HD Color Video Camera

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

SRG-360SHE
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Overview

Features

• Supports simultaneous IP image output and HDMI/SDI output.
• Stereo audio (2ch), which is applicable for microphone/line input. Transfers input audio signal to IP/HDMI/SDI simultaneously.
• The 1/2.8 type Exmor CMOS delivers high-definition shooting with superior picture quality.
• Adopts wide and dynamic range functions. Creates images achieving high visibility, even when bright and dark subjects are incorporated.
• Noise Reduction function delivers clearer images even in low light environment.
• H.264 High Profile video compression mode (video codec) achieves high compression rate while keeping the image quality. Lessens the network bandwidth load required for image transferring.
• Supports multi-streaming of IP transfer. Up to 3 codec modes can be selected.
• Equipped with smooth, wide-range pan/tilt function and Eflip function. You can install the camera on ceilings.
• Equipped with 30x optical magnification and F1.6 high power and luminous zoom lens that achieves high-quality image.
• Up to 256 camera positions can be preset.
• Equipped with RS-422 interface, industry standard VISCA camera protocol with external connection.
• Capable of PTZ interlocking and recording and replaying the track.
• Pan, Tilt, Zoom, and other camera settings can be set on the menu display.
• Power can be supplied from the AC power adaptor as well as via the network cable (PoE+), making installing easier.

* When power is supplied by PoE+, the available functions will be limited. For details, refer to “Connecting to the PoE+ (Power over Ethernet plus) power supply system” on page 20.

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How to Use This Operating Instructions

This Operating Instruction manual describes how to operate the HD Color Video Camera using the infrared remote commander in the package, a PC via a network, or an optional remote controller. The Operating Instructions is designed to be read on the computer display. This section gives tips on making the most of the Operating Instructions. Read it before you operate the camera.

Jumping to a related page
When you read the Operating Instructions on the computer display, you can click on a sentence to jump to a related page.

Software display examples
Note that the displays shown in the Operating Instructions are explanatory examples. Some displays may be different from the ones that appear in actual use. The illustrations of the camera and menu display in the Operating Instructions show the SRG-360SHE as an example.

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

Remote Controller
You can operate and set the camera by using the IP Remote Controller (RM-IP10) (optional accessory). The IP Remote Controller is described simply as “Remote Controller” in this manual.

Camera and Supplied Accessories

When you unpack, check that all the supplied accessories are included.

Camera (1)

AC power adaptor (MPA-AC1) (1)

AC power cord (1)

Infrared remote commander (RM-EV100) (1)

Ceiling bracket (A) (1)
Ceiling bracket (B) (1)

Wire rope (1)

Screw +M3 × 8 (9)
Screw +M2.6 × 6 black (1)

HDMI cable fixing plate (1)

Optional Products
RM-IP10 IP Remote Controller

Operate up to 112 cameras that are compatible with an IP connection. Up to five RM-IP10 IP remote controllers can be installed to the same system. The joystick of the IP remote controller offers comfortable pan/tilt and zoom operations. Up to seven cameras can be operated via the RS-232 connection or RS-422 connection. However, for SRG-360SHE, only one camera can be operated via the RS-422 connection.

Operating Instructions - Download site Information (1)
Safety Regulations (1)
Warranty (1)
Location and Functions of Parts and Controls

Camera

Front

1 Lens
This is a 30-magnification optical zoom lens.

2 Infrared remote commander sensors
These are sensors for the supplied infrared remote commander.

3 POWER lamp
The green light turns on when the camera is connected to an AC outlet using the supplied AC power adaptor and AC power cable, or when power is supplied via the LAN connector with PoE+.

4 NETWORK lamp
The green light will turn on when the preparation for network connection is done and all movements are available.

5 TALLY lamp
The status of video shooting can be indicated by the lamp.

Rear

6 BAUD RATE switch
Used to switch between 9,600bps and 38,400bps for the RS-422 baud rate.

7 MIC input
Input for commercially-available MIC or LINE to connect an Audio device.
* Switch between MIC and LINE input, as indicated on page 22.

8 Infrared remote commander sensors
These are sensors for the supplied infrared remote commander.

9 VISCA RS-422 connector (RJ-45 8-pin)
To communicate via RS-422, use this connector. For the connecting cables, see “RS-422 connection with IP remote controller RM-IP10” (page 20).

10 IR SELECT switch
Select the camera number when you operate multiple cameras with the same infrared remote commander.

11 SYSTEM SELECT switch
Used to set method to output image signal, which is output via HDMI and SDI OUT video connector. For details, see “Setting of the SYSTEM SELECT switch” (page 9).

12 USB connector
This is not available to use. It is for maintenance purposes.

13 HDMI OUT video connector
Outputs the image from the camera as an HDMI video signal.
14 Screw hole for HDMI cable fixing plate
Mount the supplied “HDMI cable fixing plate”.

15 SDI OUT connector
Outputs video from this product as an HD SDI (3G-HD SDI compatible) video signal.

16 LAN connector (RJ-45 8-pin)
Network communication and PoE+ power supply are performed by using the network cable (category 5e or higher, shielded twist pair).
For more information on the connection, refer to the Operating Instructions included with power supply system.
(*PoE+: an abbreviation of Power over Ethernet Plus, which complies with IEEE802.3at)
The green indicator lights when the link is established. The orange indicator will blink during communication.

17 DC 12 V connector
Connect the supplied AC power adaptor.

Bottom

18 Tripod screw hole
Screw hole to mount tripod.
For details, refer to “Attaching the Camera to a Tripod” (page 16).

19 Ceiling bracket mounting screw holes
Screw hole to mount the supplied ceiling bracket (A) when you mount the camera on the ceiling.
For details, refer to “Installing the Camera” (page 16).

Setting of the SYSTEM SELECT switch
This switch allows you to select the video format of the signal to be output from the HDMI OUT/SDI OUT connectors.

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<th>Video format</th>
<th>59.94 Hz system</th>
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<td>1920x1080p/59.94 (A)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1920x1080p/59.94 (B)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1920x1080p/29.97</td>
<td></td>
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<td>3</td>
<td>1920x1080p/59.94</td>
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<td>4</td>
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<td>5</td>
<td>1280x720p/29.97</td>
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<td>50 Hz system</td>
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<td>1280x720p/25</td>
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<tr>
<td>E</td>
<td>1920x1080p/59.94 (A)</td>
<td>59.94 Hz system</td>
</tr>
<tr>
<td>F</td>
<td>No output</td>
<td>–</td>
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Notes
- Configure the setting of the switch before turning the camera on.
- Turn on the power supply after setting the switch.
- Always use a cross slot screwdriver to toggle the switch. Otherwise, the cross chase might be stripped.
- When the switch is positioned as 7 (WEB UI), the video format can be set via the external connection.

For details, refer to “Installation Tab” on page 52.
Infrared Remote Commander

1 CAMERA SELECT buttons
Press the button corresponding to the camera you want to operate with the infrared 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 infrared 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 Infrared Remote Commander” (page 31).

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.

Note
Press the MANUAL button and adjust the focus manually when shooting the following objects.
- White walls and other objects without contrast
- Objects behind glass
- Objects with horizontal stripes
- Objects on which bright lights are cast or reflected
- Nightscapes and other dark objects with blinking lights
- Lit objects shot with darkened exposure adjustment or exposure compensation settings

3 DATA SCREEN button
Press this button to display the main menu. Press it again to turn off the menu. If you press the button when a lower-level menu is selected, the display goes back to a higher-level menu.

Note
The pan/tilt operation will be disabled when MENU is displayed (except: PAN/TILT LIMIT or PTZ TRACE settings).

4 PAN-TILT buttons
Press the arrow buttons to adjust the direction of the camera. Press the HOME button to face the camera back to the front.
When the menu is displayed, use ↑ or ↓ to select the menu items and ← or → to change the set values. The selected setting menu is displayed, by pressing the HOME button when the main menu is displayed. You can change the menu position with either the ↑ or ↓ button.

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

6 POWER button
Turns on/off the camera output video.

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.

Note
These buttons do not function when the menu is displayed.

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.
To install batteries

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.

Installing batteries
Two R6 (size AA) batteries are supplied for Infrared Remote Commander. To avoid risk of explosion, use R6 (size AA) manganese or alkaline batteries.
System Configuration

This camera has various system configuration capabilities using optional products. This section describes typical system examples with the required components and the main usage of each system.

Operating the Camera Via a Network

What you can do with this system
Multiple users can view video and audio from one camera via a network at the same time.

System Configuration

For details concerning operation and the setting of the camera via a network, see “Operating the Camera Via a Network” on page 46 or “Setting the Camera Via a Network” on page 51.

Notes

- Factory settings for IP
  IP address: 192.168.0.100
  Subnet mask: 255.255.255.0
- The maximum number of users that can view changes depending on the video and audio settings.
- If the simultaneous connections via a network increase, the frame rate may decrease.

Operating Environment Requirements

The following operating environment is necessary for the computer to display images and the controls of the camera. (July 2016)

OS
Windows 7 (32bit version, 64-bit version), Windows 8.1 Pro (32bit version, 64-bit version)*1, Windows 10 Pro (32bit version, 64-bit version) *2
  Authorized editions:
  Windows 7: Ultimate, Professional
  Windows 8.1: Pro
  Windows 10: Pro

Web Browser
Windows Internet Explorer Ver. 11.0*1
Google Chrome Ver.50.0

CPU
Intel Core i7, 2.8 GHz or higher
Or Intel Core i3 / Intel Core i5 / Intel Core i7 (with built-in Intel HD Graphics)

Memory
2 GB or more

Display
1600 × 1200 pixels or higher
*1 If you use Windows 8.2, use the Internet Explorer for the desktop user interface (desktop UI).
*2 If you use Windows 10, turn off the tablet mode.

**Operating a Camera Using the Remote Controller**

**What you can do with this system**
To perform pan/tilt and zoom operations using the joystick of the remote controller, and to perform the Preset operation using the button.

**System Configuration**

![Camera diagram]

- **Notes**
  - Only RS-422 connection is available for VISCA CONTROL.
  - The communication speed should be adjusted with the BAUD RATE switch on the back of the unit and the remote controller.
  - To change the video format, you should choose the one you want using the SYSTEM SELECT switch or on the browser window via a network.
  - * Settings cannot be changed via the menu displayed on HDMI OUT/SDI OUT.

For details concerning operation and the setting of the camera using the remote controller, see “Operation Using the Remote Controller” on page 34 or “Setting with the Remote Controller” on page 40.
Operating Multiple Cameras Using Multiple Remote Controllers

What you can do with this system

- You can connect up to 112 cameras and five remote controllers.
- The joystick of the remote controller allows comfortable pan/tilt and zoom operations.

System Configuration

Note

When you control the camera by using the LAN connection, use a shielded twisted pair network cable that is category 5e or higher.
Precautions for Preventing Access to the Camera by an Unintended Third Party

The camera may be accessed by an unintended third party on the network, depending on the usage environment. Changing the user name and password of the camera administrator from the default settings is highly recommended for security reasons. If the camera is accessed by an unintended third party, there may be undesired effects such as operations or settings that may interfere with viewing. Also, this camera’s RTSP stream is not encrypted. Use the camera in a safe network.

The camera can be fraudulently accessed in a network environment where a device is connected or connectable to the network without the administrator’s permission, or a PC or other network device connected to the network can be used without any permission. Connect to these environments at your own risk.

Do not use the browser you use to set the camera to access other websites while you set or after setting the camera. You will remain logged in to the camera as long as the browser is open, so to prevent an unintended third party’s use or execution of malicious programs, close the browser after you finish setting the camera.
Installing and Connection

Installing the Camera

Installing the Camera on a Desk

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

Notes
• Do not grasp the camera head when carrying the
  camera.
• Do not turn the camera head by hand. Doing so may
  result in a camera malfunction.

Attaching 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 its screws
tightened firmly by hand.
Use a tripod with screws of the following specifications.

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<th>Length (mm)</th>
<th>Notes</th>
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<td>M2.6</td>
<td>1/8 - 11/32</td>
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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 Using the M3 Fixing Screw Holes

Attach the camera using 4 M3 fixing screw holes located
on the bottom of the camera.
Attach the camera to a fitting with a flat surface using M3 screws
with the following specifications.

Installing the unit on the ceiling

Using the ceiling bracket, wire rope, and screws supplied,
you can attach the camera to the ceiling.
When you install the unit, always install it on a level
ceiling. If you have to install it on a sloping or uneven
ceiling, make sure that the place where you install it is
within ±15 degrees of the horizontal.

CAUTION
• Entrust installation to an experienced contractor or
  installer when installing the unit on ceilings or other
  high locations.
• When installing the unit in a high location, be sure that
  the location and installation components (excluding the
  supplied accessories) are strong enough to support the
  unit and the mounting bracket, and install the unit
  securely. If the components are not strong enough, the
  unit may fall and cause serious injury.
• Always install the supplied wire rope to prevent the unit
  from falling.
• If you install the unit in a high location, 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

Determine the shooting direction of the camera, and then
make the holes for the ceiling bracket (B) and the
connecting cables on the ceiling.

Notes
• The connecting cables cannot be passed through ceiling
  bracket (B). A hole for the wiring is required in the
  ceiling at the back of the unit where it is attached to the
  ceiling.
• The recommended tightening torque for each screw are
  described in below.
  M3: 0.6 N·m (6.1 kgf·cm)
  M2.6: 0.4 N·m (4.1 kgf·cm)
Installation

1. Attach the wire rope to the ceiling.

2. Attach the ceiling bracket (B) to the ceiling. When attaching the ceiling bracket (B) to the ceiling, it is recommended to fix at the 4 positions illustrated below. There are elongated holes for the screws along the rounded edges of the ceiling bracket (B). Later, the front of the camera will be positioned along this edge. Face the camera to the front, adjust the aim, and attach it securely.

1-2 In the case that a wire cannot be attached on the ceiling, attach the wire on the ceiling bracket (B) as illustrated below with the supplied screws (M 3 × 8).
3 Attach the ceiling bracket (A) to the bottom of the camera using the 4 screws (M 3 × 8) supplied. Align the bracket holes with the screw holes on the camera, and attach the bracket to the camera.

4 Insert the protrusions raised on the ceiling bracket (A) into the spaces prepared in the ceiling bracket (B), and temporarily attach them by pushing the ceiling bracket (A) to the rear.

5 While pushing up on the front part of the camera, attach it using the 3 screws (M 3 × 8) supplied, starting with the screw at position ①.

6-1 Connect the cables to the connectors on the rear of the camera.

Note
For assembly, use only the screws supplied with the unit. Using other screws may damage the unit.

Tighten the screws a bit at a time in the numbered order shown in the illustration. After all of the screws are inserted and temporarily tightened properly, securely tighten each one in turn.

Lightly tighten screws temporarily in the order indicated in the figure. Afterwards, screw each of them firmly.
• Take the proper steps to ensure that the load of the cables connected does not cause problems.
• To prevent cables from coming off, it is recommended to proceed to 6-2 after connecting the HDMI cable, and then connect other cables.

6-2 To prevent the HDMI cable from coming off, mount the HDMI cable fixing plate with the supplied screw (single, M2.6 × 6, black) on the rear side of the camera, then fix the HDMI cable with a banding band etc.

Do not attach the HDMI cable on the camera unit, if you do not use them.

7 Adjust the Eflip function to optimize the ceiling mounting status via the Web browser or menu display.

All preset settings will return to their default when adjusting the setting of the Eflip function. When setting, make sure to set the Eflip function before the preset settings.

Removing the camera

1 Remove the 3 screws used to attach the camera in step 5 of “Installation.”

2 While pushing the entire camera up towards the ceiling, move the camera to the front. The hooks will disengage, and you can remove the camera.

Connections

Connecting the power supply

Power is supplied to the unit using the following methods.
• Supplied AC power adapter
• PoE+* (power supply system, which complies with IEEE802.3at)

* PoE+: an abbreviation of Power over Ethernet plus.

Power supply with the supplied AC power adapter

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

CAUTION

• This product is not equipped with a power switch. When installing this product, install dedicated cutoff equipment within the fixed wiring that can be easily accessed or connect the power plug to an outlet near the camera where it can be easily inserted/removed. If an abnormality occurs, apply the cutoff equipment or remove the power plug.
• When supplying power using the AC power adapter, do not connect the PoE+ power supply system.
• Wait approximately 10 seconds before turning the power on again.
Connecting to the PoE+ (Power over Ethernet plus) power supply system

PoE+ (complied with IEEE802.3at) power supply equipment supplies power via a commercially-available network cable. For details, refer to the instruction manual of your power supply device.

To supply power via PoE+, use a shielded twisted pair network cable of category 5e or higher. Do not connect the AC power adapter, when supplying power via PoE+.

When power is supplied via PoE+, the POWER light does not turn on until the initial authentication is completed (the time varies depending on the model; it is approximately one minute).

HDMI video output and the video outputs 2 and 3 via a network become disabled when power is supplied via PoE+.

Wait approximately 10 seconds before turning the power on again.

The HD Color Video Camera is to be connected only to PoE+ networks without routing to the outside plant.

Notes

- To supply power via PoE+, use a shielded twisted pair network cable of category 5e or higher. Do not connect the AC power adapter, when supplying power via PoE+.
- When power is supplied via PoE+, the POWER light does not turn on until the initial authentication is completed (the time varies depending on the model; it is approximately one minute).
- HDMI video output and the video outputs 2 and 3 via a network become disabled when power is supplied via PoE+.
- Wait approximately 10 seconds before turning the power on again.
- The HD Color Video Camera is to be connected only to PoE+ networks without routing to the outside plant.

RS-422 connection with IP remote controller RM-IP10

Connect to the IP remote controller using the connection cable.

Note

To connect using the VISCA RS-422 connector, create the connection cable using the RS-422 connector block which is supplied with the camera and IP remote controller.

For making the cable, refer to “Using the VISCA RS-422 connector pin assignments” on page 74.
LAN connection with IP remote controller RM-IP10

- Use the network cable of category 5e or higher, shield twist pair.
- Use the crossover cable if you want to connect directly to the LAN connector of one camera and one IP remote controller without using a switching hub.

Notes

Connecting a Video Monitor, etc., Equipped with HDMI Input Connector

- Configure the VIDEO FORMAT, based on the specifications of the HD monitor.
- Depending on the performance capabilities of the HDMI cable, some picture noise may occur. It is recommended to use a Sony high-speed HDMI cable.
- If the volume of the monitor is set to maximum, a sound may emit for a moment when activated, depending on the product. This is not a malfunction.
- It takes approximately 40 seconds for the video to come out.
- When installing, use attached fixing parts in order to prevent HDMI cables from removing due to the cable’s weight or external force.
- This becomes disabled when power is supplied via PoE+.

Notes
Connecting with monitors with SDI input connectors

- Set VIDEO FORMAT based on the specifications of the HD monitor.
- Depending on the performance of the HD SDI cable, some noise can be occur on the image. We recommend to use a 5C-FB cable that meets the HD SDI rating.
- When the volume of the monitor is set to the maximum, a sound can be heard for a moment on launching on some devices. This is not a malfunction.
- It takes approximately 40 seconds for the video to come out.
- When power is supplied via PoE+, it takes approximately 90 seconds depending on the PoE+ device.

Notes

Connection with commercially-available microphones etc.

Connect a commercially-available microphone, mixer, etc.
Input audio will be superimposed to the HDMI OUT/SDI OUT/IP video output via stereo.
Switch between the microphone input and line input by selecting either input on the web browser.
Connect a commercially-available microphone when using the microphone input.
Connect a commercially-available mixer when using the line input.

Notes

- Do not place the camera near devices that may generate noise.
- If you place a microphone near this camera, it may pick up the sound from the camera.
Check the audio of the microphone input in advance when installing.
- When microphone input is selected, the unit supplies 2.5 VDC Plug-in-power. Do not connect a non-supported microphone when the microphone input is selected.
Adjusting and Setting with Menus

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

For the overall menu configurations, see “Menu Configuration” (page 69).

Note

You cannot perform pan/tilt operations while the menu is displayed.
This menu will be shown only for HDMI OUT/SDI OUT.

Main Menu

To display the main menu, press the DATA SCREEN button on the supplied infrared remote commander.

1. Selected item
   Selects a setting menu.
   The currently selected item is shown in red.
   The selected item shifts up or down when you press the ↑ or ↓ button on the infrared remote commander.

2. Menu items
   To display a setting menu, select one using the ↑ or ↓ button on the infrared remote commander and press the HOME button on the infrared remote commander. The menu display position changes when you press the ↑ or ↓ button in the main menu.

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. Selected item
   Selects a setting item.
   The currently selected item is shown in red.
   The selected item shifts up or down when you press the ↑ or ↓ button on the infrared remote commander.

3. Setting items
   The setting items for this setting menu are displayed.
   Select the setting item using the ↑ or ↓ button on the infrared remote commander.

4. Set value
   The currently set values are displayed.
   To change a set value, use the ↑ or ↓ button on the infrared remote commander.

   For the default value of each setting item, see “Menu Configuration” (page 69).

Control Button Display Section

Names of buttons displayed on the monitor are different from buttons on the infrared remote commander to be used. Use the proper buttons on the infrared remote commander, referring to the following pictures.

Main menu
EXPOSURE Menu

The EXPOSURE menu is used to set the items related to the exposure.
This can be set via the Web browser.
See “Exposure” (page 54).

MODE (exposure mode)
FULL AUTO: The exposure is adjusted automatically using the sensitivity, electronic shutter speed, and iris.
BRIGHT: Adjust the brightness level (LEVEL) 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.
MANUAL: Adjust the sensitivity (GAIN), electronic shutter speed (SPEED) and iris (IRIS) manually.

When you select one from among the various exposure modes, some of the following setting items that are required for the selected mode appear.

GAIN: Select the gain from among the following:
0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 43 dB
SPEED: Select the electronic shutter speed from among the following:
For the 59.94/29.97 video format:
1/1, 1/2, 1/4, 1/8, 1/15, 1/30,
1/60, 1/90, 1/100, 1/125, 1/180, 1/250,
1/350, 1/500, 1/725, 1/1000, 1/1500,
1/2000, 1/3000, 1/4000, 1/6000,
1/10000 sec.

For the 50/25 video format:
1/1, 1/2, 1/3, 1/6, 1/12, 1/25,
1/50, 1/75, 1/100, 1/120, 1/150, 1/215,
1/300, 1/425, 1/600, 1/1000, 1/1250,
1/1750, 1/2500, 1/3500, 1/6000,
1/10000 sec.

IRIS: Select the iris from among the following:
CLOSE, F1.4, F1.1, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0,
F3.4, F2.8, F2.4, F2.0, F1.6
LEVEL: Select the brightness level.
Select the brightness level from among 0, 5 to 31.
WDR (VIEW-DR): When MODE (exposure mode) is set to FULL AUTO, the camera distinguishes light and dark areas in the same scene, adjusts the brightness for dark areas, and also controls the blown out highlights.

You can select the wide dynamic range mode from among OFF, LOW, MID and HIGH.

Notes
- You can set the wide dynamic range mode when WDR (VIEW-DR) is set to FULL AUTO only.
- When changing WDR (VIEW-DR), a change in screen luminance occurs for a moment.
- When the change of exposure is big, the screen may stop for a moment.
- The audio will be muted for approximately 1 second when WDR (VIEW-DR) switches.

GAIN LIMIT: Select the upper limit of the gain rise in FULL AUTO, SHUTTER PRI and IRIS PRI modes. Select from among 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 43 dB.

EX-COMP (exposure compensation)
When MODE is set to one of FULL AUTO, SHUTTER PRI or IRIS 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 value.

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

SLOW SHUTTER
When you set the mode to ON, the camera automatically uses slow shutter speed for exposure as the illumination of the object to be shot decreases. This mode is only available when AE mode is set to FULL AUTO.

---

**WHITE BALANCE Menu**

The WHITE BALANCE menu is used to select the white balance mode.
This can be set via the Web browser.
See “White balance” (page 55).

### MODE (white balance mode)
Select the white balance mode from among the following:
AUTO, IN DOOR, OUT DOOR, ONE PUSH, ATW (Auto Tracing White Balance), MANUAL.

When you select MANUAL, R.GAIN (R gain), B.GAIN (B gain) will be displayed. These can be adjusted within the range between 0 and 255.

When you select the ONE PUSH mode
Perform the following while the white balance menu is displayed.

1. Zoom in on a white subject in the center of the screen.
2. Press the HOME button of the supplied infrared remote commander.
   The one-push white balance adjustment is activated.
PICTURE Menu

The PICTURE menu is used to set the items related to the picture.
See “Picture” (page 56) or “Installation Tab” (page 52).

APERTURE (aperture compensation)
Select the aperture compensation level from among MIN, 1 to 14 and MAX.

HIGH RESOLUTION (high resolution mode)
You can set this mode to ON or OFF. When set to ON, you can enjoy emphasised edge and high-resolution images.

Note
When this is turned on, the image will have more noise than when shooting with it turned off.

NOISE REDUCTION (noise reduction)
You can enjoy clearer images by removing unnecessary noise (fixed pattern and randomised noise). You can select 6 levels from OFF (MIN), 1 to 5 (MAX).

IMAGE STABILIZER (image stabilizer)
You can select this function according to the shooting conditions.
OFF: The image stabilization feature becomes disabled.
ON: The image stabilization feature becomes enabled.
When set to ON, you can obtain steadier images if vibration is present. This stabilizer is effective for vibration frequencies around 10 Hz. This function utilizes digital zoom; therefore, the angle of view and resolution of images may be affected. However, image sensitivity is retained.

Notes
- The image stabilizer function is not effective during pan/tilt operations. It may take some time for the image to stabilize after performing pan/tilt operations.
- If the image stabilizer function is already enabled, it may take some time for the image to stabilize after turning on the power of the camera.
- Depending on the installation conditions, the image stabilizer may not be effective.
- When the image stabilizer function is enabled, the subject appears closer.
PAN TILT ZOOM Menu

The PAN TILT ZOOM menu is used to select the pan/tilt/zoom mode. This can be set via the Web browser. See “PTZF control Tab” (page 63).

PAN/TILT LIMIT (PAN/TILT LIMIT)
When you set PAN/TILT LIMIT to ON, you can limit the range to pan/tilt. You can select the following values:
- **RIGHT**: +170° to –169°, selectable in 1° steps.
- **LEFT**: +169° to –170°, selectable in 1° steps.
- **UP**: +90° to –29° (IMAGE FLIP:OFF) +30° to –89° (IMAGE FLIP:ON) selectable in 1° steps.
- **DOWN**: +89° to –30° (IMAGE FLIP:OFF) +29° to –90° (IMAGE FLIP:ON) selectable in 1° steps.

Note
- If you turn the PAN/TILT LIMIT from OFF to ON, the stored positions will be cleared. Perform PAN/TILT LIMIT first, then preset.
- If you change the PAN/TILT LIMIT settings to OFF, all set values will return to the factory settings.
- The set value displayed will be updated, when you release the joystick right/left operation. The display remains during the pan/tilt operation.
- PAN/TILT LIMIT will be applied immediately after it is set. If you want to reflect the status just before the power is turned off when turning the camera on again, set POSITION 1 to remember the setting.

Notes
- If you turn the camera to the right or left beyond the 90° with the camera pointed downward by 30°, the camera may be caught on the lens, depending on the zoom position of the lens.

PAN/TILT SLOW (Slow Pan Tilt mode)
If you turn the function ON, the pan/tilt movement will slow, making it easier to shoot slow moving targets.

D-ZOOM (digital zoom)
You can set digital zoom to ON or OFF. When set to OFF, digital zoom does not operate, and only optical zoom is available. When set to ON, digital zoom takes over after optical zoom reaches MAX (×30). Up to ×360 can be zoomed digitally.
SYSTEM Menu

As this menu is for maintenance purpose, users cannot operate it.

STATUS Menu

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

The STATUS menu consists of PAGE1 to PAGE4. This menu only displays the current menu settings, and you cannot change them with this menu.

PAGE1: Shows the settings selected with the EXPOSURE menu.

PAGE2: Items in the WHITE BALANCE menu and the PICTURE menu

PAGE3: Shows the settings selected with the PAN TILT ZOOM menu.

PAGE4: Settings of AUDIO mode, VIDEO mode, and VISCA transmission baud rate

Note

The current video format and the VISCA baud rate communication for the camera are displayed. If you adjust BAUD RATE and SYSTEM SELECT switches on the back after you turn on the power, these new settings are ignored and not changed on the display.
Operation Using the Supplied Infrared Remote Commander

Before Operating

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

For details, see “Setting of the SYSTEM SELECT switch” (page 9), “Installing the Camera” (page 16) and “Connections” (page 19).

Note

The supplied infrared remote commander may not work correctly near the inverter lighting fixtures. In such a case, try to install the camera far from the inverted luminaire. You can check whether or not the installed location is good for the usage of the infrared remote commander.

Turning on the Power

1 Connect the camera to an AC outlet using the supplied AC power adaptor and AC power cable or to a LAN connector for PoE+.
   The power is turned on and the POWER light turns on.
   The camera automatically pans and tilts to come to the position stored in POSITION 1 when the power is turned on. (Pan/Tilt reset)
   After this, SDI OUT and HDMI OUT images are output and the NETWORK light comes on. Then, all operations become available (up to two minutes).

Note

When power is supplied via PoE+, the POWER light does not come on until the initial authentication is completed (the time varies depending on the model; it is approximately one minute).
2. Turn on the peripheral devices.

**To switch ON/OFF the video output using the infrared remote commander**
You can switch ON/OFF the video output using the POWER switch on the infrared remote commander when supplying power to the camera.
When the POWER is off, the POWER/NETWORK lamp will go out.

---

**Pan/Tilt and Zoom Operation**

**Panning and Tilting**

1. Press the POWER switch.
   You can turn on and off the video output of the unit.
   When it is ON, the camera automatically resets pan/tilt and moves the Preset1 position.

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.

   **To face the camera back to the front**
   Press the HOME button.

---

**If the camera moves in a different direction from the one you intended**
The camera is preset so that the image output from the camera is rotated toward the right whenever you press the ◄ button.

**To face the camera toward the opposite direction**
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.

<table>
<thead>
<tr>
<th>Arrow button</th>
<th>Movement of the camera</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>◄</td>
<td>While holding down</td>
<td>Press</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Arrow button</th>
<th>Movement of the camera</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>◄</td>
<td>While holding down</td>
<td>Press</td>
</tr>
</tbody>
</table>

**Note**
The setting above only changes the signal emitted from the infrared remote commander, and does not change the setting of the camera itself. Therefore, repeat the setting for each infrared remote commander if you are using more than one infrared remote commander.
Zooming
Press either of the ZOOM buttons.

**Subject appears closer.** (Telephoto)
**Subject appears farther away.** (Wide angle)
**Zooms in or out fast (FAST side)**
**Zooms in or out slowly (SLOW side)**

**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 Infrared 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 infrared 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 infrared remote commander, the CAMERA SELECT button pressed in step 2 lights.

### Adjusting the Camera

#### Focusing on a Subject

**Focusing the camera on a subject automatically**
Press the AUTO button. The camera focuses on the subject at the center of the screen automatically.

**Focusing 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 effective if MODE is set to FULL AUTO in the EXPOSURE menu of the camera.
Presetting Feature

Up to 6 combinations of settings (6 positions) including camera position, zooming, focusing, and backlighting, can be preset.

For details of the camera settings to be preset, see “Initial value and preset” (page 71).

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 30 and 31).

3 While holding down the PRESET button, press any of the POSITION buttons, 1 to 6, in which you want to store the settings.

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

Cancelling 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. before the power is turned off and turned on again, store those positions in POSITION 1.
- When you are storing or cancelling the settings in one POSITION, you cannot call up, store or cancel the settings in another POSITION.
- You can register, call, or delete the preset even while the menu is being displayed. However, you cannot change the position with the pan/tilt operation.
- If you turn the PAN/TILT LIMIT from OFF to ON, the stored positions will be cleared. Perform PAN/TILT LIMIT first, then preset.
- Please note that if you flip the image, the set position will be cleared.
PTZ TRACE Feature

You can record and playback up to eight different operations of pan, tilt, and zoom to the maximum length of 180 seconds using the infrared remote control.

Notes
- Other operations are not available during recording or playing back.
- Since Positions 1 through 6 of the infrared remote control are used for playback, be sure that they do not overlap with preset functions.
- Since the IR remote commander has only POSITION 1 through 6 buttons, 7 and 8 cannot be played back.
- If you turn the PAN/TILT LIMIT from OFF to ON, the stored operation will be cleared.
  Perform PAN/TILT LIMIT first, then preset.
- Please note that if you flip the image, the stored operation will be cleared.

Recording pan/tilt/zoom operations

1. Press the DATA SCREEN button on the infrared remote control to display the main menu. Using the arrow buttons, move the cursor to select PTZ TRACE. Press the HOME button to open the PTZ TRACE menu.

2. On the TRACE NO setting items in the PTZ TRACE menu, use the arrow buttons to select the number you want to register. This TRACE NO value will be the POSITION NO of the infrared remote control during playback.

3. On the ACTION setting items, use the right or left arrow buttons to select START POSITION SET. Pressing the HOME button allows you to pan/tilt/zoom with the arrow and ZOOM buttons. Press the HOME button again when the camera moves to the initial position to start recording. The initial position settings will be completed.

4. On the ACTION setting items, use the arrow buttons to select RECORD/STOP. The recording starts when you press the HOME button (the MENU screen does not get turned off).

5. When operation recording starts, the REMAIN (SEC) countdown will start. The recording will finish when the count reaches 0 or when the HOME button is pressed again.

6. You can review your recorded operation when you press the HOME button after selecting PREVIEW using the arrow buttons on the ACTION menu.

Playing back pan/tilt/zoom operations

1. When the menu is not displayed, press the POSITION NO button of the same number as the TRACE NO you want to playback once. Move to the playback start position.

2. When you press the same button again, the stored playback of pan/tilt/zoom operation starts.

3. Press the HOME button during the recording playback to end the playback immediately.

4. If you operate pan/tilt/zoom during playback, the playback ends immediately and then it follows the pan/tilt/zoom operation via the remote control.

Note
There is no pause feature.

Deleting pan/tilt/zoom operations

1. Press the DATA SCREEN button on the infrared remote control to display the main menu. Using the arrow buttons, move the cursor to select PTZ TRACE.

2. On the TRACE NO menu, use the right and left arrow buttons to select the number you want to delete.

3. On the ACTION menu, use the right and left arrow buttons to select DELETE. The recording is deleted when you press the HOME button.
Operation Using the Remote Controller

This chapter describes how to operate the camera using the optional remote controller.

When you make the settings of the camera using the remote controller, see “Setting with the Remote Controller” on page 40.

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

For details, see “System Configuration” on page 12.

Notes
- You can select the IP connection and the serial connection (RS-422) for the connection between the camera and the remote controller. Set the communication speed of the VISCA RS-422 connector of the connected camera using the serial connection to be the same speed of the remote controller. For details, see “Location and Function of Parts and Controls” — “BAUD RATE switch” (page 8).
- When performing the IP output of video and audio, the response of the camera to operation from the remote controller may delay.
- For details of the remote controller settings, see the Operating Instructions of the remote controller.

Preparation

1 Connect the camera to an AC outlet using the supplied AC power adaptor and AC power cable or to a LAN connector for PoE+.
   The power is turned on and the POWER light turns on.
   The camera automatically pans and tilts to come to the position stored in POSITION 1 when the power is turned on. (Pan/Tilt reset)
   After this, SDI OUT and HDMI OUT images are output and the NETWORK light comes on. Then, all operations become available (up to two minutes).

   Note
   When power is supplied via PoE+, the POWER light does not come on until the initial authentication is completed (the time varies depending on the model; it is approximately one minute).

2 Press the ON/OFF switch on the remote controller 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.

Notes
- Be sure to turn on the power of the camera before the power of the remote controller. Otherwise, the remote controller may not recognize the connected camera.
- After turning on the power of the camera, wait more than two minutes and turn on the power of the remote controller. Otherwise, the connection may not be recognized.
Operating a Camera Using the Remote Controller

When the camera and the remote controller are connected with RS-422, only one camera can be connected to one remote controller. When this camera is connected with RS-422, Camera Address 1 is automatically assigned.

Operating Multiple Cameras Using Multiple Remote Controllers

When using the camera and the remote controller with the IP connection, up to 112 cameras and 5 remote controllers can be operated.

For details on how to assign camera addresses, refer to the Operating Instructions supplied with the remote controller.
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. If you wish to face the camera toward the opposite direction from the direction 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, you can change the panning direction to the opposite direction you inclined the joystick by using the L/R DIRECTION switch on the remote controller.
For details, see the Operating Instructions of the remote controller.

**Note**

This setting only changes the signal emitted from the remote controller and does not change the setting of the camera itself.

### Zooming

Turn the dial on the upper part of the joystick.

Subject appears farther away. (Wide angle)  
Subject appears closer. (Telephoto)

**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 enabled only when MODE is set to FULL AUTO in the EXPOSURE menu.

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.) The white balance is adjusted by using this white color.

To adjust the white balance automatically

1. Set MODE to ONE PUSH in the WHITE BALANCE menu.
   For setting, see “WHITE BALANCE Menu” on page 42.

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

Presetting Feature

Up to 16 combinations of settings (16 positions), including camera position, zooming, focusing, and backlighting, can be stored in the memory of the camera using the remote controller.
For details of the camera settings to be preset, see “Initial value and preset” on page 71.

Note
Only POSITION 1 to 16 (Preset 1 to 16) are available for storing, calling, and canceling from the remote controller.
Set the positions other than POSITION 1 to 16 via a Network.

Storing 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.

Note
When the camera and the remote controller are connected with RS-422, the camera address will be always 1.
To use multiple cameras by switching, use them with the IP connection.

3. Adjust the position, zooming, focusing and backlighting of the camera. (See pages 35, 36, and 37.)

4. While holding down the PRESET button (for POSITION 1 to 8) or the PRESET button and the SHIFT button (for POSITION 9 to 16), press any of the GROUP/POSITION buttons in which you want to store the settings.
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 GROUP/POSITION buttons in which you have stored the settings. For POSITION 9 to 16, hold down the SHIFT button and press any of the GROUP/POSITION buttons.

**To cancel the preset memory**
While holding down the RESET button (for POSITION 1 to 8) or the RESET button and the SHIFT button (for POSITION 9 to 16), press the GROUP/POSITION button from which you want to cancel the settings.

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.
- When you store the position, zooming, and focusing, etc. of the camera, make sure to install and secure the camera on the place to be used properly. If you change the installations of the camera after storing the settings, the differences may occur in the settings.
- You can also set and store the camera settings in POSITION 1 to 16 with operation via a network. Also, the stored settings can be canceled with the operation via a network.
- For the setting items that can be stored and canceled, see “Initial value and preset” on page 71.

- When you toggle the pan/tilt limit OFF to ON, the remembered position will be cleared. Perform the pan/tilt limit, then preset.
- Please note that if you flip the image, the set position will be cleared.
PTZ TRACE Feature

You can record and play back up to eight different operations of pan, tilt, and zoom to a maximum length of 180 seconds using the remote controller.

Notes
- No other operation can be performed during recording playback.
- Since Positions 1 through 8 of the infrared remote control are used for the record playback, be sure that they do not overlap with preset functions.
- If you turn the PAN/TILT LIMIT from OFF to ON, the stored operations will be cleared. Perform PAN/TILT LIMIT first, then the record operation.
- Please note that if you flip the image, the stored operation will be cleared.

Recording pan/tilt/zoom operations

1. Press and hold the MENU button of the remote controller for one second or longer to view the main menu. Using the joystick, move the cursor to select PTZ TRACE. Press the top button on the joystick to open the PTZ TRACE menu.

2. On the TRACE NO setting items in the PTZ TRACE menu, move the joystick to select the number you want to register. TRACE NO will be the POSITION NO of the remote controller during playback.

3. On the ACTION setting items, move the joystick to select START POSITION SET. Pressing the top button of the joystick allows you to pan/tilt/zoom with the joystick. Press the top button of the joystick again when the camera moves to the initial position to start recording. The initial position settings will be completed.

4. On the ACTION setting items, move the joystick right or left to select RECORD/STOP. The recording starts when you press the top button of the joystick (the MENU screen does not turn off).

5. The REMAIN (SEC) countdown will start as well as the recording of operation. The recording will be finished when the count reaches 0 or you press the button on the joystick again.

6. On the ACTION setting items, move the joystick right or left to select PREVIEW. You can review the recorded operation when you press the top button of the joystick.

Playing back pan/tilt/zoom operations

1. When the menu is not displayed, press the POSITION NO button of the same number as the TRACE NO you want to playback once. Move to the playback start position.

2. When you press the same button again, the stored playback of pan/tilt/zoom operation starts.

3. Press the HOME button during the recording playback to end the playback immediately.

4. If you operate the joy stick during the record playback, the playback will finish immediately and then it follows the pan/tilt/zoom operation via the joy stick.

Note
There is no pause feature.

Deleting pan/tilt/zoom operations

1. Press and hold the MENU button of the remote controller for one second or longer to view the main menu. Using the joystick, move the cursor to select PTZ TRACE.

2. On the TRACE NO setting items in the PTZ TRACE menu, move the joystick to select the number you want to delete.

3. On the ACTION setting items, move the joystick right or left to select DELETE. The recording is deleted when you press the top button of the joystick.
Setting with the Remote Controller

About On-Screen Menus

This section explains the conditions and system setup to shoot referring to the menu items displayed on the screen of the external monitor connected to the HDMI OUT/SDI OUT connector.

When you operate pan, tilt, zoom, etc. using the remote controller, see “Operation Using the Remote Controller” on page 34.

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

For the overall menu configurations, see “Menu Configuration” on page 69.

Note

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

This menu is displayed on HDMI OUT/SDI OUT only.

Operating with the Remote Controller

1 Press the MENU button of the remote controller and hold it for about 1 second. The main menu is displayed.

2 Select a setting menu with the joystick.

3 Decide the setting menu pressing the upper button of the joystick.

Main Menu

Press the MENU button on the remote control and hold it for about 1 second to display the main menu.

Selected item

Select a setting menu. The currently selected item is shown in red. The selected item shifts up or down when you tilt the joy stick on the remote control up or down.

Menu items

Select a setting menu with the joystick of the remote controller and press the upper button. The selected setting menu is displayed. The menu display position changes when you tilt the joy stick to the right or left in the main menu.

Setting Menu

The setting menu selected on the main menu is displayed.

Setting menu

The name of the setting menu currently selected is displayed here.

Selected item

Select a setting item. The currently selected item is shown in red. The selected item shifts up or down when you tilt the joy stick up or down.

Setting items

The setting items for this setting menu are displayed.

Set value

The currently set values are displayed. To change a set value, incline the joystick of the remote controller to the right or left.

For the default value of each setting item, see “Menu Configuration” on page 69.
To cancel the menu
When the main menu is displayed, press the MENU button once. When the sub menu is displayed, press the MENU button twice.

Control Button Display Section

Main menu

1 Indicates that you can select an item by inclining the joystick of the remote controller up or down. The selected item is shown in red.

2 Indicates that you can move to the next layer by pressing the upper button of the joystick.

3 Indicates that you can return to the normal display from the main menu by pressing the MENU button of the remote controller.

Setting menu

1 Indicates that you can select the setting item by inclining the joystick of the remote controller up or down, and you can change the set value by inclining the joystick of the remote controller right or left.

2 Indicates that you can return to the main menu by pressing the MENU button of the remote controller.

EXPOSURE Menu

The EXPOSURE menu is used to set the items related to the exposure.
You can also set via a Web browser.
See “Exposure” on page 54.

MODE (exposure mode)
FULL AUTO: The exposure is adjusted automatically using the sensitivity, electronic shutter speed, and iris.
BRIGHT: Adjust the brightness level (LEVEL).
SHUTTER PRI: The exposure is adjusted automatically using the sensitivity and iris. Adjust the electronic shutter speed (SPEED) manually.
IRIS PRI: The exposure is adjusted automatically using the sensitivity and electronic shutter speed. Adjust the iris (IRIS) manually.
MANUAL: Adjust the sensitivity (GAIN), electronic shutter speed (SPEED) and iris (IRIS) manually.

When you select one from among the various exposure modes, some of the following setting items that are required for the selected mode appear.

GAIN: Select the gain from among the following: 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 43 dB
SPEED: Select the electronic shutter speed from among the following:
For the 59.94/29.97 video format:
1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 sec.
For the 50/25 video format:
1/1, 1/2, 1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000 sec.
IRIS: Select the iris from among the following:
CLOSE, F14, F11, F9.6, F8.0, F6.8, F5.6, F4.8, F4.0, F3.4, F2.8, F2.4, F2.0, F1.6
LEVEL: Select the brightness level.
Select the brightness level from among 0, 5 to 31.
WDR (VIEW-DR): When MODE (exposure mode) is set to FULL AUTO, the camera distinguishes light and dark areas in the same scene, adjusts the brightness for dark areas, and also controls the blown out highlights.
You can select the mode from among OFF, LOW, MID and HIGH.
Notes

- You can set WDR (VIEW-DR) only when MODE is set to FULL AUTO.
- When changing WDR (VIEW-DR), a change in screen luminance occurs for a moment.
- When the change of exposure is big, the screen may stop for a moment.
- The audio is muted for about 1 second when you toggle WDR (VIEW-DR).

GAIN LIMIT: Select the upper limit of the gain rise in FULL AUTO, SHUTTER PRI and IRIS PRI modes. Select from among 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 43 dB.

EX-COMP (exposure compensation)
When MODE (exposure mode) is set to FULL AUTO, SHUTTER PRI, or IRIS PRI and turn this function ON, the exposure correction is enabled. 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 value.
When EX-COMP is set to OFF, exposure compensation does not function.

SLOW SHUTTER (slow shutter)
When you set the mode to ON, the camera automatically uses slow shutter speed for exposure as the illumination of the object to be shot decreases. This mode is available only when AE mode is set to FULL AUTO.

WHITE BALANCE Menu

The WHITE BALANCE menu is used to select the white balance mode.
You can also set via a Web browser.
See “White balance” on page 55.

MODE (white balance mode)
Select the white balance mode from among the following: AUTO (auto), IN DOOR (indoor), OUT DOOR (outdoor), ONE PUSH (one push), ATW, MANUAL (manual)
When you select MANUAL, R.GAIN (R gain) and B.GAIN (B gain) appear. These can be adjusted within the range between 0 and 255.

When you select the ONE PUSH mode
Perform the following while the white balance menu is displayed.

1. Zoom in on a large white subject in the center of the screen.

2. Press ONE PUSH AWB button of the remote controller.
   The one-push white balance adjustment is activated.
When you use the remote controller, pressing the ONE PUSH AWB button on the remote controller performs ONE PUSH AWS even if the menu screen is not displayed.
PICTURE Menu

The PICTURE menu is used to set the items related to the picture. You can also set via a Web browser. See “Picture” on page 56 or “Installation Tab” on page 52.

APERTURE (aperture compensation)
Select the aperture compensation level from among MIN, 1 to 14 and MAX.

HIGH RESOLUTION (high resolution mode)
You can select ON/OFF of HIGH RESOLUTION (high resolution mode). When set to ON, you can enjoy emphasized edge and high-resolution images.

Note
When set to ON, the image is noisier than when set to OFF.

NOISE REDUCTION (noise reduction)
You can enjoy clearer images by removing unnecessary noise (fixed pattern and randomized noise). You can select 6 levels from OFF (MIN) to 5 (MAX).

IMAGE STABILIZER (image stabilizer)
You can select the effect of image stabilizer according to the shooting conditions.
OFF: The image stabilization feature becomes disabled.
ON: The image stabilization feature becomes enabled.
When set to ON, you can obtain steadier images if vibration is present. This stabilizer is effective for vibration frequencies around 10 Hz. This function utilizes digital zoom; therefore, the angle of view and resolution of images may be affected. However, image sensitivity is retained.

Notes
• The image stabilizer function is not effective during pan/tilt operations. It may take some time for the image to stabilize after stopping pan/tilt operations.
• If the image stabilizer function is enabled, it may take some time for the image to stabilize after turning on the power of the camera.
• Depending on the installation conditions, the image stabilizer may not be effective.
• When the image stabilizer function is enabled, the subject appears closer.

• The image stabilizer may not be effective under environments with high frequency vibration. To use the camera in such environments, set the image stabilizer function to OFF.
The PAN TILT ZOOM menu is used to select the pan/tilt/zoom mode.
You can also set via a Web browser.
See “PTZF control Tab” on page 63.

PAN/TILT LIMIT (pan/tilt limit)
Set PAN/TILT LIMIT to ON to limit the range of pan/tilt.
You can select the following values:
RIGHT: +170° to –169°, selectable in 1° steps.
LEFT: +169° to –170°, selectable in 1° steps.
UP: +90° to –29° (IMAGE FLIP: OFF)
+30° to –89° (IMAGE FLIP: ON)
Selectable in 1° steps.
DOWN: +89° to –30° (IMAGE FLIP: OFF)
+29° to –90° (IMAGE FLIP: ON)
Selectable in 1° steps.

Notes:
• If you change PAN/TILT LIMIT to OFF, the set values will be returned to the factory settings.
• If you set PAN/TILT LIMIT to OFF, the set values will be returned to the factory settings.
• The set value displayed will be updated when you release the joystick right/left operation. The display does not change during the pan/tilt operation.
• The PAN/TILT LIMIT will be applied immediately after it is set. If you want to reflect the status just before the power is turned off when turning the camera on again, set POSITION 1 to remember the setting.

Note
When you turn the camera to the right or left beyond the 100° with the camera pointed downward by 30°, the camera may be caught on the lens, depending on the zoom position of the lens.

PAN/TILT SLOW (Slow Pan Tilt mode)
When this function is set to ON, the active speed of PAN/TILT LIMIT will be slow, making it easy to shoot slow-moving objects.

D-ZOOM (digital zoom)
You can set digital zoom to ON or OFF. When set to OFF, digital zoom does not operate, and only optical zoom is available. When set to ON, digital zoom takes over after optical zoom reaches MAX (×30). Up to maximum ×360 can be zoomed digitally.
SYSTEM Menu

As this menu is for maintenance purpose, users cannot operate it.

STATUS Menu

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

The STATUS menu consists of PAGE1 to PAGE4. This menu only displays the current menu settings, and you cannot change them with this menu.

PAGE1: Shows the settings selected with the EXPOSURE menu.
PAGE2: Items in the WHITE BALANCE menu and the PICTURE menu
PAGE3: Shows the settings selected with the PAN TILT ZOOM menu.
PAGE4: Settings of AUDIO mode, VIDEO mode, and VISCA transmission baud rate

Note
The currently functioning settings will be displayed for the VISCA communication baud rate and VIDEO modes. Even if you change the setting of the BAUD RATE switch or SYSTEM SELECT switch on the rear side, those settings will be discarded and the display does not switch.
Operating the Camera Via a Network

This section explains how to monitor the image from the camera using your Web browser.

The functions of the camera should be set by the Administrator. For the setting of the camera, see “Setting the Camera Via a Network” on page 51.

When you operate pan, tilt, zoom, etc. using the remote controller, see “Operation Using the Remote Controller” on page 34.

Notes

- Do not operate the camera via a network or use a remote controller at the same time.
- About 2 minutes after turning on the power, the camera will automatically reset to the pan/tilt position and the camera settings stored in Preset 1 (Pan/tilt reset action). For the setting items retained in the memory when starting the camera, see “Initial value and preset” on page 71.
- If the camera settings are not stored in Preset 1, the camera settings are cleared from the memory and reset to the default settings when the power is turned on.

Accessing the Camera Using the Web Browser

Check that you can actually access the camera using the Web browser installed on your computer.

1 Assign an IP address to the camera. For settings, see “Assigning the IP address” in the Installation Manual. The factory setting is IP [192.168.0.100].

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

Address: http://192.168.0.100

The live viewer window is displayed.

Notes

- The maximum of users on the network who can see a viewer concurrently for video and audio is 5. However, if the transmission ability of the camera is overloaded, access to the camera may not be possible, even if there are fewer than 5 users.
- If the simultaneous connections via a network increase, the frame rate may decrease.

About Viewers

Plug-in free viewer

This is a viewer to view images on the Web browser.

Note

If Automatic configuration is enabled in the Local Area Network (LAN) settings of Internet Option, the image may not be displayed. In that case, set the proxy server manually without using Automatic configuration. For the setting of the proxy server, consult your network administrator.

Tip

Every page of this software is optimized for Internet Explorer in Medium font.

To display the viewer correctly

To operate the viewer correctly, set the security level of Internet Explorer to Medium or lower, as follows:

1 Select Tools from the menu bar for Internet Explorer, then select Internet Options and click the Security tab.

2 Click the Internet icon (when using the camera via the Internet), or Local intranet icon (when using the camera via a local network).

3 Set the slider to Medium or lower. (If the slider is not displayed, click Default Level.)
When using antivirus software, etc., on the computer

- When you use antivirus software, security software, personal firewall or pop-up blocker on your computer, the camera performance may be reduced, for example, the frame rate for displaying the image may be lower.
- The Web page displayed when you log in to the camera uses JavaScript. The display of the Web page may be affected if you use antivirus software or other software described above on your computer.

Operating the Camera

This section explains the functions of the parts and controls of the live viewer. For a detailed explanation on each part or control, see the specified pages.

Live viewer

Main menu

Live
Displays the live viewer screen through the Plug-in free viewer.

Setting
Click to display the Administrator menu. (page 51)
You need to log in as an Administrator to operate this function.

Language
Set the language to be used in the viewer display.

Monitor screen
The image shot with the camera is shown here. You can operate the pan, tilt, zoom using the mouse.
Operation panels

The advanced settings screen will be hidden when you click for each panel. It will be shown when you click again.

View panel

You can change the screen mode, view size of the image, image codec, and frame rate.

Screen mode
Select the display mode of the live viewer from Window or Full screen.

View size
Selects the view size of the monitor screen.
Select x1/4 to display images, reduced to 1/4 of the size set in Image size.
Select x1/2 to display images, reduced to 1/2 of the size set in Image size.
Select x1 to display images set in Image size (page 54) of the Video menu.
Select Full to display images according to the view size.
Select Fit to display images according to the view size, with fixed aspect ratio.

Image codec
Select the image codec setting of the image displayed on the monitor screen from Image 1, Image 2, and Image 3.

Frame rate
Select the frame rate to transmit images.

Camera control panel

You can operate the pan/tilt, moving to the home position, zoom, and focus of the camera by using the control panel for the monitor image currently displayed (page 49).

Image action
Select the mode of image operation between Off and Area zoom.

Pan/Tilt control
Click the arrow button the direction in which you want to move the camera. Keep it pressed to move the camera continuously.
To return to the home position, click . When returning to the home position, the positions of pan, tilt, zoom, and focus is returned to the factory setting.

Zoom control
Click W to zoom out, and click T to zoom in.
Zooming continues while the button remains pressed.

Note
The four edges of the image may be dark depending on the zoom position. This is a phenomenon related to the structure of the camera, and does not cause a problem.

Focus control
This function is displayed when Focus mode is set to Manual in the PTZF control menu (page 63).

Tally panel

This is lit when the camera Tally lamp is On. When it is Off, the light will be off.

Preset position panel

Displays only when one or more preset positions are stored in memory.
Displays the registered preset positions.
If you select a thumbnail when registering a preset position, it will be displayed with a thumbnail.
Select the Preset position name from the list. The camera will move to the preset position that you have stored in memory using the Preset position menu.
Pan/Tilt and Zoom Operation

To operate pan/tilt/zoom of the camera, there are three operations: “Controlling via the control panel,” “Controlling via the preset position panel,” and “Controlling using the monitor screen.” “Controlling using the monitor screen” includes 2 modes, Area zoom and PTZ control bar.

Controlling via the control panel

You can operate the pan/tilt, moving to the home position, zoom, and focus of the camera by using the control panel for the monitor image currently displayed.

Image action
Select the image operation method between Off and Area zoom.

Pan/Tilt control
Click the arrow button in the direction in which you want to move the camera. Continue clicking on the arrow to keep moving the direction of the camera. To return to the home position, click . When returning to the home position, the positions of pan, tilt, zoom, and focus is returned to the factory setting.

Zoom control
Click  to zoom out, and click  to zoom in. Zooming continues while the button remains pressed.

Note
The four edges of the image may be dark depending on the zoom position. This is a phenomenon related to the structure of the camera, and does not cause a problem.

Note
No audio is output if the Plug-in free viewer is used.
Controlling via the preset position panel

The preset position registered in the memory is displayed on the preset position panel.
When selecting a preset position name from the preset position panel, the camera will move to the preset position.
Register the preset position using the Preset position tab of the PTZF control menu (page 64).

Controlling using the monitor screen

There are two operations for pan/tilt/zoom on the image: Area zoom mode and PTZ control bar, where you click on the control bar.

- **Area zoom mode**
  By clicking an image, the camera moves to the direction where the clicked point will be the center of the image.
The Area zoom will move the camera in the direction that displays the area selected by the operator and zooms in at the same time. The operator can choose a part of the image to view and zoom in by surrounding the area with a frame by dragging the mouse. The zoom operation using the mouse wheel is available.

Panning and tilting by clicking the screen (Area zoom mode)

Click on the monitor image, and the camera moves so that the clicked portion is positioned at the center of the image.

Panning, tilting and zooming by specifying the area (Area zoom mode)

Click and hold the left button of the mouse on the monitor image, and drag the mouse diagonally to draw a red frame around the portion you want to enlarge. The camera moves so that framed portion is positioned at the center of the display and is zoomed in.
### Setting the Camera Via a Network

This section explains how to set the functions of the camera by an Administrator.

For details concerning the monitoring of the camera image, see “Operating the Camera Via a Network” on page 46.

When you make the settings of the camera using the remote controller, see “Setting with the Remote Controller” on page 40.

This section explains the basic operations and each option of the Administrator menu.

**Note on the display of menu options**
The setting menus of this unit will clearly display only the setting options that you can currently select. Grayed out options cannot be selected.

Only supported functions are displayed.

### Basic Operations of the Administrator Menu

You can use the Administrator menu to set all functions to suit the user’s needs.

Click **Setting** in the viewer to display the Administrator menu.

#### How to set up the Administrator menu

1. **Access to the camera to display the viewer.**
   For details, see “Accessing the Camera Using the Web Browser” on page 46.

2. **Click Setting on the main menu.**
   The authentication dialog appears. Enter the user name and password for Administrator. The Administrator menu appears.

   For the administrator, the factory set user name is “admin” and the factory set password is “Admin_1234”.

   Change the password from the factory setting for the security of your devices.

3. **Click the menu name (example: System) on the left side of the Administrator menu.**
   The clicked menu appears.

   Example: “System” menu

#### Buttons common to every menu

- Click **OK** to enable the settings in each tab. The settings are not reflected in the camera unless this button is clicked.

- Click **Cancel** to nullify the set values and return to the previous settings.

#### General notes on menus

- One-byte katakana character is not valid for any text field, such as User name.
- After changing a setting on a menu, wait at least 2 minutes before turning off the power of the camera. If the power is turned off immediately, the new setting may not be stored correctly.
- If the camera settings are changed while watching the live viewer, some settings cannot be restored. To reflect the change on the opening live viewer, click **Refresh** on the Web browser.

### Configuration of the Administrator menu

**System**
Displays the System menu. ("System Menu" on page 52)

**Video**
Displays the Video menu for setting the camera image. ("Video Menu" on page 54)

**Audio**
Displays the Audio menu for setting the camera audio. ("Audio Menu" on page 58)

**Network**
Displays the Network menu for setting the network connection. ("Network Menu" on page 59)
Security
Displays the Security menu for setting the login user specification and the computer(s) can connected to the camera. (“Security Menu” on page 61)

PTZF control
Displays the PTZF menu for setting pan, tilt, zoom, and focus operations. (“PTZF control Menu” on page 63)

Streaming
Displays the Streaming menu for setting sending. (“Streaming Menu” on page 65)

System Menu
When you click System in the Administrator menu, the System menu appears. Use this menu to perform the principal settings of the software. The System menu consists of the following tabs: Information, Installation, Initialize, System log and Access log.

Information Tab

Model Name
The model name of the camera is displayed.

Serial number
The serial number of the camera is displayed.

Software version
The software version of the camera is displayed.

Installation Tab

You can perform settings related to installation.

SDI Video format
Set the video format of the signal to be output from the SDI OUT connector.
To enable settings via WEB UI, select “7” for the SYSTEM SELECT switch on the back, and turn power on again.

The frame rate and image size that can be selected for the IP image may differ depending on the video format.

After changing the video format, the PTZF position is returned to the position originally set when starting the camera and the video codec setting is returned to the default setting in accordance with the SDI video format.

### HDMI Video format

If you change the SDI video format, the HDMI video format will be changed automatically.

To change the HDMI video format, change the SDI video format.

**Note**

You cannot configure using this menu.

### Image stabilizer

Set the image stabilizer function. Select the checkbox to display steadier images when the camera is installed in a place subject to vibration.

**Notes**

- When the image stabilizer function is set, the angle of images taken will be smaller than usual.
- The image stabilizer may not respond depending on the amount of vibration.
- Be sure to set this function during the installation.

### Eflip

Flip an image vertically. This function is set to Off normally. When installing the camera to ceilings, set it to On.

**Note**

If you switch On/Off of the Eflip function, all preset settings and pan-tilt limit settings are deleted. The video codec setting is returned to the default setting in accordance with the SDI video format.

## Initialize Tab

### Reboot

Used when rebooting the system.

Click **Reboot**, and the message “This System will be rebooted. Are you sure?” appears. Click **OK** to reboot the camera. It takes about two minutes to restart.

### Factory default

Resets the camera to the factory settings.

### Retain current network settings

**Factory settings for IP**

IP address: 192.168.0.100

Subnet mask: 255.255.255.0

When this item is checked, only the current network settings will be retained after reset.

Click **Factory default**, and the message “This System will be rebooted. Are you sure?” appears.

When you click **OK**, the network indicator on the camera starts to blink. After adjustments of the default settings have finished, the camera reboots automatically. Do not turn off the camera until the camera reboots.

### Backup setting data

Saves the setting data of the camera in a file.

Click **Backup setting data**, and follow the instructions on the Web browser to specify the folder and save the setting data of the camera.

### Restore setting

Loads the stored setting data of the camera.

Click **Choose File** and select the file in which the setting data is stored. Click **OK**, and the camera is adjusted according to the loaded data.

### Delete superimpose logo

Click **Delete** to delete the superimposed logo, specified by Position in the Superimpose tab of the Video menu, from the camera.

To set whether to show or hide the superimpose logo, you need to configure the setting under the Superimpose tab.

---

<table>
<thead>
<tr>
<th>Video format</th>
<th>1920 × 1080p/59.94 (A)</th>
<th>1920 × 1080p/59.94 (B)</th>
<th>1920 × 1080i/59.94</th>
<th>1920 × 1080p/29.97</th>
<th>1280 × 720p/59.94</th>
<th>1280 × 720p/29.97</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>59.94 Hz system</strong></td>
<td>1920 × 1080p/59.94 (A)</td>
<td>1920 × 1080p/59.94 (B)</td>
<td>1920 × 1080i/59.94</td>
<td>1920 × 1080p/29.97</td>
<td>1280 × 720p/59.94</td>
<td>1280 × 720p/29.97</td>
</tr>
<tr>
<td><strong>50 Hz system</strong></td>
<td>1920 × 1080p/50 (A)</td>
<td>1920 × 1080p/50 (B)</td>
<td>1920 × 1080i/50</td>
<td>1920 × 1080p/25</td>
<td>1280 × 720p/50</td>
<td>1280 × 720p/25</td>
</tr>
</tbody>
</table>
Firmware Upgrade
Use this to upgrade the firmware. Click Select the file and select the firmware to upgrade, then click Open. The confirmation dialog is displayed. Operate according to the contents.

System log Tab
The data of the software activity of the camera is recorded in this log. It includes data that is useful if a problem occurs. Click Reload to reload the latest data.

Access log Tab
The access record of the camera is displayed. Click Reload to reload the latest data.

Video Menu
When you click Video in the Administrator menu, the Video menu appears. Use this menu to set the functions of the camera. The Video menu consists of the Picture, Video codec, Superimpose, and Day/Night ICR tabs.

Picture Tab
You can set the color conditions, exposure, etc., of the camera.

Preview screen
Preview the image and adjust the picture setting.

Exposure
You can also set from the remote controller. See “EXPOSURE Menu” on page 41.

Mode
Adjust the settings of exposure.
Full auto: The camera performs the gain, iris and shutter speed adjustments automatically.
Shutter priority: The camera performs the gain and iris adjustments automatically, and you can select the shutter speed.
Iris priority: The camera performs the gain and shutter speed adjustments automatically, and you can select the iris.
Manual: Adjust the gain, iris and shutter speed manually.
Bright: Adjust the brightness level (combined with gain or iris) of the camera.

Note
When the gain limit setting is set to a value other than 43 dB (maximum), the brightness level range is also limited.
WDR (VIEW-DR)
In high-contrast scenes such as against a back light, this function reduces overexposure and underexposure. This function is enabled if the setting values other than Off are selected from the list box. This function is enabled only when Mode is set to Full auto.

Notes
- When the function is enabled, a change in screen luminance occurs for a moment.
- When the change of exposure is great, the screen may stop for a moment.

Auto slow shutter
The automatic slow shutter function is enabled when the check box is checked. This function can be selected only when Mode is set to Full auto.

Backlight compensation
Select the checkbox to enable the backlight compensation function. This function is enabled only when Mode is set to Full auto.

Exposure compensation
Select the exposure correction value from the list box to adjust the target brightness for the automatic exposure setting. Select high values to make the image brighter, lower values to make the image darker. This function can be selected only when Mode is set to Full auto, Shutter priority, Iris priority.

Gain limit
Select the maximum gain value of automatic exposure control from the list box. This function can be selected only when Mode is set to Full auto, Shutter priority, Iris priority.

Shutter speed
Select the shutter speed from the list box. This function can be selected only when Mode is set to Shutter priority, Manual.

Iris
Select the amount of iris (F value) from the list box. This function can be selected only when Mode is set to Iris priority, Manual.

Gain
Select the gain from the list box. This function can be selected only when Mode is set to Manual.

Level
Select the bright level from the list box. This function can be selected only when Mode is set to Bright.

High sensitivity mode
Select On/Off of the high sensitivity mode from the list box.
When set to On, the high-sensitivity gain is amplified according to the increase of general gain value. This function can be selected in all modes.

White balance
You can also set from the remote controller. See “WHITE BALANCE Menu” on page 42.

Mode
Select the White balance mode.
Auto: Automatically adjusts the color to be closest to the image you are viewing (approximately 2500 K to 6000 K).
ATW: Eliminating the influences caused by environmental illumination or lights, adjust the white balance automatically to reproduce original colors of the objects (approximately 2000 K to 10000 K).
Indoor: Sets a white balance suitable for indoor photography.
Outdoor: Sets a white balance suitable for outdoor photography.
One push WB: The One push trigger button becomes active. Click On to adjust the white balance instantly. Shoot and zoom with a large white subject in the center of the screen before adjustment.
Manual: When this option is selected, R gain and B gain become active. Selectable gain values are from 0 to 255.
**Picture**
You can also set from the remote controller. See “PICTURE Menu” on page 43.

**High resolution mode**
Select On/Off of the high resolution mode. When set to On, you can enjoy emphasised edge and high-resolution images.

**Noise reduction**
You can enjoy clearer images by removing unnecessary noise (fixed pattern and randomized noise).
You can select Off (MIN) or 5 levels from 1 to 5 (MAX) for noise reduction.

**Aperture**
Set the sharpness. Select high values to make the image edges sharper, lower values to make the image edges smoother.
You can select from 0 (MIN), 1 to 14, and 15 (MAX).

## Video codec Tab

![Video codec Tab](image)

Use this tab to set the items for the video codec.

### Image 1, Image 2 and Image 3

Up to three image codec modes can be set. Configure the following setting for each image mode.

**Notes**
- The frame rate and image size that can be selected may change, depending on the setting of the SDI video format.
- Video 2 and Video 3 are turned off when power is supplied via PoE+. No output is present.

**Image codec**
Choose H.264 or Off. Video 1 cannot be turned off.

### Notes
- The selectable image size, frame rate, and image quality for Image 2 and Image 3 may be limited, depending on the setting of codec type, image size, and frame rate for Image 1.
- If you set Image 2 or 3 to other than OFF, the bitrate cannot be set to a value over 8000kbps.
- The following symptoms may occur depending on the combination of the image size, frame rate and bitrate for Image 1, 2 and 3.
- In this case, adjust the value in each parameter to be low.
  - The image delays more than usual.
  - The frame is skipped when playing an image.
  - The voice is broken.
  - The response of the camera to commands delays.
  - The response of the camera to operation from the remote controller delays.
  - The moving speed of the Viewer and camera settings will be slow.

**Image size**
You can select the size of images sent from the camera.

**Notes**
- Some parts of the screen may not be displayed depending on the image size.
- If you use Images 1, 2, and 3, do not use Plug-in Free Viewer.

### Frame rate
Set the frame rate of the image.

“fps” is a unit indicating the number of frames transmitted per second.

### I-picture interval
Set the I-picture insertion interval in seconds.

### H264 Profile
Set the profile setting for H.264 video codec to high, main or baseline. The video compression efficiency is high, main and baseline in sequence. The specified profile may not be available depending on the program you use. Select the profile which is suitable for your program.

### Bit rate compression mode
Select CBR or VBR. If you want to keep the bit rate fixed, select CBR. If you want to keep the image quality fixed, select VBR.

**Note**
The frame rate or bit rate that is actually transmitted may be different from the set values depending on image size, scene, network environment.
**Bit rate**
When the Bit rate control is set to CBR, you can set the bit rate for each line of image distribution. When the bit rate is set to a high level, a high image quality can be enjoyed.

**Image quality**
Image quality is enabled when Bit rate compression mode is set to VBR. Selectable values are from 1 to 10. When 10 is selected, the best image quality is achieved. Selectable values are changed depending on the setting.

**Maximum bit rate limit**
Enable the check box when Bit rate compression mode is set to VBR, to set the maximum value of the bit rate. Max: Set the maximum value of the bit rate when the camera is operated with VBR.

---

**Superimpose Tab**

![Superimpose Tab](image)

Select whether or not to superimpose the custom string and the character of date & time on the image. Three custom strings and one logo (still image) can be superimposed simultaneously.

**Notes**
- For setting the superimposing, set Image size1 in the Video codec tab of the Video menu to the maximum rate.
- Deselect the checkbox of Image stabilizer in the Installation tab of the System menu. After setting superimpose, set the Image stabilizer function again.

**Preview screen**
Preview the image, and adjust the superimposed image. You can move the position of superimposed image displayed on the preview screen by drag and drop.

**Image**
Select the video codec mode to set for the superimposed image.

The setting for the superimposed image is available if you select the checkbox next to the list box.

For details about the video codec mode, see the Video codec tab in the Video menu.

---

**Position**
Select the number of the display position or logo, on the preview screen. When Logo is selected, the logo file setting is displayed.

**Note**
Permissible logo file specifications:
- File format: PNG8 with alpha channel
- Image size: 160 × 120 or smaller
- Width (pixels): multiples of 16

You can cancel the logo files in the Initialize tab.

When display position number 1, 2 or 3 is selected, the following setting menus appear.

**Type**
Sets codec, text, or zoom ratio for the display information type.

- **Codec**: Displays the video codec information.
- **Text**: Displays the custom string.
- **Zoom ratio**: Displays the zoom ratio information.

**Custom string**
Describes the superimposed content for each position.

<codecinfo> is displayed for codec and <zoomratio> for zoom rate, depending on the type. You can add an optional string around them.

**Text color**
Select the font color of the superimposed text.

**Background color**
Select the background color of the superimposed text.

**Alignment**
Set the horizontal position of the superimposed text.

**Transparent**
Select the background color transparent of the superimposed text. When you select Off, transparent is not available.

---

**Day/Night ICR Tab**

Use this tab to set the day/night ICR function of the camera.
Mode
Select the day/night ICR mode. This function has the following modes.

Auto
Normally works in day mode; switches automatically to night mode in a dark place.

Threshold
This mode is available when Auto is selected.
Set the brightness level when the day mode is set.

Note
When set to Auto, depending on the gain limit setting value in the Picture tab, the camera may switch to Night mode even when in bright surroundings. In this case, set the gain limit value to be high.

Manual
Switch the day/night ICR mode manually. When you select Manual and the checkbox of the Night mode is selected, the camera works in night mode. Otherwise, the camera works in day mode.

Near-IR compensation
Adjust background light when using the IR lamp or where there is much near infrared ray. Select the checkbox to increase the accuracy of auto-focus in night mode.

Audio Menu
When you click Audio in the Administrator menu, the Audio menu appears. Use this menu to set the audio functions of the camera. The Audio menu consists of the Audio tab.

Audio Tab

Send
No audio is output if the Plug-in free viewer is used.

Enable
Select the checkbox if you want to send audio from the camera.

Note
Audio is available only when you retrieved the stream via RTSP.

Setting
Make settings for sending audio.

Auto gain control
Controls the audio input level to a suitable volume level automatically.

Equalizer
Uses to change the frequency response of audio in accordance with its use environment.
Off: Disable the equalizer setting.
Low cut: Reduces the noise from air conditioners and a projector, etc., and cuts low-frequency.
Voice enhancement: Enhances the voice clearly, cutting low- and high-frequency.

Input selection
Select microphone input or line input.

Audio codec
Select the codec type for sending audio.
AAC (128kbps): Select this type when you prioritize the audio quality.
AAC (64kbps): Select this type when you prioritize the data capacity. This setting will not effect on the audio signal superimposed.

Network Menu

When you click Network in the Administrator menu, the Network menu appears. Use this menu to configure the network to connect the camera and the computer. The network menu is configured with the Network tabs.

Network Tab

This section provides the menus for connecting the camera through the network cable.

Status

MAC address
Displays the MAC address of the camera.

Ethernet status
Displays the current transmission rate.

Auto-MDI/MDIX
According to the port of the connected Ethernet device, automatically switches the port of the unit between MDI and MDI-X for transmission. Displays the Ethernet port mode of the unit.

IP address
Displays the current IP address.

Subnet mask
Displays the current subnet mask.

Default gateway
Displays the current default gateway.

LinkLocal IP address
Displays the current link-local IP address.

Primary DNS server
Displays the current primary DNS server.
**Secondary DNS server**
Displays the current secondary DNS server.

**IPv6 address 1, 2**
Displays the current IPv6 address.

**IPv6 default gateway**
Displays the current IPv6 default gateway.

**IPv4 setting**
Configure the IPv4 network setting.

**To obtain the IP address automatically from a DHCP server**
Select **Obtain an IP address automatically (DHCP)**.
The IP address, subnet mask, default gateway are assigned automatically.

**Note**
When you select **Obtain an IP address automatically (DHCP)**, make sure that a DHCP server is operating on the network.

**Host name**
Type the host name of the camera to be transmitted to the DHCP server. This setting is valid only when **Obtain an IP address automatically (DHCP)** is selected.

**Domain suffix**
Type the domain suffix of the camera to be transmitted to the DHCP server. This setting is valid only when **Obtain an IP address automatically (DHCP)** is selected.

**Note**
The domain suffix is sent to the DHCP server as FQDN (Fully Qualified Domain Name) information when **Host name** is set.

**To specify the IP address manually**
Deselect **Obtain an IP address automatically (DHCP)**. Type the address in the **IP address**, **Subnet mask** and **Default gateway** boxes. **Host name** and **Domain suffix** are not available.

**IP address**
Type the IP address of the camera.

**Subnet mask**
Type the subnet mask value.

**Default gateway**
Type the default gateway.

**IPv6 setting**
Configure the IPv6 network setting.

**To obtain the IPv6 address automatically**
Select **Obtain IP address automatically**.
The IP address, prefix length, default gateway are assigned automatically.

**Note**
If you select **Obtain IP address automatically**, ask the network administrator whether an IPv6 address can be assigned.
This function is not available in a multi-prefix environment. The transmission may not work properly.

**To specify the IPv6 address manually**
Deselect **Obtain IP address automatically**. Type the address in the **IP address**, **Prefix length** and **Default gateway** boxes.

**IP address**
Type the IP address of the camera.

**Prefix length**
Type the prefix length value.

**Default gateway**
Type the default gateway.

**Common setting**
Configure the common setting for IPv4 and IPv6 network.

**HTTP port number**
Type the HTTP port number. Normally select 80.

**MTU**
Type the MTU value for the Ethernet port.

**To obtain DNS server address automatically**
Select **Obtain DNS server address automatically**. The **Primary DNS server** and **Secondary DNS server** are assigned automatically.

**Note**
To obtain a DNS server address automatically, first enable **Obtain an IP address automatically (DHCP)** in the IPv4 setting, or **Obtain IP address automatically** in the IPv6 setting.
Ask the network administrator whether a DNS server address can be obtained automatically.

**To specify the DNS server address manually**
Deselect **Obtain DNS server address automatically**. Type the address in the **Primary DNS server** and **Secondary DNS server** boxes.

**Primary DNS server**
Type the IP address of the primary DNS server.

**Secondary DNS server**
Type the IP address of the secondary DNS server, if necessary.
Security Menu

When you click **Security** in the Administrator menu, the Security menu appears. The security menu consists of the User, Access limit, and Referer check tabs.

**Administrator and User**

This camera identifies those who log in as the Administrator or User. The Administrator can use all the functions of this camera, including camera settings. The User can use the functions for monitoring the image and audio from the camera, and control the camera. The Viewer mode setting is used to restrict the user’s access rights. There are five types of users.

Each type of user can use the corresponding functions below.

<table>
<thead>
<tr>
<th>Function</th>
<th>Administrator</th>
<th>User</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor a live image</td>
<td></td>
<td>Full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control the frame rate</td>
<td></td>
<td>Full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control the image view size</td>
<td></td>
<td>Full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform the pan/tilt/zoom operation</td>
<td></td>
<td>Full</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control the setting menu</td>
<td></td>
<td>Full</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Usable function
- Not usable function

Set the user names and passwords of Administrator and up to 9 types of user (User 1 to User 9), and the viewer mode of each user.

**Administrator, User 1 to 9**

Specify **User name, Password, Re-type password** and **Viewer mode** for each user ID.

**User name**

Type a user name between 5 and 16 characters.

**Password**

Type a password between 8 and 16 characters.

**Re-type password**

To confirm the password, retype the password that you typed in the **Password** box.

**Viewer mode**

When the user is authenticated for logging in the viewer, select the viewer mode to be displayed after authentication.

- **Administrator**: The user can operate all functions including the setting menu in this mode.
- **Full**: The user can operate all functions other than the setting menu.
- **Pan/Tilt**: In addition to the **Light** mode, the user can operate pan/tilt/zoom.
- **Light**: In addition to the **View** mode, the user can select the image size of the live viewer, select codec and capture a still image.
- **View**: The user can only monitor the camera image.

**Viewer authentication**

Set whether the user is authenticated or not when the viewer is displayed.

When the checkbox is selected, the viewer is displayed in accordance with the viewer mode of the authenticated user. When the checkbox is not selected, select the viewer mode of the viewer which is displayed without authentication from **Full, Pan/Tilt, Light** or **View**.
Authentication mode
Set the authentication method for user authentication.

Basic authentication: Use the basic access authentication.
Digest authentication: Use the digest access authentication.

**Note**
If you change the settings in Authentication mode, close the web browser and access again.

Access limit Tab

This allows you to control which computers can have access to the camera.
Likewise, when using IPv6, security settings can be configured for each network.

Enable
Select the checkbox to enable the access limit.

Default policy
Select the basic policy of the limit from Allow and Deny for the computers that are not specified in the Network address/Subnet 1 to Network address/Subnet 10 menus below.

Network address/Subnet 1 to Network address/Subnet 10
Type the network addresses and subnet mask values that you want to allow or deny access to the camera.
You can specify up to 10 network addresses and subnet mask values. For a subnet mask, type 8 to 32.
(In the case of IPv6, enter a value between 8 and 128.)
Select Allow or Deny from the drop-down list on the right for each network address/subnet mask.

**Note**
The subnet mask value represents the bit number from the left of the network address.
For example, the subnet mask value for “255.255.255.0” is 24.

If you set 192.168.0.0/24 and Allow, you can allow access from computers having an IP address between “192.168.0.0” and “192.168.0.255”.

**Note**
You can access the camera even from a computer with an IP address whose access right is set to Deny, if you enter the user name and password set for the Administrator in the User tab of the Security menu in the authentication screen.

Referer check Tab

Referer check checks if the web page which requires access is authorized when the camera is accessed. If the web page is not authorized, the camera denies access of the web page to the camera.
If you want to access from web pages other than the one that the camera provides, register their host names and port numbers in the Exception list.

Referer check
Select the checkbox for the Referer check.

Exception list
Register the hosts that are not targeted for the Referer check.

No.
Select the registered numbers of the Exception list.

Host name
Type the host name or IP address of the PC that supplies the web page you want to register on the Exception list.

Port number
Type the host name or the port number of the PC that supplies the web page you want to register on the Exception list.
Set
Register the values of the Host name and Port number you typed to the list of the selected number.

Delete
Delete the contents of the list selected in No..

PTZF control Menu
When you click PTZF control in the Administrator menu, the PTZF control menu appears.
The PTZF operation menu is configured with the PTZF operation, Preset positions tabs.

PTZF control Tab
You can also set from the remote controller.
See “PAN TILT ZOOM Menu” on page 44.

PTZ mode
Set the pan/tilt control mode using the 8-direction arrow buttons (page 48) and the zoom control mode using the $W$/$T$ buttons (page 48). Select Normal or Step.

Normal: When you click the mouse button, the camera starts panning, tilting or zooming, and the operation continues while you hold down the mouse button. To stop the operation, release the mouse button.
Step: Each time you click the mouse button, the camera moves (pan, tilts or zooms). If you keep the mouse button held down for more than 1 second, the operation mode is temporarily changed to Normal. When you release the mouse button, camera operation stops and the Step mode is restored.
When you select Step, Pan/Tilt level and Zoom level are selectable.

Pan/Tilt level: Select the camera transition level from 1 to 10 by clicking the 8-direction arrow buttons for panning/tilting. Selecting 10 provides the maximum transition level.
Zoom level: Select the camera transition level from 1 to 10 by clicking $W$/$T$ for zooming. Selecting 10 provides the maximum transition level.

Digital zoom
Select On/Off of the digital zoom.
On: An image can be zoomed up to 30× optical zoom and 12× digital zoom, 360× zoom in total.
Off: An image can be zoomed up to 30× optical zoom.

Focus mode
Select the focus mode.
Auto: The focus is automatically adjusted.
The focus can be adjusted by using the 'One Shot Focus' buttons of the control panel displayed in the main viewer.

**Slow Pan-Tilt mode**

When set to Slow Pan-Tilt mode for the panning/tilting, select On.

**Focus near limit**

Set the range at which to automatically focus. If a subject is nearer than the set range, it will not be focused.

**Pan-Tilt limit**

When you check the checkbox, it limits the panning/tilting range. You can select the following values:
- Left: –170° to 169°, selectable in 1° steps.
- Right: –169° to 170°, selectable in 1° steps.
- Up: –29° to 90° (Eflip: OFF)
  -89° to 30° (Eflip: ON), selectable in 1° steps.
- Down: –30° to 89° (Eflip: OFF)
  -90° to 29° (Eflip: ON), selectable in 1° steps.

**Note**

When switching the Eflip function On/Off, the setting is returned to the factory setting. Set the Eflip function setting in accordance with the installation condition of the camera and select the value.

**Setting the range of the UP/DOWN movement**

You can set up camera pan, tilt, and zoom positions to 256 positions. You can also store the camera settings in the preset positions from 1 to 16 through operation from the remote controller. For details, see “Operation Using the Remote Controller” - “Presetting Feature” on page 37. Preset reserves the camera settings. For details of the camera settings to be preset, see “Initial value and preset” on page 71.

**Note**

If the camera settings are not stored in Preset 1, the camera settings are cleared from the memory and reset to the default settings when the power is turned on. For the setting items and actions that are retained in the memory, “Initial value and preset” on page 71.

**Preview screen**

This screen is for monitoring images and setting preset.

**Set**

Click to save a selected position, such as pan, tilt or zoom positions in the preset. You can also store the camera settings in the preset positions from 1 to 16. For the setting items that can be stored, see “Initial value and preset” on page 71.

**Call**

Move to the pan, tilt and zoom positions saved in the selected preset. You can also call the stored camera settings from the preset positions 1 to 16. Depending on where to read out, pan/tilt and zoom don’t sync.
Add
Save the current pan, tilt and zoom positions as a new preset. You can also store the camera settings in the preset positions from 1 to 16. For the setting items that can be stored, see “Initial value and preset” on page 71.

Remove
Delete the selected preset items and return the stored settings to the factory settings. For the setting items stored in each preset setting, see “Initial value and preset” on page 71.

Rename
Change the name of a selected preset.

Thumbnail
Check this checkbox to register a thumbnail. Select a radio button to determine whether to register the current camera image as a thumbnail or to register with a specified image. To specify an image, click Choose File.

Note
A thumbnail cannot be registered with the operation using the remote controller. When switching the Eflip function On/Off in the Installation tab of System menu, all preset settings are deleted.

Streaming Menu
When you click Streaming in the Administrator menu, the Streaming menu appears. Use this menu to set the items for the transmission by unicast or multicast. The Streaming menu consists of the Streaming tab.

Streaming Tab

Unicast streaming
Specify the transmission port numbers of the H.264 video data and audio data to be used when Unicast is selected from the Connection drop-down list in the Other panel on the live viewer.

Note
Specify different numbers for the video port number and the audio port number.

RTSP video port number 1, 2, 3
Specify the H.264 video transmission port number used for RTSP unicast streaming. The default setting is 51000, 53000 or 55000. Specify an even number from 1024 to 65534. Two port numbers (the number specified here and an odd number with 1 added to the specified number) are actually used for video data communication and control. When performing simultaneous multi-transmission, a different port number will be used for every transmission, based on the port number specified here. The settings for Image 1, Image 2 and Image 3 apply to RTSP video port number 1, 2 and 3 respectively.

RTSP audio port number
Specify the audio transmission port number used for RTSP unicast streaming. The default setting is 57000. Specify an even number from 1024 to 65534. Two port numbers (the number specified here and an odd number with 1 added to the specified number) are actually used for audio data communication and control. When performing simultaneous multi-transmission, a different
port number will be used for every transmission, based on the port number specified here.

**Multicast streaming**
Set whether the camera uses multicast streaming for H.264 video data and audio data or not. It reduces the transmission load on the camera by having a computer of the same segment network receive the same transmitting data.

**Enable**
Select the checkbox to allow multicast sending. When you select the checkbox, set **Multicast address**, **Video port number** and **Audio port number** properly.

**Note**
Specify different numbers for the video port number and the audio port number.

**RTSP multicast address**
Set the multicast address used on RTSP multicast streaming.

**RTSP multicast video port number 1, 2, 3**
Specify the H.264 video transmission port number used for RTSP multicast streaming. The default setting is 61000, 63000 or 65000. Specify an even number from 1024 to 65534. Two port numbers (the number specified here and an odd number with 1 added to the specified number) are actually used for video data communication and control.
The settings for Image 1, Image 2 and Image 3 apply to Video port number 1, 2 and 3 respectively.

**RTSP multicast audio port number**
Specify the audio transmission port number used for RTSP multicast streaming. The default setting is 59000. Specify an even number from 1024 to 65534. Two port numbers (the number specified here and an odd number with 1 added to the specified number) are actually used for audio data communication and control.

**RTSP setting**
Set the RTSP setting which cannot be set in the Unicast streaming setting and Multicast streaming.

**RTSP port number**
Set the port number used for RTSP streaming. The default setting is 554.
If you change the setting, the RTSP server will be rebooted.

**RTSP time out**
Specify the time out of the Keep-Alive command by RTSP streaming. You can set the time out from 0 second to 600 seconds.
At the 0 setting, time out of the Keep-Alive command is not available.
Message List
The following messages and indications may appear for this camera. Perform the following as necessary.

**Lamp display**

<table>
<thead>
<tr>
<th>Lamp</th>
<th>Meaning and solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER and NETWORK lights flash simultaneously.</td>
<td>A hardware failure (internal temperature abnormal or FAN motor faulty) is detected. Check if the FAN motor is running.</td>
</tr>
</tbody>
</table>
# Troubleshooting

Before bringing in your camera for servicing, check the following as a guide for troubleshooting the problem. If the problem cannot be corrected, consult your Sony Service Center.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The power of the camera is not turned on.</td>
<td>The AC power adaptor is not connected to the DC 12 V connector firmly.</td>
<td>Insert the power cord firmly as far as it will go.</td>
</tr>
<tr>
<td>The power of the camera is not turned on.</td>
<td>The AC power cord is not inserted firmly into the AC power adaptor or the AC outlet.</td>
<td>Insert the power cord firmly as far as it will go.</td>
</tr>
<tr>
<td>The power of the camera is not turned on.</td>
<td>PoE+ power supply device is not working properly.</td>
<td>Check the connection between the PoE+ power supply and the unit. Or, replace the connection cable or the power supply device.</td>
</tr>
<tr>
<td>The picture is not displayed on the video monitor connected to the camera.</td>
<td>The video cable is not connected properly.</td>
<td>Check the connection between the camera and video monitor.</td>
</tr>
<tr>
<td>The picture is not displayed on the video monitor connected to the camera.</td>
<td>The exposure is not set correctly on the camera.</td>
<td>Set the exposure correctly on the EXPOSURE menu (page 24).</td>
</tr>
<tr>
<td>The picture is not displayed on the video monitor connected to the camera.</td>
<td>The SYSTEM SELECT switch on the rear of the camera is not set correctly.</td>
<td>Check the selected output signal format of the camera and the input signal format of the connected monitor.</td>
</tr>
<tr>
<td>Pan, tilt, or zoom cannot be operated.</td>
<td>A menu is displayed on the monitor screen.</td>
<td>Press the DATA SCREEN button on the supplied infrared remote commander to remove the menu from the monitor screen.</td>
</tr>
<tr>
<td>Pan, tilt, or zoom cannot be operated.</td>
<td>The panning or tilting range is limited.</td>
<td>Change the pan/tilt limit settings on the PAN TILT ZOOM menu (page 27).</td>
</tr>
<tr>
<td>The infrared remote commander does not work.</td>
<td>The CAMERA SELECT button you pressed on the infrared remote commander does not match the number set with the IR SELECT switch on the camera.</td>
<td>Press the CAMERA SELECT button corresponding to the IR SELECT switch setting on the camera (page 10).</td>
</tr>
<tr>
<td>The VISCA CONTROL is not available with a computer connected to the camera.</td>
<td>The computer is not correctly connected to the camera.</td>
<td>Make sure the connection between the computer and camera is made correctly.</td>
</tr>
<tr>
<td>LAN communication is not available with a computer connected to the camera.</td>
<td>The computer is not correctly connected to the camera.</td>
<td>Make sure the connection between the computer and camera is made correctly.</td>
</tr>
<tr>
<td>The camera does not work when connected one-to-one to the IP remote controller.</td>
<td>The computer is not correctly set.</td>
<td>Check the precautions in the setting of the dedicated PC application.</td>
</tr>
<tr>
<td>A crossover cable is not used.</td>
<td></td>
<td>Use a crossover cable for one-to-one LAN connection.</td>
</tr>
<tr>
<td>All actions are performed but the symptom remains.</td>
<td>–</td>
<td>Pull out the plug of the power cord from the AC outlet, then reinsert it into the AC outlet after waiting a while.</td>
</tr>
</tbody>
</table>
The menus of the camera are configured as described below. For more details, refer to the pages in parentheses. The initial settings of each item are in bold.

### Menu Configuration

<table>
<thead>
<tr>
<th>PTZ TRACE</th>
<th>TRACE NO</th>
<th>ACTION</th>
<th>START POSITION SET, RECORD/STOP, PREVIEW, DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(See page 33, 39.)</td>
<td>1,2,3,4,5,6,7,8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMAIN(SEC)</th>
<th>180SEC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EXPOSURE</th>
<th>MODE</th>
<th>WIDE D</th>
<th>SLOW SHUTTER</th>
<th>GAIN LIMIT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>BRIGHT</th>
<th>LEVEL</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5–31</td>
<td></td>
<td>1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/160, 1/250, 1/350, 1/500, 1/750, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000, 1/15000, 1/25000, 1/37500, 1/50000, 1/75000, 1/100000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHUTTER PRI</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIGHT</td>
<td>0.5–31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IRIS PRI</th>
<th>IRIS</th>
<th>GAIN LIMIT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MANUAL</th>
<th>GAIN</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>(See page 25.)</td>
<td>9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB, 39dB, 43dB</td>
<td>1/1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/90, 1/100, 1/125, 1/160, 1/250, 1/350, 1/500, 1/750, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000, 1/15000, 1/25000, 1/37500, 1/50000, 1/75000, 1/100000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IRIS</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>(See page 25.)</td>
<td>ON, OFF, AUTO, MANUAL, IN DOOR, OUT DOOR, ONE PUSH, ATW, R. GAIN 0 to 255, B. GAIN 0 to 255</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHITE BALANCE</th>
<th>MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(See page 25.)</td>
<td>AUTO, IN DOOR, OUT DOOR, ONE PUSH, ATW, MANUAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PICTURE</th>
<th>APERTURE</th>
<th>HIGH RESOLUTION</th>
<th>NOISE REDUCTION</th>
<th>IMAGE StABILIZER</th>
</tr>
</thead>
<tbody>
<tr>
<td>(See page 26.)</td>
<td>MIN, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, MAX</td>
<td>ON, OFF</td>
<td>MIN, 1×4, MAX (default value: 3)</td>
<td>ON, OFF</td>
</tr>
</tbody>
</table>
### System Maintenance

#### pan/tilt zoom
- ON/OFF
- right: -159° to +170° (default -170°)
- left: 170° to +170° (default +170°)
- up: -025° to +090° (default +090°)
- down: 030° to -082° (default -030°)
- pan/tilt slow: ON/OFF (default OFF)
- d-zoom: ON/OFF (default OFF)

#### system maintenance

- status
  - page 1: exposure
    - current mode: full auto, bright, shutter pii, iris pii, manual
      - full auto: wdr (view dr), slow shutter, gain limit
      - bright: level, shutter pii, speed, gain limit
      - iris pii: iris, gain limit
      - manual: gain, speed, iris
  - page 2: white balance, ex-comp level, noise reduction, image stabilizer
    - current mode: auto, in door, out door, one push, atw, manual
      - mode: auto, in door, out door
      - m.gain r
  - page 3: pan/tilt limit, current mode
    - on/off
    - right
    - left
    - up
    - down
  - page 4: d-zoom, audio, current mode
    - on/off
    - agc
    - equalizer
  - page 5: system mode, vsca rate
Initial value and preset

- The initial values are the factory settings.
- When the power is turned on, this unit starts operation with the settings stored in preset 1.
- In "Preset 1 to 256", the items that are preserved even after the power from the camera is turned off are indicated by a circle (○), and the items that are not preserved are indicated by a cross (×).

<table>
<thead>
<tr>
<th>Mode/Position setting</th>
<th>Initial settings</th>
<th>Preset 1</th>
<th>Presets 2 to 256</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pan/Tilt Position</td>
<td>Home position</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Pan/Tilt Limit Position</td>
<td>Maximum range of movement</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Zoom Position</td>
<td>Wide end</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>D-Zoom On/Off</td>
<td>On</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Focus Position</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Focus Auto/Manual</td>
<td>Auto</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Near Limit settings</td>
<td>D000h (30 cm)</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>AF Sensitivity</td>
<td>Normal</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>AF Mode</td>
<td>Normal</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>AF Run Time</td>
<td>5 sec</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>AF Interval</td>
<td>5 sec</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>WB Mode</td>
<td>Auto</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>WB Data (Rgain, Bgain)</td>
<td></td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>One Push WB Data</td>
<td>—</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>AE Mode</td>
<td>Full Auto</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>WD Mode</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Auto Slow Shutter Mode</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Shutter Position</td>
<td>—</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Iris Position</td>
<td>—</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Gain Position</td>
<td>—</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Bright Position</td>
<td>—</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Exposure Compensation On/Off</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Exposure Compensation Amount</td>
<td>±0</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>BackLight On/Off</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Aperture Level</td>
<td>0Ah</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>High Resolution Mode On/Off</td>
<td>Off</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Picture Effect</td>
<td>Off</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>ICR On/Off</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Auto ICR On/Off</td>
<td>Off</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Auto ICR Threshold Level</td>
<td>0Eh</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Image Stabilizer On/Off</td>
<td>Off</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>High Sensitivity Mode On/Off</td>
<td>Off</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Gamma</td>
<td>0:standard</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Defog On/Off</td>
<td>Off</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>NR level</td>
<td>3</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Gain Limit</td>
<td>—</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Low-Illumination Chroma Suppres</td>
<td>2h (Middle)</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Color Gain</td>
<td>4h (100%)</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Color Hue</td>
<td>7h (0 degree)</td>
<td>○</td>
<td>×</td>
</tr>
</tbody>
</table>

Notes

- When turning the power off and on again, if you want to reflect the camera conditions and pan/tilt position that are set before the power is turned off, store the settings in POSITION1.
- The setting or deleting of memory to/from preset 1 takes approx. 2 seconds longer than other channels.
- When ImageFlip is executed, all presets are reset to the initial value.
- CAM_Memory command is effective only for PRESET 1 through 16.
### Specifications

#### System

<table>
<thead>
<tr>
<th>Video signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920 × 1080p/59.94(A)</td>
</tr>
<tr>
<td>1920 × 1080p/59.94(B)</td>
</tr>
<tr>
<td>1920 × 1080p/29.97</td>
</tr>
<tr>
<td>1920 × 1080i/59.94</td>
</tr>
<tr>
<td>1280 × 720p/59.94</td>
</tr>
<tr>
<td>1280 × 720p/29.97</td>
</tr>
<tr>
<td>1920 × 1080p/50(A)</td>
</tr>
<tr>
<td>1920 × 1080p/50(B)</td>
</tr>
<tr>
<td>1920 × 1080p/25</td>
</tr>
<tr>
<td>1920 × 1080i/50</td>
</tr>
<tr>
<td>1280 × 720p/50</td>
</tr>
<tr>
<td>1280 × 720p/25</td>
</tr>
<tr>
<td>Web UI (switched with the SYSTEM SELECT switch)</td>
</tr>
</tbody>
</table>

#### Synchronization

- Internal synchronization

#### Image Device

- 1/2.8 type Exmor CMOS

#### Lens

- 30× (optical), 12× (digital)
- f = 4.3 mm (wide) to 129 mm (tele)
- F1.6 to 4.7
- Horizontal angle: 65 degrees (WIDE end)

#### Minimum Object Distance

- 10 mm (3/32 inch) (WIDE end) to 1200 mm (47 1/4 inches) (TELE end)

#### Minimum Illumination

- 1.4 lux (F1.6, 50 IRE, high-sensitivity mode OFF, 30fps)
- 2.8 lux (F1.6, 50 IRE, high-sensitivity mode OFF, 60fps)
- 0.35 lux (F1.6, 50 IRE, high-sensitivity mode ON, 30fps)
- 0.7 lux (F1.6, 50 IRE, high-sensitivity mode ON, 60fps)

#### Shutter Speed

- 1/1 to 1/10000 sec. (22 steps)

#### Video S/N

- 50 dB

#### Pan/tilt Action

- Horizontal: ±170 degrees
  - Maximum panning speed: 60 degrees/sec.
  - Vertical: +90, –30 degrees (IMAGE FLIP: OFF)
  - +30, –90 degrees (IMAGE FLIP: ON)
  - Maximum tilting speed: 60 degrees/sec.

#### Input/Output Connectors

- **HDMI OUT connector** (HDMI connector)
- **VISCA RS-422 connector** (RJ-45)
- **Power connector** (JEITA type4 (DC 12 V))
- **SDI OUT connector** (BNC connector)
- **LAN connector** (RJ-45 (IEEE802.3at compatible))

### General

- **Input Voltage**: DC 12 V (AC adaptor 100 to 240 V, 50/60Hz)
- **PoE+ (IEEE802.3at compatible)**
- **Power Consumption**: 25.5 W
- **Operating Temperature**: 0 ºC to +40 ºC (+32 ºF to +104 ºF)
- **Storage Temperature**: –20 ºC to +60 ºC (–4 ºF to +140 ºF)
- **Dimensions**: Video camera: 159 × 187.5 × 200.5 mm (6 3/8 × 7 1/2 × 8 inches) (w/h/d)
- **(Projection is not included)**
- **Infrared Remote Commander**: 56 × 26 × 210 mm (2 1/4 × 1 1/16 × 8 3/8 inches) (w/h/d)
- **Installation Angle**: Less than ±15 degrees to the horizontal surface

### Supplied Accessories

- **AC power adaptor** (1)
- **AC power cord** (1)
- **Infrared Remote Commander** (1)
- **Ceiling bracket (A)** (1)
- **Ceiling bracket (B)** (1)
- **Wire rope** (1)
- **Screw M3 × 8** (9)
- **Screw M2.6 × 6 BLACK** (1)
- **HDMI cable fixing plate** (1)
- **Safety Regulations** (1)
- **Operating Instructions - Download site information** (1)
- **Warranty** (1)

Design and specifications are subject to change without notice.
Using the VISCA RS-422 connector pin assignments

The VISCA RS-422 connector pin assignments

1 To stabilize the voltage level of the signal, connect both ends to GND.
2 For the network cable, use a cable that is category 5e or higher and is equivalent or higher than a shield twist pair.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX –</td>
</tr>
<tr>
<td>2</td>
<td>TX +</td>
</tr>
<tr>
<td>3</td>
<td>RX –</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>RX +</td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Connection diagram of a Remote Control unit (RM-IP10)

Notes
- In order to stabilize the voltage level of the signal, connect both ends to GND.
- For the network cable, use a cable that is category 5e or higher and is equivalent or higher than a shield twist pair.