5-046-290-**11** (1)

SONY

Color Video Camera

VISCA Command List
Software Version 1.00

CGI Command List
Software Version 1.00

SRG-X40UH/H40UH

Table of Contents

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 about the VISCA command and CGI command specifications of Sony Color Video Camera SRG-X40UH and SRG-H40UH.
  - For VISCA commands: see pages 3 to 41
  - For CGI commands: see pages 43 to 45
- In this document, the product is referred as “color video camera” or “the unit.”

VISCA

VISCA[1)] is a protocol developed by Sony for controlling a consumer’s camcorder.

1) “VISCA” is a trademark of Sony Corporation.

Overview of VISCA

In VISCA, the side outputting commands, such as a computer, is called the controller, while the side receiving the commands, such as a SRG-X40UH/H40UH, is called the peripheral device. In VISCA, up to seven peripheral devices including this unit can be connected to a single controller using communication conforming to the RS-422 standard. The parameters of RS-422 are as follows.

- Communication speed: 9600 bps/38400 bps
- Data bits : 8
- Start bit : 1
- Stop bit : 1
- Non parity

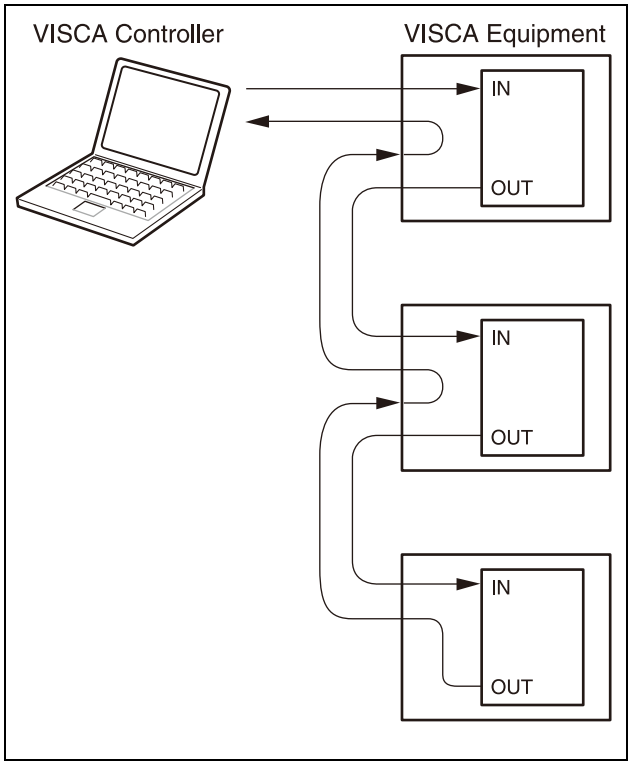
Flow control using XON/XOFF and RTS/CTS, etc., is not supported.

Peripheral devices are connected in a daisy chain. As shown in Fig. 1, the actual internal connection is a one-direction ring, so that messages return to the controller via the peripheral devices. The devices on the network are assigned addresses. The address of the controller is fixed at 0. The peripheral devices are assigned to the addresses, 1, 2, 3... in the connected order, starting from the one connected nearest to the controller. These addresses are set when the controller sends address commands during initialization of the network.

Note

Each VISCA equipment has VISCA IN and VISCA OUT connectors.
Set the DTR input (the S output of the controller) of VISCA IN to H when controlling VISCA equipment from the controller.

Fig. 1 VISCA network configuration



VISCA Communication Specifications

VISCA packet structure

The basic unit of VISCA communication is called a packet (Fig. 2). The first byte of the packet is called the header and comprises the sender's and receiver's addresses. For example, the header of the packet sent to the unit (address 1) from the controller (address 0) is 81H in hexadecimals. Packet sent to the unit (address 2) is 82H.
In the command list, as the header is 8X, input the address of the unit to X. The header of the reply packet from the unit assigned to address 1 is 90H. The packet from the unit assigned to address 2 is A0H.
Some of the setting commands can be sent to all devices at one time (broadcast) *.
In the case of broadcast, the header should be 88H in hexadecimal.
When the terminator is FFH, it signifies the end of the packet.

* The broadcast function is not available for VISCA over IP.

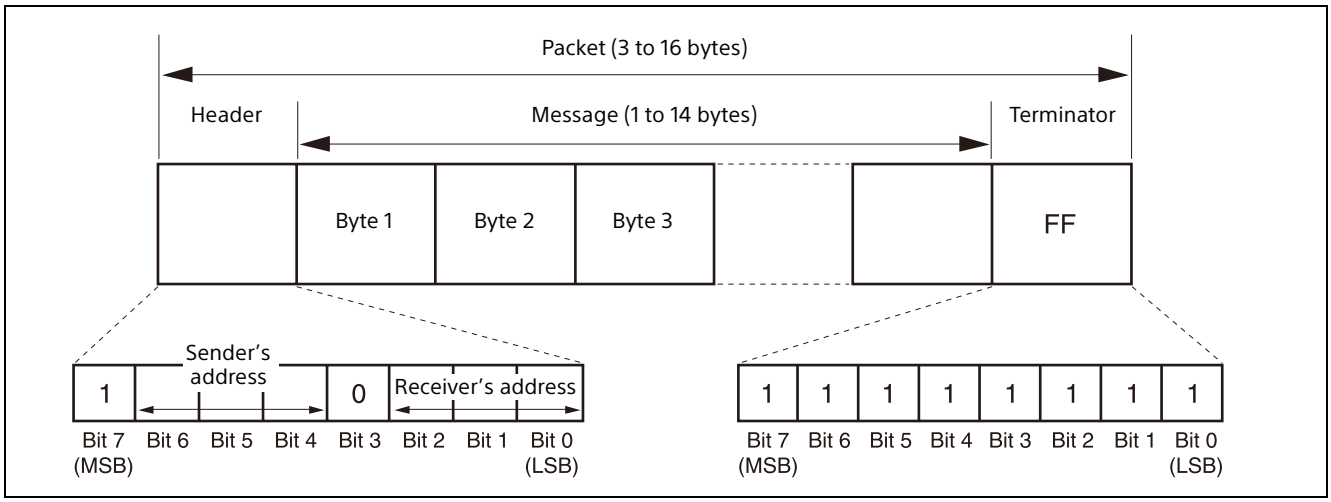


Fig. 2 Packet structure

Note

Fig. 2 shows the packet structure, while Fig. 3 shows the actual waveform. Data flow will take place with the LSB first.

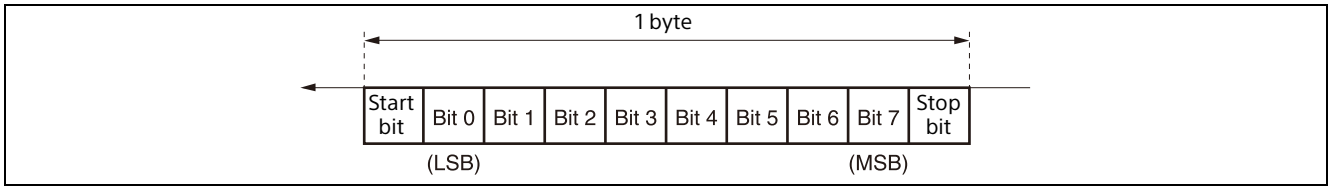


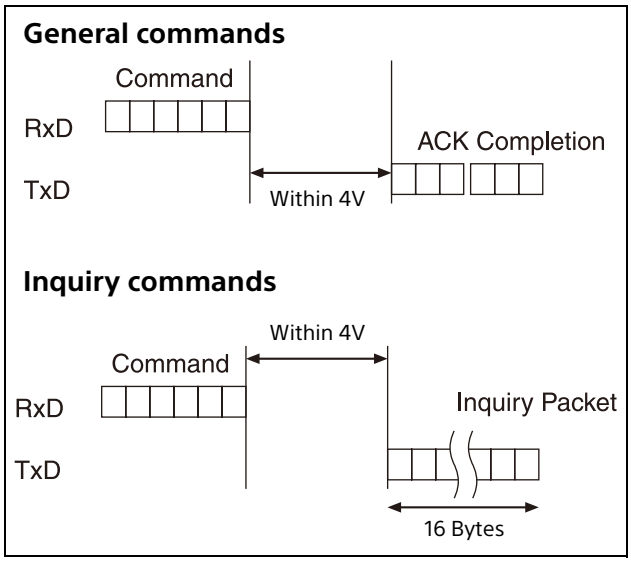
Fig. 3 Actual waveform for 1 byte.

Timing Chart

As VISCA command processing can only be carried out a maximum of one time in a Vertical (V) cycle, it takes maximum 4V-cycle time for an ACK/Completion to be returned.
If the Command and ACK/Completion communication time is shorter than 1V-cycle time, a command can be received at every 1V cycle.
From this point, if two or more commands are to be sent successively, wait for a reply command (an ACK or error message for a general command, and an inquiry packet for an inquiry command) of the previous command to be received before sending the next command.

1V= 16.7 msec (1080/59.94p, 1080/59.94i, 720/59.94p),
20 msec (1080/50p, 1080/50i, 720/50p),
33.4 msec (2160/29.97p*),
40 msec (2160/25p*)

* For SRG-X40UH only



Command and inquiry

- **Command**
  Sends operational commands to the unit.

- **Inquiry**
  Used for inquiring about the current state of the unit.

Command/Inquiry Packet

8X QQ RR ... FF

QQ: Command/Inquiry (01=Command, 09=Inquiry)

RR: Category Code (00=Interface, 04=camera, 06=Pan/Tilter)

X = 1 to 7: Address of the unit (Locked to "X = 1" for VISCA over IP)

For actual values to be sent, see Command Lists or Inquiry Command Lists.

Responses for commands and inquiries

- **ACK message**
  Returned by the unit when it receives a command. No ACK message is returned for an inquiry.

- **Completion message**
  Returned by the unit when execution of commands or inquiries is completed. In the case of inquiry commands, reply data for the inquiry is contained after the 3rd byte of the packet. In the case of commands or inquiries that do not use sockets, the socket number will contain 0.

	Reply Packet
ACK	Y0 4Z FF
Completion (Commands)	Y0 5Z FF
Completion (Inquiries)	Y0 5Z ... FF

Y = 9 to F: Address of the unit + 8 (Locked to "Y = 9" for VISCA over IP)
Z = socket number

- **Error message**
  When a command or inquiry command could not be executed or failed, an error message is returned instead of a completion message.

	Error Packet
Message length error	Y0 6Z 01 FF
Syntax Error	Y0 6Z 02 FF
Command buffer full	Y0 6Z 03 FF
Command canceled	Y0 6Z 04 FF
No socket (to be canceled)	Y0 6Z 05 FF
Command not executable	Y0 6Z 41 FF

Y = 9 to F: Address of the unit + 8 (Locked to "Y = 9" for VISCA over IP)
Z = socket number

Socket number

When command messages are sent to the unit, it is normal to send the next command message after receiving the completion message or error message. However, to deal with advanced uses, the unit has two sets of buffers (memories) for commands, so that up to two commands including the commands currently being executed can be received. (There is a wait longer than a 1V cycle between commands.) However, depending on the command, it may be necessary to wait until the first command is completed due to system reasons. When the unit receives commands, it notifies which command buffer was used using the socket number of ACK message. As the completion message or error message also has a socket number, it indicates which command has ended. Even when two command buffers are being used, the unit management command and inquiry messages can be executed.

The ACK message is not returned for these commands and inquiries, and only the completion message of socket number 0 is returned.

Command execution cancel

To cancel a command which has already been sent, send a Cancel command as the next command. To cancel one of two commands which have been sent, use the cancel message.

	Cancel Packet
Cancel	8X 2Z FF

X = 1 to 7: Address of the unit (Locked to "X = 1" for VISCA over IP)
Z = socket number

Error message "Command Canceled" will be returned for this command, but this is not a fault. It indicates that the command has been cancelled.

Note

To cancel a command when VISCA PAN-TILT Drive (page 21) is being executed, wait at least 200 msec after executing. Then send a cancel command to ensure that PAN-TILT Drive stops effectively.
To execute a PAN-TILT Drive command again, wait at least 200 msec after the message "Command Canceled" has appeared.

VISCA Device Setting Command

Before starting control of the unit, make sure to send the Address Set command and IF_Clear command using the broadcast.

For VISCA network administration

- **Address Set***
  Sets an address of a peripheral device. Use when initializing the network, and receiving the following network change message.

* Not available for VISCA over IP.

- **Network Change***
  Sent from the peripheral device to the controller when a device is removed from or added to the network. The address must be re-set when this message is received.

* Not available for VISCA over IP.

	Packet
Address Set	88 30 01 FF
Network Change	Y0 38 FF

Y = 9 to F: Address of the unit + 8

VISCA interface command

- **IF_Clear**
  Clears the command buffer in the unit. When cleared, the operation currently being executed is not guaranteed.

	Command Packet	Reply Packet
IF_Clear	8X 01 00 01 FF	Y0 50 FF
IF_Clear (broadcast)*	88 01 00 01 FF	88 01 00 01 FF

X = 1 to 7: Address of the unit (Locked to "X = 1" for VISCA over IP)

Y = 9 to F: Address of the unit +8 (Locked to "Y = 9" for VISCA over IP)

* Not available for VISCA over IP.

VISCA interface and inquiry

- **CAM_VersionInq**
  Returns information on the VISCA interface.

	Inquiry Packet	Reply Packet
CAM_VersionInq	8X 09 00 02 FF	Y0 50 GG GG HH HH JJ JJ KK FF

X = 1 to 7: Address of the unit (Locked to "X = 1" for VISCA over IP)
Y = 9 to F: Address of the unit +8 (Locked to "Y = 9" for VISCA over IP)

GGGG = Vender ID

0001: Sony

HHHH = Model ID

061F:SRG-X40UH

0620:SRG-H40UH

JJJJ = ROM revision

KK = Maximum socket # (02)

VISCA Command/ACK Protocol

Command	Command Message	Reply Message	Comments
General Command	81 01 04 38 02 FF (Example)	90 4z FF (ACK) , 90 5z FF (Completion) (z: Socket No.)	Returns ACK when a command has been accepted, or Completion when a command has been executed.
	81 01 04 38 FF (Example)	90 60 02 FF (Syntax Error)	Accepted a command which is not supported or a command lacking parameters.
	81 01 04 38 02 FF (Example)	90 60 03 FF (Command Buffer Full)	Could not accept the command as there are two commands currently being executed.
	81 01 04 08 02 FF (Example)	90 6z 41 FF (Command Not Executable) (z: Socket No.)	Could not execute the command in the current mode.
Inquiry Command	81 09 04 38 FF (Example)	90 50 02 FF (Completion)	Does not return ACK for the Inquiry Command.
	81 09 05 38 FF (Example)	90 60 02 FF (Syntax Error)	Accepted an incompatible command.
Address Set*	88 30 01 FF	88 30 02 FF	Always broadcasted. The device address number plus 1 is returned.
IF_Clear (Broadcast)*	88 01 00 01 FF	88 01 00 01 FF	The same command is returned.
IF_Clear (For x)	8x 01 00 01 FF	y0 50 FF (Completion)	ACK is not returned for this command.
Command Cancel	8x 2p FF	y0 6p 04 FF (Command Canceled)	Returned when the command of the specified socket is cancelled. Completion for the command cancelled is not returned.
		y0 6p 05 FF (No Socket)	Returned when the command of the specified socket has already been completed or when the specified socket number is wrong.

* Not available for VISCA over IP.

Do not transmit the command (except Address Set, IF_Clear, Command Cancel and CAMERA POWER SUPPLY (page 22)) when any menu is displayed on the screen. If displayed, clear the menu first using MENU (page 22) Command, and then proceed.

VISCA Camera-Issued Messages

ACK/Completion Messages

Command	Command Message	Comments
ACK	y0 4z FF (z: Socket No.)	Returned when the command is accepted.
Completion	y0 5z FF (z: Socket No.)	Returned when the command has been executed.

y = Device address + 8 (Locked to “y = 9” for VISCA over IP.)

Error Messages

Command	Command Message	Comments
Syntax Error	y0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is received.
Command Buffer Full	y0 60 03 FF	Could not accept a command that is received while two commands are currently being executed (two sockets have been used).
Command Canceled	y0 6z 04 FF (z: Socket No.)	Returned when a command which is being executed in a socket specified by the cancel command is cancelled. The completion message for the command is not returned.
No Socket	y0 6z 05 FF (z: Socket No.)	Returned when no command is executed in a socket specified by the cancel command, or when an invalid socket number is specified.
Command Not Executable	y0 6z 41 FF (z: Socket No.)	Returned when a command cannot be executed due to current conditions. For example, when a command for controlling the manual focus is received during the auto focus mode.

y = Device address + 8 (Locked to “y = 9” for VISCA over IP.)

Network Change Message

Command	Command Message	Comments
Network Change*	y0 38 FF	Issued when power is supplied to the camera.

* Not available for VISCA over IP.

y = Device address + 8

VISCA over IP

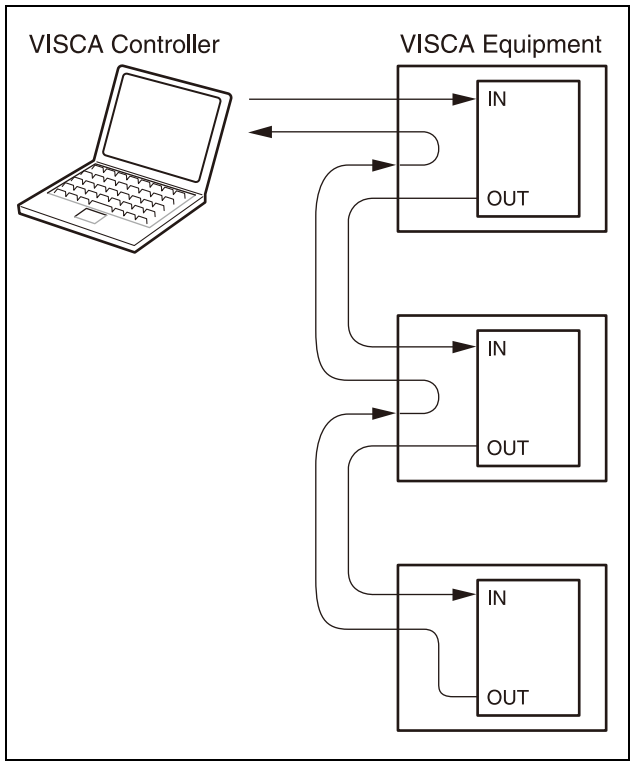
Overview of VISCA over IP

With VISCA over IP function, you can control the camera using VISCA on a controller equipped with IP communication capabilities via LAN. You can connect up to 5 controllers simultaneously on the network.

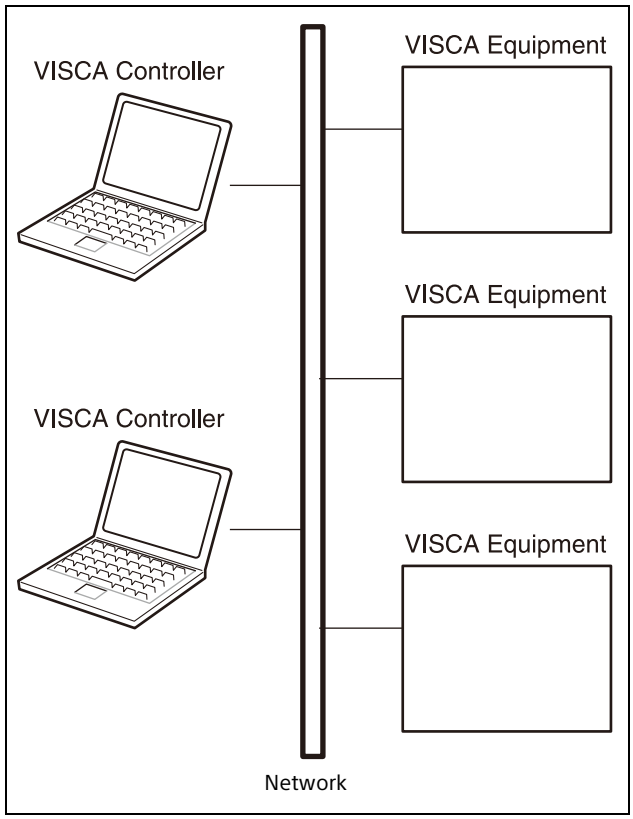
The communication specifications of VISCA over IP are as follows:

- **Interface**
  RJ-45 10BASE-T/100BASE-TX/1000BASE-T (automatically identifying)
- **Internet protocol**
  IPv4
- **Transport protocol**
  UDP
- **IP address**
  Set by the IP setting command (page 42)
- **Port address**
  52381
- **Delivery confirmation/Retransmission control**
  Depends on the application

In these instructions, the device outputting commands, such as a computer, is called the controller, and the device receiving the command, such as a SRG series camera, is called a peripheral device. The controllers and peripheral devices are connected to a one-direction ring conforming to RS-422 standards. On the IP communication connection, the controllers and peripheral devices are connected by bus through a LAN.



RS422 connection



IP communication connection

While the IP communication connection, the address of each device cannot be set in the VISCA message as it is because the controllers and peripheral devices that are connected simultaneously are increased. In this case, addresses of the controllers and peripheral devices that are set in the VISCA message are

locked to 0 (for the controller) or 1 (for the peripheral device).
Due to the nature of the IP communication, the use of some VISCA functions are limited. For details, see “Limitation” on page 14.

For how to set an IP address of the camera, see “Camera IP Setting Command” on page 42.

Communication Method of VISCA over IP

Communication method

VISCA over IP can process the VISCA communication between the controllers and peripheral devices using the messages that can be identified on the LAN, and sends/receives them. Because of this, VISCA over IP is not concerned about the contents of the communication between the controllers and peripheral devices. However, the VISCA communication sequence is different, depending on the types, as follows.

VISCA command
This is a command from the controller to the peripheral device.
When the peripheral device receives this command, ACK is returned. After completing command processing, a completion notice is returned. This command uses the socket of VISCA. The order of completion notices may be changed if the multiple commands are sent to the same peripheral device.

VISCA inquiry
This is an inquiry from the controller to the peripheral device.
When the peripheral device receives this type of command, the reply for the inquiry is returned. This command does not use the socket of VISCA. The order of the replies is not changed if a multiple commands are sent.

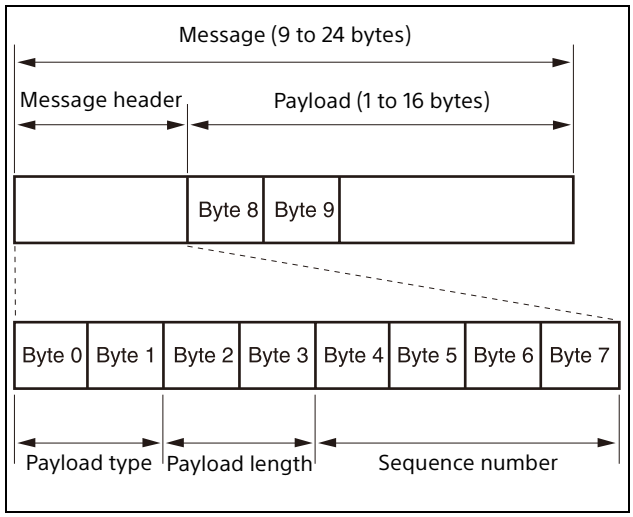
VISCA reply
This is an ACK, completion notice, reply, or error reply from the peripheral device to the controller. The classification for sending messages from the peripheral device to the controller is common.

VISCA device setting command
This is the device setting command from the controller to the peripheral device as follows.

- **Address Set**
  Sets the address of the peripheral device, and does not return a reply to the controller. While using VISCA over IP, the Address Set command is not sent from the controller because a Network Change command from the peripheral device that triggers sending command is not issued.
- **IF_Clear**
  Sends the reply message to the controller after clearing, without using VISCA socket.
- **CAM_VersionInq**
  Sends the reply message to the controller, without using VISCA socket.

Format

These are the specifications of the message header (8 bytes) and payload (1 to 16 bytes).



Message structure

Note

The actual LAN out method is big-endian, LSB first.

Payload type
Stores the value (Byte 0 and Byte 1) of the following table on the payload division.

Name	Value (Byte 0)	Value (Byte 1)	Description
VISCA command	0x01	0x00	Stores the VISCA command.
VISCA inquiry	0x01	0x10	Stores the VISCA inquiry.
VISCA reply	0x01	0x11	Stores the reply for the VISCA command and VISCA inquiry, or VISCA device setting command.
VISCA device setting command	0x01	0x20	Stores the VISCA device setting command.
Control command	0x02	0x00	Stores the control command.
Control reply	0x02	0x01	Stores the reply for the control command.

Payload length
Stores the number of bytes (1 to 16) of data that is stored on the payload.

Example: When the payload length is 16 bytes.
Byte 2: 0x00
Byte 3: 0x10

Sequence number
The controller stores the sequence number that is added every time a message is sent. If the sequence number reaches the limit, next value will be 0. The peripheral device saves the sequence number in the message from the controller, and stores the sequence number of the received message corresponding to the message sent to the controller.

Payload
Depending on the payload type, the following are stored.
- **VISCA command**
  Stores the packet of the VISCA command.
- **VISCA inquiry**
  Stores the packet of VISCA message.
- **VISCA reply**
  Stores the reply for the command or inquiry (ACK message, completion message, or error message).
- **VISCA device setting command**
  Stores the packet of the VISCA device setting command.
- **Control command**
  The following are stored on the payload division of the control command.

Name	Value	Description
RESET	0x01	Resets the sequence number to 0. The value that was set as the sequence number is ignored.
ERROR	0x0Fpp	pp=01: Abnormality in the sequence number.
		pp=02: Abnormality in the message (message type).

- **Controlled reply**
  The following are stored on the payload division of the reply for the control command.

Message	Value	Description
ACK	0x01	Reply for RESET.

Delivery confirmation

VISCA over IP uses UDP as a communications protocol of the transport layer. Delivery of messages is not guaranteed for the UDP communication. Delivery confirmation and retransmission should be performed on the application.

Normally, when the controller sends a message to the peripheral device, the controller sends the new message after receiving the reply for the last message. You can confirm delivery of messages by managing the time-out waiting for a reply message sent.

If time out occurs on the controller, loss of one of the following messages is considered:
- Command
- ACK message
- Completion message for the command
- Inquiry
- Reply message for the inquiry
- Error message
- Inquiry of the VISCA device setting command
- Reply message of the VISCA device setting command

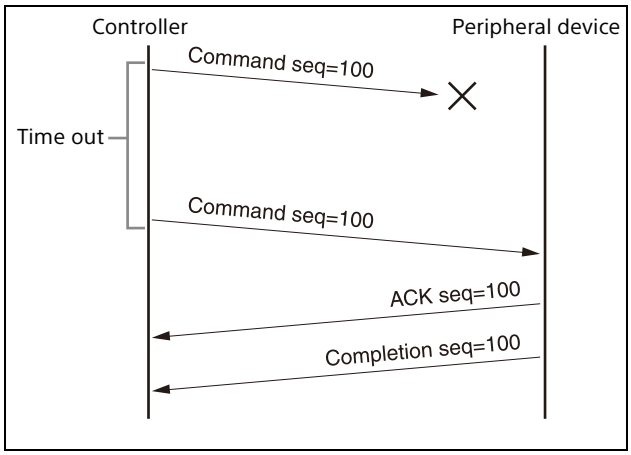
If time out occurs on the controller, you can infer the lost message and state of the peripheral device by retransmitting the message using the same sequence number. The following table shows the received message and status by retransmission of the lost message, and the reference of correspondence after retransmission for each case.
Except for the case that a time out occurs for reasons other than loss of message.

Lost message	**Received message for retransmission**	**Status after retransmission**	**Correspondence after retransmission (Reference)**
Command	ACK message	Command is performed by retransmission.	Continue processing.
ACK message	ERROR (Abnormality in the sequence number.)	Command has been performed. If only the ACK message is lost, the completion message returns.	If the result by the completion message is needed, retransmit by updating the sequence number.
Completion message for the command	ERROR (Abnormality in the sequence number.)	Command has been performed.	If the result by the completion message is needed, retransmit by updating the sequence number.
Inquiry	Reply message	Inquiry is performed by retransmission.	Continue processing.
Reply message for the inquiry	ERROR (Abnormality in the sequence number.)	Inquiry has been performed.	If the result by the reply message is needed, retransmit by updating the sequence number.
Error message	Error message	Command is not performed. If the error cause eliminates, normal reply returns (ACK, reply message).	Eliminate the error cause. If normal reply returns, continue processing.
Inquiry of the VISCA device setting command	Reply message of the VISCA device setting command	Inquiry has been performed by retransmission.	Continue processing.
Reply message of the VISCA device setting command	ERROR (Abnormality in the sequence number.)	Inquiry has been performed.	If the result by the reply message is needed, retransmit by updating the sequence number.

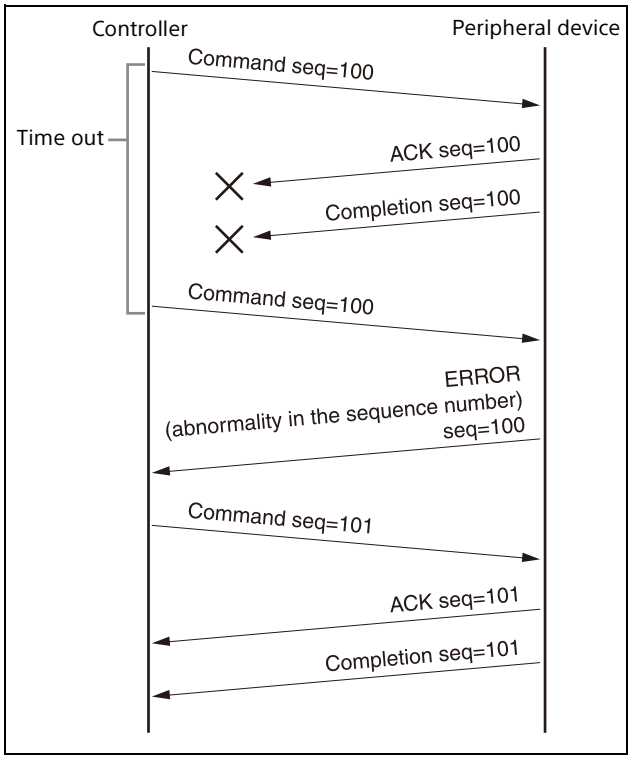
The SRG series camera has 2 buffers (memories) for the command to deal with advanced uses.
When using VISCA over IP, up to 2 commands (including the current command) can be received.
Depending on the message from the controller to the peripheral device, there are some messages that do not need to guarantee delivery. However, the peripheral device receives commands from multiple controllers while connected to VISCA over IP. If the multiple commands are send without waiting for the reply, the possibility of non-execution of the command and errors due to buffer overflow become high,

because of limitations of order to receive commands or execution interval of command. It may cause efficiency to be reduced substantially.

Timing chart



Timing chart (loss of command)



Timing chart (loss of ACK or completion message)

Limitation

The following are limitations for VISCA over IP as compared with the VISCA specifications.

Locking the peripheral device's address of the VISCA message to 1

VISCA over IP cannot reflect each address to the address of the VISCA message because up to 112 peripheral devices and 5 controllers are connected. Because of this, the peripheral device's address of VISCA command is locked to 1 when using VISCA over IP. If the peripheral device's address is set to other than 1 for the VISCA command, the peripheral device works without hindrance since the peripheral device recognizes that its address is set to 1.

Locking the controller's address of the VISCA message to 0.

For the same reason as the peripheral device's address, the controller's address of VISCA command is locked to 0. If the controller's address is set to other than 0, the peripheral device works without hindrance, and the reply address from the peripheral device is always set to 0.

Prohibition of specifying the broadcast address for the VISCA message

Do not use the broadcast address because it requires the serial communication. Operations under the broadcast address is set to the command are not guaranteed.

Prohibition of the Address Set for VISCA device setting command

Do not use this command because it requires the serial communication. Operations under the Address Set command is sent are not guaranteed.

VISCA Network Change command is not supported

This cannot be issued because it requires the serial communication.

Expiration time for an on status of the tally lamp

The tally lamp is turned off if not receiving an ON command from any controller for 15 seconds after receiving an ON command of TALLY ON/OFF.

VISCA Commands

Command List (1/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
EXPOSURE	MODE	-	8x 01 04 39 0p FF	p: 0=Full Auto, 3=Manual, A=Shutter Priority, B=Iris Priority
	IRIS	Reset	8x 01 04 0B 00 FF	To return to 19 (F2.0) value
		Up	8x 01 04 0B 02 FF	Open
		Down	8x 01 04 0B 03 FF	Close
		Direct	8x 01 04 4B 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (IRIS) section
	GAIN	Reset	8x 01 04 0C 00 FF	To return to 01 (0 dB) value
		Up	8x 01 04 0C 02 FF	
		Down	8x 01 04 0C 03 FF	
		Direct	8x 01 04 4C 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (GAIN) section
	GAIN LIMIT	Direct	8x 01 04 2C 0p FF	When high-sensitivity mode is set to Off p: 4 (9 dB) - D (36 dB) When high-sensitivity mode is set to On p: 4 (21 dB) - D (48 dB)
	GAIN POINT	On/Off	8x 01 05 0C 0p FF	p: 2=On, 3=Off
		Position	8x 01 05 4C 0p 0p FF	When high-sensitivity mode is set to Off p: 4 (9 dB) - D (36 dB) When high-sensitivity mode is set to On p: 4 (21 dB) - D (48 dB)
	HIGH SENSITIVITY	On/Off	8x 01 04 5E 0p FF	p: 2=high-sensitivity mode On, 3=high-sensitivity mode Off
	SHUTTER	Reset	8x 01 04 0A 00 FF	Return to the default value depending on the frame rate of video output
		Up	8x 01 04 0A 02 FF	Fast
		Down	8x 01 04 0A 03 FF	Slow
		Direct	8x 01 04 4A 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (SHUTTER/MIN SHUTTER) section
	MAX SHUTTER	Direct	8x 01 05 2A 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (MAX SHUTTER) section
	MIN SHUTTER	Direct	8x 01 05 2A 01 0p 0p FF	pp: Refer to the VISCA Command Setting Values (SHUTTER/MIN SHUTTER) section
	AUTO SLOW SHUTTER	Direct	8x 01 04 5A 0p FF	p: 2=On, 3=Off
	AE SPEED	Direct	8x 01 04 5D pp FF	pp: 01 - 30

Command List (2/8)

Number in ( ) is MENU display values

Command Set	Command		Command Packet	Comments
EXPOSURE	EXP COMP	On/Off	8x 01 04 3E 0p FF	p: 2=On, 3=Off
		Reset	8x 01 04 0E 00 FF	To return to 07 (Correction Level 0) value
		Up	8x 01 04 0E 02 FF	
		Down	8x 01 04 0E 03 FF	
		Direct	8x 01 04 4E 00 00 0p 0p FF	pp: 00 - 0E
	BACKLIGHT	On/Off	8x 01 04 33 0p FF	p: 2=On, 3=Off
	SPOTLIGHT	On/Off	8x 01 04 3A 0p FF	p: 2=On, 3=Off
	VISIBILITY ENHANCER	On/Off	8x 01 04 3D 0p FF	p: 6=On, 3=Off
		-	8x 01 04 2D 00 0p 0q 0r 00 00 00 00 FF	p: Effect Level 0 (Dark) - 6 (Bright) q: Brightness compensation selection (0=Very dark, 1=Dark, 2=Standard, 3=Bright) r: Compensation Level (0=Low, 1=Mid, 2=High)
	LOW LIGHT BASIS BRIGHTNESS	On/Off	8x 01 05 39 0p FF	p: 2=On, 3=Off
		Level	8x 01 05 49 0p FF	p: 4 - A

Command List (3/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
COLOR	WHITE BALANCE MODE	-	8x 01 04 35 0p FF	p: 0=Auto1, 1=Indoor, 2=Outdoor, 3=One Push WB, 4=Auto2, 5=Manual
	ONE PUSH TRIGGER	-	8x 01 04 10 05 FF	One Push WB Trigger
	R.GAIN	Reset	8x 01 04 03 00 FF	To return to 80 (0) value
		Up	8x 01 04 03 02 FF	
		Down	8x 01 04 03 03 FF	
		Direct	8x 01 04 43 00 00 0p 0p FF	pp: 00 (–128) - 80 (0) - FF (127)
	B.GAIN	Reset	8x 01 04 04 00 FF	To return to 80 (0) value
		Up	8x 01 04 04 02 FF	
		Down	8x 01 04 04 03 FF	
		Direct	8x 01 04 44 00 00 0p 0p FF	pp: 00 (–128) - 80 (0) - FF (127)
	SPEED	-	8x 01 04 56 0p FF	p: 1 (Slow) - 5 (Fast)
	OFFSET	Reset	8x 01 7E 01 2E 00 00 FF	To return to 7 (0) value
		Up	8x 01 7E 01 2E 00 02 FF	
		Down	8x 01 7E 01 2E 00 03 FF	
		Direct	8x 01 7E 01 2E 01 0p FF	p: 0 (–7) - 7 (0) - E (+7)

Command List (4/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
DETAIL	LEVEL	Reset	8x 01 04 02 00 FF	To return to 7 value
		Up	8x 01 04 02 02 FF	
		Down	8x 01 04 02 03 FF	
		Direct	8x 01 04 42 00 00 0p 0p FF	pp: 00 - 0F
	MODE	Direct	8x 01 05 42 01 0p FF	p: 0=Auto, 1=Manual
	BANDWIDTH	Direct	8x 01 05 42 02 0p FF	p: 0 - 4
	CRISPENING	Direct	8x 01 05 42 03 0p FF	p: 0 - 7
	HV BALANCE	Direct	8x 01 05 42 04 0p FF	p: 5 - 9
	BW BALANCE	Direct	8x 01 05 42 05 0p FF	p: 0 - 4
	LIMIT	Direct	8x 01 05 42 06 0p FF	p: 0 - 7
	HIGHLIGHT DETAIL	Direct	8x 01 05 42 07 0p FF	p: 0 - 4
	SUPER LOW	Direct	8x 01 05 42 08 0p FF	p: 0 - 7
FLICKER CANCEL	-	-	8x 01 04 32 0p FF	p: 2=On, 3=Off
IMAGE STABILIZER	-	-	8x 01 04 34 0p FF	p: 2=On, 3=Off

Command List (5/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
HIGH RESOLUTION	-	-	8x 01 04 52 0p FF	p: 2=On, 3=Off
NOISE REDUCTION	LEVEL	-	8x 01 04 53 pp FF	pp: NR Setting 00 (Off), 01 (Weak) - 05 (Strong), 7F (Enables 2D NR/3D NR)
	2D NR/3D NR	-	8x 01 05 53 0p 0q FF	p: 2D NR Level 0 (Off), 1 (Weak) - 5 (Strong) q: 3D NR Level 0 (Off), 1 (Weak) - 5 (Strong)
ZOOM	STOP	-	8x 01 04 07 00 FF	
	TELE	Standard speed	8x 01 04 07 02 FF	
	WIDE	Standard speed	8x 01 04 07 03 FF	
	TELE	Variable speed	8x 01 04 07 2p FF	p: 0 (Low) - 7 (High)
	WIDE	Variable speed	8x 01 04 07 3p FF	p: 0 (Low) - 7 (High)
	DIRECT	-	8x 01 04 47 0z 0z 0z 0z FF	zzzz: Refer to the section of the Zoom Position and Zoom Ratio (for reference) of VISCA Command Setting Values
	MODE	-	8x 01 04 06 0p FF	p: 3=Optical only, 4=Clear Image Zoom, 2=Digital

Command List (6/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
FOCUS	MODE	Auto/Manual	8x 01 04 38 pp FF	pp: 02=Auto Focus, 03=Manual Focus, 10=Toggle
	STOP	-	8x 01 04 08 00 FF	
	FAR	Standard speed	8x 01 04 08 02 FF	
	NEAR	Standard speed	8x 01 04 08 03 FF	
	FAR	Variable speed	8x 01 04 08 2p FF	p: 0 (Low) - 7 (High)
	NEAR	Variable speed	8x 01 04 08 3p FF	p: 0 (Low) - 7 (High)
	DIRECT	-	8x 01 04 48 0p 0p 0p 0p FF	pppp: Refer to the section of the Focus Ratio and Focus Distance (for reference) of VISCA Command Setting Values
	ONE PUSH TRIGGER	-	8x 01 04 18 01 FF	One Push AF Trigger
	FOCUS ∞	-	8x 01 04 18 02 FF	
	NEAR LIMIT	-	8x 01 04 28 0p 0p 0p 0p FF	pppp: Refer to the section of the Focus Ratio and Focus Distance (for reference) of VISCA Command Setting Values
	AF MODE	Mode	8x 01 04 57 0p FF	p: 0=Normal AF, 1=Interval AF, 2=Zoom Trigger AF
		Interval	8x 01 04 27 0p 0p 0q 0q FF	pp: AF operating time 00 (no operation), 01 (1 second) - FF (255 seconds) qq: AF staying time 00 (no suspension), 01 (1 second) - FF (255 seconds)
	AF SENSITIVITY	-	8x 01 04 58 0p FF	p: 2=Normal, 3=Low
	IR CORRECTION	-	8x 01 04 11 0p FF	p: 0=Standard, 1=IR Light

Command List (7/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
PAN TILT	PAN TILT DRIVE	Up	8x 01 06 01 vv ww 03 01 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		Down	8x 01 06 01 vv ww 03 02 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		Left	8x 01 06 01 vv ww 01 03 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		Right	8x 01 06 01 vv ww 02 03 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		UpLeft	8x 01 06 01 vv ww 01 01 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		UpRight	8x 01 06 01 vv ww 02 01 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		DownLeft	8x 01 06 01 vv ww 01 02 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		DownRight	8x 01 06 01 vv ww 02 02 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		Stop	8x 01 06 01 vv ww 03 03 FF	vv: Pan speed 01 (Slow) - 18 (Fast) ww: Tilt speed 01 (Slow) - 17 (Fast)
		ABS (Absolute Position)	8x 01 06 02 vv 00 0p 0p 0p 0p 0t 0t 0t 0t FF	vv: Pan-Tilt speed 01 (Slow) - 18 (Fast) pppp: Pan-coordinate* tttt: Tilt-coordinate*
		REL (Relative Position)	8x 01 06 03 vv 00 0p 0p 0p 0p 0t 0t 0t 0t FF	vv: Pan-Tilt speed 01 (Slow) - 18 (Fast) pppp: Pan-shift amount* tttt: Tilt-shift amount*
		Home	8x 01 06 04 FF	
		Reset	8x 01 06 05 FF	
	RAMP CURVE	-	8x 01 06 31 0p FF	p: 1=Sharpness
	PAN-TILT SLOW	On/Off	8x 01 06 44 0p FF	p: 2=On, 3=Off
	PAN TILT LIMIT	Limit Set	8x 01 06 07 00 0q 0p 0p 0p 0p 0t 0t 0t 0t FF	q: Position (1=UpRight, 0=DownLeft) For pppp and tttt, refer to the section of the Pan/Tilt Position of VISCA Command Setting Values
		Limit Clear	8x 01 06 07 01 0q 07 0F 0F 0F 07 0F 0F 0F FF	q: Position (1=UpRight, 0=DownLeft)

* Refer to the section of the Pan/Tilt Position of VISCA Command Setting Values.

Command List (8/8)

Number in ( ) is MENU display values.

Command Set	Command		Command Packet	Comments
PRESET	RESET	Reset	8x 01 04 3F 00 pp FF	pp: PRESET No. to reset - 1 (00 - 63)
	SET	Set	8x 01 04 3F 01 pp FF	pp: PRESET No. to set - 1 (00 - 63)
	RECALL	Recall	8x 01 04 3F 02 pp FF	pp: PRESET No. to recall - 1 (00 - 63)
	SPEED	Select	8x 01 7E 04 1B 0p FF	p: 0=Compatible (same as Separate), 1=Separate (operation with individual speed by a preset), 2=common (operation with common speed to all presets)
		Separate	8x 01 7E 01 0B pp qq FF	pp: PRESET No. -1 (00 - 63) qq: Positioning speed (01 - 19)
		Common	8x 01 7E 04 1C 0p 0p FF	pp: Common Speed (01-19)
SYSTEM	VIDEO FORMAT	Select	8x 01 7E 04 32 0p 0p FF	pp: Video Format For pp, refer to the section of the Video output method (video format) of VISCA Command Setting Values
	IR RECEIVE	-	8x 01 06 08 pp FF	pp: 02=On, 03=Off, 10=Toggle
	IMG FLIP	-	8x 01 04 66 0p FF	p: 2=On, 3=Off
	CAMERA ID	-	8x 01 04 22 0p 0p 0p 0p FF	pppp: Camera ID (0000 - FFFF)
MENU	ON/OFF	-	8x 01 06 06 pp FF	p: 2=On, 3=Off, 10=Toggle
	ENTER	-	8x 01 7E 01 02 00 01 FF	
IR CUT FILTER	ICR	On/Off	8x 01 04 01 0p FF	p: 2=On (Night), 3=Off (Day)
	AUTO ICR	On/Off	8x 01 04 51 0p FF	p: 2=Auto ICR On, 3=Auto ICR Off
		Threshold	8x 01 04 21 00 00 0p 0p FF	pp: 00 - FF (Threshold)[*1]
HDMI	COLOR SPACE	-	8x 01 7E 01 03 00 0p FF	p: 0=YCbCr, 1=RGB
POWER	ON/STANDBY	-	8x 01 04 00 0p FF	p: 2=On, 3=Standby
	STANDBY MODE	-	8x 01 7E 04 50 0p FF	p: 2=Side (When transferring to Standby, move the Pan to the end point[*2] and the Tilt to 0°), 3=Neutral

[*1] When the value is large, even if the subject is bright, the camera cannot be changed to Day mode. In this case, use the camera by decreasing the value.

[*2] Aligned to the right end when IMAGE FLIP is Off, and aligned to the left end when IMAGE FLIP is On.

Inquiry Command List (1/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
EXPOSURE	MODE	8x 09 04 39 FF	y0 50 0p FF	p: 0=Full Auto, 3=Manual, A=Shutter Priority, B=Iris Priority
	IRIS	8x 09 04 4B FF	y0 50 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (IRIS) section
	GAIN	8x 09 04 4C FF	y0 50 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (GAIN) section
	GAIN LIMIT	8x 09 04 2C FF	y0 50 0p FF	p: Gain Limit
	GAIN POINT	8x 09 05 0C FF	y0 50 0p FF	p: 2=On, 3=Off
		8x 09 05 4C FF	y0 50 0p 0p FF	pp: Gain Point Position
	HIGH SENSITIVITY	8x 09 04 5E FF	y0 50 0p FF	pp: High Sensitivity
	SHUTTER	8x 09 04 4A FF	y0 50 00 00 0p 0p FF	pp: Refer to the VISCA Command Setting Values (SHUTTER/MIN SHUTTER) section
	MAX SHUTTER	8x 09 05 2A 00 FF	y0 50 0p 0p FF	pp: Refer to the VISCA Command Setting Values (MAX SHUTTER) section
	MIN SHUTTER	8x 09 05 2A 01 FF	y0 50 0p 0p FF	pp: Refer to the VISCA Command Setting Values (SHUTTER/MIN SHUTTER) section
	AUTO SLOW SHUTTER	8x 09 04 5A FF	y0 50 0p FF	p: 2=On, 3=Off
	AE SPEED	8x 09 04 5D FF	y0 50 pp FF	pp: 01 - 30
	EXP COMP	8x 09 04 3E FF	y0 50 0p FF	p: 2=On, 3=Off
		8x 09 04 4E FF	y0 50 00 00 0p 0p FF	pp: 00 - 0E
	BACKLIGHT	8x 09 04 33 FF	y0 50 0p FF	p: 2=On, 3=Off
	SPOTLIGHT	8x 09 04 3A FF	y0 50 0p FF	p: 2=On, 3=Off
	VISIBILITY ENHANCER	8x 09 04 3D FF	y0 50 0p FF	p: 6=On, 3=Off
		8x 09 04 2D FF	y0 50 00 0p 0q 0r 00 00 00 00 FF	p: Effect Level 0 (Dark) - 6 (Bright) q: Brightness compensation selection (0=Very dark, 1=Dark, 2=Standard, 3=Bright) r: Compensation Level (0=Low, 1=Mid, 2=High)
	LOW LIGHT BASIS BRIGHTNESS	8x 09 05 39 FF	y0 50 0p FF	p: 2=On, 3=Off
		8x 09 05 49 FF	y0 50 0p FF	p: 4 - A

Inquiry Command List (2/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
COLOR	WHITE BALANCE MODE	8x 09 04 35 FF	y0 50 0p FF	p: 0=Auto1, 1=Indoor, 2=Outdoor, 3=One Push WB, 4=Auto2, 5=Manual
	R.GAIN	8x 09 04 43 FF	y0 50 00 00 0p 0p FF	pp: 00 (–128) - 80 (0) - FF (127)
	B.GAIN	8x 09 04 44 FF	y0 50 00 00 0p 0p FF	pp: 00 (–128) - 80 (0) - FF (127)
	SPEED	8x 09 04 56 FF	y0 50 0p FF	p: 1 (Slow) - 5 (Fast)
	OFFSET	8x 09 7E 01 2E FF	y0 50 00 00 00 0p FF	p: 0 (–7) - 7 (0) - E (+7)
DETAIL	LEVEL	8x 09 04 42 FF	y0 50 00 00 0p 0p FF	pp: 00 - 0F
	MODE	8x 09 05 42 01 FF	y0 50 0p FF	p: 0=Auto, 1=Manual
	BANDWIDTH	8x 09 05 42 02 FF	y0 50 0p FF	p: 0 - 4
	CRISPENING	8x 09 05 42 03 FF	y0 50 0p FF	p: 0 - 7
	HV BALANCE	8x 09 05 42 04 FF	y0 50 0p FF	p: 5 - 9
	BW BALANCE	8x 09 05 42 05 FF	y0 50 0p FF	p: 0 - 4
	LIMIT	8x 09 05 42 06 FF	y0 50 0p FF	p: 0 - 7
	HIGHLIGHT DETAIL	8x 09 05 42 07 FF	y0 50 0p FF	p: 0 - 4
	SUPER LOW	8x 09 05 42 08 FF	y0 50 0p FF	p: 0 - 7

Inquiry Command List (3/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
FLICKER CANCEL	-	8x 09 04 32 FF	y0 50 0p FF	p: 2=On, 3=Off
IMAGE STABILIZER	-	8x 09 04 34 FF	y0 50 0p FF	p: 2=On, 3=Off
HIGH RESOLUTION	-	8x 09 04 52 FF	y0 50 0p FF	p: 2=On, 3=Off
NOISE REDUCTION	LEVEL	8x 09 04 53 FF	y0 50 pp FF	pp: NR Setting 00 (Off), 01 (Weak) - 05 (Strong), 7F (Enables 2D NR/3D NR)
	2D NR/3D NR	8x 09 05 53 FF	y0 50 0p 0q FF	p: 2D NR Level 0 (Off), 1 (Weak) - 5 (Strong) q: 3D NR Level 0 (Off), 1 (Weak) - 5 (Strong)
ZOOM	MODE	8x 09 04 06 FF	y0 50 0p FF	p: 3=Optical only, 4=Clear Image Zoom, 2=Digital
	ZOOM POSITION	8x 09 04 47 FF	y0 50 0z 0z 0z 0z FF	zzzz: Refer to the section of the Zoom Position and Zoom Ratio (for reference) of VISCA Command Setting Values

Inquiry Command List (4/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
FOCUS	MODE	8x 09 04 38 FF	y0 50 0p FF	p: 2=Auto Focus, 3=Manual Focus
	FOCUS POSITION	8x 09 04 48 FF	y0 50 0p 0p 0p 0p FF	pppp: Refer to the section of the Focus Ratio and Focus Distance (for reference) of VISCA Command Setting Values
	AF MODE	8x 09 04 57 FF	y0 50 0p FF	p: 0=Normal AF, 1=Interval AF, 2=Zoom Trigger AF
	AF MODE INTERVAL	8x 09 04 27 FF	y0 50 0p 0p 0q 0q FF	pp: AF operating time 00 (no operation), 01 (1 second) - FF (255 seconds) qq: AF staying time 00 (no suspension), 01 (1 second) - FF (255 seconds)
	AF SENSITIVITY	8x 09 04 58 FF	y0 50 0p FF	p: 2 (Normal), 3 (Low)
	NEAR LIMIT	8x 09 04 28 FF	y0 50 0p 0p 0p 0p FF	pppp: Refer to the section of the Focus Ratio and Focus Distance (for reference) of VISCA Command Setting Values
	IR CORRECTION	8x 09 04 11 FF	y0 50 0p FF	p: 0 (Standard), 1 (IR Light)
PAN TILT	POSITION	8x 09 06 12 FF	y0 50 0p 0p 0p 0p 0t 0t 0t 0t FF	Refer to the section of the Pan/Tilt Position of VISCA Command Setting Values for pppp and tttt
	STATUS	8x 09 06 10 FF	y0 50 pp pp FF	pppp: Refer to the section of the Pan/Tilt status code list
	RAMP CURVE	8x 09 06 31 FF	y0 50 0p FF	p: 1 =Sharpness
	PAN-TILT SLOW	8x 09 06 44 FF	y0 50 0p FF	p: 2=On, 3=Off
	PAN TILT LIMIT	8x 09 06 07 0q FF	y0 50 0p 0p 0p 0p 0t 0t 0t 0t FF	q: Position (1=UpRight, 0=DownLeft) Refer to the section of the Pan/Tilt Position of VISCA Command Setting Values for pppp and tttt
	PAN TILT MAX SPEED	8x 09 06 11 FF	y0 50 pp qq FF	pp: Pan Max Speed fixed value (18) pp: Tilt Max Speed fixed value (17)

Inquiry Command List (5/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
PRESET	SPEED SELECT	8x 09 7E 04 1B FF	y0 50 0p FF	p: 0=Compatible (same as Separate), 1=Separate (operation with individual speed by a preset), 2=common (operation with common speed to all presets)
	SPEED SEPARATE	8x 09 7E 01 0B pp FF	y0 50 qq FF	pp: PRESET No. to confirm the speed - 1 (00- 63) qq: Positioning speed (01 - 19)
	SPEED COMMON	8x 09 7E 04 1C FF	y0 50 0p 0p FF	pp: Common Speed (01-19)
	LAST RECALL	8x 09 04 3F FF	y0 50 pp FF	pp: PRESET No. last recalled - 1 (00 - 63, 7F)
IR CUT FILTER	STATUS	8x 09 04 01 FF	y0 50 0p FF	p: 2=On (Night), 3=Off (Day)
	AUTO ICR	8x 09 04 51 FF	y0 50 0p FF	p: 2=Auto ICR On, 3=Auto ICR Off
	AUTO ICR THRESHOLD	8x 09 04 21 FF	y0 50 00 00 0p 0p FF	pp: 00 - FF (Threshold)

Inquiry Command List (6/6)

Number in ( ) is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
SYSTEM	VIDEO FORMAT SELECTABLE	8x 09 7E 04 31 FF	y0 50 0p FF	Whether the setting can be changed by the command of the Video output method (video format) or not. p: 2=Available, 3=Not available
	VIDEO FORMAT SELECT	8x 09 7E 04 32 FF	y0 50 0p 0p FF	pp: Video Format For pp, refer to the section of the Video output method (video format) of VISCA Command Setting Values
	VIDEO FORMAT STATUS	8x 09 7E 04 33 FF	y0 50 0p 0p FF	Current status of the Video output method (video format) pp: Video Format For pp, refer to the section of the Video output method (video format) of VISCA Command Setting Values
	IR RECEIVE	8x 09 06 08 FF	y0 50 0p FF	p: 2=On, 3=Off
	IMG FLIP	8x 09 04 66 FF	y0 50 0p FF	p: 2=On, 3=Off
	CAMERA ID	8x 09 04 22 FF	y0 50 0p 0p 0p 0p FF	pppp: Camera ID (0000 - FFFF)
	CAMERA GENERATION	8x 09 7E 04 30 FF	y0 50 0h 0k 0m 0n 0p 0q 0r 0s 0t 0u uu 0v vv FF	h: Number of camera generation k-t: 0 fixed 0uuu: Model ID 0vvv: Model ID of the similar model when operating with a remote controller
HDMI	COLOR SPACE	8x 09 7E 01 03 FF	y0 50 0p FF	p: 0=YCbCr, 1=RGB
MENU	ON/OFF	8x 09 06 06 FF	y0 50 0p FF	p: 2=On, 3=Off
	OSD	8x 09 7E 04 76 0p FF	y0 50 0q FF	p: 1=HDMI q: 2=OSD On, 3=OSD Off
POWER	ON/STANDBY	8x 09 04 00 FF	y0 50 0p FF	p: 2=On, 3=Standby
	STANDBY MODE	8x 09 7E 04 50 FF	y0 50 0p FF	p: 2=Side (When Standby is executed, move the Pan to the end point* and the Tilt to 0°), 3=Neutral
SOFTWARE VERSION (CAM_VersionInq)	-	8x 09 00 02 FF	y0 50 pp pp qq qq rr rr 0s FF	pppp: Vendor ID qqqq: Model Code rrrr: ROM version s: Socket Number

* Aligned to the right end when IMAGE FLIP is Off, and aligned to the left end when IMAGE FLIP is On.

Block Inquiry Command

Lens control system inquiry commands.....Inquiry Packet 8x 09 7E 7E 00 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	0
	4	0
	3	Zoom Position (HH)
	2	
	1	
	0	
3	7	0
	6	0
	5	0
	4	0
	3	Zoom Position (HL)
	2	
	1	
	0	
4	7	0
	6	0
	5	0
	4	0
	3	Zoom Position (LH)
	2	
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	Zoom Position (LL)
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	0
	4	0
	3	Focus Near Limit (H)
	2	
	1	
	0	
7	7	0
	6	0
	5	0
	4	0
	3	Focus Near Limit (L)
	2	
	1	
	0	
8	7	0
	6	0
	5	0
	4	0
	3	Focus Position (HH)
	2	
	1	
	0	
9	7	0
	6	0
	5	0
	4	0
	3	Focus Position (HL)
	2	
	1	
	0	
10	7	0
	6	0
	5	0
	4	0
	3	Focus Position (LH)
	2	
	1	
	0	
11	7	0
	6	0
	5	0
	4	0
	3	Focus Position (LL)
	2	
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	0
	4	0
	3	0
	2	0
	1	0
	0	0
13	7	0
	6	Zoom Mode (H)
	5	0
	4	AF Mode
	3	
	2	AF Sensitivity
	1	Zoom Mode (L)
	0	Focus Mode
14	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	Preset Recall Executing
	1	Focus Command Executing
	0	Zoom Command Executing
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

Camera control system inquiry commands.....Inquiry Packet 8x 09 7E 7E 01 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	0
	4	0
	3	R Gain (H)
	2	
	1	
	0	
3	7	0
	6	0
	5	0
	4	0
	3	R Gain (L)
	2	
	1	
	0	
4	7	0
	6	0
	5	0
	4	0
	3	B Gain (H)
	2	
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	B Gain (L)
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	N/A
	4	
	3	White Balance Mode
	2	
	1	
	0	
7	7	0
	6	White Balance Speed
	5	
	4	
	3	Detail Level
	2	
	1	
	0	
8	7	0
	6	N/A
	5	
	4	0
	3	Exposure Mode
	2	
	1	
	0	
9	7	0
	6	0
	5	High Sensitivity
	4	Visibility Enhancer
	3	N/A
	2	Backlight
	1	Exp Comp On/Off
	0	Auto Slow Shutter
10	7	0
	6	0
	5	Shutter Position
	4	
	3	
	2	
	1	
	0	
11	7	0
	6	0
	5	0
	4	Iris Position
	3	
	2	
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	0
	4	Gain Position
	3	
	2	
	1	
	0	
13	7	0
	6	0
	5	N/A
	4	
	3	
	2	
	1	
	0	
14	7	0
	6	N/A
	5	
	4	
	3	Exp Comp Level
	2	
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

Other block inquiry commands.....Inquiry Packet 8x 09 7E 7E 02 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	Spotlight
	4	Flicker Cancel
	3	N/A
	2	Auto ICR
	1	0
	0	Power
3	7	0
	6	Image Stabilizer
	5	0
	4	IR Cut Filter
	3	N/A
	2	
	1	0
	0	0
4	7	0
	6	0
	5	N/A
	4	
	3	
	2	
	1	0
	0	0
5	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	0
	4	0
	3	0
	2	0
	1	0
	0	0
7	7	0
	6	0
	5	0
	4	0
	3	White Balance Offset
	2	
	1	
	0	
8	7	0
	6	0
	5	0
	4	0
	3	Camera ID (HH)
	2	
	1	
	0	
9	7	0
	6	0
	5	0
	4	0
	3	Camera ID (HL)
	2	
	1	
	0	
10	7	0
	6	0
	5	0
	4	0
	3	Camera ID (LH)
	2	
	1	
	0	
11	7	0
	6	0
	5	0
	4	0
	3	Camera ID (LL)
	2	
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	0
	4	1
	3	0
	2	1
	1	1
	0	N/A
13	7	0
	6	0
	5	0
	4	N/A
	3	
	2	
	1	
	0	
14	7	0
	6	0
	5	0
	4	N/A
	3	
	2	
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

Other enlargement inquiry commands (1/3) ..... Inquiry Packet 8x 09 7E 7E 03 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
3	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
4	7	0
	6	0
	5	0
	4	0
	3	AF operating time (H)
	2	
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	AF operating time (L)
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	0
	4	0
	3	AF staying time (H)
	2	
	1	
	0	
7	7	0
	6	0
	5	0
	4	0
	3	AF staying time (L)
	2	
	1	
	0	
8	7	0
	6	Noise Reduction 2D NR Level
	5	
	4	
	3	N/A
	2	
	1	
	0	
9	7	0
	6	Noise Reduction 3D NR Level
	5	
	4	
	3	N/A
	2	
	1	
	0	
10	7	0
	6	N/A
	5	
	4	
	3	
	2	
	1	0
	0	IMG FLIP
11	7	0
	6	N/A
	5	
	4	
	3	
	2	
	1	
	0	1

Byte	Bit	Comments
12	7	0
	6	0
	5	AE Speed
	4	
	3	
	2	
	1	
	0	
13	7	0
	6	N/A
	5	
	4	
	3	High Sensitivity
	2	Noise Reduction Level
	1	
	0	
14	7	0
	6	N/A
	5	
	4	
	3	
	2	
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

Other enlargement inquiry commands (2/3) ..... Inquiry Packet 8x 09 7E 7E 04 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	0
	4	0
	3	0
	2	0
	1	Visibility Enhancer
	0	
3	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
4	7	0
	6	N/A
	5	
	4	
	3	
	2	VE Effect Level
	1	
	0	
5	7	0
	6	0
	5	N/A
	4	
	3	
	2	
	1	VE Brightness Compensation Selection
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	N/A
	4	
	3	
	2	
	1	VE Compensation Level
	0	
7	7	0
	6	N/A
	5	
	4	
	3	
	2	
	1	
	0	
8	7	0
	6	0
	5	N/A
	4	
	3	
	2	
	1	
	0	
9	7	0
	6	0
	5	Min Shutter
	4	
	3	
	2	
	1	
	0	
10	7	0
	6	0
	5	Max Shutter
	4	
	3	
	2	
	1	
	0	
11	7	0
	6	0
	5	Detail HV Balance
	4	
	3	
	2	Detail Crispening
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	Detail Limit
	4	
	3	
	2	Detail BW Balance
	1	
	0	
13	7	0
	6	0
	5	Detail Highlight Detail
	4	
	3	
	2	Detail Super Low
	1	
	0	
14	7	0
	6	0
	5	0
	4	0
	3	Detail Mode
	2	Detail Bandwidth
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

Other enlargement inquiry commands (3/3) ..... Inquiry Packet 8x 09 7E 7E 05 FF

Byte	Bit	Comments
0	7	Destination Address
	6	
	5	
	4	
	3	Source Address
	2	
	1	
	0	
1	7	0
	6	1
	5	0
	4	1
	3	0
	2	0
	1	0
	0	0
2	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
3	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
4	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
7	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
8	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
9	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
10	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
11	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
13	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
14	7	0
	6	0
	5	0
	4	0
	3	N/A
	2	
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

VISCA Command Setting Values

Parameter uses hexadecimal digits.

Exposure control

	Parameter	2160/29.97p*, 1080/59.94p, 1080/59.94i, 720/59.94p	2160/25p*, 1080/50p, 1080/50i, 720/50p
SHUTTER/MIN SHUTTER	21	1/10000	1/10000
	20	1/6000	1/6000
	1F	1/4000	1/3500
	1E	1/3000	1/2500
	1D	1/2000	1/1750
	1C	1/1500	1/1250
	1B	1/1000	1/1000
	1A	1/725	1/600
	19	1/500	1/425
	18	1/350	1/300
	17	1/250	1/215
	16	1/180	1/150
	15	1/125	1/120
	14	1/100	1/100
	13	1/90	1/60
	12	1/60	1/50
	11	1/50	1/30
	10	1/30	1/25
	0F	1/20	1/20
	0E	1/15	1/15
	0D	1/10	1/12
	0C	1/8	1/8
	0B	1/6	1/6
	0A	1/4	1/4
	09	1/3	1/3
	08	1/2	1/2
	07	2/3	2/3
	06	1/1	1/1

* For SRG-X40UH only

	Parameter	2160/29.97p*, 1080/59.94p, 1080/59.94i, 720/59.94p	2160/25p*, 1080/50p, 1080/50i, 720/50p
MAX SHUTTER	21	1/10000	1/10000
	20	1/6000	1/6000
	1F	1/4000	1/3500
	1E	1/3000	1/2500
	1D	1/2000	1/1750
	1C	1/1500	1/1250
	1B	1/1000	1/1000
	1A	1/725	1/600
	19	1/500	1/425
	18	1/350	1/300
	17	1/250	1/215
	16	1/180	1/150
	15	1/125	1/120
	14	1/100	1/100
	13	1/90	1/60
	12	1/60	1/50
	11	1/50	1/30
	10	1/30	1/25
	0F	-	-

* For SRG-X40UH only

	Parameter	F value
IRIS	19	F2.0 (Open)
	18	F2.2
	17	F2.4
	16	F2.6
	15	F2.8
	14	F3.1
	13	F3.4
	12	F3.7
	11	F4.0
	10	F4.4
	0F	F4.8
	0E	F5.2
	0D	F5.6
	0C	F6.2
	0B	F6.8
	0A	F7.3
	09	F8.0
	08	F8.7
	07	F9.6
	06	F10
	05	F11
	00	CLOSE

	Parameter	Gain value
GAIN	11	48 dB
	10	45 dB
	0F	42 dB
	0E	39 dB
	0D	36 dB
	0C	33 dB
	0B	30 dB
	0A	27 dB
	09	24 dB
	08	21 dB
	07	18 dB
	06	15 dB
	05	12 dB
	04	9 dB
	03	6 dB
	02	3 dB
	01	0 dB

0E-11 is available only when high-sensitivity mode is On.

	Parameter	Gain value	
		High-sensitivity mode Off	High-sensitivity mode On
Gain limit	D	36 dB	48 dB
	C	33 dB	45 dB
	B	30 dB	42 dB
	A	27 dB	39 dB
	9	24 dB	36 dB
	8	21 dB	33 dB
	7	18 dB	30 dB
	6	15 dB	27 dB
	5	12 dB	24 dB
	4	9 dB	21 dB

	Parameter	Step	Gain
Exposure Compensation	0E	+7	+10.5 dB
	0D	+6	+9 dB
	0C	+5	+7.5 dB
	0B	+4	+6 dB
	0A	+3	+4.5 dB
	09	+2	+3 dB
	08	+1	+1.5 dB
	07	0	0 dB
	06	–1	–1.5 dB
	05	–2	–3 dB
	04	–3	–4.5 dB
	03	–4	–6 dB
	02	–5	–7.5 dB
	01	–6	–9 dB
	00	–7	–10.5 dB

Pan/tilt position

	Parameter (position)
Pan	DE00 (–170-degree) - 2200 (+170-degree)
Tilt	FC00 (–20-degree) - 1200 (+90-degree) (Image Flip: OFF) EE00 (–90-degree) - 0400 (+20-degree) (Image Flip: ON)

Pan/tilt speed (PAN/TILT SLOW=OFF) (for reference)

Parameter	Rotation speed (deg/sec)	
	Pan	Tilt
01	1.1	1.1
02	1.3	1.3
03	1.6	1.6
04	2.2	2.2
05	2.9	2.9
06	6.7	6.7
07	11	11
08	23	23
09	24	24
0A	27	27
0B	41	41
0C	43	43
0D	47	47
0E	49	49
0F	54	54
10	57	57
11	62	62
12	64	64
13	69	69
14	72	72
15	80	80
16	84	84
17	91	91
18	101	91

Pan/tilt speed (PAN/TILT SLOW=ON) (for reference)

Parameter	Rotation speed (deg/sec)	
	Pan	Tilt
01	0.5	0.5
02	0.7	0.7
03	0.9	0.9
04	1.1	1.1
05	1.3	1.3
06	1.5	1.5
07	1.9	1.9
08	2.3	2.3
09	2.7	2.7
0A	3.1	3.1
0B	3.5	3.5
0C	4.1	4.1
0D	4.7	4.7
0E	5.3	5.3
0F	5.9	5.9
10	6.5	6.5
11	7.3	7.3
12	8.1	8.1
13	8.9	8.9
14	9.6	9.6
15	10.8	10.8
16	13.2	13.2
17	26.4	26.4
18	60	60

Up to 7F can be specified, but 19 to 7F are for maintenance.

Preset run speed (for reference)

Parameter	Rotation speed (deg/sec)	
	Pan	Tilt
01	1.1	1.1
02	1.3	1.3
03	1.6	1.6
04	2.2	2.2
05	2.9	2.9
06	6.7	6.7
07	11	11
08	23	23
09	24	24
0A	27	27
0B	41	41
0C	43	43
0D	47	47
0E	49	49
0F	54	54
10	57	57
11	62	62
12	64	64
13	69	69
14	72	72
15	80	80
16	84	84
17	91	91
18	101	91
19	300	126

Focus ratio and focus distance (for reference)

Parameter	Focus distance
1000	∞
2000	5 m
3000	3 m
4000	2 m
5000	1.5 m
6000	1.2 m
7000	1.0 m
8000	0.8 m
9000	0.6 m
A000	0.47 m
B000	0.35 m
C000	0.26 m
D000	0.17 m
E000	0.1 m
F000	0.08 m

Zoom position and zoom ratio (for reference)

Parameter	Zoom ratio
0000	×1
0DC1	×2
186C	×3
2015	×4
2594	×5
29B7	×6
2CFB	×7
2FB0	×8
320C	×9
342D	×10
3608	×11
37AA	×12
391C	×13
3A66	×14
3B90	×15
3C9C	×16
3D91	×17
3E72	×18
3F40	×19
4000	×20
5556	×30 (While using Clear Image Zoom)
6000	×40 (While using Clear Image Zoom)
6AAB	×60 (While using digital)
7000	×80 (While using digital)
7334	×100 (While using digital)
7556	×120 (While using digital)
76DC	×140 (While using digital)
7800	×160 (While using digital)
78E4	×180 (While using digital)
799A	×200 (While using digital)
7A2F	×220 (While using digital)
7AC0	×240 (While using digital)

Lens control

<table>
<tr><td>Zoom Position</td><td colspan="2">0000 - 4000 - 7AC0
Wide end Optical Digital Tele end Tele end</td></tr>
<tr><td>Focus Position</td><td colspan="2">1000 - F000
Far end Near end</td></tr>
<tr><td rowspan="14">Focus Near Limit</td><td>1000: Inf</td><td rowspan="14">Use the distance shown as a guide value as it may vary depending on the temperature characteristics.
* The lower 1 byte is fixed at 00.</td></tr>
<tr><td>2000: 5 m</td></tr>
<tr><td>3000: 3 m</td></tr>
<tr><td>4000: 2 m</td></tr>
<tr><td>5000: 1.5 m</td></tr>
<tr><td>6000: 1.2 m</td></tr>
<tr><td>7000: 1.0 m</td></tr>
<tr><td>8000: 0.8 m</td></tr>
<tr><td>9000: 0.6 m</td></tr>
<tr><td>A000: 47 cm</td></tr>
<tr><td>B000: 35 cm (initial value)</td></tr>
<tr><td>C000: 26 cm</td></tr>
<tr><td>D000: 17 cm</td></tr>
<tr><td>E000: 10 cm</td></tr>
<tr><td>F000: 8 cm</td></tr>
</table>

Video output method (video format)

Parameter	Video output method (video format)/Frame rate			
	SRG-X40UH		SRG-H40UH	
	HDMI output	USB output	HDMI output	USB output
00	720×480/59.94p(RGB)	Unsupported	720×480/59.94p(RGB)	Unsupported
01	1280×720/59.94p		1280×720/59.94p	
02	1920×1080/29.97p		1920×1080/29.97p	
03	1920×1080/59.94i	Unsupported	1920×1080/59.94i	Unsupported
04	1920×1080/59.94p		1920×1080/59.94p	
05				
06	3840×2160/29.97p	Unsupported	Unsupported	Unsupported
10	720×576/50p(RGB)	Unsupported	720×576/50p(RGB)	Unsupported
11	1280×720/50p		1280×720/50p	
12	1920×1080/25p		1920×1080/25p	
13	1920×1080/50i	Unsupported	1920×1080/50i	Unsupported
14	1920×1080/50p		1920×1080/50p	
15				
16	3840×2160/25p	Unsupported	Unsupported	Unsupported

Pan/Tilt Status Code

p	p	p	p	Status
– – – –	– – – –	0 – – –	– – – 1	Panning reaches the end of the left.
– – – –	– – – –	0 – – –	– – 1 –	Panning reaches the end of the right.
– – – –	– – – –	0 – – –	– 1 – –	Tilting reaches the upper limit.
– – – –	– – – –	0 – – –	1 – – –	Tilting reaches the lower limit.
– – – –	– – – –	– – 0 0	– – – –	Pan functions normally.
– – – –	– – – –	– – 0 1	– – – –	Pan mechanism is defective.
– – – –	– – 0 0	0 – – –	– – – –	Tilt functions normally.
– – – –	– – 0 1	0 – – –	– – – –	Tilt mechanism is defective.
– – – –	0 0 – –	0 – – –	– – – –	No movement instruction
– – – –	0 1 – –	0 – – –	– – – –	Pan/Tilt operating
– – – –	1 0 – –	0 – – –	– – – –	Pan/Tilt operations complete.
– – – –	1 1 – –	0 – – –	– – – –	Pan/Tilt operating failed.
– – 0 0	– – – –	0 – – –	– – – –	Not initialized
– – 0 1	– – – –	0 – – –	– – – –	Initializing
– – 1 0	– – – –	0 – – –	– – – –	Initialization completes.
– – 1 1	– – – –	0 – – –	– – – –	Initialization failed.

(– : optional)

Camera IP Setting Command

The following commands are provided for setting an IP address and a camera name for SRG series cameras.

No.	Name	Description
1	Setting Protocol: Inquiry	The controller inquires the network setting for the camera.
2	Setting Protocol: Inquiry reply	The camera replies according to the inquiry from the controller.
3	Setting Protocol: Network setting	The controller sets the network setting of the camera.
4	Setting Protocol: Network setting reply	The camera replies according to the network setting of the controller.

The network setting of the camera is performed as communication sequence in the following. Connect the computer that configures the settings to the same segment as the camera.

1 Inquiry

The controller sends the inquiry packet to the broadcast address (255.255.255.255), specified port number (52380) of UDP. The camera replies as the inquiry reply packet.

2 Network setting

The controller sends the network setting packet to the broadcast address (255.255.255.255), specified port number (52380) of UDP. The camera sees the MAC address unit in the packet and returns ACK as the network setting reply if it is the request for the camera.

If the camera fails to set, it returns NACK as the network setting reply.

Command	Data
Inquiry UDP Broadcast address (255.255.255.255) Specified port number (52380)	02 ENQ:network[*1] FF 03
Inquiry reply UDP Broadcast address (255.255.255.255) Specified port number (52380)	02 MAC:**-**-**-**-**-**[*1] FF MODEL:IPCARD[*1] FF SOFTVERSION:**.**.**[*1] FF IPADR:***.***.***.***[*1] FF MASK:***.***.***.***[*1] FF GATEWAY:***.***.***.***[*1] FF NAME:xxxxxxxx[*1] FF WRITE:on[*1] FF 03
Network setting UDP Broadcast address (255.255.255.255) Specified port number (52380)	02 MAC:**-**-**-**-**-**[*1] FF IPADR:***.***.***.***[*1] FF MASK:***.***.***.***[*1] FF GATEWAY:***.***.***.***[*1] FF NAME:xxxxxxxx[*1] FF 03
Network setting reply UDP Broadcast address (255.255.255.255) Specified port number (52380)	02 ACK:**-**-**-**-**-**[*2] “xxxx”[*3] FF 03

[*1] Uses the ASCII code.

[*2] Uses the ASCII code. Returns as “NAK:**-**-**-**-**-**” for NAK.

[*3] Uses the ASCII code. Returns by adding the detail message, if necessary.

Notes

- The camera name (NAME) is up to 8 characters of alphanumeric characters and blank.
- Settings cannot be changed when WRITE of Inquiry reply is set to off. WRITE can be set to off by the CGI command with this camera. Improper changes can be prevented by turning WRITE to off after setting the IP address of the camera.

Preparation for CGI commands

This document provides information on how to make settings via the network using the CGI commands supported by this device.
To use the CGI command function of this unit, some pre-configurations are required. These pre-configurations are described below.

Network Function Usage Setting

To use the CGI commands of this unit, it is necessary to make the network function usage setting to be enabled in advance so that communication via the network is possible.

Connect the HDMI OUT terminal of the camera to the video monitor, or connect the VIDEO OUT terminal of the camera to the PC. Operate the infrared remote to display the SYSTEM menu. Change the NETWORK setting to ON. Turn off the power of the camera once, then turn it on again to start the camera.

IP Address Settings by RM-IP Setup Tool

To enable the device to communicate with the camera appropriately, IP address settings is required. Set IP address based on your network environment using RM-IP Setup Tool. This is in order to set IP address. For details, refer to “RM-IP Setup Tool Guide.”

Notes

- IP address is set to 192.168.0.100 as default.
- After setting the network setting to ON, or after about 20 minutes have passed since the power was turned on with the network function usage setting enabled, the setting cannot be changed automatically from the RM-IP Setup Tool.

Changing Initial Password

After the process described above is performed, you can HTTP access to the cameras. Access to the cameras using Web browser. To access, enter the IP address of the cameras to the address bar in the Web browser, then press Enter.

You will be required to enter username and password, then enter Admin's username and password. Admin's username and password of default are below:

Admin username: admin
Password: Admin_1234

At the initial access (with default admin password not changed), you need to change the admin password. Set the admin password on user setting window displayed. To change the password, you need to enter the default password in Current password field.

When you press “OK,” the user setting will be changed. Once the setting is changed, you will be requested to enter admin username and password again. Enter the admin username and password you changed in the previous step.

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.

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.

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 is 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

Refer to “CGI Commands” for details.
Note that angle brackets in the table “CGI Commands,” “<” and “>,” mean that a string between one pair of angle brackets is just a symbol for numbers, not the 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. The item which has an inquiry parameter in “CGI Commands” can be inquired as its current settings.

Method

GET/POST

Syntax

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

The response is as follows.

```
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
:
:
```

CGI Commands

network.cgi

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

Parameter	Set Inq	Value	Description
CameraName	Inq	-	Returns the camera name.
IPsetupSetEnable	Inq	off, **on**	Returns the setting of whether or not the setting can be made by the RM-IP Setup Tool. off : Do not accept on : Accept