

Interchangeable Lens Digital Camera

CGI Command List
Software Version 2.00

ILME-FR7 / ILME-FR7K

Table of Contents

Overview	3
About This Document	3
Advance Preparation	3
Initial Setup	3
Changing the Setting of Referer Check	3
About Authentication	3
Setting/Inquiring by CGI Commands	4
Setting by Commands	4
Inquiring by Commands	4
Command List	6
About the Press/Release commands	6
Status Acquisition	7
Shooting Operations.....	11
Project Settings.....	36
Image Creation Settings	40
Video Output Settings	43
Audio Settings.....	44
Network Settings	46
Streaming Settings/Operation	57
Metadata Settings	65
Maintenance	66
Web App	72
Supported Codecs	73
RTSP Request URL	73
RTSP Methods	74
Supported Methods	74
Typical Sequence of RTSP Communication	75
Stream Acquisition	76
Video Stream Acquisition	77
RTP/RTCP	86
RTP Header Fields	86
SR: Sender Report RTCP Packet	87
Userdata Information in Video Bitstream	88
Userdata Information Under H.264 Video Codec	88
Userdata Information Under H.265 Video Codec	89
CGI Command Setting Values	90
Camera IP Setup Command	97

Use of control software based upon this command list may cause malfunction or damage to hardware and software. We are not liable for any such damage.

Overview

About This Document

This document describes the CGI command specifications and RTSP streaming specifications of the ILME-FR7 / ILME-FR7K Interchangeable Lens Digital Camera. In this document, the product is referred as “the camera” or “the unit.”

Advance Preparation

This document provides information about how to control the unit remotely via network and stream video/audio by using CGI commands supported by the unit and the RTSP function. To use CGI commands and RTSP streaming function, some pre-configurations are required. These pre-configurations are described below.

Initial Setup

To access the camera, the administrator password, language, and clock settings must be configured. For details about initial setup, refer to “Initializing the Unit” in the Help Guide.

Changing the Setting of Referer Check

By default, CGI command delivery checks the requests by checking the Referer field in HTTP headers to make sure that they are available only via the Web page built in the camera. You can change the setting to prevent CGI requests from being denied by this Referer check function.

For more information on how to change the setting of the Referer check function via the setup menu in a web browser, refer to [Referer Check] in the [Network] menu in “Web Menu and Detailed Settings” in the Help Guide.

If you use CGI commands with Referer check enabled, you can do so by adding an Referer header to the HTTP header like below when you create CGI request.

`Referer: http://<camera_address>/\r\n`

Where <camera_address> is the IP address of the camera (when HTTP port number is 80).

About Authentication

This device supports HTTP/RTSP Digest authentication defined by IETF RFC 2617. To use CGI commands on this unit, authentication at the necessary level is required. When you build software to achieve CGI command communication with the camera, build HTTP header to authenticate appropriately for HTTP 401 Unauthorized response as the response of command request.

To use RTSP streaming function supported by the device, authentication at the necessary level

should be performed based on the RTSP authentication setting. When you build software to achieve RTSP streaming function with the camera, build RTSP header to authenticate appropriately for RTSP 401 Unauthorized response as the response of command request. For more information on how to change the setting of the RTSP authentication function via the setup menu in a web browser, refer to [Stream] > [RTSP] > [RTSP Authentication] in the [Stream] menu in "Web Menu and Detailed Settings" in the Help Guide. When authentication is set to On, the user name and password of the unit will require authentication for RTSP streaming.

Note

If authentication errors are repeated from the same computer, the subsequent request may be regarded as Brute-force attack. Build the software to add credential information with appropriate user/password in case of HTTP 401 response reception. For more information on how to change the setting of the brute force attack protection function via the setup menu in a web browser, refer to [Brute Force Attack Protection] in the [Network] menu in "Web Menu and Detailed Settings" in the Help Guide.

Setting/Inquiring by CGI Commands

Setting by Commands

Set the camera by describing the CGI commands following the syntax below. It is possible to transmit several parameters at one time if the parameter the same CGI name (part of <cgi> of Syntax). In this case, it is necessary to insert "&" between each <parameter>=<value>.

Method

GET/POST

Syntax

```
http://<camera_address>/command/  
<cgi>?<parameter>=  
<value>[&<parameter>=<value>...]  
or  
http://<camera_address>/command/  
<cgi>?<parameter>=  
<value1,value2,...,valueN>
```

Parameters

See the "Command List" for details. Note that angle brackets in the "Command List" table ("<" and ">") mean that a string between one pair of angle brackets is just a symbol for numbers, but parameter name itself. For example, if a parameter name is described as SampleParam<n>, for actual usage, SampleParam1, SampleParam2, ... are valid expressions.

Inquiring by Commands

The following Inquiry command is used current status of the camera. An item which has an inquiry parameter in "Command List" can be inquired using its current settings. As a response format, "standard format" and "JS (Java Script) parameter format" are supported.

Method

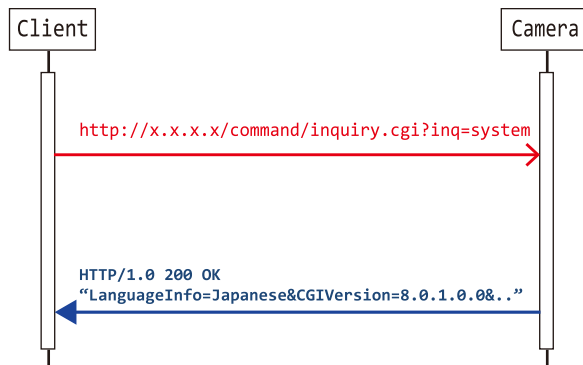
GET/POST

Syntax1 (standard format)

```
http://<camera_address>/command/inquiry.cgi?inq=
<Inquiry>[&inq=<Inquiry>...]
```

The response is as follows in the case of standard format.

```
HTTP/1.0 200 OK\r\n Content-Type: text/plain\r\n
Content-Length: <len>\r\n
\r\n
<parameter>=<value>[&<parameter>=<value>&
<parameter>=<value>...]
```



Syntax2 (JS parameter format)

```
http://<camera_address>/command/
inquiry.cgi?inqjs=
<Inquiry>[&inqjs=<Inquiry>...]
```

The response is as follows in the case of JS parameter format.

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <len>\r\n
\r\n
var <parameter>="<value>"\r\n
var <parameter>="<value>"\r\n
var <parameter>="<value>"\r\n
:
:
```



Command List

Bold values in the “Value” column in the tables indicate default values.

About the Press/Release commands

Press/Release commands represent a button press/release operation in the GUI. They are defined for functions that operate while a button is pressed. There are also functions that operate differently depending on whether you press and hold a button.

Functions start when a Press command is received and stop when a Release command is received.

Always issue these commands as a pair.

Unless otherwise noted, the criterion for judging whether the required operation is a press-and-hold operation is that a Release command is received after 1 second or more since a Press command was received.

To execute a press-and-hold operation, make sure there is at least 1 second between receiving the Press and Release commands.

To avoid executing a press and hold operation, send the Press and Release commands in sequence.

For information about the action of each command, refer to the description for the corresponding button of the Web App in the Help Guide.

The button names in the “Corresponding Web App button” column in the tables follow the notation in the Help Guide of the camera.

assignable.cgi

CGI item name		Command	Corresponding Web App button
Assignable Button	Assignable Button	AssignableButton<n>	Live operation screen/Playback operation screen > assignable button 1 to assignable button 9
		AssignableButtonFocus Hold	Live operation screen/Playback operation screen > [Focus Hold] button

cameraoperation.cgi

CGI item name		Command	Corresponding Web App button
Menu operation	Menu	CamMenuSelector	Live operation screen/Playback operation screen > GUI control panel > Up/Down/Left/Right and [Set] buttons
Media	Media	MediaRecording	Live operation screen/Playback operation screen > Record START/STOP button
		MediaRecording2nd	Live operation screen > [Others] tab > [2nd Rec START/STOP] button
	Slot	MovieForward	Playback operation screen >  (Fast Forward) button
Movie	Movie	MovieNext	Playback operation screen >  (Next) button
		MoviePlayPause	Playback operation screen >  (Play/Pause) button
		MoviePrev	Playback operation screen >  (Previous) button
		MovieReverse	Playback operation screen >  (Fast Reverse) button
		MovieStop	Playback operation screen >  (Stop) button
		SlotSelect	Playback operation screen > [Slot Select] button
Display operation	Display	DisplayButton	Live operation screen/Playback operation screen > [Display] button
	Thumbnail	ThumbnailButton	Playback operation screen > [Thumbnail] button

imaging.cgi

CGI item name		Command	Corresponding Web App button
ISO/Gain/Exposure Index	AGC	ExposurePushAGC	Not applicable
	Auto ND Filter	ExposurePushAutoND Filter	Live operation screen > ND Filter adjustment panel > [Push Auto] button
Iris	Auto Iris	ExposurePushAutoIris	Live operation screen > Iris adjustment panel > [Push Auto] button
White Balance	White Balance	WhiteBalanceWBSet	Live operation screen > White balance adjustment panel > [WB Set] button
Focus	Focus Hold	FocusHold	Live operation screen > Focus tab > [Focus Hold] button
	Focus Tracking	FocusTrackingCancel	Live operation screen > Camera image panel >  (Realtime tracking AF stop) button
	Push AF/Push MF	FocusPushAFMF	Live operation screen > Focus tab > [Push AF/MF] button

Status Acquisition

Function	Command
Get basic information about the unit	system
Get user permission level	viewermode
Get camera status indicator information	indicator
Get error status of the unit	status

Get basic information about the unit

system

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq=system

CGI item name		Parameter	Set Inq	Value	Description
Power-on and Standby	Power	Power	Inq	on, standby	Returns the status of the camera power supply. on: Operating standby: Standby
User Management	Administrator	PasswordChanged	Inq	1, 0	Returns whether the admin password has been changed or not. 0: Not changed 1: Changed
Language setting	Language	LanguageInfo	Inq	Same as the Language inquiry of Language.cgi.	Returns the current language.
Clock setting	Date Time	DateTimeChanged	Inq	1, 0	Returns whether the internal clock is set or not. 0: Not set 1: Already set

CGI item name		Parameter	Set Inq	Value	Description
System	Cam Message	CGIVersion	Inq	–	Returns the version number of the CGI command.
		ModelName	Inq	–	Returns the model name of the camera.
		Serial	Inq	–	Returns the serial number of the camera.
		SoftVersion	Inq	–	Returns the software version of the camera.
	Lens Information	LensModelName	Inq	–	Returns the model name of the lens.
		LensModelNamePmt	Inq	enable, disable, display_only	Status of the value obtained by LensModelName. enable, display_only: Value is enabled disable: Value is disabled
		LensSerial	Inq	–	Returns the serial number of the lens.
		LensSerialPmt	Inq	enable, disable, display_only	Status of the value obtained by LensSerial. enable, display_only: Value is enabled disable: Value is disabled
		LensSoftVersion	Inq	–	Returns the software version of the lens.
		LensSoftVersionPmt	Inq	enable, disable, display_only	Status of the value obtained by LensSoftVersion. enable, display_only: Value is enabled disable: Value is disabled
	System Capability	EncryptionCapability	Inq	1, 0	Returns whether the encrypted communication function is supported or not. 1: Supported 0: Not supported
		IsRecordable	Inq	1, 0	Returns whether the recording function is supported or not. 1: Supported 0: Not supported
		ScreenReader Capability	Inq	1, 0	Returns whether the screen reader function is supported or not. 1: Supported 0: Not supported
Lens calibration	Lens	LensCalibrateStatus	Inq	calibrated, not_calibrated, no_mount	Returns the lens calibration status. calibrated: Yes not_calibrated: Not yet no_mount: No lens attached

Get user permission level

viewer mode

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq=viewer mode

CGI item name		Parameter	Set Inq	Value	Description
User Management	User	ViewerMode	Inq	ffffff	Returns the access authority of the users accessing the camera. ffffff: Administrator (when accessed via Web browser, all the functions including the camera setting about this unit can be used.)

Get camera status indicator information

indicator

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq=indicator

CGI item name		Parameter	Set Inq	Value	Description
System	Cam Message	CamMessage Displaying	Inq	–	For Cam Message display.
Web App status display command	Indicator	CameraOperating State	Inq	–	For Camera Operating status display.
		IndicatorAeMode State	Inq	–	For Auto Exposure Mode display.
		IndicatorCizIcon State	Inq	–	For CIZ Icon display.
		IndicatorCizRatio State	Inq	–	For CIZ Ratio display.
		IndicatorCizRatio StatePmt	Inq	–	For CIZ Ratio Permit display.
		IndicatorClipName State	Inq	–	For Clip Name display.
		IndicatorClipName StatePmt	Inq	–	For Clip Name Permit display.
		IndicatorClipNumber State	Inq	–	For Clip Number display.
		IndicatorClipNumber StatePmt	Inq	–	For Clip Number Permit display.
		IndicatorClipTotal NumberState	Inq	–	For Clip Total Number display.
		IndicatorClipTotal NumberStatePmt	Inq	–	For Clip Total Number Permit display.
		IndicatorCreateDate State	Inq	–	For Create Date display.
		IndicatorCreateDate StatePmt	Inq	–	For Create Date Permit display.
		IndicatorFaceEyeAF State	Inq	–	For Face Eye AF display.
		IndicatorFocusMode State	Inq	–	For Focus Mode display.
		IndicatorFocus PositionFeetState	Inq	–	For Focus Position (Feet) display.
		IndicatorFocus PositionMeterState	Inq	–	For Focus Position (Meter) display.
		IndicatorFocus PositionPmt	Inq	–	For Focus Position Permit display.
		IndicatorFocus PositionUnitState	Inq	–	For Focus Position Unit display.
		IndicatorPlaying CodecState	Inq	–	For Playing Codec display.
		IndicatorPlaying FrameRateState	Inq	–	For Playing Frame Rate display.
		IndicatorPlaying GammaState	Inq	–	For Playing Gamma display.
		IndicatorPlaying ImageSizeState	Inq	–	For Playing Image Size display.
		IndicatorPlayingSlot State	Inq	–	For Playing Slot display.

CGI item name		Parameter	Set Inq	Value	Description
Web App status display command	Indicator	IndicatorPlayingState	Inq	–	For Playing display.
		IndicatorRawRecState	Inq	–	For RAW Rec display.
		IndicatorRawResolutionState	Inq	–	For RAW Resolution display.
		IndicatorRecState	Inq	–	For REC display.
		IndicatorRegisteredTrackingFaceState	Inq	–	For Registered Tracking Face display.
		IndicatorSlotARemainState	Inq	–	For Slot A Remain display.
		IndicatorSlotAState	Inq	–	For Slot A status display.
		IndicatorSlotBRemainState	Inq	–	For Slot B Remain display.
		IndicatorSlotBState	Inq	–	For Slot B status display.
		IndicatorTrackingAFStopState	Inq	–	For AF Stop display.
		IndicatorZoomPositionPmt	Inq	–	For Zoom Position Permit display.
		IndicatorZoomPositionRateState	Inq	–	For Zoom Position (%) display.
		IndicatorZoomPositionState	Inq	–	For Zoom Position (mm) display.
		IndicatorZoomPositionUnitState	Inq	–	For Zoom Position Unit display.

Get error status of the unit

status

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq=status

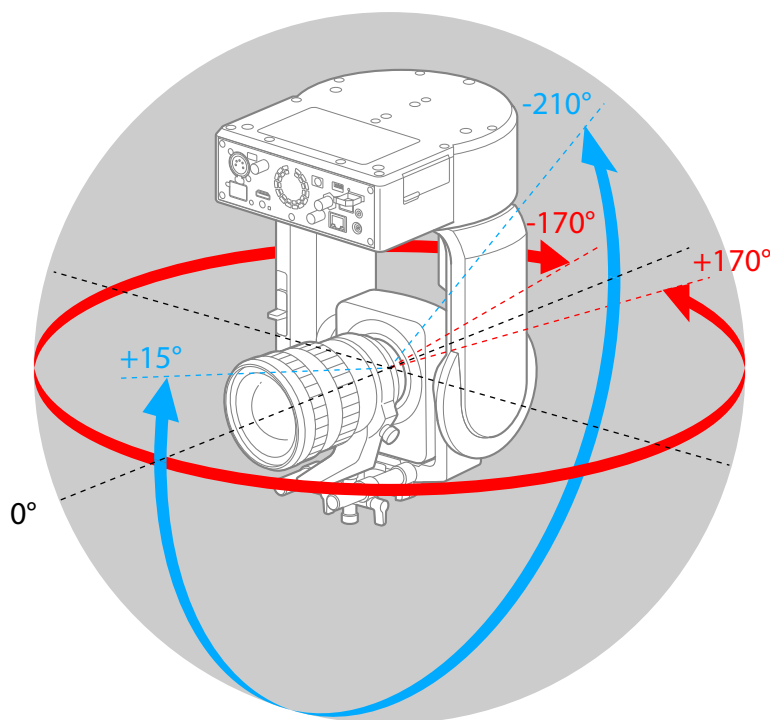
CGI item name		Parameter	Set Inq	Value	Description
Warning	Temperature	Temperature Warning	Inq	1, 0	Returns the temperature status within the camera. 0: Normal 1: Abnormal

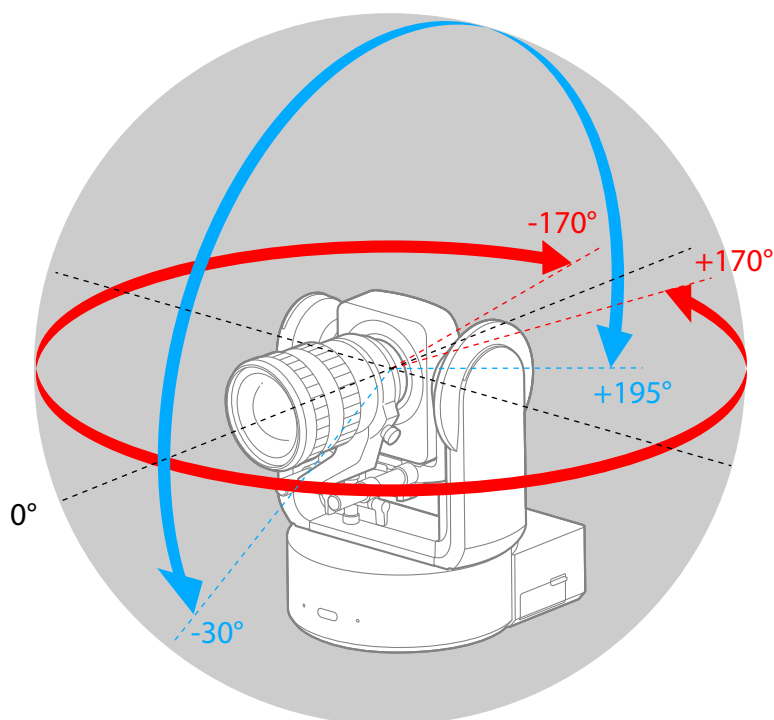
Shooting Operations

Function	Command
Settings related to pan/tilt/zoom/focus	ptzf
Settings related to preset positions	presetposition preseting
Settings related to PTZ trace	trace traceimg
Settings related to exposure/white balance	imaging
Operations related to camera image screen display and recording/playback	cameraoperation
Settings related to special shooting functions and LUT operation	shooting
Assignable button operations	assignable
Settings related to tally lamp and status acquisition	tally
Settings related to lens controller	lenscontroller

Settings related to pan/tilt/zoom/focus

Refer to the following diagrams and table for the pan/tilt coordinates.



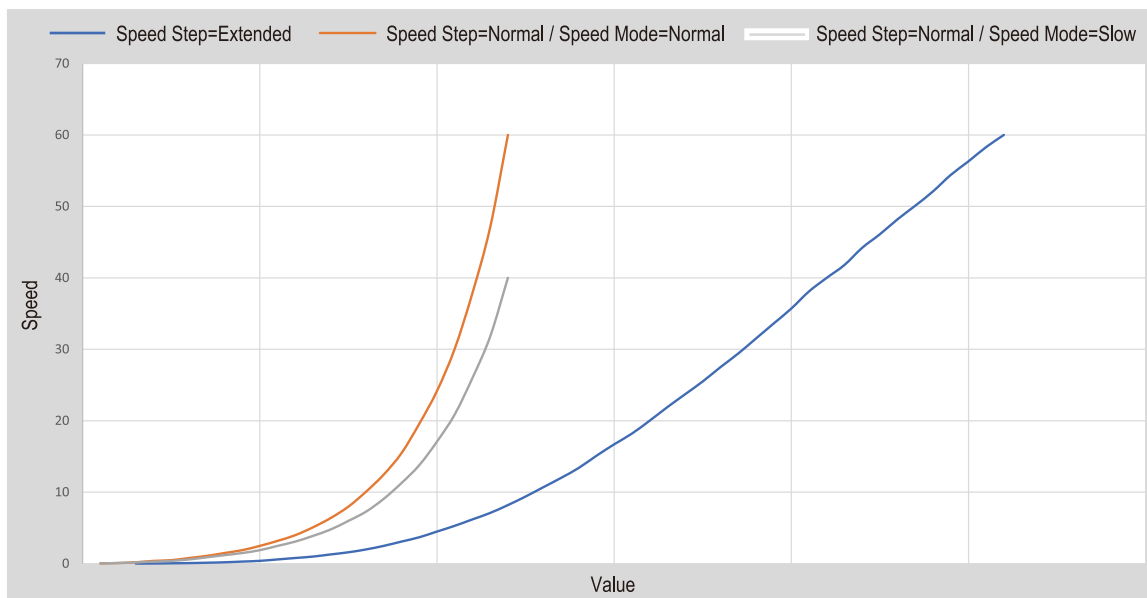


Setup item	Value	Position
Pan	09ca7 (CCW)	170°
	00000 (center)	0°
	f6359 (CW)	-170°
Tilt (Setting Position: Desktop)	0b3b0 (up)	+195°
	00000 (center)	0°
	fe45b (down)	-30°
Tilt (Setting Position: Ceiling)	00dd2 (up)	+15°
	00000 (center)	0°
	f3e7d (down)	-210°

The pan/tilt position is a hexadecimal value.

Refer to the following table and graph for the pan/tilt speed setting.

Item	Sub-item setting	Factory default	Description
Speed Step	Normal / Extended	Extended	Sets the number of speed steps of the pan/tilt drive. Normal: Speed can be specified using 24-step range. Use this setting for compatibility with existing Sony remote cameras. Extended: Speed can be specified using 50-step range.
Speed Mode	Normal / Slow	Normal	Sets the speed mode of the pan/tilt drive. Enabled only when [Speed Step] is set to [Normal]. Normal: Operates in normal-speed range (minimum to maximum (60 degrees/second)). Slow: Operates in low-speed range (minimum to maximum (40 degrees/second)).



Refer to the following table for the zoom position.

Position	Value	Comment
Optical Wide end	0000	
Optical Tele end	4000	
Clear Image Zoom 1.5×	5556	Clear Image Zoom Tele end at 3840×2160 or higher
Clear Image Zoom 2.0×	6000	Clear Image Zoom Tele end

Value of zoom position is hexadecimal.

Refer to the following table for the focus position.

Position	Value	Comment
Far end	0000	
Near end	FFFF	

The focus position is a hexadecimal value.

ptzf

Setting (Set): command/ptzf.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=ptzf

CGI item name		Parameter	Set Inq	Value	Description
Focus	Absolute	AbsoluteFocus	Set Inq	0000h to ffffh (hex)	Moves the focus position by specifying a position. This command is only valid when FocusMode is set to manual. 0000: Far ffff: Near
		AbsoluteFocusPmt	Inq	enable, disable, display_only	AbsoluteFocus configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	AF Assist Control	AFAssistControl	Set Inq	off, on	Turns the AF assist function on/off in the Web App. The Web App AF assist function is enabled when both AFAssistControl and AF assist in the camera menu are set to On.

CGI item name		Parameter	Set Inq	Value	Description
Focus	AF Subject Shift Sensitivity	FocusAFSubjShift Sens	Set Inq	1 to 5	Sets the sensitivity for changing subject focus during auto focus.
		FocusAFSubjShift SensPmt	Inq	enable, disable, display_only	FocusAFSubjShiftSens configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Indicator	AF Transition Speed	FocusAFTransition Speed	Set Inq	1 to 5 to 7	Sets the speed of the focus drive for when the subject changes during auto focus.
		FocusAFTransition SpeedPmt	Inq	enable, disable, display_only	FocusFaceEyeDetectionAF configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Face/Eye Detection AF	FocusFaceEye DetectionAF	Set Inq	only_af, priority_af , off	Enables/disables face detection AF. only_af: Face only AF priority_af: Face priority AF off: Face detection AF disabled
		FocusFaceEye DetectionAFPmt	Inq	enable, disable, display_only	FocusFaceEyeDetectionAF configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	FocusHold	FocusHold	Set	press, release	Notification of [FocusHold] button press. Notifications occur in press and release order.
		FocusHoldPmt	Inq	enable, disable, display_only	FocusHold configurable status. enable: Configurable display, display_only: Not configurable
	Focus Mode	FocusMode	Set Inq	auto , manual	Sets the focus control mode. auto: Automatically controlled by the camera manual: Manually controlled by the user
		FocusModePmt	Inq	enable, disable, display_only	FocusMode configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Push AF/ Push MF	FocusPushAFMF	Set	press, release	Notification of [Push AF/MF] button press. Notifications occur in press and release order.
		FocusPushAFMFPmt	Inq	enable, disable, display_only	FocusPushAFMF configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description
Indicator	Focus Tracking	FocusTrackingCancel	Set	press, release	Notification of tracking cancel button press. Notifications occur in press and release order.
		FocusTrackingPosition	Set	[Value1] 0 to 639 [Value2] 0 to 479	Notification of touch position relative to origin at upper left. [Value1] Horizontal coordinate [Value2] Vertical coordinate
		FocusTrackingPositionPmt	Inq	enable, disable, display_only	FocusTrackingPosition configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		FocusTrackingStatus	Inq	off, focusing, tracking	Focus tracking status.
	Push AF Mode	PushAFMode	Set Inq	af, af-s	Sets the push auto focus mode. af: AF af-s: Single-shot AF(AF-S)
		PushAFModePmt	Inq	enable, disable, display_only	PushAFMode configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Touch Focus in MF	TouchFocusInMF	Set Inq	tracking_af, spot_focus	Sets the action that occurs when the Web App monitor panel is tapped during manual focus.
		TouchFocusInMFPmt	Inq	enable, disable, display_only	TouchFocusInMF configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Pan-Tilt	Absolute value drive (Pan: 5 digits, Tilt: 5 digits)	AbsolutePanTilt	Set	[Value1] f6359h (CW) to 00000h (Center) to 09ca7h (CCW) [Value2] The available values depend on the SettingPosition setting. fe45bh (down) to 00000h (Center) to 0b3b0h (up) (Desktop) f3e7ch (down) to 00000h (center) to 00dd2h (up) (Ceiling) [Value3] The available values depend on the Speed Step setting. 1 to 24 (Normal) 1 to 50 (Extended)	Executes the pan/tilt movement by specifying coordinates. AbsolutePanTilt=Value1,Value2,Value3 [Value1] Sets the pan position coordinates. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value2] Sets the tilt position coordinates. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value3] Sets the movement speed. * The larger the number, the faster the speed. * Refer to "Pan/Tilt Speed" in "CGI Command Setting Values."

CGI item name		Parameter	Set Inq	Value	Description
Pan-Tilt	Relative value drive (Pan: 5 digits, Tilt: 5 digits)	AbsolutePTZF	Set Inq	[Value1] f6359h (CW) to 00000h (Center) to 09ca7h (CCW) [Value2] The available values depend on the SettingPosition setting. fe45bh (down) to 00000h (Center) to 0b3b0h (up) (Desktop) f3e7ch (down) to 00000h (center) to 00dd2h (up) (Ceiling) [Value3] The available values depend on the Zoom Mode status and the picture size of the output signal format. 0000h to 4000h [Value4] 0000h to ffffh	Executes the pan/tilt/zoom/focus movement by specifying coordinates, or returns the current coordinates. AbsolutePTZF=Value1,Value2,Value3,Value4 [Value1] Sets the pan position coordinates. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value2] Sets the tilt position coordinates. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value3] Sets the zoom position coordinates. When [Zoom Type] is set to [On(Clear Image Zoom)], [Value3] is ignored. * Refer to "Zoom Position" in "CGI Command Setting Values." [Value4] Sets the focus position coordinates. During Auto Focus, [Value4] is ignored. * Refer to "Focus" in "CGI Command Setting Values."
		RelativePanTilt	Set	[Value1] ec6b2h to 1394eh [Value2] f30abh to 1394eh [Value3] 1 to 24/50	Executes the pan/tilt movement by specifying relative coordinate from the current position. RelativePanTilt=Value1,Value2,Value3 [Value1] Sets the pan position coordinates. [Value2] Sets the tilt position coordinates. [Value3] Sets the speed The value indicating the maximum speed varies depending on the PanTiltSpeedStep setting. Normal: 24 Extended: 50
	Acceleration	RampCurve	Set Inq	1 to 8 to 9	Sets the pan/tilt acceleration/deceleration curve. The smaller the value, the slower the change in speed.
	Cancel	Cancel	Set	on	Cancels the running PTZ command.
	Direction	PanDirection	Set Inq	normal, opposite	Sets the operating direction for pan direction drive command. normal: Normal direction opposite: Opposite direction The initial value is determined by the state of SettingPosition. Desktop: normal Ceiling: opposite
		SettingPosition	Set Inq	desktop , ceiling	Sets the camera installation type. desktop: Mounted upright ceiling: Mounted on a ceiling
		TiltDirection	Set Inq	normal , opposite	Sets the operating direction for tilt direction drive command. normal: Normal direction opposite: Opposite direction
	Pan-Tilt	PanTiltReset	Set	on	Resets the pan/tilt position of the camera to determine the position correctly and to control pan/tilt.

CGI item name		Parameter	Set Inq	Value	Description
Pan-Tilt	Pan-Tilt Capability	PanMovementRange	Inq	[Value1] 09ca7h [Value2] f6359h	Returns the coordinates for possible movement range of pan. PanMovementRange=Value1,Value2 [Value1] Left end [Value2] Right end * Refer to "Pan/Tilt Position" in "CGI Command Setting Values."
		PanTiltMaxVelocity	Inq	Depends on the PanTiltSpeedStep setting. 24 (Normal) 50 (Extended)	Returns a value indicating the maximum speed of pan/tilt movement.
		TiltMovementRange	Inq	[Value1] Depends on the SettingPosition setting. fe45bh (Desktop) f3e7dh (Ceiling) [Value2] Depends on the SettingPosition setting. 0b3b0h (Desktop) 00dd2h (Ceiling)	Returns the coordinates for possible movement range of tilt. TiltMovementRange=Value1,Value2 [Value1] Lower end [Value2] Upper end * Refer to "Pan/Tilt Position" in "CGI Command Setting Values."
	Pan-Tilt Limit	PanLimit	Set Inq	[Value1] f635ah to 09ca7h [Value2] f6349h to 09ca6h	Sets the limitation of pan range. PanLimit=Value1,Value2 Value1 must be greater than Value2. This parameter is only valid when PanLimitMode is set to 'limited'. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value1] Setting for the left-side coordinates. 09ca7: (Left end) [Value2] Setting for the right-side coordinates. f6359: (Right end)
		PanLimitMode	Set Inq	unlimited , limited	Sets the limit mode of pan range. unlimited: Unlimited limited: Limited to the range given by PanLimit.
		TiltLimit	Set Inq	[Value1] The available values depend on the SettingPosition setting. fe45bh to 0b3afh (Desktop) f3e7dh to 00dd1h (Ceiling) [Value2] The available values depend on the SettingPosition setting. fe45ch to 0b3b0h (Desktop) f3e7eh to 00dd2h (Ceiling)	Sets the limitation of tilt range. TiltLimit=Value1,Value2 Value1 must be less than Value2. This parameter is only valid when TiltLimitMode is set to 'limited'. * Refer to "Pan/Tilt Position" in "CGI Command Setting Values." [Value1] Setting for the bottom-side coordinates. [Value2] Setting for the top-side coordinates.
		TiltLimitMode	Set Inq	unlimited , limited	Sets the limit mode of tilt range. unlimited: Unlimited limited: Limited to the range given by TiltLimit.

CGI item name		Parameter	Set Inq	Value	Description
Pan-Tilt	Pan-Tilt Lock	PanTiltLockStatus	Inq	0, 1	Pan/tilt lock state. 0: Unlocked state 1: Locked state
	Pan-Tilt Motor Power	PanTiltMotorPower	Set Inq	normal , low	Adjusts the motor power for driving the pan/tilt. normal: Normal low: Low power Note Use [normal] for normal operation.
	Drive direction	PanTiltMove	Set	[Value1] up, down, left, right, up-left, up-right, down-left, down-right, stop [Value2] 0 to 24/50 [Value3] 0 to 24/50	Specifies the pan/tilt direction and speed. [Value1] Direction or stopped [Value2] Pan direction speed The maximum speed varies depending on the PanTiltSpeedStep setting. Normal: 24 Extended: 50 [Value3] Tilt direction speed The maximum speed varies depending on the PanTiltSpeedStep setting. Normal: 24 Extended: 50
	Pan-Tilt Status	PtzfStatus	Inq	[Value1] idle, moving, unknown, uninitialized [Value2] idle, moving, unknown, uninitialized [Value3] idle, moving, unknown [Value4] idle, moving, unknown	Returns the current status of pan / tilt / zoom / focus movement. PtfzStatus=Value1,Value2,Value3,Value4 [Value1] Returns the current status of pan. [Value2] Returns the current status of tilt. [Value3] Returns the current status of zoom. [Value4] Returns the current status of focus. idle: Idle moving: Moving unknown: Abnormal status uninitialized: Not yet initialized
	Speed Mode	PanTiltSpeedMode	Set Inq	normal , slow	Sets the pan/tilt speed mode. Active when PanTiltSpeedStep is set to normal. normal: Normal slow: Slow
	Speed Step	PanTiltSpeedStep	Set Inq	normal, extended	Sets the pan/tilt speed resolution. Normal: 24 steps Extended: 50 steps
	UI	PanTiltSpeedScale	Set Inq	10 to 25 to 100	Sets the speed for pan/tilt operation using the Web App.
Zoom	UI	ZoomMove	Set	[Value1] tele, wide, stop [Value2] 0 to 32766	Sets the zoom direction and speed. ZoomMove=Value1,Value2 [Value1] Direction or stopped [Value2] Speed
		ZoomMovePmt	Inq	enable, disable, display_only	ZoomMove configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ZoomSpeedScale	Set Inq	10 to 100	Sets the speed for zoom operation using the Web App.

Settings related to preset positions

presetposition

Setting (Set): command/presetposition.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=presetposition

CGI item name		Parameter	Set Inq	Value	Description
Preset	Focus	PresetAFTransitionSpeed	Set Inq	[Value1] 1 to 100 [Value2] 1 to 7	When recalling a preset, sets AF Transition Speed (focus drive speed when the subject changes) during auto focus operation. When saving a preset, saves the AF Transition Speed value for each preset number. [Value1] Preset number [Value2] AF Transition Speed
		PresetFocusRecall	Set Inq	[Value1] 1 to 100 [Value2] on, off	When recalling a preset, turns focus recall on/off. When saving a preset, saves the PresetFocusRecallDefault value for each preset number. [Value1] Preset number [Value2] Focus recall on/off
		PresetFocusRecallDefault	Set Inq	on, off	When saving a preset, saves the focus recall on/off value for each preset number. on: Recalls focus off: Does not recall focus
		PresetMFSpeed	Set Inq	[Value1] 1 to 100 [Value2] 0 to 32766	When recalling a preset, sets MF Speed (focus drive speed) during manual focus operation. When saving a preset, saves the PresetMFSpeedDefault value for each preset number. [Value1] Preset number [Value2] MF Speed
		PresetMFSpeedDefault	Set Inq	0 to 32766	When saving a preset, saves the focus drive speed during manual focus operation for each preset number.
	Name	PresetName	Set Inq	[Value1] 1 to 100 [Value2] 0 to 32 characters	Sets the name of registered preset. Specifies one of the registered preset numbers. PresetName=Value1,Value2 Returns all the registered preset names to the inquiry. PresetName=Value11,Value21[,Value12,Value22, ...] [Value1n] Preset number [Value2n] Preset name Up to 32 alphanumeric characters can be configured.
	Pan-Tilt	HomePos	Set	recall	Moves the pan/tilt of the camera to the home position. * Coordinates of the home position are Pan: 00000, Tilt: 00000. These coordinates cannot be changed.
	Preset	PresetMode	Set Inq	ptzfonly , trace	Sets the preset mode. ptzfonly: Recalls pan/tilt/zoom/focus position trace: Operates PTZ trace.
		PresetNum	Inq	100	Returns the maximum number of preset that can be registered.

CGI item name		Parameter	Set Inq	Value	Description
Preset	Recall	PresetCall	Set	1 to 100	Recalls a registered preset by specifying a number.
	Reset	PresetClear	Set	1 to 100	Clears the preset corresponding to the specified number.
	Set	PresetSet	Set	[Value1] 1 to 100 [Value2] 0 to 32 characters [Value3]on, off	Registers the current pan/tilt/focus/zoom position and camera settings as a preset position. PresetSet=Value1,Value2,Value3 [Value1] Preset number to register [Value2] Name Preset name to register Up to 32 alphanumeric characters can be configured. [Value3] Thumbnail Sets whether to use the current camera image as a thumbnail. on: Use off: Not use
		PresetSettable	Inq	available, unavailable_ciz_range	Returns whether preset saving is available. available: Available unavailable_ciz_range: Not available.
	Speed	CommonSpeed	Set Inq	1 to 50	Sets the pan/tilt speed when SpeedSelect is set to 'common'. * Refer to "Preset Drive Speed" in "CGI Command Setting Values."
		SeparateSpeed	Set Inq	[Value1] 1 to 100 [Value2] 1 to 50	Sets the pan/tilt speed corresponding to each preset when SpeedSelect is set to 'separate'. [Value1] Preset number to be set [Value2] Speed to be set * Refer to "Preset Drive Speed" in "CGI Command Setting Values."
		SpeedSelect	Set Inq	separate, common	Sets the pan/tilt speed when recalling a preset. separate: Uses the speed set for each preset number using the SeparateSpeed command common: Uses a common speed for all preset numbers set using the CommonSpeed command
	Thumbnail	PresetThumbnail Clear	Set	1 to 100	Deletes the thumbnail of a registered preset.

CGI item name		Parameter	Set Inq	Value	Description
Preset	Zoom	PresetZoomSpeed	Set Inq	[Value1] 1 to 100 [Value2] 0 to 32766	When recalling a preset, sets the zoom drive speed while Pan-Tilt and Zoom are not synchronized. When saving a preset, saves the PresetZoomSpeedDefault value for each preset number. [Value1] Preset number [Value2] Zoom drive speed
		PresetZoomSpeed Default	Set Inq	0 to 32766	When saving a preset, saves the zoom drive speed while Pan-Tilt and Zoom are not synchronized.
		PresetZoomSync	Set Inq	[Value1] 1 to 100 [Value2] on, off	When recalling a preset, synchronizes the Pan-Tilt and Zoom operation. When saving a preset, saves the PresetZoomSyncDefault value for each preset number. [Value1] Preset number [Value2] Synchronize/Do not synchronize
		PresetZoomSync Default	Set Inq	on , off	When recalling a preset, saves whether Pan-Tilt and Zoom operation is synchronized when saving a preset for each preset number. on: Synchronize off: Do not synchronize

preseting

Obtains the thumbnail image of a specified preset number.

<Syntax>

http://<camera_address>/preset/presetimg<No.>.jpg

<No.>: Preset number

Settings related to PTZ trace

trace

Setting (Set): command/trace.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=trace

CGI item name		Parameter	Set Inq	Value	Description
PTZ Trace	Delete	TraceDelete	Set	1 to 16	Deletes the trace with the specified PTZ trace number.
	List	TraceList	Inq	[Value1] 1 to 16 [Value2] 0 to 32 characters [Value3] 1 to 180	Returns the recorded PTZ trace information. [Value1] PTZ trace number [Value2] Name [Value3] Recording time
	Name	TraceName	Set Inq	[Value1] 1 to 16 [Value2] 0 to 32 characters	Specifies the PTZ trace number and sets the name. [Value1] PTZ trace number [Value2] PTZ trace name. Up to 32 alphanumerical characters

CGI item name		Parameter	Set Inq	Value	Description
PTZ Trace	Operatable	TraceOperatable	Inq	available, unavailable_raw_code c, unavailable_sdi_off	Returns whether PTZ trace operation recording/playback is available. available: Available unavailable_raw_codec: Not available (recording format is a setting that includes RAW) unavailable_sdi_off: Not available (no video signal is being output on SDI OUT)
	Play	TracePlay	Set	start	Starts playback of a PTZ trace which is ready for playback.
		TracePlayingTime	Inq	0 to 180	Returns the time (seconds) of the position being played during PTZ trace playback.
	Prepare	TracePreparedPlay Number	Inq	1 to 16	Returns the PTZ trace number which is ready for playback. Returns 0 when not ready.
		TracePreparePlay	Set	1 to 16	Moves to the starting position of the specified PTZ trace number.
	Recording	TraceRecording	Set	[Value1] 1 to 16 [Value2] on, off	Starts trace recording to the specified PTZ trace number. TraceRecording=Value1,Value2 [Value1] PTZ trace number to register [Value2] (optional) Sets whether to use the current camera image as a thumbnail. on: Use off: Not use
		TraceRecording Number	Inq	0 to 16	Returns the number of PTZ trace recording.
		TraceStop	Set	on	Stops recording during PTZ trace recording. Or stops playback during PTZ trace playback.
		TraceRecordingTime	Inq	0 to 180	Returns the recording time (seconds) of PTZ trace recording.
	Status	TraceRecording Status	Inq	–	Returns the PTZ trace number in which the trace is registered. Example: When the trace is registered PTZ number 1, 5, 7. TraceRecordingStatus=1,5,7
		TraceStatus	Inq	none, recording, preparing, readyforplay, playing, deleting	Returns the status of the specified PTZ trace number. none: Normal (status which does not correspond to any of the following 'recording' to 'deleting') recording: Recording (interval after receiving the recording start command until recording stops) preparing: Preparing for playback (interval after receiving the playback preparation command until playback is ready) readyforplay: Ready for playback (playback preparation is finished) playing: Playing (interval after receiving the playback command until playback finishes) deleting: Deleting (interval after receiving the delete command until deletion finishes)

traceimg

Obtains the thumbnail image of the specified PTZ trace number.

<Syntax>

http://<camera_address>/trace/traceimg<No.>.jpg

<No.>: PTZ trace number

Settings related to exposure/white balance

imaging

Setting (Set): command/imaging.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=imaging

CGI item name		Parameter	Set Inq	Value	Description
CMR depth-of-field adjustment mode	Depth of Field Adjustment Mode	DepthOfFieldAdjustmentEnable	Inq	off , on	Bokeh control function on/off status.
ISO/Gain/Exposure Index	AGC	ExposureAGCEnable	Set Inq	off , on	Turns the AGC function on/off.
		ExposureAGCEnablePmt	Inq	enable, disable, display_only	ExposureAGCEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Base ISO	ExposureBaseISO	Set Inq	iso800 , iso12800	Sets the base ISO sensitivity for Cine EI mode.
		ExposureBaseISOPmt	Inq	enable, disable, display_only	ExposureBaseISO configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Base Sensitivity	ExposureBaseSensitivity	Set Inq	low , high	Sets the base sensitivity for SDR/HDR mode.
		ExposureBaseSensitivityPmt	Inq	enable, disable, display_only	ExposureBaseSensitivity configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Exposure Index	ExposureExposureIndex	Set Inq	1 to 7 to 13	Sets the Exposure Index. Available in Cine EI mode only. * Refer to "Exposure Index" in "CGI Command Setting Values."
		ExposureExposureIndexPmt	Inq	enable, disable, display_only	ExposureExposureIndex configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Exposure Index Temporary	ExposureExposureIndexTemporary	Set Inq	1 to 7 to 13	Sets a temporary Exposure Index value. Available in Cine EI mode only. * Refer to "Exposure Index" in "CGI Command Setting Values."
		ExposureExposureIndexTemporaryPmt	Inq	enable, disable, display_only	ExposureExposureIndexTemporary configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Gain	ExposureGain	Set Inq	6 to 9 to 39	Sets the gain preset value. Configurable when ExposureISOGainMode is set to gain. * Refer to "Gain" in "CGI Command Setting Values."
		ExposureGainPmt	Inq	enable, disable, display_only	ExposureGain configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description
ISO/Gain/Exposure Index	Gain Icon	ExposureGainIcon State	Inq	gain_sw_l, temporary, depth_mode, agc	For Web App display.
	Gain Temporary	ExposureGain Temporary	Set Inq	6 to 9 to 39	Sets a temporary gain value. Configurable when ExposureISOGainMode is set to gain. * Refer to "Gain" in "CGI Command Setting Values."
		ExposureGain TemporaryPmt	Inq	enable, disable, display_only	ExposureGainTemporary configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	ISO	ExposureISO	Set Inq	8 to 39	Sets the ISO preset value. Configurable when ExposureISOGainMode is set to iso. * Refer to "ISO" in "CGI Command Setting Values."
		ExposureISOPmt	Inq	enable, disable, display_only	ExposureISO configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	ISO/Gain/EI	ExposureISOGain Mode	Inq	iso, gain	Obtains the gain setting mode. iso: ISO gain: Gain
	ISO Temporary	ExposureISO Temporary	Set Inq	8 to 39	Sets a temporary ISO value. Configurable when ExposureISOGainMode is set to iso. * Refer to "ISO" in "CGI Command Setting Values."
		ExposureISO TemporaryPmt	Inq	enable, disable, display_only	ExposureISOTemporary configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Push AGC	ExposurePushAGC	Set	press, release	Notification of [Push AGC] button press. Notifications occur in press and release order.
		ExposurePushAGC Pmt	Inq	enable, disable, display_only	ExposurePushAGC configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
ND filter	Auto ND Filter	ExposureAutoND FilterEnable	Set Inq	off, on	Turns the auto ND filter function on/off.
		ExposureAutoND FilterEnablePmt	Inq	enable, disable, display_only	ExposureAutoNDFilterEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	ND Clear	ExposureNDClear	Set Inq	filtered, clear	Clears the ND filter. filtered: Use ND filter clear: Clear ND filter
		ExposureNDClear Pmt	Inq	enable, disable, display_only	ExposureNDClear configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	ND Filter Mode	ExposureNDFilter Mode	Inq	preset, variable	Switches the ND filter between preset mode and variable mode. preset: Preset mode variable: Variable mode

CGI item name		Parameter	Set Inq	Value	Description
ND filter	ND Preset	ExposureNDPreset Select	Set Inq	clear , nd1, nd2, nd3	Switches the ND filter preset mode. clear: Clear nd1: ND preset 1 nd2: ND preset 2 nd3: ND preset 3
		ExposureNDPreset SelectPmt	Inq	enable, disable, display_only	ExposureNDPresetSelect configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	ND Variable	ExposureNDVariable	Set Inq	0 to 20	Sets the variable mode value for the ND filter. * Refer to "ND Filter" in "CGI Command Setting Values."
		ExposureNDVariable Pmt	Inq	enable, disable, display_only	ExposureNDVariable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Preset Value	ExposureNDPreset1	Inq	0 to 20	Sets the preset 1 value for the ND filter. * Refer to "ND Filter" in "CGI Command Setting Values."
		ExposureNDPreset2	Inq	0 to 8 to 20	Sets the preset 2 value for the ND filter. * Refer to "ND Filter" in "CGI Command Setting Values."
		ExposureNDPreset3	Inq	0 to 16 to 20	Sets the preset 3 value for the ND filter. * Refer to "ND Filter" in "CGI Command Setting Values."
	Push Auto ND Filter	ExposurePushAuto NDFilter	Set	press, release	Notification of [Push Auto ND Filter] button* ¹ press. Notifications occur in press and release order.
		ExposurePushAuto NDFilterPmt	Inq	enable, disable, display_only	ExposurePushAutoNDFilter configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Electronic shutter	Angle	ExposureAngle	Set Inq	1 to 17 to 29	Sets the shutter angle when Angle mode is selected. * Refer to "Shutter" in "CGI Command Setting Values."
		ExposureAnglePmt	Inq	enable, disable, display_only	ExposureAngle configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ExposureAngle Range	Inq	Minimum value, maximum value	Returns the configurable minimum value and maximum value. * Refer to "Shutter" in "CGI Command Setting Values."
	Auto Shutter	ExposureAuto ShutterEnable	Set Inq	off , on	Turns the auto shutter function on/off.

CGI item name		Parameter	Set Inq	Value	Description
Electronic shutter	ECS	ExposureECS	Set Inq	0 to 1120	Sets the ECS frequency when ECS mode is selected. * Refer to "Shutter" in "CGI Command Setting Values."
		ExposureECSEnable	Set Inq	off , on	Turns the Extended Clear Scan function on/off.
		ExposureECSPmt	Inq	enable, disable, display_only	ExposureECS configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ExposureECSValue	Inq	2399 to 8000000	Returns the ECS frequency × 100.
	Shutter Speed	ExposureExposure Time	Set Inq	The available values depend on the video output format.	Sets the shutter speed. * Refer to "Shutter" in "CGI Command Setting Values."
		ExposureExposure TimePmt	Inq	enable, disable, display_only	ExposureExposureTime configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ExposureExposure TimeRange	Inq	Minimum value, maximum value	Returns the configurable minimum value and maximum value. * Refer to "Shutter" in "CGI Command Setting Values."
	Shutter	ExposureShutter Mode	Set Inq	speed , angle	Selects the operating mode of the electronic shutter. speed: Speed angle: Angle
	Shutter Mode	ExposureShutter ModeState	Inq	off, speed, angle, ecs, auto	Returns the operating mode of the electronic shutter. off: Off (full exposure) speed: Speed angle: Angle ecs: Extended Clear Scan auto: Auto shutter
		ExposureShutter ModeStatePmt	Inq	enable, disable, display_only	ExposureShutterModeState configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Shutter On/Off	ExposureShutter SpeedEnable	Set Inq	off , on	Sets whether the exposure time when Speed mode is selected follows the Shutter Speed value or is set for full exposure.
Iris	Auto Iris	ExposureAutolris	Set Inq	off , on	Turns the auto iris function on/off.
		ExposureAutolris Pmt	Inq	enable, disable, display_only	ExposureAutolris configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description
Iris	Iris	ExposureFNumber	Inq	F value × 100	Returns the iris F value × 100.
		ExposureFNumber Pmt	Inq	enable, disable, display_only	Status of value obtained by ExposureFNumber. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ExposureIris	Set Inq	0 to 65535	Sets the iris value. The brightness changes by approximately 1/256EV per change in value by 1. The settings and corresponding F value are given below. F1.0: 32768 F5.6: 31483 F32: 30208 The resolution for settings and inquiries are different. The resolution of values that can be obtained by inquiry is approximately 85. Accordingly, the set value and value obtained by inquiry may not match.
		ExposureIrisPmt	Inq	enable, disable, display_only	ExposureIris configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		ExposureIrisRange	Inq	Minimum value, maximum value	Returns the configurable minimum value and maximum value.
	Push Auto Iris	ExposurePushAuto Iris	Set	press, release	Notification of [Push Auto Iris] button ^{*1} press. Notifications occur in press and release order.
		ExposurePushAuto IrisPmt	Inq	enable, disable, display_only	ExposurePushAutoIris configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
AUTO EXPOSURE	AE Level	Exposure Compensation	Set Inq	0 to 12 to 24	Sets the brightness level for the automatically detected exposure. * Refer to "AE Level" in "CGI Command Setting Values."
		Exposure CompensationPmt	Inq	enable, disable, display_only	ExposureCompensation configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
White balance	B Gain	WhiteBalanceCb Gain	Set Inq	–990 to 0 to 990	Sets the B gain when WhiteBalanceMode is set to Memory A. Sets a value the same as the Web App display value × 10.
		WhiteBalanceCb GainPmt	Inq	enable, disable, display_only	WhiteBalanceCbGain configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description
White balance	Color Temp	WhiteBalanceColorTemp	Set Inq	2000 to 3200 to 15000	Sets the color temperature when WhiteBalanceMode is set to Memory A.
		WhiteBalanceColorTempCurrent	Inq	2000 to 3200 to 15000	Returns the current color temperature.
		WhiteBalanceColorTempMove	Set	[Value1] up, down [Value2] 1 to 30	Increases/decreases the color temperature when WhiteBalanceMode is set to Memory A. [Value1] up: Increase the color temperature. down: Decrease the color temperature. [Value2] Change in color temperature
		WhiteBalanceColorTempPmt	Inq	enable, disable, display_only	WhiteBalanceColorTemp configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	R Gain	WhiteBalanceCrGain	Set Inq	–990 to 0 to 990	Sets the R gain when WhiteBalanceMode is set to Memory A. Sets a value the same as the Web App display value × 10.
		WhiteBalanceCrGainPmt	Inq	enable, disable, display_only	WhiteBalanceCrGain configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	White Balance	WhiteBalanceGainTemp	Set Inq	gain, temp	Selects the item to adjust using the Web App when WhiteBalanceMode is set to Memory A. gain: R Gain/B Gain temp: Color Temp/Tint
		WhiteBalanceMode	Set Inq	atw, memory_a , preset	Sets the white balance mode. atw: Adjusts the white balance automatically to an appropriate level. memory_a: Adjusts to white balance saved in Memory A. preset: Adjusts the color temperature to a preset value (factory default is 3200K).
		WhiteBalanceModePmt	Inq	enable, disable, display_only	WhiteBalanceMode configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Offset Color Temp	WhiteBalanceOffsetColorTemp	Set Inq	–99 to 0 to 99	Sets the color temperature offset to be added to the ATW white balance.
		WhiteBalanceOffsetColorTempPmt	Inq	enable, disable, display_only	WhiteBalanceOffsetColorTempconfigurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	White Balance Offset	WhiteBalanceOffsetSign	Inq	zero, positive, negative	Indicates the polarity of the color temperature offset to be added to the white balance. zero: No offset positive: Positive negative: Negative

CGI item name		Parameter	Set Inq	Value	Description
White balance	Offset Tint	WhiteBalanceOffsetTint	Set Inq	–99 to 0 to 99	Sets the tint direction offset to be added to the ATW white balance.
		WhiteBalanceOffsetTintPmt	Inq	enable, disable, display_only	WhiteBalanceOffsetTint configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Preset White	WhiteBalancePreset	Set Inq	2000 to 3200 to 15000	Sets the white balance preset value.
		WhiteBalancePresetPmt	Inq	enable, disable, display_only	WhiteBalancePreset configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Tint	WhiteBalanceTint	Set Inq	–99 to 0 to 99	Sets the white balance tint value saved in Memory A.
		WhiteBalanceTintPmt	Inq	enable, disable, display_only	WhiteBalanceTint configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	White Balance	WhiteBalanceWBSet	Set	press, release	Notification of [WB Set] button press. Notifications occur in press and release order.
		WhiteBalanceWBSetPmt	Inq	enable, disable, display_only	WhiteBalanceWBSet configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

*1: Corresponds to the [Push Auto] button in the Web App.

Operations related to camera image screen display and recording/playback

cameraoperation

Setting (Set): command/cameraoperation.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=cameraoperation

CGI item name		Parameter	Set Inq	Value	Description
Menu operation	Menu	CamMenu	Set Inq	inactive, active	Turns the camera menu on/off. inactive: Off active: On
		CamMenuSelector	Set	[Value1] up, down, left, right, up-left, up-right, down-left, down-right, set, cancel_back [Value2] press, release	Operates the camera menu. Sends notification of Value2 when button specified by Value1 is pressed. [Value1] up: Up down: Down left: Left right: Right up-left: Up left up-right: Up right down-left: Down left down-right: Down right set: SET cancel_back: Cancel/Back [Value2] Notifications occur in press and release order.

CGI item name		Parameter	Set Inq	Value	Description
Display operation	Display	DisplayButton	Set	press, release	Notification of [Display] button press. Notifications occur in press and release order.
	Thumbnail	ThumbnailButton	Set	press, release	Notification of [Thumbnail] button press. Notifications occur in press and release order.
		ThumbnailButtonPmt	Inq	enable, disable, display_only	ThumbnailButton configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Recording	Media	MediaRecording	Set	press, release	Notification of record START/STOP button press. Notifications occur in press and release order.
		MediaRecording2nd	Set	press, release	Notification of [2nd Rec START/STOP] button press. Notifications occur in press and release order.
		MediaRecordingPmt	Inq	enable, disable, display_only	MediaRecording configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MediaRecordingStatus	Inq	standby, rec	Indicates the recording status. standby: Not recording rec: Recording

CGI item name		Parameter	Set Inq	Value	Description
Playback	Movie	MovieForward	Set	press, release	Notification of Fast Forward button press. Notifications occur in press and release order.
		MovieForwardPmt	Inq	enable, disable, display_only	MovieForward configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MovieNext	Set	press, release	Notification of Next button press. Notifications occur in press and release order.
		MovieNextPmt	Inq	enable, disable, display_only	MovieNext configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MoviePlayPause	Set	press, release	Notification of Play/Pause button press. Notifications occur in press and release order.
		MoviePlayPausePmt	Inq	enable, disable, display_only	MoviePlayPause configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MoviePrev	Set	press, release	Notification of Previous button press. Notifications occur in press and release order.
		MoviePrevPmt	Inq	enable, disable, display_only	MoviePrev configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MovieReverse	Set	press, release	Notification of Fast Reverse button press. Notifications occur in press and release order.
		MovieReversePmt	Inq	enable, disable, display_only	MovieReverse configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MovieStop	Set	press, release	Notification of Stop button press. Notifications occur in press and release order.
		MovieStopPmt	Inq	enable, disable, display_only	MovieStop configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Media	Slot	SlotSelect	Set	press, release	Notification of [Slot Select] button press. Notifications occur in press and release order.
		SlotSelectPmt	Inq	enable, disable, display_only	SlotSelect configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Settings related to special shooting functions and LUT operation

shooting

Setting (Set): command/shooting.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=shooting

CGI item name		Parameter	Set Inq	Value	Description
S&Q Motion recording	S&Q Motion	SandQMotionEnable	Set Inq	off , on	Turns Slow & Quick Motion mode on/off.
		SandQMotionEnablePmt	Inq	enable, disable, display_only	SandQMotionEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		SandQMotionFrameRate	Set Inq	1 to 66	Sets the frame rate for Slow & Quick Motion shooting. * Refer to "S&Q Frame Rate" in "CGI Command Setting Values."
		SandQMotionFrameRateCapability	Inq	60 to 66	Returns the currently configurable maximum frame rate for Slow & Quick Motion. * Refer to "S&Q Frame Rate" in "CGI Command Setting Values."
		SandQMotionFrameRatePmt	Inq	enable, disable, display_only	SandQMotionFrameRateCapability configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
LUT	LUT On/Off	LutHdmiStream	Set Inq	off , on	Sets whether to apply Monitor LUT to the HDMI and Stream output video.
		LutHdmiStreamPmt	Inq	enable, disable, display_only	LutHdmiStream configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		LutInternalRec	Inq	off , on	Monitor LUT apply status to internal recorded video.
		LutProxy	Inq	off , on	Monitor LUT apply status for proxy.
		LutSdi	Set Inq	off , on	Sets whether to apply Monitor LUT to the SDI output video.
		LutSdiPmt	Inq	enable, disable, display_only	LutSdi configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Assignable button operations

assignable

Setting (Set): command/assignable.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=assignable

CGI item name		Parameter	Set Inq	Value	Description
Assignable buttons	Assignable Button	AssignableButton<n>	Set	press, release	Notification of assignable buttons 1 to 9 press. Notifications occur in press and release order.
		AssignableButtonFocusHold	Set	press, release	Notification of assignable button [Focus Hold] button press. Notifications occur in press and release order.
	Assignable Button Lamp	AssignableButtonLamp<n>	Inq	0, 1	Status of the lamp of assignable buttons 1 to 9. 0: Not lit 1: Lit
		AssignableButtonLampFocusHold	Inq	0, 1	Status of the lamp of assignable button [Focus Hold] button. 0: Not lit 1: Lit
	Assignable Button Select	AssignableButtonSelect<n>	Inq	1 to 63	Obtains the function assignments to assignable buttons 1 to 9. * Refer to "Assignable Button Functions" in "CGI Command Setting Values" for the corresponding number for each function.
		AssignableButtonSelectFocusHold	Inq	1 to 63	Obtains the function assignment to the assignable button [Focus Hold] button. * Refer to "Assignable Button Functions" in "CGI Command Setting Values" for the corresponding number for each function.

Settings related to tally lamp and status acquisition

tally

Setting (Set): command/tally.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=tally

CGI item name		Parameter	Set Inq	Value	Description
TALLY lamp	G Tally Lamp Enable	GTallyLampEnable	Set Inq	on , off	Sets whether the green tally lamp lights up or not. off: Does not light up on: Lights up
	Tally Control Mode	GTallyControl	Set Inq	turn_on, turn_off	Turns the green tally lamp on/off. turn_on: Lights up turn_off: Does not light up
	Tally Lamp Control	TallyControlMode	Set Inq	internal , external	Sets whether the tally lamp lights up in response to the recording status and error status as a camcorder, or in response to an external control signal. internal: Follows the recording status and error status as a camcorder external: Follows an external control signal
		RTallyControl	Set Inq	turn_on, turn_off	Turns the red tally lamp on/off. turn_on: Lights up turn_off: Does not light up
	Tally Lamp Brightness	TallyLampBrightness	Set Inq	off, low, high	Sets the brightness of the tally lamp. off: Always turned off regardless of the on/off setting of RTallyControl/ GTallyControl. low: Dark high: Bright
		TallyLampBrightness Extra	Set Inq	on, off	Sets whether the green tally lights up brighter when TallyLampBrightness is set to high. Notes • Do not set to On when supplying power via PoE++. • Do not set to On when using SFP+.
	Tally Lamp Status	RTallyOsdStatus	Inq	1, 0	Output status of red tally signal for Web App. 0: Output off 1: Output on
		GTallyOsdStatus	Inq	1, 0	Output status of green tally signal for Web App. 0: Output off 1: Output on
		RTallyOutputStatus	Inq	1, 0	Output status of red tally signal from OPTION connector. 0: Output off 1: Output on
		GTallyOutputStatus	Inq	1, 0	Output status of green tally signal from OPTION connector. 0: Output off 1: Output on

Settings related to lens controller

lenscontroller

Setting (Set): command/lenscontroller.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=lenscontroller

CGI item name		Parameter	Set Inq	Value	Description
Lens Controller	Zoom	LensControllerZoom	Set Inq	on, off	Turns lens controller on/off. The unit must be rebooted to apply this setting. Issue the reboot command (Maintenance > main > System (reboot)) or turn the power off and on again. If you turn the power off and on again, wait at least 30 seconds for the setting to take effect. Even when you change this setting, inquiry results will not change unless you reboot the unit. on: On off: Off
		LensControllerZoom ErrorStatus	Inq	no_error, comm_error, system_error, rotation_error, unknown_error	Returns the error status. no_error: No errors comm_error: Lens controller communication error system_error: Lens controller system error rotation_error: Lens controller rotation error unknown_error: Lens controller unknown error
		LensControllerZoom Initialize	Set	on	Initializes the lens controller. This setting is enabled only when the LensControllerZoom parameter is set to on. If you changes this setting when the LensControllerZoom parameter is set to off, a normal HTTP response will be returned and no initialization will be performed.
		LensControllerZoom InitializeStatus	Inq	uninitialized, failed, initializing, initialized	Returns the Initialization status of the lens controller. uninitialized: Not yet initialized failed: Initialization failed initializing: Initializing initialized: Initialized
		LensControllerZoom Mode	Set Inq	0 to 15	Sets the operating mode of the lens controller. Values in the range 0 to 15 are available, but the actual values that can be set depend on the lens controller. This setting is enabled only when the LensControllerZoom parameter is set to on.
		LensControllerZoom Reverse	Set Inq	on, off	Reverses the direction of rotation of the lens controller. This setting is enabled only when the LensControllerZoom parameter is set to on. on: Reverse rotation off: Forward rotation

Project Settings

Function	Command
Recording format settings, settings related to recording functions, ALL file management	project all-file

Recording format settings, settings related to recording functions, ALL file management

project

Setting (Set): command/project.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=project

CGI item name		Parameter	Set Inq	Value	Description
Basic operating mode	Color Gamut	CineElColorGamut Mode	Inq	s-gamut3_slog3, s-gamut3.cine_slog3	Color space status in Cine EI mode.
	Shooting Mode	BaseSetting ShootingMode	Set Inq	custom , cine_ei, flexible_iso, cine_ei_quick	Sets the shooting mode.
		BaseSetting ShootingModePmt	Inq	enable, disable, display_only	BaseSettingShootingMode configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Target Display	BaseSettingTarget Display	Set Inq	bt_709 , hlg	Sets the color space of the recording/output in Custom mode. bt_709: SDR(BT.709) hlg: HDR(HLG)
		BaseSettingTarget DisplayPmt	Inq	enable, disable, display_only	BaseSettingTargetDisplay configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
System frequency	Frequency	RecFormat Frequency	Set Inq	5994, 5000, 2997, 2500, 2400, 2398	Sets the system frequency.
		RecFormat FrequencyPmt	Inq	enable, disable, display_only	RecFormatFrequency configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Imager scan mode	Imager Scan Mode	RecFormatImager ScanMode	Set Inq	ff , s35	Sets the imager size.
		RecFormatImager ScanModePmt	Inq	enable, disable, display_only	RecFormatImagerScanMode configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Codec setting	Codec	RecFormatCodec	Set Inq	raw, raw_xavc-i , xavc-i, xavc-l	Sets the clip recording/playback codec.
		RecFormatCodec Pmt	Inq	enable, disable, display_only	RecFormatCodec configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description												
RAW output format setting	RAW Output Format	RecFormatRAWOutputFormat	Set Inq	4096x2160, 3840x2160	Sets the size of the RAW image to output to an external RAW recorder.												
		RecFormatRAWOutputFormatPmt	Inq	enable, disable, display_only	RecFormatRAWOutputFormat configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled												
Video format	Video Format	RecFormatVideoFormat	Set Inq	4096x2160p, 3840x2160p, 1920x1080p, 1920x1080p_50, 1920x1080p_35	Sets the image size and bit rate.												
		RecFormatVideoFormatPmt	Inq	enable, disable, display_only	RecFormatVideoFormatList configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled												
	Video Format List	RecFormatVideoFormatList	Inq	–	Returns a list of the currently selectable recording formats.												
4-slot simultaneous recording (Simul Rec)	Simul Rec	SimulRecButtonsSet	Inq	a_b, b_a, ab_ab	Assignment status of recording button for recording media when Simul Rec recording function is set to On. <table><tr><td></td><td>Rec</td><td>2nd Rec</td></tr><tr><td>a_b</td><td>Media A</td><td>Media B</td></tr><tr><td>b_a</td><td>Media B</td><td>Media A</td></tr><tr><td>ab_ab</td><td>Media A/B</td><td>Media A/B</td></tr></table>		Rec	2nd Rec	a_b	Media A	Media B	b_a	Media B	Media A	ab_ab	Media A/B	Media A/B
		Rec	2nd Rec														
a_b		Media A	Media B														
b_a	Media B	Media A															
ab_ab	Media A/B	Media A/B															
2-slot simultaneous recording (Simul Rec)	SimulRecEnable	Set Inq	off , on	Turns the simultaneous recording function on/off.													
3-slot simultaneous recording (Simul Rec)	SimulRecEnablePmt	Inq	enable, disable, display_only	SimulRecEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled													
Proxy simultaneous recording	Proxy Rec	ProxyRecEnable	Set Inq	off , on	Turns proxy recording mode on/off.												
		ProxyRecEnablePmt	Inq	enable, disable, display_only	ProxyRecEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled												

CGI item name		Parameter	Set Inq	Value	Description
Interval recording (Interval Rec)	Interval Rec	IntervalRecEnable	Set Inq	off , on	Turns interval recording mode on/off. Setting this mode to On will set all other special modes to Off.
		IntervalRecEnablePmt	Inq	enable, disable, display_only	IntervalRecEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		IntervalRecFrames	Set Inq	1frame, 2frames, 3frames, 6frames, 9frames, 12frames	Sets the number of frames to record per take in Interval Rec recording mode (when Interval Rec is set to On).
		IntervalRecFramesList	Inq	–	Returns a list of the number of frames to record that can be specified for Interval Rec.
		IntervalRecFramesPmt	Inq	enable, disable, display_only	IntervalRecFrames configurable status. enable, display_only: Value is enabled disable: Value is disabled
		IntervalRecTime	Set Inq	1 to 37	Sets the interval between recordings in Interval Rec recording mode (when Interval Rec is set to On). * Refer to "CGI Command Setting Values."
		IntervalRecTimePmt	Inq	enable, disable, display_only	IntervalRecTime configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
Picture Cache Rec	Picture Cache Rec	PictureCacheRecEnable	Set Inq	off , on	Turns picture cache recording mode on/off.
		PictureCacheRecEnablePmt	Inq	enable, disable, display_only	PictureCacheRecEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		PictureCacheRecSize	Set Inq	short, medium, long, max	Sets the picture cache recording cache size.
		PictureCacheRecSizePmt	Inq	enable, disable, display_only	PictureCacheRecSize configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		PictureCacheRecTime	Inq	[Value1] 0 to 100 [Value2] 0 to 100 [Value3] 0 to 100 [Value4] 0 to 100	Returns the picture cache recording cache sizes (unit: seconds). [Value1] Time when cache size is set to short. [Value2] Time when cache size is set to medium. [Value3] Time when cache size is set to long. [Value4] Time when cache size is set to max.
All File	All File Upload	AllFileLoadPmt	Inq	enable, disable, display_only	All File load execution status. enable: Executable disable, display_only: Not executable
	All File Download	AllFileSavePmt	Inq	enable, disable, display_only	All File save execution status. enable: Executable disable, display_only: Not executable

all-file

Loads an ALL file.

<Syntax>

http://<camera_address>/system/all-file.bin

Saves an ALL file.

<Syntax>

http://<camera_address>/updata/all-file.cgi

Image Creation Settings

Function	Command
Settings related to scene files	scenefile
Base look settings	baselook user-base-look
Settings related to image creation (excluding base look)	paint

Settings related to scene files

scenefile

Setting (Set): command/scenefile.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=scenefile

CGI item name		Parameter	Set Inq	Value	Description
Scene File	Scene File	SceneFileCurrent SceneFile	Set Inq	0 to 16	Sets a scene file. 0: Scene file Off (not selected) 1 to 16: Scene file number
		SceneFileCurrent SceneFilePmt	Inq	enable, disable, display_only	SceneFileCurrentSceneFile configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		SceneFileList	Inq	–	Returns a list of scene file number and name pairs.

Base look settings

baselook

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq=baselook

CGI item name		Parameter	Set Inq	Value	Description
Base Look	Base Look	BaseLookCurrent BaseLook	Inq	s-cinetone, standard, still, itu709, 709tone, hlg_live, hlg_natural, s709, r709_800, s-log3, user1 to user16	Returns the current base look. s-cinetone: S-Cinetone standard: Standard still: Still itu709: ITU709 709tone: 709 tone hlg_live: HLG Live hlg_natural: HLG Natural s709: s709 r709_800: 709(800) s-log3: S-Log3 user1 to user16: User1 to User16
		BaseLookCurrent BaseLookPmt	Inq	enable, disable, display_only	Status of values obtained by BaseLookCurrentBaseLook. enable, display_only: Value is enabled disable: Value is disabled
		PresetBaseLookList	Inq	Base64-encoded character string	Returns a list of the currently selectable base looks as a Base64 encoded character string.
		BaseLookPlayback AppliedLutInfo	Inq	–	LUT information applied to a clip during playback.
		UserBaseLookImport Pmt	Inq	enable, disable, display_only	Status of whether a user base look can be imported. enable: Importable display, display_only: Not importable
		UserBaseLookList	Inq	User Base Look information	Returns 16 User Base Look information data. Each User Base Look information data contains the following: • User Base Look name: Base64-encoded character string • Look file identifier: cube • Input: Gamut • Output: Target Display • AE Level Offset: 0EV to 2EV

user-base-look

Imports a user base look.

<Syntax>

http://<camera_address>/update/user-base-look.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	UserBaseLookFile<n>
	file-name	<name>

Settings related to image creation (excluding base look)

paint

Setting (Set): command/paint.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=paint

CGI item name		Parameter	Set Inq	Value	Description
Black	B Black	BBlack	Set Inq	–990 to 0 to 990	Sets the B black level. Sets a value the same as the Web App display value × 10.
		BBlackPmt	Inq	enable, disable, display_only	BBlack configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Master Black	MasterBlack	Set Inq	–990 to 0 to 990	Sets the master black level. Sets a value the same as the Web App display value × 10.
		MasterBlackPmt	Inq	enable, disable, display_only	MasterBlack configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	R Black	RBlack	Set Inq	–990 to 0 to 990	Sets the R black level. Sets a value the same as the Web App display value × 10.
		RBlackPmt	Inq	enable, disable, display_only	RBlack configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Video Output Settings

Function	Command
Settings related to video output	monitoring

Settings related to video output

monitoring

Setting (Set): command/monitoring.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=monitoring

CGI item name		Parameter	Set Inq	Value	Description
Output	Monitoring	MonitoringOutputFormat	Set Inq	s4096p_h4096p, s4096p_h1920p, s4096p_h1920i, s3840p_h3840p, s3840p_h1920p, s3840p_h1920i, s1920plva_h1920p, s1920plva_h1920i, s1920plvb_h1920p, s1920plvb_h1920i, s1920i_h1920i, snone_h720p, s1920p_h1920p, s1920ipsf_h1920i	Sets the SDI and HDMI output resolution. * Refer to the value list in "Monitoring Output Format" in "CGI Command Setting Values."
		MonitoringOutputFormatList	Inq	Refer to the value list for MonitoringOutputFormat.	Returns a list of the currently selectable SDI and HDMI output resolutions.
		MonitoringOutputFormatPmt	Inq	enable, disable, display_only	MonitoringOutputFormat configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	Output On/Off	MonitoringOutputDisplayHdmiEnable	Set Inq	on, off	Sets whether the menu and status are embedded in the HDMI/Stream output signal.
		MonitoringOutputDisplayHdmiEnablePmt	Inq	enable, disable, display_only	MonitoringOutputDisplayHdmiEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		MonitoringOutputDisplaySdiEnable	Set Inq	on, off	Sets whether the menu and status are embedded in the SDI output signal.
		MonitoringOutputDisplaySdiEnablePmt	Inq	enable, disable, display_only	MonitoringOutputDisplaySdiEnable configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Audio Settings

Function	Command
Contains settings related to audio.	audio

Contains settings related to audio.

audio

Setting (Set): command/audio.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=audio

CGI item name		Parameter	Set Inq	Value	Description
Audio Input	Input Select	AudiInputCH1Input Select	Set Inq	input1	Switches the input source for recording on channel 1 (input1 fixed). Input1: AUDIO IN CH1
		AudiInputCH2Input Select	Set Inq	input1, input2	Switches the input source for recording on channel 2. Input1: AUDIO IN CH1 Input2: AUDIO IN CH2
		AudiInputCH3Input Select	Set Inq	off, input1	Switches the input source for recording on channel 3. Off: Off Input1: AUDIO IN CH1
		AudiInputCH4Input Select	Set Inq	off, input1, input2	Switches the input source for recording on channel 4. Off: Off Input1: AUDIO IN CH1 Input2: AUDIO IN CH2
	Input Level CH1	AudiInputCH1Level	Set Inq	0 to 49 to 99	Sets the input level for recording on channel 1.
	Input Level CH2	AudiInputCH2Level	Set Inq	0 to 49 to 99	Sets the input level for recording on channel 2.
	Input Level CH3	AudiInputCH3Level	Set Inq	0 to 49 to 99	Sets the input level for recording on channel 3.
	Input Level CH4	AudiInputCH4Level	Set Inq	0 to 49 to 99	Sets the input level for recording on channel 4.
	Level Control	AudiInputCH1Level Control	Set Inq	auto , manual	Sets audio input level automatic adjustment or manual adjustment for recording on channel 1.
		AudiInputCH2Level Control	Set Inq	auto , manual	Sets audio input level automatic adjustment or manual adjustment for recording on channel 2.
		AudiInputCH3Level Control	Set Inq	auto , manual	Sets audio input level automatic adjustment or manual adjustment for recording on channel 3.
		AudiInputCH4Level Control	Set Inq	auto , manual	Sets audio input level automatic adjustment or manual adjustment for recording on channel 4.
	Input Level Master	AudiInputMaster Level	Set Inq	0 to 99	Sets the audio input level. Can be used as the master volume.
	Wind Filter	AudiInputCH1Wind Filter	Set Inq	off , on	Sets the wind reduction filter for recording on channel 1.
		AudiInputCH2Wind Filter	Set Inq	off , on	Sets the wind reduction filter for recording on channel 2.
		AudiInputCH3Wind Filter	Set Inq	off , on	Sets the wind reduction filter for recording on channel 3.
		AudiInputCH4Wind Filter	Set Inq	off , on	Sets the wind reduction filter for recording on channel 4.

CGI item name		Parameter	Set Inq	Value	Description
Audio Output	HDMI Output CH	AudioOutputHdmi OutputCh	Set Inq	ch1_ch2 , ch3_ch4	Sets the combination of audio channels for the HDMI/streaming output. ch1_ch2: CH1/CH2 ch3_ch4: CH3/CH4

Network Settings

Function	Command
Settings related to user names and passwords	user
Settings related to network connections	network
Settings related to file transfers	ftpconfig FtpCACert1 FtpCACert2 FtpCACert3
Settings related to SSL	ssl
Operations related to SSL certificates	ssl-cert sslcert
Settings related to network access permission	filtering
Settings related to client authentication on a network	auth attackerlist
Settings related to connecting with an RCP/MSU (option)	s700p

Settings related to user names and passwords

user

Setting (Set): command/user.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=user

<n> of the parameter suffix is a number in the range 1 to 9.

CGI item name		Parameter	Set Inq	Value	Description
User Management	Administrator	Administrator	Set	–	Use from the web menu. Do not use directly.
		AdminInfo	Inq	–	Returns the administrator name.
	User	UserNum	Inq	9	Returns the maximum number of registered users.
		User<n>	Set	–	Use from the web menu. Do not use directly.
		UserInfo<n>	Inq	–	Returns the number of users.
	Digest Authentication	DigestAuthNonce Duration	Set Inq	1 to 300 to 3600	Sets the effective duration of the Nonce value in Digest Access Authentication (unit: seconds).

Settings related to network connections

network

Setting (Set): command/network.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=network

CGI item name		Parameter	Set Inq	Value	Description
HTTP	Keep Alive	HttpMaxKeepAlive Idle	Set Inq	0 to 70 to 7200	Sets the time to terminate the session after judgment as Idle (unit: seconds). * When set to 0, the session does not terminate.
	HTTP Port	HttpPort	Set Inq	80 , 1024 to 65534	Sets the port number to use for the HTTP protocol. This setting is common for IPv4 and IPv6.

CGI item name		Parameter	Set Inq	Value	Description
Network	DNS	CurrentPrimaryDns	Inq	IPv4 or IPv6 address	Returns the current IP address of the primary DNS server.
		CurrentSecondaryDns	Inq	IPv4 or IPv6 address	Returns the current IP address of the secondary DNS server.
		DnsAuto	Set Inq	on , off	Enables/disables the function for acquiring the IP address of DNS server from the DHCP server. This setting is common for IPv4 and IPv6.
		PrimaryDns	Set Inq	IPv4 or IPv6 address	Sets the static IP address of the primary DNS server.
		SecondaryDns	Set Inq	IPv4 or IPv6 address	Sets the static IP address of the secondary DNS server.
	IPv4	CurrentGateway	Inq	IPv4 address	Returns the current address of the IPv4 default gateway.
		CurrentIp	Inq	IPv4 address	Returns the current IPv4 address.
		CurrentSubnetmask	Inq	IPv4 address	Returns the current IPv4 subnet mask.
		Dhcp	Set Inq	on , off	Turns the DHCP client function on/off.
		Gateway	Set Inq	IPv4 address	Sets the IPv4 address of the default gateway.
		Ip	Set Inq	IPv4 address	Sets the IPv4 address.
		Subnetmask	Set Inq	IPv4 address	Sets the IPv4 subnet mask.
	IPv6	AutoIpv6	Set Inq	on , off	Sets whether to acquire the IPv6 IP address automatically or not.
		CurrentGatewayv6	Inq	IPv6 address	Returns the current address of the IPv6 default gateway.
		CurrentIpv6 Address1	Inq	IPv6 address	Returns the current IPv6 address 1.
		CurrentIpv6 Address2	Inq	IPv6 address	Returns the current IPv6 address 2.
		CurrentPrefix1	Inq	0 to 128	Returns the current IPv6 prefix 1 value.
		CurrentPrefix2	Inq	0 to 128	Returns the current IPv6 prefix 2 value.
		Gatewayv6	Set Inq	IPv6 address	Sets the address of the IPv6 default gateway.
		Ipv6	Set Inq	IPv6 address	Sets the IPv6 address.
		LinkLocalIPv6	Inq	IPv6 address	Returns the IPv6 link-local address.
		Prefix	Set Inq	0 to 64 to 128	Sets the IPv6 prefix length value.
	Hostname	Hostname	Inq		Returns the host name.
	MAC Address	MacAddress	Inq	–	Returns the MAC address of the camera.
	PHY	PhyStat	Inq	10half, 10full, 100half, 100full, 1000half, 1000full	Returns the Ethernet connection status. 10half: 10Mbps, half-duplex communication 10full: 10Mbps, full-duplex communication 100half: 100Mbps, half-duplex communication 100full: 100Mbps, full-duplex communication 1000half: 1000Mbps, half-duplex communication 1000full: 1000Mbps, full-duplex communication

CGI item name		Parameter	Set Inq	Value	Description
System	Camera Name	CameraName	Set Inq	0 to 8 characters (FR7)	Sets the camera name. Up to 8 alphanumeric characters can be configured.
	IP Setup Set Enable	IPsetupSetEnable	Set Inq	on, off	Sets whether the setting can be made by the RM-IP Setup Tool or not. off: Do not accept on: Accept * Setting to off prevents unintentional change by the RM-IP Setup Tool.

Settings related to file transfers

ftpconfig

Setting (Set): command/ftpconfig.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=ftpconfig

The parameter suffix <n> corresponds to FTP Server 1 to 3 which can be registered in the camera.

CGI item name		Parameter	Set Inq	Value	Description
File transfer	Auto Upload	FileTransferAuto UploadProxyEnable	Set Inq	off, on	Turns proxy file auto transfer on/off.
	File Transfer	FileTransferDefault UploadServer	Set Inq	1 to 3	Sets the transfer destination server for files.

CGI item name		Parameter	Set Inq	Value	Description
FTP Server	FTP Server	FileTransferFcDisplay Name<n>	Set Inq	1 to 16 characters	Sets the display name shown in the transfer destination setup menu.
		FileTransferFcPassive <n>	Set Inq	off , on	Turns PASV mode on/off.
		FileTransferFc Password<n>	Set		Sets the authentication password of the transfer destination server connection.
		FileTransferFc PasswordUsed<n>	Inq	0 , 1	Status of the authentication password setting of the transfer destination server connection. 0: Not set 1: Already set
		FileTransferFc Protocol<n>	Set Inq	ftp , ftps	Sets the FTP transfer protocol. ftp: FTP ftps: FTPS
		FileTransferFc RemotePath<n>	Set Inq	0 to 127 characters	Sets the name of the directory on the destination server.
		FileTransferFcReset	Set	reset1, reset2, reset3	Reset the settings of Server Settings to the defaults. Reset1: Resets the setting of FTP Server 1 to the defaults. Reset2: Resets the setting of FTP Server 2 to the defaults. Reset3: Resets the setting of FTP Server 3 to the defaults.
		FileTransferFcRoot CertInstalled<n>	Inq	0 , 1	Returns the presence or not of a root certificate. 0: Not present 1: Present
		FileTransferFcServer Name<n>	Set Inq	0 to 127 characters	Sets the display name shown in the Web App setup screen for the transfer destination.
		FileTransferFcServer Num	Set Inq	3	Number of FTP Servers that can be registered.
		FileTransferFcServer Port<n>	Set Inq	21 , 990, 1024 to 65534	Sets the port number of the transfer destination server.
		FileTransferFcUser Name<n>	Set Inq	0 to 127 characters	Sets the user name for authentication of the transfer destination server connection.

FtpCACert1

Imports a CA certificate for FTP Server 1.

<Syntax>

http://<camera_address>/FtpCACert1.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	FTPCACert1ImportFile
	file-name	<path/name>

FtpCACert2

Imports a CA certificate for FTP Server 2.

<Syntax>

http://<camera_address>/FtpCACert2.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	FTPCACert2ImportFile
	file-name	<path/name>

FtpCACert3

Imports a CA certificate for FTP Server 3.

<Syntax>

http://<camera_address>/FtpCACert3.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	FTPCACert3ImportFile
	file-name	<path/name>

Settings related to SSL

ssl

Setting (Set): command/ssl.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=ssl

CGI item name		Parameter	Set Inq	Value	Description
SSL	Cert	SSLCertAvailability	Inq	0, 1	Returns the SSL certificate status. 1: Certificates are enabled 0: Certificates are disabled
		SSLCertExtendedKey Usage	Inq	0 to 128 characters	Returns the extended key usage of the SSL server certificate. Returns "<Put correct private key password>" if the private key password is not set correctly.
		SSLCertInstalled	Inq	0, 1	Returns the SSL server certificate status. 1: With certificates 0: Without certificates
		SSLCertIssuerDn	Inq	0 to 128 characters	Returns the issuer distinguished name of the SSL server certificate. Returns "<Put correct private key password>" if the private key password is not set correctly.
		SSLCertSubjectDn	Inq	0 to 128 characters	Returns the subject distinguished name of the SSL server certificate.
		SSLCertValidity	Inq	0 to 128 characters	Returns the validity period of the SSL server certificate. Returns "<Put correct private key password>" if the private key password is not set correctly.
	SSL	HttpsPort	Set Inq	443, 1024 to 65534	Sets the port number to use for the HTTPS protocol.
		SSLCertMode	Set Inq	auto, user	Sets the server certificate mode to be used for the HTTPS function. auto: Uses a self-signed certificate generated within the camera. user: Uses an imported external certificate.
		SSLMode	Set Inq	Plain , SSL, Plain-SSL, SSL-Plain	Sets the HTTPS function mode. Plain: Operates using HTTP only. HTTPS is disabled. SSL: Operates using HTTPS only. HTTP is disabled. Plain-SSL: Operates using both HTTP and HTTPS. SSL-Plain: Operates using both HTTPS and HTTP. Operates using HTTPS if it is not specified upon access.
		SSLPrivPassword	Set	0 to 50 characters	Sets the server certificate private key.
		SSLPrivPassword Used	Inq	0, 1	Returns the status of the server certificate private key to be used for the HTTPS function. 0: Not set 1: Already set

Operations related to SSL certificates

ssl-cert

Setting (Set): command/ssl-cert.cgi?<Parameter>=<Value>

CGI item name		Parameter	Set Inq	Value	Description
SSL	Cert	DeleteCert	Set	sslcrt, rtmpcert, ftpcacert1, ftpcacert2, ftpcacert3	Deletes certificates stored in the camera. sslcrt: Deletes the SSL server certificate. rtmpcert: Deletes the RTMP server certificate. ftpcacert1: Deletes the FTP Server 1 server certificate. ftpcacert2: Deletes the FTP Server 2 server certificate. ftpcacert3: Deletes the FTP Server 3 server certificate.
	SSL	GenerateCert	Set	selfsignedcert	Generates a self-signed SSL certificate.

sslcert

Imports a SSL server certificate.

<Syntax>

http://<camera_address>/command/sslcert.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	SSLCertImportFile
	file-name	<path/name>

Settings related to network access permission

filtering

Setting (Set): command/filtering.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=filtering

Note

If you set FilterDefaultRule to reject with an IP address to grant access that is unregistered, even an administrator cannot gain access using CGI commands. In this case, perform a network reset using the reset switch of the camera.

Supports IPv4 filters 1 to 3 or IPv6 filters 1 to 3 which can be registered in the camera using the <n> parameter suffix, where n is 1 to 3.

CGI item name		Parameter	Set Inq	Value	Description
Dos Protection	Dos Protection	DosDefenseRule Num	Inq	3	Returns the configurable number of DoS protection rules.
		IPv4			
		V4DosDefenseBurst <n>	Set Inq	3 to 600	Sets the number of continuous accesses to judge as being attacked by IPv4 DoS attack protection function.
		V4DosDefense Enable<n>	Set Inq	on, off	Turns the IPv4 DoS attack protection function on/off.
		V4DosDefense Expire<n>	Set Inq	1 to 60 to 86400	Sets the predetermined time to discard the results judged as an attack with the IPv4 DoS attack protection function (unit: seconds).
		V4DosDefenseLimit <n>	Set Inq	1 to 5 to 100	Sets the number of possible requests per minute after releasing the defense with the IPv4 DoS attack protection function.
		V4DosDefensePort <n>	Set Inq	0 to 80 to 65535	Sets the port number to defend against requests with the IPv4 DoS attack protection function.
	IPv6	V6DosDefenseBurst <n>	Set Inq	2 to 3 to 600	Sets the number of continuous accesses to judge as being attacked by IPv6 DoS attack protection function.
		V6DosDefense Enable<n>	Set Inq	on, off	Turns the IPv6 DoS attack protection function on/off.
		V6DosDefense Expire<n>	Set Inq	10 to 60 to 86400	Sets the predetermined time to discard the results judged as an attack with the IPv6 DoS attack protection function (unit: seconds).
		V6DosDefenseLimit <n>	Set Inq	1 to 5 to 100	Sets the number of times to defend against requests with the IPv6 DoS attack protection function.
		V6DosDefensePort <n>	Set Inq	0 to 80 to 65535	Sets the port number to defend against requests with the IPv6 DoS attack protection function.
Fragment Deny	Fragment Deny	FragmentDeny	Set Inq	on, off	Sets whether Fragment packets are denied. on: Allow Fragment packets. off: Deny Fragment packets.

CGI item name		Parameter	Set Inq	Value	Description
IP Filter	IPv4	V4FilterDefaultRule	Set Inq	allow , reject	Sets the IPv4 IP Filter basic policy. allow: All the other accesses whose settings are not specified by V4FilterRule parameter will be allowed. reject: All the other accesses whose settings are not specified by V4FilterRule parameter will be denied.
		V4FilterFunc	Set Inq	on, off	Turns the IPv4 IP Filter function on/off.
		V4FilterRule	Set Inq	[Value1] 0 to 9 [Value2] IPv4 address [Value3] 0 to 32 [Value4] tcp, udp, icmp, all [Value5] 0 to 65535 [Value6] allow, reject	Sets the IPv4 Filter function rules. Up to 10 rules can be set. V4FilterRule=Value11,Value21,Value31,Value41,Value51,Value61,Value12,Value22,Value32,Value42,Value52,Value62[,...,Value110,Value210,Value310,Value410,Value510,Value610] [Value1] Sets the rule number. The smaller the value, the higher the rule priority. [Value2] Sets the supported network address. [Value3] Sets the subnet mask value QoS supports (bit number from the left side of network address). [Value4] Sets the supported protocol. tcp: TCP udp: UDP icmp: ICMP In this case, port number (Value5) will be discarded, but it is still necessary. Filter will be applied for all ICMP messages. all: TCP, UDP, ICMP The port number (Value5) designation only works for TCP and UDP. [Value5] Sets the supported port numbers. When set to 0, all the port numbers are supported. [Value6] Sets the policy. allow: Specified accesses to the camera will be allowed. reject: Specified accesses to the camera will be denied.

CGI item name		Parameter	Set Inq	Value	Description
IP Filter	IPv6	V6FilterDefaultRule	Set Inq	allow , reject	Sets the IPv6 IP Filter basic policy. allow: All the other accesses whose settings are not specified by V6FilterRule parameter will be allowed. reject: All the other accesses whose settings are not specified by V6FilterRule parameter will be denied.
		V6FilterFunc	Set Inq	on, off	Turns the IPv6 IP Filter function on/off.
		V6FilterRule	Set Inq	[Value1] 0 to 9 [Value2] IPv6 address [Value3] 0 to 128 [Value4] tcp, udp, icmp, all [Value5] 0 to 65535 [Value6] allow, reject	Sets the IPv6 Filter function rules. Up to 10 rules can be set. V6FilterRule=Value11,Value21,Value31,Value41,Value51,Value61,Value12,Value22,Value32,Value42,Value52,Value62[,...],Value110,Value210,Value310,Value410,Value510,Value610] [Value1] Sets the rule number. The smaller the value, the higher the rule priority. [Value2] Sets the supported network address. [Value3] Sets the subnet mask value QoS supports (bit number from the left side of network address). [Value4] Sets the supported protocol. tcp: TCP udp: UDP icmp: ICMP In this case, port number (Value5) will be discarded, but it is still necessary. Filter will be applied for all ICMP messages. all: TCP, UDP, ICMP The port number (Value5) designation only works for TCP and UDP. [Value5] Sets the supported port numbers. When set to 0, all the port numbers are supported. [Value6] Sets the policy. allow: Specified accesses to the camera will be allowed. reject: Specified accesses to the camera will be denied.

CGI item name		Parameter	Set Inq	Value	Description
SYN Flood Protection	IPv4	V4SynFloodBurst	Set Inq	2 to 3 to 60	Sets continuous number of SYN Packets to be judged as attacks by IPv4 SYN Flood attack protection function.
		V4SynFloodExpire	Set Inq	10 to 60 to 86400	Sets the predetermined time to discard the results judged as an attack with the IPv4 SYN Flood attack protection function (unit: seconds).
		V4SynFloodLimit	Set Inq	1 to 5 to 1000	Sets the possible access times per minute after releasing the defense with the IPv4 SYN Flood attack protection function.
		V4SynFlood Protection	Set Inq	on, off	Turns the IPv4 SYN Flood attack protection function on/off.
	IPv6	V6SynFloodBurst	Set Inq	2 to 3 to 60	Sets continuous number of SYN Packets to be judged as attacks by IPv6 SYN Flood attack protection function.
		V6SynFloodExpire	Set Inq	10 to 60 to 86400	Sets the predetermined time to discard the results judged as an attack with the IPv6 SYN Flood attack protection function (unit: seconds).
		V6SynFloodLimit	Set Inq	1 to 5 to 1000	Sets the possible access times per minute after releasing the defense with the IPv6 SYN Flood attack protection function.
		V6SynFlood Protection	Set Inq	on, off	Turns the IPv6 SYN Flood attack protection function on/off.

Settings related to client authentication on a network

auth

Setting (Set): command/auth.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=auth

The parameter suffix <n> corresponds to exceptions 1 to 10 for Referer check which can be registered in the camera.

CGI item name		Parameter	Set Inq	Value	Description
Brute Force Attack Protection	Brute Force Attack Protection	BruteForceAttack Count	Set Inq	3 to 8 to 100	Sets the number of authentication failures to judge as brute-force attack.
		BruteForceAttack Protection	Set Inq	on , off	Turns the brute-force attack protection function on/off.
		BruteForceAttack ReleaseMode	Set Inq	always, timer	Sets the condition to release brute-force attack judgment. always: Does not release after judging as attack. timer: After the judgment as attack, wait for the time period set by BruteForceAttackReleaseTimer, then release.
		BruteForceAttack ReleaseTimer	Set Inq	30 to 60 to 86400	Sets the time period to release judgment as attacker, when BruteForceAttackReleaseMode is set to "timer" (unit: seconds).

CGI item name		Parameter	Set Inq	Value	Description
Referer check	Referer check	RcException Hostname<n>	Set Inq	0 to 63 characters	Sets the exception host name or IP address which will be excluded from Referer check to register as number set in <n>.
		RcExceptionNum	Set Inq	10	Returns the maximum number of registrable hosts that are not targets of Referer check.
		RcExceptionPort<n>	Set Inq	0 to 80 to 65535	Sets the exception port number which will be excluded from Referer check to register as number set in <n>.
		RefererCheck	Set Inq	on , off	Turns the Referer check function on/off.

attackerlist

Obtains a list of people deemed to be brute force attackers.

<Syntax>

http://<camera_address>/attackerlist

Obtains a list of people deemed to be brute force attackers (including failed authentication attempts below the specified number of attempts).

<Syntax>

http://<camera_address>/attackerlist?list=all

Settings related to connecting with an RCP/MSU (option)

s700p

Setting (Set): command/s700p.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=s700p

CGI item name		Parameter	Set Inq	Value	Description
S700PTP	S700PTP	S700pCameraNo	Set Inq	1 to 96	Sets the camera number when using cameras in a multi-camera environment.
		S700pMasterIP	Set Inq	IPv4 Address	Sets the IP address of the MSU/camera remote control software when using cameras in a multi-camera environment.
		S700pSystemMode	Set Inq	Off , bridge, mcs, pccontrol	Sets the connection type. off: No connection. bridge: RCP and camera one-to-one connection. mcs: Use cameras in multi-camera environment using an MSU. pccontrol: Use cameras in a multi-camera environment using camera remote control software.

Streaming Settings/Operation

Function	Command
Streaming format settings	stream
Settings related to RTSP	rtspconfig
Settings related to RTMP	rtmp rtmpexe
Settings/operation related to SRT-Listener/Caller	srt srtexe
Settings related to NDI HX	ndi
Streaming codec settings	codeconfig capability-video

Streaming format settings

stream

Setting (Set): command/stream.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=stream

CGI item name		Parameter	Set Inq	Value	Description
Streaming	Stream	StreamMode	Set Inq	rtsp, rtmp, srt-caller, srt-listener, ndi_hx, off	Sets the streaming protocol. *1
		StreamStatus	Inq	invalid, off, ready, ready-ssl, streaming, streaming-ssl	Returns the RTMP and SRT streaming status. Displays the same status as UserData > Streaming. invalid: No status off: RTMP/SRT-Caller streaming not connected ready: Connection established with RTMP server ready-ssl: Connection established with RTMPS server streaming: RTMP/SRT-Caller streaming in progress streaming-ssl: RTMPS streaming in progress

*1: Audio Stream must be enabled beforehand in order to set to RTMP.

Settings related to RTSP

rtspconfig

Setting (Set): command/rtspconfig.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=rtspconfig

CGI item name		Parameter	Set Inq	Value	Description
RTSP	RTSP	AuthenRTSP	Set Inq	on, off	Turns the RTSP authentication function on/off.
		RTSPPort	Set Inq	554, 1024 to 65534	Sets the port number to use for RTSP streaming.
		RTSPTimeout	Set Inq	0 to 60 to 600	Sets the timeout time of the Keep-Alive command for RTSP streaming (unit: seconds). When it is set to 0, RTSP session will not be regarded as disconnected even if the camera does not receive Keep Alive commands (RTSP GET_PARAMETER/SET_PARAMETER, etc.).

CGI item name		Parameter	Set Inq	Value	Description
RTSP	RTSP Unicast Port	RTSPUcAudioPort	Set Inq	1024 to 57000 to 65534	Sets the port used for RTSP/RTP (UDP) unicast streaming for audio. *1*2
		RTSPUcVideoPort1	Set Inq	1024 to 51000 to 65534	Sets the port used for RTSP/RTP (UDP) unicast streaming for video 1. *1*2
		RTSPUcVideoPort2	Set Inq	1024 to 53000 to 65534	Sets the port used for RTSP/RTP (UDP) unicast streaming for video 2. *1*2

*1: Only even numbers can be assigned. The odd number obtained by adding 1 to the specified number will be used for the RTCP port.

*2: Reserved ports cannot be used. Duplication of other configured ports cannot be used either. For reserved ports, see "Reserved Ports" in "CGI Command Setting Values."

Settings related to RTMP

rtmp

Setting (Set): command/rtmp.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=rtmp

CGI item name		Parameter	Set Inq	Value	Description
RTMP	RTMP	RtmpServerUrl1	Set Inq	0 to 512 characters	Sets a character string starting with "rtmp://" or "rtmps://" (not case sensitive) or blank (zero characters).
		RtmpStreamKey1	Set	0 to 190 characters	Sets the stream key obtained from the site you are using.
		RtmpStreamKey1 Used	Inq	0 , 1	0: Not set 1: Already set
		RtmpCertInstalled	Inq	0 , 1	Returns the RTMP server certificate status. 1: With certificates 0: Without certificates
		RtmpLastEvent	Inq	0 to 9999	Returns the value corresponding to an event that occurred related to RTMP.

rtmpexe

Setting (Set): command/rtmpexe.cgi?<Parameter>=<Value>

CGI item name		Parameter	Set Inq	Value	Description
RTMP	RTMP	RtmpReady	Set	on	Checks whether connection is possible using current settings.
		RtmpStreaming	Set	off, on, force	Starts/stops RTMP streaming. off: Stop on: Start force: Try to force start

Settings/operation related to SRT-Listener/Caller

srt

Setting (Set): command/srt.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=srt

CGI item name		Parameter	Set Inq	Value	Description
SRT	Caller	SrtServerUrl1	Set Inq	0 to 512 characters	Sets a character string starting with "srt://" (not case sensitive) or blank (zero characters).
		SrtEncryption	Set Inq	none , aes-128, aes-256	Sets the encryption.
	Encryption	SrtPassphrase	Set	10 to 79 characters	Sets the passphrase used for encryption.
		SrtPassphraseUsed	Inq	0 , 1	Returns the passphrase status. 0: Not set 1: Already set
	Listener	SrtListenPort	Set Inq	1024 to 4201 to 65534	Sets the port number for listening when the unit is operating as an SRT-Listener.
	SRT	SrtArc	Set Inq	off, on	Turns the Adaptive Rate Control function on/off.
		SrtLastEvent	Inq	0 to 9999	Returns the value corresponding to an event that occurred related to SRT.
		SrtPeerLatency	Set Inq	20 to 120 to 8000	Sets the latency.
		SrtTtl	Set Inq	1 to 64 to 255	Sets the TTL value.

srtexe

Setting (Set): command/srtexe.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name		Parameter	Set Inq	Value	Description
SRT	Caller	SrtStreaming	Set	off, on	Controls SRT-Caller streaming (start/stop). on: Start off: Stop

Settings related to NDI|HX

ndi

Setting (Set): command/ndi.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=ndi

CGI item name		Parameter	Set Inq	Value	Description
NDI HX	Camera Name	NdiCameraName	Inq	0 to 8 characters (FR7)	Returns the camera name.
	Discovery	NdiDiscoveryServer1	Set Inq	IPv4 Address	Sets NDI discovery server 1.
		NdiDiscoveryServer2	Set Inq	IPv4 Address	Sets NDI discovery server 2.
	Group	NdiGroupEnable	Set Inq	off , on	Turns the NDI grouping function on/off.
		NdiGroupName	Set Inq	0 to 128 characters	Sets the NDI group name.
	Multicast	NdiTransferMode MulticastUdp	Set Inq	off , on	Turns the multicast streaming function on/off.
		NdiTransferMulticast Netmask	Set Inq	IPv4 Address (255.255.0.0)	Sets the netmask for determining the multicast address range for multicast streaming.
		NdiTransferMulticast Prefix	Set Inq	IPv4 Address (255.255.0.0)	Sets the prefix of the multicast address for multicast streaming.
		NdiTransferMulticast TTL	Set Inq	1 to 3 to 255	Sets the TTL for multicast streaming.
	Multi-TCP Mode	NdiTransferMode MultiTcp	Set Inq	off , on	Turns Multi-TCP mode on/off.
	NDI License Key	NdiLicenseKeyValid	Inq	invalid, valid	Returns the NDI license status. invalid: Not installed valid: Installed
		NdiRegistKey	Set Inq	0 to 32 characters	Sets the NDI license. Entering 0 characters will delete the license.
	Source Name	NdiSourceName	Set Inq	0 to 64 bytes	Sets the NDI source name.
	Unicast UDP Mode	NdiTransferMode UnicastUdp	Set Inq	off, on	Turns Unicast UDP mode on/off.

Streaming codec settings

codeconfig

Setting (Set): command/codeconfig.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=codeconfig

CGI item name		Parameter	Set Inq	Value	Description
Audio	Audio	Audioln	Set Inq	on, off	Sets whether to enable or disable streaming audio. on: Enable off: Disable
	Audio Codec	AudlnCodec	Set Inq	aac48_128 , aac48_256	Sets the audio codec mode and bit rate for audio streaming. aac48_128: AAC 48 kHz (128 kbps) aac48_256: AAC 48 kHz (256 kbps)

CGI item name		Parameter	Set Inq	Value	Description
Video	Bit Rate	BitRate1	Set Inq	512 to 16000 to 80000	Sets the bit rate of video 1 (unit: kbps). This parameter is only valid when CBR1 is set to on.
		BitRate2	Set Inq	512 to 8000 to 80000	Sets the bit rate of video 2 (unit: kbps). This parameter is only valid when CBR2 is set to on.
	CBR	CBR1	Set Inq	on, off	Sets the bit rate compression mode of video 1. on: Bit rate control with CBR off: Bit rate control with VBR * Reset to the default value when StreamMode is set to srt-caller or srt-listener. * Cannot be changed to VBR when StreamMode is set to srt-caller or srt-listener.
		CBR2	Set Inq	on, off	Sets the bit rate compression mode of video 2. on: Bit rate control with CBR off: Bit rate control with VBR * Reset to the default value when StreamMode is set to srt-caller or srt-listener. * Cannot be changed to VBR when StreamMode is set to srt-caller or srt-listener.

CGI item name		Parameter	Set Inq	Value	Description
Video	Frame Rate	FrameRate1	Set Inq	The available values depend on the video output format. 5, 10, 15, 20, 30, 60 (59.94P) 5, 10, 12.5, 25, 50 (50P) 5, 10, 15, 30 (29.97, 59.94i) 5, 12.5, 25 (25, 50i) 6, 12, 24 (24) 6, 12, 24 (23.98)	Sets the frame rate (frames per second) of video steam corresponding to video 1. * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		FrameRate2	Set Inq	The available values depend on the video output format. 5, 10, 15, 20, 30 (59.94P) 5, 10, 12.5, 25 (50P) 5, 10, 15, 30 (29.97, 59.94i) 5, 12.5, 25 (25, 50i) 6, 12, 24 (24) 6, 12, 24 (23.98)	Sets the frame rate (frames per second) of video steam corresponding to video 2. * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		FrameRate3	Set Inq	The available values depend on the video output format. 5, 10, 15, 20, 30 , 60 (59.94P) 5, 10, 12.5, 25 , 50 (50P) 5, 10, 15, 30 (29.97, 59.94i) 5, 12.5, 25 (25, 50i) 6, 12, 24 (24) 6, 12, 24 (23.98)	Sets the frame rate (frames per second) of video steam corresponding to video 3.
	H.264 Profile	H264Profile1	Set Inq	high , main, baseline	Sets the H.264 profile for video 1. high: High profile main: Main profile baseline: Baseline profile
		H264Profile2	Set Inq	high , main, baseline	Sets the H.264 profile for video 2. high: High profile main: Main profile baseline: Baseline profile
	H.264 Quality	H264Quality1	Set Inq	1 to 6 to 10	Sets the H.264 VBR (variable bit rate) image quality of video 1. This parameter is only valid when CBR1 is set to off. * Increasing the value makes the image quality better, but the data size also increases.
		H264Quality2	Set Inq	1 to 6 to 10	Sets the H.264 VBR (variable bit rate) image quality of video 2. This parameter is only valid when CBR2 is set to off. * Increasing the value makes the image quality better, but the data size also increases.

CGI item name		Parameter	Set Inq	Value	Description
Video	H.265 Profile	H265Profile1	Set Inq	main, main10	Sets the H.265 profile for video 1. main: Main profile main10: Main 10 profile * When set to main10, uses the main profile when the HDMI output is RGB and the main 10 profile when the HDMI output is YCrCb. Also, when set to main10, ImageCodec2 is set to off (fixed).
		H265Profile2	Set Inq	main	H.265 profile for video 2. main: Main profile
	H.265 Quality	H265Quality1	Set Inq	1 to 6 to 10	Sets the H.265 VBR (variable bit rate) image quality of video 1. This parameter is only valid when CBR1 is set to off. * Increasing the value makes the image quality better, but the data size also increases.
		H265Quality2	Set Inq	1 to 6 to 10	Sets the H.265 VBR (variable bit rate) image quality of video 2. This parameter is only valid when CBR2 is set to off. * Increasing the value makes the image quality better, but the data size also increases.
	IDR-Frame Interval	IFrameInterval1	Set Inq	0 to 1 to 5	Sets the I-picture interval of video 1 (unit: seconds). * When set to 0, the IFrameRatio1 setting is enabled.
		IFrameInterval2	Set Inq	0 to 1 to 5	Sets the I-picture interval of video 2 (unit: seconds). * When set to 0, the IFrameRatio2 setting is enabled.
	IDR-Frame Ratio	IFrameRatio1	Set Inq	15 to 30 to 300	Sets the interval for insertion of the I-picture of video 1 (unit: frames). * When IFrameInterval1 is set to 0, operates using the IFrameRatio1 setting.
		IFrameRatio2	Set Inq	15 to 30 to 300	Sets the interval for insertion of the I-picture of video 2 (unit: frames). * When IFrameInterval2 is set to 0, operates using the IFrameRatio2 setting.
	Image Codec	ImageCodec1	Set Inq	h264 , h265	Sets the video codec of video 1. h264: H.264 h265: H.265 * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		ImageCodec2	Set Inq	h264, h265, off	Sets the video codec of video 2. h264: H.264 h265: H.265 off: Off * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		ImageCodec3	Set Inq	jpeg	Sets the video codec of video 3. jpeg: Motion Jpeg

CGI item name		Parameter	Set Inq	Value	Description
Video	Image Size	ImageSize1	Set Inq	4096, 2160 3840, 2160 2048, 1080 1920, 1080 1280, 720 640, 360	Sets the image size of video stream corresponding to video 1. * The configurable value is restricted by the video output format. * Refer to "Image Size" in "CGI Command Setting Values." * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		ImageSize2	Set Inq	4096, 2160 3840, 2160 2048, 1080 1920, 1080 1280, 720 640, 360 512, 270	Sets the image size of video stream corresponding to video 2. * The configurable value is restricted by the video output format. * Refer to "Image Size" in "CGI Command Setting Values." * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
		ImageSize3	Set Inq	1280, 720 1024, 540 640, 360	Sets the image size of video stream corresponding to video 3. * Refer to "Image Size" in "CGI Command Setting Values." * Reset to the default value when StreamMode is set to srt-caller or srt-listener.
	Insert IDR-Frame	InsertIframe1	Set	on	Inserts the I-picture in the video stream of video 1.
		InsertIframe2	Set	on	Inserts the I-picture in the video stream of video 2.
	Jpeg Quality	JpegQuality3	Set Inq	1 to 6 to 10	Sets the image quality of video 3. * Increasing the value makes the image quality better, but the data size also increases.
Motion JPEG	Motion Jpeg	MotionJpeg Availability	Inq	1, 0	Returns the video 3 output availability status. 0: Output not supported 1: Output supported

capability-video

Inquires about a configurable "target parameter" under the "setup parameter" conditions. For Web App display.

<Syntax>

http://<camera_address>/command/capability-video?<Target>&<Format>&<Setting>

<Target>: Target parameter

<Format>: Output format parameter

<Setting>: Setup parameter value

Metadata Settings

Function	Command
Settings related to tracking data output	freedconfig

Settings related to tracking data output

freedconfig

Setting (Set): command/freedconfig.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=freedconfig

CGI item name		Parameter	Set Inq	Value	Description
free-d	free-d	FreeDTransferMode	Set Inq	off , always, ondemand	Selects the tracking information output method. off: Do not transfer always: Constant output ondemand: Output upon request
		FreeDCameraID	Set Inq	0 to 255	Sets the camera ID.
		FreeDOutputNum	Inq	1	Set to 1 (fixed).
		FreeDDestination1	Set Inq	on , off	Enabled when the tracking information output method is set to 'always'. Turns data transfer to a destination on/off. Cannot be operated from the web app. Leave set to 'on' for use.
		FreeDDestinationAddress1	Set Inq	IPv4 address	Enabled when the tracking information output method is set to 'always'. Sets the destination IP address for tracking information.
		FreeDDestinationPort1	Set Inq	1024 to 40000 to 65534	Enabled when the tracking information output method is set to 'always'. Sets the destination port number for tracking information.
		FreeDOndemandListenPort	Set Inq	1024 to 40000 to 65534	Enabled when the tracking information output method is set to 'ondemand'. Sets the port number of the unit on which to listen for requests from clients.

Maintenance

Function	Command
Language settings	language
Settings related to screen reader function	screenreader
Note May not be available depending on your country or region.	
Date and time settings	datetime
Power supply and settings reset operations	main
Color bar settings and streaming settings	camera
Infrared remote control settings	remotecontrol
Settings related to connecting with an RCP/MSU (option)	See "s700p" in "Network Settings."
Software update	versionup lens_versionup sysinfo
Settings/operation related to logs	logconfig deviceinformation accesslog systemlog
Maintenance operations	maintenance
Note Do not use.	

Language settings

language

Setting (Set): command/language.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=language

CGI item name		Parameter	Set Inq	Value	Description
Language setting	Language	Language	Set Inq	Varies with country or region.	Sets the display language. Obtain the list of configurable languages using the LanguageList command.
		LanguageList	Inq	Varies with country or region.	Returns a list of the available languages.
		LanguagePmt	Inq	enable, disable, display_only	Language configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Settings related to screen reader function

screenreader

Note

May not be available depending on your country or region.

Setting (Set): command/screenreader.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=screenreader

CGI item name		Parameter	Set Inq	Value	Description
Screen Reader	Screen Reader	ScreenReaderEnable	Set Inq	–	Parameter for screen reader function of the Web App.
		ScreenReaderSpeed	Set Inq	–	Parameter for screen reader function of the Web App.
		ScreenReaderText	Inq	–	Parameter for screen reader function of the Web App.
		ScreenReader Volume	Set Inq	–	Parameter for screen reader function of the Web App.

Date and time settings

datetime

Setting (Set): command/datetime.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=datetime

CGI item name		Parameter	Set Inq	Value	Description
Clock setting	Date Format	DateFormat	Set Inq	ymd , mdy, dmy	Sets the date and time display format. ymd: Year - Month - Day mdy: Month - Day - Year dmy: Day - Month - Year
		DateFormatPmt	Inq	enable, disable, display_only	DateFormat configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
		HourFormat	Set Inq	12h, 24h	Sets the time display. 12h: 12-hour mode 24h: 24-hour mode
		HourFormatPmt	Inq	enable, disable, display_only	HourFormat configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

CGI item name		Parameter	Set Inq	Value	Description
Clock setting	Date Time	GmTime	Set Inq	YYMMDDhhmmss W format	Sets Greenwich Mean Time (GMT 00:00). YYMMDD: Year, month, day (actually defined by DateFormat) hhmmss: Hour, minute, second (24-hour format) W: Weekday (Sun=1, Mon=2, ..., Sat=7) If wrong value is set for W, it is corrected automatically.
		Time	Set Inq	YYMMDDhhmmss W format	Sets the local time. YYMMDD: Year, month, day (actually defined by DateFormat) hhmmss: Hour, minute, second (24-hour format) W: Weekday (Sun=1, Mon=2, ..., Sat=7) If wrong value is set for W, it is corrected automatically.
		TimePmt	Inq	enable, disable, display_only	GmTime and Time configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled
	NTP	NtpAuto	Set Inq	on, off	Sets whether to obtain the IP address of NTP (Network Time Protocol) server from the DHCP (Dynamic Host Configuration Protocol) server. on: Acquire off: Do not acquire
		NtpServer	Set Inq	0 to 63 characters	Sets the NTP server in IPv4 address or host name style. Up to 63 alphanumeric characters can be configured.
		NtpService	Set Inq	on, off	Sets whether to synchronize with NTP server. on: Synchronize off: Do not synchronize
	Time Zone	TimeZone	Set Inq	*Refer to "Time Zone" in "CGI Command Setting Values."	Sets the time zone.
		TimeZonePmt	Inq	enable, disable, display_only	TimeZone configurable status. enable: Configurable disable: Not configurable, value is disabled display_only: Not configurable, value is enabled

Power supply and settings reset operations

main

Setting (Set): command/main.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name		Parameter	Set Inq	Value	Description
Reset settings	Factory Default	FactoryDefault	Set	soft, network, hard	Sets the camera initialization method. soft: Resets the image quality settings to the defaults. network: Resets the network settings to the defaults (Network Reset). hard: Returns the settings to the factory default state (Factory Default).
	Reboot	System	Set	on, reboot, standby	Sets the camera power status. on: Sets to the startup status. reboot: Reboots the camera. standby: Sets to standby status. * The status can be acquired using "Power" of system.cgi.

Color bar settings and streaming settings

camera

Setting (Set): command/camera.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=camera

CGI item name		Parameter	Set Inq	Value	Description
Color bars	Color Bar	ColorBar	Set Inq	on, off	Sets whether to output the color bars in the output video. on: Output the color bars. off: Normal image
RTSP	Multicast	Multicast	Inq	off	Sets whether to allow the multicast streaming. Always off. off: Not allowed.
	RTSP	RTSPPort	Inq	Same as RTSPPort of rtspconfig.cgi (inquiry only).	
Video	Frame Rate	FrameRate1	Inq	Same as FrameRate1 of codeconfig.cgi (inquiry only).	
		FrameRate2	Inq	Same as FrameRate2 of codeconfig.cgi (inquiry only).	
		FrameRate3	Inq	Same as FrameRate3 of codeconfig.cgi (inquiry only).	
	Image Codec	ImageCodec1	Inq	Same as ImageCodec1 of codeconfig.cgi (inquiry only).	
		ImageCodec2	Inq	Same as ImageCodec2 of codeconfig.cgi (inquiry only).	
		ImageCodec3	Inq	Same as ImageCodec3 of codeconfig.cgi (inquiry only).	
	Image Size	ImageSize1	Inq	Same as ImageSize1 of codeconfig.cgi (inquiry only).	
		ImageSize2	Inq	Same as ImageSize2 of codeconfig.cgi (inquiry only).	
		ImageSize3	Inq	Same as ImageSize3 of codeconfig.cgi (inquiry only).	

Infrared remote control settings

remotecontrol

Setting (Set): command/remotecontrol.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=remotecontrol

CGI item name		Parameter	Set Inq	Value	Description
System		IRReceive	Set Inq	on , off	Sets whether to accept the signal from the infrared remote control or not. on: Accept. off: Do not accept.

Software update

versionup

Updates the firmware.

<Syntax>

http://<camera_address>/update/versionup.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	FirmwareFile
	file-name	upgrade.bin

lens_versionup

Updates the lens firmware.

<Syntax>

http://<camera_address>/update/lens_versionup.cgi

Content-Type	application/octet-stream	
Content-Disposition	name	LensFirmwareFile
	file-name	<name>

sysinfo

Setting (Set): Not applicable

Inquiry (Inq): command/inquiry.cgi?inq= sysinfo

CGI item name	Parameter	Set Inq	Value	Description
Update firmware	VersionupProgress	Inq	–	For Web App display.
	VersionupStatus	Inq	–	For Web App display.

Settings/operation related to logs

logconfig

Setting (Set): command/logconfig.cgi?<Parameter>=<Value>

Inquiry (Inq): command/inquiry.cgi?inq=logconfig

CGI item name	Parameter	Set Inq	Value	Description
System log, access log	AccessLogLevel	Set Inq	info , warning, critical	Sets the log level of the access log. info: Save logs of all error levels. warning: Save logs of critical and warning levels. critical: Save only logs of critical level.
	AccessLogSize	Set Inq	200 to 1024	Sets the maximum log size of the access log (unit: lines).
	EnableDiagData Download	Set Inq	on, off	Sets whether to download analysis data. on: Allowed. off: Not allowed.
	StatisticsInfo Temperature	Set	reset	For maintenance. Do not use.
	SystemLogLevel	Set Inq	info , warning, critical	Sets the log level of the system log. info: Save logs of all error levels. warning: Save logs of critical and warning levels. critical: Save only logs of critical level.
	SystemLogSize	Set Inq	200 to 1024	Sets the maximum log size of the system log (unit: lines).

deviceinformation

Obtains the service log.

<Syntax>

http://<camera_address>/system/deviceinformation.dat

accesslog

Obtains the HTTP access log in Content-Type text/plain format.

<Syntax>

http://<camera_address>/system/accesslog.txt

Obtains the HTTP access log in Content-Type application/x-www-form-urlencoded format.

<Syntax>

http://<camera_address>/system/accesslog.dat

systemlog

Obtains the system log in Content-Type text/plain format.

<Syntax>

http://<camera_address>/system/systemlog.txt

Obtains the system log in Content-Type application/x-www-form-urlencoded format.

<Syntax>

http://<camera_address>/system/systemlog.dat

Maintenance operations

maintenance

Setting (Set): command/maintenance.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name	Parameter	Set Inq	Value	Description
Maintenance mode	ServicePort	Set	on	For maintenance. Do not use.

Web App

Function	Command
Settings for Web App. Do not use.	pullinquiry
Settings for Web App. Do not use.	subscribe
Settings for Web App. Do not use.	unsubscribe

Settings for Web App

pullinquiry

Setting (Set): command/pullinquiry.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name	Parameter	Set Inq	Value	Description
CGI parameter change notification	SubscriptionId	Set	–	For Web App display. Do not set.

subscribe

Setting (Set): command/subscribe.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name	Parameter	Set Inq	Value	Description
CGI parameter change notification	inqjson	Set	–	For Web App display. Do not set.
	Subscription Duration	Set	–	For Web App display. Do not set.

unsubscribe

Setting (Set): command/unsubscribe.cgi?<Parameter>=<Value>

Inquiry (Inq): Not applicable

CGI item name	Parameter	Set Inq	Value	Description
CGI parameter change notification	SubscriptionId	Set	–	For Web App display. Do not set.

Supported Codecs

The following codecs are supported with the RTSP streaming function of the camera.

Video	Audio
H.264 H.265	AAC LC

RTSP Request URL

RTSP request URLs of the camera to access live streams are as follows.

Request URL	Description
rtsp://<camera_address>/video1	Requests video* bitstreams from codecs corresponding to the CGI parameter "ImageCodec1"** and its related parameters. * Audio bitstream can be transmitted together with this video stream depending on the situation. See "Stream Acquisition" (page 76). ** ImageCodec1 corresponds to Video Stream 1 in the web menu of the camera.
rtsp://<camera_address>/video2	Requests video* bitstreams from codecs corresponding to the CGI parameter "ImageCodec2"** and its related parameters. * Audio bitstream can be transmitted together with this video stream depending on the situation. See "Stream Acquisition" (page 76). ** ImageCodec2 corresponds to Video Stream 2 in the web menu of the camera.
rtsp://<camera_address>/audio	Requests audio bitstreams from codecs corresponding to the CGI parameter "AudInCodec"* and its related parameters. * AudInCodec corresponds to Audio Stream in the web menu of the camera.

RTSP port of the camera (RTSP server) is 554 by factory default. The port can be changed by using the "rtspconfig.cgi" CGI command with the "RTSPPort" CGI parameter.

Note

RTSP streaming is enabled when StreamMode is set to rtsp.

RTSP Methods

Supported Methods

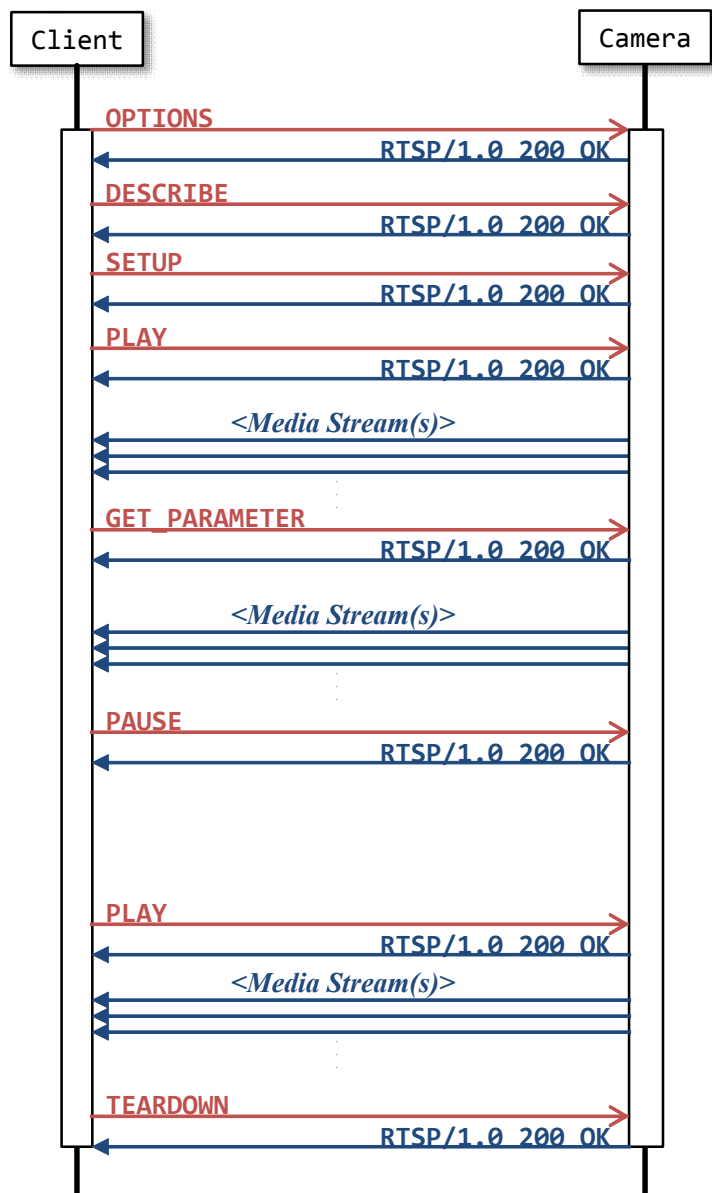
The camera supports the following RTSP methods.

Supported Method
OPTIONS
DESCRIBE
SETUP
PLAY
TEARDOWN
GET_PARAMETER
SET_PARAMETER
PAUSE

For details about the RTSP methods listed above, refer to IETF RFC 2326.

Typical Sequence of RTSP Communication

Overview of a typical RTSP communication sequence between the camera (RTSP server) and a client is as shown below.



The RTSP "GET_PARAMETER" method in the sequence above is used to keep the RTSP streaming alive. You can pause the streaming by using the PAUSE command after starting live streaming by using the PLAY command. To resume, send the PLAY command again. The camera resumes video streaming at the current point by forcing IDR frame insertion at the point of reception of the PLAY resume request. Videos before the pause and after the resume are not in sequence. For details on this topic, refer to "Stream Acquisition" (page 76).

Stream Acquisition

<Transfer Protocols>

The RTSP function of the camera supports the following transfer protocols to stream video and/or audio from the camera to client(s).

- a) TCP bitstream
- b) UDP unicast bitstream

Details of each case above are described in the following sections.

<Number of Media Streams>

The camera supports multiple codecs simultaneously as mentioned in "RTSP Request URL" (page 73). The number of media streams in an RTSP session of the camera is up to 5.

<RTSP Session Timeout>

Timeout period of RTSP session on the camera can be set with value in the "RTSPTimeout" CGI parameter.

Default setting is 60 (Unit: second). When the value is set to 0, RTSP session will not time-out.

For more information on how to change the RTSP timeout setting via the setup menu in a web browser, refer to [Stream] > [Stream Setting] in "Web Menu and Detailed Settings" in the Help Guide.

The RTSP session timeout value of the camera is indicated to a client as a "timeout" parameter (in seconds) in RTSP response to the "SETUP" request. However, when the timeout value is set to 0, the timeout parameter does not exist in the response.

To keep an RTSP stream alive, examples in this document use the RTSP "GET_PARAMETER" method before the camera automatically closes the RTSP session in accordance with the timeout parameter.

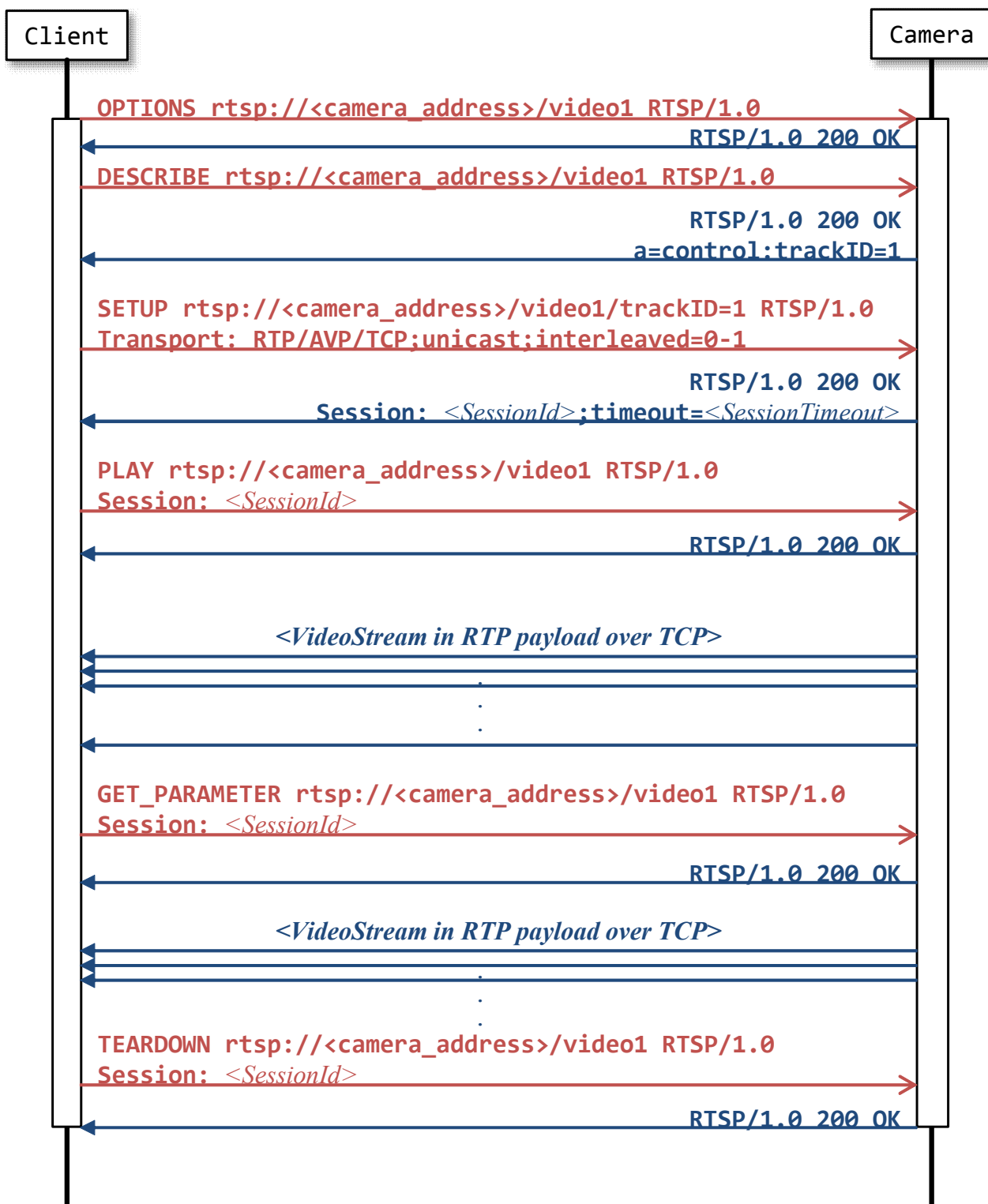
<Closing RTSP Session>

To close the UDP port linked to an RTSP session and end this session safely, use RTSP method "TEARDOWN."

Video Stream Acquisition

TCP bitstream (video)

The following diagram and captured packets show an example of acquiring a video bitstream from the camera over TCP in a situation where AudioIn is off and a client requests a video stream.



```

OPTIONS rtsp:// <camera_address>/video1 RTSP/1.0\r\n
CSeq: 1\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 1\r\n
Public: DESCRIBE, SETUP, TEARDOWN, PLAY, OPTIONS, SET_PARAMETER, GET_PARAMETER\r\n
\r\n

DESCRIBE rtsp:// <camera_address>/video1 RTSP/1.0\r\n
CSeq: 2\r\n
User-Agent <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 2\r\n
Content-Length: <Length>\r\n
Content-Type: application/sdp\r\n
Content-Base: rtsp:// <camera_address>/video1/\r\n
\r\n
v=<ProtocolVersion>\r\n
o=- <SessionIdForOrigin> 1 IN IP4 <camera_address>\r\n
s=<SessionName>\r\n
t=0 0\r\n
a=range:npt=now-\r\n
c=IN IP4 <ConnectionAddress>\r\n
m=<MediaNameAndTransportAddress>\r\n
a=rtpmap: <PayloadType> <EncodingName> / <ClockRate> \r\n
a=control:trackID=1\r\n
a=framerate: <FrameRate>\r\n
a=fmtp: <Format> <FormatSpecificParameters>\r\n

SETUP rtsp:// <camera_address>/video1/trackID=1 RTSP/1.0\r\n
CSeq: 3\r\n
Transport: RTP/AVP/TCP;unicast;interleaved=0-1\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 3\r\n

```

```
Session: <SessionId>[;timeout=<SessionTimeout>]\r\n
Cache-Control: must-revalidate\r\n
Transport: RTP/AVP/TCP;interleaved=0-1;ssrc=<SSRC>\r\n
\r\n

PLAY rtsp://<camera_address>/video1 RTSP/1.0\r\n
CSeq: 4\r\n
Session: <SessionId>\r\n
Range: npt=0.000-\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 4\r\n
Session: <SessionId>\r\n
RTP-Info: url=trackID=1;seq=<SequenceNumber>;rtptime=...\r\n
\r\n

<Video stream in RTP payload over TCP>

GET_PARAMETER rtsp://<camera_address>/video1 RTSP/1.0\r\n
CSeq: 5\r\n
Session: <SessionId>\r\n
User-Agent: <UserAgent>\r\n
\r\n

<Video stream in RTP payload over TCP>

TEARDOWN rtsp://<camera_address>/video1 RTSP/1.0\r\n
CSeq: 6\r\n
Session: <SessionId>\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 6\r\n
Session: <SessionId>\r\n
\r\n
```

UDP unicast bitstream (video)

The following diagram (page 81) and captured packets (page 82 to 83) show an example of a client acquiring a video bitstream via UDP unicast in a situation where AudioIn is off.

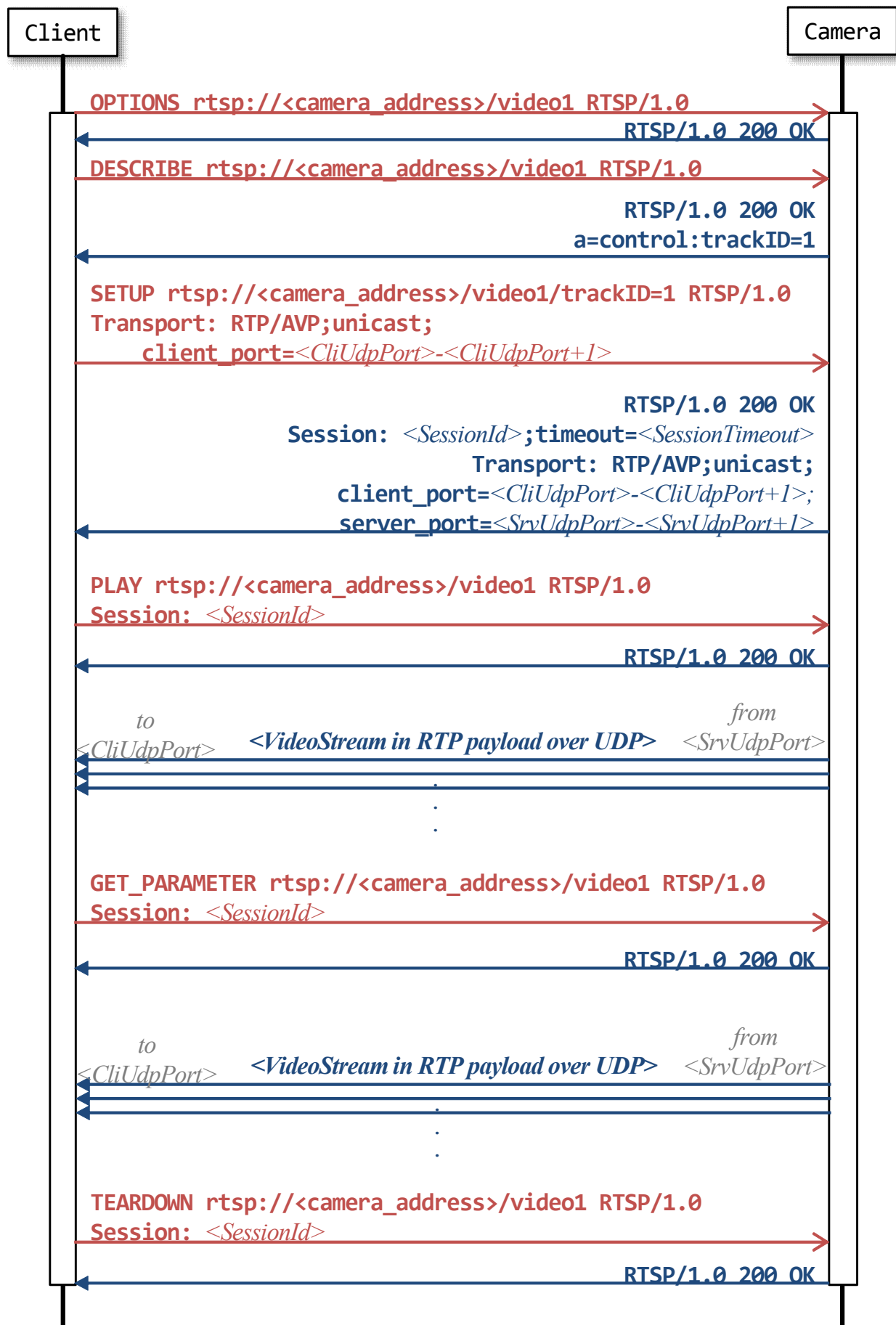
As for the UDP port numbers used for sending RTP/RTCP packets, the "client_port" parameter value which is added to RTSP SETUP request will be used as the client port. As for the server port (port number on the camera side), CGI parameters shown in the table below will be applied.

For details about setting these values using the Web App, refer to "Stream Menu" in the ILME-FR7 / ILME-FR7K Help Guide.

CGI Parameter	Corresponding to
RTSPUcVideoPort1	UDP unicast ports for "ImageCodec1" live stream.
RTSPUcVideoPort2	UDP unicast ports for "ImageCodec2" live stream.
RTSPUcAudioPort	UDP unicast ports for "AudInCodec" live stream.

If the UDP port number specified in the parameter above is already used, the camera assigns the number nearest the number specified by the parameter. For the software implementation on the client side, implement to accept RTP/RTCP data using the port number described in "server_port" which is included in SETUP response (Do not refer to the CGI parameter setting above).

UDP unicast bitstream (video) diagram



UDP unicast bitstream (video) packet capture

```
OPTIONS rtsp:// <camera_address>/video1 RTSP/1.0\r\n
CSeq: 1\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 1\r\n
Public: DESCRIBE, SETUP, TEARDOWN, PLAY, OPTIONS, SET_PARAMETER, GET_PARAMETER\r\n
\r\n

DESCRIBE rtsp:// <camera_address>/video1 RTSP/1.0\r\n
CSeq: 2\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 2\r\n
Content-Length: <Length>\r\n
Content-Type: application/sdp\r\n
Content-Base: rtsp:// <Address>/video1/\r\n
\r\n
v=0\r\n
o=- <SessionIdForOrigin> 1 IN IP4 <camera_address>\r\n
s=<SessionName>\r\n
t=0 0\r\n
a=range:npt=now-\r\n
c=IN IP4 <ConnectionAddress>\r\n
m=<MediaNameAndTransportAddress>\r\n
a=rtpmap: <PayloadType> <EncodingName> / <ClockRate> \r\n
a=control:trackID=1\r\n
a=framerate: <FrameRate>\r\n
a=fmtp: <Format> <FormatSpecificParameters>\r\n

SETUP rtsp:// <camera_address>/video1/trackID=1 RTSP/1.0\r\n
CSeq: 3\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPort>-<CliUdpPort+1>\r\n
User-Agent: <UserAgent>\r\n
\r\n

RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 3\r\n
Session: <SessionId> [ ;timeout=<SessionTimeout> ] \r\n
Cache-Control: must-revalidate\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPort>-<CliUdpPort+1>; source=<SourceAddress>; server_port=<SrvUdpPort>-<SrvUdpPort+1>; ssrc=<SSRC>\r\n
\r\n
```

```

PLAY·rtsp:// <camera_address>/video1·RTSP/1.0\r\n
CSeq:·4\r\n
Session:· <SessionId>\r\n
Range:·npt=0.000-\r\n
User-Agent:· <UserAgent>\r\n
\r\n

RTSP/1.0·200·OK\r\n
Server:· <ServerName>\r\n
CSeq:·4\r\n
Session:· <SessionId>\r\n
RTP-Info:· url=trackID=1;seq= <SequenceNumber>;rtptime=··\r\n
\r\n

<Video stream in RTP payload over UDP unicast>

GET_PARAMETER·rtsp:// <camera_address>/video1·RTSP/1.0\r\n
CSeq:·5\r\n
Session:· <SessionId>\r\n
User-Agent:· <UserAgent>\r\n
\r\n

<Video stream in RTP payload over UDP unicast>

TEARDOWN·rtsp:// <camera_address>/video1·RTSP/1.0\r\n
CSeq:·6\r\n
Session:· <SessionId>\r\n
User-Agent:· <UserAgent>\r\n
\r\n

RTSP/1.0·200·OK\r\n
Server:· <ServerName>\r\n
CSeq:·6\r\n
Session:· <SessionId>\r\n
\r\n

```

Acquiring an audio bitstream

The following captured packets show examples of audio bitstream acquisition from the camera over TCP in a situation where AudioIn is on and a client requests an audio stream.

A description about RTSP audio streaming over UDP unicast is omitted. This is described through sample cases of video streaming described in “UDP unicast bitstream (video)” (page 80).

Acquiring both video and audio bitstreams

In case AudioIn is on and a client requests a video stream, the camera simultaneously transmits the video stream and an audio stream in an RTSP session. The following captured packets show an example of simultaneous video bitstream and audio bitstream acquisition from the camera.

As you can see in the example, session descriptions in RTSP response to "DESCRIBE" request contains two media descriptions. The first one is for video, the second one is for audio.

```
DESCRIBE rtsp://<camera_address>/video1 RTSP/1.0\r\n
CSeq: 3\r\n
User-Agent: <User.Agent>\r\n
\r\n
RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 3\r\n
Content-Length: <Length>\r\n
Content-Type: application/sdp\r\n
Content-Base: rtsp://<camera_address>/video1/\r\n
\r\n
v=0\r\n
o=- <SessionIdForOrigin> 1 IN IP4 <camera_address>\r\n
s=<SessionName>\r\n
t=0 0\r\n
a=range:npt=now- \r\n
c=IN IP4 <ConnectionAddress>\r\n
m=video 0 RTP/AVP 105\r\n
a=rtpmap:105 H264/90000\r\n
a=control:trackID=1\r\n
a=framerate:30.0\r\n
a=fmtp:105 packetization-mode=1; profile-level-id=640002a; sprop-parameter-set
s=Z2QAKqwsaoHgCJ+XAWiAAAH0gAB1MEI=,a048sA==\r\n
m=audio 0 RTP/AVP 103\r\n
a=rtpmap:101 mpeg4-generic/48000/2\r\n
a=control:trackID=2\r\n
a=fmtp:103 profile-level-id=2; streamtype=5; mode=AAC-hbr; config=1190; SizeLe
ngth=13; IndexLength=3; IndexDeltaLength=3; Profile=1; bitrate=256000;\r\n
SETUP rtsp://<camera_address>/video1/trackID=1 RTSP/1.0\r\n
CSeq: 4\r\n
User-Agent: <User.Agent>\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPrt>-<CliUdpPort+1>\r\n
```

```

\r\n
RTSP/1.0 200 OK
Server: <ServerName>\r\n
CSeq: 4\r\n
Session: <SessionId>;timeout=<SessionTimeout>\r\n
Cache-Control: must-revalidate\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPrt>-<CliUdpPrt+1>;source=<SrcIpAddress>;server_port=<ServerPort>;ssrc=<SSRC>\r\n
SETUP rtsp://<camera_address>/video1/trackID=2 RTSP/1.0\r\n
CSeq: 5\r\n
User-Agent: <UserAgent>\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPrt>-<CliUdpPrt+1>\r\n
Session: <SessionId>\r\n
\r\n
RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 5\r\n
Session: <SessionId>;timeout=<SessionTimeout>\r\n
Cache-Control: must-revalidate\r\n
Transport: RTP/AVP;unicast;client_port=<CliUdpPrt>-<CliUdpPrt+1>;source=<SrcIpAddress>;server_port=<ServerPort>;ssrc=<SSRC>\r\n
PLAY rtsp://<camera_address>/video1/ RTSP/1.0\r\n
CSeq: 6\r\n
User-Agent: <UserAgent>\r\n
Session: <SessionId>\r\n
Range: npt=0.000-\r\n
\r\n
RTSP/1.0 200 OK\r\n
Server: <ServerName>\r\n
CSeq: 6\r\n
Session: <SessionId>\r\n
RTP-Info: url=trackID=1;seq=<SeqNoTrackId1>;rtptime=0,url=trackID=2;seq=<SeqNumTrackId2>;rtptime=0\r\n

```

rtpmap attribute

Values of "rtpmap" attributes in the RTSP response to "DESCRIBE" request vary depending on the codec of media streams. Here are some examples.

Codec	rtpmap Attribute Value
H.264	a=rtpmap:105 H264/90000\r\n
H.265	a=rtpmap:96 H265/90000\r\n
AAC (128 kbps)	a=rtpmap:102 mpeg4-generic/48000/2\r\n
AAC (256 kbps)	a=rtpmap:103 mpeg4-generic/48000/2\r\n

RTP/RTCP

RTP Header Fields

The RTP header has the following format.

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
V		P	X	CC			M	PT							Sequence Number																
Timestamp																															
Synchronization Source (SSRC) Identifier																															
Contributing Source (CSRC) Identifier																															
Payload data																															

Field	Bit Length	Description
Version	2	This field identifies the version of RTP. The version defined by this specification is two (2).
Padding	1	If the padding bit is set, the packet contains one or more additional padding octets at the end which are not part of the payload. The last octet of the padding contains a count of how many padding octets should be ignored.
Extension	1	If the extension bit is set, the fixed header is followed by exactly one header extension.
CSRC Count	4	The CSRC count contains the number of CSRC identifiers that follow the fixed header.
Marker	1	The interpretation of the marker is defined by a profile. It is intended to allow significant events such as frame boundaries to be marked in the packet stream.
Payload Type	7	This field identifies the format of the RTP payload and determines its interpretation by the application.
Sequence Number	16	The sequence number increments by one for each RTP data packet sent, and may be used by the receiver to detect packet loss and to restore packet sequence.
Timestamp	32	The timestamp reflects the sampling instant of the first octet in the RTP data packet. The sampling instant must be derived from a clock that increments monotonically and linearly in time to allow synchronization and jitter calculations.
Synchronization Source (SSRC) Identifier	32	The SSRC field identifies the synchronization source. This identifier is chosen randomly, with the intent that no two synchronization sources within the same RTP session will have the same SSRC identifier.
Contributing Source (CSRC) Identifier	32	The CSRC list identifies the contributing sources for the payload contained in this packet. The number of identifiers is given by the CC field.

SR: Sender Report RTCP Packet

The RTCP Sender report's header has the following format.

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
V		P	RC					PT								Length															
Synchronization Source (SSRC) Identifier																															
NTP Timestamp (32bit x 2)																															
RTP Timestamp																															
Sender's Packet Count																															
Sender's Octet Count																															
Report Block 1st																															
Report Block 2nd																															

Field	Bit Length	Description
Version	2	Identifies the version of RTP, which is the same in RTCP packets as in RTP data packets. The version defined by this specification is two (2).
Padding	1	If the padding bit is set, the packet contains one or more additional padding octets at the end which are not part of the payload. The last octet of the padding contains a count of how many padding octets should be ignored.
Reception Report Count	5	The number of reception report blocks contained in this packet. A value of zero is valid.
Packet Type	8	Contains the constant 200 to identify this as an RTCP SR packet.
Length	16	The length of this RTCP packet in 32-bit words minus one, including the header and any padding.
Synchronization Source (SSRC) Identifier	32	The synchronization source identifier for the originator of this SR packet.
NTP Timestamp	64	Indicates the time when this report was sent so that it may be used in combination with timestamps returned in reception reports from other receivers to measure round-trip propagation to those receivers.
RTP Timestamp	32	Corresponds to the same time as the NTP timestamp (above), but in the same units and with the same random offset as the RTP timestamps in data packets.
Sender's Packet Count	32	The total number of RTP data packets transmitted by the sender since starting transmission up until the time this SR packet was generated.
Sender's Octet Count	32	The total number of payload octets (i.e., not including header or padding) transmitted in RTP data packets by the sender since starting transmission up until the time this SR packet was generated. The count is reset if the sender changes its SSRC identifier.

Userdata Information in Video Bitstream

Userdata field (supplemental information) is added to the video bitstream delivered by RTSP streaming function. This section describes the data structure of Userdata field the unit supports.

Userdata Information Under H.264 Video Codec

The data structure of Userdata field where the video codec is set to H.264 is described. The format of the data is like below, when H.264 Userdata is sent from the camera as RTP Packet.

RTP Header	NAL Unit Octet								Payload Type	Size	UUID	User Data	End Code
	0	1	2	3	4	5	6	7					
	F		NRI		NAL Unit Type								
	0		0		6								
		0x05											

In the format above, the data details except RTP Header is described in the table below.

Field		Byte Length	Offset	Description
NAL Unit Octet		1	0	This field is 0x06.
Payload Type		1	1	This field is 0x05.
Size		1	2	This field shows the total byte length of UUID and "user data."
UUID		16	3	This field shows the MAC address of the camera.
User Data	Date Time	33	19	This field shows the local time. [Example] CamTim: _2020-01-01_Wed_15:15:15\r\n
	Frame Rate	15	52	This field shows the current frame rate of the video bitstream. [Example] FrmRate: _60.0\r\n
	Time Stamp	22	67	This field shows the value which is incremented by 90kHz timer (about 11 milliseconds per one increment). [Example] TimeStamp: _0000000001\r\n
	PTZ Position	28	89	This field shows the pan, tilt and zoom position. [Example] CamPos: _111pppppttttzzzm\r\n If a camera supports PTZ, first 3 digits are 111. Next "ppppp," "ttttt" and "zzzz" show the pan, tilt and zoom position respectively. "m" at the bottom represents the status below. "M" : Camera is working "S" : Camera is paused
	Tally	10	117	This field shows the tally lamp status. 0: off / 1: on [Example] Tally: _0\r\n
	Stream	14	127	This field shows the streaming status. [Example] Stream: _xxxx\r\n "IVLD" : No status "OFF_" : Streaming not connected "STM_" : Streaming
End Code		1	141	This field is 0x80.

Userdata Information Under H.265 Video Codec

The data structure of Userdata field where the video codec is set to H.265 is described. The format of the data is like below, when H.265 Userdata is sent from the camera as RTP Packet.

RTP Header	NAL Unit Header																Payload Type	Size	UUID	User Data	End Code	
	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7						
	F	Type						Layer ID						TID								
	0	0x27						0						1								
																	0x05					

In the format above, the data details except RTP Header is described in the table below.

Field		Byte Length	Offset	Description
NAL Unit Header		2	0	This field is 0x4e01.
Payload Type		1	2	This field is 0x05.
Size		1	3	This field shows the total byte length of UUID and "user data."
UUID		16	4	This field shows the MAC address of the camera.
User Data	Date Time	33	20	This field shows the local time. [Example] CamTim: _2020-01-01_Wed_15:15:15\r\n
	Frame Rate	15	53	This field shows the current frame rate of the video bitstream. [Example] FrmRate: _60.0\r\n
	Time Stamp	22	68	This field shows the value which is incremented by 90kHz timer (about 11 milliseconds per one increment). [Example] TimeStamp: _0000000001\r\n
	PTZ Position	28	90	This field shows the pan, tilt and zoom position. [Example] CamPos: _111pppppttttzzzm\r\n If a camera supports PTZ, first 3 digits are 111. Next "ppppp", "ttttt" and "zzzz" show the pan, tilt and zoom position respectively. "m" at the bottom represents the status below. "M" : Camera is working "S" : Camera is paused
	Tally	10	118	This field shows the tally lamp status. 0: off / 1: on [Example] Tally: _0\r\n
	Stream	14	128	This field shows the streaming status. [Example] Stream: _xxxx\r\n "IVLD" : No status "OFF_" : Streaming not connected "STM_" : Streaming
End Code		1	142	This field is 0x80.

CGI Command Setting Values

Shutter (Speed)

Value	Video output format				
	59.94P	50P	29.97P	25P	24P/ 23.98P
1	–	–	–	–	64F
2	–	–	–	–	32F
3	–	–	64F	64F	16F
4	–	–	32F	32F	8F
5	64F	64F	16F	16F	7F
6	32F	32F	8F	8F	6F
7	16F	16F	7F	7F	5F
8	8F	8F	6F	6F	4F
9	7F	7F	5F	5F	3F
10	6F	6F	4F	4F	2F
11	5F	5F	3F	3F	1/24
12	4F	4F	2F	2F	1/32
13	3F	3F	1/30	1/25	1/48
14	2F	2F	1/40	1/33	1/50
15	1/50	1/50	1/50	1/50	1/60
16	1/60	1/60	1/60	1/60	1/96
17	1/100	1/100	1/100	1/100	1/100
18	1/120	1/120	1/120	1/120	1/120
19	1/125	1/125	1/125	1/125	1/125
20	1/250	1/250	1/250	1/250	1/250
21	1/500	1/500	1/500	1/500	1/500
22	1/1000	1/1000	1/1000	1/1000	1/1000
23	1/2000	1/2000	1/2000	1/2000	1/2000
24	1/4000	1/4000	1/4000	1/4000	1/4000
25	1/8000	1/8000	1/8000	1/8000	1/8000

Shutter (Angle)

Value	Angle
1	64F
2	32F
3	16F
4	8F
5	7F
6	6F
7	5F
8	4F
9	3F
10	2F
11	360.0°
12	300.0°
13	270.0°
14	240.0°
15	216.0°
16	210.0°
17	180.0°
18	172.8°
19	150.0°
20	144.0°
21	120.0°
22	90.0°
23	86.4°
24	72.0°
25	45.0°
26	30.0°
27	22.5°
28	11.25°
29	5.6°

Shutter (ECS)

	Video output format					
Value	59.94P	29.97P	24P	23.98P	50P	25P
1120	8000	8000	6000	6000	7000	7000
1119	6000	6000	5000	5000	5000	5000
1118	5000	5000	4300	4300	4600	4600
:	:	:	:	:	:	:
1096	1190	1190	950	950	1000	1000
1095	1150	1150	920	920	970	970
1094	1110	1110	890	890	930	930
1093	1080	1080	860	860	900	900
:	:	:	:	:	:	:
991	253	253	203	202	211	211
990	251	251	201	201	210	210
989	250	250	199.6	199.4	208	208
988	247	247	198.1	197.9	207	207
987	246	246	196.7	196.5	205	205
986	244	244	195.2	195.1	204	204
:	:	:	:	:	:	:
565	60.28	60.28	48.28	48.23	50.3	50.3
564	60.18	60.18	48.19	48.14	50.21	50.21
563	60	60.07	48.1	48.06	50.12	50.12
562		60	48	48	50	50
561		59.86	47.93	47.89		49.94
560		59.75	47.85	47.8		49.85
:		:	:	:		:
3		30.07	24.08	24.06		25.09
2		30.04	24.06	24.03		25.06
1		30.02	24.04	24.01		25.04
0		30	24.02	23.99		25.02

ISO

Value	ISO
8	ISO 320
9	ISO 400
10	ISO 500
11	ISO 640
12	ISO 800
13	ISO 1000
14	ISO 1250
15	ISO 1600
16	ISO 2000
17	ISO 2500
18	ISO 3200
19	ISO 4000
20	ISO 5000
21	ISO 6400
22	ISO 8000
23	ISO 10000
24	ISO 12800
25	ISO 16000
26	ISO 20000
27	ISO 25600
28	ISO 32000
29	ISO 40000
30	ISO 51200
31	ISO 64000
32	ISO 80000
33	ISO 102400
34	ISO 128000
35	ISO 160000
36	ISO 204800
37	ISO 256000
38	ISO 320000
39	ISO 409600

Gain

Value	Gain
6	-3dB
7	-2dB
8	-1dB
9	0dB
10	1dB
11	2dB
12	3dB
13	4dB
14	5dB
15	6dB
16	7dB
17	8dB
18	9dB
19	10dB
20	11dB
21	12dB
22	13dB
23	14dB
24	15dB
25	16dB
26	17dB
27	18dB
28	19dB
29	20dB
30	21dB
31	22dB
32	23dB
33	24dB
34	25dB
35	26dB
36	27dB
37	28dB
38	29dB
39	30dB

Exposure Index

Value	Base ISO	
	ISO 800	ISO 12800
1	200EI / 4.0E	3200EI / 4.0E
2	250EI / 4.3E	4000EI / 4.3E
3	320EI / 4.7E	5000EI / 4.7E
4	400EI / 5.0E	6400EI / 5.0E
5	500EI / 5.3E	8000EI / 5.3E
6	640EI / 5.7E	10000EI / 5.7E
7	800EI / 6.0E	12800EI / 6.0E
8	1000EI / 6.3E	16000EI / 6.3E
9	1250EI / 6.7E	20000EI / 6.7E
10	1600EI / 7.0E	25600EI / 7.0E
11	2000EI / 7.3E	32000EI / 7.3E
12	2500EI / 7.7E	40000EI / 7.7E
13	3200EI / 8.0E	51200EI / 8.0E

ND Filter

Value	ND Filter
0	1/4
1	1/5
2	1/6
3	1/7
4	1/8
5	1/10
6	1/11
7	1/13
8	1/16
9	1/19
10	1/23
11	1/27
12	1/32
13	1/38
14	1/45
15	1/54
16	1/64
17	1/76
18	1/91
19	1/108
20	1/128

AE Level

Value	AE Level
24	+3.0
23	+2.75
22	+2.5
21	+2.25
20	+2.0
19	+1.75
18	+1.5
17	+1.25
16	+1.0
15	+0.75
14	+0.5
13	+0.25
12	±0
11	-0.25
10	-0.5
9	-0.75
8	-1.0
7	-1.25
6	-1.5
5	-1.75
4	-2.0
3	-2.25
2	-2.5
1	-2.75
0	-3.0

Focus position

Position	Value	Comment
Far end	0000	
Near end	FFFF	

Monitoring Output Format

Value	Monitoring Output Format	
	SDI	HDMI
s4096p_h4096p	4096×2160P	4096×2160P
s4096p_h1920p	4096×2160P	1920×1080P
s4096p_h1920i	4096×2160P	1920×1080i
s3840p_h3840p	3840×2160P	3840×2160P
s3840p_h1920p	3840×2160P	1920×1080P
s3840p_h1920i	3840×2160P	1920×1080i
s1920plva_h1920p	1920×1080P (Level A)	1920×1080P
s1920plva_h1920i	1920×1080P (Level A)	1920×1080i
s1920plvb_h1920p	1920×1080P (Level B)	1920×1080P
s1920plvb_h1920i	1920×1080P (Level B)	1920×1080i
s1920i_h1920i	1920×1080i	1920×1080i
snone_h720p	–	59.94: 720×480P 50: 720×576P
s1920p_h1920p	1920×1080P	1920×1080P
s1920ipsf_h1920i	1920×1080i (PsF)	1920×1080i

S&Q Frame Rate

Value	S&Q Frame Rate
1	1 fps
:	:
60	60 fps
61	100 fps
62	120 fps
63	150 fps
64	180 fps
65	200 fps
66	240 fps

Assignable Button Functions

Value	Assignable button function
1	Off
2	Base ISO/Sensitivity
3	AGC
4	Push AGC
5	ND Filter
6	ND Filter Position
7	Auto ND Filter
8	Push Auto ND
9	Auto Iris
10	Push Auto Iris
11	Bokeh Control
12	Auto Shutter
13	AE Level/Mode
14	(Reserved)
15	Backlight
16	Spotlight
17	Preset White Select
18	ATW
19	ATW Hold
20	AF Speed/Sens.
21	Focus Setting
22	(Reserved)
23	(Reserved)
24	Face/Eye Detection AF
25	Push AF Mode
26	Push AF/Push MF
27	Focus Hold
28	(Reserved)
29	(Reserved)
30	(Reserved)
31	S&Q Motion
32	LUT On/Off
33	SteadyShot
34	Crop Select
35	Rec
36	Picture Cache Rec
37	Rec Review
38	Clip Flag OK
39	Clip Flag NG
40	Clip Flag Keep
41	Slot Select

Value	Assignable button function
42	Color Bars
43	(Reserved)
44	DURATION/TC/U-BIT
45	Display
46	Lens Info
47	Video Signal Monitor
48	Marker
49	(Reserved)
50	(Reserved)
51	(Reserved)
52	(Reserved)
53	(Reserved)
54	(Reserved)
55	Thumbnail
56	(Reserved)
57	(Reserved)
58	(Reserved)
59	(Reserved)
60	Auto Upload (Proxy)
61	Direct Menu
62	User Menu
63	(Reserved)

Interval Rec Time

Value	IntervalRecTime
1	1 s
2	2 s
3	3 s
4	4 s
5	5 s
6	6 s
7	7 s
8	8 s
9	9 s
10	10 s
11	15 s
12	20 s
13	30 s
14	40 s
15	50 s
16	1 min
17	2 min
18	3 min
19	4 min
20	5 min
21	6 min
22	7 min
23	8 min
24	9 min
25	10 min
26	15 min
27	20 min
28	30 min
29	40 min
30	50 min
31	1 h
32	2 h
33	3 h
34	4 h
35	6 h
36	12 h
37	24 h

Image Size

Monitorin g Output Format HDMI	Frequenc y	Image Size1	Image Size2	Image Size3
4096x2160 (DCI-4K)	59.94P/ 50P	4096x2160 2048x1080	–	1024x540
	29.97P/ 25P	4096x2160 2048x1080	4096x2160 2048x1080 512x270	1024x540
	23.98P	4096x2160 2048x1080	4096x2160 2048x1080 512x270	1024x540
	24P	4096x2160 2048x1080	4096x2160 2048x1080 512x270	1024x540
3840x2160	59.94P/ 50P	3840x2160 1920x1080 1280x720 640x360	–	1280x720 640x360
	29.97P/ 25P	3840x2160 1920x1080 1280x720 640x360	3840x2160 1920x1080 1280x720 640x360	1280x720 640x360
	23.98P	3840x2160 1920x1080 1280x720 640x360	3840x2160 1920x1080 1280x720 640x360	1280x720 640x360
1920x1080	59.94P/ 50P	1920x1080 1280x720 640x360	1920x1080 1280x720 640x360	1280x720 640x360
	59.94i/50i	1920x1080 1280x720 640x360	1920x1080 1280x720 640x360	1280x720 640x360
	29.97P/ 25P	1920x1080 1280x720 640x360	1920x1080 1280x720 640x360	1280x720 640x360
	23.98P	1920x1080 1280x720 640x360	1920x1080 1280x720 640x360	1280x720 640x360
	24P	1920x1080 1280x720 640x360	1920x1080 1280x720 640x360	1280x720 640x360
720x480	59.94P	–	–	–
720x576	50P	–	–	–

Pan/Tilt

Pan/Tilt Speed, Preset Recall Speed (Reference values)

Unit: %/sec

Value	Speed Step		
	Normal		Extended
	Speed Mode		
	Normal	Slow	
1	0.05	0.05	0.02
2	0.1	0.1	0.03
3	0.2	0.2	0.06
4	0.4	0.3	0.09
5	0.5	0.4	0.14
6	0.8	0.6	0.2
7	1.1	0.9	0.3
8	1.4	1.2	0.4
9	1.9	1.5	0.6
10	2.5	1.9	0.7
11	3.2	2.5	1.0
12	4.0	3.1	1.3
13	5.1	3.9	1.6
14	6.4	4.8	2.0
15	8.0	6.0	2.5
16	10.0	7.3	3.1
17	12.5	9.1	3.7
18	15.5	11.3	4.4
19	19.6	13.8	5.3
20	24.2	17.0	6.2
21	30.1	20.9	7.1
22	37.8	26.0	8.2
23	47.1	31.8	9.4
24	60.0	40.0	10.7
25	–	–	12.0
26	–	–	13.4
27	–	–	15.1
28	–	–	16.7
29	–	–	18.2
30	–	–	20.0
31	–	–	21.9
32	–	–	23.7
33	–	–	25.5
34	–	–	27.5

Value	Speed Step		
	Normal		Extended
	Speed Mode		
	Normal	Slow	
35	–	–	29.4
36	–	–	31.5
37	–	–	33.6
38	–	–	35.7
39	–	–	38.1
40	–	–	40.0
41	–	–	41.8
42	–	–	44.2
43	–	–	46.1
44	–	–	48.2
45	–	–	50.1
46	–	–	52.1
47	–	–	54.3
48	–	–	56.3
49	–	–	58.3
50	–	–	60.0

Zoom Position

Value of zoom position is hexadecimal.

Position	Value	Comment
Optical Wide end	0000	
Optical Tele end	4000	
Clear Image Zoom 1.5×	5556	Clear Image Zoom Tele end at 3840x2160 or higher
Clear Image Zoom 2.0×	6000	Clear Image Zoom Tele end

Reserved Ports

Port number	Comment
52380	Used for IP Setup protocol
52381	Used for VISCA over IP

Camera IP Setup Command

The following command is provided for setting the IP address and camera name of a camera.

No.	Name	Description
1	Setting Protocol: Inquiry	Controller inquires about the network settings of the camera.
2	Setting Protocol: Inquiry response	Camera responds to the inquiry from the controller.
3	Setting Protocol: Network settings	Controller configures the network settings of the camera.
4	Setting Protocol: Network settings response	Camera responds to the network settings from the controller.

To set the network settings of a camera, use the following sequence.

Connect the computer used for configuring to the same network segment as the cameras.

1 Inquiry

The controller sends inquiry packets to UDP broadcast address (255.255.255.255) on the specified port number (52380). The camera responds using inquiry response packets.

2 Network settings

The controller sends network setting packets to UDP broadcast address (255.255.255.255) on the specified port number (52380). The camera refers to the MAC address units in the packets and if the packets are a request to itself, the camera returns an acknowledgment (ACK) in the network settings response.

If the camera configuration is unsuccessful, it returns NACK in the network settings response.

Command	Data
Inquiry	02 ENQ:network *1 FF 03
Inquiry response	02 MAC:***_**_**_**_**_** *1 FF UDP *1 Broadcast address (255.255.255.255) *1 FF Specified port number (52380) *1 SOFTVERSION:***_***_*** *1 FF IPADR:***_***_***_*** *1 FF MASK:***_***_***_*** *1 FF GATEWAY:***_***_***_*** *1 FF NAME:xxxxxxx *1 FF WRITE:on *1 FF 03
Network settings	02 MAC:***_**_**_**_**_** *1 FF UDP *1 Broadcast address (255.255.255.255) *1 FF Specified port number (52380) *1 MASK:***_***_***_*** *1 FF GATEWAY:***_***_***_*** *1 FF NAME:xxxxxxx *1 FF 03
Network settings response	02 ACK:***_**_**_**_**_** *2 "xxxx" *3 FF 03 UDP Broadcast address (255.255.255.255) Specified port number (52380)

*1: ASCII code.

*2: ASCII code. For NACK, returns "NAK:***_**_**_**_**_**".

*3: ASCII code. If necessary, a detailed message reply can occur here. May be omitted.

Notes

- Up to 8 characters comprising alphanumeric characters or spaces can be used for the camera name (NAME).
- When the WRITE data in the inquiry response is set to off, you cannot change the camera IP address and camera name in the network settings.
- After power to the unit is first turned on, WRITE is set to off automatically after 20 minutes, at which point the network settings are no longer accepted.
- You can also set WRITE to off using IPSetupSetEnable (page 48) in a CGI command. When set to off using a CGI command, network settings will not be accepted immediately after

the power is turned on. After setting the IP address of the camera, you can prevent accidental changes by setting WRITE to off.