frame rate of video output: 1/6, 1/12, 1/25, 1/50 , 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000 For the 25 frame rate of video output: 1/6, 1/12, 1/25 , 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000 (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri or IRIS Pri.)
	BACK LIGHT	OFF , ON (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri, SHUTTER Pri or IRIS Pri.)
	SPOT LIGHT	OFF , ON (Adjustable only when MODE in the EXPOSURE menu is set to FULL AUTO, GAIN Pri, SHUTTER Pri or IRIS Pri.)

COLOR (page 34)	WHITE BALANCE MODE	AUTO1 , AUTO2, INDOOR, OUTDOOR, ONE PUSH, MANUAL
	SPEED	1, 2, 3 , 4, 5 (Adjustable only when COLOR MODE in the WHITE BALANCE menu is set to AUTO1 or AUTO2.)
	OFFSET	-7, -6, -5, -4, -3, -2, -1, 0 , +1, +2, +3, +4, +5, +6, +7 (Adjustable only when COLOR MODE in the WHITE BALANCE menu is set to AUTO1, AUTO2 or ONE PUSH.)
	R.GAIN	-128~ 0 ~+127 (Adjustable only when COLOR MODE in the WHITE BALANCE menu is set to MANUAL.)
	B.GAIN	-128~ 0 ~+127 (Adjustable only when COLOR MODE in the WHITE BALANCE menu is set to MANUAL.)
	MATRIX	OFF, ON
	SELECT	STD , HIGH SAT, FL LIGHT (Adjustable only when COLOR MODE in the MATRIX menu is set to ON.)
	LEVEL	0, 1, 2, 3, 4 , 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 (Adjustable only when COLOR MODE in the MATRIX menu is set to ON.)
	PHASE	-7, -6, -5, -4, -3, -2, -1, 0 , +1, +2, +3, +4, +5, +6, +7 (Adjustable only when COLOR MODE in the MATRIX menu is set to ON.)
	R-G	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)
	R-B	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)
	G-R	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)
	G-B	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)
	B-R	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)
B-G	-99~ 0 ~+99 (Adjustable only when MODE in the MATRIX menu is set to ON.)	

DETAIL (page 35)	MODE	AUTO , MANUAL
	LEVEL	-7, -6, -5, -4, -3, -2, -1, 0 , +1, +2, +3, +4, +5, +6, +7, +8
	BAND WIDTH	DEFAULT , LOW, MIDDLE, HIGH, WIDE (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	CRISPENING	0, 1, 2, 3 , 4, 5, 6, 7 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	H/V BALANCE	-2, -1, 0 , +1, +2 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	B/W BALANCE	TYPE1, TYPE2, TYPE3 , TYPE4, TYPE5 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	LIMIT	0, 1, 2, 3 , 4, 5, 6, 7 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	HIGHLIGHT DETAIL	0 , 1, 2, 3, 4 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)
	SUPER LOW	0, 1, 2, 3 , 4, 5, 6, 7 (Adjustable only when MODE in the DETAIL menu is set to MANUAL.)

KNEE (page 36)	SETTING	ON , OFF
	KNEE MODE	AUTO , MANUAL (Adjustable only when setting in the KNEE is set to ON.)
	KNEE SLOPE	-7, -6, -5, -4, -3, -2, -1, 0 , +1, +2, +3, +4, +5, +6, +7 (Adjustable only when setting in the KNEE is set to MANUAL.)
	KNEE POINT	0, 1, 2, 3, 4, 5 , 6, 7, 8, 9, 10, 11, 12 (Adjustable only when MODE in the KNEE is set to MANUAL.)

GAMMA / VISIBILITY ENHANCER (page 36)	GAMMA	
	SELECT	STD , STRAIGHT, PATTERN
	PATTERN	0~ 25 ~51 (Adjustable only when the SELECT is set to PATTERN.)
	PATTERN FINE	0~ 6 ~9 (Adjustable only when the SELECT is set to PATTERN.)
	OFFSET	-64~ 0 ~+64
	LEVEL	-7~ 0 ~+7
	BLACK GAMMA	-7~ 0 ~+7
	BLACK GAMMA RANGE	LOW , MIDDLE, HIGH
	BLACK LEVEL	-48~ 0 ~+48
	VISIBILITY ENHANCER	
	SETTING	OFF , ON
	EFFECT	-3, -2, -1, 0 , +1, +2, +3

FOCUS (page 37)	MODE	AUTO , MANUAL
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PICTURE / OPTICAL FILTER (page 38)	PICTURE	
	NOISE REDUCTION	OFF, 1, 2, 3 , 4, 5, ADVANCED
	2D NR LEVEL	OFF, 1, 2, 3 , 4, 5 (Adjustable only when the NOISE REDUCTION is set to ADVANCED.)
	3D NR LEVEL	OFF, 1, 2, 3 , 4, 5 (Adjustable only when the NOISE REDUCTION is set to ADVANCED.)
	FLICKER CANCEL	OFF , ON
	OPTICAL FILTER	
IR CUT FILTER	NIGHT, DAY	

PAN TILT ZOOM (page 39)

- PAN TILT
- RAMP CURVE ————— MODE1, **MODE2**, MODE3
- PAN TILT SLOW ————— **OFF**, ON
- ZOOM
- CLEAR IMAGE ZOOM — **OFF**, ON

VIDEO OUT (page 39)

- HDMI
- VIDEO MODE ————— **3840×2160**, 1920×1080 (Adjustable only when the VIDEO MODE is set to SYSTEM SELECT 0 or 8.)
1920×1080 (Adjustable only when the VIDEO MODE is set to SYSTEM SELECT 1, 2, 9 or A.)
1280×720 (Adjustable only when the VIDEO MODE is set to SYSTEM SELECT 4 or C.)
640×480 (Adjustable only when the VIDEO MODE is set to SYSTEM SELECT 7.)
- COLOR SPACE ————— **YCbCr**, RGB
- H PHASE
- H PHASE ————— 0~**3**~191
- H PHASE FINE ————— **0**~9

SYSTEM (page 40)

- IMG FLIP ————— ON, **OFF**
- PAN REVERSE ————— ON, **OFF**
- TILT REVERSE ————— ON, **OFF**
- IR RECEIVE ————— **ON**, OFF
- TALLY MODE ————— OFF, **LOW**, HIGH
- VERSION

NETWORK (page 41)

- IPv4 ADDRESS
- SUBNET MASK
- GATEWAY
- MAC ADDRESS
- NAME

Preset Items

The following items are stored in the memory of the camera.

General Items

Items that can be stored	Preset position number	
	1	2~16
PAN TILT Position	●	○
ZOOM Position	●	○
FOCUS Position (Only when manual)	●	○

Menu Items Which Can Be Preset

Items that can be stored	Preset position number	
	1	2~16
EXPOSURE MODE	●	○
GAIN	●	○
GAIN LIMIT	●	○
GAIN POINT	●	○
POINT POSITION	●	○
SPEED	●	○
MAX SPEED	●	○
MIN SPEED	●	○
IRIS	●	○
AE SPEED	●	○
EX-COMP	●	○
LEVEL	●	○
BACK LIGHT	●	○
SPOT LIGHT	●	○
WHITE BALANCE MODE	●	○
SPEED	●	○
OFFSET	●	○
R.GAIN	●	○
B.GAIN	●	○
MATRIX SELECT	●	○
LEVEL	●	○
PHASE	●	○
R-G	●	○
R-B	●	○
G-R	●	○
G-B	●	○
B-R	●	○
B-G	●	○
DETAIL MODE	●	○

Items that can be stored	Preset position number	
	1	2~16
LEVEL	●	○
BAND WIDTH	●	○
CRISPENING	●	○
H/V BALANCE	●	○
B/W BALANCE	●	○
LIMIT	●	○
HIGHLIGHT DETAIL	●	○
SUPER LOW	●	○
KNEE SETTING	●	○
KNEE MODE	●	○
KNEE SLOPE	●	○
KNEE POINT	●	○
GAMMA SELECT	●	○
PATTERN	●	○
PATTERN FINE	●	○
OFFSET	●	○
LEVEL	●	○
BLACK GAMMA	●	○
BLACK GAMMA RANGE	●	○
BLACK LEVEL	●	○
VE SETTING	●	○
VE EFFECT	●	○
FOCUS MODE	●	○
NOISE REDUCTION	●	○
2D NR LEVEL	●	○
3D NR LEVEL	●	○
FLICKER CANCEL	●	○
IR CUT FILTER	●	○
RAMP CURVE	△	×
PAN TILT SLOW	×	×
CLEAR IMAGE ZOOM	●	○
HDMI VIDEO MODE	△	×
COLOR SPACE	△	×
H PHASE	△	×
H PHASE FINE	△	×
IMG FLIP ¹⁾	×	×
PAN REVERSE	△	×
TILT REVERSE	△	×
IR RECEIVE	△	×
TALLY MODE	△	×
VERSION		×
IPv4 ADDRESS		×
SUBNET MASK		×
GATEWAY		×
NAME		×

- 1) IMG FLIP and PAN TILT SLOW is enabled in the current setting irrespective of the preset settings.
- Can be stored. During power-up, the camera boots-up with the settings stored in this preset number.
 - Can be stored. After power-up, the stored setting value is applied by recalling the relevant preset number.
 - △ Can be stored. During power-up, the camera boots-up with the setting stored in this preset number. The setting value is not initialized by a reset. The settings do not change even if the preset is recalled after the corresponding setting values have been changed.
 - × Cannot be stored.

Specifications

System

Video signal	3840 × 2160/29.97p (2SI)* ¹ 1920 × 1080/59.94p, 1920 × 1080/59.94i, 1280 × 720/59.94p 3840 × 2160/25p (2SI)* ¹ 1920 × 1080/50p, 1920 × 1080/50i, 1280 × 720/50p (switched with the SYSTEM SELECT switch) ^{*1} Compatible only with the BRC-X1000
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Synchronization	Internal synchronization/External synchronization, Automatic switching
-----------------	--

Image device	1.0-type, CMOS image sensor Effective pixel number: Approx. 14.2 Megapixels
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Camera

Lens	Optical, 12× Filter Diameter M62 mm (wide angle/tele-conversion lenses cannot be used) f = 9.3 mm to 111.6 mm, F2.8 to F4.5 f = 29.0 mm to 348.0 mm (35 mm camera conversion)
------	---

Minimum object distance	80 mm (wide) 1,000 mm (tele)
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Minimum illumination	1.7 lux 4K/HD output, 50IRE, F2.8, 1/30s, Max.Gain (WIDE end)
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Shutter speed	1/10000s to 1/8 (59.94/29.97) 1/10000s to 1/6 (50/25)
---------------	--

Pan/tilt action	Horizontal ± 170° Maximum speed: 60°/second Minimum speed: 0.3°/second Vertical +90°, -30° Maximum speed: 60°/second Minimum speed: 0.3°/second
-----------------	--

Input and Output terminals

HDMI OUT terminal	HDMI connector (Type A) × 1
MONITOR OUT terminal	BNC connector (3G-SDI) × 2 (BRC-X1000) BNC connector (3G-SDI) × 1 (BRC-H800)
LINE OUT terminal	BNC connector (3G-SDI) × 2 (BRC-X1000) BNC connector (3G-SDI) × 1 (BRC-H800)
EXT SYNC IN terminal	BNC connector
VISCA RS-422 terminal	RJ-45 × 2
LAN terminal	RJ-45 (IEEE802.3at compatible)
Power terminal	IEC60130-10 (JEITA standard RC-5320A) TYPE 4

General

Input voltage	DC 12 V ±10% (Use the recommended AC adapter (not supplied)) PoE+ (IEEE802.3at compatible)
Power consumption	BRC-X1000 For DC 12 V: 21.5 W For PoE+: 25.5 W BRC-H800 For DC 12 V: 19.0 W For PoE+: 23.0 W
Operation temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature:	-20 °C to +60 °C (-4 °F to +140 °F)
External dimensions (dimensions P. 57)	Main unit: 198 × 260 × 238 mm (width/height/depth) (without protrusions) Remote commander: 56 mm × 26 mm × 210 mm (width/height/depth)
Mass	Unit: Approx. 4.3 kg Remote commander: 110 g
Installation angle	Less than ±15 degrees to the horizontal surface

Supplied Accessories

Remote commander (1)

Ceiling bracket (A) (1)

Ceiling bracket (B) (1)

Wire rope (1)

Mounting screws (⊕ M3 × 8) (7)

Stainless steel screw (⊕ M4 × 8) (1)

HDMI cable fixing plate (1)

Optional accessories

Remote controller (RM-IP10)

AC adapter (AC-UES1230/AC-UES1230M)

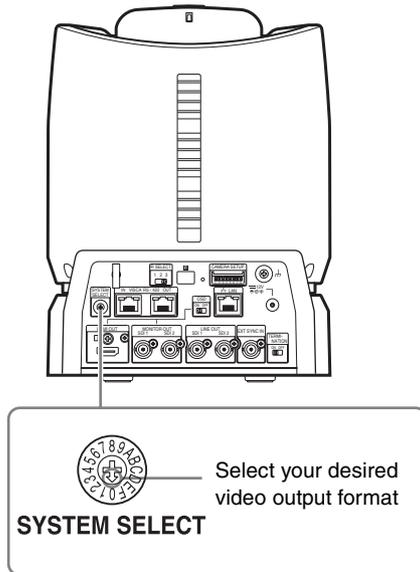
For recommended AC adapters, contact SONY

Customer Service.

Design and specifications are subject to change without notice.

SYSTEM SELECT switch settings

The image output method (video format) for the HDMI OUT/SDI OUT terminals can be set with this switch.



No.	Image size/Frame rate	
	BRC-X1000	BRC-H800
0	3840 × 2160/29.97p	No output
1	1920 × 1080/59.94p	1920 × 1080/59.94p
2	1920 × 1080/59.94i	1920 × 1080/59.94i
3	No output	No output
4	1280 × 720/59.94p	1280 × 720/59.94p
5	No output	No output
6	No output	No output
7	HDMI: 640 × 480/59.94p SDI: 1280 × 720/59.94p	HDMI: 640 × 480/59.94p SDI: 1280 × 720/59.94p
8	3840 × 2160/25p	No output
9	1920 × 1080/50p	1920 × 1080/50p
A	1920 × 1080/50i	1920 × 1080/50i
B	No output	No output
C	1280 × 720/50p	1280 × 720/50p
D	No output	No output
E	No output	No output
F	No output	No output

Notes

- Be sure to set this switch before you turn on the camera.
Turn on the power after you set the switch.
- Be sure to use a Phillips-head screwdriver when changing the switch position. If you use a tool other than the designated screwdriver, the crossed groove may be damaged.

Pin array of the VISCA RS-422 terminal and how to use it

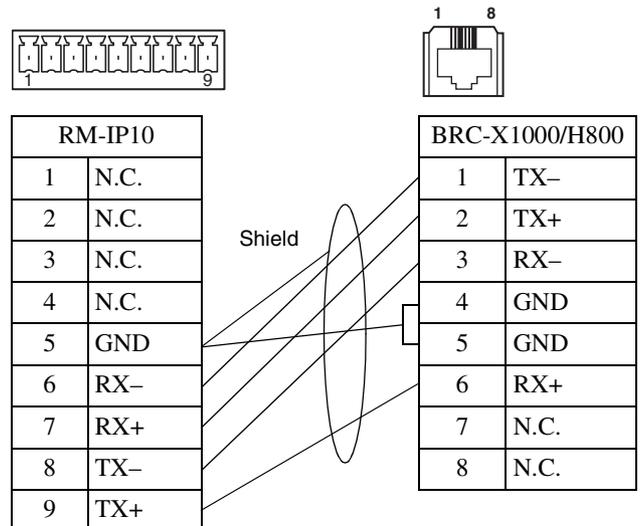
Pin array of VISCA RS-422 terminal



IN

Pin No.	Function
1	TX-
2	TX+
3	RX-
4	GND
5	GND
6	RX+
7	N.C.
8	N.C.

Connection diagram with remote control unit RM-IP10



Notes

- Connect the GNDs of both devices together to stabilize the voltage level of the signal.
- When preparing cables, use network cables of category 5e or more. Use cables equivalent to or higher than shielded twisted pair cables.

<http://www.sony.net/>

Sony Corporation