



For the customers in the U.S.A.
SONY LIMITED WARRANTY - Please visit <http://www.sony.com/psa/warranty> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

For the customers in Canada
SONY LIMITED WARRANTY - Please visit <http://www.sonybiz.ca/solutions/Support.do> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

For the customers in Europe
Sony Professional Solutions Europe - Standard Warranty and Exceptions on Standard Warranty.
Please visit <http://www.pro.sony.eu/warranty> for important information and complete terms and conditions.

For the customers in Korea
SONY LIMITED WARRANTY - Please visit <http://bpeng.sony.co.kr/handler/BPAS-Start> for important information and complete terms and conditions of Sony's limited warranty applicable to this product.

HD Color Video Camera

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

BRC-Z330



Owner's Record

The model and serial numbers are located on the bottom. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. BRC-Z330

Serial No. _____

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

WARNING

Use the Sony MPA-AC1 AC power adapter provided with this equipment as a power supply source. Any other power sources may result in hazards such as a fire. This product has no power switch.

Disconnect device of this equipment is the mains plug of the AC adapter.

The mains plug on this equipment must be used to disconnect mains power.

Please ensure that the socket outlet is installed near the equipment and shall be easily accessible.

In the event of abnormal operations, disconnect the mains plug.

WARNING (For Installers only)

Instruction for installing the equipment on the ceiling: After the installation, ensure the connection is capable of supporting four times the weight of the equipment downwards.

WARNING

This unit has no power switch.

When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an easily accessible socket-outlet near the unit.

If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power plug.

IMPORTANT

The nameplate is located on the bottom.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not

installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For the customers in Canada

This Class A digital apparatus complies with Canadian ICES-003.

For the customers in Europe, Australia and New Zealand

WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. In the case that interference should occur, consult your nearest authorized Sony service facility.

For the customers in Europe

This product has been manufactured by or on behalf of Sony Corporation, 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan. Inquiries related to product compliance based on European Union legislation shall be addressed to the authorized representative, Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters, please refer to the addresses provided in the separate service or guarantee documents.

This apparatus shall not be used in the residential area.

ATTENTION

The electromagnetic fields at the specific frequencies may influence the picture of this unit.

Notice for CCFC-S200 Optical Fiber Cable

Only trained and qualified personnel should be allowed to install this equipment with the cable.

WARNING :

The cable is rated flammability class VW-1 and may be for indoor use only in some countries. Use appropriate alternative cables in accordance with the regulations and laws for each country taking the application and environment into account.

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Precautions

Operating or storage location

- Operating or storing the camera in the following locations may cause damage to the camera:
 - Extremely hot or cold places (Operating temperature: 0°C to 40°C [32°F to 104°F])
 - Exposed in direct sunlight for a long time, or close to heating equipment (e.g., near heaters)
 - Close to sources of strong magnetism
 - Close to sources of powerful electromagnetic radiation, such as radios or TV transmitters
 - Locations subject to strong vibration or shock
- Use of a mobile phone close to this camera may cause a malfunction of the camera or affect the quality of images. You are cautioned to turn off any mobile phone near the camera.
- **Never expose the lens to the sun or other strong light source.**
Exposing the lens to the sun or other strong light source may cause damage to internal parts from concentrated light. When the camera is not be used, keep it out of direct sunlight and other strong light or protect it with a lens cover.

Ventilation

To prevent heat buildup, do not block air circulation around the camera.

Transportation

When transporting the camera, repack it as originally packed at the factory or in materials equal in quality.

Cleaning

- Use a blower to remove dust from the lens or optical filter.
- Use a soft, dry cloth to clean the external surfaces of the camera. Stubborn stains can be removed using a soft cloth dampened with a small quantity of detergent solution, then wipe dry.
- Do not use volatile solvents such as alcohol, benzene or thinners as they may damage the surface finishes.

The pan/tilt mechanism

Do not disturb pan/tilt movement while power is supplied to the camera. Doing so may cause damage or malfunction.

Maintenance

The camera mechanism may cause abnormal noise due to wear and lubrication loss after a long period of use. To maintain optimum performance, we recommend periodical maintenance. If abnormal noise occurs, consult with your Sony dealer.

Note on laser beams

Laser beams may damage a CMOS image sensor. You are cautioned that the surface of a CMOS image sensor should not be exposed to laser beam radiation in an environment where a laser beam device is used.

Phenomena Specific to CMOS Image Sensors

The following phenomena that may appear in images are specific to CMOS (Complementary Metal Oxide Semiconductor) image sensors. They do not indicate malfunctions.

White flecks

Although the CMOS image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc. This is related to the principle of CMOS image sensors and is not a malfunction.

The white flecks especially tend to be seen in the following cases:

- when operating at a high environmental temperature
- when you have raised the gain (sensitivity)

This symptom may be improved by turning the camera off and then on again.

Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

Focal plane

Owing to the characteristics of the pickup elements (CMOS image sensors) for reading video signals, subjects that quickly move across the screen may appear slightly skewed.

Flicker

If recording is made under lighting produced by discharge tubes, such as fluorescent, sodium, or mercury-vapor lamps, the screen may flicker, colors may vary, or horizontal stripes may appear distorted. In such cases, turn the FLICKER CANCEL function on (see page 35).

In some cases, such phenomena may not be improved with the FLICKER CANCEL function.

It is recommended to set the shutter speed to 1/100 sec. in the areas of 50 Hz power supply frequency and to 1/60 in the areas of 60 Hz.

Features

Compact, HD video camera with built-in pan/tilt/zoom functions

- This HD video camera is equipped with an HD camera block, pan/tilt mechanism, and 18-magnification optical/4-magnification digital zoom lens in a compact body. The compactness and integration allow the camera versatile usage.
- The camera is provided with a wide-angle pan/tilt mechanism of $\pm 175^\circ$ horizontally, 90° upward and 30° downward, which enables wide-range remote shooting.
- The pan/tilt mechanism is designed to be quiet so as to minimize troublesome noise.

HD CMOS camera with high image quality and high-resolution remote shooting

- The newly developed camera system that incorporates 1/3-type CMOS image sensors with a total of 2,250,000 picture elements allows shooting of high-definition images, providing superior picture quality with high sensitivity and lower smear level.
- Shooting an image using the 1080i (effective interlaced scanning: 1080 lines) high-definition format, which is equivalent to the HDTV broadcast, is enabled. The HD format can be switched (1080/59.94i or 1080/50i) with the switch at the bottom of the camera.
- A volume of information of four times the capacity of a normal TV broadcast and camera image shot in 16:9 aspect ratio provides a theater-like wide screen picture.

Multi-format HD outputs

The camera supports output in 720p format (progressive scanning format with 720 effective scan lines) as well as in 1080i format. These formats can be selected with a switch at the bottom of the camera, which also allows switching between the 720/59.94p and 720/50p formats.

Built-in down-converted output

The camera is equipped with video output connectors, allowing HD¹⁾ or SD²⁾ output without inserting an Interface Board. You can use the connectors for SD output at the moment and use them for HD output in the future.

An analog component signal output connector for HD output, a composite signal output connector, and an S video signal output connector for SD output standard equipment.

- 1) “HD” indicates high-definition broadcast with 1,080 effective scanning lines.
- 2) “SD” indicates standard-definition broadcast (conventional television).

Built-in interface card slot

The camera is equipped with an interface card slot for an optional BRBK-SF1 HD Optical Multiplex Card, BRBK-HD2 HD-SDI Output Card, BRBK-HSD2 HD/SD-SDI Output Card, or BRBK-SA1 Analog SD Output Card. Use of the BRBK-HD2 HD-SDI Output Card provides support for additional image output formats.

Long-distance image transmission and remote pan/tilt/zoom control

- Combined use of the BRBK-SF1 HD Optical Multiplex Card, CCFC-S200 Optical Fiber Cable, and BRU-SF10 HD Optical Multiplex Unit, and Sony’s unique camera connection technology and optical digital multiplex transmission technology allow long-distance transmission of camera images and pan/tilt/zoom control signals up to 2,000 m (6,562 feet). Use of an optical fiber cable enables economical and easy system configuration over long distances.
- The supplied ceiling brackets allow installation of the camera on ceilings and other high locations.

VISCA camera protocol supported

- The camera is equipped with both RS-232C and RS-422 communication interfaces. As the camera supports the industry-standard VISCA camera protocol, up to 7 cameras can be connected and remotely controlled at a high communication speed of 38,400 bps.
- The optional RM-BR300 Remote Control Unit allows easy camera operations.

Compatible with VISCA over IP protocol

By inserting the BRBK-IP10 IP control card to this unit, you can make an IP connection between this unit and RM-IP10 IP Remote Controller.

When the IP connection is made, you can operate up to 112 cameras by using RM-IP10.

For details about necessary devices or functions for IP connection, see “Operation Guide for Optional IP Control.”

External video sync function

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

Tally lamp

The tally lamp of the camera allows you to make sure it is selected at a glance.

COLOR AE function

The COLOR AE function enables automatic exposure adjustment for a specific color.

Built-in ND filter

The ND (Neutral Density) filter allows control of amount of light. The ND filter can be set to 1/4 or 1/16, using the menu or Remote Commander.

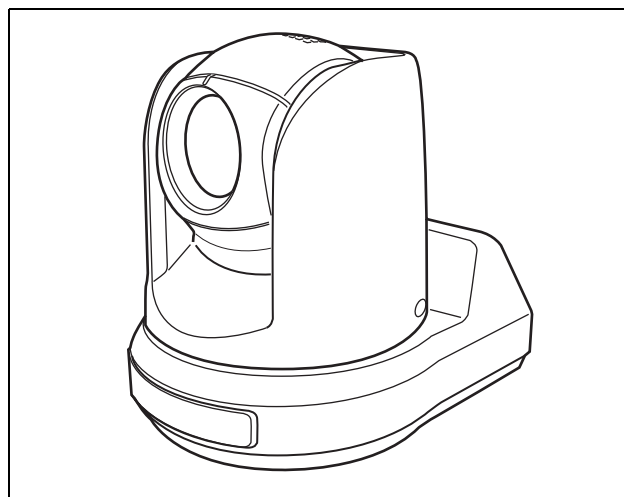
System Components

In order to support multiple system configurations, a variety of optional products are available for the BRC-Z330 HD Color Video Camera. This section introduces these optional products as well as the accessories supplied with the camera.

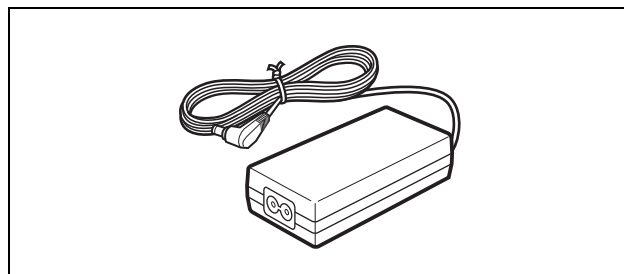
Supplied Components and Accessories

Before using the camera, make sure you have the following components and accessories supplied.

Camera (1)

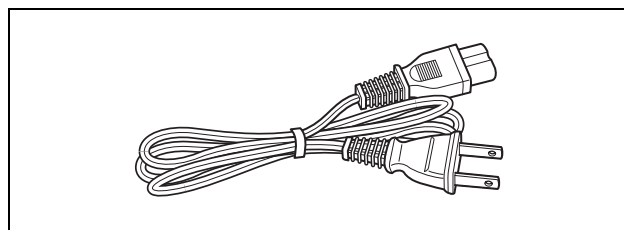


MPA-AC1 AC power adaptor (Sony) (1)

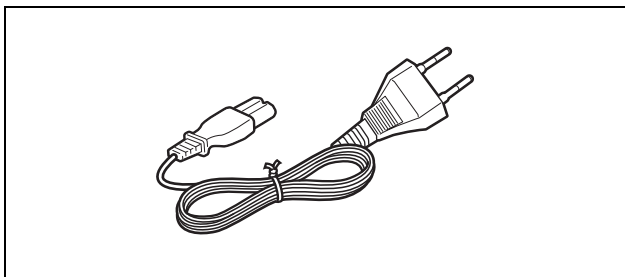


AC power cord (1)

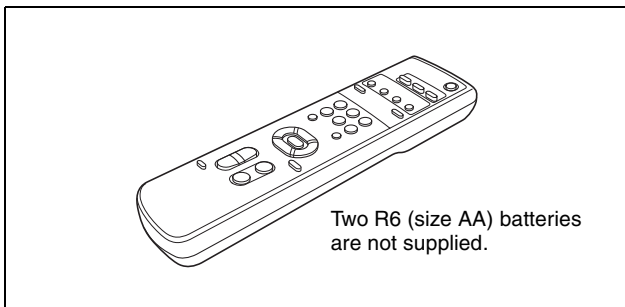
USA and Canadian model



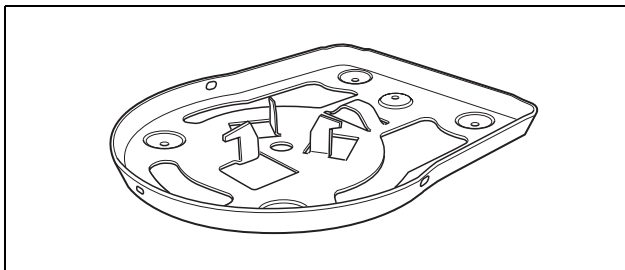
European model



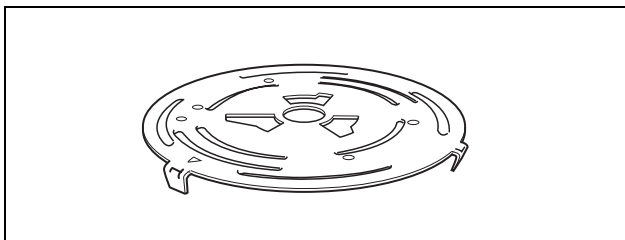
Remote commander (1)



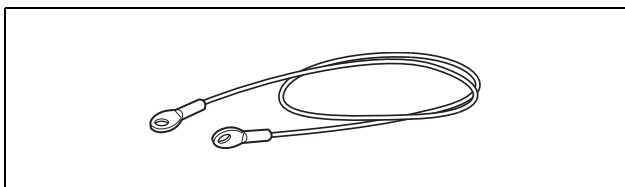
Ceiling bracket (A) (1)



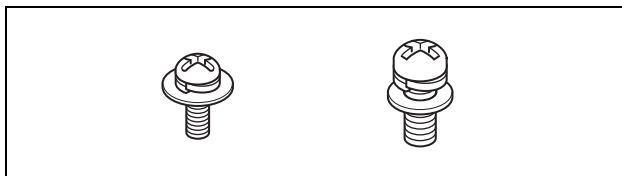
Ceiling bracket (B) (1)



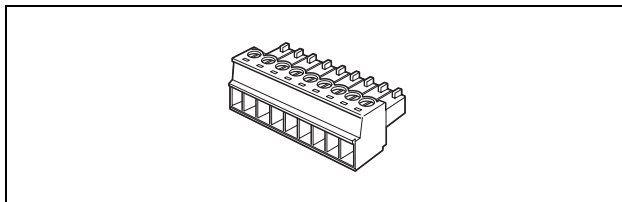
Wire rope (1)



Screw $\oplus$ M3 $\times$ 8 (7)/Stainless screw $\oplus$ M4 $\times$ 8 (1)



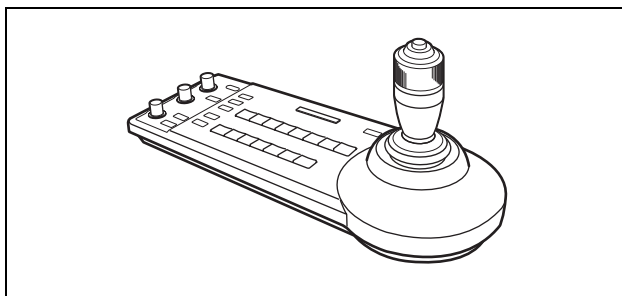
RS-422 Connector plug (1)



Operating Instructions (1)

Optional Products

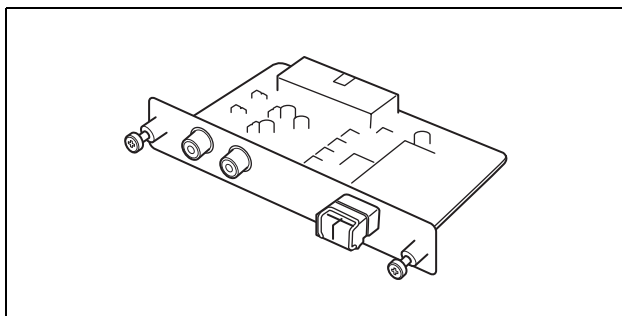
RM-BR300 Remote Control Unit



The joystick of the Remote Control Unit allows you comfortable pan/tilt and zoom operations. The Remote Control Unit also allows remote operation of up to seven cameras.

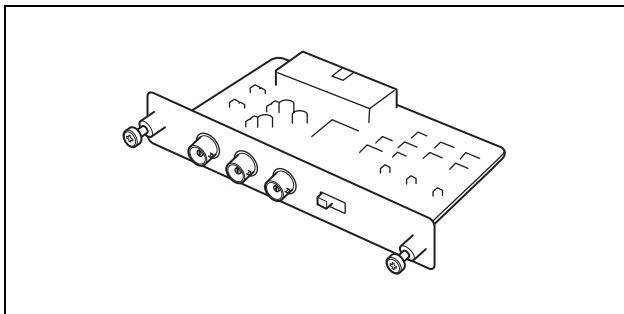
Supplied accessories: AC power adaptor (1), AC power cord (1), RS-232C connecting cable (3 m) (1), RS-422 connector plug (2)

BRBK-SF1 HD Optical Multiplex Card



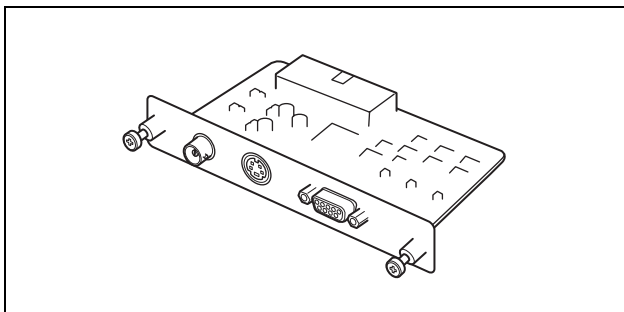
Insert the card into the camera to allow high-bit multiplex transfer via optical fiber cable (video, audio, external video sync and control signals).

BRBK-HSD2 HD/SD-SDI Output Card



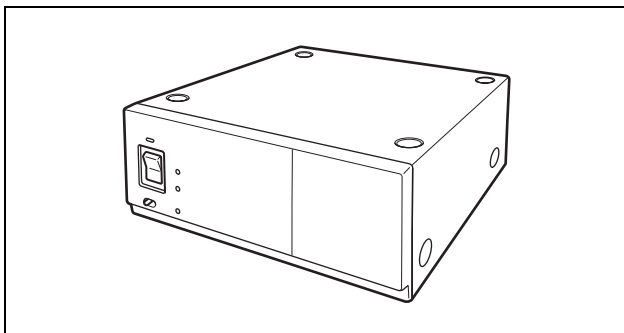
Insert the card into the camera to allow output of an HD-SDI signal conforming to SMPTE292M serial digital interface standards, or output of an SD-SDI signal conforming to SMPTE259M serial digital interface standards. An audio signal is not output from the card.

BRBK-SA1 Analog SD Output Card



The board allows output of an SD analog video signal such as the composite video, S video, component video and RGB signals.

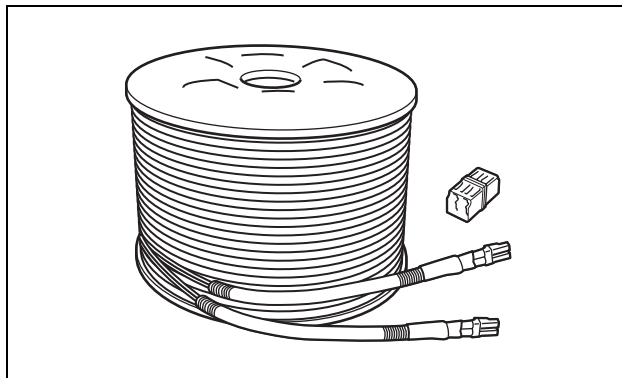
BRU-SF10 HD Optical Multiplex Unit



The HD Optical Multiplex Unit allows a connection up to of 2,000 m (6,562 feet) using the CCFC-S200 2- core optical fiber cable.

Supplied accessories: AC adapter (1), power cord (1), DC-cable secure connection attachment (1), RS-232C connecting cable (3 m) (10 feet) (1), RS-422 connector plug (1)

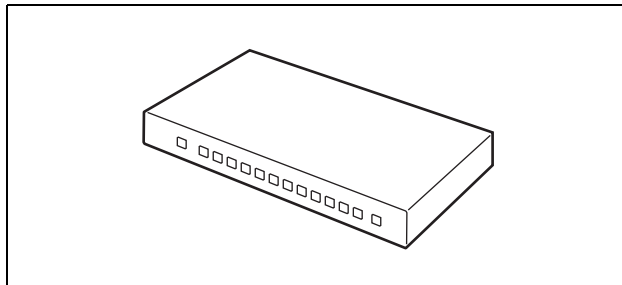
CCFC-S200 Optical Fiber Cable



This is a 2-core single-mode optical fiber cable of 2,000 m (6,562 feet) long.

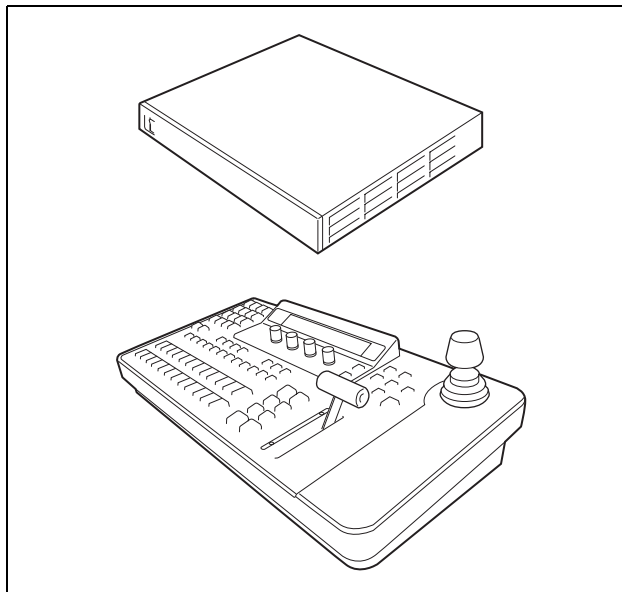
Supplied accessories: extension plug (1)

Video Switcher (commercially available)



It switches the video signal input of multiple cameras.

BRS-200 Remote Camera Operating Switcher



This switcher can be used as a camera control, allowing camera operation such as pan/tilt and zoom operations. The switcher also allows switching of video signals input from multiple cameras.

Supplied accessories: AC power cord (1), AC power adaptor (1), AC power cord for AC power adaptor (1),

Control cable (for connection between the Processor Unit and Control Panel) (1), RS-422 connector plug (1), Rack mounting bracket (1 set), rack mounting bracket screw (2), DC IN connector retainer (1)

For details, consult with your Sony dealer.

System Configuration

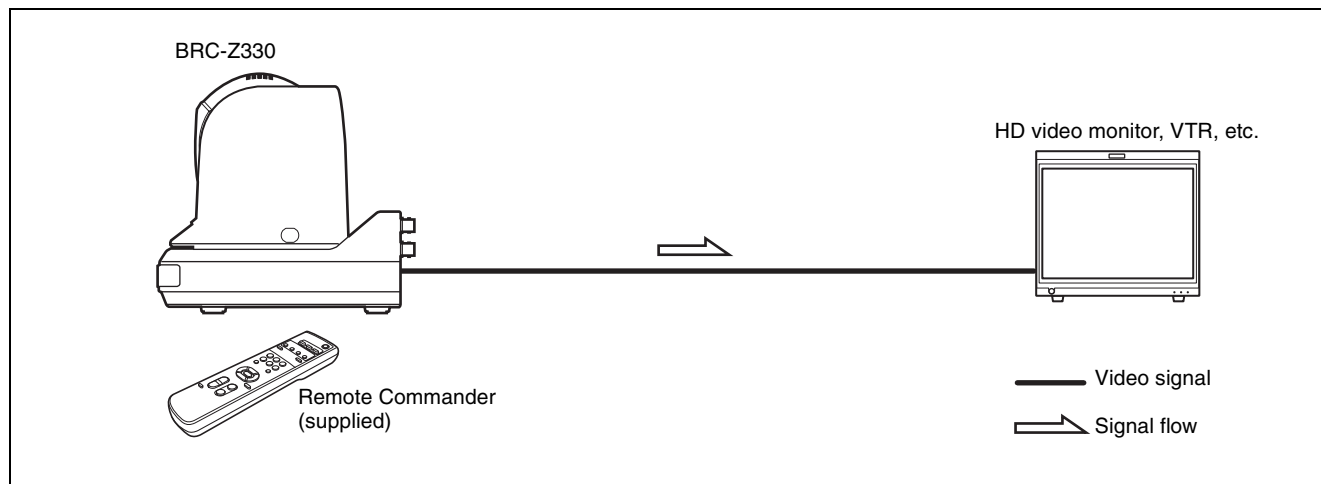
The BRC-Z330 HD Color Video Camera has various system configuration capabilities using optional products. This section describes system examples with the required components and the main usage of each system.

Operating a BRC-Z330 Camera Using the Supplied Remote Commander

This system allows you:

To operate the camera readily from a short distance

System configuration

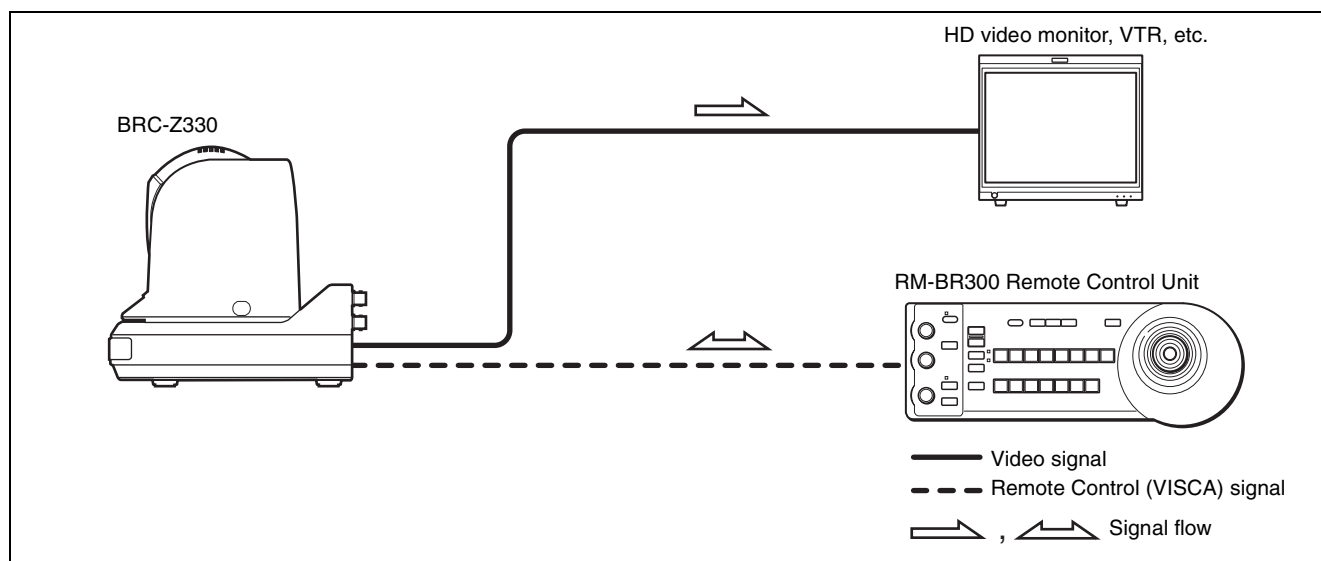


Operating a BRC-Z330 Camera Using the RM-BR300 Remote Control Unit

This system allows you:

To perform pan/tilt and zoom operations using the joystick of the Remote Control Unit

System configuration

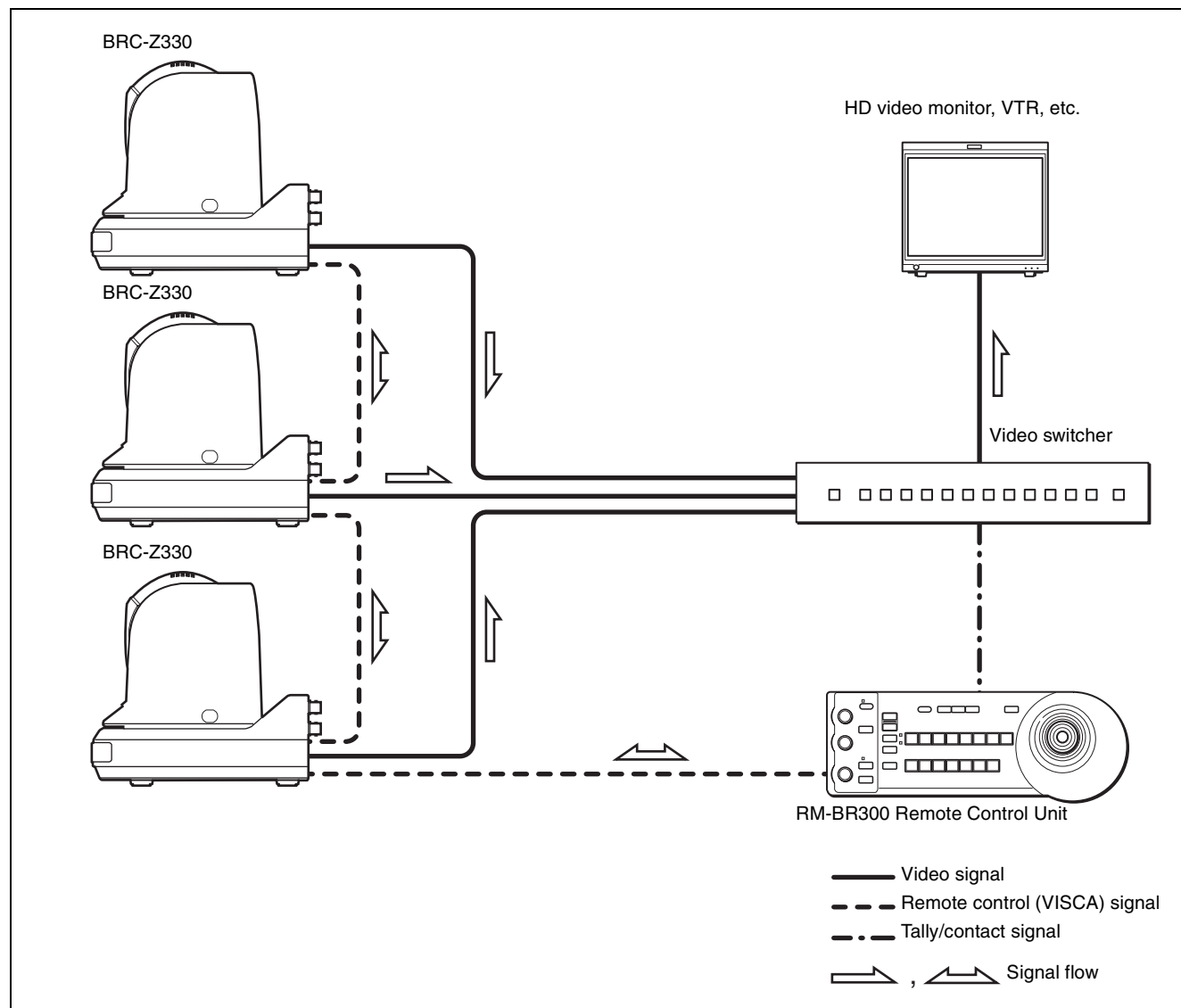


Operating Multiple BRC-Z330 Cameras Using the RM-BR300 Remote Control Unit

This system allows you:

- To operate up to seven cameras remotely using a single Remote Control Unit
- To perform pan/tilt and zoom operations using the joystick

System configuration

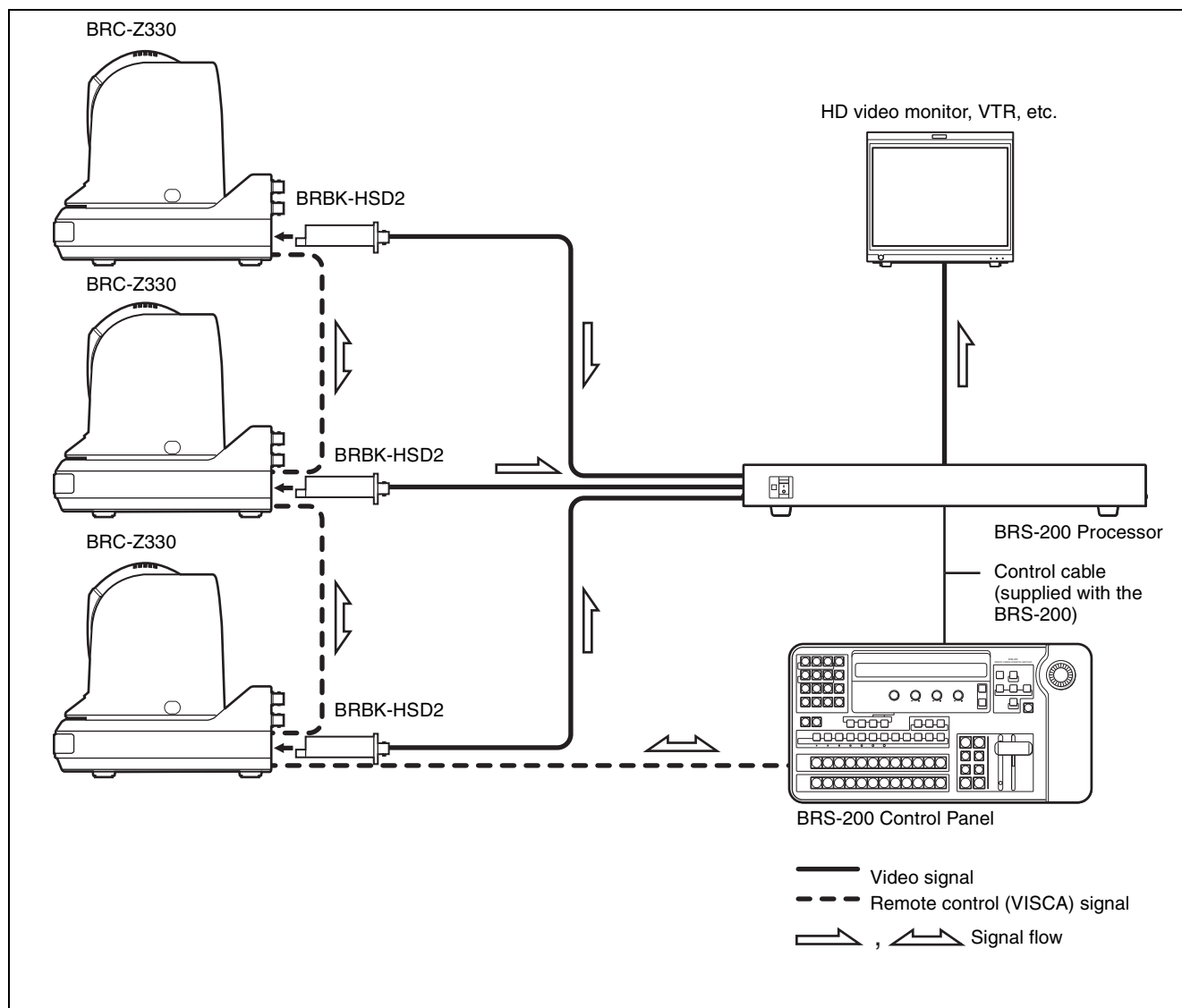


Operating Multiple BRC-Z330 Cameras Using the BRS-200 Remote Camera Operating Switcher

This system allows you:

- Operate up to seven cameras remotely and perform switching, using a single Remote Camera Operating Switcher
- To perform pan/tilt and zoom operations using the joystick

System configuration



Notes

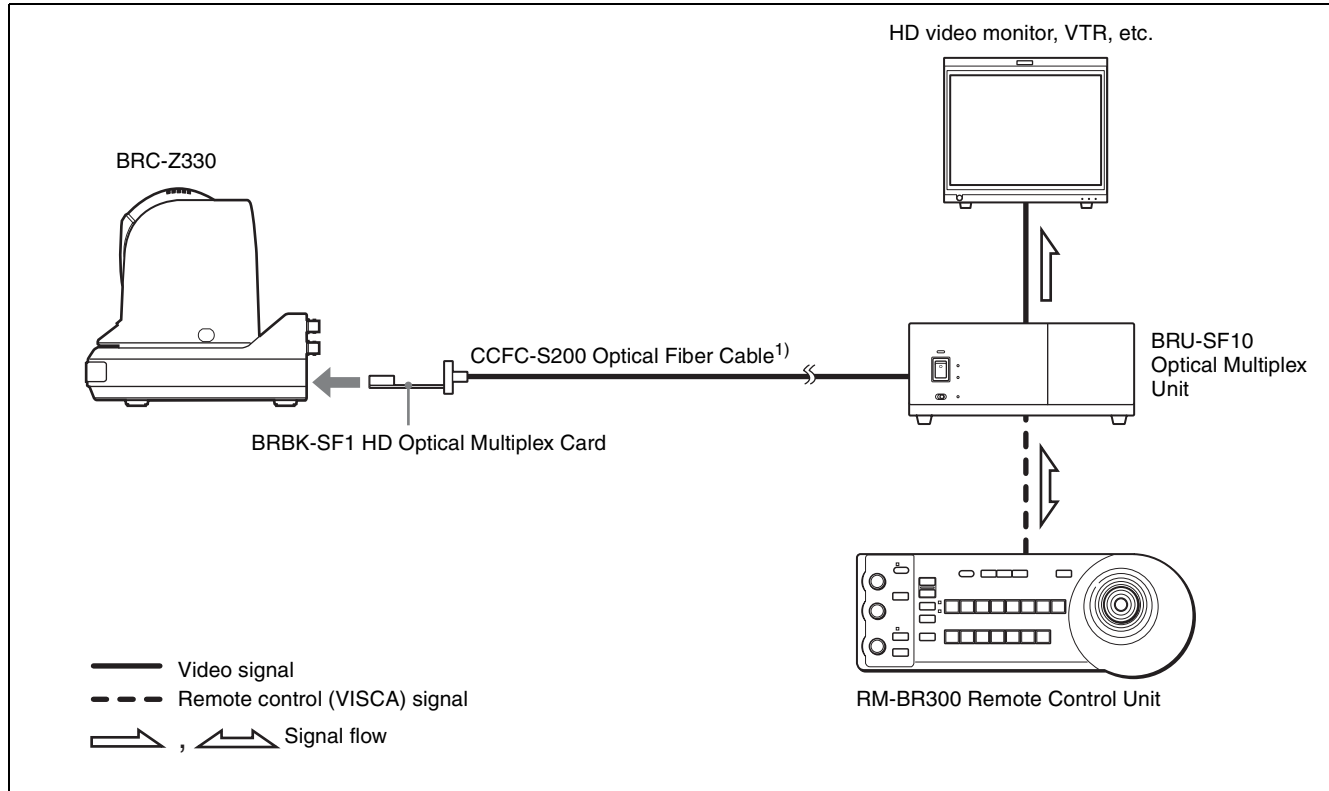
- To operate a BRC-Z330 with the BRS-200 Remote Camera Operating Switcher, install an optional BRBK-HSD2 HD/SD-SDI Output Card, or BRBK-HD2 HD-SDI Output Card in the BRC-Z330, which cannot be controlled this way without a BRBK-HSD2 HD-SDI Output Card, or BRBK-HD2 HD-SDI Output Card installed.
- BRS-200 Remote Camera Operating Switcher does not support mixed input of HD-SDI and SD-SDI signals. For details, refer to the Operating Instructions supplied with the BRS-200.

Operating a BRC-Z330 Camera from a Long Distance

This system allows you:

- To operate the camera remotely from a distance up to 2,000 m (6,562 feet)
- To perform pan/tilt and zoom operations using the joystick
- To transmit the video signal and control signal of the camera to a distant place using the Optical Fiber Cable

System configuration



¹⁾ Using the supplied extension plug allows transmission distances up to 2,000 m (6,562 feet).

Notes

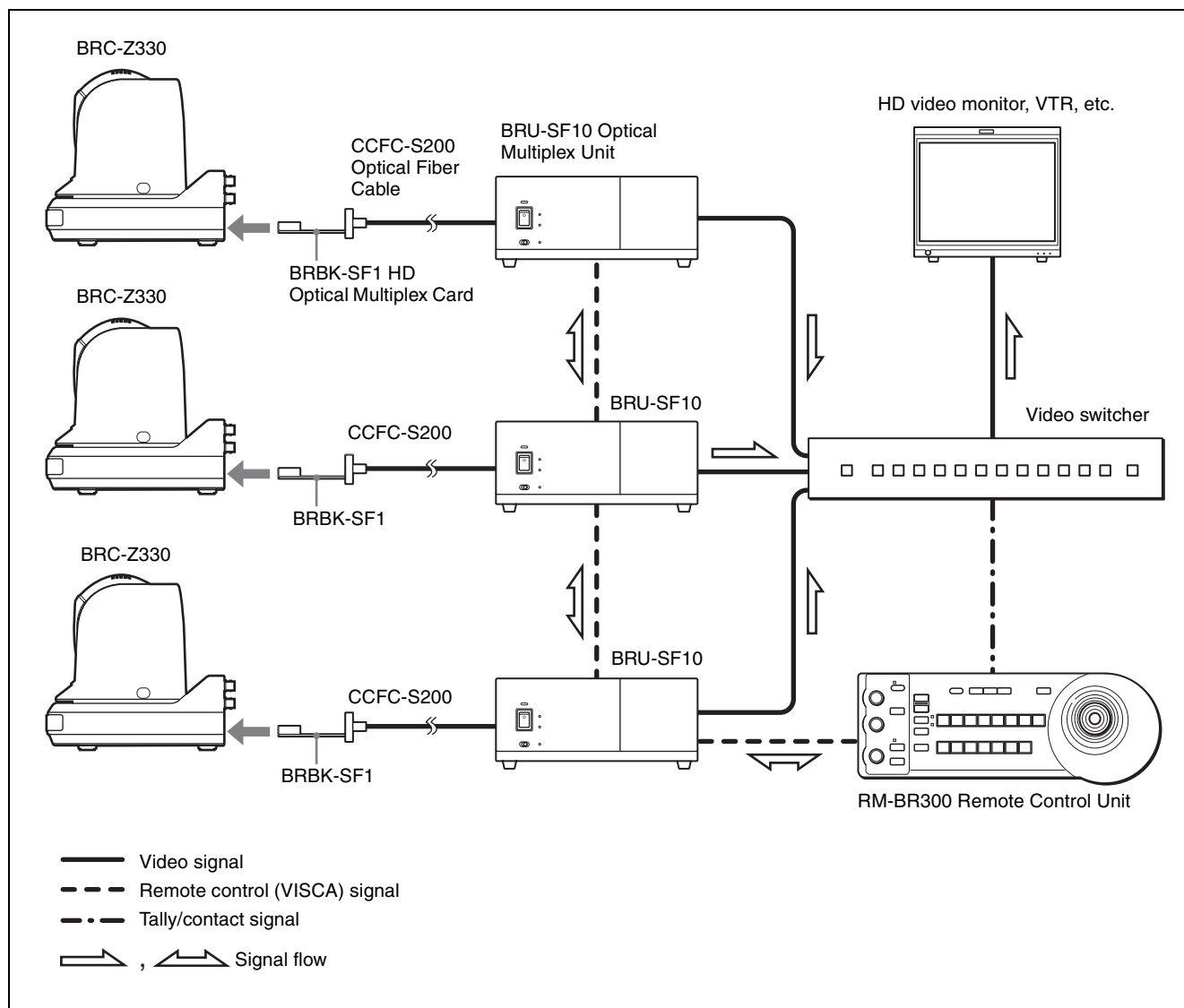
- Be sure to turn on the power of the BRC-Z330 camera before you turn on the power of the BRU-SF10 HD Optical Multiplex Unit.
- The BRC-Z330 camera does not operate if nothing is connected to the BRBK-SF1 HD Optical Multiplex Card inserted into the camera. To operate the camera, connect the BRU-SF10 Optical Multiplex Unit to the BRBK-SF1 using the CCFC-S200 Optical Fiber Cable and turn on the power of the BRU-SF10.
- When the BRBK-SF1 HD Optical Multiplex Card is inserted into the BRC-Z330 camera, the EXT SYNC IN connector, VISCA RS-232C IN/OUT connectors, VISCA RS-422 connector, DATA MIX switch, and 75-ohm termination switch on the rear of the camera and the BOTTOM switches on the bottom of the camera are disabled. Use the connectors and switches on the rear of the BRU-SF10 Optical Multiplex Unit instead.
- Only the 59.94/50 signal format selector (switch 1) and the 1080i/720p signal format selector (switch 2) BOTTOM switches on the BRC-Z330 camera are enabled. For the switches that are disabled, use the switches on the rear of the BRU-SF10 HD Optical Multiplex Unit instead.
- The optional CCFC-S200 Optical Fiber Cable cannot be used with this system.

Operating Multiple BRC-Z330 Cameras from a Long Distance

This system allows you:

- To operate up to seven cameras remotely from a distance up to 2,000 m (6,562 feet)
- To perform pan/tilt and zoom operations using the joystick
- To transmit the video signal and control signal of the cameras to a distant place using the Optical Fiber Cable

System configuration

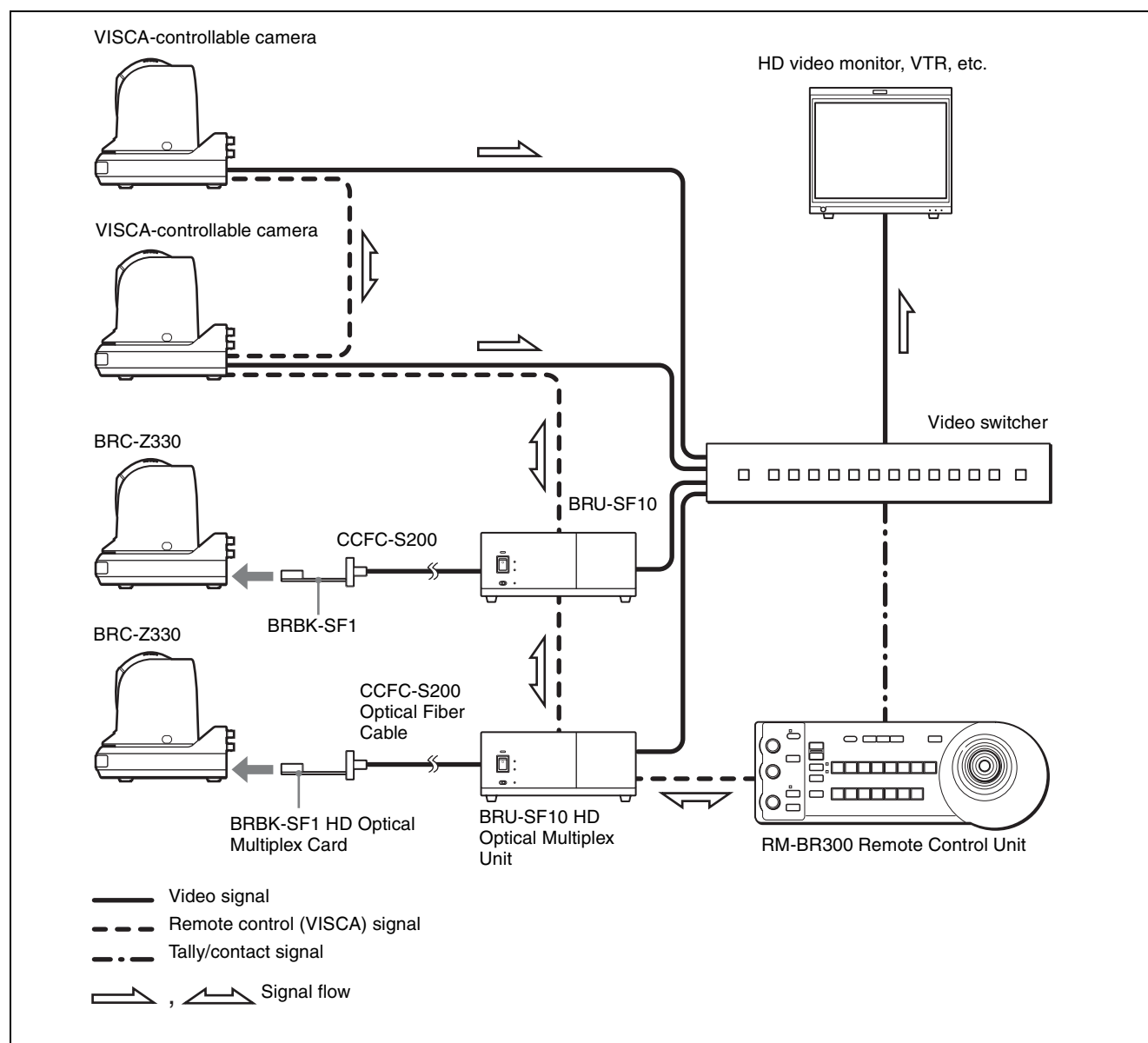


Using BRC-Z330 Cameras and VISCA-controllable Cameras in the Same System

This system allows you:

- To operate up to seven cameras supporting the VISCA protocol such as EVI-D30/D30P, EVI-D70/D70P, EVI-D100/D100P, EVI-HD1, BRC-Z330 and BRC-300/300P remotely using a single RM-BR300 Remote Control Unit
- To perform pan/tilt and zoom operations using the joystick
- To control the BRC-Z330 cameras remotely from a distance up to 2,000 m (6,562 feet) by transmitting the video signal and control signal using the Optical Fiber Cable

System configuration

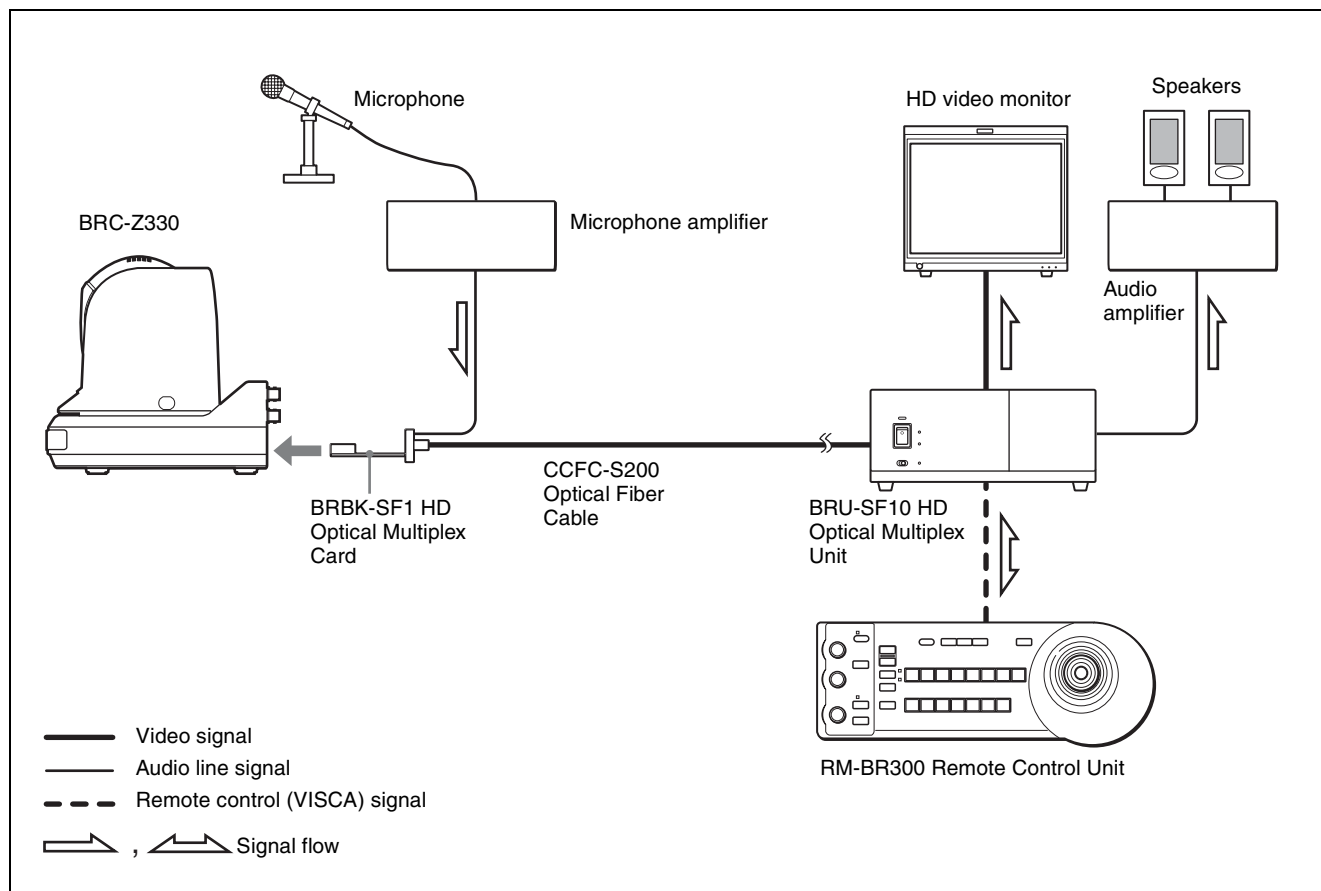


Transmitting Audio Signals Using the BRU-SF10

This system allows you:

- To operate the camera remotely from a distance up to 2,000 m (6,562 feet)
- To perform pan/tilt and zoom operations using the joystick
- To transmit the video signal and control signal of the camera, and the audio signal input to the BRBK-SF1 Optical Multiplex Card to a distant place using the Optical Fiber Cable

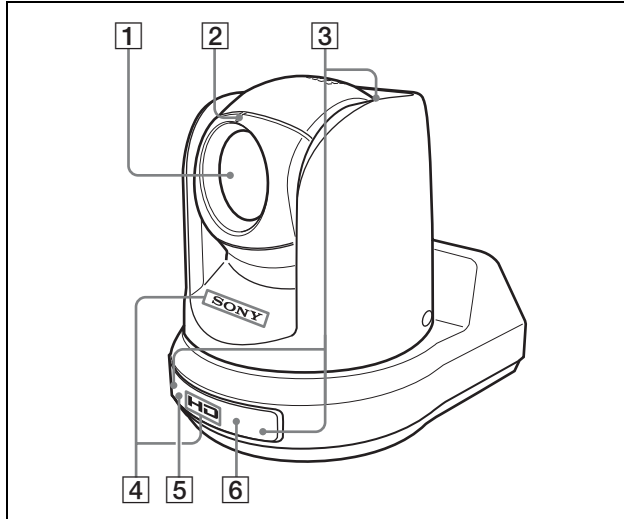
System configuration



Location and Function of Parts

Camera

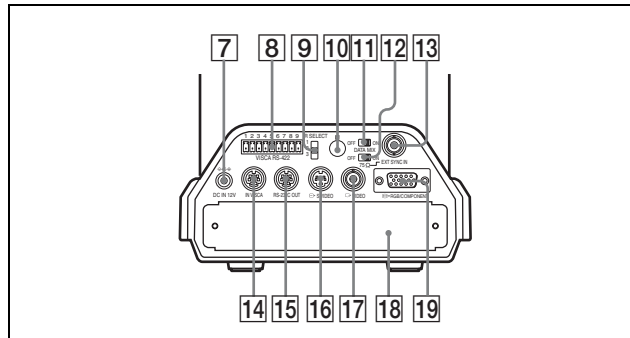
Front



- 1 Lens**
This is a 18-magnification optical zoom lens.
- 2 Tally lamp**
Lights in red when a VISCA tally command is received or the camera is selected by the RM-BR300 Remote Control Unit (not supplied). Flashes at intervals of about 0.5 seconds if the rotating speed of the cooling fan motor is lowered or the motor has stopped regardless of on/off of the tally lamp.
- 3 Remote sensor**
This is the sensor for the supplied Remote Commander.
When you use the upper remote sensor, set IMG-FLIP to ON in the SYSTEM menu (page 37). With this setting the remote sensor at the rear of the camera does not function.
- 4 SONY and HD nameplates**
Pull them out to turn them over and attach upside down if necessary.
- 5 POWER lamp**
Lights when the camera is connected to an AC outlet using the supplied AC power adaptor and AC power cord.
Flashes in green when the camera receives an operation command from the supplied Remote Commander.

- 6 STANDBY lamp**
Lights when the camera is turned off using the Remote Commander.

Rear

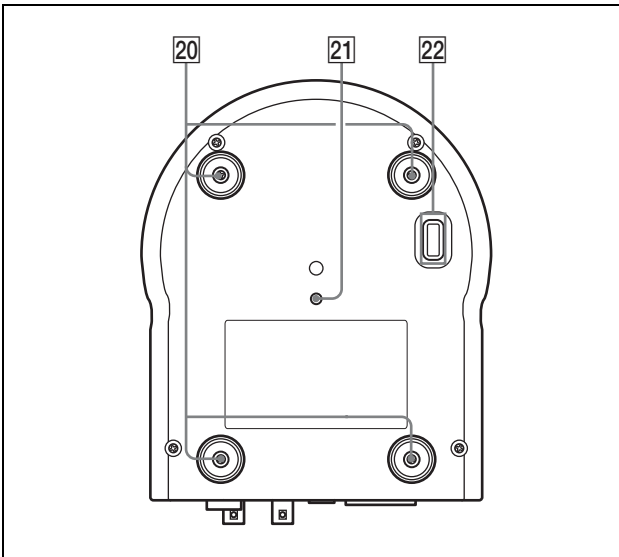


- 7 DC IN 12V connector**
Connect the supplied AC power adaptor.
- 8 VISCA RS-422 connector**
Used for VISCA control.

For connection to the VISCA RS-422 connector, see "Using the VISCA RS-422 Connector Plug" on page 89.
- 9 IR SELECT switch**
Select the camera number when you operate multiple cameras with the same Remote Commander (page 44).
- 10 Remote sensor**
This is the sensor for the supplied Remote Commander.
This remote sensor does not function when IMG-FLIP is set to ON in the SYSTEM menu (page 37).
- 11 DATA MIX switch**
Set the switch to ON to overlap the menu with the video signal output from the installed Output Card. Set it to OFF not to overlap the menu.
This switch is disabled when a card other than the BRBK-HD2 is installed, or when the card slot is empty.
- 12 75-ohm termination switch**
This switch is used when an external sync signal is used. Set it to OFF when this camera is in the middle of a daisy chain connection of multiple cameras. Set it to ON when the camera is at the end of a daisy chain connection or when nothing is connected to the EXT SYNC IN connector on the camera.
- 13 EXT SYNC IN connector**
Accepts external video sync signals.

- 14 VISCA RS-232C IN connector**
Connect to the RM-BR300 Remote Control Unit (not supplied). When you connect multiple cameras, connect it to the VISCA RS-232C OUT connector of the previous camera in the daisy chain connection.
- 15 VISCA RS-232C OUT connector**
When you connect multiple cameras, connect it to the VISCA RS-232C IN connector of the next camera in the daisy chain connection.
- 16 S VIDEO connector**
Outputs the camera images as S video signal.
- 17 VIDEO connector**
Outputs the camera images as composite video signal.
- 18 Card slot**
Insert the optional BRBK-SF1, BRBK-HD2, BRBK-HSD2, or BRBK-SA1 Output Card. The slot cover is attached to the camera at the factory.
- 19 RGB/COMPONENT connector**
Supplies the images as analog component (YPbPr or RGB) signal.

Bottom



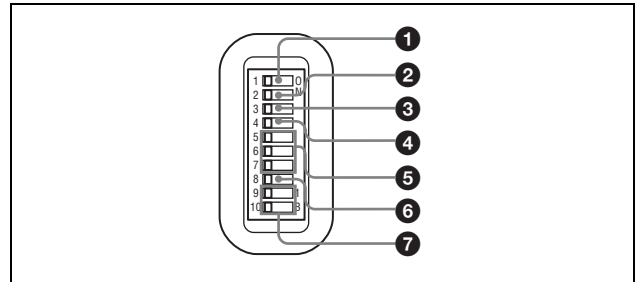
- 20 Ceiling bracket mounting screw holes**
When you install the camera to the ceiling or on a shelf, etc. in a high position, secure the supplied ceiling bracket to these holes using the supplied four screws. The four feet are attached to the holes at the factory.

For installation, see “Installing the Camera in a High Position” on page 55.

- 21 Tripod screw holes (1/4-20UNC)**
When you install the camera to a tripod, secure the tripod to these holes.
- 22 BOTTOM switches**
Used for the output signal format selection, RS-232C/RS-422 selection, baud rate selection, remote control signal output on/off and camera address setting.

For details, see “Setting of the BOTTOM switches” on page 20.

Setting of the BOTTOM switches



- 1 Switch 1 (59.94/50 signal format selector)**
Set to ON for output in 1080/50i (720/50p) signal format, OFF for output in 1080/59.94i (720/59.94p) signal format.
- 2 Switch 2 (1080i/720p signal format selector)**
Set to ON for output in 720p signal format, OFF for output in 1080i signal format.
- 3 Switch 3 (RS-232C/RS-422 selector)**
Set to ON for RS-422, or OFF for RS-232C. When you are using a BRBK-SF1 HD Optical Multiplex Card, this switch setting is disabled.
- 4 Switch 4 (Communication baud rate selector)**
Set to ON for 38400 bps, or OFF for 9600 bps. When you are using a BRBK-SF1 HD Optical Multiplex Card, this switch setting is disabled.
- 5 Switches 5-7 (Camera address selector)**
Set the address of the camera. Normally set to “0”. With this setting, addresses are assigned to the cameras automatically in the connected order by pressing the POWER button while holding down the RESET button on the RM-BR300 Remote Control Unit. When you are using a BRBK-SF1 HD Optical Multiplex Card, this switch setting is disabled. You can assign the camera address “1” to “7” manually by setting these selectors as follows:

Camera address	0	1	2	3	4	5	6	7
Switch 5	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Switch 6	OFF	OFF	ON	ON	OFF	OFF	ON	ON
Switch 7	OFF	OFF	OFF	OFF	ON	ON	ON	ON

6 Switch 8 (Infrared signal output switch)

Set to ON to enable an infrared signal output, or OFF to disable the output.

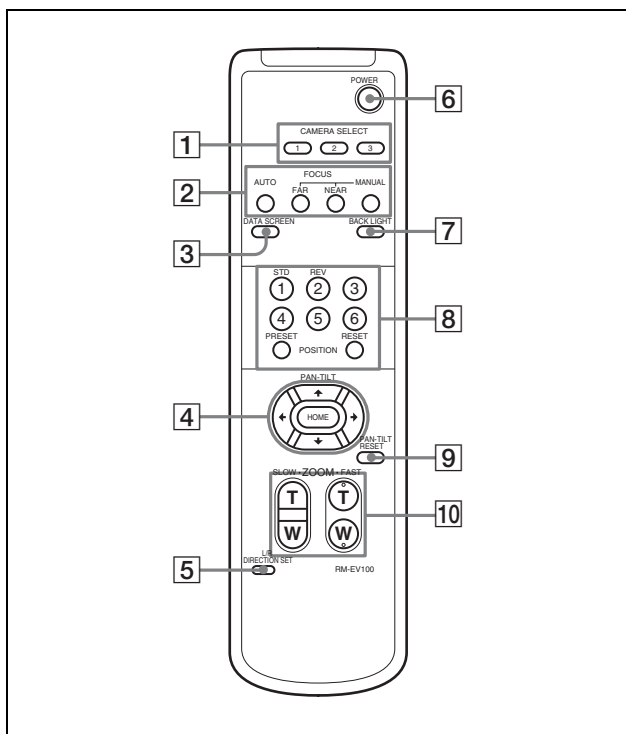
7 Switches 9, 10

These switches are not used. Set it to OFF.

Notes

- Set the switches before you turn on the power of the camera.
- You cannot use a camera with its camera address set to “0” together with cameras with their camera address set to “1” to “7.”
- You cannot manually assign the same address to multiple cameras and control the cameras simultaneously from a single controller.
- When you set switches 9 and 10 to ON, signals received at the [3] remote sensor are output from pin 7 of the [14] VISCA RS-232C IN connector. When you set them to OFF, the signals are not output.

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 same Remote Commander. When you install the cameras close to each other, set different camera numbers.

For the camera number setting, see “Operating Multiple Cameras with the Remote Commander” on 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.

3 DATA SCREEN button

Press this button to display the main menu. Press it again to turn off the menu. If you press the button when a lower-level menu is selected, the display returns to the next menu one level higher.

Note

Pan/tilt and zoom operations are disabled when the menu is displayed.

4 PAN-TILT buttons

Press the arrow buttons to perform panning and tilting. Press the HOME button to face the camera back to the front.

When the menu is displayed, use $\uparrow$ or $\downarrow$ to select the menu items and $\leftarrow$ or $\rightarrow$ to change the set values.

5 L/R DIRECTION SET button

Hold down this button and press the REV button to change the direction of the camera movement opposite to that indicated by the arrow of the $\leftarrow/\rightarrow$ buttons.

To reset the direction of the camera movement, press the STD button while holding down this button.

6 POWER switch

Press this button to turn on/off the camera when the camera is connected to an AC outlet.

7 BACK LIGHT button

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

8 POSITION buttons

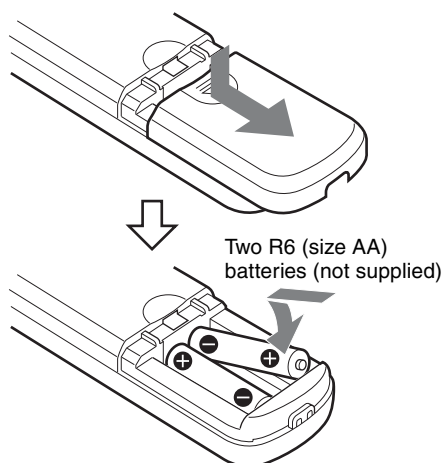
Hold down the PRESET button and press button 1 to 6 to store the current camera direction, zooming, focus adjustment and backlight compensation in the memory of the pressed number button. To erase the memory contents, hold down the RESET button and press button 1 to 6.

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**CAUTION**

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. When you dispose of the battery, you must obey the law in the relative area or country.

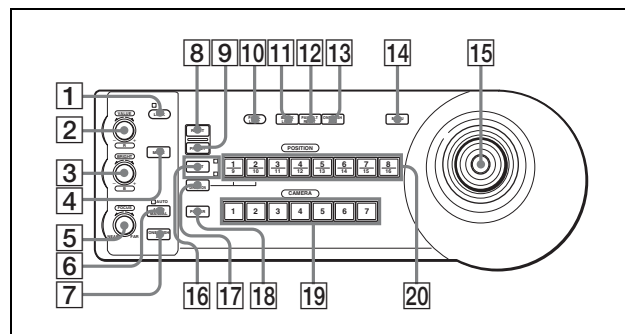
Note

To avoid risk of explosion, use R6 (size AA) manganese or alkaline batteries.

RM-BR300 Remote Control Unit (not supplied)

This manual explains the operations of the RM-BR300 Remote Control Unit when it is used with BRC-Z330 cameras.

For operations with other cameras, refer to the Operating Instructions supplied with the RM-BR300.

Front**1 LOCK button and indicator**

Press the LOCK button for more than one second, and the LOCK indicator lights and the values set by the VALUE/R, BRIGHT/B and FOCUS controls are locked. (The indicators of the locked controls are turned off.) The AUTO/MANUAL button is also disabled.

Press the LOCK button for more than one second again to unlock the controls and buttons.

2 VALUE/R control

When the brightness adjustment mode is selected with the MODE button (with the VALUE indicator lit):

Adjusts the value of the item (SHUTTER, IRIS or GAIN) selected with the menu of the camera. When the VALUE indicator is lit, the function of the control varies according to the MODE setting in the EXPOSURE menu of the camera. For details, see "Functions of the VALUE and BRIGHT controls" on page 52.

When the white balance adjustment mode is selected with the MODE button (with the R indicator lit):

The function of the control with the R indicator lit varies according to the white balance mode selected on the camera. For details, see "Functions of the R and B controls" on page 51.

[3] BRIGHT/B control

When the brightness adjustment mode is selected with the MODE button (with the BRIGHT indicator lit):

Adjusts the value of the brightness of the camera, etc.

When the BRIGHT indicator is lit, the function of the control varies according to the MODE setting in the EXPOSURE menu of the camera. For details, see “Functions of the VALUE and BRIGHT controls” on page 52.

When the white balance adjustment mode is selected with the MODE button (with the B indicator lit):

The function of the control with the B indicator lit varies according to the white balance mode selected on the camera. For details, see “Functions of the R and B controls” on page 51.

[4] MODE button

Press this button to select the function of the VALUE/R control and BRIGHT/B control.

When the brightness adjustment mode is selected, the VALUE and BRIGHT indicators are lit.

When the white balance adjustment mode is selected, the R and B indicators are lit.

[5] FOCUS control

Turn this control counterclockwise (toward NEAR) to focus on a near subject, and clockwise (toward FAR) to focus on a far subject.

[6] AUTO/MANUAL button and AUTO indicator

Press this button to select focus mode, AUTO or MANUAL.

When AUTO is selected, the AUTO indicator lights and the FOCUS control and the ONE PUSH AF button are disabled.

If you set AF ASSIST to ON in the FOCUS menu, you can focus on another object with the FOCUS control.

When MANUAL is selected, the FOCUS control and the ONE PUSH AF button are enabled (with the FOCUS indicator lit).

[7] ONE PUSH AF button

Press this button to perform the one-push auto focus function.

[8] RESET button

Hold down this button and press one of the POSITION buttons, and the memory of the camera corresponding to the pressed POSITION button is cleared to the factory-preset conditions.

When multiple cameras are connected, hold down this button and press the POWER button to set the camera addresses automatically.

[9] PRESET button

Hold down this button and press one of the POSITION buttons, and the current camera settings are stored in the memory of the camera corresponding to the pressed POSITION button.

[10] PANEL LIGHT button

Press this button to illuminate all the POSITION buttons and CAMERA buttons. Press the button again to turn off the illumination.

[11] BACK LIGHT button

When FULL AUTO, SHUTTER Pri, IRIS Pri or GAIN Pri is selected with MODE of the EXPOSURE menu, press this button to enable the backlight compensation function of the camera. Press it again to disable the function.

Hold down the SHIFT button and press this button to enable the spotlight compensation function of the camera. This function adjusts the exposure to a darker level if a portion of the shooting object is illuminated.

To disable the spotlight compensation, hold down the SHIFT button and press this button again.

[12] PAN-TILT RESET button

Press this button to reset the pan/tilt position of the camera to the initial conditions.

[13] ONE PUSH AWB button

When ONE PUSH is selected with the WHITE BALANCE menu of the camera, press this button to perform the one-push white balance adjustment.

[14] MENU button

Press this button for about one second to display or turn off the menu of the camera, or return to the main menu.

[15] Joystick

When the menu of the camera is not displayed

The joystick is used for pan/tilt and zoom operations.

When you incline the joystick right and left, the camera pans. When you incline it forward or backward, the camera tilts. The pan/tilt speed changes according to the angle of the inclination. When you release the joystick, the camera movement stops.

When you turn the dial on the upper part of the joystick clockwise, the subject becomes larger (zoom in). When you turn it counterclockwise, the subject becomes smaller (zoom out).

When you press the button on the top of the joystick for one or two seconds regardless of the PAN TILT ZOOM menu setting, the pan/tilt/zoom are reset and the camera returns to the front.

When the menu of the camera is displayed

The joystick is used for menu operations.

Inclining the joystick right, left, forward and backward has the same function as pressing the arrow buttons of the supplied Remote Commander. Pressing the button on the top of the joystick has the same function as pressing the HOME button on the Remote Commander.

16 SHIFT button and indicators

Hold down this button and press one of the POSITION buttons. The lower indicator lights and you can use the POSITION buttons for positions 9 to 16. If you release the SHIFT button, the upper indicator lights and the POSITION buttons can be used for positions 1 to 8.

17 L/R DIRECTION button

Hold down this button and press POSITION button 2 (REV) to reverse the pan direction to the direction in which you incline the joystick. To reset the direction, hold down this button and press POSITION button 1 (STD).

18 POWER button

Press this button to light the CAMERA button(s) corresponding to the status of the connected camera(s).

Blue: The power of the camera is on.

Yellow green: The camera is in standby mode.

Off: No camera is connected.

Hold down this button and press CAMERA button 1 to 7 to turn on/off the power of the camera corresponding to the pressed button.

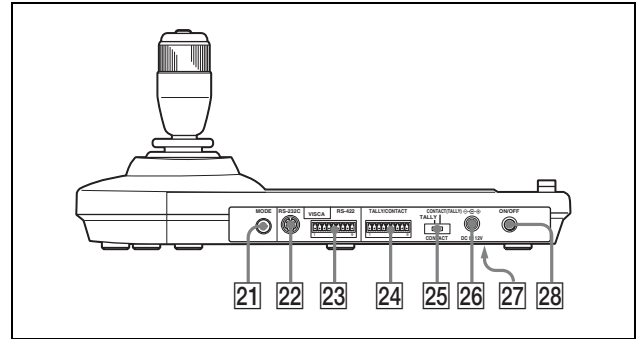
19 CAMERA buttons

Press one of the buttons to select the camera from among those connected. The selected CAMERA button lights in blue.

20 POSITION buttons

You can store the various camera settings such as the pan, tilt and zoom positions to the memory of the camera corresponding to each POSITION button, and load the settings in the memory.

Rear/Bottom



21 MODE selector

Select the position corresponding to the VISCA-controllable camera to be connected.

Switch position	Camera mode
0	Automatically selected (default)
1	BRC-300/300P
2	EVI-D70/D70P
3	EVI-D100/D100P
4	EVI-D30/D30P
5	SNC-RZ30N
6	BRC-H700
7	BRC-Z700
8	BRC-Z330

Note

Set the selector to position 8 when all the connected cameras are BRC-Z330s. For other connections, set the selector to position 0.

22 VISCA RS-232C connector

Connect to the VISCA RS-232C IN connector of the camera.

23 VISCA RS-422 connector

Connect to the VISCA RS-422 connector of the camera.

An RS-422 connector plug is attached at the factory.

24 TALLY/CONTACT connector

This connector is used for the tally lamp input or the contact output.

Select the function of the connector using the TALLY/CONTACT selector.

An RS-422 connector plug is attached at the factory.

25 TALLY/CONTACT selector

Select the function of the TALLY/CONTACT connector.

TALLY: The tally lamp of the camera selected with the connected switcher lights.

CONTACT: The contact output corresponding to the camera address selected with the Remote Control Unit is short-circuited against the connected switcher.

CONTACT (TALLY): The contact output corresponding to the camera address selected with the Remote Control Unit is short-circuited against the connected switcher and the tally lamp of the camera selected with the Remote Control Unit lights.

Notes

- Change the setting of the selector before you turn on the power for the Remote Control Unit. Otherwise, the setting is not effective.
- For more details on the functions of the TALLY/CONTACT selector, refer to the Operating Instructions of the RM-BR300.

26 DC IN 12V connector

Connect the supplied AC power adaptor.

27 DIP switches (bottom)**Switch 1 (RS-232C/RS-422 selector)**

Set to ON for RS-422, or OFF for RS-232C.

Switch 2 (Communication baud rate selector)

Set to ON for 38400 bps, or OFF for 9600 bps.

Switch 3 (BRIGHT control function selector)

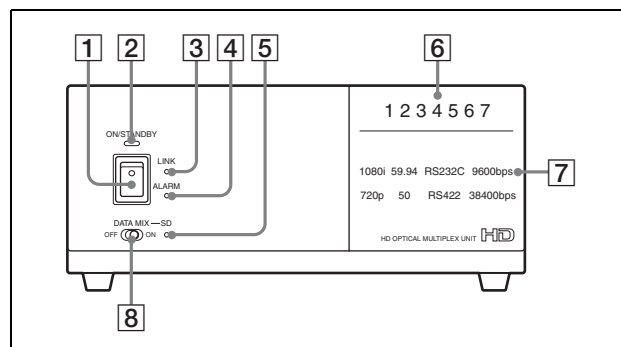
Set to ON for IRIS and GAIN adjustments, or OFF for IRIS adjustment only.

Note

Set the DIP switches before you turn on the power of the Remote Control Unit. Otherwise, the setting is not effective.

28 ON/OFF switch

Press this switch to turn on/off the Remote Control Unit.

BRU-SF10 HD Optical Multiplex Unit (not supplied)**Front****1 Power switch**

Turns on/off the power of this unit. Turn on the power of the BRC-Z330 camera before you turn on this unit.

2 Power indicator

Off: The unit's power switch is turned off.

Lit orange: The unit is starting up or in sleep mode.

Lit green: The unit is in normal operation.

3 LINK indicator

Lit green: The optical fiber connection between the unit and the camera is normal. (The indicator lights green after the system starts up.)

Lit red: Check for the following.

- The BRU-SF10 is not properly connected to the camera via optical fiber cable. Check the connections, and restart the unit.
- Image frequency settings for the camera and the BRU-SF10 are different. Check the settings after turning off the power, and then restart the unit.
- The camera may be unable to start properly due to the AC adapter being improperly connected to the DC IN connector on the camera. Check that the camera is turned on.

4 ALARM indicator

Lit red: Check for the following.

- The BRU-SF10 is not properly connected to the camera via optical fiber cable. Check the connections, and restart the unit.
- Image frequency settings for the camera and the BRU-SF10 are different. Check the settings after turning off the power, and then restart the unit.
- The camera may be unable to start properly due to the AC adapter being improperly connected to the DC IN connector on the camera. Check that the camera is turned on.

- An unsupported optional interface card is inserted in the card slot of the BRU-SF10. Remove the card after turning off the power, and then restart the unit.

Off: The unit is in normal operation.

5 SD indicator

This indicator lights when a BRBK-SA1 optional interface card is installed, or when a BRBK-HSD2 is installed and its rear switch is set to SD.

6 Camera ID indicators

The number for the current camera address lights orange.

For details on setting the camera address, see “17 VISCA FUNCTION switches” on page 26.

7 Status indicators

The current communication format, baud rate, and video format settings light green.

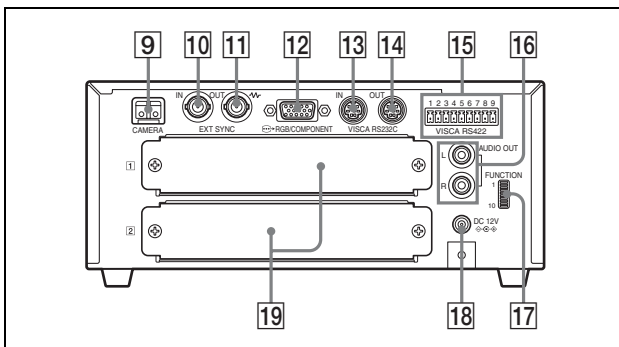
For details on configuring these settings, see “17 VISCA FUNCTION switches” on page 26.

8 DATA MIX switch

When the SD indicator is lit, set this switch to ON to overlap the menu display with the SD image signals from any installed BRBK-SA1 and BRBK-HSD2 interface cards on which the rear switch is set to SD.

Set this switch to OFF to hide the menu display.

Rear



9 CAMERA connector

Connect to the optical connector of the BRBK-SF1 HD Optical Multiplex Card installed in the BRC-Z330 camera using the CCFC-S200 Optical Fiber Cable.

A dustproof cap is attached at the factory. Do not remove this cap if you do not intend to connect an optical fiber cable. Dustproof caps are also attached to the BRBK-SF1 and CCFC-S200. Do not remove these caps when the connectors are not in use.

10 EXT SYNC IN connector

Accepts external video sync signals.

11 EXT SYNC OUT connector

Supplies external video sync signals input from the EXT SYNC IN connector.

When a cable is connected to this connector, the 75-ohm termination for inputs is automatically opened, and signals input to the EXT SYNC IN connector are output from this connector.

12 RGB/COMPONENT connector

Supplies the images from the camera as YPbPr or RGB signal.

13 VISCA RS-232C IN connector

Connect to the RM-BR300 Remote Control Unit (not supplied). When you connect multiple cameras, connect it to the VISCA RS-232C OUT connector of the previous camera in the daisy chain connection.

14 VISCA RS-232C OUT connector

When you connect multiple cameras, connect it to the VISCA RS-232C IN connector of the next camera in the daisy chain connection.

CAUTION

When you connect the RS-232C connecting cable of the unit to peripheral device, use the supplied cable to prevent malfunction due to radiation noise.

15 VISCA RS-422 connector

Connect to the VISCA RS-422 connector of the camera or another BRC-Z330 HD Optical Multiplex Unit.

For the connection to the VISCA RS-422 connector, see “Using the VISCA RS-422 Connector Plug” on page 89.

16 AUDIO OUT L/R jacks

Loop through output of the audio line signal input from the AUDIO IN jacks on the BRBK-SF1 HD Optical Multiplex Card inserted into the camera via the Optical Fiber Cable.

17 VISCA FUNCTION switches

These switches are used for the VISCA communication settings.

Switch 1 (RS-232C/RS-422 selector)

Set to ON for RS-422, or OFF for RS-232C.

Switch 2 (Communication baud rate selector)

Set to ON for 38400 bps, or OFF for 9600 bps.

Switches 3 to 5 (Camera address selectors)

Set the address of the camera.

Normally set to “0”. With this setting, addresses are assigned to the cameras automatically in the connected order by pressing the POWER button while holding down the RESET button on the RM-BR300 Remote Control Unit (not supplied). You can assign the camera address “1” to “7” manually by setting these selectors as follows:

Camera address	0	1	2	3	4	5	6	7
Switch 3	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Switch 4	OFF	OFF	ON	ON	OFF	OFF	ON	ON
Switch 5	OFF	OFF	OFF	OFF	ON	ON	ON	ON

Note

Cameras with addresses assigned by setting the switches to “0” and cameras with addresses assigned to “1” to “7” cannot be used together. In addition, the same address cannot be assigned to multiple cameras manually.

Switch 6 (59.94/50 signal format selector)

Set to ON for output of 50 signal format, or OFF for output of 59.94 signal format.

The 1080i and 720p formats are automatically applied to this unit based on the BOTTOM switch setting of the camera.

Be sure to configure the same setting on this unit and the camera.

Switches 7 to 10: Not used. Set them to OFF.

Note

Set the switches before you turn on the power of the unit.

18 DC 12 V connector

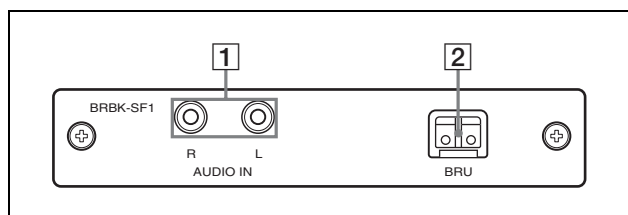
Connect to the supplied AC adapter.

19 Card slot

Install BRBK-SA1 or BRBK-HSD2 optional interface cards here.

The slot cover is attached to the unit at the factory.

BRBK-SF1 HD Optical Multiplex Card (not supplied)



1 AUDIO IN L/R jacks (phono type)

Input an audio signal (stereo), which is output from the AUDIO OUT jacks on the BRU-SF10 HD Optical Multiplex Unit via the Optical Fiber Cable.

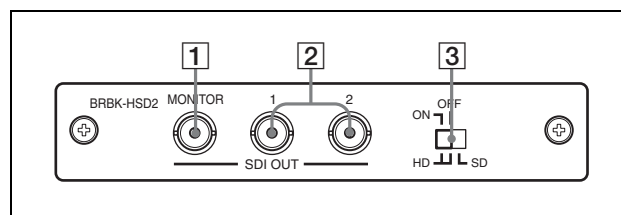
Note

The audio input on this board accepts audio line signals only. When you input audio signals from a microphone, etc., it should be connected with a microphone amplifier so that audio signals with an appropriate audio level can be input.

2 Optical connector

Performs the optical digital multiplex transmission of video, audio, external sync and control signals. A dustproof cap is attached at the factory.

BRBK-HSD2 HD/SD-SDI Output Card (not supplied)



1 SDI MONITOR OUT connector (BNC type)

Outputs down-converted SD-SDI signals (conforming to SMPTE259M serial digital interface standards during 1080/59.94i or 720/59.94p, and ITU-R BT.656 serial digital interface standards during 1080/50i or 720/50p) and HD-SDI signals (conforming to SMPTE292M serial digital interface standards).

When the menu display for the camera is turned ON, the menu display signal that overlaps the images is output from this connector. When the SD-SDI output card is installed in the card slot of the BRU-SF10 HD Optical Multiplex Unit, you can also hide the menu display by using the DATA MIX switch on the BRU-SF10. For details, see “Images when menu display is ON” on page 28.

2 SDI connectors 1, 2 (BNC type)

Outputs down-converted SD-SDI signals (conforming to SMPTE259M serial digital interface standards during 1080/59.94i or 720/59.94p, and ITU-R BT.656 serial digital interface standards during 1080/50i or 720/50p) and HD-SDI signals (conforming to SMPTE292M serial digital interface standards).

When the menu display for the camera is turned ON, you can select whether to overlap the menu display with the image by using the **3** panel

switch. For details, see “Images when menu display is ON” on page 28.

3 Panel switch

Switch between SD-SDI signals and HD-SDI signals.

When outputting HD-SDI signals, you can select whether to overlap the menu display with the image output from SDI connectors 1 and 2. For details, see “Images when menu display is ON” on page 28.

Notes

- SD-SDI and HD-SDI signals cannot be supplied simultaneously.
- Set the panel switch before turning on the camera.
- Do not push the switch forcibly with a screwdriver, etc.

Images when menu display is ON

When a BRBK-HSD2 is installed in the BRC-Z330 card slot

BRBK-HSD2 panel switch	MONITOR connector	SDI connectors 1, 2
Left positionHD/ DATA MIX: ON (HD-SDI output)		○
Middle positionHD/ DATA MIX: OFF (HD-SDI output)	○	×
Right positionSD (SD-SDI output)		○

○: Menu is displayed on image
×: Menu is not displayed on image

Memo

The DATA MIX switch on the BRC-Z330 HD Color Video Camera is disabled.

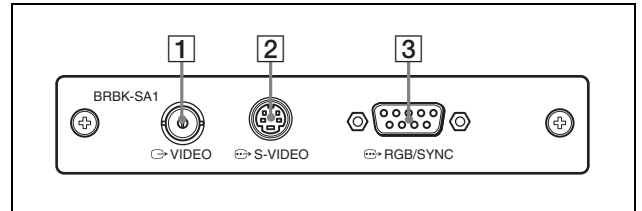
When a BRBK-HSD2 is installed in the BRU-SF10 card slot

BRBK-HSD2 panel switch	MONITOR connector	SDI connectors 1, 2
Left positionHD/ DATA MIX: ON (HD-SDI output)		○
Middle positionHD/ DATA MIX: OFF (HD-SDI output)	○	×
Right positionSD (SD-SDI output)		○/x ¹⁾

○: Menu is displayed on image
×: Menu is not displayed on image

- ¹⁾ When the DATA MIX switch on the front panel of the BRU-SF10 HD Optical Multiplex Unit is set to ON, the menu display is overlapped on all images output from the card. When the DATA MIX switch is set to OFF, the menu is not displayed on all images output from the card.

BRBK-SA1 Analog SD Output Card (not supplied)



- 1 VIDEO connector (BNC type)**
Supplies analog composite signals. The aspect ratio can be configured in the SD menu of the camera.
- 2 S VIDEO connector (4-pin mini-DIN)**
Outputs S-Video signals. You can configure the aspect ratio with the SD menu of the camera.
- 3 RGB/SYNC connector (D-sub 9-pin)**
Supplies various analog signals such as composite video, S video, component video and RGB signals. The output signal can be selected in the SD menu of the camera.

Notes

- When a BRBK-SA1 Analog SD Output Card is installed in the BRC-Z330 HD Color Video Camera and menu display for the camera is turned ON, the menu display is overlapped with the image.
- When a BRBK-SA1 Analog SD Output Card is installed in a BRU-SF10 HD Optical Multiplex Unit on which the front panel DATA MIX switch is set to ON and menu display for the camera is turned ON, the menu display is overlapped with the image. When the DATA MIX switch is set to OFF, the menu will not be displayed on the image, even if menu display for the camera is turned ON.

About On-Screen Menus

You can change various settings, such as shooting conditions and system setup of the camera, while observing menus displayed on a connected monitor. This section explains how to read the on-screen menus before starting menu operations.

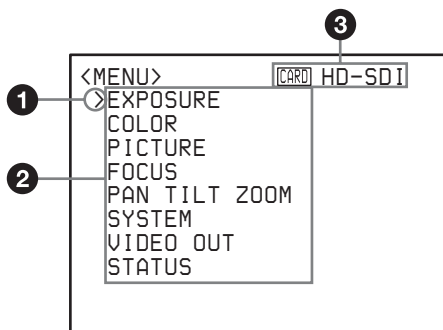
For the overall menu configurations, see page 72.

Note

You cannot perform pan/tilt and zoom operations while the menu is displayed.

Main Menu

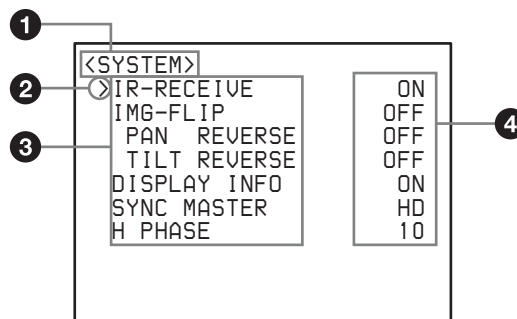
To display the main menu, press the DATA SCREEN button on the supplied Remote Commander or the MENU button on the RM-BR300 Remote Control Unit.



- 1 Cursor**
Selects a setting menu.
Move the cursor up or down by pressing the $\uparrow$ or $\downarrow$ button on the Remote Commander or by inclining the joystick of the RM-BR300 Remote Control Unit forward or backward.
- 2 Menu items**
To display a setting menu, select one using the $\uparrow$ or $\downarrow$ button on the Remote Commander or the joystick of the RM-BR300 Remote Control Unit, and press the HOME button on the Remote Commander or the top button of the joystick on the RM-BR300.
- 3 Option Card indicator**
Displays the name of the output card inserted into the card slot of the camera.
(The illustration above shows an example when the BRBK-HD2 HD-SDI Output Card is inserted.)

Setting Menus

The setting menu selected on the main menu is displayed.



- 1 Setting menu**
The name of the setting menu currently selected is displayed here.
- 2 Cursor**
Selects a setting item.
Move the cursor up or down by pressing the $\uparrow$ or $\downarrow$ button on the Remote Commander or inclining the joystick of the RM-BR300 Remote Control Unit forward or backward.
- 3 Setting items**
The setting items for this setting menu are displayed.
To change a set value, select the setting item using the $\uparrow$ or $\downarrow$ button on the Remote Commander or the joystick of the RM-BR300 Remote Control Unit, and press the $\leftarrow$ or $\rightarrow$ button on the Remote Commander or incline the joystick on the RM-BR300 right or left.
- 4 Set value**
The currently set values are displayed.
To change a set value, use the $\leftarrow$ or $\rightarrow$ button on the Remote Commander or the joystick of the RM-BR300 Remote Control Unit.

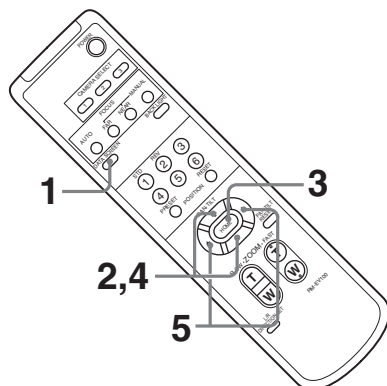
For the default value of each setting item, see “Menu Configuration” on page 72.

Operation Through Menus

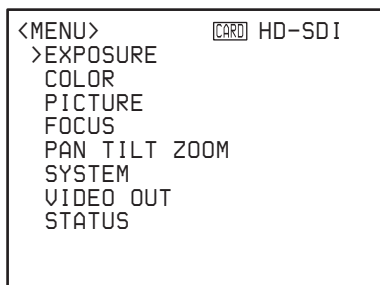
This section explains how to operate the menu using the supplied Remote Commander, or using the RM-BR300 Remote Control Unit (not supplied).

For details on each menu, see pages 32 through 39.

Menu Operation Using the Supplied Remote Commander



- 1 Press the DATA SCREEN button.
The main menu appears.



- 2 Move the cursor to the setting menu item to be set by pressing the $\uparrow$ or $\downarrow$ button.

- 3 Press the HOME button.
The selected setting menu appears.

```
<SYSTEM>
>IR-RECEIVE      ON
  IMG-FLIP       OFF
    PAN REVERSE  OFF
    TILT REVERSE OFF
  DISPLAY INFO   ON
  SYNC MASTER    HD
  H PHASE        10
```

- 4 Move the cursor to the setting item to be changed by pressing the $\uparrow$ or $\downarrow$ button.
- 5 Change the value by pressing the $\leftarrow$ or $\rightarrow$ button.

```
<SYSTEM>
  IR-RECEIVE      ON
  IMG-FLIP       OFF
    PAN REVERSE  OFF
    TILT REVERSE OFF
>DISPLAY INFO   OFF
  SYNC MASTER    HD
  H PHASE        10
```

Note

When you are operating the menu using the supplied Remote Commander, you cannot set IR-RECEIVE in the SYSTEM menu to OFF. To set IR-RECEIVE to OFF, use the RM-BR300 Remote Control Unit or the VISCA command.

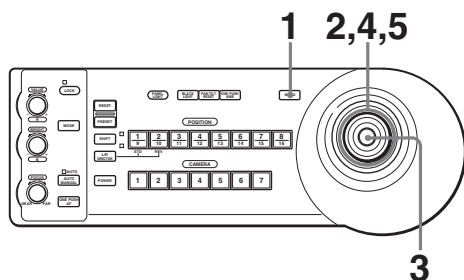
To return to the main menu

Press the DATA SCREEN button.

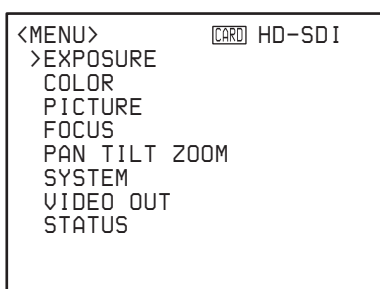
To return to the normal display

When the main menu is displayed, press the DATA SCREEN button once. If a lower-level menu is displayed, press it twice.

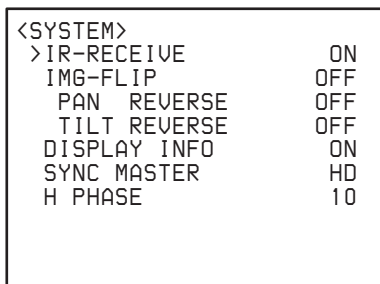
Menu Operation Using the RM-BR300 Remote Control Unit



- 1 Press the MENU button for about one second.
The main menu appears.



- 2 Move the cursor to the setting menu item to be set by inclining the joystick forward or backward.
- 3 Press the button on the top of the joystick.
The selected setting menu appears.



- 4 Move the cursor to the setting item to be changed by inclining the joystick forward or backward.

- 5 Change the value by inclining the joystick right or left.

```
<SYSTEM>
IR-RECEIVE      ON
IMG-FLIP        OFF
PAN  REVERSE    OFF
TILT REVERSE    OFF
>DISPLAY INFO   OFF
SYNC MASTER     HD
H PHASE         10
```

To return to the main menu

Press the MENU button for about one second.

To return to the normal display

When the main menu is displayed, press the MENU button once. If a lower-level menu is displayed, press it twice.

When pressing the MENU button, hold it pressed for about one second.

EXPOSURE Menu

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

<EXPOSURE>			
>MODE		FULL	AUTO
AE	SPEED		MID
AGC	LIMIT		12dB
IRIS	LIMIT		F11
EX-COMP			OFF
BACK LIGHT			OFF
SPOT LIGHT			OFF
COLOR AE			OFF
ND FILTER			OFF

MODE (exposure mode)

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

MANUAL: The sensitivity (GAIN), electronic shutter speed (SPEED) and iris (IRIS) are adjusted manually.

SHUTTER Pri: Shutter Priority mode. The exposure is adjusted automatically using the sensitivity and iris. Adjust the electronic shutter speed (SPEED) manually.

IRIS Pri: Iris Priority mode. The exposure is adjusted automatically using the sensitivity and electronic shutter speed. Adjust the iris (IRIS) manually.

GAIN Pri: Sensitivity Priority mode. The exposure is adjusted automatically using the iris and electronic shutter speed. Adjust the sensitivity (GAIN) manually.

When you select MODE, some of the following setting items that are required for the selected mode appear.

AE SPEED: Select the exposure adjustment speed at which an optimum exposure value is obtained automatically. You can select LOW (slow speed), MID (normal speed) or HIGH (fast speed). Select when the brightness of the object is changed momentarily.

AGC LIMIT: Select the maximum gain level to be adjusted in automatic exposure mode. Select a value from among -3, 0, 6 and 12 dB. If you set the item to OFF, the gain is adjusted without limitation.

IRIS LIMIT: Select the maximum iris to be adjusted in automatic exposure mode. Select a value from among F11, F6.8, F4.0 and F3.4.

GAIN: Select the gain from among -3 dB, 0 to 24 dB by the unit of 1 dB and HYPER

SPEED: Select the electric shutter speed from among the following:

For the 1080/59.94i or 720/59.94p signal format

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

For the 1080/50i or 720/50p signal format

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

IRIS: Select the iris from among the following:

CLOSE, F16, F15, F14, F12, F11, F10, F9.6, F8.7, F8.0, F7.3, F6.8, F6.2, F5.6, F5.2, F4.8, F4.4, F4.0, F3.7, F3.4, F3.1, F2.8, F2.6, F2.4, F2.2, F2.0, F1.8, F1.7, F1.6

EX-COMP (exposure compensation)

When MODE is set this item to FULL AUTO, SHUTTER Pri, IRIS Pri or GAIN Pri, set this item to ON to enable exposure compensation.

When you set EX-COMP to ON, LEVEL appears and you can select the exposure compensation level from among the following:

-7, -6, -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5, +6, +7
If you set the level to 0, exposure compensation will be disabled. Level +7 is the brightest and -7 is the darkest compensation values.

When EX-COMP is set to OFF, exposure compensation does not function.

BACK LIGHT

Setting the item to ON enables the BACK LIGHT function. Setting it to OFF disables the function. The BACK LIGHT feature is available only when MODE (exposure mode) is set to any item other than MANUAL.

SPOT LIGHT

The SPOT LIGHT function allows exposure adjustment at darker levels if a portion of the object to be shot is illuminated.

Setting the item to ON enables the SPOT LIGHT function. Setting it to OFF disables the function. The SPOT LIGHT feature is available only when MODE (exposure mode) is set to any other than MANUAL.

Note

You cannot use both the BACK LIGHT and SPOT LIGHT functions at the same time.

COLOR AE

The exposure is adjusted automatically for specific color.

The COLOR AE feature is available only when MODE (exposure mode) is set to any item other than MANUAL.

OFF: COLOR AE does not function.

CHECK: The region of the color specified with PHASE is displayed in white. The region is set to STD when CHECK is selected.

WIDE: The region of the color specified with PHASE becomes wide.

STD: The region of the color specified with PHASE is that between NARROW and WIDE.

NARROW: The region of the color specified with PHASE becomes narrow.

When an item other than OFF is selected, PHASE is displayed, and you can specify the color for which the exposure is automatically adjusted. The adjustable range is from 0 to 71.

To set the COLOR AE

- 1 Set COLOR AE to CHECK.
- 2 Select PHASE to adjust so that the color region in which the exposure is automatically adjusted is displayed in white.
- 3 Set COLOR AE to NARROW, STD, or WIDE.

Note

You cannot store the status when CHECK is selected in the preset memory of the camera.

ND FILTER

Select the filtering level of the camera's built-in ND FILTER.

Select from among OFF, 1/4, and 1/16.

OFF: ND FILTER does not function.

1/4: Decrease the amount of light by 1/4.

1/16: Decrease the amount of light by 1/16.

Note

If you switch the ND FILTER during shooting, camera image may be distorted.

COLOR Menu

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

<COLOR>		
>WHITE BALANCE	AUTO1	
WB SENS	MID	0
WB R.SHIFT		0
WB B.SHIFT		0
COLOR GAIN		0
COLOR HUE		0
COLOR MATRIX	ON	
R.ENHANCE		0
G.ENHANCE		0
B.ENHANCE		0
YL.ENHANCE		0
CY.ENHANCE		0
MB.ENHANCE		0

WHITE BALANCE (white balance mode)

Select the white balance mode from among the following:

AUTO1, AUTO2, INDOOR, OUTDOOR, ONE PUSH, MANUAL

AUTO1: Adjusts the white balance automatically while leaving natural colors.

AUTO2: Adjusts the white balance automatically.

INDOOR: The R.GAIN and B.GAIN values are fixed to those for a color temperature of 3200K.

OUTDOOR: The R.GAIN and B.GAIN values are fixed to those for a color temperature of 5800K.

ONE PUSH: The white balance adjustment is activated when you zoom in on a white object in the center of the screen and press the HOME button on the supplied Remote Commander, or press the button on the top of the joystick or the ONE PUSH AWB button on the RM-BR300 Remote Control Unit.

MANUAL: Adjusts the white balance manually.

When you select any mode of WHITE BALANCE, some of the following setting items that are required for the selected mode appear.

WB SENS: You can adjust the speed with which the color of an object is put close to white balance focusing point in AUTO1 or AUTO2 mode. Set to HIGH to do so at higher speed and to LOW to do so at lower speed.

You can also adjust the red or blue tint when shooting an object under reddish light sources such as an incandescent light and candle, or under bluish light sources such as the shade. Selecting HIGH decreases red or blue tint, and selecting LOW increases red or blue tint.

WB R.SHIFT, WB B.SHIFT: You can shift the white balance focusing point in automatic white balance mode to your favorite red tint (WB R.SHIFT) or blue tint (WB B.SHIFT) individually. The adjustable range of each item is from -7 to +7.

R.GAIN, B.GAIN: When you select MANUAL, R.GAIN (red gain) and B.GAIN (blue gain) appear. You can adjust the white balance manually within the range between -128 and +127.

COLOR GAIN

For adjusting the color intensity of the picture. The adjustable range is from -7 to +7. The color intensity increases in the + direction, and decreases in the - direction.

COLOR HUE

For adjusting the color hue of the picture. The adjustable range is from -7 to +7.

Note

When COLOR MATRIX is set to OFF, COLOR HUE cannot be set.

COLOR MATRIX

Enhances or reduces a specific color region without changing the white balance focusing point.

ON: You can adjust the R.ENHANCE (red), G.ENHANCE (green), B.ENHANCE (blue), YL.ENHANCE (yellow), CY.ENHANCE (cyan), and MG.ENHANCE (magenta) color regions with each item within the range of -10 to +10.

OFF: COLOR MATRIX does not function.

PICTURE Menu

The PICTURE menu is used to adjust the picture quality.

<PICTURE>	
>DETAIL	7
COLOR DETAIL	OFF
GAMMA	NORMAL
KNEE POINT	AUTO
FLICKER CANCEL	OFF
B&W	OFF
COLOR BAR	OFF

DETAIL

Select the image enhancer level.

The adjustable level is in the range of 0 to 15. The larger the setting level, the sharper the image outline. You can obtain the softest image outline by selecting level 0.

COLOR DETAIL

Reduces the image enhancer of a specific color.

OFF: COLOR DETAIL does not function.

CHECK: The region of the color specified with PHASE is displayed in white. The region is set to STD when CHECK is selected.

NARROW: The region of the color specified with PHASE becomes narrow.

STD: The region of the color specified with PHASE is that between NARROW and WIDE.

WIDE: The region of the color specified with PHASE becomes wide.

When an item other than OFF is selected, PHASE is displayed and you can specify the color whose image enhancer you want to reduce. The adjustable range is from 0 to 71.

To set the COLOR DETAIL

- 1 Set COLOR DETAIL to CHECK.
- 2 Select PHASE to adjust so that the color region in which you want to reduce the image enhancer is displayed in white.
- 3 Set COLOR DETAIL to NARROW, STD or WIDE.

Note

You cannot store the status when CHECK is selected in the preset memory of the camera.

GAMMA

Select the gamma curve of the camera.

NORMAL: The object is shot using normal gamma curve.

CINEMA: The object is shot using a gamma curve to reproduce a film-like picture with a natural tone.

KNEE POINT

The KNEE function minimizes washout of picture that may occur with a bright portion of a picture or when shooting a white object.

AUTO: The KNEE POINT is adjusted automatically.

LOW: Set the KNEE POINT to lower level than MID.

MID: Set the KNEE POINT midway between LOW and HIGH.

HIGH: Set the KNEE POINT to higher level than MID.

OFF: KNEE does not function.

Note

When GAMMA is set to CINEMA, KNEE POINT cannot be set.

FLICKER CANCEL

When this item is set to ON, picture blurs (flicker) can be reduced even when shooting under a 50Hz fluorescent light. Set it to OFF to disable this feature.

Note

The FLICKER CANCEL feature may have no effect depending on the type of light source.

B&W (black and white mode)

When this item is set to ON, an image is shot in black and white.

COLOR BAR

When this item is set to ON, the built-in color bar of the camera is displayed on the monitor screen.

FOCUS Menu

The FOCUS menu is used to select the focus mode.

```
<FOCUS>
>MODE          AUTO
  NEAR LIMIT    ON
  AF ASSIST      ON
```

MODE (focus mode)

Select the focus adjustment mode.

AUTO: The focus is adjusted automatically.

MANUAL: Adjust the focus manually. Use the FAR/NEAR buttons on the supplied Remote Commander to adjust the focus.

Note

Set MODE to MANUAL when you shoot

- a flat subject with low contrast such as a white wall.
- a subject through glass.
- a lateral-striped subject.
- a subject exposed to strong light with an illumination, reflecting light, etc.
- a subject in a dark background with flashing lights such as a night view.

NEAR LIMIT

Focusing on a subject located near the camera is limited.

ON: A subject closer to the camera than about 50 cm (19 ³/₄ inches) is not focused.

OFF: The camera-subject distance is focused for about 10 cm (4 inches) to infinity.

AF ASSIST (auto focus assist)

You can temporarily adjust the focus manually even when MODE is set to AUTO.

The AF ASSIST feature is available only when MODE is set to AUTO.

ON: You can adjust to focus another subject in a forward or backward location with the NEAR/FAR buttons on the supplied Remote Commander or the FOCUS control on the optional RM-BR300 Remote Control Unit.

OFF: The focus of the subject is adjusted automatically. Manual focus adjustment is deactivated.

PAN TILT ZOOM Menu

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

<PAN TILT ZOOM>		
PAN-TILT LIMIT		
> PAN	OFF	
LEFT	END	
RIGHT	END	
TILT	OFF	
DOWN	END	
UP	END	
RAMP CURVE	MODE2	
D-ZOOM	OFF	

PAN-TILT LIMIT

When you set PAN to ON, you can select the limit of pan operation with the LEFT and RIGHT setting items. When you set TILT to ON, you can select the limit of tilt operation with the UP and DOWN setting items. You can select the following values:

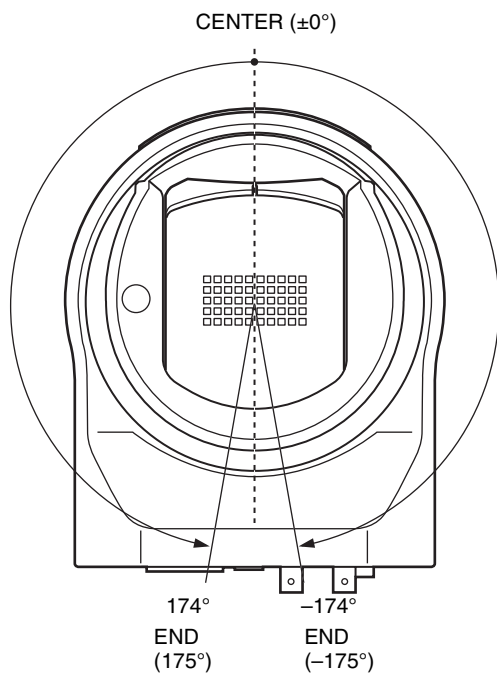
PAN LEFT: END, 174° to -174°, selectable with an interval of 1°

PAN RIGHT: 174° to -174°, END, selectable with an interval of 1°

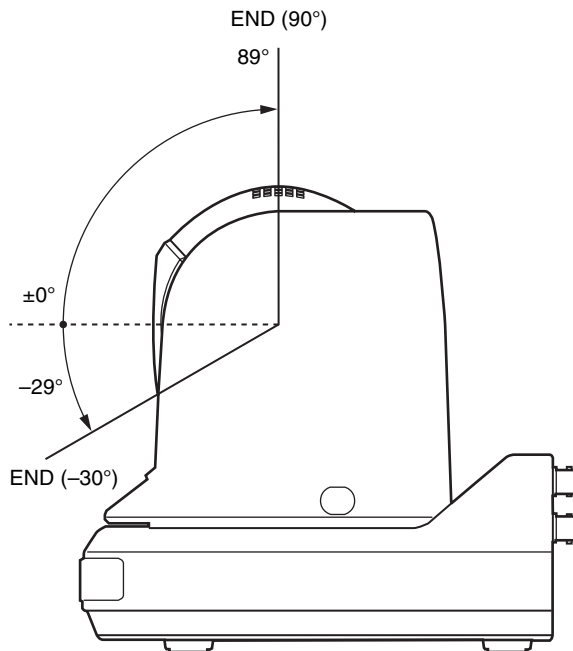
TILT DOWN: END, -29° to 89°, selectable with an interval of 1°

TILT UP: -29° to -89°, END, selectable with an interval of 1°

Setting range of PAN LEFT/PAN RIGHT



Setting range of TILT DOWN/TILT UP



Notes

- Before storing the camera position in the preset memory, perform the PAN-TILT LIMIT setting. If the camera position is not within the range of the PAN-TILT LIMIT setting, you cannot store the camera position in the preset memory.
- The PAN-TILT LIMIT setting is reset to the factory setting when you change IMG-FLIP of the SYSTEM menu.

RAMP CURVE

Select the speed acceleration or reduction mode when the preset operation is recalled.

MODE1: Speed accelerates or reduces most sharply.

MODE2: Speed accelerates or reduces moderately.

MODE3: Speed accelerates or reduces most gently.

D-ZOOM (digital zoom)

When you select digital zoom magnification (4×, 2× or 1.5×), the selected electronic zoom operates after the optical zoom (18×). You can zoom up to 72× at maximum.

When this item is set to OFF, the digital zoom function is disabled.

Note

Regardless of the D-ZOOM setting, images shot with the camera are accumulated for the vertical synchronization period and output from the RGB/COMPONENT connector, S VIDEO connector,

↪ VIDEO connector of the camera, and the SDI OUTPUT connector of an optional Output Card, if one is installed in a card slot.

SYSTEM Menu

```
<SYSTEM>
>IR-RECEIVE      ON
  IMG-FLIP       OFF
    PAN REVERSE  OFF
    TILT REVERSE OFF
  DISPLAY INFO   ON
  SYNC MASTER    HD
  H PHASE        10
```

IR-RECEIVE (infrared signal reception)

When it is set to OFF, the camera does not receive the signal from the supplied Remote Commander. Be sure to keep it ON when you use the supplied Remote Commander.

Note

You cannot set IR-RECEIVE to OFF when you operate the menu using the supplied Remote Commander. To set it to OFF, use the RM-BR300 Remote Control Unit (not supplied) or the VISCA command.

IMG-FLIP (image flip)

Set IMG-FLIP to ON to rotate the camera image supplied from the ↪ RGB/COMPONENT connector, ↪ S VIDEO connector, ↪ VIDEO connector, and the SDI OUTPUT connector on an optional Output Card if one is installed in a card slot, upside/down and to reverse the direction of the camera movement with pan/tilt operations.

PAN REVERSE: Set to ON to reverse the horizontal movement of the camera image.

TILT REVERSE: Set to ON to reverse the vertical movement of the camera image.

When you set IMG-FLIP to ON, "Please restart system!" appears. Turn off the power of the camera and turn it on again.

Notes

- Regardless of the IMG-FLIP to ON/OFF setting, images shot with the camera are accumulated for the vertical synchronization period and output from the ↪ RGB/COMPONENT connector, ↪ S VIDEO connector, ↪ VIDEO connector of the camera, and the SDI OUTPUT connector on an optional Output Card, if one is installed in a card slot.
- When you set IMG-FLIP to ON, then turn off the camera and turn it on again, PAN REVERSE and TILT REVERSE will be set to ON. When you set

IMG-FLIP to OFF, then turn the power off and on again, PAN REVERSE and TILT REVERSE will be set to OFF.

- If you set IMG-FLIP to ON, the remote sensor at the rear of the camera does not function.

DISPLAY INFO (information display)

When the camera settings are stored in POSITION 1 to 16 using the supplied Remote Commander or the RM-BR300 Remote Control Unit, the message “PRESET No. xx” automatically appears for 2 seconds on the monitor screen. If you want to display the message each time the camera is operated, set DISPLAY INFO to ON. Set it to OFF to cancel the display.

Note

The message will appear if the built-in cooling fan of the camera has accidentally stopped. When DISPLAY INFO is set to OFF, the display of this message is also canceled.

SYNC MASTER

When you connect a sync signal generator, you can select an output video signal that is synchronized with the external video sync signal input to the EXT SYNC IN connector on the camera from among the following output signals:

HD: Selects the output signal from the  RGB/COMPONENT connector on the camera.

SD: Selects the output signal from the  VIDEO or  S VIDEO connector on the camera.

When outputting from the SDI connector, select “HD” for HD-SDI signal, or “SD” for SD-SDI signal.

H PHASE

When you connect a sync signal generator, adjust the horizontal phase so that the output signal is synchronized with the external sync signal input to the camera. The adjustable range is from 0 to 140.

When you select H PHASE on the menu, the message “PUSH ENTER BUTTON” appears on the screen. Press the HOME button on the Remote Commander or the button on the top of the joystick on the Remote Control Unit to make the color bars appear.

After completing the adjustment, press the HOME button on the Remote Commander or the button on the top of the joystick on the Remote Control Unit to make the color bar disappear.

Note

The H PHASE menu does not appear when a BRU-SF10 HD Optical Multiplex Unit is in use.

VIDEO OUT Menu

```
<VIDEO OUT>
HD-RGB/COMPONENT
>FORMAT          YPBPr

      SYNC TYPE    ▽ SYNC
SD-VIDEO/S VIDEO
IMG SIZE  16:9[LETTER]
SETUP          OFF
```

HD-RGB/COMPONENT

FORMAT

Select the signal output from the  RGB/COMPONENT connector on the camera.

YPBPr: Outputs analog component signals.

RGB: Outputs RGB signals.

When you select a mode for FORMAT, some of the following setting items that are required for selected mode appear.

ADD SYNC: Specifies whether to add a sync signal.

Setting the item to RGB specifies output of each R, G, and B signal with a sync signal added. Setting the item to OFF specifies output of each R, G, and B signal with no sync signal added.

SYNC TYPE: Specifies the type of sync signal. Setting the item to  SYNC specifies output of tri-level sync. Setting the item to VD specifies output of bi-level sync.

SD-VIDEO/S VIDEO

IMG SIZE

Select the aspect ratio of the signal output from the  VIDEO or  S VIDEO connector on the camera.

16:9[LETTER]: The image is displayed in 16:9 letterbox.

4:3[CROP]: The image is displayed in 4:3 edge crop.

4:3[SQUEEZE]: The image is displayed in 4:3 squeeze.

SETUP

Select whether 7.5IRE setup is added to output signals.

ON: Outputs signals with 7.5IRE setup added.

OFF: Outputs signals with no 7.5IRE setup added.

Note

The SETUP item does not appear when an HD signal of 1080/50i or 720/50p format is output.

STATUS Menu

The STATUS menu is used to display the settings selected with the menus.

<STATUS>		PAGE1
EXPOSURE	FULL	AUTO
AE	SPEED	MID
AGC	LIMIT	12dB
IRIS	LIMIT	F11
EX-COMP	OFF	0
BACK LIGHT	OFF	
SPOT LIGHT	OFF	
COLOR AE	OFF	0
ND FILTER	OFF	

The STATUS menu consists of PAGE1 to PAGE6. You can switch the pages with the ◀ or ▶ button. This menu only displays the current menu settings, and you cannot change them with the menu.

PAGE1: Shows the settings selected with the EXPOSURE menu.

PAGE2: Shows the settings selected with the COLOR menu.

PAGE3: Shows the settings selected with the PICTURE menu.

PAGE4: Shows the settings selected with the FOCUS and SYSTEM menus.

PAGE5: Shows the settings selected with the PAN TILT ZOOM menu.

PAGE6: Shows the settings selected with the VIDEO OUT menu, status of the fan motors, the firmware versions of the BRC-Z330, the firmware versions of the BRU-SF10¹⁾.

¹⁾ Only when a BRU-SF10 HD Optical Multiplex Unit is in use.

SD Menu

This menu only appears when an optional BRBK-SA1 Analog SD Output Card is installed in the BRC-Z330 HD Color Video Camera or in the BRU-SF10 HD Optical Multiplex Unit.

```

<OPTION CARD>
>D-SUB OUTPUT1      YCbCr

D-SUB OUTPUT2      VBS
IMG SIZE  16:9[LETTER]
SETUP      OFF
  
```

D-SUB OUTPUT1

Select the signal output from the RGB/SYNC connector (D-sub 9-pin) on the BRBK-SA1 Analog SD Output Card.

YCbCr: Outputs analog component signals.

RGB: Outputs RGB signals.

ADD SYNC

Appears when RGB is selected with D-SUB OUTPUT1 and specifies whether to add a sync signal.

RGB: Output R, G, and B signals with a sync signal added.

OFF: Output R, G, and B signals with no sync signal added.

D-SUB OUTPUT2

Select the signal output from the RGB/SYNC connector (D-sub 9-pin) on the BRBK-SA1 Analog SD Output Card.

VBS: Outputs analog composite signals.

Y/C: Outputs S-video signals.

IMG-SIZE (image size)

Select the aspect ratio of the output signal.

16:9[LETTER]: The image is displayed in 16:9 letterbox.

4:3[CROP]: The image is displayed in 4:3 edge crop.

4:3[SQUEEZE]: The image is displayed in 4:3 squeeze.

Notes

- When a BRBK-SA1 Analog SD Output Card is installed in the BRC-Z330 HD Color Video Camera, the IMG SIZE settings in the SD menu and VIDEO OUT menu are linked.

- If you change the IMG SIZE setting in the SD menu, the IMG SIZE setting for outputs from the VIDEO and S VIDEO connectors on the BRC-Z330 HD Color Video Camera will also change.
- If you change the IMG SIZE setting in the VIDEO OUT menu, the IMG SIZE setting for all outputs from the BRBK-SF1 HD Optical Multiplex Card will also change.

SETUP

Select whether 7.5IRE setup is added to output signals. When ON is selected, setup signals are added to all image signals except YCbCr.

ON: Outputs signals with 7.5IRE setup added.

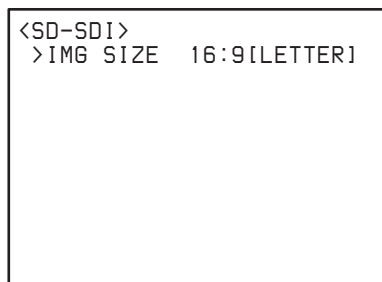
OFF: Outputs signals with no 7.5IRE setup added.

Note

The SETUP item does not appear when an HD signal of 1080/50i or 720/50p format is output.

SD-SDI Menu

This menu only appears when an optional BRBK-HSD2 HD/SD-SDI Output Card is installed in the BRC-Z330 HD Color Video Camera or in the BRU-SF10 HD Optical Multiplex Unit, and the panel switch on the card is set to SD.



IMG SIZE

Select the aspect ratio of the output signal.

16:9 [LETTER]: The image is displayed in 16:9 letterbox.

4:3 [CROP]: The image is displayed in 4:3 edge crop.

4:3 [SQUEEZE]: The image is displayed in 4:3 squeeze.

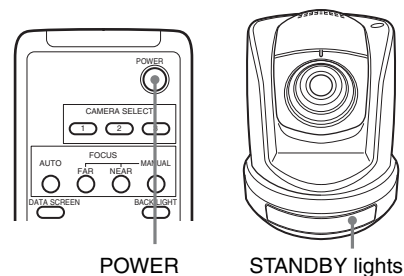
Notes

- When a BRBK-HSD2 HD/SD-SDI Output Card is installed in the BRC-Z330 HD Color Video Camera, the IMG SIZE settings in the SD-SDI menu and VIDEO OUT menu are linked.
- If you change the IMG SIZE setting in the SD-SDI menu, the IMG SIZE setting for outputs from the VIDEO and S VIDEO connectors on the BRC-Z330 HD Color Video Camera will also change.
- If you change the IMG SIZE setting in the VIDEO OUT menu, the IMG SIZE setting for SD-SDI outputs from the BRBK-HSD2 HD/SD-SDI Output Card will also change.

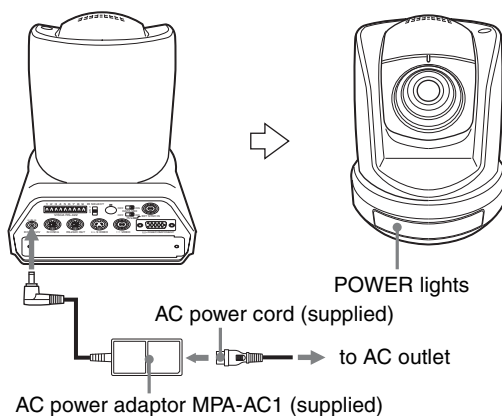
Operation Using the Supplied Remote Commander

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

For details, see “Installation” (page 54) and “Connections” (page 62).



Turning on the Power



- 1 Connect the camera to an AC outlet using the supplied AC power adaptor and power cord. The power is turned on and the POWER lamp lights. The camera will automatically pan and tilt and be reset to the position stored in POSITION 1 (Pan/tilt reset action).
- 2 Turn on the peripheral devices.

To turn on/off the camera using the Remote Commander

As long as the camera is connected to an AC outlet, you can turn the camera on or off with the POWER switch on the Remote Commander.

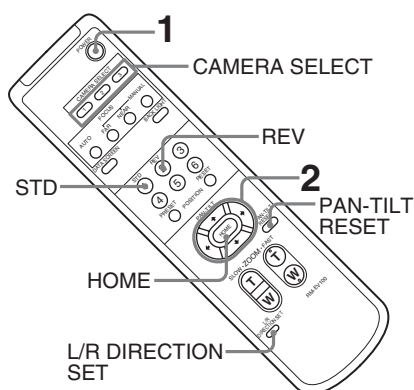
When you turn the power off using the Remote Commander, the POWER lamp turns off and the STANDBY lamp lights on the camera.

Notes

- When you turn off the camera using the Remote Commander, the camera tilts downward to protect the lens from dust before entering Standby mode. When IMG-FLIP is set to ON in the SYSTEM menu, however, the camera tilts the opposite way so that the lens faces downward when the camera is installed suspended from a ceiling.
- When a BRU-SF10 HD Optical Multiplex Unit is in use, you cannot turn on/off the camera using the supplied Remote Commander. Instead, use the power switch on the BRU-SF10 or the POWER button on a RM-BR300 Remote Control Unit connected to the BRU-SF10 to turn on/off the camera.

Pan/Tilt and Zoom Operation

Panning and Tilting



- 1** Press the POWER switch.
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 desired 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.

When you perform a pan/tilt operation while the camera is in Telephoto mode, the movement speed will be decreased. If in Wide mode, the movement speed will be increased.

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 that you intended

The camera is preset to face toward the right whenever the ▶ button is pressed. You might wish to face the camera toward the opposite direction from that of the button you pressed, for example, when you change the

direction of the camera while checking the picture on the screen. In such a case, 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
▶		L/R DIRECTION SET While holding down STD 1 Press.
◀		L/R DIRECTION SET While holding down REV 2 Press.

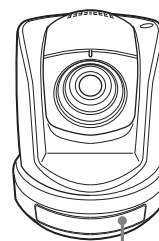
Note

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

If the STANDBY lamp of the camera flashes

When the camera is moved or turned by hand or by external shock, the microcomputer inside the camera may not be able to memorize the pan/tilt position properly and the camera may stop.

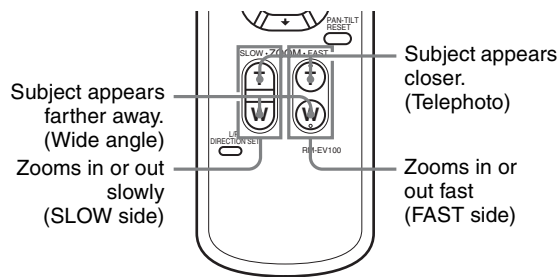
To reset the pan/tilt position, press the PAN-TILT RESET button or turn the power of the camera off and turn it on again.



STANDBY flashes

Zooming

Press either of the ZOOM buttons.



Note

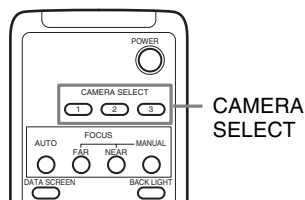
When you perform pan/tilt operation while the camera is in the telephoto mode, the moving speed of the image on the screen may be a little jerky.

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.

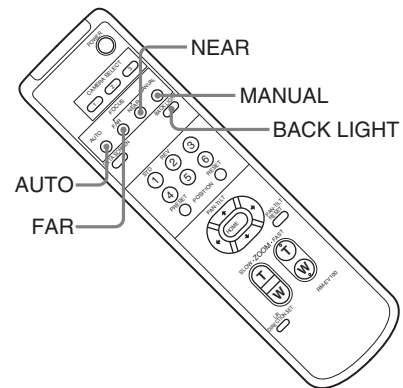


- 2 Press the CAMERA SELECT button on the Remote Commander that corresponds to the number set in step 1.



Then, you can operate the camera(s) specified by number. Every time you operate the camera(s) using the Remote Commander, the CAMERA SELECT button pressed in step 2 lights.

Adjusting the Camera



Focusing on a Subject

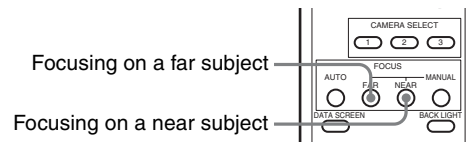
To focus the camera on a subject automatically

Press the AUTO button.

The camera focuses on the subject at the center of the screen automatically.

To focus the camera on a subject manually

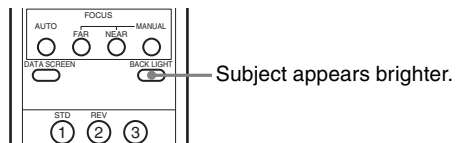
After pressing the MANUAL button, press either the FAR or the NEAR button to have the camera focus on the subject.



Shooting with Back Lighting

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

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



Note

The BACK LIGHT function is not effective if MODE is set to MANUAL in the EXPOSURE menu of the camera.

Storing the Camera Settings in Memory

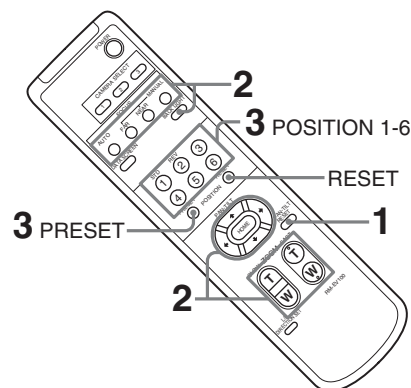
– Presetting Feature

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

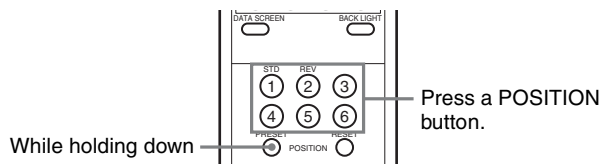
Note

The camera can store up to sixteen combinations of settings (sixteen positions) in the memory, but the supplied Remote Commander supports preset of six positions only (POSITION 1 to 6). Use the RM-BR300 Remote Control Unit (not supplied) to store the settings in POSITION 7 to 16.

For details of the camera settings to be preset, see “Presetting Items” on page 77.



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



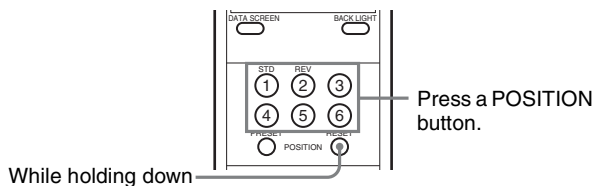
The message “PRESET No.xx” (selected POSITION number) is displayed for about 2 seconds.

To recall the stored settings

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

To cancel the preset memory

While holding down the RESET button, press the POSITION button from which you want to cancel the settings.



Notes

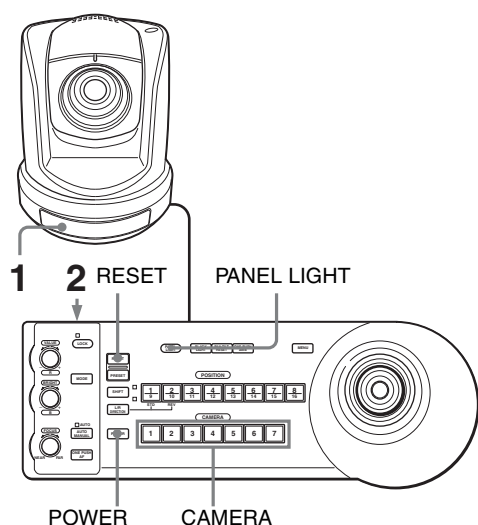
- When the power is turned on, the camera starts with the settings stored in POSITION 1.
- If you want to retain the previous pan and tilt positions, etc. when the power is turned off and turned on again, store those positions in POSITION 1.
- Storing or canceling the settings in POSITION 1 takes about 2 seconds longer than those of other positions.
- When you are storing or canceling the settings in one POSITION, you cannot call up, store or cancel the settings in another POSITION.

Operation Using the RM-BR300 Remote Control Unit

Before operating, check that the camera, the RM-BR300 Remote Control Unit and peripheral devices are properly installed and connected.

For details, see “Installation” (page 54) and “Connections” (page 62).

Turning on the Power



- 1 Connect the camera to an AC outlet using the supplied AC power adaptor and power cord. The power is turned on and the POWER lamp lights. The camera will automatically pan and tilt and be reset to the position stored in POSITION 1 (Pan/tilt reset action).
- 2 Press the ON/OFF switch on the RM-BR300 Remote Control Unit to turn it on. The CAMERA button representing the camera whose power was turned off last lights. (The CAMERA 1 button lights by default.)
- 3 Turn on the peripheral devices.

Note

Be sure to turn on the power for the camera before the power for the Remote Control Unit. Otherwise, the

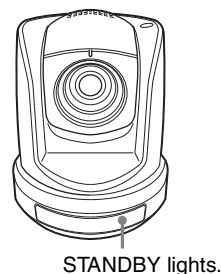
Remote Control Unit may not recognize the connected camera.

To turn on/off the camera using the RM-BR300 Remote Control Unit

As long as the camera is connected to an AC outlet, you can turn the camera on or off with the POWER button on the Remote Control Unit.

While holding down the POWER button, press the CAMERA button corresponding to the camera whose power you want to turn on/off.

When you turn the power off using the Remote Control Unit, the POWER lamp turns off and the STANDBY lamp lights on the camera.



Note

When you turn off the camera using the Remote Commander, the camera tilts downward to protect the lens from dust before entering Standby mode. When IMG-FLIP is set to ON in the SYSTEM menu, however, the camera tilts the opposite way so that the lens faces downward when the camera is installed suspended from a ceiling.

To illuminate the panel of the Remote Control Unit

Press the PANEL LIGHT button. All the POSITION buttons and CAMERA buttons light.

To turn off the illumination, press the PANEL LIGHT button again.



Operating Multiple Cameras

Before operating, you must assign the camera addresses to the connected cameras as follows. Then you can switch the camera to be controlled simply by pressing the corresponding CAMERA button.

To assign camera addresses automatically

- 1 Make sure that the camera address selector on the bottom of each camera is set to "0."
- For setting the camera address selector, see page 20.
- 2 Turn on the power of all the connected cameras and the RM-BR300 Remote Control Unit.
 - 3 Hold down the RESET button and press the POWER button on the Remote Control Unit. The Remote Control Unit recognizes the connected cameras and assigns them camera addresses 1 to 7 automatically in the connected order.
 - 4 Press the POWER button on the Remote Control Unit and check that the CAMERA buttons light. The number of the lit CAMERA buttons indicates how many cameras have the addresses assigned. Now you can switch the camera you want to control with the Remote Control Unit by pressing the CAMERA button.

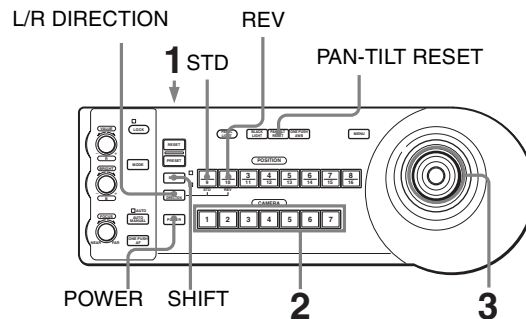
To assign camera addresses manually

Set one of the camera addresses, 1 to 7, using the camera address selectors on the bottom of each camera.

For setting the camera address selectors, see page 20.

Pan/Tilt and Zoom Operation

Panning and Tilting



- 1 Turn on the power of the camera and the RM-BR300 Remote Control Unit. The camera will turn on, performing the pan/tilt reset action automatically.
- 2 Press the CAMERA button corresponding to the camera you want to operate.
- 3 Operate the joystick to pan or tilt the camera. While checking the picture on the screen, incline the joystick in the desired direction. The panning/tilting speed changes according to the angle at which you incline the joystick. Release the joystick to stop panning/tilting.

To set a limit on the maximum panning/tilting speed

You can limit the panning/tilting speed obtained when you incline the joystick at the maximum angle.

- 1 Hold the PAN-TILT RESET button for more than a second while pressing the SHIFT button. All of the CAMERA buttons 1 to 7 flash.
- 2 Press the CAMERA button corresponding to the speed you want to set, as shown in the table below.

CAMERA button	Maximum panning/tilting speed
1	4.4 degrees/sec.
2	6.7 degrees/sec.
3	11.6 degrees/sec.
4	18.6 degrees/sec.
5	29.2 degrees/sec.

CAMERA button	Maximum panning/tilting speed
6	43.4 degrees/sec.
7	60 degrees/sec.

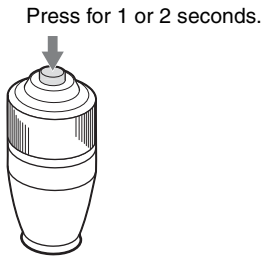
Only the CAMERA button you pressed flashes, and the corresponding maximum panning/tilting speed is set.

Note

The maximum panning/tilting speed setting is stored in the memory of the optional RM-BR300 Remote Control Unit. If you use another RM-BR300 Remote Control Unit or you connect another camera to the RM-BR300, set a limit on the maximum panning/tilting speed again.

To face the camera back to the front

Press the button on the top of the joystick for one or two seconds.



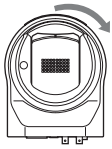
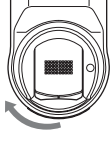
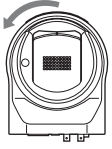
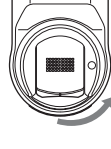
If you accidentally move the camera with your hand

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

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

The camera is preset to face toward the right whenever the joystick is inclined to the right. You might wish to face the camera toward the opposite direction from that in which you inclined the joystick, for example, when you change the direction of the camera while checking the picture on the screen. In such a case, press the POSITION 2 (REV) button while holding down the L/R DIRECTION button.

To reset the setting, press the POSITION 1 (STD) button while holding down the L/R DIRECTION button.

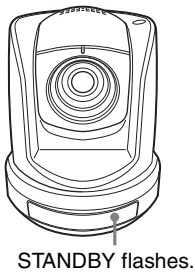
Joystick	Movement of the camera	Setting
Incline to the right.	While holding down	     Press.
Incline to the right.	While holding down	     Press.

Note

The setting above only changes the signal emitted from the RM-BR300 Remote Control Unit, and does not change the setting of the camera itself.

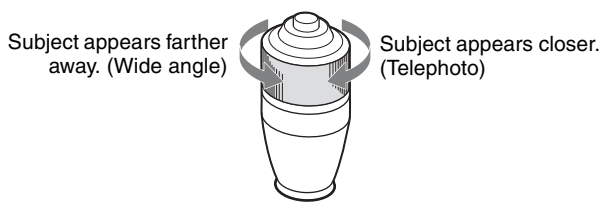
If the STANDBY lamp of the camera flashes

When the camera is moved or turned by hand or by external shock, the microcomputer inside the camera may not be able to memorize the pan/tilt position properly and the camera may stop. To reset the pan/tilt position, press the PAN-TILT RESET button or turn the power of the camera off and turn it on again.



Zooming

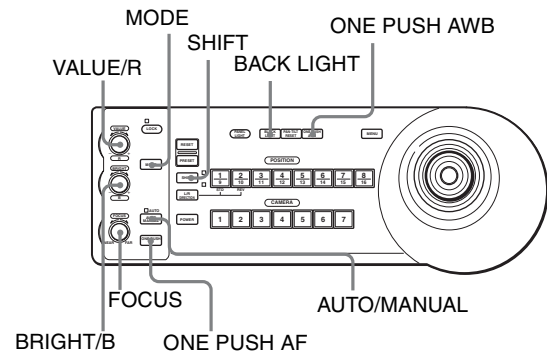
Turn the dial on the upper part of the joystick.



Note

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

Adjusting the Camera



Focusing on a Subject

To focus the camera on a subject automatically

Press the AUTO/MANUAL button so that the AUTO indicator lights.

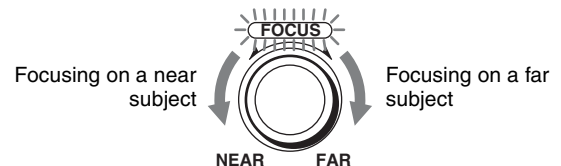
The camera focuses on the subject in the center of the screen automatically.



To focus the camera on a subject manually

Press the AUTO/MANUAL button so that the AUTO indicator turns off.

Then turn the FOCUS control clockwise or counterclockwise to have the camera focus on the subject.



One-push auto focusing during manual focus adjustment

Press the ONE PUSH AF button.

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



Shooting with Back Lighting

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

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



Note

The BACK LIGHT function is not effective if MODE is set to MANUAL in the EXPOSURE menu of the camera.

Shooting with spotlight compensation

If a portion of the shooting object is illuminated, the spotlight compensation function adjusts the exposure to a darker level. Hold down the SHIFT button and press the BACK LIGHT button.

To cancel the function, hold down the SHIFT button and press the BACK LIGHT button again.

Note

The backlighting and spotlight compensation functions cannot be used simultaneously.

Adjusting the White Balance

Before adjusting the white balance, shoot a white object that fills the entire screen under the same lighting conditions as for the object you will be zooming in on. (You can use a white wall, etc., instead of the object.)

To adjust the white balance automatically

- 1 Set WHITE BALANCE to ONE PUSH in the COLOR menu of the camera.

For setting, see “COLOR Menu” on page 33.

- 2 Press the ONE PUSH AWB button.
The white balance is adjusted automatically.



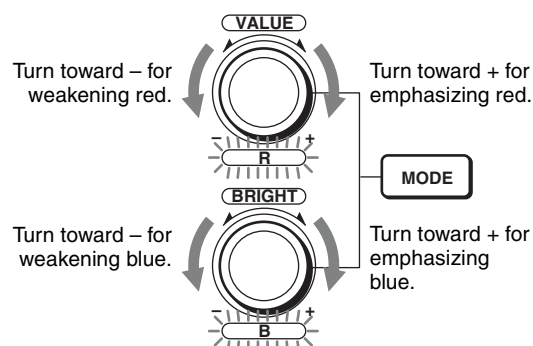
To adjust the white balance manually

- 1 Set WHITE BALANCE to MANUAL in the COLOR menu of the camera.

For setting, see “COLOR Menu” on page 33.

- 2 Press the MODE button so that the R and B indicators on the VALUE/R and BRIGHT/B controls light (White balance adjustment mode).

- 3 Adjust the red gain with the R control and the blue gain with the B control.



Functions of the R and B controls

When the white balance adjustment mode is selected with the MODE button on the Remote Control Unit, the functions of the R control and B control change according to the WHITE BALANCE setting in the COLOR menu of the camera.

WHITE BALANCE setting	R control	B control
MANUAL	Red gain control	Blue gain control
AUTO 1/2, ONE PUSH	WB R.SHIFT control	WB B.SHIFT control

For details on the WB R./B. SHIFT (white balance red/blue shift) control, see “WHITE BALANCE” on page 33.

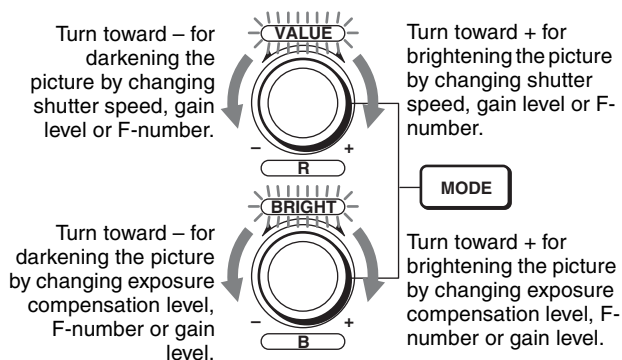
Adjusting the Brightness

- 1 Set MODE to SHUTTER Pri, IRIS Pri, GAIN Pri or MANUAL in the EXPOSURE menu of the camera.

For setting, see “EXPOSURE Menu” on page 32.

- 2 Press the MODE button so that the VALUE and BRIGHT indicators on the VALUE/R and BRIGHT/B controls light (Brightness adjustment mode).

3 Adjust the brightness with the VALUE or BRIGHT control.



Functions of the VALUE and BRIGHT controls

The functions of the VALUE control and the BRIGHT control change according to the MODE setting in the EXPOSURE menu, as follows:

MODE setting	Function of VALUE control	Function of BRIGHT control
FULL AUTO	Not used	Exposure compensation level control*
SHUTTER Pri	Shutter speed control	Exposure compensation level control*
IRIS Pri	F-number control	Exposure compensation level control*
GAIN Pri	Gain control	Exposure compensation level control*
MANUAL	Shutter speed control	- F-number and gain controls (when the DIP switch 3 at the bottom of the Remote Control Unit is set to ON) - F-number control (when the DIP switch 3 at the bottom of the Remote Control Unit is set to OFF)

* When EX-COMP is ON in the EXPOSURE menu

Storing the Camera Settings in Memory – Presetting Feature

Up to sixteen combinations of settings (sixteen positions), including camera position, zooming, focusing, and backlighting, can be stored in the memory of the camera using the RM-BR300 Remote Control Unit.

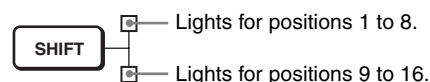
For details of the camera settings to be preset, see “Presetting Items” on page 77.

Storing Camera Settings

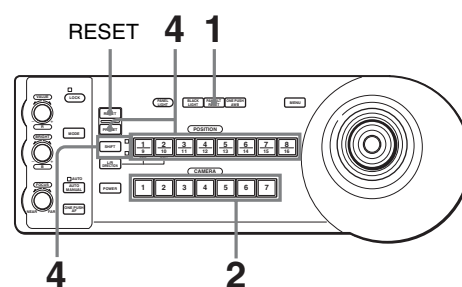
To select positions 9 to 16

While holding down the SHIFT button, press the PRESET button (to store the settings) or the RESET button (to cancel the settings). The lower indicator on the SHIFT button will light and the POSITION 1 to 8 buttons can be used for positions 9 to 16.

When you release the SHIFT button, the upper indicator lights and the POSITION 1 to 8 buttons can be used for positions 1 to 8.

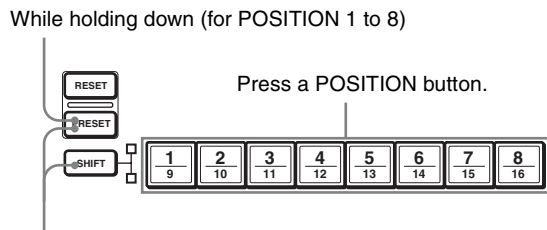


To store camera settings



- 1 Press the PAN-TILT RESET button to reset the pan/tilt position.
- 2 Press the CAMERA button to select the camera whose settings you want to preset.
- 3 Adjust the position, zooming, focusing and backlighting of the camera. (See page 48 to 50.)

- 4** While holding down the PRESET button (for POSITION 1 to 8) or the SHIFT and PRESET buttons (for POSITION 9 to 16), press any of the POSITION buttons in which you want to store the settings.



While holding down (for POSITION 9 to 16)

The settings are stored in the memory of the camera.

The pressed button flashes during storing. Flashing stops when storing is completed.

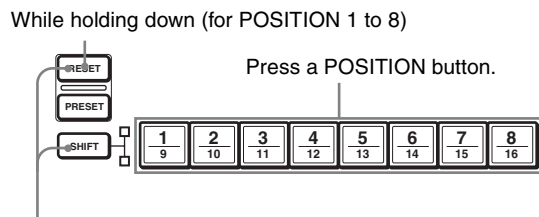
To recall the stored settings

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

For POSITION 9 to 16, hold down the SHIFT button and press any of the POSITION buttons.

To cancel the preset memory

While holding down the RESET button (for POSITION 1 to 8) or the SHIFT and RESET buttons (for POSITION 9 to 16), press the POSITION button from which you want to cancel the settings.



While holding down (for POSITION 9 to 16)

The pressed button flashes during canceling of the settings. Flashing stops when the settings have been canceled.

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.
- When you are storing or canceling the settings in one POSITION, you cannot call up, store or cancel the settings in another POSITION.

Setting the Speed of the Camera Moving to a Preset Position

You can select the panning/tilting speed when the camera moves to a preset position.

- 1** Press the CAMERA button to select the camera whose speed you want to set.
- 2** Press the POSITION button for which you want to set the speed for more than one second. All the CAMERA buttons, 1 to 7, flash.
- 3** Press one of the CAMERA buttons to select the speed.

CAMERA button	Panning/tilting speed
1	1.3 degree/sec.
2	3.4 degrees/sec.
3	5.4 degrees/sec.
4	11.6 degrees/sec.
5	23.9 degrees/sec.
6	43.4 degrees/sec.
7	60 degrees/sec. (default)

Now the camera will move to the position preset to the pressed POSITION button with the selected speed.

To set the speed with which the camera moves to a preset position between 9 and 16

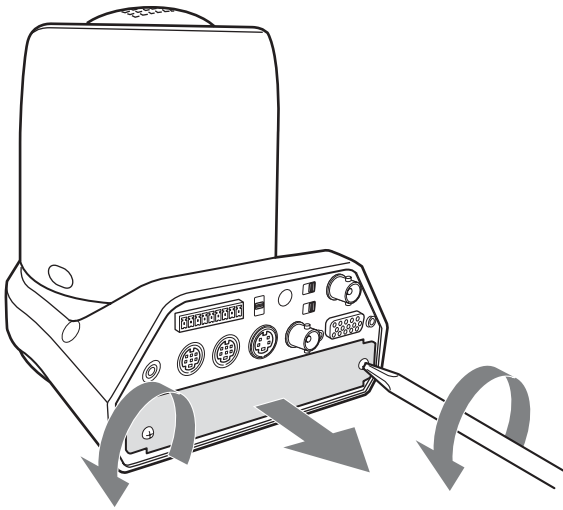
Hold down the SHIFT button and press the corresponding POSITION button for more than one second. The POSITION 1 to 8 buttons can be used for positions 9 to 16.

Installation

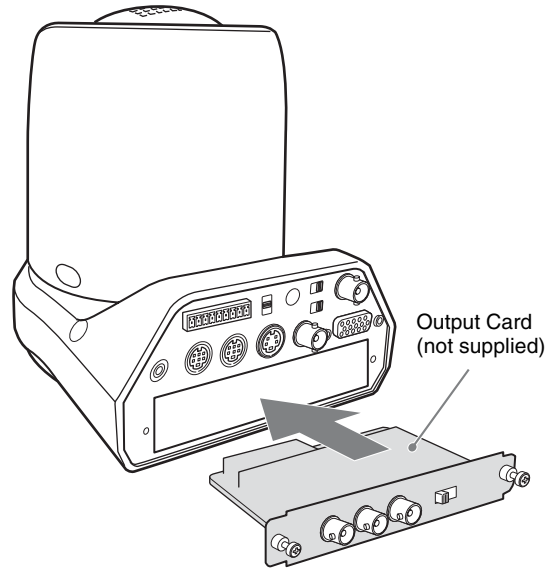
Attaching an Output Card

Attach an Output Card (not supplied) to the card slot on the rear of the camera.

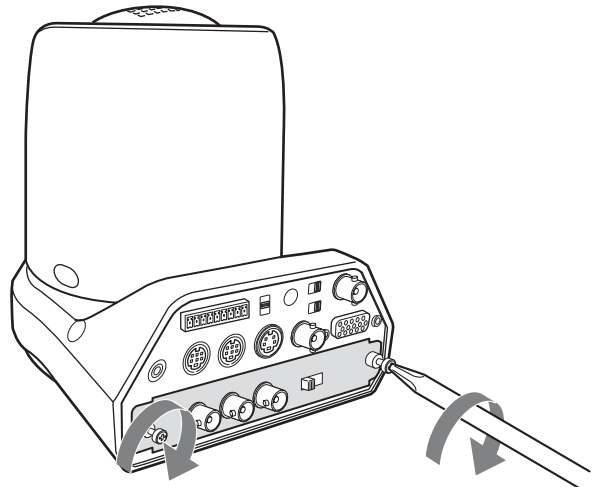
- 1 Loosen the two screws to remove the card slot cover.



- 2 Insert an optional Output Card into the card slot. Align both ends of the Output Card with the sliders inside the slot, then insert the board securely as far as it will go.



- 3 Tighten the two screws on the Output Card.



To remove the Output Card

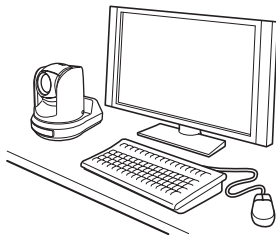
Loosen the two screws on the Output Card and pull the board out straight and slowly.

Installing the Camera

To install the camera on a desk

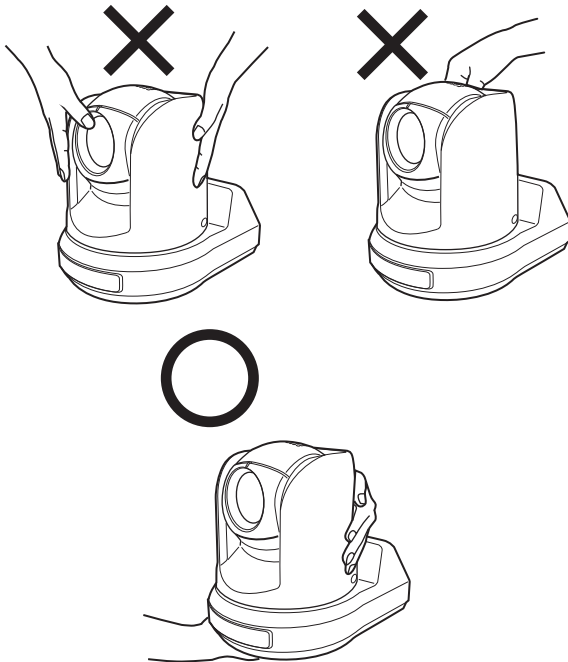
Place the camera on a flat surface.

If you have to place the camera on an inclined surface, make sure that the inclination is less than ± 15 degrees, so that the pan/tilt performance is guaranteed.



Notes

- You should take an appropriate countermeasure to prevent the camera from falling.
- Do not grasp the camera head when carrying the camera.
- Do not turn the camera head by hand. Doing so may result in the camera malfunctioning.

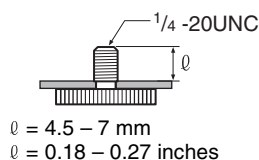


To attach the camera to a tripod

Attach a tripod to the screw hole used for attaching a tripod on the bottom of the camera.

The tripod must be set up on a flat surface and tightened firmly by hand.

Use a tripod with screws of the following specifications.



Caution

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

Installing the Camera in a High Position

Using the supplied ceiling brackets, wire rope, and screws, you can attach the camera to a ceiling or on a shelf, etc. in a high position. You can also utilize an existing junction box, etc. to attach the camera to a ceiling.

When you install the camera, always install it on a level ceiling or shelf, etc. If you have to install it on an incline, make sure that the inclination is within ± 15 degrees, so that the pan/tilt performance is guaranteed.

Caution

- When you attach the camera to a ceiling or shelf, etc. in a high position, entrust the installation to an experienced contractor or installer.
- Attach the camera to the ceiling or shelf, etc. firmly, after making sure the ceiling, shelf, etc. and the attachment materials (not including the supplied accessories) are strong enough to bear a weight of 40 kg (88 lb 2 oz). If the ceiling or shelf, etc. is not strong enough, the camera may fall and cause serious injury.
- Be sure to attach the supplied wire rope to prevent the camera from falling.
- Check periodically, at least once a year, to ensure that the connection has not loosened. If conditions warrant, make this periodic check more frequently.

Before installation

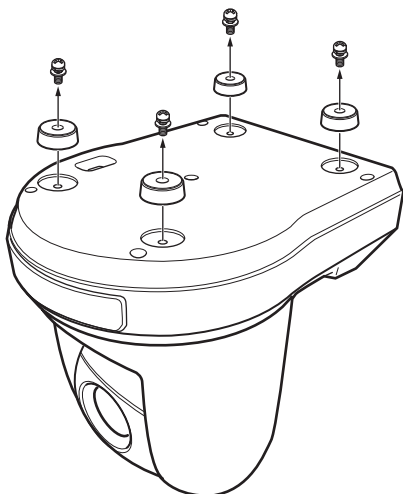
The connecting cables cannot be passed through the ceiling bracket (A). A hole for the wiring is required in the ceiling or shelf, etc. behind where the camera is to be installed. When installing the camera on a ceiling, make the required hole for the junction box in the ceiling.

When installing it on a shelf, etc. in a high position, a hole with a diameter of 70 mm ($2 \frac{7}{8}$ inches) is required for the protrusions of the ceiling bracket.

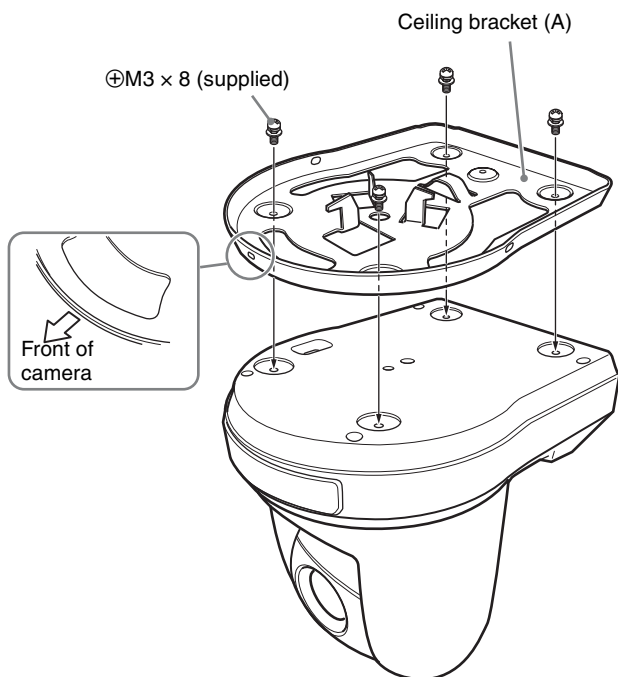
Make these holes after deciding the shooting direction.

Installation on a ceiling (example)

- 1 Set IMG-FLIP to ON in the SYSTEM menu.
- 2 Remove the four screws on the bottom of the camera to remove the four feet.



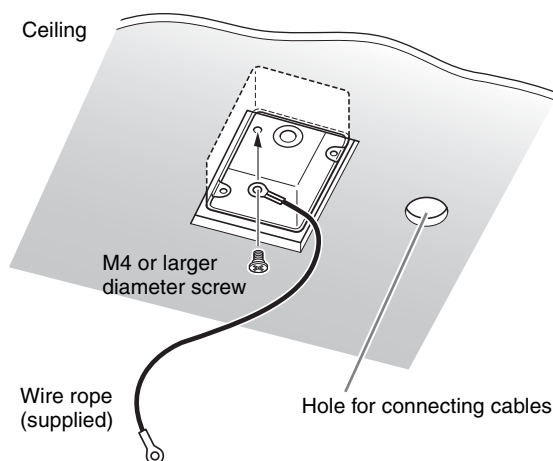
- 3 Attach the ceiling bracket (A) to the bottom of the camera using the supplied four screws (⊕M3 × 8). Position the ○ hole for screwing on the ceiling bracket (A) to the front of the camera as illustrated, align the screw holes on the ceiling bracket with those on the bottom of the camera, then attach the bracket to the camera.



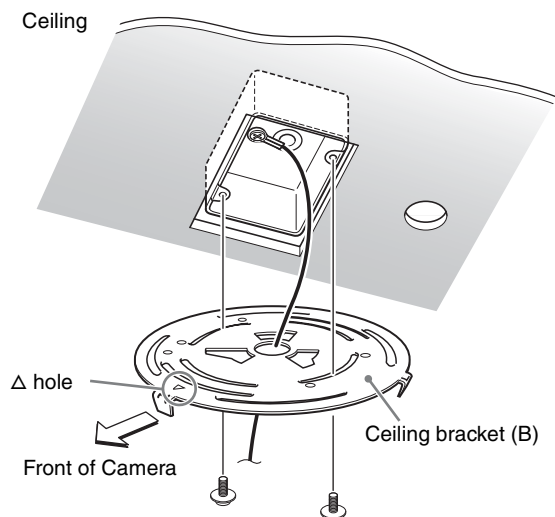
Note

For attaching the camera to the ceiling bracket, use only the supplied screws. Using other screws may damage the camera.

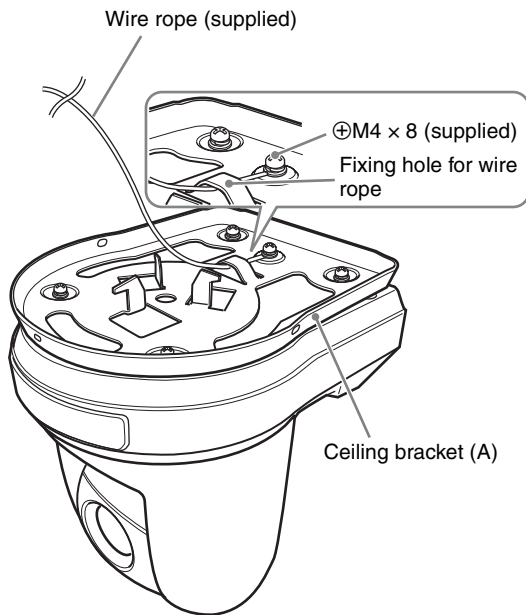
- 4 Attach the wire rope to the junction box on the ceiling.
Use an M4 or larger outside diameter screw (not supplied) to attach the wire rope to the junction box.



- 5 Attach the ceiling bracket (B) to the junction box on the ceiling.
Align the holes in the bracket with those in the junction box, and use appropriate screws (not supplied).
There are three screw holes along the edges of the ceiling bracket (B). Later, the front of the camera will be positioned at one of the screw holes. Adjust the direction of the ceiling bracket (B) so that the camera will face the front and attach the bracket securely.



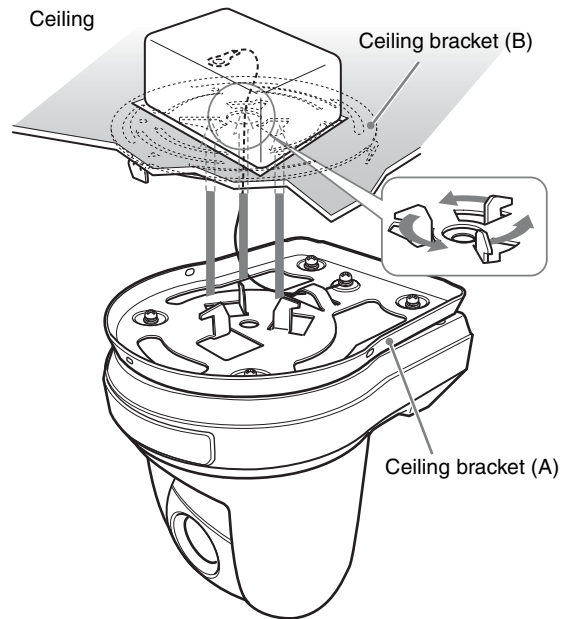
- 6** Attach the wire rope to the ceiling bracket (A). Pass the wire rope through the fixing hole and attach its end to the attachment hole on the bracket using the supplied one screw ($\oplus$ M4 $\times$ 8).



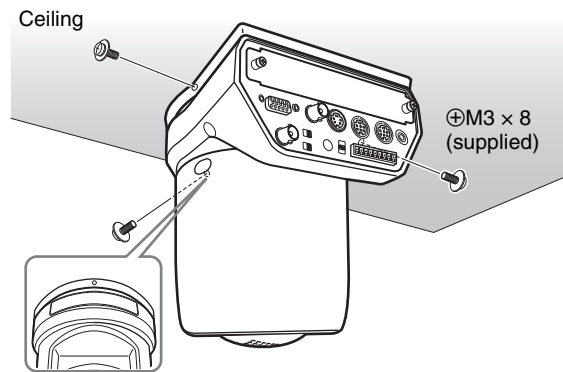
Caution

For attaching the wire rope to the bracket, use only the supplied screw. Using another screw may disable the function of the wire rope.

- 7** Insert the protrusions on the ceiling bracket (A) into the spaces prepared in the ceiling bracket (B) with the $\bigcirc$ hole in the front of the ceiling bracket (A) aligned with the Δ hole on the ceiling bracket (B), and temporarily attach them by turning the ceiling bracket (A) with the camera clockwise.

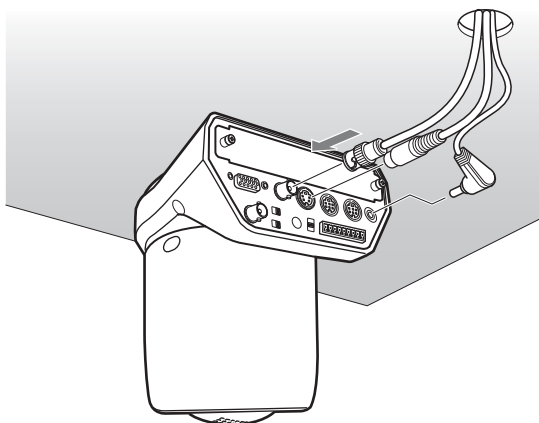


- 8** Secure the ceiling brackets (A) and (B) using the supplied three screws ($\oplus$ M3 $\times$ 8).



- 9 Connect the cables to the connectors on the rear of the camera.

Ceiling



Note

Take the proper steps to ensure that the load of the cables connected does not cause problems.

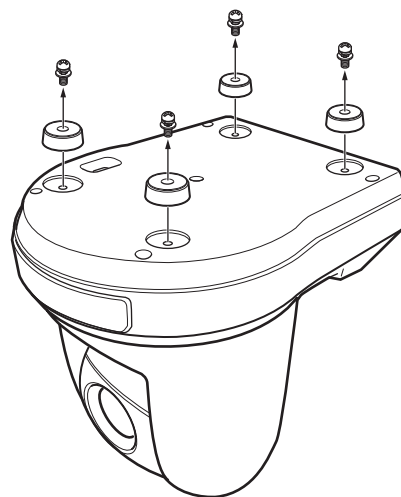
- 10 The SONY and/or HD nameplates can be turned upside down, if necessary.

To remove the camera

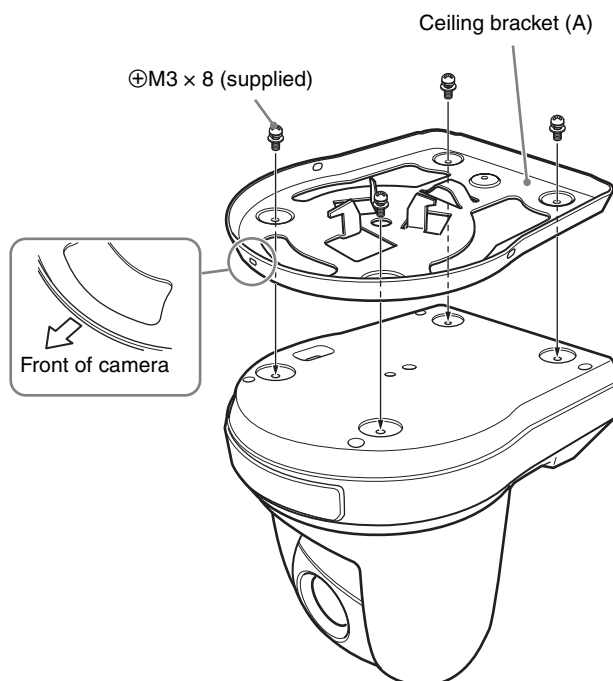
- 1 Remove the three screws used to attach the camera in step 8 of "Installation on a ceiling (example)."
- 2 Turn the camera with the bracket counterclockwise to remove.

Installation on a shelf, etc. in a high position (example)

- 1 Remove the four screws on the bottom of the camera to remove the four feet.



- 2 Attach the ceiling bracket (A) to the bottom of the camera using the supplied four screws (⌀M3 × 8). Position the ○ hole for screwing on the ceiling bracket (A) to the front of the camera as illustrated, align the screw holes on the ceiling bracket with those on the bottom of the camera, then attach the bracket to the camera.

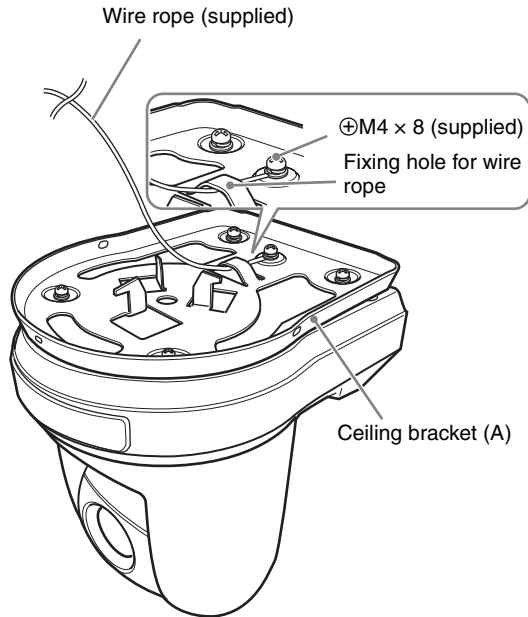


Note

For attaching the camera to the ceiling bracket, use only the supplied screws. Using other screws may damage the camera.

3 Attach the supplied wire rope to the ceiling bracket (A).

Pass the wire rope through the fixing hole and attach its end to the attachment hole on the bracket using the supplied one screw ($\oplus$ M4 $\times$ 8).

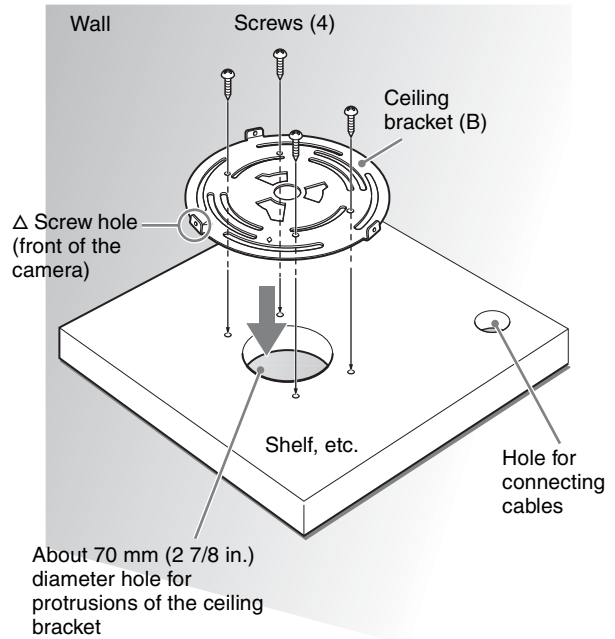


Caution

For attaching the wire rope to the bracket, use only the supplied screw. Using another screw may disable the function of the wire rope.

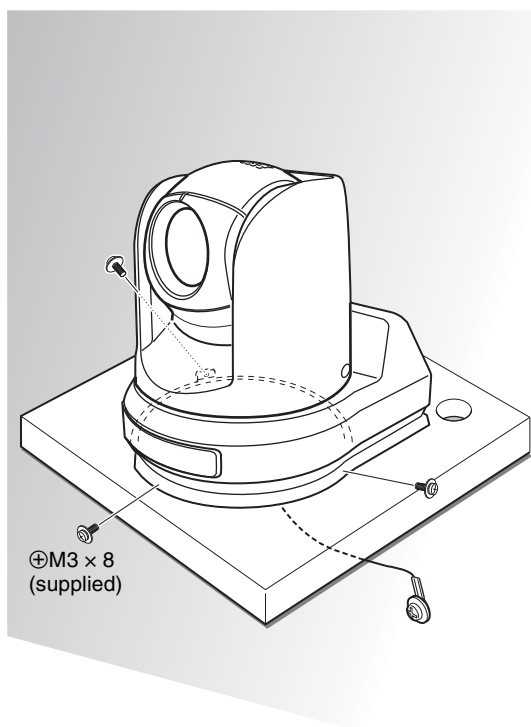
4 Attach the ceiling bracket (B) to a shelf, etc. on which the camera is to be installed.

Use four screws (not supplied) appropriate for the materials of the shelf, etc.
Align the Δ hole on the ceiling bracket (B) in the direction where the front of the camera will be positioned later.

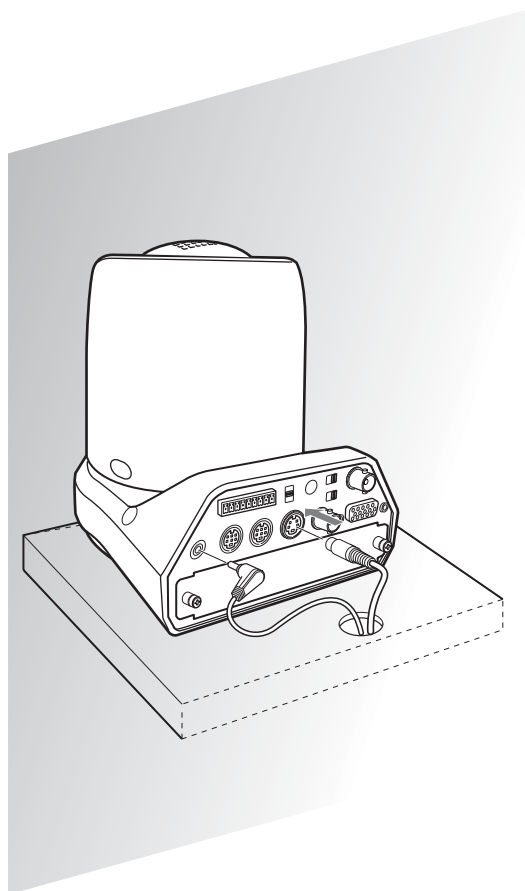


[illegible]

- 7** Secure the ceiling brackets (A) and (B) using the supplied three screws ($\oplus M3 \times 8$).



- 8** Connect the cables to the connectors on the rear of the camera.



Note

Take the proper steps to ensure that the load of the cables connected does not cause problems.

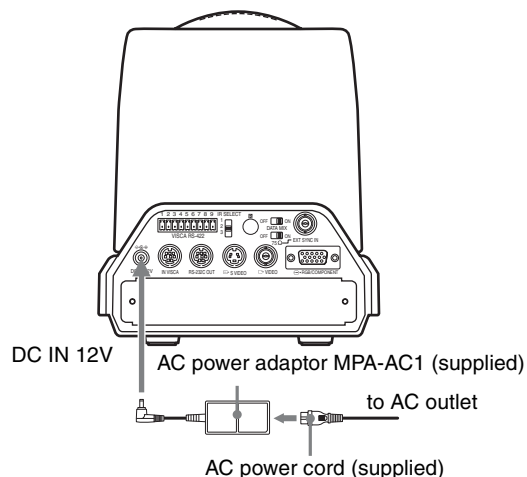
To remove the camera

- 1** Remove the three screws used to attach the camera in step 7 of "Installation on a shelf, etc. in a high position (example)."
- 2** Turn the camera with the bracket counterclockwise to remove.

Connections

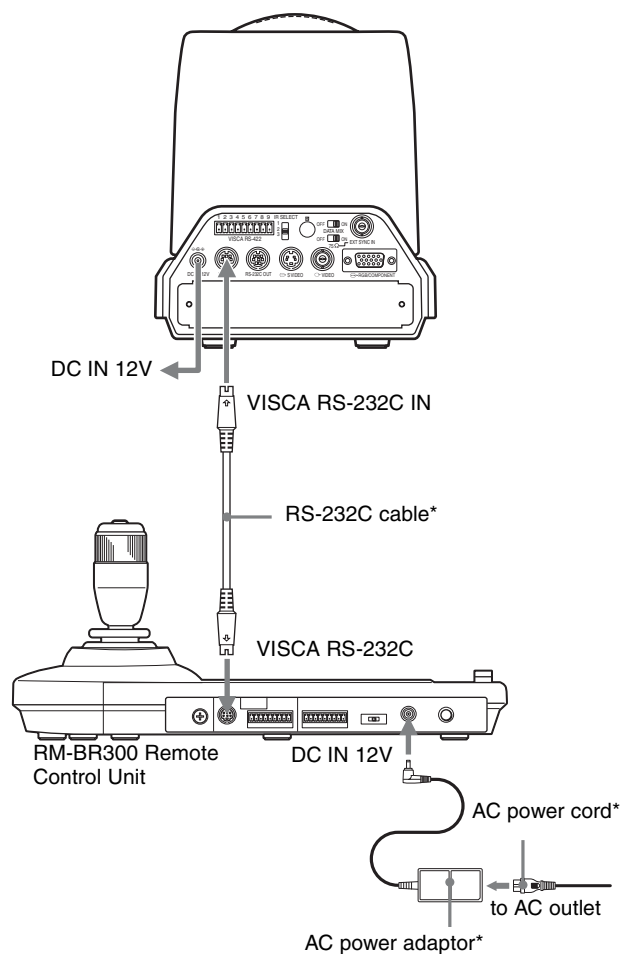
Connecting to an AC Outlet

Use the supplied AC power adaptor and AC power cord to connect the camera to an AC outlet.



Connecting the RM-BR300 Remote Control Unit

Use the RS-232C connecting cable supplied with the Remote Control Unit.



* supplied with the RM-BR300

Note

When using the VISCA RS-232C connectors, check that the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the bottom of the Remote Control Unit (page 25) are set to RS-232C.

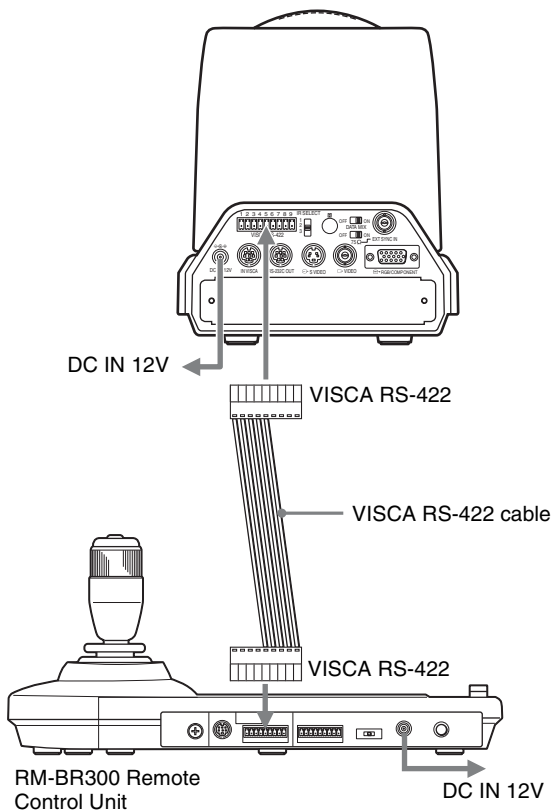
To connect the Remote Control Unit using the VISCA RS-422 connectors

You can use the VISCA RS-422 connectors to connect the RM-BR300 Remote Control Unit to the camera instead of the VISCA RS-232C connectors. Use of the VISCA RS-422 connectors allows the connection up to 1,200 m (3,937 feet) away.

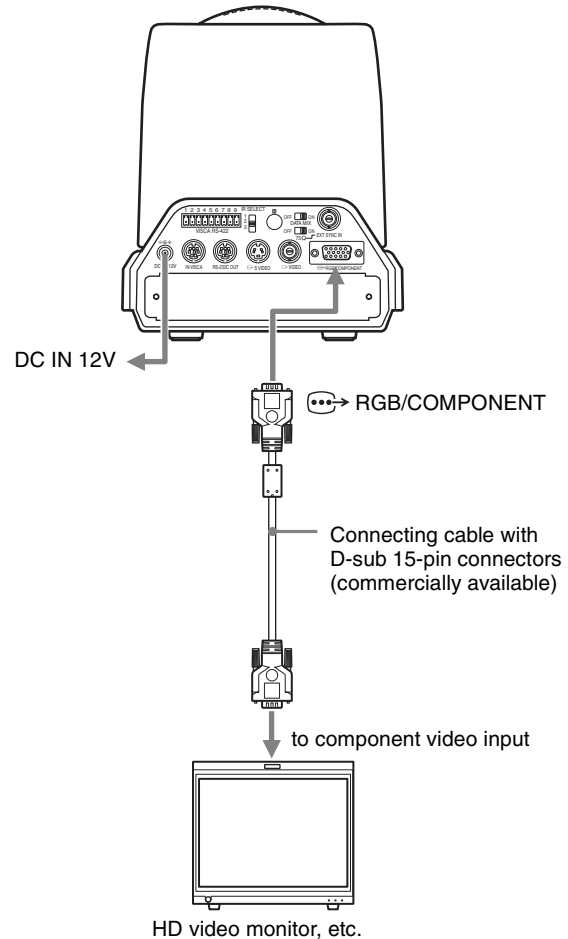
Prepare the connecting cable using the RS-422 connector plugs that come with the camera and the Remote Control Unit.

For making the cable, refer to the pin assignments of the VISCA RS-422 connector (pages 85 and 86) and the wiring diagram of VISCA RS-422 connection (page 88).

For the use of the RS-422 connector plugs, see page 89.



Connecting a Monitor, etc. Equipped with the Analog Component (YPbPr) Input Connector

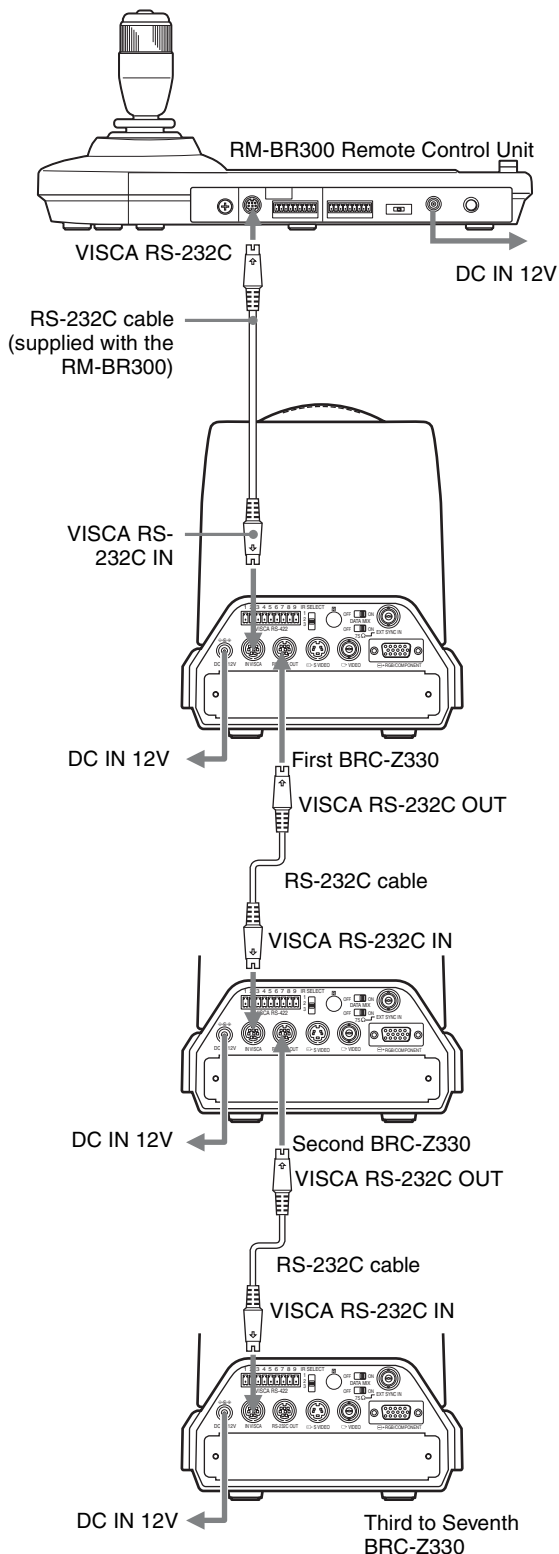


Notes

- When using the VISCA RS-422 connectors, check that the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the bottom of the Remote Control Unit (page 25) are set to RS-422.
- When the connections using the VISCA RS-422 connectors are made, the VISCA RS-232C connection is not available.

Connecting a Device Equipped with VISCA RS-232C Connector

Connections with the VISCA RS-232C cables (cross type) enable control of multiple cameras with a single RM-BR300 Remote Control Unit.



You can connect the camera to a computer equipped with the VISCA RS-232C connector instead of the connection to the RM-BR300 Remote Control Unit.

Note

When using the VISCA RS-232C connectors, check that the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the bottom of the Remote Control Unit (page 25) are set to RS-232C.

Connecting a Device Equipped with VISCA RS-422 Connector

Connection via the VISCA RS-422 connectors enables control of multiple cameras. This allows the connection up to 1,200 m (3,937 feet) away.

Prepare the connecting cable using the RS-422 connector plugs that come with the camera and the Remote Control Unit.

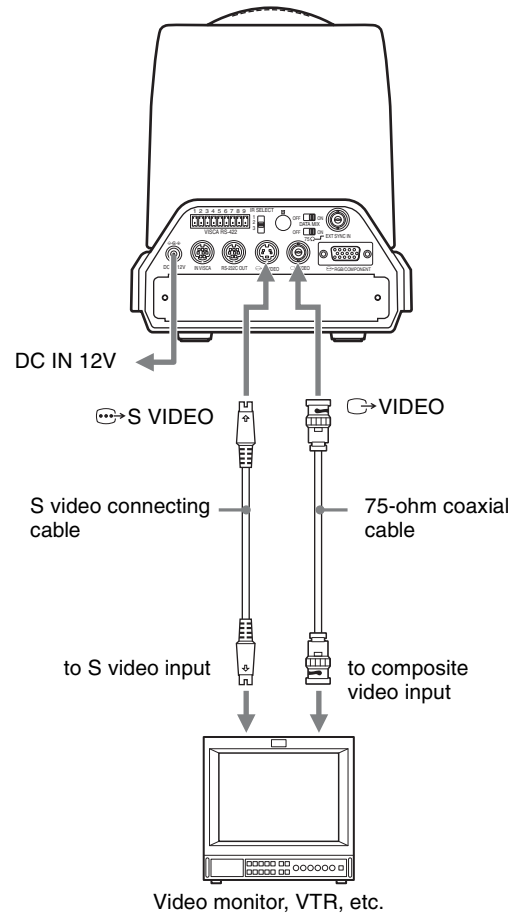
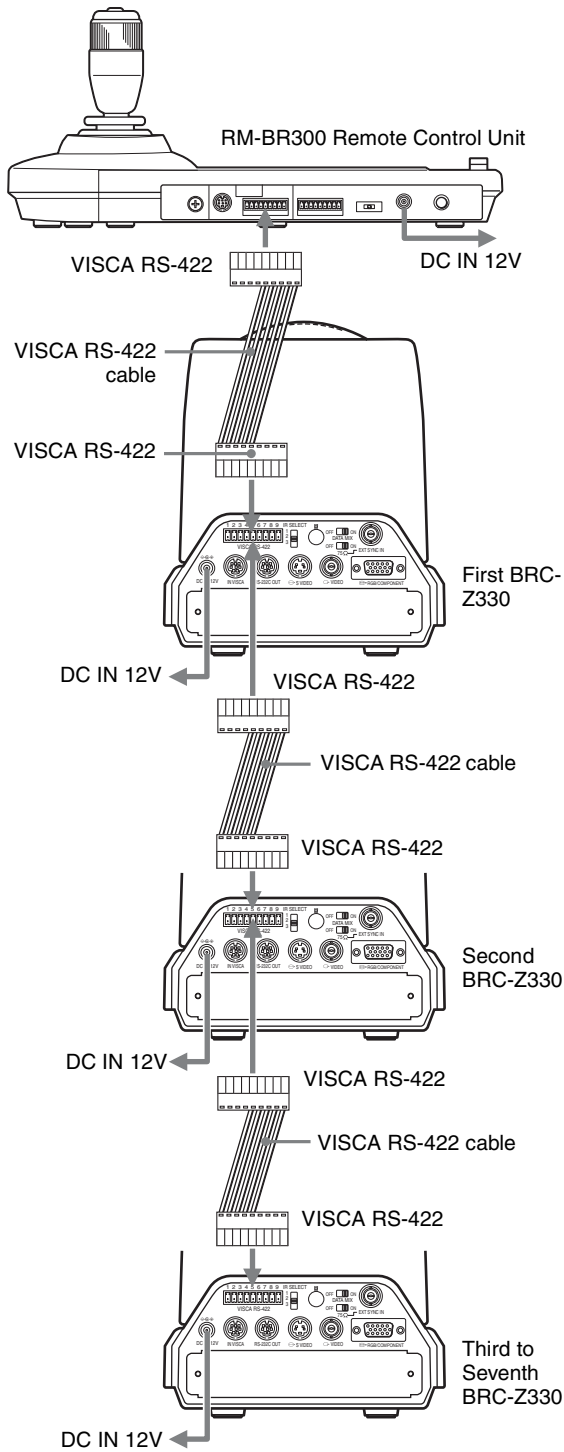
For making the cable, refer to the pin assignments of the VISCA RS-422 connector (pages 85 and 86) and the wiring diagram of VISCA RS-422 connection (page 88).

For the use of the RS-422 connector plugs, see page 89.

Notes

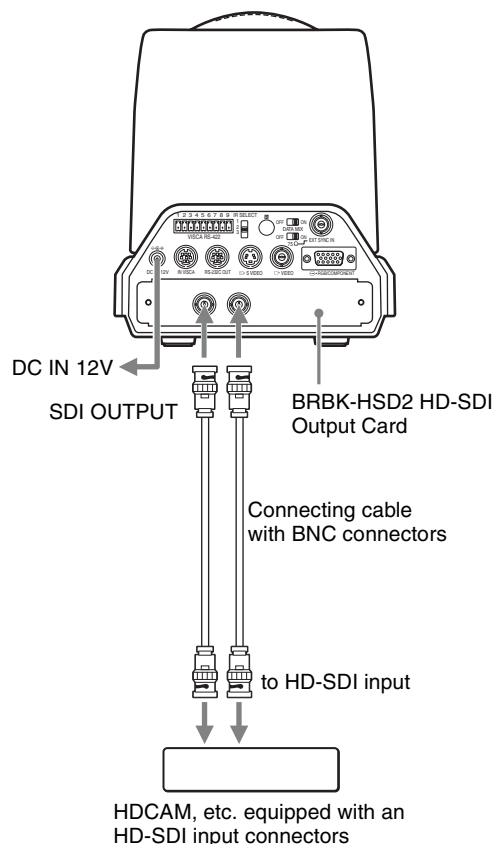
- When using the VISCA RS-422 connectors, check that the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the bottom of the Remote Control Unit (page 25) are set to RS-422.
- When the connections using the VISCA RS-422 connectors are made, the VISCA RS-232C connection is not available.
- Do not make the VISCA RS-422 connection and the VISCA RS-232C connection simultaneously. If both cables are connected simultaneously, the camera may malfunction.

Connecting a Video Monitor, VTR, etc. Equipped with Composite Video or S Video Input Connector



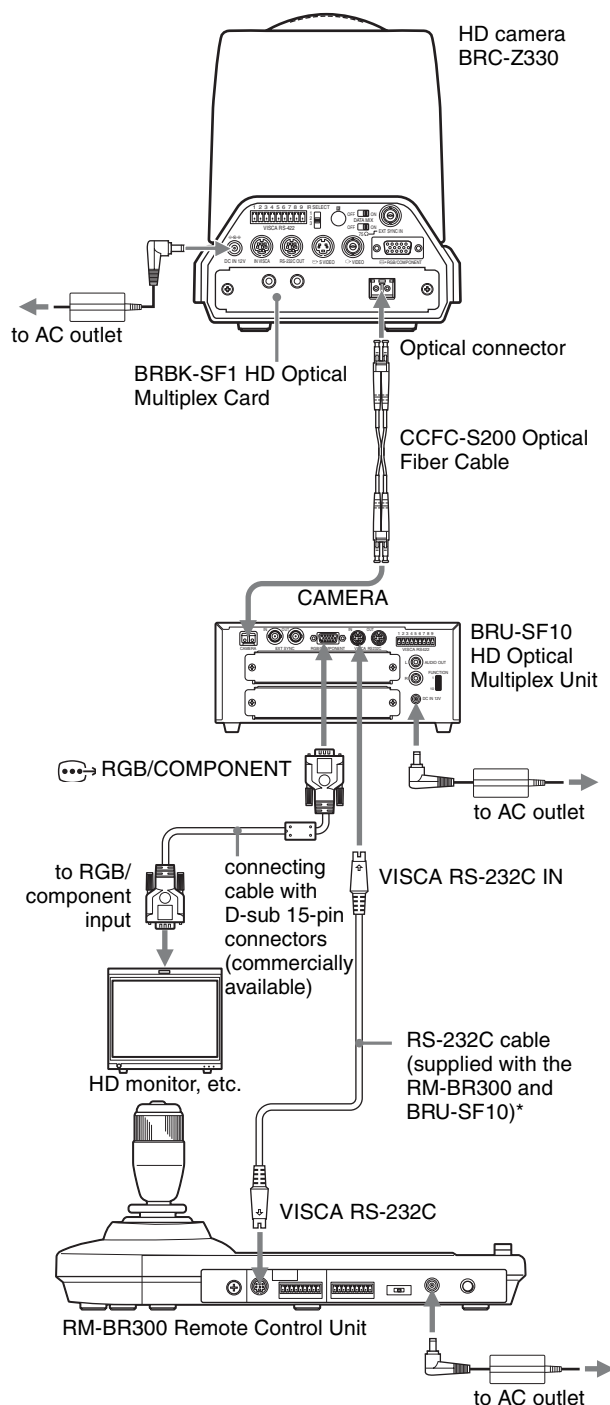
Connecting a VTR Equipped with HD-SDI Input Connectors

Attach the optional BRBK-HD2 HD-SDI Output Card, or BRBK-HSD2 HD/SD-SDI Output Card to the camera, and turn on the camera. You can output the signal from the camera by converting it into a signal compliant with HD-SDI standards (SMPTE292M serial digital interface).



Connecting the BRU-SF10 HD Optical Multiplex Unit

When you install an optional BRBK-SF1 Optical Multiplex Card in the camera, you can connect the camera to the BRU-SF10 Optical Multiplex Unit using the CCFC-S200 Optical Fiber Cable. This allows you to control the camera from up to 2,000 m (6,562 feet) away.



* The VISCA RS-422 connection is also available if you use the VISCA RS-422 connectors.

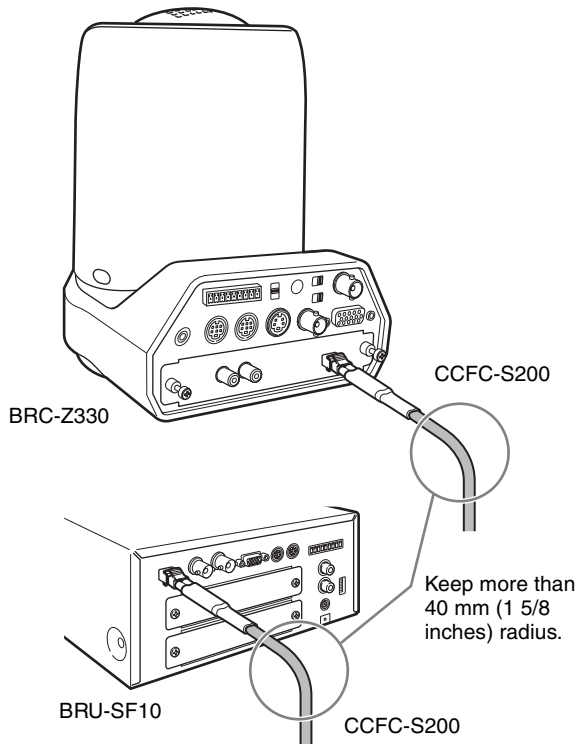
Notes

- When the connection using the Optical Fiber Cable is made, the VISCA RS-232C and VISCA RS-422 connectors on the camera cannot be used.
- When using the VISCA RS-232C connectors or VISCA RS-422 connectors, check the VISCA FUNCTION switch on the rear of the Optical Multiplex Unit (page 26) and the DIP switch on the

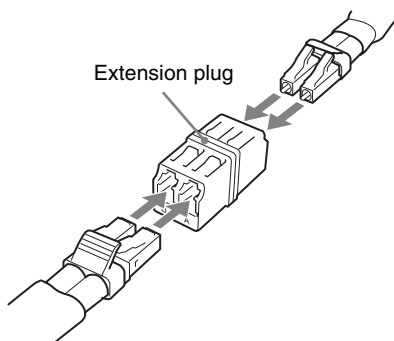
bottom of the Remote Control Unit (page 25) are set to RS-232C or RS-422 correctly.

Notes on use of the CCFC-S200 HD Optical Fiber Cable

- In order to prevent cable transmission loss, fix the bend in the cable keeping more than 40 mm (1 5/8 inches) radius.

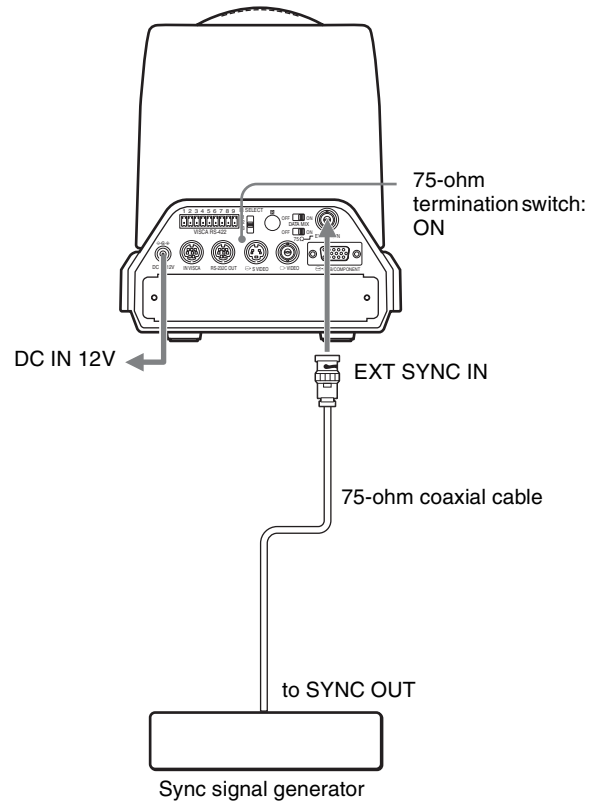


- To connect two Optical Fiber Cables, use the extension plug supplied with the cable.



Connecting a Sync Signal Generator

To connect a single camera



To connect multiple cameras to the HD sync signal generator

You can connect up to seven cameras.

Third to Seventh (last)
BRC-Z330

75-ohm
termination
switch: ON

DC IN 12V

EXT SYNC IN

Second BRC-Z330

75-ohm
termination
switch: OFF

DC IN 12V

EXT SYNC IN

First BRC-Z330

75-ohm
termination
switch: OFF

DC IN 12V

EXT SYNC IN

75-ohm coaxial cable

to SYNC OUT

HD sync signal generator

Commercially available
T-type signal separator

To connect multiple cameras to the SD sync signal generator

You can connect up to seven cameras.

Third to Seventh (last)
BRC-Z330

75-ohm
termination
switch: ON

DC IN 12V

Video monitor, etc.

VIDEO

EXT SYNC IN

to video input

75-ohm
termination
switch: OFF

Second BRC-Z330

DC IN 12V

EXT SYNC IN

75-ohm
termination
switch: OFF

First BRC-Z330

DC IN 12V

EXT SYNC IN

75-ohm coaxial cable

to SYNC OUT

SD sync signal generator

Commercially available
T-type signal separator

List of Messages

The following messages may appear on the screen. Take the necessary measures shown below.

Indicators on the BRC-Z330 camera

Indicator	Meaning/remedies
STANDBY lamp flashes.	The camera stopped moving due to an error in the pan/tilt mechanism. Reset the pan/tilt position or turn off the power of the camera and turn it on again.
The tally lamp flashes.	Turn off the power of the camera, and consult with your Sony dealer.

Messages for the BRC-Z330 camera

Message	Meaning/remedies
Please restart system	You are prompted to restart the power of the camera after you changed the setting of "IMG-FLIP" in the SYSTEM menu. Use the POWER switch on the supplied Remote Commander or the POWER button on the RM-BR300 Remote Control Unit to turn the power off, then on. The changed setting becomes effective.
PRESET xx OK (xx = preset position numbers 01 to 16)	When you store the camera settings into the memory (POSITION 1-16), the message will appear for 2 seconds.
One Push WB...OK (NG)	While the white balance is automatically adjusted, the message will appear. Wait for a while. When the adjustment is complete, it will disappear.
 STOP (The message will flash in FAN MOTOR on PAGE6 in the STATUS menu.)	Turn off the power of the camera, and consult with your Sony dealer.
CAUTION COOLING FAN STOPPED!	Turn off the power of the camera, and consult with your Sony dealer.
*[ENTER]: EXIT	This message appears while you adjust H PHASE in the SYSTEM menu. To exit from the adjustment, press the HOME button on the Remote Commander or the button on the top of the joystick on the Remote Control Unit.
*PUSH ENTER BUTTON	This message appears when you move the cursor to H PHASE in the SYSTEM menu. To start the H PHASE adjustment, press the HOME button on the Remote Commander or the button on the top of the joystick on the Remote Control Unit.

Message	Meaning/remedies
PRESET (xx) OUT OF RANGE (xx = preset position numbers 01 to 16)	This message appears when you preset the camera position when the pan/tilt position of the camera is out of range of the current PAN-TILT LIMIT setting. This camera position presetting will fail to be performed. Perform the presetting again after moving the camera within the range of the PAN-TILT LIMIT setting.

Messages for video outputs from the BRU-SF10 HD Optical Multiplex Unit

Message	Meaning/remedies
Communication error Please check connection	- The AC adaptor is not properly connected to the DC IN 12V connector on the BRC-Z330, or the AC cord may be disconnected from the power outlet. Check that the BRC-Z330 is turned on. - The CCFC-S200 Optical Fiber Cable connecting the BRC-Z330 to the BRU-SF10 is connected improperly, or the optical fiber cable may be damaged. - Image frequency settings for the BRC-Z330 and the BRU-SF10 may be different. For details on settings, see page 20 and 27. After checking the above conditions, restart the BRC-Z330 and BRU-SF10.
Option card error Please check option card	This message appears when an unsupported optional interface card is inserted in the card slot of the BRU-SF10. Remove the card after turning off the BRU-SF10.

Troubleshooting

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

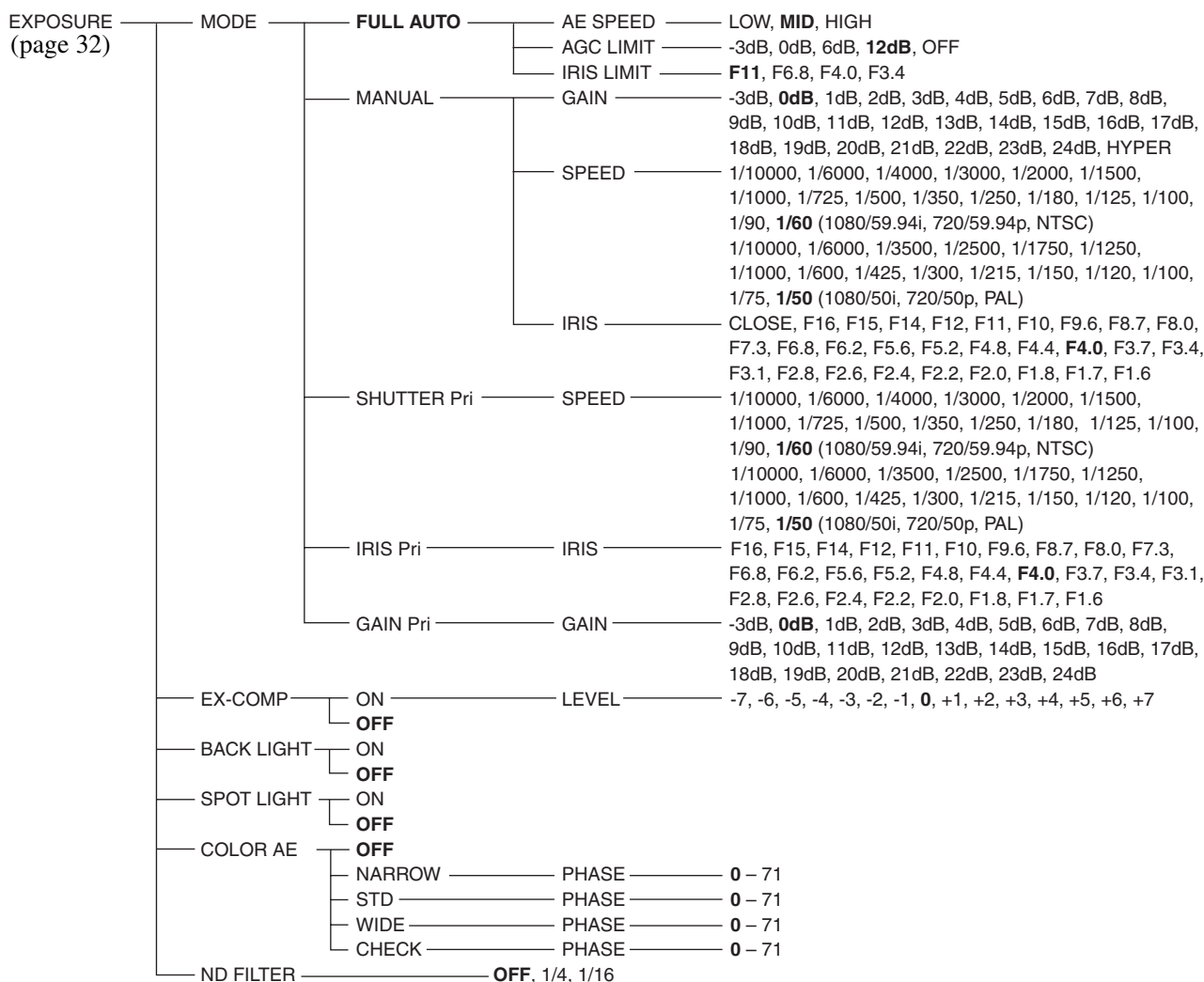
Symptom	Cause	Remedy
The power of the camera is not turned on.	The supplied AC power adaptor is not connected to the DC IN 12V jack firmly.	Insert the power cord firmly as far as it will go.
	The AC power cord is not inserted firmly into the AC power adaptor or the AC outlet.	Insert the power cord firmly as far as it will go.
	The BRBK-SF1 HD Optical Multiplex Card is inserted into the card slot.	Remove the card from the card slot.
	When using the far distance remote control system with the BRBK-SF1 HD Optical Multiplex Card, CCFC-S200 Optical Fiber Cable and BRU-SF10 HD Optical Multiplex Unit, the Optical Fiber Cable is not properly connected or the HD Optical Multiplex Unit is not turned on.	Turn on the HD Optical Multiplex Unit, or plug in the power cord of the unit to an AC outlet firmly.
The camera cannot be turned on with the supplied Remote Commander.	IR-RECEIVE in the SYSTEM menu is set to OFF.	Use the RM-BR300 Remote Control Unit to open the menu and set IR-RECEIVE to ON. (page 37)
	The camera is connected to a BRU-SF10 HD Optical Multiplex Unit.	The camera cannot be turned on/off using the supplied Remote Commander. Instead, use the power switch on the BRU-SF10 or the POWER button on a RM-BR300 connected to the BRU-SF10 to turn on/off the camera.
The picture is not displayed on the video monitor connected to the camera.	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.	Set the exposure correctly in the EXPOSURE menu.
Pan, tilt or zoom cannot be operated.	Any menu is displayed on the monitor screen.	Press the DATA SCREEN button on the supplied Remote Commander or the MENU button on the RM-BR300 Remote Control Unit to turn off the menu from the monitor screen.
	The panning or tilting range is limited.	Change the PAN-TILT LIMIT setting in the PAN TILT ZOOM menu (page 36).
The Remote Commander does not work.	The CAMERA SELECT button you pressed on the Remote Commander does not match the number set with the IR SELECT switch on the camera.	Press the CAMERA SELECT button corresponding to the IR SELECT switch setting on the camera (page 44).

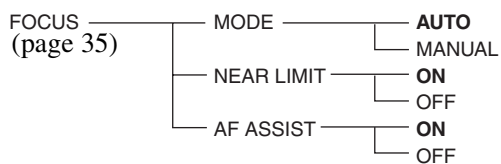
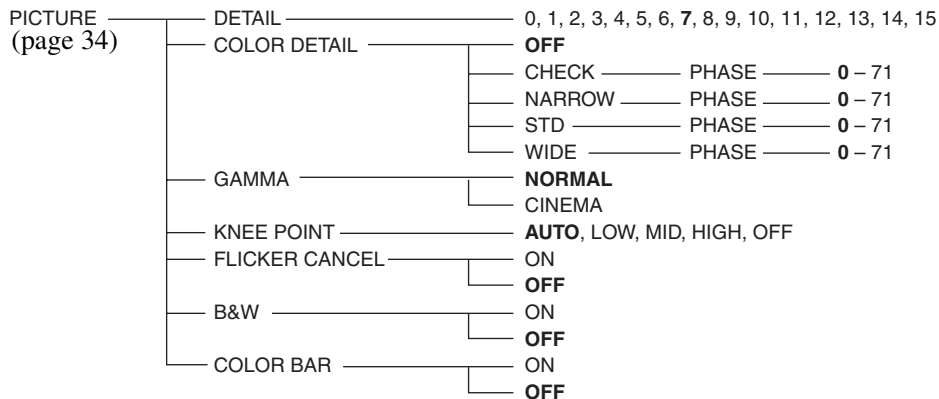
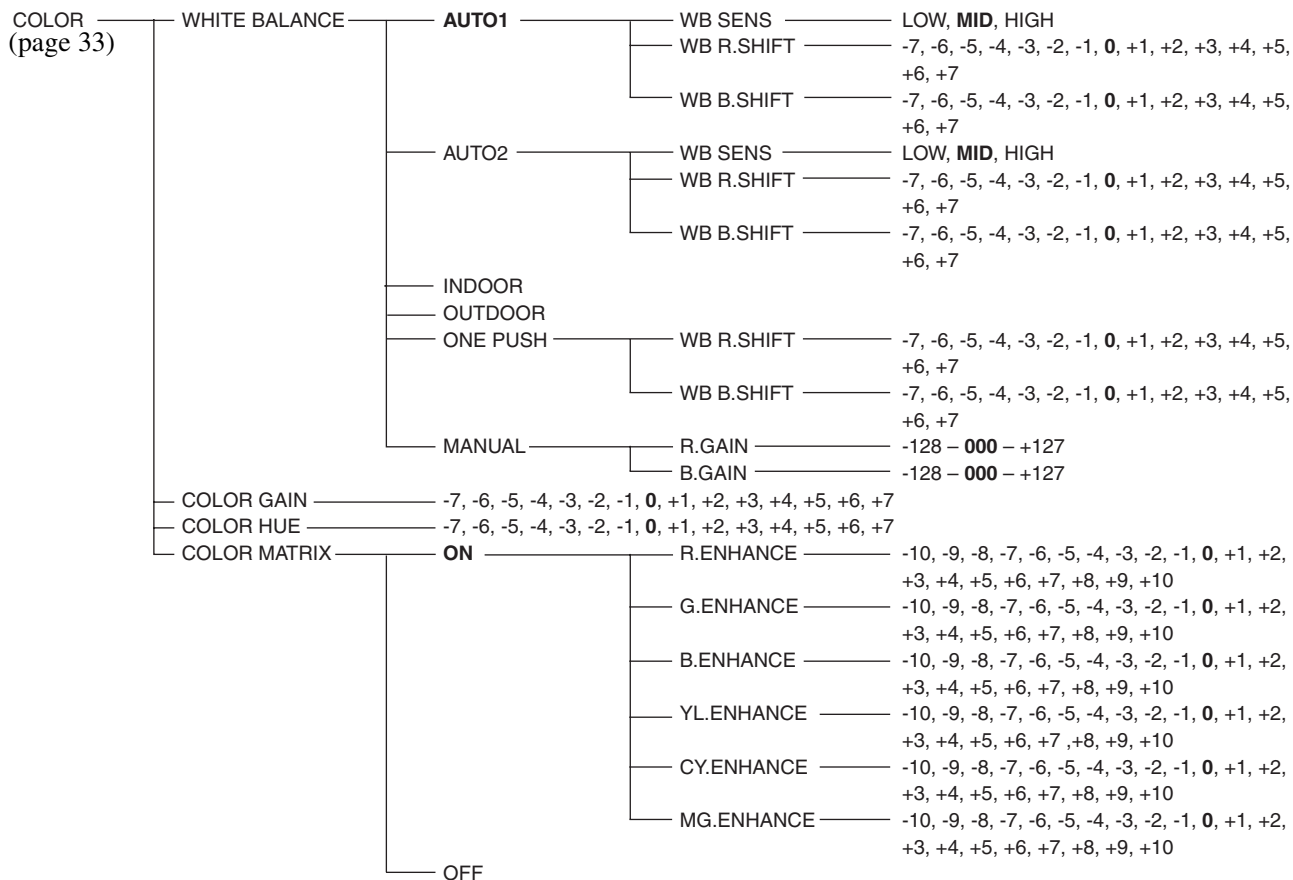
Symptom	Cause	Remedy
The camera cannot be operated with the RM-BR300 Remote Control Unit.	The connection using the VISCA RS-422 connectors is not correctly made.	Check that the connection to the VISCA RS-422 connectors is correctly made, and the RS-422 cable is properly connected.
	The BOTTOM switch on the bottom of the camera is set to any other address than “0 (AUTO).”	Identify the address of the camera (page 20), then set the MODE selector on the rear of the Remote Control Unit to the same address (page 24).
	VISCA control setting is not correct.	Select the proper setting (RS-232C or RS-422) with the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the Remote Control Unit (page 25).
	The communication baud rate setting of the camera and the RM-BR300 differ.	Select the same communication baud rate (9600 bps or 38,400 bps) with the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the Remote Control Unit (page 25).
	The NC (No Connection) switch is set to ON.	Set camera address selector switch 9, 10 of the BOTTOM switches on the bottom of the camera to OFF (page 20).
The VISCA control is not available with a computer 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.
		Check that the VISCA control setting (RS-232C or RS-422) and the baud rate setting (9600 bps or 38,400 bps) are properly made with the BOTTOM switch on the bottom of the camera (page 20) and the DIP switch on the Remote Control Unit (page 25).
		Try to connect the camera to the RM-BR300 Remote Control Unit to check that the camera works properly.
The picture quality obtained from the camera connected to a computer differs from that from the camera connected to a video monitor.	Depending on your computer or video capture board, you may not be able to obtain the expected picture quality.	Consult with your computer manufacturer or dealer for details.
The camera cannot be operated at all.	—	Pull out the plug of the power cord from the AC outlet, then reinsert it into the AC outlet after a while.

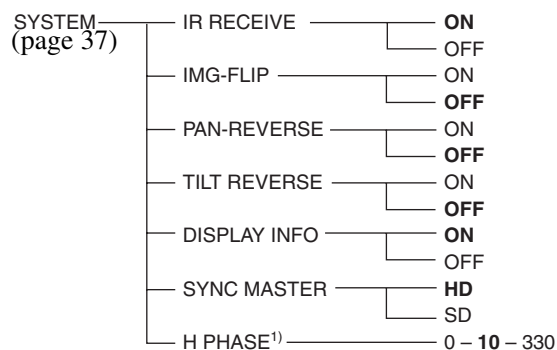
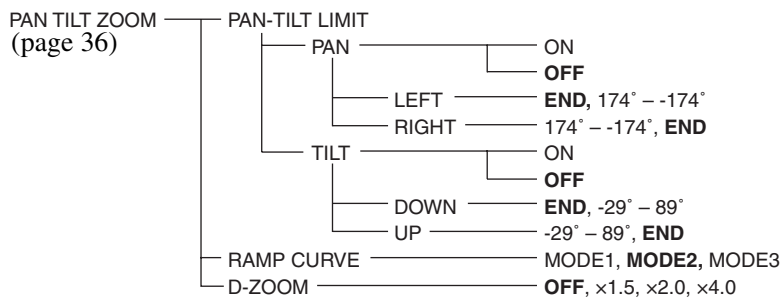
Menu Configuration

The menus of the camera are configured as described below.

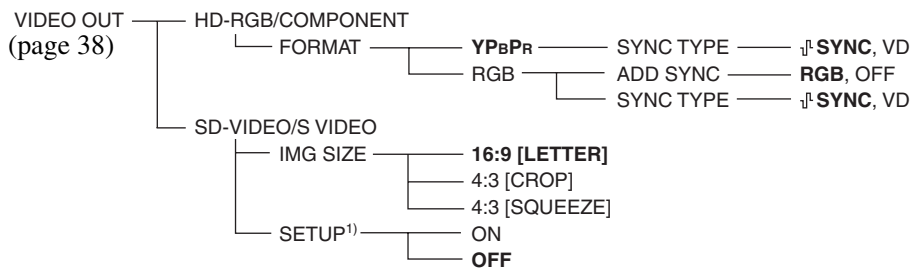
The initial settings of each item are in **bold**.



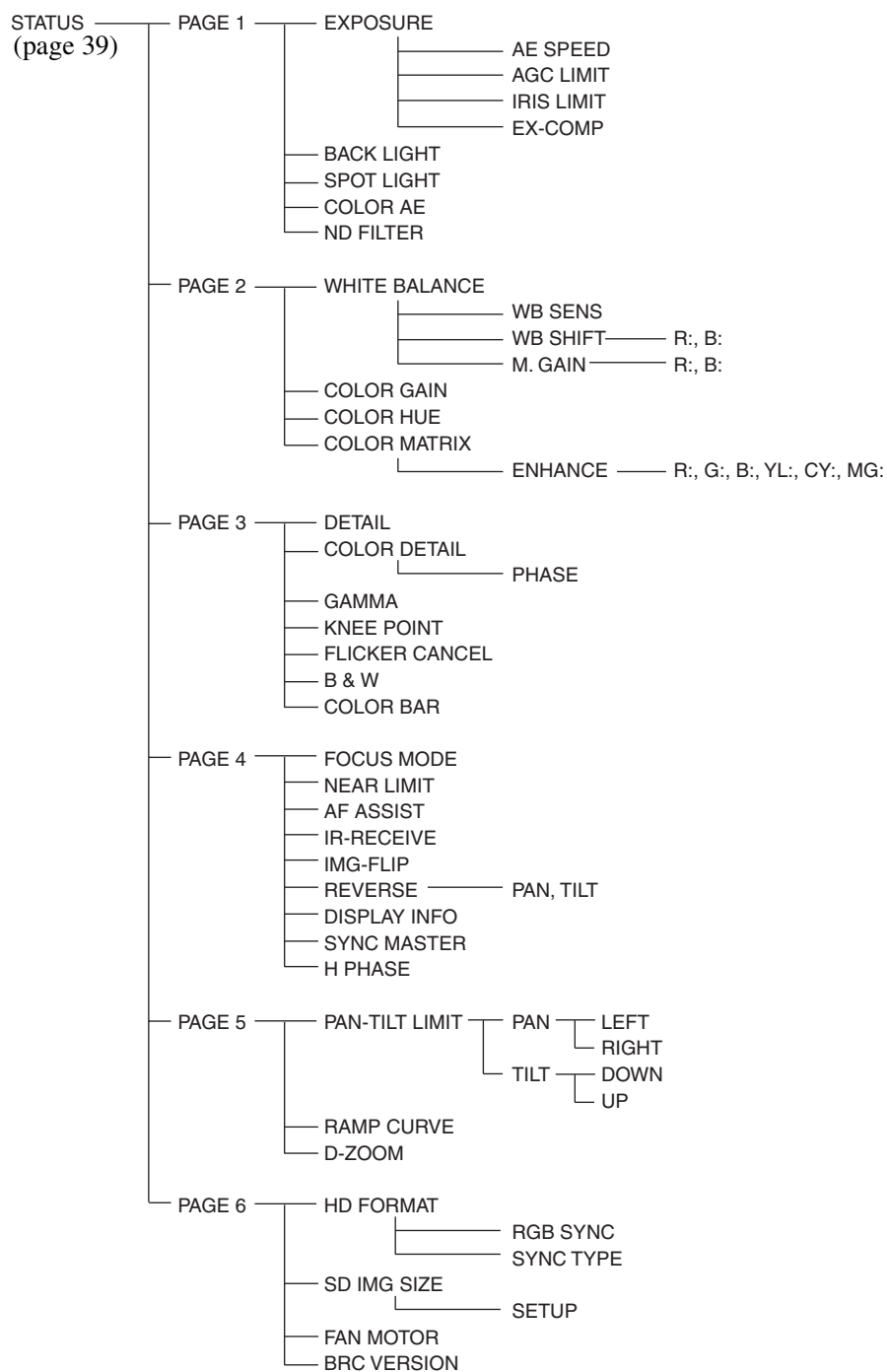




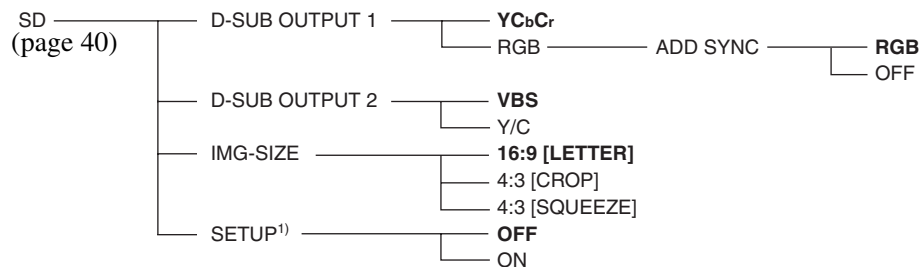
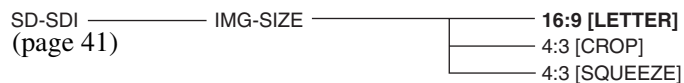
¹⁾ Does not appear when a BRU-SF10 HD Optical Multiplex Unit is in use.



¹⁾ Does not appear when an output signal is 1080/50i or 720/50p format.



Menus when an Interface Card is inserted



¹⁾ Does not appear when an output signal is 1080/50i, or 720/50p format.

Presetting Items

The following setting items can be stored in the memory of the camera.

General presetting items

Presetting item	Presetting position number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pan/tilt position	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Zoom position	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Focus position	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Presetting menu items

Menu item	Presetting position number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
EXPOSURE MODE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
AE SPEED	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
AGC LIMIT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
IRIS LIMIT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MANUAL GAIN	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MANUAL SHUTTER	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MANUAL IRIS	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
IRIS Pri VAL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SHUTTER Pri VAL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GAIN Pri VAL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
EX-COMP MODE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
EX-COMP VAL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
BACK LIGHT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SPOT LIGHT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR AE ¹⁾	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
PHASE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
ND FILTER	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WHITE BALANCE MODE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WB SENS	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WB R.SHIFT (AUTO)	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WB B.SHIFT (AUTO)	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WB R.SHIFT (ONE PUSH)	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
WB B.SHIFT (ONE PUSH)	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MANUAL R.GAIN	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MANUAL B.GAIN	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR GAIN	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR HUE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR MATRIX	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
R.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
G.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
B.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
YL.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Menu item	Presetting position number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CY.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
MG.ENHANCE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DETAIL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR DETAIL ¹⁾	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
PHASE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
GAMMA	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
KNEE POINT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
FLICKER CANCEL	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
B&W	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
COLOR BAR	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
FOCUS MODE	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
NEAR LIMIT	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
AF ASSIST	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
PAN LIMIT MODE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TILT LIMIT MODE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PAN LIMIT AREA	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TILT LIMIT AREA	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RAMP CURVE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
D-ZOOM	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
IR-RECEIVE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
IMG-FLIP ²⁾	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PAN REVERSE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TILT REVERSE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DISPLAY INFO	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SYNC MASTER	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
H PHASE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
FORMAT (HD OUTPUT)	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADD SYNC	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SYNC TYPE	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
IMG SIZE (SD OUTPUT)	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SETUP (not available for 1080/50i, 720/50p output signal)	△	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

¹⁾ When CHECK is selected with COLOR AE and COLOR DETAIL, the setting is stored as STD.

²⁾ The current setting of IMG-FLIP is recalled regardless of presetting operations.

● : Setting items retained in memory when the power is turned off and on again. The camera starts with these settings.

○ : Setting items retained in memory when the power is turned off and on again.

△ : Setting items retained in memory only when the power is turned on.

– : Setting items cleared from the memory when the power is turned off and on.

Presetting menu items while the Interface Board is inserted into BRU-SF10 connected with the camera

Menu item	Presetting position number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Menu items displayed only when the HFBK-SA1 is installed																
D-SUB OUTPUT 1	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ADD SYNC	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
D-SUB OUTPUT 2	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
IMG SIZE	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SETUP (not available for 50i output signal)	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Menu items displayed only when the HFBK-HSD2 is installed																
IMG SIZE ¹⁾	Δ	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

¹⁾ When installed in the BRC-Z330 and in use, the IMG SIZE setting is linked with the VIDEO OUT setting.

When two BRBK-SA1 cards are installed in the BRU-SF10, or when a BRBK-SA1 and BRBK-HSD2 are used as SD-SDI, the IMG SIZE settings for both option cards are linked. When two BRBK-HSD2 cards are installed in the BRU-SF10, or when a BRBK-SA1 and BRBK-HSD2 are used as SD-SDI, the IMG SIZE settings for both option cards are linked.

● : Setting items retained in memory when the power is turned off and on again. The camera starts with these settings.

○ : Setting items retained in memory when the power is turned off and on again.

Δ : Setting items retained in memory only when the power is turned on.

– : Setting items cleared from the memory when the power is turned off and on.

Specifications

System

Video signal	1080/59.94i, 1080/50i 720/59.94p, 720/50p (switched with the BOTTOM switch)
Synchronization	Internal/external synchronization, automatically switched
Image device	1/3 type (6 mm), CMOS pickup element Total picture elements: Approx. 2,250,000 pixels Effective picture elements: Approx. 2,160,000 pixels
Lens	18× (optical), 4× (digital) f = 4.6 to 82.8 mm, F1.6 to F2.2 f = 36.2 to 651.0 mm (equivalent to the focal length of a 35-mm camera)
Minimum object distance	100 mm (4 inches) (WIDE end: LIMIT OFF) / 500 mm (19 ³ / ₄ inches) (WIDE end: LIMIT OFF) / 1500 mm (59 ¹ / ₈ inches) (TELE end)
Minimum illumination	6 lux (F1.6) with 50 IRE (WIDE end)
Shutter speed	1/59.94 (1/50) to 1/10,000 sec.
Video S/N	50 dB (component Y signal output)
Pan/tilt action	Horizontal: ±175 degrees Maximum panning speed: 60 degrees/sec. Minimum panning speed: 0.25 degrees/sec. Vertical: +90 degrees, -30 degrees Maximum tilting speed: 60 degrees/sec. Minimum tilting speed: 0.25 degrees/sec.

Input/output connectors

Video output	RGB/COMPONENT (D-sub 15-pin) RGB: 0.7 Vp-p (no sync, at 75-ohm termination) 1 Vp-p (±0.3 V, tri-level sync, at 75-ohm termination) Component : Y: 1 Vp-p (±0.3 V, tri-level sync, at 75-ohm termination) Pb/Pr: ±350 mVp-p, 75-ohm terminated HD/VD Sync: 1 Vp-p, 75-ohm terminated Tri-level Sync: ±300 mVp-p, 75-ohm terminated
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VIDEO (BNC type)
Composite: 1 Vp-p (sync negative, at 75-ohm termination)
S VIDEO (mini DIN 4-pin)
S video output:
Y: 1 Vp-p (sync negative, at 75-ohm termination)
C: Same as chroma level of composite signal (at 75-ohm termination)

External sync input	EXT SYNC IN: BNC type
Control input/output	VISCA RS-232C IN: Mini DIN 8-pin type VISCA RS-232C OUT: Mini DIN 8-pin type VISCA RS-422: 9-pin type
Control signal format	9600 bps/38400 bps Data: 8 bit Stop bit: 1
Power connector	JEITA type4 (DC IN 12V)

General

Input voltage	12 V DC (10.8 V to 13.2 V DC)
Current consumption	1.5 A max. (at 12 V DC), 18 W without optional Output Card
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions	Video camera: Approx. 160.8 × 186 × 193.4 mm (6 ³ / ₈ × 7 ³ / ₈ × 7 ⁵ / ₈ inches) (w/h/d) (excluding protruding parts) Remote Commander: Approx. 56 × 26 × 210 mm (2 ¹ / ₄ × 1 ¹ / ₁₆ × 8 ³ / ₈ inches) (w/h/d)
Mass	Video camera: Approx. 1.9 kg (4 lb 4 oz) Remote Commander: 110 g (3.9 oz)
Installation angle	Less than ±15 degrees to the horizontal surface

Supplied accessories

AC power adaptor MPA-AC1 (100 to 240 V AC, 50/60 Hz) (1)
AC power cord (1)
Remote Commander (1)
Ceiling bracket (A) (1)
Ceiling bracket (B) (1)
Wire rope (1)

Screws ($\oplus$ M3 $\times$ 8) (7)
Screw ($\oplus$ M4 $\times$ 8) (1)
RS-422 connector plug (1)
Operating Instructions (1)
Operation Guide for Optional IP Control (1)

Design and specifications are subject to change without notice.

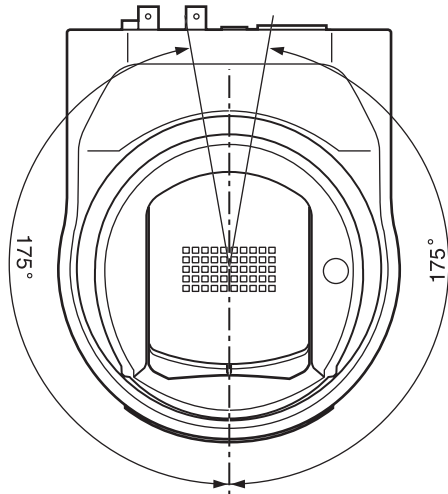
Note

Always verify that the unit is operating properly before use.
SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

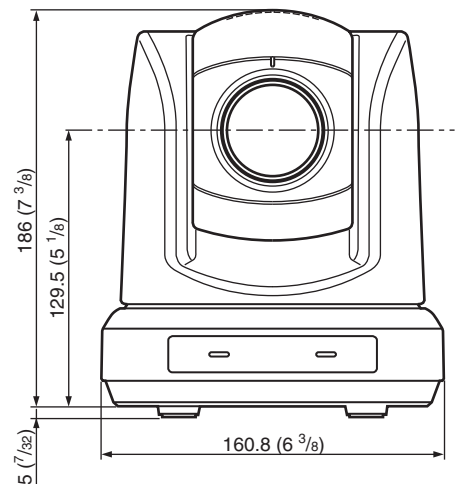
Dimensions

BRC-Z330 Video Camera

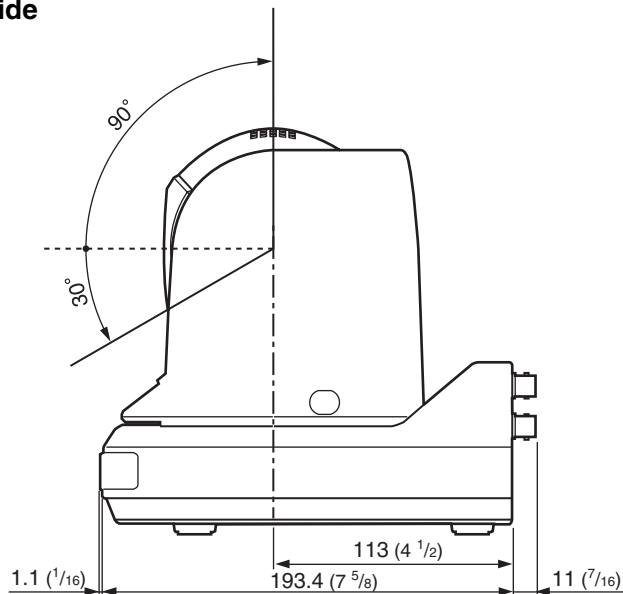
Top



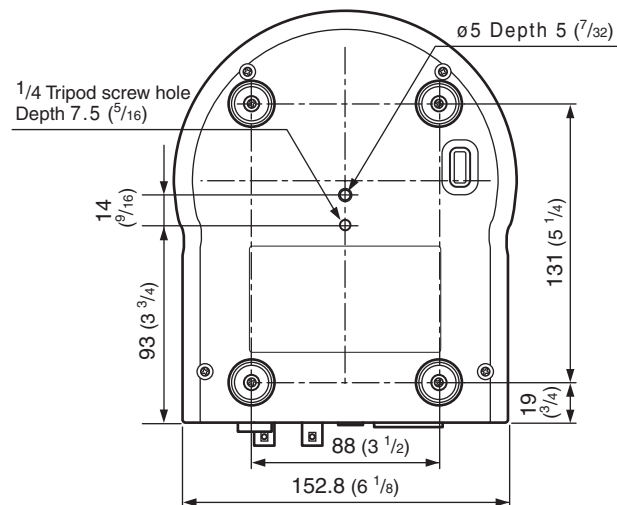
Front



Side

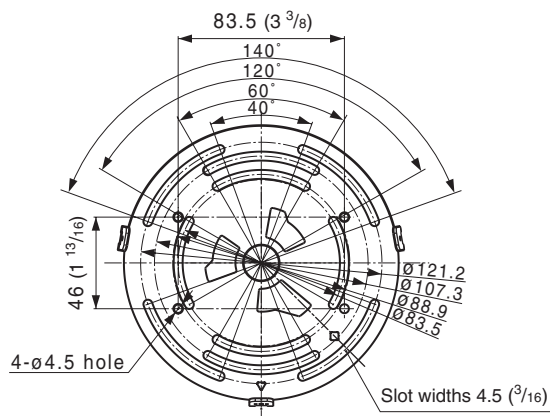


Bottom



Ceiling Bracket (B)

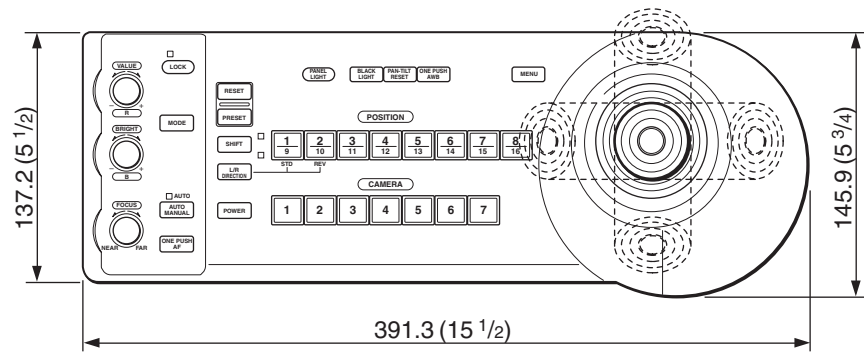
Top



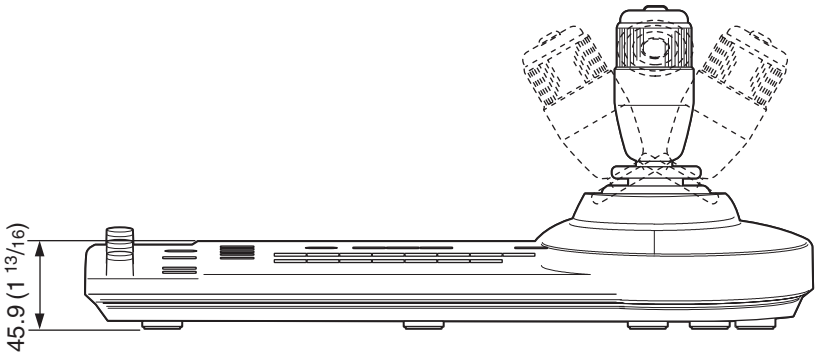
Unit: mm (inches)

RM-BR300 Remote Control Unit

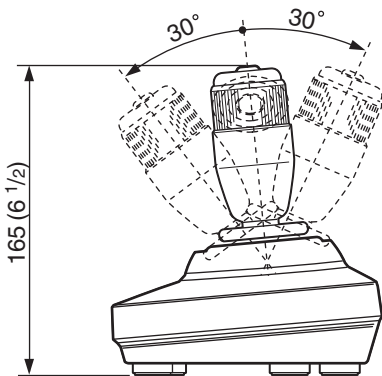
Top



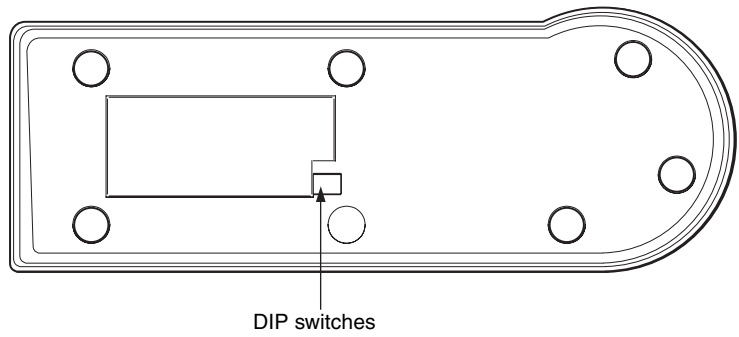
Front



Side



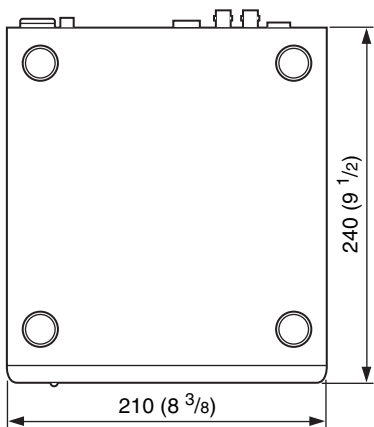
Bottom



Unit: mm (inches)

BRU-SF10 HD Optical Multiplex Unit

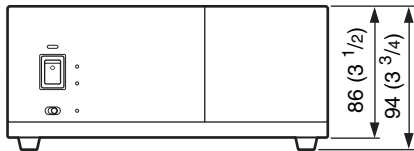
Top



Side



Front

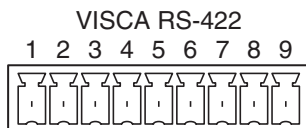


Unit: mm (inches)

Pin Assignments

BRC-Z330 Video Camera

VISCA RS-422 connector (connector plug 9-pin)



Pin No.	Function
1	RXD OUT –
2	RXD OUT+
3	TXD OUT –
4	TXD OUT+
5	GND
6	RXD IN –
7	RXD IN+
8	TXD IN –
9	TXD IN+

VISCA RS-232C IN connector (mini-DIN 8-pin, female)

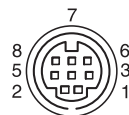


IN VISCA RS-232C

Pin No.	Function
1	DTR IN
2	DSR IN
3	TXD IN
4	GND
5	RXD IN
6	GND
7	SIRCS OUT *
8	No Connection

* The SIRCS OUT function is selectable with the BOTTOM switch on the bottom of the camera.

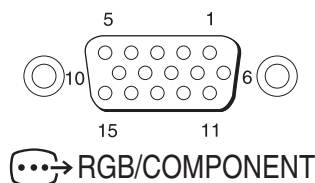
VISCA RS-232C OUT connector (mini DIN 8-pin, female)



VISCA RS-232C OUT

Pin No.	Function
1	DTR OUT
2	DSR OUT
3	TXD OUT
4	GND
5	RXD OUT
6	GND
7	No Connection
8	No Connection

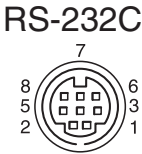
Analog RGB/COMPONENT (D-sub 15-pin)



Pin No.	Function			
	At YPbPr COMPONENT setting	At YPbPr COMPONENT setting (at VD)	At RGB setting (at $\square$ SYNC)	At RGB setting (at VD)
1	Pr-OUT	Pr-OUT	R-OUT	R-OUT
2	Y-OUT	Y-OUT	G-OUT	G-OUT
3	Pb-OUT	Pb-OUT	B-OUT	B-OUT
4	GND	GND	GND	GND
5	GND	GND	GND	GND
6	GND	GND	GND	GND
7	GND	GND	GND	GND
8	GND	GND	GND	GND
9	NC	NC	NC	NC
10	GND	GND	GND	GND
11	GND	GND	GND	GND
12	NC	NC	NC	NC
13	HD-OUT	HD-OUT	HD-OUT	HD-OUT
14	Tri-level SYNC-OUT	Bi-level VD-OUT	Tri-level SYNC-OUT	Bi-level VD-OUT
15	NC	NC	NC	NC

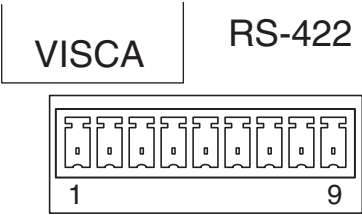
**RM-BR300 Remote Control Unit
(optional)**

VISCA RS-232C output connector (mini DIN 8-pin, female)



Pin No.	Function
1	No Connection
2	No Connection
3	TXD IN
4	GND
5	RXD IN
6	GND
7	No Connection
8	No Connection

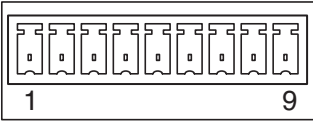
VISCA RS-422 connector (connector plug, 9-pin)



Pin No.	Function
1	No Connection
2	No Connection
3	No Connection
4	No Connection
5	GND
6	RXD IN –
7	RXD IN+
8	TXD IN –
9	TXD IN+

TALLY/CONTACT connector (connector plug, 9-pin)

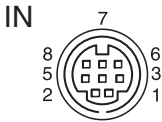
TALLY/CONTACT



Pin No.	Function
1	CAMERA1
2	CAMERA2
3	CAMERA3
4	CAMERA4
5	CAMERA5
6	CAMERA6
7	CAMERA7
8	GND
9	GND

**BRU-SF10 HD Optical Multiplex Unit
(optional)**

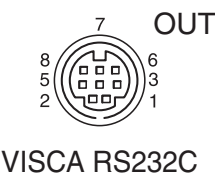
VISCA RS-232C IN connector (mini DIN 8-pin, female)



VISCA RS232C

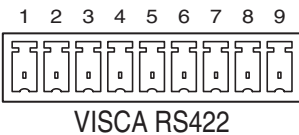
Pin No.	Function
1	DTR IN
2	DSR IN
3	TXD IN
4	GND
5	RXD IN
6	GND
7	No Connection
8	No Connection

VISCA RS-232C OUT connector (mini DIN 8-pin, female)



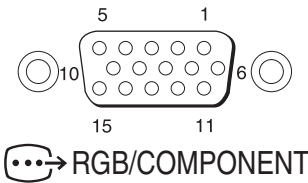
Pin No.	Function
1	DTR OUT
2	DSR OUT
3	TXD OUT
4	GND
5	RXD OUT
6	GND
7	No Connection
8	No Connection

VISCA RS-422 connector (connector plug, 9-pin)



Pin No.	Function
1	RXD OUT –
2	RXD OUT+
3	TXD OUT –
4	TXD OUT+
5	GND
6	RXD IN –
7	RXD IN+
8	TXD IN –
9	TXD IN+

Analog RGB/COMPONENT (D-sub 15-pin)



Pin No.	Function			
	At YPbPr COMPONENT setting	At YPbPr COMPONENT setting (at VD)	At RGB setting (at 1/2 SYNC)	At RGB setting (at VD)
1	Pr-OUT	Pr-OUT	R-OUT	R-OUT
2	Y-OUT	Y-OUT	G-OUT	G-OUT
3	Pb-OUT	Pb-OUT	B-OUT	B-OUT
4	GND	GND	GND	GND
5	GND	GND	GND	GND
6	GND	GND	GND	GND
7	GND	GND	GND	GND
8	GND	GND	GND	GND
9	NC	NC	NC	NC
10	GND	GND	GND	GND
11	GND	GND	GND	GND
12	NC	NC	NC	NC
13	HD-OUT	HD-OUT	HD-OUT	HD-OUT
14	Tri-level SYNC-OUT	Bi-level VD-OUT	Tri-level SYNC-OUT	Bi-level VD-OUT
15	NC	NC	NC	NC

Wiring Diagram of VISCA RS-422 Connection

Third to Seventh BRC-Z330, or BRU-SF10

VISCA RS-422 connector

1	RXD OUT –
2	RXD OUT +
3	TXD OUT –
4	TXD OUT +
5	GND
6	RXD IN –
7	RXD IN +
8	TXD IN –
9	TXD IN +

Second BRC-Z330, or BRU-SF10

VISCA RS-422 connector

1	RXD OUT –
2	RXD OUT +
3	TXD OUT –
4	TXD OUT +
5	GND
6	RXD IN –
7	RXD IN +
8	TXD IN –
9	TXD IN +

First BRC-Z330 camera, or BRU-SF10

VISCA RS-422 connector

1	RXD OUT –
2	RXD OUT +
3	TXD OUT –
4	TXD OUT +
5	GND
6	RXD IN –
7	RXD IN +
8	TXD IN –
9	TXD IN +

RM-BR300 Remote Control Unit

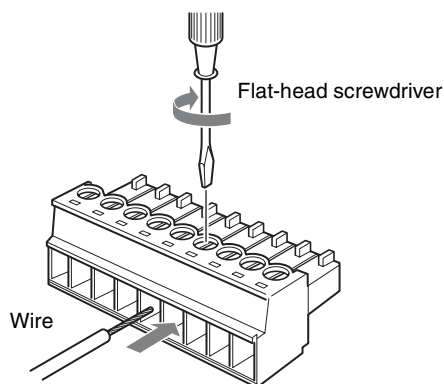
VISCA RS-422 connector

1	NC
2	NC
3	NC
4	NC
5	GND
6	RXD IN –
7	RXD IN +
8	TXD IN –
9	TXD IN +

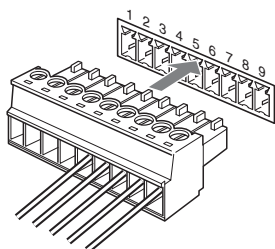
NC = No Connection

Using the VISCA RS-422 Connector Plug

- 1 Insert a wire (AWG Nos. 28 to 18) into the desired wire opening on the VISCA RS-422 connector plug, and tighten the screw for that wire using a flat-head screwdriver.

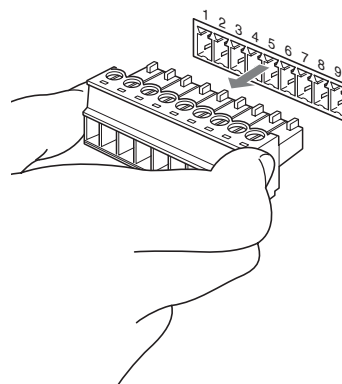


- 2 Insert the VISCA RS-422 connector plug into the VISCA RS-422 connector.



To remove the connector plug

Grasp both ends of the VISCA RS-422 connector plug and pull it out as shown in the illustration.



Notes

- In order to stabilize the voltage level of the signal, connect both ends to GND.
- When the connections using the VISCA RS-422 connectors are made, the VISCA RS-232C connection is not available.
- The maximum connection distance with the VISCA RS-422 connection is approximately 1,200 m (3,937 feet).