

Color Video Camera

VISCA Command List
Software Version 2.00

BRC-X400/X401
SRG-X400/X402/201M2
SRG-X120/HD1M2

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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.

VISCA

VISCA¹⁾ is a protocol developed by Sony for controlling a consumer's camcorder.

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 BRC-X400/X401, SRG-X400/X402/201M2/X120/HD1M2²⁾, 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.

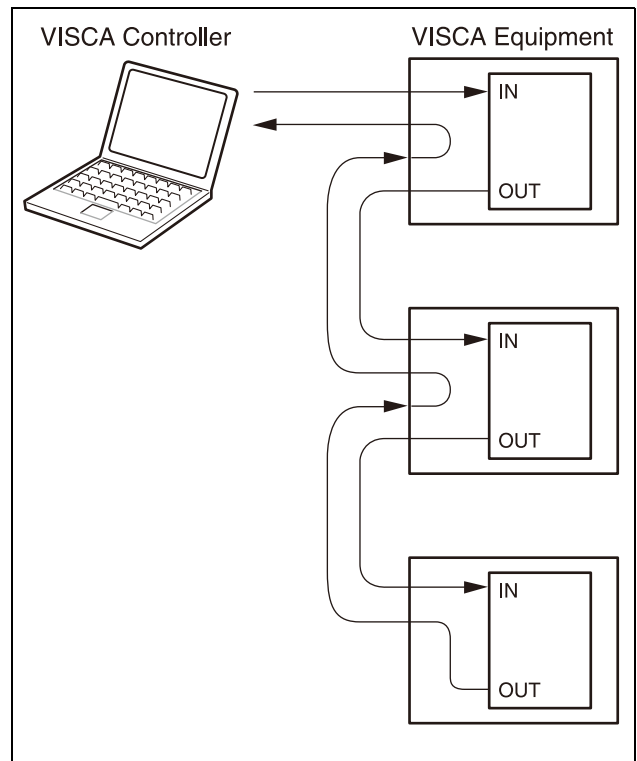
The peripheral devices are assigned to the addresses, 1, 2, 3... in the connected order, starting from the one connected nearest to the controller. These addresses are set when the controller sends address commands during initialization of the network.

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



1) "VISCA" is a trademark of Sony Corporation.

2) The product name of this unit, "Color video camera BRC-X400/X401, SRG-X400/X402/201M2/X120/HD1M2" is referred to as "the unit" or "color video camera" in this document.

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 hexadecimal. 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.

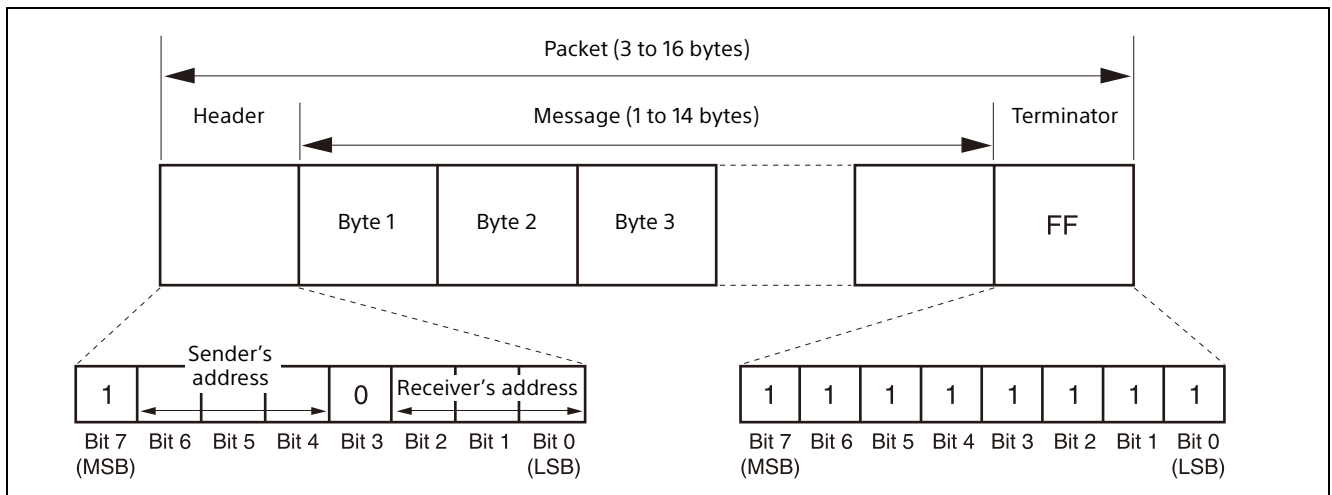


Fig. 2 Packet structure

Note

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

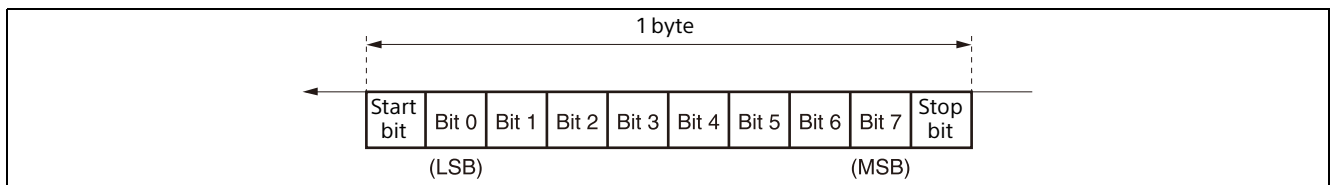


Fig. 3 Actual waveform for 1 byte.

Timing Chart

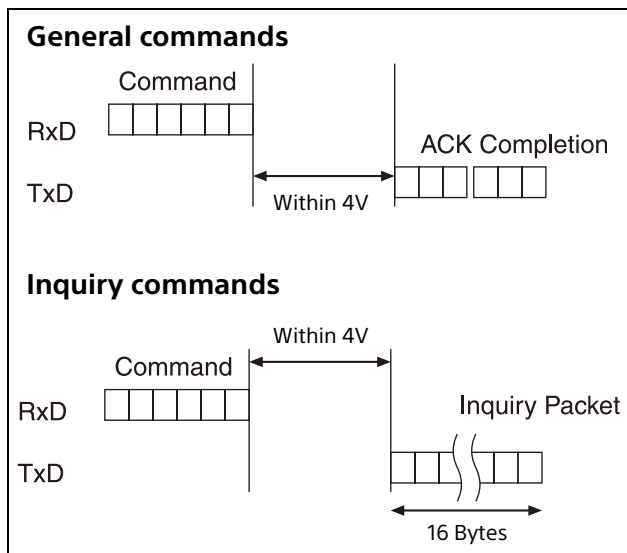
As VISCA command processing can only be carried out a maximum of one time in a Vertical (V) cycle, it takes maximum 4V-cycle time for an ACK/Completion to be returned.

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*),
 41.7 msec (1080/23.98p, 2160/23.98p*)

* For BRC-X400/X401 only, or only when the 4K option is applied



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 20) 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		
051C: BRC-X400		
051D: BRC-X401		
0617: SRG-X400		
061C: SRG-X402		
0618: SRG-X120		
061A: SRG-201M2		
061B: SRG-HD1M2		
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 21)) when any menu is displayed on the screen. If displayed, clear the menu first using MENU (page 21) 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

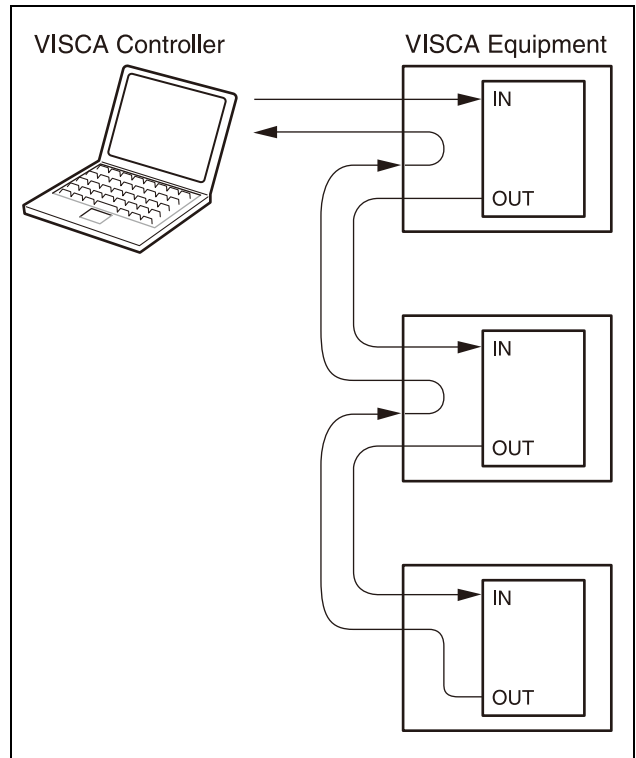
With VISCA over IP function, you can control the camera using VISCA on a controller equipped with IP communication capabilities via LAN. You can connect up to 5 controllers simultaneously on the network.

The communication specifications of VISCA over IP are as follows:

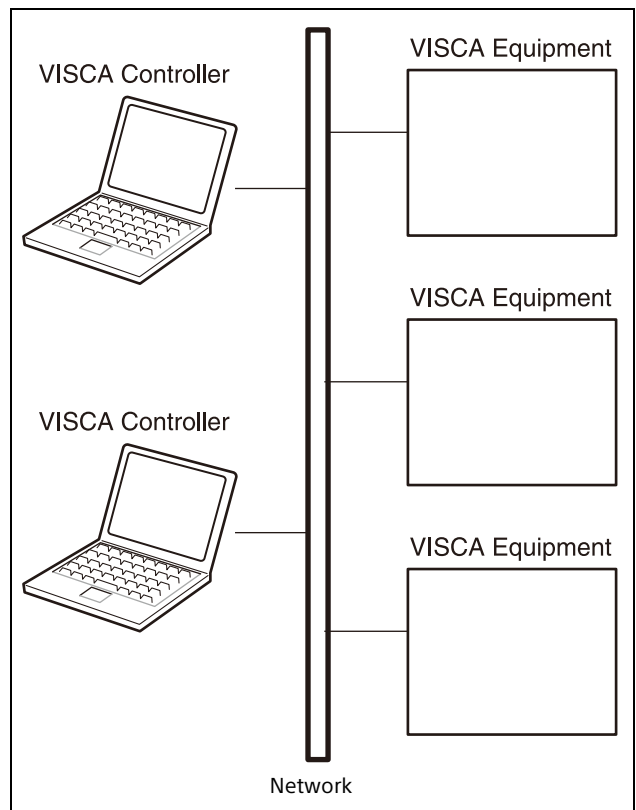
- **Interface**
RJ-45 10BASE-T/100BASE-TX/1000BASE-T
(automatically identifying)
- **Internet protocol**
IPv4
- **Transport protocol**
UDP
- **IP address**
Set by the IP setting command (page 41)
- **Port address**
52381
- **Delivery confirmation/Retransmission control**
Depends on the application

In these instructions, the device outputting commands, such as a computer, is called the controller, and the device receiving the command, such as a BRC/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 13.

For how to set an IP address of the camera, see "Camera IP Setting Command" on page 41.

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**

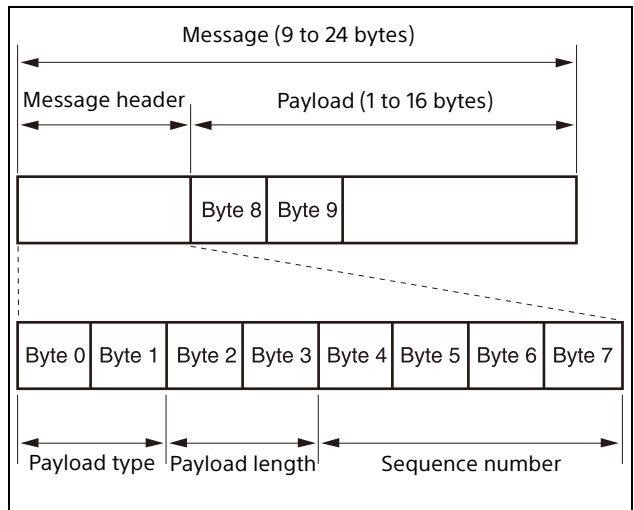
Sends the reply message to the controller after clearing, without using VISCA socket.

- **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

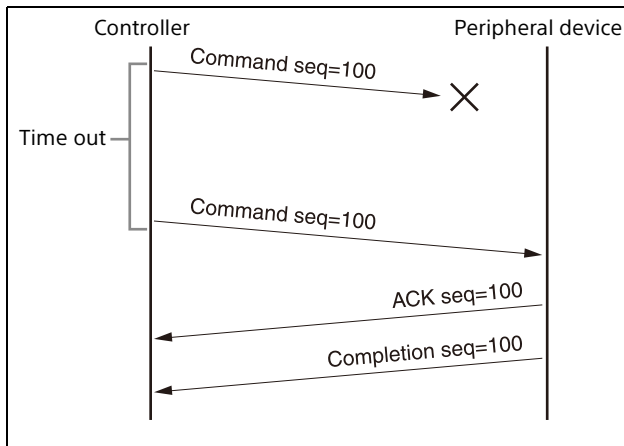
If time out occurs on the controller, you can infer the lost message and state of the peripheral device by retransmitting the message using the same sequence number. The following table shows the received message and status by retransmission of the lost message, and the reference of correspondence after 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.

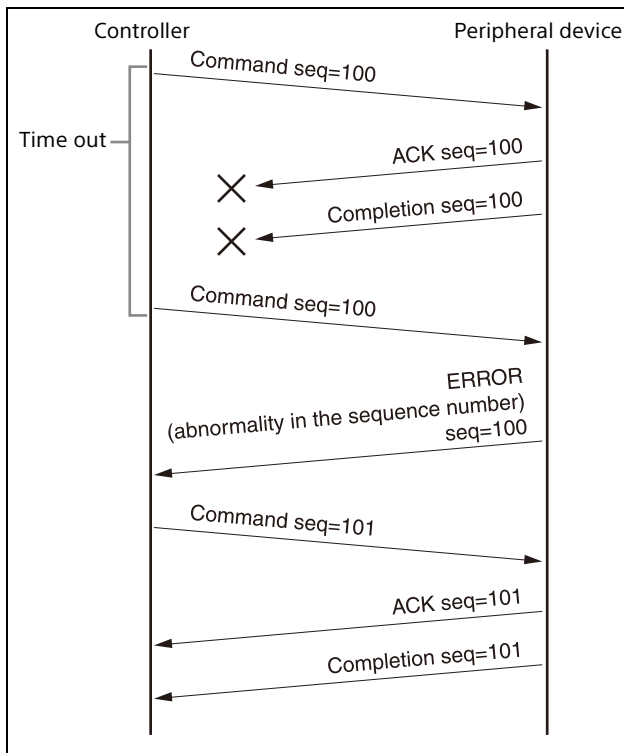
The BRC/SRG series camera has 2 buffers (memories) for the command to deal with advanced uses. When using VISCA over IP, up to 2 commands (including the current command) can be received. Depending on the message from the controller to the peripheral device, there are some messages that do not need to 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.

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)
	CHROMA SUPPRESS	-	8x 01 04 5F 0p FF	p: 0 (Off), 1 (Weak) - 3 (Strong)
	MATRIX*	Select	8x 01 7E 01 3D 0p FF	p: 2=STD, 3=OFF, 4=HIGH SAT, 5=FL LIGHT, 6=MOVIE, 7=STILL, 8=CINEMA, 9=PRO, A=ITU709, B=B&W
	LEVEL*	Reset	8x 01 04 09 00 FF	To return to 4 value
		Up	8x 01 04 09 02 FF	
		Down	8x 01 04 09 03 FF	
		Direct	8x 01 04 49 00 00 00 0p FF	p: 0 (0) - E (14)
	PHASE*	Reset	8x 01 04 0F 00 FF	To return to 7 (0) value
		Up	8x 01 04 0F 02 FF	
		Down	8x 01 04 0F 03 FF	
		Direct	8x 01 04 4F 00 00 00 0p FF	p: 0 (-7) - E (+7)
	R-G*	Direct	8x 01 7E 01 7A 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)
	R-B*	Direct	8x 01 7E 01 7B 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)
G-R*	Direct	8x 01 7E 01 7C 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)	
G-B*	Direct	8x 01 7E 01 7D 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)	
B-R*	Direct	8x 01 7E 01 7E 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)	
B-G*	Direct	8x 01 7E 01 7F 0p 0p FF	pp: 00 (-99) - 63 (00) - C6 (+99)	

* Only available for BRC-X400/X401.

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		
KNEE*	KNEE SETTING	On/Off	8x 01 7E 01 6D 0p FF	p: 2=On, 3=Off	
	KNEE MODE	-	8x 01 7E 01 54 0p FF	p: 0=Auto, 4=Manual	
	KNEE SLOPE	Direct	8x 01 7E 01 6F 0p 0p FF	pp: 00 - 0E	
	KNEE POINT	Direct	8x 01 7E 01 6E 0p 0p FF	pp: 00 - 0C	
GAMMA*	SELECT	-	8x 01 04 5B 0p FF	p: 0=STD, 1=STRAIGHT, 2=PATTERN, 8=MOVIE, 9=STILL, A=CINE1, B=CINE2, C=CINE3, D=CINE4, E=ITU709	
	PATTERN	Direct	8x 01 05 5B 0p 0p 0p FF	ppp: 001 - 200	
	OFFSET	Direct	8x 01 04 1E 00 00 00 0p 0q 0q FF	p: Offset polarity 0 (+), 1 (-) qq: Offset width 00 - 40	
	LEVEL	Direct	8x 01 7E 01 71 0p 0p FF	pp: 00 - 0E	
	BLACK GAMMA LEVEL	Direct	8x 01 7E 01 72 0p 0p FF	pp: 00 - 0E	
	BLACK GAMMA RANGE	Direct	8x 01 05 5C 0p FF	p: Correction range 0 (Low), 1 (Mid), 2 (High)	
	BLACK LEVEL	Reset		8x 01 7E 04 15 00 FF	To return to 30 (48) value
		Up		8x 01 7E 04 15 02 FF	
Down			8x 01 7E 04 15 03 FF		
Direct			8x 01 7E 04 45 0p 0p FF	pp: 00 - 60	
PICTURE PROFILE*	-	-	8x 01 7E 04 5F 0p FF	p: 0=PP1, 1=PP2, 2=PP3, 3=PP4, 4=PP5, 5=PP6	
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	
DEFOG	-	-	8x 01 04 37 0p 0q FF	p: 2=On, 3=Off q: Defog Level 0 (same as 2), 1 (Weak) - 3 (Strong)	

* Only available for BRC-X400/X401.

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)
PICTURE EFFECT	-	-	8x 01 04 63 0p FF p: 0=Off, 4=Black&White
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 ^{*1}	-	8x 01 04 06 0p FF p: 3=Optical only, 4=Clear Image Zoom, 2=Digital
	TELE CONVERT ^{*2 *3}	-	8x 01 7E 04 36 0p FF p: 2=On, 3=Off

^{*1} Clear Image Zoom and Digital are not available for SRG-X120/HD1M2.

^{*2} TELE CONVERT can be set to On only for the following signal formats.

- 1920×1080/59.94p, 1920×1080/59.94i, 1920×1080/29.97p
- 1920×1080/50p, 1920×1080/50i, 1920×1080/25p
- 1920×1080/23.98p

^{*3} Only available for BRC-X400/X401 and SRG-X402.

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) For pppp and tttt, refer to the section of the Pan/Tilt Position (for reference) of VISCA Command Setting Values	
		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) For pppp and tttt, refer to the section of the Pan/Tilt Position (for reference) of VISCA Command Setting Values	
		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 (for reference) 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)		

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 (specify the speed with the same command as Separate for VISCA, and with an argument of the Preset Recall command for CGI), 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)
	MODE ^{*1}	-	8x 01 7E 04 3D pp FF	pp: 00=MODE1, 01=MODE2, 10=TRACE Refer to the section on PRESET MODE settings and PRESET command behaviors.
CALL MODE	-	8x 01 7E 04 3B 0p FF	p: 2=Freeze (Freeze the image from a camera during recalling), 3=Normal	
PTZ TRACE ^{*1}	REC	Start	8x 01 7E 04 20 00 0p 02 FF	p: 0 to F (PTZ Trace number to record 1 to 16)
		Stop	8x 01 7E 04 20 00 00 03 FF	
	PLAY	Prepare	8x 01 7E 04 20 01 0p 01 FF	p: 0 to F (PTZ Trace number to reproduce 1 to 16)
		Start	8x 01 7E 04 20 01 00 02 FF	
	DELETE	-	8x 01 7E 04 20 02 0p 00 FF	p: 0 to F (PTZ Trace number to delete 1 to 16)
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
	H PHASE ^{*1}	Up	8x 01 7E 01 3E 00 02 FF	
		Down	8x 01 7E 01 3E 00 03 FF	
		Direct	8x 01 7E 01 5B 00 0p 0p 0p FF	ppp: Phase difference adjusted value (000 - 3BF)
	IMG FLIP	-	8x 01 04 66 0p FF	p: 2=On, 3=Off
	COLOR BAR ^{*1}	Color Bar	8x 01 04 7D 0p FF	p: 2=Color Bar On, 3=Color Bar Off
Overlay Name		8x 01 7E 04 77 0p FF	p: 2=Overlay Name On, 3=Overlay Name 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	
	OSD	-	8x 01 7E 04 76 0p 0q FF	p: 0=SDI, 1=HDMI q: 2=OSD On, 3=OSD Off
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 0p FF	pp: 00 - FF (Threshold) ^{*2}
TALLY ^{*1}	ON/OFF	-	8x 01 7E 01 0A 00 0p FF	p: 2=On, 3=Off
	LEVEL	-	8x 01 7E 01 0A 01 0p FF	p: 0=OFF, 4=ON (LOW), 5=ON (HIGH)
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 ^{*3} and the Tilt to 0°), 3=Neutral

^{*1} Only available for BRC-X400/X401.

^{*2} 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.

^{*3} 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)
	CHROMA SUPPRESS	8x 09 04 5F FF	y0 50 0p FF p: 0 (Off), 1 (Weak) - 3 (Strong)
	MATRIX*	8x 09 7E 01 3D FF	y0 50 0p FF p: 2=STD, 3=OFF, 4=HIGH SAT, 5=FL LIGHT, 6=MOVIE, 7=STILL, 8=CINEMA, 9=PRO, A=ITU709, B=B&W
	LEVEL*	8x 09 04 49 FF	y0 50 00 00 00 0p FF p: 0 (0) - E (15)
	PHASE*	8x 09 04 4F FF	y0 50 00 00 00 0p FF p: 0 (-7) - E (+7)
	R-G*	8x 09 7E 01 7A FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)
	R-B*	8x 09 7E 01 7B FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)
	G-R*	8x 09 7E 01 7C FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)
	G-B*	8x 09 7E 01 7D FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)
	B-R*	8x 09 7E 01 7E FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)
B-G*	8x 09 7E 01 7F FF	y0 50 00 00 0p 0p FF pp: 00 (-99) - 63 (00) - C6 (+99)	
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
KNEE*	KNEE SETTING	8x 09 7E 01 6D FF	y0 50 0p FF p: 2=On, 3=Off
	KNEE MODE	8x 09 7E 01 54 FF	y0 50 0p FF p: 0=Auto, 4=Manual
	KNEE SLOPE	8x 09 7E 01 6F FF	y0 50 00 00 0p 0p FF pp: 00 - 0E
	KNEE POINT	8x 09 7E 01 6E FF	y0 50 00 00 0p 0p FF pp: 00 - 0C

* Only available for BRC-X400/X401.

Inquiry Command List (3/6)

Number in () is MENU display values.

Inquiry Command		Inquiry Packet	Reply Packet	Comments
GAMMA* ¹	SELECT	8x 09 04 5B FF	y0 50 0p FF	p: 0=STD, 1=STRAIGHT, 2=PATTERN, 8=MOVIE, 9=STILL, A=CINE1, B=CINE2, C=CINE3, D=CINE4, E=ITU709
	PATTERN	8x 09 05 5B FF	y0 50 0p 0p 0p FF	ppp: 001 - 200
	OFFSET	8x 09 04 1E FF	y0 50 00 00 00 0p 0q 0q FF	p: Offset polarity 0 (+), 1 (-) qq: Offset width 00 - 40
	LEVEL	8x 09 7E 01 71 FF	y0 50 00 00 0p 0p FF	pp: 00 - 0E
	BLACK GAMMA LEVEL	8x 09 7E 01 72 FF	y0 50 00 00 0p 0p FF	pp: 00 - 0E
	BLACK GAMMA RANGE	8x 09 05 5C FF	y0 50 0p FF	p: Correction range 0 (Low), 1 (Mid), 2 (High)
	BLACK LEVEL	8x 09 7E 04 45 FF	y0 50 0p 0p FF	pp: 00 - 60
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
DEFOG	-	8x 09 04 37 FF	y0 50 0p 0q FF	p: 2=On, 3=Off q: Defog Level 0 (Min) - 3 (Max)
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)
PICTURE EFFECT	-	8x 09 04 63 FF	y0 50 0p FF	p: 0=Off, 4=Black&White
ZOOM	MODE* ²	8x 09 04 06 FF	y0 50 0p FF	p: 3=Optical only, 4=Clear Image Zoom, 2=Digital
	TELE CONVERT* ³	8x 09 7E 04 36 FF	y0 50 0p FF	p: 2=On, 3=Off
	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

*¹ Only available for BRC-X400/X401.

*² Clear Image Zoom and Digital are not available for SRG-X120/HD1M2.

*³ Only available for BRC-X400/X401 and SRG-X402.

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 (for reference) 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 (for reference) 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 (specify the speed with the same command as Separate for VISCA, and with an argument of the Preset Recall command for CGI), 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)
	MODE*	8x 09 7E 04 3D FF	y0 50 pp FF	pp: 00=MODE1, 01=MODE2, 10=TRACE Refer to the sections of PRESET MODE settings and PRESET command behaviors
	CALL MODE	8x 09 7E 04 3B FF	y0 50 0p FF	p: 2=Freeze (Freeze the image from a camera during recalling), 3=Normal
	LAST RECALL	8x 09 04 3F FF	y0 50 pp FF	pp: PRESET No. last recalled - 1 (00 - 63, 7F)
PTZ TRACE*	STATUS	8x 09 7E 04 20 03 FF	y0 50 0p FF	p: 0=None, 1=Recording, 2=Preparing, 3=Ready for play, 4=Playing, 5=Deleting
	RECORD STATUS (ALL)	8x 09 7E 04 20 10 00 00 FF	y0 50 0q 0q 0q 0q FF	qqqq: Each bit status indicates whether the record exists or not. 0=No record, 1= Record exists
	RECORD STATUS (EACH)	8x 09 7E 04 20 10 01 0p FF	y0 50 0q FF	p: PTZ trace number q: 0=No record, 1=Record exists
	PREPARED NUMBER	8x 09 7E 04 20 01 00 00 FF	y0 50 pp FF	pp: 00 - 0F (PTZ TRACE number ready for reproduction of 1 - 16) 7F if not ready for reproduction
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)
TALLY*	-	8x 09 7E 01 0A FF	y0 50 0p FF	p: 2=On, 3=Off

* Only available for BRC-X400/X401.

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
	H PHASE ^{*1}	8x 09 7E 01 3E FF	y0 50 00 0p 0p 0p FF	ppp: Phase difference adjusted value (000 - 3BF)
	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
	COLOR BAR ^{*1}	8x 09 04 7D FF	y0 50 0p FF	p: 2=Color Bar On, 3= Color Bar Off
	OVERLAY NAME ^{*1}	8x 09 7E 04 77 FF	y0 50 0p FF	p: 2=Overlay Name On, 3=Overlay Name 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: 0=SDI, 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 ^{*2} 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

^{*1} Only available for BRC-X400/X401.

^{*2} 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

* Fixed at 00 for SRG-X120/HD1M2

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	Color Matrix (L)*
	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	Iris Position
	0	
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	N/A
7	0	
6	0	
5	Color Matrix (H)*	
4		
3		
2		
1	Exp Comp Level	
0		
7		0
6		1
5	1	
4	1	
3	1	
2	1	
1	1	
0	1	

* Undefined for SRG-X400/X402/201M2/ X120/HD1M2.

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	0
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	Picture Effect
	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	
7	0	
6	0	
5	0	
4	0	
8	3	Camera ID (HH)
	2	
	1	
	0	
	7	
	6	0
	5	0
	4	0
9	3	Camera ID (HL)
	2	
	1	
	0	
	7	
	6	0
	5	0
	4	0
10	3	Camera ID (LH)
	2	
	1	
	0	
	7	
	6	0
	5	0
	4	0
11	3	Camera ID (LL)
	2	
	1	
	0	
	7	
	6	0
	5	0
	4	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	Knee Mode*
	3	Knee Slope*
	2	
	1	
	0	
14	7	0
	6	0
	5	0
	4	Knee Setting*
	3	Knee Point*
	2	
	1	
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

* Undefined for SRG-X400/X402/201M2/ X120/HD1M2.

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	
	2	N/A
	1	
	0	
9	7	
	6	Noise Reduction 3D NR Level
	5	
	4	
	3	
	2	
	1	
	0	
10	7	0
	6	Gamma (H)*
	5	
	4	
	3	
	2	
	1	
	0	
11	7	0
	6	Color Gain*
	5	
	4	
	3	
	2	
	1	
	0	1

Byte	Bit	Comments	
12	7	0	
	6	0	
	5	AE Speed	
	4		
	3		
	2		
	1	Noise Reduction Level	
	0		
13	7		0
	6		Gamma (L)*
	5		
	4		
	3	High Sensitivity	
	2	Noise Reduction Level	
	1		
	0		
14	7		0
	6	Chroma Suppress	
	5		
	4		
	3		Gain Limit
	2		
	1		
	0		
15	7	1	
	6	1	
	5	1	
	4	1	
	3	1	
	2	1	
	1	1	
	0	1	

* Undefined for SRG-X400/X402/201M2/ X120/HD1M2.

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	Black Level (H)*
	2	
	1	
	0	
4	7	
	6	Black Level (L)*
	5	
	4	
	3	
	2	VE Effect Level
	1	
	0	
5	7	0
	6	0
	5	Black Gamma Level*
	4	
	3	
	2	
	1	VE Brightness Compensation Selection
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	Gamma Level*
	4	
	3	
	2	
	1	VE Compensation Level
	0	
7	7	0
	6	Black Gamma Range*
	5	
	4	Gamma Offset (H)*
	3	
	2	
	1	
	0	Defog
8	7	0
	6	0
	5	Gamma Offset (L)*
	4	
	3	
	2	
	1	Defog Level
	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	
	1	Detail Bandwidth
	0	
15	7	1
	6	1
	5	1
	4	1
	3	1
	2	1
	1	1
	0	1

* Undefined for SRG-X400/X402/201M2/ X120/HD1M2.

**Other enlargement inquiry commands (3/3) (BRC-X400/X401) 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	Color Phase
	2	
	1	
	0	
3	7	0
	6	0
	5	0
	4	0
	3	R-G (H)
	2	
	1	
	0	
4	7	0
	6	0
	5	0
	4	0
	3	R-G (L)
	2	
	1	
	0	
5	7	0
	6	0
	5	0
	4	0
	3	R-B (H)
	2	
	1	
	0	

Byte	Bit	Comments
6	7	0
	6	0
	5	0
	4	0
	3	R-B (L)
	2	
	1	
	0	
7	7	0
	6	0
	5	0
	4	0
	3	G-R (H)
	2	
	1	
	0	
8	7	0
	6	0
	5	0
	4	0
	3	G-R (L)
	2	
	1	
	0	
9	7	0
	6	0
	5	0
	4	0
	3	G-B (H)
	2	
	1	
	0	
10	7	0
	6	0
	5	0
	4	0
	3	G-B (L)
	2	
	1	
	0	
11	7	0
	6	0
	5	0
	4	0
	3	B-R (H)
	2	
	1	
	0	

Byte	Bit	Comments
12	7	0
	6	0
	5	0
	4	0
	3	B-R (L)
	2	
	1	
	0	
13	7	0
	6	0
	5	0
	4	0
	3	B-G (H)
	2	
	1	
	0	
14	7	0
	6	0
	5	0
	4	0
	3	B-G (L)
	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	2160/23.98p*, 1080/23.98p
SHUTTER/MIN SHUTTER	21	1/10000	1/10000	1/10000
	20	1/6000	1/6000	1/4800
	1F	1/4000	1/3500	1/2400
	1E	1/3000	1/2500	1/1200
	1D	1/2000	1/1750	1/576
	1C	1/1500	1/1250	1/400
	1B	1/1000	1/1000	1/288
	1A	1/725	1/600	1/200
	19	1/500	1/425	1/192
	18	1/350	1/300	1/144
	17	1/250	1/215	1/120
	16	1/180	1/150	1/100
	15	1/125	1/120	1/96
	14	1/100	1/100	1/60
	13	1/90	1/60	1/50
	12	1/60	1/50	1/48
	11	1/50	1/30	1/40
	10	1/30	1/25	1/25
	0F	1/20	1/20	1/24
	0E	1/15	1/15	1/20
	0D	1/10	1/12	1/12
	0C	1/8	1/8	1/8
	0B	1/6	1/6	1/6
	0A	1/4	1/4	1/4
09	1/3	1/3	1/3	
08	1/2	1/2	1/2	
07	2/3	2/3	2/3	
06	1/1	1/1	1/1	

* For BRC-X400/X401 only, or only when the 4K option is applied

	Parameter	2160/29.97p*, 1080/59.94p, 1080/59.94i, 720/59.94p	2160/25p*, 1080/50p, 1080/50i, 720/50p	2160/23.98p*, 1080/23.98p
MAX SHUTTER	21	1/10000	1/10000	1/10000
	20	1/6000	1/6000	1/4800
	1F	1/4000	1/3500	1/2400
	1E	1/3000	1/2500	1/1200
	1D	1/2000	1/1750	1/576
	1C	1/1500	1/1250	1/400
	1B	1/1000	1/1000	1/288
	1A	1/725	1/600	1/200
	19	1/500	1/425	1/192
	18	1/350	1/300	1/144
	17	1/250	1/215	1/120
	16	1/180	1/150	1/100
	15	1/125	1/120	1/96
	14	1/100	1/100	1/60
	13	1/90	1/60	1/50
	12	1/60	1/50	1/48
	11	1/50	1/30	1/40
	10	1/30	1/25	1/25
	0F	-	-	1/24

* For BRC-X400/X401 only, or only when the 4K option is applied

	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) (BRC-X400/X401, SRG-X400/X402/201M2)

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)

Zoom position and zoom ratio (for reference) (SRG-X120/HD1M2)

Parameter	Zoom ratio
0000	×1
0FB4	×2
1BF0	×3
24C5	×4
2B1E	×5
2FE4	×6
33A9	×7
36C9	×8
3983	×9
3BF7	×10
3E1C	×11
4000	×12

Lens control

Zoom Position* ¹	0000 - 4000 - 7AC0 Wide end Optical Digital Tele end Tele end	
Focus Position	1000 - F000 Far end Near end	
Focus Near Limit	1000: Inf	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.
	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: 47 cm	
	B000: 35 cm (initial value)	
	C000: 26 cm	
	D000: 17 cm	
E000: 10 cm		
F000: 8 cm		

*¹ The range for SRG-X120/HD1M2 is 0000-4000.

Video output method (video format)

Parameter	Video output method (video format)
00	1280×720/59.94p (HDMI: 640×480/59.94p, RGB fixed)
01	1280×720/59.94p
02	1920×1080/29.97p
03	1920×1080/59.94i
04	1920×1080/59.94p (SDI Level A)
05	1920×1080/59.94p (SDI Level B)
06	3840×2160/29.97p*
11	1280×720/50p
12	1920×1080/25p
13	1920×1080/50i
14	1920×1080/50p (SDI Level A)
15	1920×1080/50p (SDI Level B)
16	3840×2160/25p*
21	1920×1080/23.98p
22	3840×2160/23.98p*

* For BRC-X400/X401 only, or only when the 4K option is applied

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)

PRESET MODE Settings and PRESET Command Behaviors (BRC-X400/X401)

PRESET MODE	PRESET Command		
	SET	RESET	RECALL
MODE1	Saves PAN, TILT, ZOOM, and FOCUS positions and the camera settings in PRESET.	Returns the settings saved in PRESET to the initial value.	Calls PAN, TILT, ZOOM, and FOCUS positions and the camera settings in PRESET.
MODE2	Saves PAN, TILT, ZOOM, and FOCUS positions and the camera settings in PRESET.	Returns the settings saved in PRESET to the initial value.	Calls PAN, TILT, ZOOM, and FOCUS positions in PRESET.
TRACE	Starts recording of PTZ TRACE. During the PTZ TRACE recording, stops the recording.	Deletes the settings saved in PTZ TRACE.	Prepares to reproduce the PTZ TRACE recording. While preparing for reproduction, starts reproducing.

Camera IP Setting Command

The following commands are provided for setting an IP address and a camera name for BRC/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.