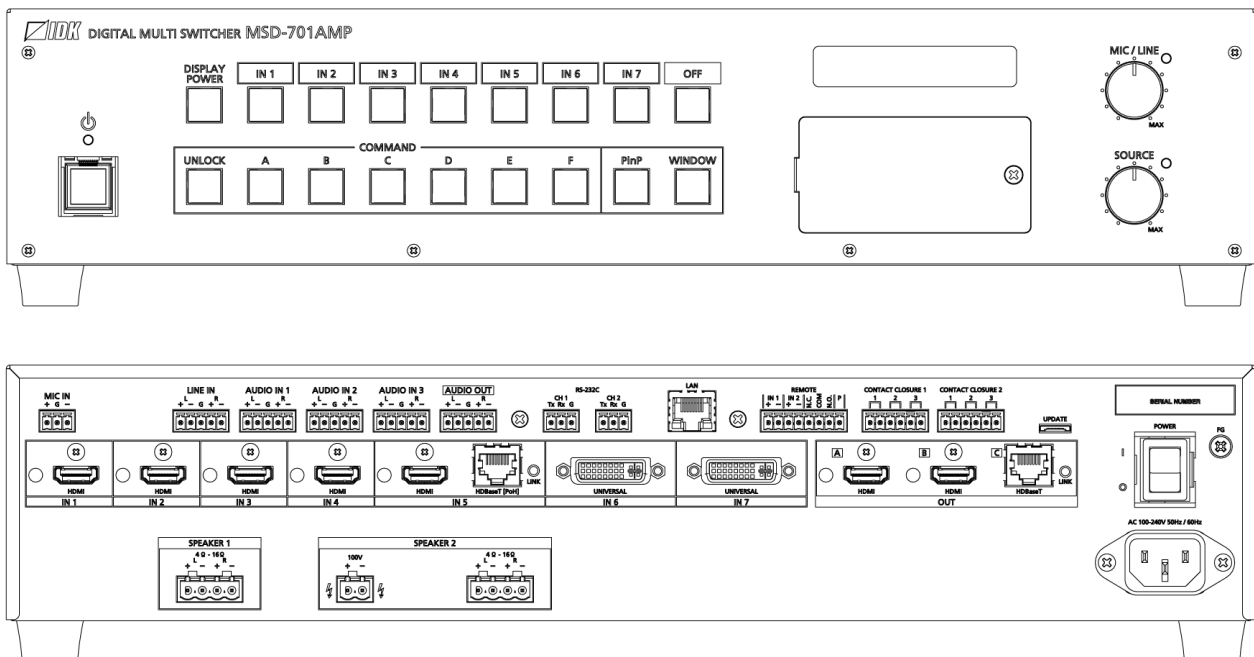


Digital Multi Switcher with Integrated Audio Power Amplifier

MSD-701AMP

<Command Reference Guide>

Ver.1.5.0



- Thank you for choosing our product.
- To ensure the best performance of this product, please read this user guide fully and carefully before using it and keep this manual together with the product for future reference as needed.

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Before reading this manual

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- Some information contained in this Command guide such as exact product appearance, communication commands, and so on may differ depending on the product version.
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The reference manual consists of the following two volumes:

- User guide: Please download the User guide from the website above.
Provides explanations and procedures for operations, installation, connections among devices, I/O adjustment and settings.
- Command guide (this document):
Provides explanations and procedures for external control using RS-232C and LAN communications.

Table of Contents

1	About this Guide	5
2	Communication configuration and Specifications	5
2.1	RS-232C communication	5
2.1.1	RS-232C connector specification	5
2.1.2	RS-232C communication specification	5
2.1.3	Setting up RS-232C communication	6
2.2	LAN communication	7
2.2.1	LAN connector specification	7
2.2.2	LAN communication specification	7
2.2.3	Setting up LAN communication	8
2.2.4	The number of TCP-IP connections	9
3	Command	10
3.1	Summary	10
3.2	Command list	11
3.3	Details of commands	17
3.3.1	Error status	17
3.3.2	Standby	18
3.3.3	Channel switching mode	19
3.3.4	Output position, size, and masking	22
3.3.5	Output	30
3.3.6	Input position, size, and masking	39
3.3.7	Input	45
3.3.8	Input timing	51
3.3.9	Input channel automatic switching	60
3.3.10	Picture controls	63
3.3.11	Output audio	69
3.3.12	Input audio	77
3.3.13	EDID	86
3.3.14	RS-232C	93
3.3.15	LAN	95
3.3.16	Control commands	99
3.3.17	Preset memory	112
3.3.18	Bitmap	120
3.3.19	Configuring MSD	128
3.3.20	Status	130

1 About this Guide

This guide contains the procedure for controlling the MSD-701AMP (hereafter referred to as “MSD”) using commands via RS-232C communication or LAN communication.

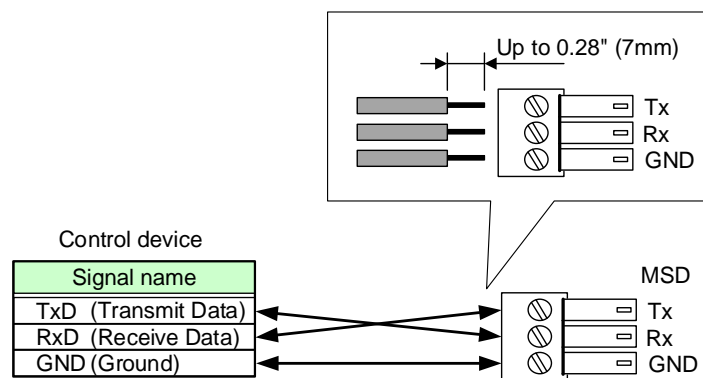
2 Communication configuration and Specifications

2.1 RS-232C communication

2.1.1 RS-232C connector specification

Insert and secure the wires from the RS-232C cable into the supplied 3-pin captive screw connector, and then insert the captive screw connector into the mating connector on the MSD.

28 AWG to 16 AWG conductor gauge is recommended. The recommended wire strip length is 0.28 in. (7 mm). Short RTS/CTS and DTR/DSR as needed.



[Fig. 2.1] RS-232C connector

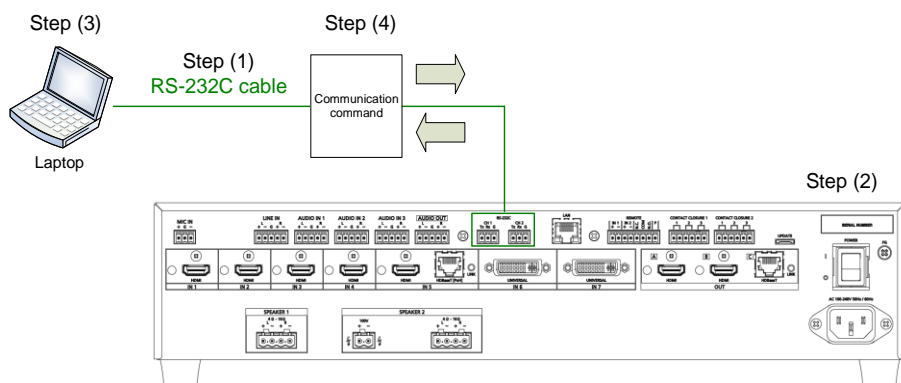
2.1.2 RS-232C communication specification

[Table 2.1] RS-232C specification

Compliant standard	RS-232C
Baud rate	4800/9600/19200/38400/57600/115200 [bps]
Data bit length	7/8 [bit]
Parity check	NONE, EVEN, ODD
Stop bit	1/2 [bit]
X parameter	Invalid
Flow control	None
Delimiter	CR LF (Carriage return and line feed, 0D and 0A in hex)
Communication method	Full duplex

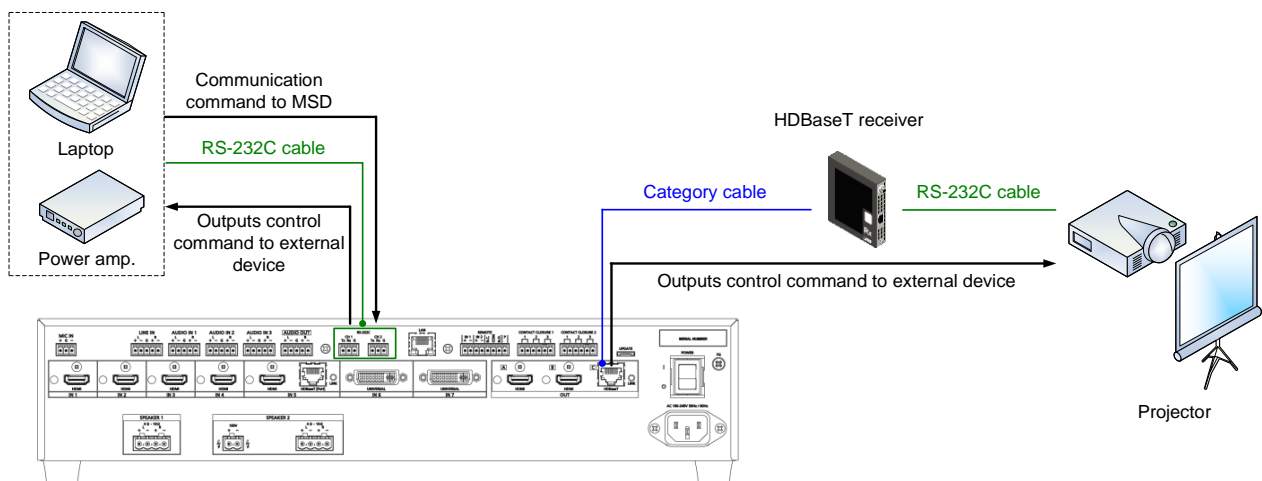
2.1.3 Setting up RS-232C communication

- (1) Connect the MSD and the control device via an RS-232C cable.
 - (2) Set the RS-232C communication as follows:
 - RS-232C communication : Baud rate, data bit length, parity check, and stop bit
 - Operation mode of RS-232C communication : RECEIVER mode
- 【Reference: User Guide】
- (3) For the control device, set the same values in the same way as RS-232C communication (baud rate, data bit length, parity check, and stop bit) in step (2) above.
 - (4) Send a communication command from the control device to the MSD in order to check the control status of the MSD.



[Fig. 2.2] Setting RS-232C communication

■ Operation example of RS-232C communication



[Fig. 2.3] Example of RS-232C communication

2.2 LAN communication

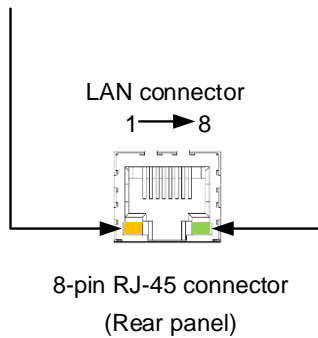
2.2.1 LAN connector specification

Pin assignment of the LAN connector is as follows.

Since Auto MDI/MDI-X that distinguishes and switches straight/cross cables automatically is supported, extra care is not necessary to connect the MSD to PC, HUB or the like.

Light in amber if the send/receive rate is 100 Mbps.
Goes off if it is 10 Mbps.

Light in green while link is established.
Blinks in green while data is being sent/received.



Pin#	Signal Name	
	MDI	MDI-X
1	TX+ (Transmitted Data +)	RX+ (Received Data +)
2	TX- (Transmitted Data -)	RX- (Received Data -)
3	RX+ (Received Data +)	TX+ (Transmitted Data +)
4	N.C. (Not Connected)*	N.C. (Not Connected)*
5	N.C. (Not Connected)*	N.C. (Not Connected)*
6	RX- (Received Data -)	TX- (Transmitted Data -)
7	N.C. (Not Connected)*	N.C. (Not Connected)*
8	N.C. (Not Connected)*	N.C. (Not Connected)*

*Not used

[Fig. 2.4] LAN connector

2.2.2 LAN communication specification

[Table 2.2] Specification of LAN communication

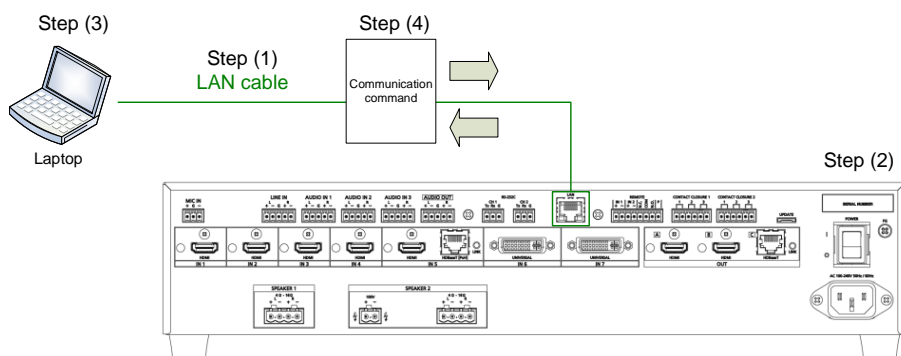
Physical layer	10Base-T (IEEE802.3i)/100Base-TX (IEEE802.3u)
Network layer	ARP, IP, ICMP
Transport layer	TCP Port used for command control : 23, 1100, 6000 to 6999 Port used for WEB browser control(HTTP) : 80, 5000 to 5999

Note:

Up to 8 connections can be used simultaneously.

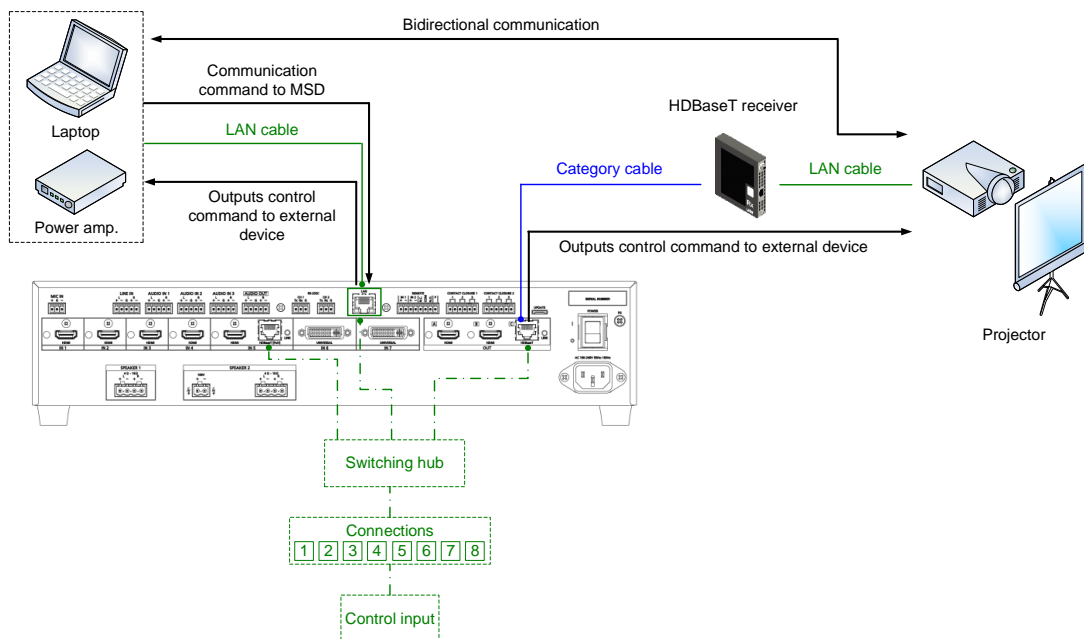
2.2.3 Setting up LAN communication

- (1) Connect the MSD and the control device via a LAN cable.
 - (2) Set up LAN communication as follows:
 - Set IP address and subnet mask
 - Operation mode of LAN communication : RECEIVER mode
 - TCP port number : 23, 1100, 6000 to 6999
- 【Reference: User guide】
- (3) Establish the connection from the control device to the IP address and TCP port that are set to the MSD in step (2) above.
 - (4) Send a communication command from the control device to the MSD in order to check the control status of the MSD.



[Fig. 2.5] Setting LAN communication

■ Operation example of LAN communication



[Fig. 2.6] Example of LAN communication

2.2.4 The number of TCP-IP connections

The MSD supports up to eight simultaneous TCP-IP connections (eight logical ports).

To maintain optimal system accessibility, it is advisable to issue “port-open” and “port-close” commands before and after command or query strings are issued. This approach enables eight or more control devices to be effectively interfaced simultaneously and without concern for communication errors.

[Table 2.3] Increasing connections

Your PC software		MSD
Connecting TCP-IP	→	(Occupying 1 port)
Sending command (@xxx)	→	
	←	Replying command (@xxx)
Closing TCP-IP	→	(Releasing 1port)

Note:

As a safeguard, the MSD incorporates a 30-second timeout window for each port. If any port is inactive for more than 30 seconds, it will be closed automatically.

3 Command

3.1 Summary

A command consists of “@” (“40” in hexadecimal), 3 one-byte alphabetical characters (upper and lower cases), and parameters (one-byte numbers). For some commands, multiple parameter values can be specified or parameters are not necessary.

“,” (a comma, “2C” in hex) is indicated between a command and parameter and between two parameters.

“␣” is indicated as a delimiter CR LF (return+line feed, “0D” and “0A” in hex).

Processing is executed by sending a delimiter at the end of the command.

Example: @SPM,2 ␣

■ If there is an error:

An error command is returned if an undefined command or wrong parameter is included.

Example: @ABC,1 ␣

@ERR,1 ␣

■ Using as HELP

If only delimiter is sent, command list as the help command is returned.

3.2 Command list

■ Error status

Command	Function	Page
@ERR	Error status	17

■ Standby

Command	Function	Page
@GDS / @SDS	Standby	18

■ Channel switching mode

Command	Function	Page
@GSW / @SSW	Switching video and audio channel simultaneously	19
@GSV / @SSV	Switching video channel	20
@GSA / @SSA	Switching audio channel	20
@GPI / @SPI	PinP layout pattern	21

■ Output position, size, and masking

Command	Function	Page
@GOT / @SOT	Output resolution	22
@GTD	Actual output resolution	23
@GUM / @SUM	Aspect ratio for windows	24
@GOP / @SOP	Image position	25
@GOS / @SOS	Image size	26
@GOM / @SOM	Cropping	27
@GBC / @SBC	Background color	28
@GTP / @STP	Test pattern	29
@OAS	Image Initialization	29

■ Output

Command	Function	Page
@GVO / @SVO	Output signal	30
@GBO / @SBO	Output video with no input video	31
@GEN / @SEN	HDCP output	32
@GHR / @SHR	HDCP retries	33
@HAU	HDCP re-encryption	33
@GEQ / @SEQ	Output equalizer	34
@GDM / @SDM	Output format	34
@GOA / @SOA	HDBaseT output long reach mode	35
@GDC / @SDC	Deep Color output	35
@GFF / @SFF	Window transition effect	36
@GFT / @SFT	Window transition speed	37
@GWC / @SWC	Wipe color	37
@GCE / @SCE	CEC connection	38

■ Input position, size, and masking

Command	Function	Page
@GAP / @SAP	Aspect ratio	39
@GAR / @SAR	Aspect ratio control	39
@GOV / @SOV	Overscan	40
@GNP / @SNP	Image position	41
@GNS / @SNS	Image size	42
@GNM / @SNM	Cropping	43
@IAS	Image initialization	44

■ Input

Command	Function	Page
@GIE / @SIE	Input connector	45
@GIN / @SIN	DVI input connector signal	45
@GDT / @SDT	No-signal input monitoring	46
@GHE / @SHE	HDCP input	46
@GIQ / @SIQ	Input equalizer	47
@GIA / @SIA	HDBaseT input long reach mode	47
@GHP / @SHP	HDBaseT power supply	48
@GAI / @SAI	Analog input signal parameters	48
@GID / @SID	Automatic detection of video input interruption	49
@GFX / @SFX	Fixing settings for each input signal	50

■ Input timing

Command	Function	Page
@AIS / @AIT	Automatic measurement	51
@GHT / @SHT	The total number of horizontal pixels	52
@GHS / @SHS	Horizontal start position	53
@GHD / @SHD	Horizontal active area	54
@GVS / @SVS	Vertical start position	55
@GVD / @SVD	Vertical active area	55
@GIS / @SIS	Automatic measurement of start position	56
@GSM / @SSM	Automatic setting of input timing	56
@RTT	Initializing/Recalling input timing	57
@STT	Saving analog input timing	58
@GTK / @STK	Tracking	59

■ Input channel automatic switching

Command	Function	Page
@GAU / @SAU	Signal ON priority	60
@GOF / @SOF	Signal OFF priority	61
@GMT / @SMT	Ignoring duration after automatic switching	62
@GAD / @SAD	Channel switching mode of automatic switching	62

■ Picture controls

Command	Function	Page
@GOB / @SOB	Output brightness	63
@GOC / @SOC	Output contrast	64
@GGM / @SGM	Output gamma	64
@ODC	Output video correction initialization	65
@GFL / @SFL	Input sharpness	65
@GIB / @SIB	Input brightness	66
@GIC / @SIC	Input contrast	66
@GHU / @SHU	Input hue	67
@GST / @SST	Input saturation	67
@GSU / @SSU	Input black level	68
@IDC	Input video correction initialization	68

■ Output audio

Command	Function	Page
@GUC / @SUC	Audio output	69
@GAV / @SAV	Audio output level	70
@SOL	Adjusting audio output level	71
@GOL	Audio output limit status	71
@GTR / @STR	Tone control	72
@GAM / @SAM	Mute	72
@GLO / @SLO	Output Lip Sync	73
@GSF / @SSF	Sampling frequency	73
@GFD	Actual sampling frequency	74
@GMI / @SMI	Audio mixing	74
@GMD / @SMD	Multi-channel audio output	75
@GCH / @SCH	Multi-channel audio output priority	75
@GPO / @SPO	SPEAKER 2 output connector	76
@GAT / @SAT	Test tone	76

■ Input audio

Command	Function	Page
@GAS / @SAS	Audio input	77
@GIO / @SIO	Audio input level offset (For each audio input connector)	78
@GSO / @SSO	Audio input level offset (For each video input channel)	78
@SDZ	Adjusting audio input level	79
@GDZ	Audio input limit status	79
@GLR / @SLR	LINE input reference level	80
@GMR / @SMR	MIC input reference level	80
@GCS / @SCS	Compressor	81
@GAQ / @SAQ	Equalizer	82
@GHW / @SHW	Automatic feedback suppressor (Setting control level)	83
@GHO	Automatic feedback suppressor (Getting frequency that is being controlled)	84
@GLY / @SLY	Input Lip Sync	85
@GAW / @SAW	Stable audio input wait	85

■ EDID

Command	Function	Page
@GED / @SED	EDID selection	86
@GVF / @SVF	Resolution	87
@RME	Copying EDID	88
@GHL / @SHL	HDMI/DVI	88
@GHZ / @SHZ	Frame rate	89
@GDI / @SDI	Deep Color	89
@GAF / @SAF	Audio format	90
@GSP / @SSP	Speaker configuration	91

■ RS-232C

Command	Function	Page
@GCT / @SCT	RS-232C communication	93
@GCF / @SCF	RS-232C operation mode	94

■ LAN

Command	Function	Page
@GIP / @SIP	IP address	95
@GSB / @SSB	Subnet mask	95
@GGW / @SGW	Gateway address	96
@GMC	MAC address	96
@GLP / @SLP	TCP port number	97
@GLF / @SLF	LAN operation mode	98

■ Control commands

Command	Function	Page
@GEC / @SEC	Registering/Editing control command (Communication command)	99
@GEC / @SEC	Registering/Editing control command (Displaying received data)	101
@GEC / @SEC	Registering/Editing control command (Contact closure)	103
@GEC / @SEC	Registering/Editing control command (CEC)	104
@GRC / @SRC	Registering/Editing reply command	105
@GCC / @SCC	Command link	106
@GTG / @STG	Toggle operation	107
@GUP / @SUP	Plane to be executed when powered ON	107
@EXC	Command execution	108
@GSK / @SSK	DISPLAY POWER button	108
@DEC	Initializing registered command and link	109
@GIT / @SIT	Invalid duration at control command execution	109
@GTL / @STL	COMMAND button illuminating condition	110
@GTF / @STF	Blinking at command button	111

■ Preset memory

Command	Function	Page
@RCM	Recalling crosspoint	112
@RCV	Recalling crosspoint (Setting video channel)	112
@RCA	Recalling crosspoint (Setting audio channel)	112
@SCM / @SEM	Saving crosspoint	113
@SCV / @SEV	Saving crosspoint (Setting video channel)	114
@SCA / @SEA	Saving crosspoint (Setting audio channel)	115
@GCM / @ECM	Editing crosspoint	116
@GCV / @ECV	Editing crosspoint (Setting video channel)	117
@GCA / @ECA	Editing crosspoint (Setting audio channel)	118
@RPM	Recalling all settings	118
@SPM	Saving all settings	119
@GMU / @SMU	Start-up setting	119

■ Bitmap

Command	Function	Page
@GBM / @SBM	Bitmap image output	120
@GBB / @SBB	Background color	121
@GBT / @SBT	Aspect ratio	122
@GZP / @SZP	Image position	123
@GBA / @SBA	Assigning input channel	124
@GPB / @SPB	Start-up bitmap output	125
@GBD / @SBD	Dividing memory area	126
@GBV	Memory area status	126
@GFZ / @SFZ	Freeze	127
@CAP	Input image capture	127

■ Configuring MSD

Command	Function	Page
@GLS / @SLS	Front panel security lockout	128
@GLM / @SLM	Grouping front panel security lockout	128
@GBZ / @SBZ	Beep	129

■ Status

Command	Function	Page
@GSS	Input signal and sink device status	130
@GES	Viewing sink device EDID	134
@GHC	System status	135
@GIV	Device information	135

3.3 Details of commands

In this section, “MAIN” and “PinP” stand for main window and PinP window respectively that are displayed on the sink device.

3.3.1 Error status

@ERR		Error status
Description		Response in case the command is not executed
Response		@ERR, error ↵
Parameter		error: Error status 1 = Erroneous parameter format or value 2 = Undefined command or wrong format 3 = Currently cannot be used 4 = Not used. 5 = The command could not be executed, because the control command was not registered. 6 = The command could not be processed since another command was being executed. 7 = Automatic measurement of input timing failed. 8 = Loading EDID from the sink device failed. 9 = Not used. 10 = The control command was stopped according to the stop condition. 11 = The control command was stopped since the number of retries exceeded the set value of “RETRY”. 12 = The control command of PJLink was stopped since the password did not match. 13 = The image could not be captured since the image size to be captured exceeded the reserved memory size. 14 = Capturing input image failed.
Getting example	Command	@IOS ↵
	Response	@ERR,2 ↵
	Description	@IOS is sent. Command format error
Remarks		—

3.3.2 Standby

@GDS / @SDS		Standby
Getting	Command	@GDS ↵
	Response	@GDS, onoff ↵
Setting	Command	@SDS, onoff ↵
	Response	@SDS, onoff ↵
Parameter		onoff: Standby 0 = OFF (Standby), 1 = ON (Power on)
Getting example	Command	@GDS ↵
	Response	@GDS,1 ↵
	Description	Getting the standby status The MSD is powered on.
Setting example	Command	@SDS,1 ↵
	Response	@SDS,1 ↵
	Description	Powering on the MSD Completed
Remarks		—

3.3.3 Channel switching mode

@GSW / @SSW		Switching video and audio channel simultaneously
Getting	Command	@GSW ↵
	Response	@GSW, main_video, main_audio, pinp_video, pinp_audio ↵
Setting	Command	@SSW, input, window ↵
	Response	@SSW, input, window ↵
Parameter		main_video : Video input channel of main window pinp_video : Video input channel of PinP window main_audio : Audio input channel of main window pinp_audio : Audio input channel of PinP window ("0" fixed) input : Video and audio input channel 0 (OFF) [Default], 1 to 7 = IN1 to 7
		window: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GSW ↵
	Response	@GSW,2,2,1,0 ↵
	Description	Getting the input channel Main window : IN2 (Video and audio) PinP window : IN1
Setting example	Command	@SSW,1,0 ↵
	Response	@SSW,1,0 ↵
	Description	Selecting the input channel of all windows to IN1 Completed
Remarks		—





@GSV / @SSV		Switching video channel
Getting	Command	@GSV ↵
	Response	@GSV, main_video, pinp_video ↵
Setting	Command	@SSV, input, window ↵
	Response	@SSV, input, window ↵
Parameter		main_video: Video input channel of main window pinp_video : Video input channel of PinP window input : Video input channel 0 = OFF [Default], 1 to 7 = IN1 to 7 window: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GSV ↵
	Response	@GSV,1,0 ↵
	Description	Getting the video input channel Main window : IN1 PinP window : OFF
Setting example	Command	@SSV,1,0 ↵
	Response	@SSV,1,0 ↵
	Description	Setting the video input channel of main window and PinP window to IN1 Completed
Remarks		—









@GSA / @SSA		Switching audio channel
Getting	Command	@GSA ↵
	Response	@GSA, input ↵
Setting	Command	@SSA, input, window ↵
	Response	@SSA, input, window ↵
Parameter		input: Audio input channel 0 = OFF [Default], 1 to 7 = IN1 to 7 window: Window "1" fixed
Getting example	Command	@GSA ↵
	Response	@GSA,1 ↵
	Description	Getting the audio input channel Main window: IN1
Setting example	Command	@SSA,1,1 ↵
	Response	@SSA,1,1 ↵
	Description	Selecting the input channel of main window to IN1 Completed
Remarks		—

@GPI / @SPI		PinP layout pattern
Getting	Command	@GPI ↵
	Response	@GPI, layout ↵
Setting	Command	@SPI, output, layout ↵
	Response	@SPI, output, layout ↵
Parameter		layout: PinP layout pattern 0 = OFF [Default], 1 = PinP PATTERN1, 2 = PinP PATTERN2, 3 = PinP PATTERN3, 4 = PinP PATTERN4, 5 = PinP PATTERN5
		output: Output channel "1" fixed
Getting example	Command	@GPI ↵
	Response	@GPI,2 ↵
	Description	Getting the PinP layout pattern PinP PATTERN2
Setting example	Command	@SPI,1,0 ↵
	Response	@SPI,1,0 ↵
	Description	Disabling PinP combination Completed
Remarks		—

3.3.4 Output position, size, and masking

@GOT / @SOT		Output resolution
Getting	Command	@GOT ↵
	Response	@GOT, resolution ↵
Setting	Command	@SOT, ch, resolution ↵
	Response	@SOT, ch, resolution ↵
Parameter		resolution: Output resolution 1 = VGA (640x480), 4 = WXGA (1280x768), 6 = QuadVGA (1280x960), 8 = WXGA (1360x768), 10 = SXGA+ (1400x1050), 12 = WXGA++ (1600x900), 14 = WSXGA+ (1680x1050), 16 = WUXGA (1920x1200), 19 = 480p 59.94Hz, 22 = 720p 50Hz, 24 = 720p 60Hz, 26 = 1080i 59.94Hz, 28 = 1080p 50Hz, 30 = 1080p 60Hz, 201 = AUTO-B, 3 = XGA (1024x768), 5 = WXGA (1280x800), 7 = SXGA (1280x1024), 9 = WXGA (1366x768), 11 = WXGA+ (1440x900), 13 = UXGA (1600x1200), 15 = VESAHD (1920x1080), 17 = QWXGA (2048x1152), 21 = 576p 50Hz, 23 = 720p 59.94Hz, 25 = 1080i 50Hz, 27 = 1080i 60Hz, 29 = 1080p 59.94Hz, 200 = AUTO-A [Default], 202 = AUTO-C
		ch: Output channel "1" fixed
Getting example	Command	@GOT ↵
	Response	@GOT,7 ↵
	Description	Getting the output resolution SXGA
Setting example	Command	@SOT,1,11 ↵
	Response	@SOT,1,11 ↵
	Description	Setting the output resolution to WXGA+ Completed
Remarks		—

@GTD		Actual output resolution
Getting	Command	@GTD 
	Response	@GTD, resolution 
Parameter		resolution: Actual output resolution 1 = VGA (640x480), 2 = WXGA (1280x768), 3 = XGA (1024x768), 4 = WXGA (1280x768), 5 = WXGA (1280x800), 6 = QuadVGA (1280x960), 7 = SXGA (1280x1024), 8 = WXGA (1360x768), 9 = WXGA (1366x768), 10 = SXGA+ (1400x1050), 11 = WXGA+ (1440x900), 12 = WXGA++ (1600x900), 13 = UXGA (1600x1200), 14 = WSXGA+ (1680x1050), 15 = VESAHD (1920x1080), 16 = WUXGA (1920x1200), 17 = QWXGA (2048x1152), 18 = 480p 59.94Hz, 19 = 480p 59.94Hz, 20 = 720p 50Hz, 21 = 576p 50Hz, 22 = 720p 50Hz, 23 = 720p 59.94Hz, 24 = 720p 60Hz, 25 = 1080i 50Hz, 26 = 1080i 59.94Hz, 27 = 1080i 60Hz, 28 = 1080p 50Hz, 29 = 1080p 59.94Hz [Default], 30 = 1080p 60Hz
Getting example	Command	@GTD 
	Response	@GTD,29 
	Description	Getting the actual output resolution 1080p 59.94Hz
Remarks		If “@GOT / @SOT Output resolution” is set to “AUTO”, the actual output resolution is returned. If it is set to the value other than “AUTO”, the set output resolution is returned.

@GUM / @SUM		Aspect ratio for windows
Getting	Command	@GUM 
	Response	@GUM, main_aspect, pinp_aspect 
Setting	Command	@SUM, window_1, aspect_1 (,window_2, aspect_2) 
	Response	@SUM, window_1, aspect_1 (,window_2, aspect_2) 
Parameter		<p>main_aspect : Aspect ratio for main window pinp_aspect : Aspect ratio for PinP window aspect_1-2 : Aspect ratio for windows 0 = RESOLUTION [Default], 1 = 4:3, 2 = 5:4, 3 = 5:3, 4 = 16:9, 5 = 16:10</p> <p>window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP</p>
Getting example	Command	@GUM 
	Response	@GUM,4,1 
	Description	Getting the connected aspect ratio Main window : 16:9 PinP : 4:3
Setting example	Command	@SUM,1,4 
	Response	@SUM,1,4 
	Description	Setting 16:9 aspect ratio to main window Completed
Remarks		—

@GOP / @SOP		Image position
Getting	Command	@GOP ↵
	Response	@GOP, main_h_position, main_v_position, pinp_h_position, pinp_v_position ↵
Setting	Command	@SOP, window_1, h_position_1, v_position_1 (,window_2, h_position_2, v_position_2) ↵
	Response	@SOP, window_1, h_position_1, v_position_1 (,window_2, h_position_2, v_position_2) ↵
Parameter		main_h_position : Horizontal image position of main window [pixel] pinp_h_position : Horizontal image position of PinP window [pixel] h_position1_2 : Horizontal image position [pixel] - Horizontal output image size to + Horizontal output resolution [by 1 pixel] [Default] See the table below.
		main_v_position : Vertical image position of main window [line] pinp_v_position : Vertical image position of PinP window [line] v_position1_2 : Vertical image position [line] - Vertical output image size to + Vertical output resolution [by 1 line] [Default] See the table below.
		window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GOP ↵
	Response	@GOP,0,0,1440,0 ↵
	Description	Getting the current output image position Main window : Horizontal and vertical image position are +0 PinP : Horizontal image position is +1440 Vertical image position is 0
Setting example	Command	@SOP,1,5,20 ↵
	Response	@SOP,1,5,20 ↵
	Description	Changing the horizontal and vertical image positions of PinP to +5 and +20, respectively Completed
Remarks		If “@GPI / @SPI PinP layout pattern” is disabled, PinP image position cannot be set and “0” is returned for “@GOP”.

[Table 3.1] Default image position (at 1080p)

Pattern	Main (Horizontal/Vertical)	PinP (Horizontal/Vertical)
—	0/0	—(N/A)
P1	0/0	80/45
P2	0/0	1360/45
P3	0/0	80/765
P4	0/0	1360/765
P5	0/270	960/270

@GOS / @SOS		Image size
Getting	Command	@GOS
	Response	@GOS, main_h_size, main_v_size, pinp_h_size, pinp_v_size
Setting	Command	@SOS, window_1, h_size_1, v_size_1 (, window_2, h_size_2, v_size_2)
	Response	@SOS, window_1, h_size_1, v_size_1 (, window_2, h_size_2, v_size_2)
Parameter		main_h_size : Horizontal image size of main window [pixel] pinp_h_size : Horizontal image size of PinP window [pixel] h_size_1-2 : Horizontal image size [pixel] Horizontal output resolution ÷ 4 to Horizontal output resolution × 4 [by 1 pixel] [Default] See the table below.
		main_v_size : Vertical image size of main window [line] pinp_v_size : Vertical image size of PinP window [line] v_size_1-2 : Vertical image size [line] Vertical output resolution ÷ 4 to Vertical output resolution × 4 [by 1 pixel] [Default] See the table below.
		window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GOS
	Response	@GOS,1920,1080,480,270
	Description	Getting the current output image size Main window : Horizontal output image size is 1920 Vertical output image size is 1080 PinP : Horizontal image size is 480 Vertical image size is 270
Setting example	Command	@SOS,2,1920,1080
	Response	@SOS,2,1920,1080
	Description	Changing the horizontal and vertical image sizes of PinP to 1920 and 1080, respectively Completed
Remarks		If “@GPI / @SPI PinP layout pattern” is disabled, PinP image size cannot be set and “0” is returned for “@GOP”.

[Table 3.2] Default image size (at 1080p)

Pattern	Main (Horizontal/Vertical)	PinP (Horizontal/Vertical)
—	1920/1080	—(N/A)
P1	1920/1080	480/270
P2	1920/1080	480/270
P3	1920/1080	480/270
P4	1920/1080	480/270
P5	960/540	960/540

@GOM / @SOM		Cropping
Getting	Command	@GOM, window ↵
	Response	@GOM, window, left, right, top, bottom ↵
Setting	Command	@SOM, window, left, right, top, bottom ↵
	Response	@SOM, window, left, right, top, bottom ↵
Parameter		<p>window: Window 1 = MAIN, 2 = PinP</p> <p>left: Left side cropping [pixel] Horizontal output image position (0 or more) to Right side cropping [by 1 pixel] [Default] See the table below.</p> <p>right: Right side cropping [pixel] Left side cropping to Horizontal output image position + Horizontal output image size (Horizontal output resolution or less) [by 1 pixel] [Default] See the table below.</p> <p>top: Top side cropping [line] Vertical output image position (0 or more) to Bottom side cropping [by 1 line] [Default] See the table below.</p> <p>bottom: Bottom side cropping [line] Top side cropping to Vertical output image position + Vertical output image size (Vertical output resolution or less) [by 1 line] [Default] See the table below.</p>
Getting example	Command	@GOM,1 ↵
	Response	@GOM,1,0,1920,0,1080 ↵
	Description	Getting the current output cropping of main window Left side: 0, Right side: 1920, Top side: 0, Bottom side: 1080
Setting example	Command	@SOM,1,0,1920,0,1080 ↵
	Response	@SOM,1,0,1920,0,1080 ↵
	Description	Changing the output cropping of main window to 0 for left side, 1920 for right side, top side for 0, and 1080 for bottom side Completed
Remarks		If “@GPI / @SPI PinP layout pattern” is disabled, PinP cropping cannot be set and “0” is returned for “@GOP”.

[Table 3.3] Default cropping value (at 1080p)

Pattern	Main (Horizontal/Vertical)	PinP (Horizontal/Vertical)
—	0/1920/0/1080	— (N/A)
P1	0/1920/0/1080	80/560/45/315
P2	0/1920/0/1080	1360/1840/45/315
P3	0/1920/0/1080	80/560/765/1035
P4	0/1920/0/1080	1360/1840/765/1035
P5	0/960/270/810	960/1920/270/810

@GBC / @SBC		Background color
Getting	Command	@GBC, ch ↵
	Response	@GBC, ch, red, green, blue ↵
Setting	Command	@SBC, ch, red, green, blue ↵
	Response	@SBC, ch, red, green, blue ↵
Parameter		ch: Output channel "1" fixed red : Background color (Red) green : Background color (Green) blue : Background color (Blue) 0 to 255 [Default] 0 (Black)
Getting example	Command	@GBC,1 ↵
	Response	@GBC,1,128,128,128 ↵
	Description	Getting the background color of output image RGB: 128 (Gray)
Setting example	Command	@SBC,1,128,128,128 ↵
	Response	@SBC,1,128,128,128 ↵
	Description	Setting the background color of the output video to 128 (Gray) for all RGB Completed
Remarks		—

@GTP / @STP		Test pattern																		
Getting	Command	@GTP ↵																		
	Response	@GTP, pattern, scroll ↵																		
Setting	Command	@STP, ch, pattern, scroll ↵																		
	Response	@STP, ch, pattern, scroll ↵																		
Parameter		<p>pattern: Test pattern</p> <table border="0"> <tr> <td>0 = OFF [Default],</td> <td>1 = V-COLOR BAR,</td> </tr> <tr> <td>2 = H-COLOR BAR,</td> <td>3 = V-GRAY SCALE,</td> </tr> <tr> <td>4 = H-GRAY SCALE,</td> <td>5 = VERTICAL RAMP,</td> </tr> <tr> <td>6 = HORIZONTAL LAMP,</td> <td>7 = 100% WHITE RASTER,</td> </tr> <tr> <td>8 = 50% WHITE RASTER,</td> <td>9 = RED RASTER,</td> </tr> <tr> <td>10 = GREEN RASTER,</td> <td>11 = BLUE RASTER,</td> </tr> <tr> <td>12 = CROSS HATCH,</td> <td>13 = OUTPUT FRAME,</td> </tr> <tr> <td>14 = VERTICAL STRIPE,</td> <td>15 = HORIZONTAL STRIPE,</td> </tr> <tr> <td>16 = VERTICAL ZEBRA,</td> <td>17 = HORIZONTAL ZEBRA</td> </tr> </table> <p>Test pattern numbers 1 to 6, 16 and 17 can be scrolled.</p> <p>scroll: Scrolling</p> <p>0 = OFF [Default],</p> <p>1 to 10 = 3 pixels/1 frame to 30 pixels/1 frame</p> <p>The number of pixels to be scrolled per frame = The set value x3</p> <p>ch: Output channel</p> <p>"1" fixed</p>	0 = OFF [Default],	1 = V-COLOR BAR,	2 = H-COLOR BAR,	3 = V-GRAY SCALE,	4 = H-GRAY SCALE,	5 = VERTICAL RAMP,	6 = HORIZONTAL LAMP,	7 = 100% WHITE RASTER,	8 = 50% WHITE RASTER,	9 = RED RASTER,	10 = GREEN RASTER,	11 = BLUE RASTER,	12 = CROSS HATCH,	13 = OUTPUT FRAME,	14 = VERTICAL STRIPE,	15 = HORIZONTAL STRIPE,	16 = VERTICAL ZEBRA,	17 = HORIZONTAL ZEBRA
0 = OFF [Default],	1 = V-COLOR BAR,																			
2 = H-COLOR BAR,	3 = V-GRAY SCALE,																			
4 = H-GRAY SCALE,	5 = VERTICAL RAMP,																			
6 = HORIZONTAL LAMP,	7 = 100% WHITE RASTER,																			
8 = 50% WHITE RASTER,	9 = RED RASTER,																			
10 = GREEN RASTER,	11 = BLUE RASTER,																			
12 = CROSS HATCH,	13 = OUTPUT FRAME,																			
14 = VERTICAL STRIPE,	15 = HORIZONTAL STRIPE,																			
16 = VERTICAL ZEBRA,	17 = HORIZONTAL ZEBRA																			
Getting example	Command	@GTP ↵																		
	Response	@GTP,3,1 ↵																		
	Description	Getting the output test pattern V-GRAY SCALE at 3 pixels/frame scrolling																		
Setting example	Command	@STP,1,1,0 ↵																		
	Response	@STP,1,1,0 ↵																		
	Description	Setting the OUT1 to display V-COLOR BAR without scrolling Completed																		
Remarks		—																		

@OAS		Image Initialization
Setting	Command	@OAS, window ↵
	Response	@OAS, window ↵
Parameter		<p>window: Window</p> <p>0 = All windows, 1 = MAIN, 2 = PinP</p>
Setting example	Command	@OAS,0 ↵
	Response	@OAS,0 ↵
	Description	<p>Initializing the following settings in order to display output images on the full screen:</p> <ul style="list-style-type: none"> - @GOP / @SOP Image position - @GOS / @SOS Image size - @GOM / @SOM Cropping <p>Completed</p>
Remarks		—

3.3.5 Output

@GVO / @SVO		Output signal
Getting	Command	@GVO ↵
	Response	@GVO, out_A, out_B, out_C ↵
Setting	Command	@SVO, ch_1, out_1 (, ch_2, out_2, ch_3, out_3) ↵
	Response	@SVO, ch_1, out_1 (, ch_2, out_2, ch_3, out_3) ↵
Parameter		out_A : Video output of HDMI OUT A out_B : Video output of HDMI OUT B out_C : Video output of HDBT OUT C out_1-3: Video output 0 = Outputs black, 1 = Outputs input video [Default]
		ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C
Getting example	Command	@GVO ↵
	Response	@GVO,0,1,1 ↵
	Description	Getting the video output connector HDMI OUT A : Black Other video output connectors: Input video
Setting example	Command	@SVO,1,1 ↵
	Response	@SVO,1,1 ↵
	Description	HDMI OUT A outputs input video. Completed
Remarks		—

@GBO / @SBO		Output video with no input video
Getting	Command	@GBO ↵
	Response	@GBO, main, pinp ↵
Setting	Command	@SBO, window_1, video_1 (, window_2, video_2) ↵
	Response	@SBO, window_1, video_1 (, window_2, video_2) ↵
Parameter		main: Output video with no input video of main window pinp: Output video with no input video of PinP window video_1-2: Output video with no input video 0 = Black, 1 = Blue [Default], 2 = Background color, 3 = Not output sync signal (Output OFF) For PinP output, "2" or "3" cannot be set.
		window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GBO ↵
	Response	@GBO,1,0 ↵
	Description	Getting the output video with no input video Main window : Blue PinP window : Black
Setting example	Command	@SBO,0,1 ↵
	Response	@SBO,0,1 ↵
	Description	Setting main window and PinP window to output blue with no input video Completed
Remarks		—

@GEN / @SEN		HDCP output
Getting	Command	@GEN ↵
	Response	@GEN, hdcp_A, hdcp_B, hdcp_C ↵
Setting	Command	@SEN, ch_1, hdcp_1 (, ch_2, hdcp_2, ch_3, hdcp_3) ↵
	Response	@SEN, ch_1, hdcp_1 (, ch_2, hdcp_2, ch_3, hdcp_3) ↵
Parameter		hdcp_A : HDCP output of HDMI OUT A hdcp_B : HDCP output of HDMI OUT B hdcp_C : HDCP output of HDBT OUT C hdcp_1-3 : HDCP output 0 = HDCP is encrypted only if input signal is with HDCP, 1 = HDCP is always encrypted. [Default], 2 = HDCP is not encrypted.
		ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C
Getting example	Command	@GEN ↵
	Response	@GEN,0,1,1 ↵
	Description	Getting the HDCP output HDMI OUT A : HDCP is encrypted only if input signal is with HDCP. Other output channels : HDCP is always encrypted.
Setting example	Command	@SEN,1,1 ↵
	Response	@SEN,1,1 ↵
	Description	Setting the HDMI OUT A to "1" (HDCP is always encrypted.) Completed
Remarks		—

@GHR / @SHR		HDCP retries
Getting	Command	@GHR
	Response	@GHR, retry_A, retry_B, retry_C
Setting	Command	@SHR, ch_1, retry_1 (, ch_2, retry_2, ch_3, retry_3)
	Response	@SHR, ch_1, retry_1 (, ch_2, retry_2, ch_3, retry_3)
Parameter		<p>retry_A : The number of retries for HDMI OUT A retry_B : The number of retries for HDMI OUT B retry_C : The number of retries for HDBT OUT C retry_1-3 : The number of retries -1 = Retries until succeed [Default], 0 = Not retry, 1 to 100 = Retry for the desired number of retries</p> <p>ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p>
Getting example	Command	@GHR
	Response	@GHR,10,-1,-1
	Description	Getting the number of HDCP retries HDMI OUT A : Retry up to 10 times Other output channels: Continue to retry until succeed.
Setting example	Command	@SHR,3,10
	Response	@SHR,3,10
	Description	Setting the HDBT OUT C to retry up to 10 times Completed
Remarks		—

@HAU		HDCP re-encryption
Setting	Command	@HAU, ch_1 (, ch_2, ch_3)
	Response	@HAU, ch_1 (, ch_2, ch_3)
Parameter		<p>ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p>
Setting example	Command	@HAU,1
	Response	@HAU,1
	Description	Setting the HDMI OUT A to re-encrypt HDCP Completed
Remarks		—

@GEQ / @SEQ		Output equalizer
Getting	Command	@GEQ
	Response	@GEQ, level_1 (, level_2)
Setting	Command	@SEQ, ch_1, level_1 (, ch_2, level_2)
	Response	@SEQ, ch_1, level_1 (, ch_2, level_2)
Parameter		level_1-2: Output equalizer 0 = OFF [Default], 1 = LOW, 2 = MIDDLE, 3 = HIGH
		ch_1-2: Output connector 0 = All HDMI outputs, 1 = HDMI OUT A, 2 = HDMI OUT B
Getting example	Command	@GEQ
	Response	@GEQ,0,1
	Description	Getting the output equalizer HDMI OUT A: OFF HDMI OUT B: LOW
Setting example	Command	@SEQ,1,0
	Response	@SEQ,1,0
	Description	Setting the output equalizer of HDMI OUT A to OFF Completed
Remarks		This command is for HDMI output only.

@GDM / @SDM		Output format
Getting	Command	@GDM
	Response	@GDM, mode_A, mode_B , mode_C
Setting	Command	@SDM, ch_1, mode_1 (, ch_2, mode_2, ch_3, mode_3)
	Response	@SDM, ch_1, mode_1 (, ch_2, mode_2, ch_3, mode_3)
Parameter		mode_A : Output format of HDMI OUT A mode_B : Output format of HDMI OUT B mode_C : Output format of HDBT OUT C mode_1-3 : Output format 0 = DVI MODE, 1 = HDMI RGB MODE, 2 = HDMI YCbCr 4:2:2 MODE, 3 = HDMI YCbCr 4:4:4 MODE [Default]
		ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C
Getting example	Command	@GDM
	Response	@GDM,3,0,3
	Description	Getting the output format HDMI OUT B : DVI MODE Other outputs : HDMI YCbCr 4:4:4 MODE
Setting example	Command	@SDM,1,3
	Response	@SDM,1,3
	Description	Setting the HDMI OUT A format to HDMI YCbCr 4:4:4 MODE Completed
Remarks		—

@GOA / @SOA		HDBaseT output long reach mode
Getting	Command	@GOA, ch
	Response	@GOA, ch, mode
Setting	Command	@SOA, ch, mode
	Response	@SOA, ch, mode
Parameter		ch: Output channel "1" fixed
		mode: Setting mode 0 = OFF [Default], 1 = ON
Getting example	Command	@GOA,1
	Response	@GOA,1,0
	Description	Getting the long reach mode of HDBT OUT C OFF
Setting example	Command	@SOA,1,1
	Response	@SOA,1,1
	Description	Setting the long reach mode of HDBT OUT C to ON Completed
Remarks		Long reach mode is for resolutions up to 1080p (24 bit) or dot clock 148 MHz. 【See: @GOT / @SOT Output resolution】 【See: @GDC / @SDC Deep Color output】

@GDC / @SDC		Deep Color output
Getting	Command	@GDC
	Response	@GDC, color_A, color_B, color_C
Setting	Command	@SDC, ch_1, color_1 (, ch_2, color_2, ch_3, color_3)
	Response	@SDC, ch_1, color_1 (, ch_2, color_2, ch_3, color_3)
Parameter		color_A : Color depth of HDMI OUT A color_B : Color depth of HDMI OUT B color_C : Color depth of HDBT OUT C color_1-3 : Color depth 0 = 24-BIT COLOR [Default], 1 = 30-BIT COLOR
		ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C
Getting example	Command	@GDC
	Response	@GDC,0,1,1
	Description	Getting the color depth HDMI OUT A : 24-BIT COLOR Other outputs : 30-BIT COLOR
Setting example	Command	@SDC,1,0
	Response	@SDC,1,0
	Description	Setting the HDMI OUT A to 24-BIT COLOR Completed
Remarks		—

@GFF / @SFF		Window transition effect
Getting	Command	@GFF ↵
	Response	@GFF, main_switching, pinp_switching ↵
Setting	Command	@SFF, window_1, switching_1 (, window_2, switching_2) ↵
	Response	@SFF, window_1, switching_1 (, window_2, switching_2) ↵
Parameter		<p>main_switching : Window transition effect of main window pinp_switching : Window transition effect of PinP window switching_1-2 : Window transition effect 0 = CUT, 1 = FADE OUT-IN, 2 = FREEZE→FADE OUT-IN [Default], 3 = LEFT→RIGHT WIPE, 4 = RIGHT→LEFT WIPE, 5 = TOP→BOTTOM WIPE, 6 = BOTTOM→TOP WIPE</p> <p>For PinP output, WIPE ("3" to "6") cannot be set.</p>
		<p>window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP</p>
Getting example	Command	@GFF ↵
	Response	@GFF,0,2 ↵
	Description	Getting the video input channel switching effect Main window : CUT PinP window : FREEZE→FADE OUT-IN
Setting example	Command	@SFF,1,1 ↵
	Response	@SFF,1,1 ↵
	Description	Setting FADE OUT-IN for main window Completed
Remarks		—

@GFT / @SFT		Window transition speed
Getting	Command	@GFT ↵
	Response	@GFT, main_time, pinp_time ↵
Setting	Command	@SFT, window_1, time_1 (, window_2, time_2) ↵
	Response	@SFT, window_1, time_1 (, window_2, time_2) ↵
Parameter		<p>main_time : Switching speed of main window [ms.] pinp_time : Switching speed of PinP window [ms.] time_1-2 : Switching speed [ms.] 100 to 2000 [Default] 350</p> <p>Set the value by 10 ms. If you set a value other than 0 for the lower 1 digits, these values will be rounded down. (For example, if you set it to 395, the speed is set to 390 ms.)</p> <p>window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP</p>
Getting example	Command	@GFT ↵
	Response	@GFT,400,1000 ↵
	Description	Getting the video input channel switching speed Main window : 400 ms. PinP window : 1000 ms.
Setting example	Command	@SFT,1,400 ↵
	Response	@SFT,1,400 ↵
	Description	Setting the window transition speed of main window to 400 ms. Completed
Remarks		—

@GWC / @SWC		Wipe color
Getting	Command	@GWC, ch ↵
	Response	@GWC, ch, red, green, blue ↵
Setting	Command	@SWC, ch, red, green, blue ↵
	Response	@SWC, ch, red, green, blue ↵
Parameter		<p>ch: Output channel "1" fixed</p> <p>red : Wipe color (Red) green : Wipe color (Green) blue : Wipe color (Blue) 0 to 255 [Default] 0 (Black)</p>
Getting example	Command	@GWC,1 ↵
	Response	@GWC,1,255,255,255 ↵
	Description	Getting the OUT1 wipe color RGB: 255 (white)
Setting example	Command	@SWC,1,255,255,255 ↵
	Response	@SWC,1,255,255,255 ↵
	Description	Setting the wipe colors (RGB) to "255" (white) Completed
Remarks		—

@GCE / @SCE		CEC connection
Getting	Command	@GCE ↵
	Response	@GCE, connect_A, connect_B, connect_C ↵
Setting	Command	@SCE, ch_1, connect_1 (, ch_2, connect_2, ch_3, connect_3) ↵
	Response	@SCE, ch_1, connect_1 (, ch_2, connect_2, ch_3, connect_3) ↵
Parameter		<p>connect_A : CEC connection of HDMI OUT A connect_B : CEC connection of HDMI OUT B connect_C : CEC connection of HDMI OUT C connect_1-3 : CEC connection 0 = Not connected [Default], 1 = Selected video input channel, 2 = IN1, 3 = IN2, 4 = IN3, 5 = IN4, 6 = IN5</p> <p>ch_1-3: Output connector 0 = All outputs, 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p>
Getting example	Command	@GCE ↵
	Response	@GCE,4,0,0 ↵
	Description	Getting the CEC connection HDMI OUT A : Connecting to IN3 Other output channels : Not connected
Setting example	Command	@SCE,1,4 ↵
	Response	@SCE,1,4 ↵
	Description	Setting the HDMI OUT A CEC connection to IN3 Completed
Remarks		—

3.3.6 Input position, size, and masking

@GAP / @SAP		Aspect ratio
Getting	Command	@GAP ↵
	Response	@GAP, aspect_1, aspect_2, aspect_3, aspect_4, aspect_5, aspect_6, aspect_7 ↵
Setting	Command	@SAP, ch_1, aspect_1 (, ch_2, aspect_2···) ↵
	Response	@SAP, ch_1, aspect_1 (, ch_2, aspect_2···) ↵
Parameter		aspect_1-7: Aspect ratio 0 = AUTO-1 [Default], 1 = AUTO-2, 2 = 4:3, 3 = 16:9, 4 = 14:9, 5 = 16:9 LETTER BOX, 6 = 14:9 LETTER BOX, 7 = 4:3 SIDE PANEL, 8 = 14:9 SIDE PANEL, 9 = FULL, 10 = THROUGH ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GAP ↵
	Response	@GAP,0,0,2,0,0,0,0 ↵
	Description	Getting the aspect ratio IN3 : 4:3 Other inputs: AUTO-1
Setting example	Command	@SAP,7,2 ↵
	Response	@SAP,7,2 ↵
	Description	Setting the aspect ratio of IN7 to 4:3 Completed
Remarks		—

@GAR / @SAR		Aspect ratio control
Getting	Command	@GAR ↵
	Response	@GAR, mode_1, mode_2, mode_3, mode_4, mode_5, mode_6, mode_7 ↵
Setting	Command	@SAR, ch_1, mode_1 (, ch_2, mode_2···) ↵
	Response	@SAR, ch_1, mode_1 (, ch_2, mode_2···) ↵
Parameter		mode_1-7: Aspect ratio control 0 = Letter box/Side panel [Default], 1 = Side cut/Top bottom cut ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GAR ↵
	Response	@GAR,0,0,1,0,0,0,0 ↵
	Description	Getting the aspect ratio control IN3 : Side cut/Top bottom cut Other inputs: Letter box/Side panel
Setting example	Command	@SAR,5,1 ↵
	Response	@SAR,5,1 ↵
	Description	Setting the IN5 to Side cut/Top bottom cut Completed
Remarks		—

@GOV / @SOV		Overscan
Getting	Command	@GOV ↵
	Response	@GOV, overscan_1, overscan_2, overscan_3, overscan_4, overscan_5, overscan_6, overscan_7 ↵
Setting	Command	@SOV, ch_1, overscan_1 (, ch_2, overscan_2···) ↵
	Response	@SOV, ch_1, overscan_1 (, ch_2, overscan_2···) ↵
Parameter		overscan_1-7: Overscan [%] 100 to 115 [Default] NTSC/PAL/SDTV: 105 HDTV/PC : 100
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GOV ↵
	Response	@GOV,100,100,105,100,100,100,100 ↵
	Description	Getting the overscan IN3 : 105% Other inputs: 100%
Setting example	Command	@SOV,7,105 ↵
	Response	@SOV,7,105 ↵
	Description	Setting the overscan of IN7 to 105% Completed
Remarks		—

@GNP / @SNP		Image position
Getting	Command	@GNP ↵
	Response	@GNP, h_position_1, v_position_1, h_position_2, v_position_2, h_position_3, v_position_3, h_position_4, v_position_4, h_position_5, v_position_5, h_position_6, v_position_6, h_position_7, v_position_7 ↵
Setting	Command	@SNP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2···) ↵
	Response	@SNP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2···) ↵
Parameter		h_position_1-7: Horizontal image position [pixel] - Horizontal input image size to + Horizontal output resolution [by 1 pixel] [Default] 0
		v_position_1-7: Vertical image position [line] - Vertical input image size to + Vertical output resolution [by 1 line] [Default] 0
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GNP ↵
	Response	@GNP,-50,20,0,0,0,0,0,0,0,0,0,0,0,0,0 ↵
	Description	Getting the input image position IN1 : Horizontal image position is -50 Vertical image position is +20 Other inputs : Horizontal and Vertical image positions are 0
Setting example	Command	@SNP,1,-50,20 ↵
	Response	@SNP,1,-50,20 ↵
	Description	Setting the IN1 horizontal and vertical image positions are to -50 and +20, respectively Completed
Remarks		—

@GNS / @SNS		Image size
Getting	Command	@GNS ↵
	Response	@GNS, h_size_1, v_size_1, h_size_2, v_size_2, h_size_3, v_size_3, h_size_4, v_size_4, h_size_5, v_size_5, h_size_6, v_size_6, h_size_7, v_size_7 ↵
Setting	Command	@SNS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2···) ↵
	Response	@SNS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2···) ↵
Parameter		<p>h_size_1-7: Horizontal image size [pixel] Horizontal output resolution ÷ 4 to Horizontal output resolution × 4 [by 1 pixel] [Default] Horizontal output resolution</p> <p>v_size_1-7: Vertical image size [line] Vertical output resolution ÷ 4 to Vertical output resolution × 4 [by 1 line] [Default] Vertical output resolution</p> <p>ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7</p>
Getting example	Command	@GNS ↵
	Response	@GNS,1925,1084,1920,1080,1920,1080,1920,1080,1920,1080,1920,1080,1920,1080 ↵
	Description	Getting the input image size IN1 : Horizontal image size is 1925 Vertical image size is 1084 Other inputs : Horizontal image size is 1920 Vertical image size is 1080
Setting example	Command	@SNS,1,1925,1084 ↵
	Response	@SNS,1,1925,1084 ↵
	Description	Setting the IN1 horizontal and vertical input image size are 1925 and 1084, respectively Completed
Remarks		—

@GNM / @SNM		Cropping
Getting	Command	@GNM, ch ↵
	Response	@GNM, ch, left, right, top, bottom ↵
Setting	Command	@SNM, ch, left, right, top, bottom ↵
	Response	@SNM, ch, left, right, top, bottom ↵
Parameter		<p>ch: Input channel 1 to 7 = IN1 to 7</p> <p>left: Left side cropping [pixel] Horizontal input image position to Right side cropping [by 1 pixel] [Default] 0</p> <p>right: Right side cropping [pixel] Left side cropping to Horizontal input image position + Horizontal input image size [by 1 pixel] [Default] Horizontal input image size</p> <p>top: Top side cropping [line] Vertical input image position to Bottom side cropping [by 1 line] [Default] 0</p> <p>bottom: Bottom side cropping [line] Top side cropping to Vertical input image position + Vertical input image size [by 1 line] [Default] Vertical input image size</p>
Getting example	Command	@GNM,1 ↵
	Response	@GNM,1,0,1920,0,1080 ↵
	Description	Getting the IN1 input cropping Left side: 0, Right side: 1920, Top side: 0, Bottom side: 1080
Setting example	Command	@SNM,1,0,1920,0,1080 ↵
	Response	@SNM,1,0,1920,0,1080 ↵
	Description	Changing the IN1 input cropping to 0 for left side, 1920 for right side, top side for 0, and 1080 for bottom side Completed
Remarks		—

@IAS		Image initialization
Setting	Command	@IAS, ch_1 (, ch_2···) ↵
	Response	@IAS, ch_1 (, ch_2···) ↵
Parameter		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Setting example	Command	@IAS,1 ↵
	Response	@IAS,1 ↵
	Description	<p>Initializing the following settings in order to display images input from IN1 on the full screen:</p> <ul style="list-style-type: none"> - @GAP / @SAP Aspect ratio - @GOV / @SOV Overscan - @GNP / @SNP Image position - @GNS / @SNS Image size - @GNM / @SNM Cropping <p>Completed</p>
Remarks		—

3.3.7 Input

@GIE / @SIE		Input connector
Getting	Command	@GIE, ch
	Response	@GIE, ch, connector
Setting	Command	@SIE, ch, connector
	Response	@SIE, ch, connector
Parameter		ch: Input channel "5", fixed
		connector: Input connector 0 = HDMI input connector [Default], 1 = HDBaseT input connector
Getting example	Command	@GIE,5
	Response	@GIE,5,0
	Description	Getting the input connector that is used for IN5 HDMI input connector
Setting example	Command	@SIE,5,1
	Response	@SIE,5,1
	Description	Setting the HDBaseT input connector for IN5 Completed
Remarks		—

@GIN / @SIN		DVI input connector signal
Getting	Command	@GIN
	Response	@GIN, in6_signal, in7_signal
Setting	Command	@SIN, ch_1, signal_1 (, ch_2, signal_2)
	Response	@SIN, ch_1, signal_1 (, ch_2, signal_2)
Parameter		signal_1-2: DVI input connector signal in6_signal: in6 input connector signal in7_signal: in7 input connector signal 0 = Analog signal, 1 = Digital signal [Default]
		ch_1-2: Input channel 0 = All inputs, 6 = IN6, 7 = IN7
Getting example	Command	@GIN
	Response	@GIN,0,0
	Description	Getting the DVI input connector signal IN6 and IN7: Analog input signal
Setting example	Command	@SIN,6,1
	Response	@SIN,6,1
	Description	Setting the digital input signal for IN6 Completed
Remarks		—

@GDT / @SDT		No-signal input monitoring
Getting	Command	@GDT
	Response	@GDT, time_1, time_2, time_3, time_4 , time_5 (, time_6, time_7)
Setting	Command	@SDT, ch_1, time_1 (, ch_2, time_2···)
	Response	@SDT, ch_1, time_1 (, ch_2, time_2···)
Parameter		time_1-7: No-signal input monitoring time 0 = OFF, 2000 to 15000 = 2 sec. to 15 sec. [Default] 10000 = 10 sec. Set the value by 100 ms. If you set a value other than 0 for the lower 2 digits, these values will be rounded down. (For example, if you set it to 2955, the monitoring time is set to 2900 ms.)
		ch_1-7: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GDT
	Response	@GDT,6000,10000,10000,4000,4000,4000,4000
	Description	Getting the monitoring time of input video signal IN1 : 6000 ms. (6 seconds) IN2 and IN3 : 10000 ms. (10 seconds) IN4 to IN7 : 4000 ms. (4 seconds)
Setting example	Command	@SDT,3,6000
	Response	@SDT,3,6000
	Description	Setting the IN3 monitoring time to 6000 ms. (6 seconds) Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for "@GIN / @SIN DVI input connector signal".









@GHE / @SHE		HDCP input
Getting	Command	@GHE
	Response	@GHE, hdcp_1, hdcp_2, hdcp_3, hdcp_4, hdcp_5 (,hdcp_6, hdcp_7)
Setting	Command	@SHE, ch_1, hdcp_1 (, ch_2, hdcp_2···)
	Response	@SHE, ch_1, hdcp_1 (, ch_2, hdcp_2···)
Parameter		hdcp_1-7: HDCP input enabled/disabled 0 = DISABLE, 1 = HDCP 1.4 [Default]
		ch_1-7: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GHE
	Response	@GHE,1,1,0,1,1,1,1
	Description	Getting HDCP input enabled/disabled IN3 : Disables HDCP input Other input channels: Enables HDCP 1.4 input
Setting example	Command	@SHE,1,0
	Response	@SHE,1,0
	Description	Setting the IN1 HDCP input to be disabled Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for "@GIN / @SIN DVI input connector signal".

@GIQ / @SIQ		Input equalizer
Getting	Command	@GIQ ↵
	Response	@GIQ, level_1, level_2, level_3, level_4, level_5 ↵
Setting	Command	@SIQ, ch_1, level_1 (, ch_2, level_2···) ↵
	Response	@SIQ, ch_1, level_1 (, ch_2, level_2···) ↵
Parameter		level_1-5: Input equalizer enabled/disabled 0 = OFF, 1 = ON [Default]
		ch_1-5: Input channel 0 = All HDMI inputs, 1 to 5 = IN1 to 5
Getting example	Command	@GIQ ↵
	Response	@GIQ,0,1,1,1,1 ↵
	Description	Getting the input equalizer IN1 : OFF Other inputs: ON
Setting example	Command	@SIQ,3,0 ↵
	Response	@SIQ,3,0 ↵
	Description	Disabling the IN3 input equalizer Completed
Remarks		

@GIA / @SIA		HDBaseT input long reach mode
Getting	Command	@GIA, ch ↵
	Response	@GIA, ch, mode ↵
Setting	Command	@SIA, ch, mode ↵
	Response	@SIA, ch, mode ↵
Parameter		ch: Input channel 5 = HDBT IN5
		mode: Setting mode 0 = OFF [Default], 1 = ON
Getting example	Command	@GIA,5 ↵
	Response	@GIA,5,0 ↵
	Description	Getting the HDBT IN5 long reach mode OFF
Setting example	Command	@SIA,5,1 ↵
	Response	@SIA,5,1 ↵
	Description	Setting the HDBT IN5 long reach mode to ON Completed
Remarks		Long reach mode is for resolutions up to 1080p (24 bit) or dot clock 148 MHz. @GIA/@SIA is valid only if “@GIE / @SIE Input connector” is set to “1” (HDBaseT). 【See: @GVF / @SVF Resolution】 【See: @GDI / @SDI Deep Color】

@GHP / @SHP		HDBaseT power supply
Getting	Command	@GHP ↵
	Response	@GHP, mode ↵
Setting	Command	@SHP, mode ↵
	Response	@SHP, mode ↵
Parameter		mode: Power supply 0 = OFF [Default], 1 = ON
Getting example	Command	@GHP ↵
	Response	@GHP,0 ↵
		Description Getting the HDBaseT power supply OFF
Setting example	Command	@SHP,1 ↵
	Response	@SHP,1 ↵
		Description Enabling the HDBaseT input power supply Completed
Remarks		—

@GAI / @SAI		Analog input signal parameters
Getting	Command	@GAI ↵
	Response	@GAI, type_1 (, type_2) ↵
Setting	Command	@SAI, ch_1, type_1 (, ch_2, type_2) ↵
	Response	@SAI, ch_1, type_1, (, ch_2, type_2) ↵
Parameter		type_1-2: Signal parameters 0 = AUTO [Default], 1 = RGB, 2 = YPbPr, 3 = VIDEO AUTO, 4 = VIDEO, 5 = Y/C ch_1-2: Input channel 0 = All analog inputs, 6 = IN6 (Analog), 7 = IN7 (Analog)
Getting example	Command	@GAI ↵
	Response	@GAI,2,0 ↵
		Description Getting the analog input signal parameters IN6 : YPbPr IN7 : AUTO
Setting example	Command	@SAI,0,2 ↵
	Response	@SAI,0,2 ↵
		Description Setting the all analog input signal parameters to YPbPr Completed
Remarks		These commands are only for analog input. IN6 and IN7 are available only if "0" (Analog signal) is selected for " @GIN / @SIN DVI input connector signal ".

@GID / @SID		Automatic detection of video input interruption
Getting	Command	@GID 
	Response	@GID, detect_1, detect_2, detect_3, detect_4, detect_5, detect_6, detect_7 
Setting	Command	@SID, ch_1, detect_1 (, ch_2, detect_2···) 
	Response	@SID, ch_1, detect_1 (, ch_2, detect_2···) 
Parameter		detect_1-7: Automatic detection 0 = OFF, 1 = ON [Default]
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GID 
	Response	@GID,1,1,1,1,1,0,1 
	Description	Getting the automatic detection of video input interruption IN6 : If input video signal is interrupted, the video output is not turned off instantly. Other inputs : OFF
Setting example	Command	@SID,2,0 
	Response	@SID,2,0 
	Description	Setting IN2 automatic detection to OFF ("0"). Completed
Remarks		—

@GFX / @SFX		Fixing settings for each input signal
Getting	Command	@GFX, ch ↵
	Response	@GFX, ch, mode (, aspect, analog, audio) ↵
Setting	Command	@SFX, ch, mode (, aspect, analog, audio) ↵
	Response	@SFX, ch, mode (, aspect, analog, audio) ↵
Parameter		<p>ch: Input channel 1 to 7 = IN1 to 7</p> <p>mode: Setting mode 0 = SELECTED [Default], 1 = ALL FIXED</p> <p>Only is "0" (SELECTED) is set for the setting mode, the following parameters can be set:</p> <p>aspect: Aspect ratio 0 = OFF [Default], 1 = ON (FIXED)</p> <p>analog: Analog input signal parameters (For digital input, select "0") 0 = OFF, 1 = ON (FIXED) [Default]</p> <p>audio : Audio input level (For analog input, select "0") 0 = OFF, 1 = ON (FIXED) [Default]</p>
Getting example	Command	@GFX,6 ↵
	Response	@GFX,6,0,1,1,0 ↵
	Description	<p>Getting the IN6 fixed setting for each input signal. (Analog inputs)</p> <p>IN1 aspect ratio : Current setting</p> <p>Analog input signal parameters : Setting of each input signal</p> <p>Audio input level : OFF</p>
Setting example	Command	@SFX,2,1 ↵
	Response	@SFX,2,1 ↵
	Description	<p>IN2: Fixing settings for each input to the current settings</p> <p>Completed</p>
Remarks		<ul style="list-style-type: none"> When digital input channel is acquired, "0" is returned for the parameter of analog signal parameters. ("0" is an invalid value.) When analog input channel is acquired, "0" is returned for the parameter of audio input level. ("0" is an invalid value.) Input channels IN6 and IN7: digital input/analog input selectable 【See: @GIN / @SIN DVI input connector signal】

3.3.8 Input timing

@AIS / @AIT		Automatic measurement
Setting	Description	Automatic measurement of the start position and active area
	Command	@AIS, ch ↵
	Response	@AIS, ch ↵
Setting	Description	Auto measurement taking into account aspect ratio
	Command	@AIT, ch (, mode) ↵
	Response	@AIT, ch (, mode) ↵
Parameter		ch: Input channel 6 = IN6 (Analog), 7 = IN7 (Analog) mode: Measurement mode -1 = NEXT ASPECT, 0 = 4:3, 1 = 5:4, 2 = 5:3, 3 = 16:9, 4 = 16:10 If you select "NEXT ASPECT", the next aspect ratio will be selected in order every time the automatic measurement is executed. If you do not set any mode parameter, "NEXT ASPECT" mode will be applied.
Setting example	Command	@AIS,6 ↵
	Response	@AIS,6 ↵
	Description	Enabling the IN6 automatic measurement of the start position and active area Completed
Setting example	Command	@AIT,6,0 ↵
	Response	@AIT,6,0 ↵
	Description	Enabling the IN6 automatic measurement of input timing setting at 4:3 Completed
Setting example	Command	@AIS,6 ↵
	Response	@ERR,7 ↵
	Description	If the automatic measurement fails, an error is returned.
Remarks		These commands are valid only if analog RGB/analog YPbPr signal is input. 【See: @GIN / @SIN DVI input connector signal】

@GHT / @SHT		The total number of horizontal pixels
Getting	Command	@GHT ↵
	Response	@GHT, h_total_1, h_total_2, h_total_3, h_total_4, h_total_5, h_total_6, h_total_7 ↵
Setting	Command	@SHT, ch, h_total ↵
	Response	@SHT, ch, h_total ↵
Parameter		h_total_1-7 / h_total: The total number of horizontal pixels 400 to 4125 (The sampling clock is within the range of 13 MHz to 162 MHz) [Default] Depends on input signal
		ch: Input channel 0 = All analog inputs, 6 = IN6 (Analog), 7 = IN7 (Analog)
Getting example	Command	@GHT ↵
	Response	@GHT,2200,2200,0,2640,1344,1792,0 ↵
	Description	Getting the total number of horizontal pixels "0" is returned to channels without input signal.
Setting example	Command	@SHT,6,1344 ↵
	Response	@SHT,6,1344 ↵
	Description	Setting the IN6 total number of horizontal pixels to "1344" Completed
Setting example	Command	@SHT,6,1344 ↵
	Response	@ERR,3 ↵
	Description	An error is returned because analog RGB signal or analog YPbPr signal is not input.
Remarks		<ul style="list-style-type: none"> Getting command acquires all channels' statuses. Setting commands are valid only if analog RGB/analog YPbPr signal is input. <p style="text-align: right;">【See: @GIN / @SIN DVI input connector signal】</p>

@GHS / @SHS		Horizontal start position
Getting	Command	@GHS ↵
	Response	@GHS, h_start_1, h_start_2, h_start_3, h_start_4, h_start_5, h_start_6, h_start_7 ↵
Setting	Command	@SHS, ch, h_start ↵
	Response	@SHS, ch, h_start ↵
Parameter		h_start_1-7 / h_start: Horizontal start position [pixel] 64 to 2900 (The total number of horizontal pixels - Horizontal active area or less) [Default] Depends on input signal
		ch: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GHS ↵
	Response	@GHS,192,192,496,0,296,0,378 ↵
	Description	Getting the horizontal start position "0" is returned to channels without input signal.
Setting example	Command	@SHS,5,296 ↵
	Response	@SHS,5,296 ↵
	Description	Setting the IN5 horizontal start position to "296" Completed
Setting example	Command	@SHS,6,296 ↵
	Response	@ERR,3 ↵
	Description	An error is returned if no signal is input.
Remarks		Setting command is valid only if signal is input.

@GHD / @SHD		Horizontal active area
Getting	Command	@GHD ↵
	Response	@GHD, h_disp_1, h_disp_2, h_disp_3, h_disp_4, h_disp_5, h_disp_6, h_disp_7 ↵
Setting	Command	@SHD, ch, h_disp ↵
	Response	@SHD, ch, h_disp ↵
Parameter		h_disp_1-7 / h_disp: Horizontal active area [pixel] 64 to 2900 (The total number of horizontal pixels - 64 or less) [Default] Depends on input signal
		ch: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GHD ↵
	Response	@GHD,1920,1920,0,1920,1024,1360,0 ↵
	Description	Getting the horizontal active area "0" is returned to channels without input signal.
Setting example	Command	@SHD,5,1024 ↵
	Response	@SHD,5,1024 ↵
	Description	Setting the IN5 horizontal active area to "1024" Completed
Setting example	Command	@SHD,6,1024 ↵
	Response	@ERR,3 ↵
	Description	An error is returned if no signal is input.
Remarks		Setting command is valid only if signal is input.

@GVS / @SVS		Vertical start position
Getting	Command	@GVS ↵
	Response	@GVS, v_start_1, v_start_2, v_start_3, v_start_4, v_start_5, v_start_6, v_start_7 ↵
Setting	Command	@SVS, ch, v_start ↵
	Response	@SVS, ch, v_start ↵
Parameter		v_start_1-7 / v_start: Vertical start position [line] 10 to 2048 (The total number of vertical lines - Vertical active area or less) [Default] Depends on input signal
		ch: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GVS ↵
	Response	@GVS,40,0,40,40,35,0,24 ↵
	Description	Getting the vertical start position "0" is returned to channels without input signal.
Setting example	Command	@SVS,5,35 ↵
	Response	@SVS,5,35 ↵
	Description	Setting the IN5 vertical start position to "35" Completed
Setting example	Command	@SVS,6,35 ↵
	Response	@ERR,3 ↵
	Description	An error is returned if no signal is input.
Remarks		Setting command is valid only if signal is input.

@GVD / @SVD		Vertical active area
Getting	Command	@GVD ↵
	Response	@GVD, v_disp_1, v_disp_2, v_disp_3, v_disp_4, v_disp_5, v_disp_6, v_disp_7 ↵
Setting	Command	@SVD, ch, v_disp ↵
	Response	@SVD, ch, v_disp ↵
Parameter		v_disp_1-7 / v_disp: Vertical active area [line] 10 to 2048 (The total number of vertical lines - 10 or less) [Default] Depends on input signal
		ch: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GVD ↵
	Response	@GVD,0,1080,1080,900,768,0,900 ↵
	Description	Getting the vertical active area "0" is returned to channels without input signal.
Setting example	Command	@SVD,5,768 ↵
	Response	@SVD,5,768 ↵
	Description	Setting the IN5 vertical active area to "768" Completed
Setting example	Command	@SVD,5,768 ↵
	Response	@ERR,3 ↵
	Description	An error is returned if no signal is input.
Remarks		Setting command is valid only if signal is input.

@GIS / @SIS		Automatic measurement of start position
Getting	Command	@GIS ↵
	Response	@GIS, mode_1, mode_2 ↵
Setting	Command	@SIS, ch_1, mode_1 (, ch_2, mode_2) ↵
	Response	@SIS, ch_1, mode_1 (, ch_2, mode_2) ↵
Parameter		<p>mode_1-2 / mode: Automatic measurement 0 = Not measuring all input signal from the input automatically, 1 = Not measuring the current input signal automatically, 2 = Measuring the current input signal automatically [Default]</p> <p>ch_1-2: Input channel 0 = All analog inputs, 6 = IN6 (Analog), 7 = IN7 (Analog)</p>
Getting example	Command	@GIS ↵
	Response	@GIS,0,2 ↵
	Description	Getting the automatic measurement of start position IN6 : Not measured automatically IN7 : Measured automatically
Setting example	Command	@SIS,6,1 ↵
	Response	@SIS,6,1 ↵
	Description	Setting the signal that is currently input from IN6 to "1" (Not measuring the current input signal automatically) Completed
Remarks		These commands are only for analog input. IN6 and IN7 are available only if "0" (Analog signal) is selected for " @GIN / @SIN DVI input connector signal ". If "1" (Digital signal) is selected, "-1" is returned.

@GSM / @SSM		Automatic setting of input timing
Getting	Command	@GSM ↵
	Response	@GSM, mode ↵
Setting	Command	@SSM, mode ↵
	Response	@SSM, mode ↵
Parameter		<p>mode: Automatic measurement 0 = Not execute, 1 = Execute [Default]</p>
Getting example	Command	@GSM ↵
	Response	@GSM,1 ↵
	Description	Getting the mode of input timing automatic setting Execute
Setting example	Command	@SSM,1 ↵
	Response	@SSM,1 ↵
	Description	Setting the automatic setting of input timing to execute Completed
Remarks		—

@RTT		Initializing/Recalling input timing
Setting	Command	@RTT, ch (, table) ↵
	Response	@RTT, ch (, table) ↵
Parameter		<p>ch: Input channel 1 to 7 = IN1 to 7</p> <p>table: Device table Only for analog input 1 to 99 (Registered device data), 100 to 100+n (Preset device data. "n" varies depending on analog input signal) Only for analog input, specify the device table.</p>
Setting example	Command	@RTT,1 ↵
	Response	@RTT,1 ↵
	Description	Initializing the IN1 input timing to the values detected automatically Completed
Setting example	Command	@RTT,6,2 ↵
	Response	@RTT,6,2 ↵
	Description	Setting the IN6 input timing to the values saved in the device table 2 Completed
Remarks		<p>This command is valid only if signal is input.</p> <p>For analog input, this command is valid only if the device data of input signal is registered.</p>

@STT		Saving analog input timing
Setting	Command	@STT, ch, table (, name) ↵
	Response	@STT, ch, table (, name) ↵
Parameter		<p>ch: Input channel 6 = IN6 (Analog), 7 = IN7 (Analog)</p> <p>table: Device table 1 to 99</p> <p>name: Device table name Up to 14 characters from 20 to 7D of ASCII code If you skip this parameter ("name"), only input timing settings are saved without changing its name. However, if no device table name is currently saved, the resolution is saved automatically as the device table name.</p>
Setting example	Command	@STT,6,2 ↵
	Response	@STT,6,2 ↵
	Description	Saving the IN6 input timing in device table 2 without editing the device table name Completed
Setting example	Command	@STT,6,2,XGA 60Hz ↵
	Response	@STT,6,2,XGA 60Hz ↵
	Description	Saving the current IN6 input timing in device table 2 with the name of "XGA 60Hz" Completed
Remarks		<p>These commands are valid only if analog RGB/analog YPbPr signal is input.</p> <p>【See: @GIN / @SIN DVI input connector signal】</p>

@GTK / @STK		Tracking
Getting	Command	@GTK ↵
	Response	@GTK, track_1, track_2 ↵
Setting	Command	@STK, ch_1, track_1 (, ch_2 , track_2) ↵
	Response	@STK, ch_1, track_1 (, ch_2 , track_2) ↵
Parameter		track_1-2: Tracking 0 to 63 [Default] 0
		ch_1-2: Input channel 0 = All analog inputs, 6 = IN6 (Analog), 7 = IN7 (Analog)
Getting example	Command	@GTK ↵
	Response	@GTK,4,5 ↵
	Description	Getting the tracking If no analog RGB/YPbPr signal is input, "0" is returned.
Setting example	Command	@STK,6,4 ↵
	Response	@STK,6,4 ↵
	Description	Setting the IN6 tracking to "4" Completed
Remarks		These commands are valid only if analog RGB/analog YPbPr signal is input. For IN6 and IN7, if "1" (Digital signal) is selected for " @GIN / @SIN DVI input connector signal ", "-1" is returned.

3.3.9 Input channel automatic switching

@GAU / @SAU		Signal ON priority
Getting	Command	@GAU, window
	Response	@GAU, window, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority
Setting	Command	@SAU, window_1, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority (,window_2, in1_priority···)
	Response	@SAU, window_1, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority (,window_2, in1_priority···)
Parameter		window: Window 1 = MAIN, 2 = PinP window _1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP in1_priority-in7_priority: Priority of input channel 0 = OFF, 1 to 7 = Priority (Highest) to = Priority (Lowest)
Getting example	Command	@GAU,1
	Response	@GAU,1,1,2,3,4,5,6,7
	Description	Getting the signal ON priority of main window IN1>IN2>···>IN7
Setting example	Command	@SAU,1,7,6,5,4,3,2,1
	Response	@SAU,1,7,6,5,4,3,2,1
	Description	Setting the signal ON priority of main window to IN7>IN6>···>IN1 Completed
Remarks		—

@GOF / @SOF		Signal OFF priority
Getting	Command	@GOF, out
	Response	@GOF, window, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority
Setting	Command	@SOF, window _1, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority (,window _2, in1_priority···)
	Response	@SOF, out_1, in1_priority, in2_priority, in3_priority, in4_priority, in5_priority, in6_priority, in7_priority (, out_2, in1_priority···)
Parameter		window: Window 1 = MAIN, 2 = PinP window _1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP in1_priority-in7_priority: Priority of input channel 0 = OFF, 1 to 7 = Priority (Highest) to Priority (Lowest)
Getting example	Command	@GOF,1
	Response	@GOF,1,1,2,3,4,5,6,7
	Description	Getting the signal OFF priority of main window IN1>IN2>···>IN7
Setting example	Command	@SOF,1,7,6,5,4,3,2,1
	Response	@SOF,1,7,6,5,4,3,2,1
	Description	Setting the signal OFF priority of main window to IN7>IN4>···>IN1 Completed
Remarks		—

@GMT / @SMT		Ignoring duration after automatic switching
Getting	Command	@GMT ↵
	Response	@GMT, main_time, pinp_time ↵
Setting	Command	@SMT, window _1, time_1 (,window _2, time_2) ↵
	Response	@SMT, window _1, time_1 (,window _2, time_2) ↵
Parameter		main_time: Ignoring duration of main window pinp_time : Ignoring duration of PinP window time_1-2 : Ignoring duration 0 to 999999 = 0 ms. to 999 s 999 ms. [Default] 0 s 000 ms.
		window _1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GMT ↵
	Response	@GMT,2000,1000 ↵
	Description	Getting the ignoring duration after input channel automatic switching Main window : 2000 ms. (2 seconds) PinP : 1000 ms. (1 seconds)
Setting example	Command	@SMT,1,10000 ↵
	Response	@SMT,1,10000 ↵
	Description	Setting the ignoring duration of main window after input channel automatic switching to 10000 ms. (10 seconds) Completed
Remarks		—

@GAD / @SAD		Channel switching mode of automatic switching
Getting	Command	@GAD ↵
	Response	@GAD, mode ↵
Setting	Command	@SAD, ch, mode ↵
	Response	@SAD, ch, mode ↵
Parameter		mode: Channel switching mode 0 = VIDEO, 1 = AUDIO, 2 = V&A [Default]
		ch: Output channel "1" fixed
Getting example	Command	@GAD ↵
	Response	@GAD,2 ↵
	Description	Getting the channel switching mode of input channel automatic switching OUT: V&A
Setting example	Command	@SAD,1,0 ↵
	Response	@SAD,1,0 ↵
	Description	Setting the channel switching mode of input channel automatic switching to "0" (VIDEO) Completed
Remarks		—

3.3.10 Picture controls

@GOB / @SOB		Output brightness
Getting	Command	@GOB ↵
	Response	@GOB, main_bright, pinp_bright ↵
Setting	Command	@SOB, window _1, bright_1 (,window _2, bright_2) ↵
	Response	@SOB, window _1, bright_1 (,window _2, bright_2) ↵
Parameter		main_bright : Output brightness of main window [%] pinp_bright : Output brightness of PinP window [%] bright_1-2 : Output brightness [%] 80 to 120 [Default] 100
		window _1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GOB ↵
	Response	@GOB,110,100 ↵
	Description	Getting the output brightness Main window : 110% PinP window : 100%
Setting example	Command	@SOB,1,110 ↵
	Response	@SOB,1,110 ↵
	Description	Setting the brightness of main window to 110% Completed
Remarks		—

@GOC / @SOC		Output contrast
Getting	Command	@GOC, window
	Response	@GOC, window, red_1, green_1, blue_1
Setting	Command	@SOC, window_1, red_1, green_1, blue_1 (,window_2, red_2, green_2, blue_2)
	Response	@SOC, window_1, red_1, green_1, blue_1 (,window_2, red_2, green_2, blue_2)
Parameter		window: Window 1 = MAIN, 2 = PinP window_1-2: Window 0 = All windows, 1 = OUT, 2 = PinP red_1-2 : Output contrast (Red) [%] green_1-2 : Output contrast (Green) [%] blue_1-2 : Output contrast (Blue) [%] 0 to 200 [Default] 100
Getting example	Command	@GOC,1
	Response	@GOC,1,105,100,95
	Description	Getting the output contrast of main window Red: 105%, Green: 100%, Blue: 95%
Setting example	Command	@SOC,1,105,100,95
	Response	@SOC,1,105,100,95
	Description	Setting the output contrast of main window to 105% for red, 100% for green, 95% for blue Completed
Remarks		—

@GGM / @SGM		Output gamma
Getting	Command	@GGM
	Response	@GGM, main_gamma, pinp_gamma
Setting	Command	@SGM, window_1, gamma_1 (,window_2, gamma_2)
	Response	@SGM, window_1, gamma_1 (,window_2, gamma_2)
Parameter		main_gamma: Gamma of main window pinp_gamma : Gamma of PinP window gamma_1-2 : Gamma 1 to 30 = 0.1 to 3.0 [Default] 10 = 1.0 window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Getting example	Command	@GGM
	Response	@GGM,22,30
	Description	Getting the gamma Main window : 2.2 PinP window : 3.0
Setting example	Command	@SGM,1,22
	Response	@SGM,1,22
	Description	Setting the gamma of main window to 2.2 Completed
Remarks		—

@ODC		Output video correction initialization
Setting	Command	@ODC, window ↵
	Response	@ODC, window ↵
Parameter		window_1-2: Window 0 = All windows, 1 = MAIN, 2 = PinP
Setting example	Command	@ODC,1 ↵
	Response	@ODC,1 ↵
	Description	Initializing the following picture control settings: - @GOB / @SOB Output brightness - @GOC / @SOC Output contrast - @GGM / @SGM Output gamma Completed
Remarks		—

@GFL / @SFL		Input sharpness
Getting	Command	@GFL ↵
	Response	@GFL, sharp_1, sharp_2, sharp_3, sharp_4, sharp_5, sharp_6, sharp_7 ↵
Setting	Command	@SFL, ch_1, sharp_1 (, ch_2, sharp_2···) ↵
	Response	@SFL, ch_1, sharp_1 (, ch_2, sharp_2···) ↵
Parameter		sharp_1-7: Sharpness -5 to +15 [Default] 0 ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GFL ↵
	Response	@GFL,5,0,0,0,0,0,0 ↵
	Description	Getting the sharpness IN1 : "+5" Other input channels: "0"
Setting example	Command	@SFL,1,5 ↵
	Response	@SFL,1,5 ↵
	Description	Getting the IN1 sharpness to "+5" Completed
Remarks		—

@GIB / @SIB		Input brightness
Getting	Command	@GIB
	Response	@GIB, bright_1, bright_2, bright_3, bright_4, bright_5, bright_6, bright_7
Setting	Command	@SIB, ch_1, bright_1 (, ch_2, bright_2···)
	Response	@SIB, ch_1, bright_1 (, ch_2, bright_2···)
Parameter		bright_1-7: Input brightness [%] 80 to 120 [Default] 100 ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GIB
	Response	@GIB,110,100,100,100,100,100,100
	Description	Getting the input brightness IN1 : 110% Other input channels: 100%
Setting example	Command	@SIB,3,110
	Response	@SIB,3,110
	Description	Setting the IN3 brightness to 110% Completed
Remarks		—

@GIC / @SIC		Input contrast
Getting	Command	@GIC, ch
	Response	@GIC, ch, red, green, blue
Setting	Command	@SIC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2···)
	Response	@SIC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2···)
Parameter		ch: Input channel 1 to 7 = IN1 to 7 ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7 red / red_1-7 : Input contrast (Red) [%] green / green_1-7 : Input contrast (Green) [%] blue / blue_1-7: Input contrast (Blue) [%] 0 to 200 [Default] 100
Getting example	Command	@GIC,3
	Response	@GIC,3,105,100,95
	Description	Getting the IN3 input contrast Red: 105%, Green: 100%, Blue: 95%
Setting example	Command	@SIC,3,105,100,95
	Response	@SIC,3,105,100,95
	Description	Setting the IN3 input contrast to 105% for red, 100% for green, 95% for blue Completed
Remarks		—

@GHU / @SHU		Input hue
Getting	Command	@GHU
	Response	@GHU, hue _1, hue _2, hue _3, hue _4, hue _5, hue _6, hue _7
Setting	Command	@SHU, ch_1, hue_1 (, ch_2, hue_2···)
	Response	@SHU, ch_1, hue_1 (, ch_2, hue_2···)
Parameter		hue_1-7: Input hue [°] 0 to 359 [Default] 0
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GHU
	Response	@GHU,60,0,0,0,0,0,0
	Description	Getting the input hue IN1 : 60° Other inputs: 0°
Setting example	Command	@SHU,1,60
	Response	@SHU,1,60
	Description	Setting the IN1 hue to 60° Completed
Remarks		—

@GST / @SST		Input saturation
Getting	Command	@GST
	Response	@GST, saturation_1, saturation_2, saturation_3, saturation_4, saturation_5, saturation_6, saturation_7
Setting	Command	@SST, ch_1, saturation_1 (, ch_2, saturation_2···)
	Response	@SST, ch_1, saturation_1 (, ch_2, saturation_2···)
Parameter		saturation_1-7: Input saturation [%] 0 to 200 [Default] 100
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GST
	Response	@GST,100,100,100,100,105,100,100
	Description	Getting the input saturation IN5 : 105% Other inputs: 100%
Setting example	Command	@SST,5,105
	Response	@SST,5,105
	Description	Setting the IN5 saturation to 105% Completed
Remarks		—

@GSU / @SSU		Input black level
Getting	Command	@GSU
	Response	@GSU, setup_1, setup_2, setup_3, setup_4, setup_5, setup_6, setup_7
Setting	Command	@SSU, ch_1, setup_1 (, ch_2, setup_2···)
	Response	@SSU, ch_1, setup_1 (, ch_2, setup_2···)
Parameter		setup_1-7: Input black level [%] -20 to 20 = -20 × 0.5 (-10.0%) to +20 × 0.5 (+10.0%) [Default] 0 = ±0.0%
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GSU
	Response	@GSU,0,0,0,0,15,0,0
	Description	Getting the input black level IN5 : +7.5% Other inputs: 0%
Setting example	Command	@SSU,5,15
	Response	@SSU,5,15
	Description	Setting the IN5 black level to +7.5% Completed
Remarks		—

@IDC		Input video correction initialization
Setting	Command	@IDC, ch_1 (, ch_2···)
	Response	@IDC, ch_1 (, ch_2···)
Parameter		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Setting example	Command	@IDC,1
	Response	@IDC,1
	Description	Initializing the following picture control settings of IN1: - @GFL / @SFL Input sharpness - @GIB / @SIB Input brightness - @GIC / @SIC Input contrast - @GHU / @SHU Input hue - @GST / @SST Input saturation - @GSU / @SSU Input black level Completed
Remarks		—

3.3.11 Output audio

@GUC / @SUC		Audio output
Getting	Command	@GUC
	Response	@GUC, audio_a, audio_b, audio_c, analog_audio, speaker_1, speaker_2
Setting	Command	@SUC, out_1, audio_1, (,out_2, audio_2···)
	Response	@SUC, out_1, audio_1, (,out_2, audio_2···)
Parameter		<p>audio_a: Audio output of HDMI OUT A audio_b: Audio output of HDMI OUT B audio_c: Audio output of HDBT OUT C analog_audio: Analog audio output connector speaker_1 : SPEAKER 1 output connector speaker_2 : SPEAKER 2 output connector audio_1-6 : Audio output 0 = Not output, 1 = Output [Default]</p> <p>out_1-6: Audio output connector 0 = All outputs, 1 = Audio output of HDMI OUT A 2 = Audio output of HDMI OUT B 3 = Audio output of HDBT OUT C 4 = Analog audio output connector 5 = SPEAKER 1 output connector 6 = SPEAKER 2 output connector</p>
Getting example	Command	@GUC
	Response	@GUC,1,0,0,0,0
	Description	Getting the audio output connectors Only HDMI OUT A
Setting example	Command	@SUC,1,1
	Response	@SUC,1,1
	Description	Setting the HDMI OUT A as an audio output connector Completed
Remarks		—

@GAV / @SAV		Audio output level
Getting	Command	@GAV, ch ↵
	Response	@GAV, ch, d_level, a_level, s1_level, s2_level ↵
Setting	Command	@SAV, ch, out, level ↵
	Response	@SAV, ch, level ↵
Parameter		<p>ch: Output channel "1" fixed</p> <p>d_level : Audio output level of HDMI and HDBaseT output connectors [dB] a_level : Audio output level of analog audio output connector [dB] s1_level: Audio output level of SPEAKER 1 output connector [dB] s2_level: Audio output level of SPEAKER 2 output connector [dB] level : Audio output level [dB] -100 to +10 [Default] ±0</p> <p>out: Audio output connector 1 = HDMI and HDBaseT output connectors 2 = Analog audio output connector 3 = SPEAKER 1 output connector 4 = SPEAKER 2 output connector</p>
Getting example	Command	@GAV,1 ↵
	Response	@GAV,1,-4,0,0,2 ↵
	Description	<p>Getting the audio output level</p> <ul style="list-style-type: none"> - HDMI and HDBaseT output connectors: -4 dB - Analog audio output connector : 0 dB - SPEAKER 1 output connector : 0 dB - SPEAKER 2 output connector : 2 dB
Setting example	Command	@SAV,1,1,-4 ↵
	Response	@SAV,1,1,-4 ↵
	Description	<p>Setting audio output level of HDMI and HDBaseT output connectors to -4 dB Completed</p>
Remarks		Unmuted if changing output level.

@SOL		Adjusting audio output level
Setting	Command	@SOL, ch, out, updown ↵
	Response	@SOL, ch, out, updown ↵
Parameter		<p>ch: Output channel "1" fixed</p> <p>out: Audio output connector 1 = HDMI and HDBaseT output connectors 2 = Analog audio output connector 3 = SPEAKER 1 output connector 4 = SPEAKER 2 output connector</p> <p>updown: Relative value [dB] -110 to +110 The specified value is added to the current audio output level. If the total value exceeds the limit value (-100 dB to +10 dB), the limit value will be applied.</p>
Setting example	Command	@SOL,1,1,-1 ↵
	Response	@SOL,1,1,-1 ↵
	Description	Decreasing audio output level of HDMI and HDBaseT output connectors by 1 dB Completed
Remarks		Unmuted if changing output level.

@GOL		Audio output limit status
Getting	Command	@GOL, ch ↵
	Response	@GOL, ch, d_limit, a_limit, s1_limit, s2_limit ↵
Parameter		<p>ch: Output channel "1" fixed</p> <p>d_limit: Limit status of HDMI and HDBaseT output connectors a_limit: Limit status of analog audio output connector s1_limit: Limit status of SPEAKER 1 output connector s2_limit: Limit status of SPEAKER 2 output connector -1 = Minimum value (-100 dB), 0 = Not reach limit value (Between -99 and +9) 1 = Maximum value (+10 dB)</p>
Getting example	Command	@GOL,1 ↵
	Response	@GOL,1,1,1,1,1 ↵
	Description	Getting the limit status of audio output level Audio output level of all output connectors: Maximum value
Remarks		—

@GTR / @STR		Tone control
Getting	Command	@GTR ↵
	Response	@GTR, sp1_treble, sp1_bass, sp2_treble, sp2_bass ↵
Setting	Command	@STR, ch, treble, bass ↵
	Response	@STR, ch, treble, bass ↵
Parameter		sp1_treble : Treble of SPEAKER 1 output connector [dB] sp1_bass : Bass of SPEAKER 1 output connector [dB] sp2_treble : Treble of SPEAKER 2 output connector [dB] sp2_bass : Bass of SPEAKER 2 output connector [dB] treble : Treble [dB] bass : Bass [dB] -10 to 10 [Default] ±0 ch: Output channel 1 = SPEAKER 1 output connector, 2 = SPEAKER 2 output connector
Getting example	Command	@GTR ↵
	Response	@GTR,10,0,-10,0 ↵
	Description	Getting the tone control settings SPEAKER 1 output connector : Treble 10 dB, Bass 0 dB SPEAKER 2 output connector : Treble -10 dB, Bass 0 dB
Setting example	Command	@STR,2,10,10 ↵
	Response	@STR,2,10,10 ↵
	Description	Setting treble and bass of SPEAKER 2 output connector to 10 dB Completed
Remarks		—

@GAM / @SAM		Mute
Getting	Command	@GAM ↵
	Response	@GAM, mute ↵
Setting	Command	@SAM, ch, mute ↵
	Response	@SAM, ch, mute ↵
Parameter		mute: Audio output mute 0 = OFF [Default], 1 = ON ch: Output channel "1" fixed
Getting example	Command	@GAM ↵
	Response	@GAM,1 ↵
	Description	Getting the audio output mute ON
Setting example	Command	@SAM,1,1 ↵
	Response	@SAM,1,1 ↵
	Description	Muting audio output Completed
Remarks		—

@GLO / @SLO		Output Lip Sync
Getting	Command	@GLO ↵
	Response	@GLO, time ↵
Setting	Command	@SLO, ch, time ↵
	Response	@SLO, ch, time ↵
Parameter		time: Output Lip Sync [ms.] 0 to 128 [Default] 0
		ch: Output channel "1" fixed
Getting example	Command	@GLO ↵
	Response	@GLO,2 ↵
	Description	Getting the output Lip Sync 2 ms.
Setting example	Command	@SLO,1,2 ↵
	Response	@SLO,1,2 ↵
	Description	Setting the output Lip Sync to 2 ms. Completed
Remarks		For input and output Lip Sync, up to 128 ms. can be set as well. The total Lip Sync is up to 256. 【See: @GLY / @SLY Input Lip Sync】

@GSF / @SSF		Sampling frequency
Getting	Command	@GSF ↵
	Response	@GSF, frequency ↵
Setting	Command	@SSF, ch, frequency ↵
	Response	@SSF, ch, frequency ↵
Parameter		frequency: Sampling frequency 0 = AUTO-A [Default], 1 = AUTO-B, 2 = AUTO-C 3 = 32 kHz, 4 = 44.1 kHz, 5 = 48 kHz, 6 = 88.2 kHz, 7 = 96 kHz, 8 = 192 kHz
		ch: Output channel "1" fixed
Getting example	Command	@GSF ↵
	Response	@GSF,2 ↵
	Description	Getting the sampling frequency AUTO-C
Setting example	Command	@SSF,1,4 ↵
	Response	@SSF,1,4 ↵
	Description	Setting the sampling frequency to 44.1 kHz Completed
Remarks		—

@GFD		Actual sampling frequency
Getting	Command	@GFD
	Response	@GFD, frequency
Parameter		frequency_1-2: Sampling frequency 1 = 32 kHz, 2 = 44.1 kHz, 3 = 48 kHz [Default], 4 = 88.2 kHz, 5 = 96 kHz, 6 = 192 kHz
Getting example	Command	@GFD
	Response	@GFD,5
	Description	Getting the actual sampling frequency 96 kHz
Remarks		If “ @GSF / @SSF Sampling frequency ” is set to “AUTO-A”, “AUTO-B”, or “AUTO-C”, the sampling frequency that is output actually is returned. For other frequencies, the set sampling frequency is returned.

@GMI / @SMI		Audio mixing
Getting	Command	@GMI, ch, output_1
	Response	@GMI, ch, output_1, digital_in, analog_in, line_in, mic_in
Setting	Command	@SMI, ch, output, digital_in, analog_in, line_in, mic_in
	Response	@SMI, ch, output, digital_in, analog_in, line_in, mic_in
Parameter		ch: Output channel “1” fixed
		output_1: Audio output connector 1 = Digital output, 2 = Analog output, 3 = SPEAKER 1 output, 4 = SPEAKER 2 output
		output: Audio output connector 0 = All outputs, 1 = Digital output, 2 = Analog output, 3 = SPEAKER 1 output, 4 = SPEAKER 2 output
		digital_in : Digital input analog_in: Analog input line_in: LINE input mic_in : MIC input 0 = Mixing OFF, 1 = Mixing ON [Default]
Getting example	Command	@GMI,1,1
	Response	@GMI,1,1,1,0,1,0
	Description	Getting the audio mixing mode of digital output Digital input and LINE input : ON Analog input and MIC input : OFF
Setting example	Command	@SMI,1,3,1,1,1,1
	Response	@SMI,1,3,1,1,1,1
	Description	Setting all inputs audio mixing of SPEAKER 1 output to ON Completed
Remarks		—

@GMD / @SMD		Multi-channel audio output
Getting	Command	@GMD ↵
	Response	@GMD, out ↵
Setting	Command	@SMD, ch, out ↵
	Response	@SMD, ch, out ↵
Parameter		out: Multi-channel audio output 0 = CH1/CH2 STEREO, 1 = CH3/CH4 STEREO, 2 = CH5/CH6 STEREO, 3 = CH7/CH8 STEREO, 4 = CH1/CH2 MONO, 5 = CH3/CH4 MONO, 6 = CH5/CH6 MONO, 7 = CH7/CH8 MONO, 8 = DOWN MIX [Default]
		ch: Output channel "1" fixed
Getting example	Command	@GMD ↵
	Response	@GMD,4 ↵
		Getting the multi-channel audio output Outputs monaural audio of CH1/CH2.
Setting example	Command	@SMD,1,8 ↵
	Response	@SMD,1,8 ↵
		Setting to output downmixed audio Completed
Remarks		—

@GCH / @SCH		Multi-channel audio output priority
Getting	Command	@GCH ↵
	Response	@GCH, out ↵
Setting	Command	@SCH, ch, out ↵
	Response	@SCH, ch, out ↵
Parameter		out: Multi-channel audio output priority 0 = 2CH, 1 = MULTI [Default]
		ch: Output channel "1" fixed
Getting example	Command	@GCH ↵
	Response	@GCH,0 ↵
		Getting the multi-channel audio output priority 2CH audio has a priority.
Setting example	Command	@SCH,1,1 ↵
	Response	@SCH,1,1 ↵
		Setting the multi-channel audio to have a priority Completed
Remarks		—

@GPO / @SPO		SPEAKER 2 output connector
Getting	Command	@GPO, ch ↵
	Response	@GPO, ch, speaker ↵
Setting	Command	@SPO, ch, speaker ↵
	Response	@SPO, ch, speaker ↵
Parameter		ch: Output channel "1" fixed
		speaker: SPEAKER 2 output connector 0 = 4-16 Ω (Lo-Z) connector [Default], 1 = 100 V (Hi-Z) connector
Getting example	Command	@GPO,1 ↵
	Response	@GPO,1,1 ↵
	Description	Getting the SPEAKER 2 output connector 100 V (Hi-Z)
Setting example	Command	@SPO,1,1 ↵
	Response	@SPO,1,1 ↵
	Description	Setting the SPEAKER 2 to 100 V (Hi-Z) output connector Completed
Remarks		—

@GAT / @SAT		Test tone
Getting	Command	@GAT ↵
	Response	@GAT, tone, speaker ↵
Setting	Command	@SAT, ch, tone, speaker ↵
	Response	@SAT, ch, tone, speaker ↵
Parameter		tone: Test tone 0 = OFF [Default], 1 = 1 kHz, 2 = 400 Hz
		speaker: Speaker 0 = ALL [Default], 1 = FRONT L/R, 2 = REAR L/R, 3 = REAR L/R CENTER, 4 = FRONT LEFT, 5 = FRONT RIGHT, 6 = LOW FREQUENCY EFFECT, 7 = FRONT CENTER, 8 = REAR LEFT, 9 = REAR RIGHT, 10 = REAR LEFT CENTER, 11 = REAR RIGHT CENTER
		ch: Output channel "1" fixed
Getting example	Command	@GAT ↵
	Response	@GAT,2,1 ↵
	Description	Getting the test tone output Outputs test tone (400 Hz) to FRONT L/R.
Setting example	Command	@SAT,1,1,0 ↵
	Response	@SAT,1,1,0 ↵
	Description	Setting all speakers to output 1kHz test tone (1kHz) Completed
Remarks		—

3.3.12 Input audio

@GAS / @SAS		Audio input
Getting	Command	@GAS ↵
	Response	@GAS, select_1, select_2, select_3, select_4, select_5 (, select_6, select_7) ↵
Setting	Command	@SAS, ch_1, select_1 (, ch_2, select_2···) ↵
	Response	@SAS, ch_1, select_1 (, ch_2, select_2···) ↵
Parameter		select_1-7: Audio input 0 = DIGITAL [Default], 1 = ANALOG1, 2 = ANALOG2, 3 = ANALOG3
		ch_1-5: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GAS ↵
	Response	@GAS,1,0,0,0,0,0,0 ↵
	Description	Getting the audio input IN1 : Analog audio 1 Other input channels: Digital audio
Setting example	Command	@SAS,3,1 ↵
	Response	@SAS,3,1 ↵
	Description	Setting the IN3 audio input to ANALOG1 Completed
Remarks		—

@GIO / @SIO		Audio input level offset (For each audio input connector)
Getting	Command	@GIO ↵
	Response	@GIO, dlevel_1, dlevel_2, dlevel_3, dlevel_4, dlevel_5, dlevel_6, dlevel_7, alevel_1, alevel_2, alevel_3, llevel, mlevel ↵
Setting	Command	@SIO, ch_1, level_1 (, ch_2, level_2···) ↵
	Response	@SIO, ch_1, level_1 (, ch_2, level_2···) ↵
Parameter		dlevel_1-7 : Digital audio input level offset [dB] alevel_1-3 : Analog audio input level offset [dB] llevel : LINE input level offset [dB] mlevel : MIC input level offset [dB] -100 to 10 [Default] 0 ch_1-11: Audio input channel 0 = All inputs, 1 to 7 = IN1 to 7, 8 to 10 = ANALOG1 to 3, 11 = LINE, 12 = MIC level_1-11: Audio input level offset [dB] -100 to 10 [Default] 0
Getting example	Command	@GIO ↵
	Response	@GIO,0,0,0,0,-4,0,0,10,0,0,0,-8 ↵
	Description	Getting the audio input level offset IN5: -4 dB, ANALOG1: 10dB, MIC: -8dB, Other inputs: ±0 dB
Setting example	Command	@SIO,5,-8 ↵
	Response	@SIO,5,-8 ↵
	Description	Setting the IN5 digital audio input level offset to -8 dB Completed
Remarks		—

@GSO / @SSO		Audio input level offset (For each video input channel)
Getting	Command	@GSO ↵
	Response	@GSO, level_1, level_2, level_3, level_4, level_5, level_6, level_7 ↵
Setting	Command	@SSO, ch_1, level_1 (, ch_2, level_2···) ↵
	Response	@SSO, ch_1, level_1 (, ch_2, level_2···) ↵
Parameter		level_1-7: Digital audio input level offset [dB] -100 to 10 [Default] 0 ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GSO ↵
	Response	@GSO,0,0,0,0,-4,0,0 ↵
	Description	Getting the audio input level offset IN5 : -4 dB Other inputs: 0 dB
Setting example	Command	@SSO,5,-8 ↵
	Response	@SSO,5,-8 ↵
	Description	Setting the IN5 digital audio input level offset to -8 dB Completed
Remarks		—

@SDZ		Adjusting audio input level
Setting	Command	@SDZ, ch_1, updown_1 (, ch_2, updown_2···)
	Response	@SDZ, ch_1, pdown_1 (, ch_2, updown_2···)
Parameter		ch_1-11: Audio input channel 0 = All inputs, 1 to 7 = IN1 to 7, 8 to 10 = ANALOG1 to 3, 11 = LINE, 12 = MIC
		updown_1-11: Relative value [dB] -110 to +110 The specified value is added to the current audio input level offset. If the total value exceeds the limit value (-100 dB to +10 dB), the limit value will be applied.
Setting example	Command	@SDZ,1,-1
	Response	@SDZ,1,-1
	Description	Decreasing IN1 digital audio input level by 1 dB Completed
Remarks		—

@GDZ		Audio input limit status
Getting	Command	@GDZ
	Response	@GDZ, dlevel_1, dlevel_2, dlevel_3, dlevel_4, dlevel_5, dlevel_6, dlevel_7, alevel_1, alevel_2, alevel_3, llevel, mlevel
Parameter		dlevel_1-7 : Limit status of digital audio input level alevel_1-3 : Limit status of analog audio input level llevel : Limit status of LINE input level mlevel : Limit status of MIC input level in_1-7 : Limit status -1 = Minimum value (-100 dB), 0 = Not reach limit value (Between -99 and +9), 1 = Maximum value (+10 dB)
Getting example	Command	@GDZ
	Response	@GDZ,1,0,0,0,0,0,0,0,0,0,0
	Description	Getting the limit status of audio input level IN1 : Digital audio input level: Maximum value Other inputs: Not reach limit value (Between -99 and +9)
Remarks		—

@GLR / @SLR		LINE input reference level
Getting	Command	@GLR ↵
	Response	@GLR, level ↵
Setting	Command	@SLR, level ↵
	Response	@SLR, level ↵
Parameter		level: LINE input reference level 0 = 0 dBu, 1 = -10 dBu [Default], 2 = -20 dBu, 3 = -30 dBu, 4 = -40 dBu
Getting example	Command	@GLR ↵
	Response	@GLR,2 ↵
	Description	Getting the LINE input reference level -20 dBu
Setting example	Command	@SLR,0 ↵
	Response	@SLR,0 ↵
	Description	Setting the LINE input reference level to 0 dBu Completed
Remarks		—

@GMR / @SMR		MIC input reference level
Getting	Command	@GMR ↵
	Response	@GMR, level ↵
Setting	Command	@SMR, level ↵
	Response	@SMR, level ↵
Parameter		level: MIC input reference level 0 = 0 dBu, 1 = -10 dBu, 2 = -20 dBu, 3 = -30 dBu, 4 = -40 dBu, 5 = -50 dBu, 6 = -60 dBu [Default], 7 = -70 dBu
Getting example	Command	@GMR ↵
	Response	@GMR,2 ↵
	Description	Getting the MIC input reference level -20 dBu
Setting example	Command	@SMR,0 ↵
	Response	@SMR,0 ↵
	Description	Setting the MIC input reference level to 0 dBu Completed
Remarks		—

@GCS / @SCS		Compressor
Getting	Command	@GCS, ch
	Response	@GCS, ch, threshold, comp_ratio, comp_release, exp_ratio, exp_release
Setting	Command	@SCS, ch, threshold, comp_ratio, comp_release, exp_ratio, exp_release
	Response	@SCS, ch, threshold, comp_ratio, comp_release, exp_ratio, exp_release
Parameter		<p>ch: Input channel 1 = LINE, 2 = MIC</p> <p>threshold: Threshold 0 = 0 dB [Default], 1 = -4 dB, 2 = -8 dB, 3 = -12 dB, 4 = -16 dB, 5 = -20 dB, 6 = -24 dB, 7 = -28 dB, 8 = -32 dB, 9 = -36 dB, 10 = -40 dB</p> <p>comp_ratio: Compressor ratio exp_ratio : Expander ratio 0 = 1:1 [Default], 1 = 1.1:1, 2 = 2:1, 3 = 3:1, 4 = 4:1, 5 = 5.1:1, 6 = 6:1, 7 = 7.1:1, 8 = 8:1, 9 = LIMIT</p> <p>comp_release : Release time of compressor exp_release : Release time of expander 0 = 1 ms. [Default], 1 = 100 ms., 2 = 200 ms., 3 = 300 ms., 4 = 400 ms., 5 = 500 ms., 6 = 600 ms., 7 = 700 ms., 8 = 800 ms., 9 = 900 ms., 10 = 1000 ms.</p>
Getting example	Command	@GCS,2
	Response	@GCS,2,5,0,0,0,0
	Description	<p>Getting the compressor mic</p> <p>- Threshold : -20 dB</p> <p>- Compressor ratio : 1:1,</p> <p>- Expander ratio : 1:1</p> <p>- Compressor and expander relax time : 1 ms.</p>
Setting example	Command	@SCS,1,3,2,0,0,0
	Response	@SCS,1,3,2,0,0,0
	Description	<p>Setting values as follows:</p> <p>- Line threshold : -12 dB</p> <p>- Compressor ratio : 2:1</p> <p>- Expander ratio : 1:1</p> <p>- Compressor and expander relax time : 1 ms.</p> <p>Completed</p>
Remarks		—

@GAQ / @SAQ		Equalizer
Getting	Command	@GAQ, ch ↵
	Response	@GAQ, ch, freq_1, gain_1, freq_2, gain_2, freq_3, gain_3, freq_4, gain_4, freq_5, gain_5, freq_6, gain_6, freq_7, gain_7 ↵
Setting	Command	@SAQ, ch, eq, freq, gain ↵
	Response	@SAQ, ch, eq, freq, gain ↵
Parameter		<p>ch: Input channel 1 = LINE, 2 = MIC</p> <p>freq_1-7 : Equalizer band freq : Center frequency 0 = 25 Hz, 1 = 40 Hz, 2 = 63 Hz, 3 = 100 Hz, 4 = 160 Hz, 5 = 250 Hz, 6 = 400 Hz, 7 = 630 Hz, 8 = 1 k, 9 = 1.6 k, 10 = 2.5 k, 11 = 4 k, 12 = 6.3 k, 13 = 10 k, 14 = 16 k [Default] EQUALIZER1: 100 Hz, EQUALIZER2: 250 Hz, EQUALIZER3: 1 k, EQUALIZER4: 1.6k, EQUALIZER5: 2.5 k, EQUALIZER6: 4k, EQUALIZER7: 10 k</p> <p>gain: Gain 0 = 0 dB [Default], 1 = -3 dB, 2 = -6 dB, 3 = -9 dB</p> <p>eq: Equalizer number 1 = EQUALIZER1, 2 = EQUALIZER2, 3 = EQUALIZER3, 4 = EQUALIZER4, 5 = EQUALIZER5, 6 = EQUALIZER6, 7 = EQUALIZER7</p>
Getting example	Command	@GAQ,1 ↵
	Response	@GAQ,1,3,0,5,0,8,0,9,0,10,0,11,0,13,0 ↵
	Description	<p>Getting the equalizer of LINE input</p> <ul style="list-style-type: none"> - EQUALIZER1 : 100 Hz 0 dB - EQUALIZER2 : 250 Hz 0 dB - EQUALIZER3 : 1 k 0 dB - EQUALIZER4 : 1.6 k 0 dB - EQUALIZER5 : 2.5 k 0 dB - EQUALIZER6 : 4 k 0 dB - EQUALIZER7 : 10 k 0 dB
Setting example	Command	@SAQ,1,2,4,1 ↵
	Response	@SAQ,1,2,4,1 ↵
	Description	<p>Setting EQUALIZER2 of LINE input as follows:</p> <ul style="list-style-type: none"> - Center frequency : 160Hz - Gain : "1" (-3 dB) <p>Completed</p>
Remarks		—

@GHW / @SHW		Automatic feedback suppressor (Setting control level)
Getting	Command	@GHW, ch
	Response	@GHW, ch, gain, peak
Setting	Command	@SHW, ch (, gain, peak)
	Response	@SHW, ch, gain, peak
Parameter		<p>ch: Audio input channel 1 = LINE, 2 = MIC</p> <p>mode: Feedback suppressor 0 = OFF, 1 = ON</p> <p>gain: Grain level 1 = -3 dB, 2 = -6 dB [Default]</p> <p>peak: Detection input level [dB] -30 to 0 [Default] -5</p>
Getting example	Command	@GHW,1
	Response	@GHW,1,2,-20
	Description	Getting feedback suppressor setting of line input Suppressor enabled Gain level : -6 dB Detection input level : -20 dB
Setting example	Command	@SHW,1,2,-30
	Response	@SHW,1,2,-30
	Description	Enabling feedback suppressor and setting the gain level and detection input level to -6 dB and -30 dB, respectively Completed
Remarks		<ul style="list-style-type: none"> • If disabling feedback suppressor, you do not have to set gain level and detection input level (peak). • Once the command is set, frequency will be reset.

@GHO		Automatic feedback suppressor (Getting frequency that is being controlled)
Getting	Command	@GHO, ch <input type="checkbox"/>
	Response	@GHO, ch, detect_25Hz, detect_40Hz, detect_63Hz, detect_100Hz, detect_160Hz, detect_250Hz, detect_400Hz, detect_630Hz, detect_1kHz, detect_1.6kHz, detect_2.5kHz, detect_4kHz, detect_6.3kHz, detect_10kHz <input type="checkbox"/>
Parameter		<p>ch: Audio input channel 1 = LINE, 2 = MIC</p> <p>detect_25Hz : Control status of 25 Hz detect_40Hz : Control status of 40 Hz detect_63Hz : Control status of 63 Hz detect_100Hz : Control status of 100 Hz detect_160Hz : Control status of 160 Hz detect_250Hz : Control status of 250 Hz detect_400Hz : Control status of 400 Hz detect_630Hz : Control status of 630 Hz detect_1kHz : Control status of 1 kHz detect_1.6kHz : Control status of 1.6 kHz detect_2.5kHz : Control status of 2.5 kHz detect_4kHz : Control status of 4 kHz detect_6.3kHz : Control status of 6.3 kHz detect_10kHz : Control status of 10 kHz</p> <p>0 = Not detected, 1 = Being controlled</p>
Getting example	Command	@GHO,1 <input type="checkbox"/>
	Response	@GHO,1,1,1,1,0,0,0,1,1,1,0,0,0,0,0 <input type="checkbox"/>
	Description	Getting the line input frequency that is being controlled The following frequencies are controlled: 25 Hz, 40 Hz, 63 Hz, 400 Hz, 630 Hz, and 1 kHz
Remarks		—

@GLY / @SLY		Input Lip Sync
Getting	Command	@GLY ↵
	Response	@GLY, time_1, time_2, time_3, time_4, time_5, time_6, time_7 ↵
Setting	Command	@SLY, ch_1, time_1 (, ch_2, time_2···) ↵
	Response	@SLY, ch_1, time_1 (, ch_2, time_2···) ↵
Parameter		time_1-7: Input Lip Sync [ms.] 0 to 128 [Default] 0
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GLY ↵
	Response	@GLY,0,0,0,2,0,0,0 ↵
	Description	Getting the input Lip Sync IN4 : 2 ms. Other inputs: 0 ms.
Setting example	Command	@SLY,4,100 ↵
	Response	@SLY,4,100 ↵
	Description	Setting the IN4 Lip Sync to 100 ms. Completed
Remarks		For input and output Lip Sync, up to 128 ms. can be set as well. The total Lip Sync is up to 256. 【See: @GLO / @SLO Output Lip Sync】

@GAW / @SAW		Stable audio input wait
Getting	Command	@GAW ↵
	Response	@GAW, wait_1, wait_2, wait_3, wait_4, wait_5, wait_6, wait_7 ↵
Setting	Command	@SAW, ch_1, wait_1 (, ch_2, wait_2···) ↵
	Response	@SAW, ch_1, wait_1 (, ch_2, wait_2···) ↵
Parameter		wait_1-7: Wait until audio input becomes stable 0 = ON, 1 = OFF [Default]
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to IN7
Getting example	Command	@GAW ↵
	Response	@GAW,1,1,0,1,1,1,1 ↵
	Description	Getting the mode of stable audio input wait IN3 : Disabled Other inputs: Enabled
Setting example	Command	@SAW,1,0 ↵
	Response	@SAW,1,0 ↵
	Description	Disabling stable audio input wait of IN1 Completed
Remarks		—

3.3.13 EDID

@GED / @SED		EDID selection
Getting	Command	@GED ↵
	Response	@GED, edid_1, edid_2, edid_3, edid_4, edid_5, edid_6 (, edid_7, edid_8) ↵
Setting	Command	@SED, ch_1, edid_1 (, ch_2, edid_2···) ↵
	Response	@SED, ch_1, edid_1 (, ch_2, edid_2···) ↵
Parameter		edid_1-7: EDID 0 = Built-in EDID [Default], 1 = HDMI OUT A MONITOR, 2 = HDMI OUT B MONITOR, 3 = HDBT OUT C MONITOR, 101 to 108 = COPY DATA 1 to 8
		ch_1-7: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GED ↵
	Response	@GED,0,0,0,3,0,0,0 ↵
	Description	Getting the EDID IN4 : EDID of the sink device that is connected to HDBT OUT C Other inputs: Built-in EDID
Setting example	Command	@SED,2,3 ↵
	Response	@SED,2,3 ↵
	Description	Setting IN2 EDID to the EDID that is read from the connected sink device of HDBT OUT C Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for " @GIN / @SIN DVI input connector signal ". In order to use a copied data, copy the EDID data from the sink device in " @RME Copying EDID " in advance.

@GVF / @SVF		Resolution																				
Getting	Command	@GVF																				
	Response	@GVF, resolution_1, resolution_2, resolution_3, resolution_4, resolution_5, resolution_6, resolution_7																				
Setting	Command	@SVF, ch_1, resolution_1 (, ch_2, resolution_2···)																				
	Response	@SVF, ch_1, resolution_1 (, ch_2, resolution_2···)																				
Parameter		<p>resolution_1-7: Resolution</p> <table border="0"> <tr> <td>0 = SVGA(800x600),</td> <td>1 = XGA(1024x768),</td> </tr> <tr> <td>2 = VESA720p(1280x720),</td> <td>3 = 720p(1280x720),</td> </tr> <tr> <td>4 = WXGA(1280x768),</td> <td>5 = WXGA(1280x800),</td> </tr> <tr> <td>6 = QuadVGA(1280x960),</td> <td>7 = SXGA(1280x1024),</td> </tr> <tr> <td>8 = WXGA(1360x768),</td> <td>9 = WXGA(1366x768),</td> </tr> <tr> <td>10 = SXGA+(1400x1050),</td> <td>11 = WXGA+(1440x900),</td> </tr> <tr> <td>12 = WXGA++(1600x900),</td> <td>13 = UXGA(1600x1200),</td> </tr> <tr> <td>14 = WSXGA+(1680x1050),</td> <td>15 = 1080i(1920x1080),</td> </tr> <tr> <td>16 = VESA1080p(1920x1080),</td> <td>17 = 1080p(1920x1080),</td> </tr> <tr> <td>18 = WUXGA(1920x1200),</td> <td>19 = QWXGA(2048x1152)</td> </tr> </table> <p>[Default] 1080p(1920x1080)</p> <p>ch_1-7: Input channel</p> <p>0 = All inputs, 1 to 7 = IN1 to 7</p>	0 = SVGA(800x600),	1 = XGA(1024x768),	2 = VESA720p(1280x720),	3 = 720p(1280x720),	4 = WXGA(1280x768),	5 = WXGA(1280x800),	6 = QuadVGA(1280x960),	7 = SXGA(1280x1024),	8 = WXGA(1360x768),	9 = WXGA(1366x768),	10 = SXGA+(1400x1050),	11 = WXGA+(1440x900),	12 = WXGA++(1600x900),	13 = UXGA(1600x1200),	14 = WSXGA+(1680x1050),	15 = 1080i(1920x1080),	16 = VESA1080p(1920x1080),	17 = 1080p(1920x1080),	18 = WUXGA(1920x1200),	19 = QWXGA(2048x1152)
0 = SVGA(800x600),	1 = XGA(1024x768),																					
2 = VESA720p(1280x720),	3 = 720p(1280x720),																					
4 = WXGA(1280x768),	5 = WXGA(1280x800),																					
6 = QuadVGA(1280x960),	7 = SXGA(1280x1024),																					
8 = WXGA(1360x768),	9 = WXGA(1366x768),																					
10 = SXGA+(1400x1050),	11 = WXGA+(1440x900),																					
12 = WXGA++(1600x900),	13 = UXGA(1600x1200),																					
14 = WSXGA+(1680x1050),	15 = 1080i(1920x1080),																					
16 = VESA1080p(1920x1080),	17 = 1080p(1920x1080),																					
18 = WUXGA(1920x1200),	19 = QWXGA(2048x1152)																					
Getting example	Command	@GVF																				
	Response	@GVF,6,6,9,6,6,6,6																				
	Description	Getting the input resolution IN3 : WXGA Other inputs: Quad-VGA																				
Setting example	Command	@SVF,0,12																				
	Response	@SVF,0,12																				
	Description	Setting EDID of all input channels to WXGA++ Completed																				
Remarks		—																				

@RME		Copying EDID
Setting	Command	@RME, out, number (, name) ↵
	Response	@RME, out, number (, name) ↵
Parameter		<p>out: Connector to be read 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p> <p>number: Destination COPY DATA number 1 to 8</p> <p>name: COPY DATA name Up to 10 characters from 20 to 7D of ASCII code If you skip this parameter ("name"), only EDID settings are saved without changing its name.</p>
Setting example	Command	@RME,1,1 ↵
	Response	@RME,1,1 ↵
	Description	Copying the EDID data of the sink device connected to HDMI OUT A and saving it in COPY DATA 1 Completed
Setting example	Command	@RME,1,4,800x600 ↵
	Response	@RME,1,4,800x600 ↵
	Description	Copying the EDID data of the sink device connected to HDMI OUT A, naming it "800x600" and saving it in COPY DATA 4 Completed
Remarks		@GED / @SED EDID selection

@GHL / @SHL		HDMI/DVI
Getting	Command	@GHL ↵
	Response	@GHL, mode_1, mode_2, mode_3, mode_4, mode_5 (, mode_6, mode_7) ↵
Setting	Command	@SHL, ch_1, mode_1 (, ch_2, mode_2···) ↵
	Response	@SHL, ch_1, mode_1 (, ch_2, mode_2···) ↵
Parameter		<p>mode_1-7: Input signal mode 0 = DVI, 1 = HDMI [Default]</p> <p>ch_1-7: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7</p>
Getting example	Command	@GHL ↵
	Response	@GHL,1,1,1,0,1,1,1 ↵
	Description	Getting the input signal mode IN4 : DVI Other inputs: HDMI
Setting example	Command	@SHL,4,0 ↵
	Response	@SHL,4,0 ↵
	Description	Setting the IN4 input signal mode to DVI Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for " @GIN / @SIN DVI input connector signal ". If "0" (Analog signal) is selected, "-1" is returned.

@GHZ / @SHZ		Frame rate
Getting	Command	@GHZ ↵
	Response	@GHZ, frame _1, frame _2, frame _3, frame _4, frame _5 (,frame _6, frame _7) ↵
Setting	Command	@SHZ, ch_1, frame _1 (, ch_2, frame _2···) ↵
	Response	@SHZ, ch_1, frame _1 (, ch_2, frame _2···) ↵
Parameter		frame_1-7: Frame rate 0 = 60 Hz [Default], 1 = 50 Hz
		ch_1-7: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GHZ ↵
	Response	@GHZ,1,1,1,0,1,1,1 ↵
	Description	Getting the frame rate of the input video IN4 : 60 Hz Other inputs: 50 Hz
Setting example	Command	@SHZ,4,0 ↵
	Response	@SHZ,4,0 ↵
	Description	Setting the IN4 frame rate of the input video to 60 Hz Completed
Remarks		—

@GDI / @SDI		Deep Color
Getting	Command	@GDI ↵
	Response	@GDI, color_1, color_2, color_3, color_4, color_5 (, color_6, color_7) ↵
Setting	Command	@SDI, ch_1, color_1 (, ch_2, color_2···) ↵
	Response	@SDI, ch_1, color_1 (, ch_2, color_2···) ↵
Parameter		color_1-7: Color depth 0 = 24-BIT COLOR [Default], 1 = 30-BIT COLOR
		ch_1-7: Input channel 0 = All digital inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GDI ↵
	Response	@GDI,1,1,1,0,1,1,1 ↵
	Description	Getting the color depth IN4 : 24-BIT COLOR Other inputs: 30-BIT COLOR
Setting example	Command	@SDI,4,0 ↵
	Response	@SDI,4,0 ↵
	Description	Setting the IN4 color depth to 24-BIT COLOR Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for " @GIN / @SIN DVI input connector signal ". If "0" (Analog signal) is selected, "-1" is returned.

@GAF / @SAF		Audio format																
Getting	Command	@GAF, ch [↵]																
	Response	@GAF, ch, format_1, frequency_1 (, format_2, frequency_2···) [↵]																
Setting	Command	@SAF, ch, format_1, frequency_1 (, format_2, frequency_2···) [↵]																
	Response	@SAF, ch, format_1, frequency_1 (, format_2, frequency_2···) [↵]																
Parameter		ch: Input channel 0 = All digital inputs (for setting only), 1 to 7 = IN1 to 7																
		format_1-7: Audio format 0 = LPCM, 1 = AAC, 2 = Dolby Digital, 3 = Dolby Digital Plus, 4 = Dolby TrueHD, 5 = DTS, 6 = DTS-HD [Default] only PCM can be output																
		frequency_1-7: Maximum sampling frequency 0 = Not output (for setting only), 1 = 32 kHz, 2 = 44.1 kHz, 3 = 48 kHz, 4 = 88.2 kHz, 5 = 96 kHz, 6 = 176.4 kHz, 7 = 192 kHz [Default] DTS-HD: 192 kHz, Dolby TrueHD: 96 kHz, other formats:48 kHz																
		Maximum settable sampling frequency depends on the audio format.																
		<table border="1"> <thead> <tr> <th>Audio format</th> <th>Maximum sampling frequency (kHz)</th> </tr> </thead> <tbody> <tr> <td>LPCM</td> <td>32/44.1/48/88.2/96/176.4/192</td> </tr> <tr> <td>AAC</td> <td>Not output/32/44.1/48/88.2/96</td> </tr> <tr> <td>Dolby Digital</td> <td>Not output/32/44.1/48</td> </tr> <tr> <td>Dolby Digital Plus</td> <td>Not output/32/44.1/48</td> </tr> <tr> <td>Dolby TrueHD</td> <td>Not output/44.1/48/88.2/96/176.4/192</td> </tr> <tr> <td>DTS</td> <td>Not output/32/44.1/48/96</td> </tr> <tr> <td>DTS-HD</td> <td>Not output /44.1/48/88.2/96/176.4/192</td> </tr> </tbody> </table>	Audio format	Maximum sampling frequency (kHz)	LPCM	32/44.1/48/88.2/96/176.4/192	AAC	Not output/32/44.1/48/88.2/96	Dolby Digital	Not output/32/44.1/48	Dolby Digital Plus	Not output/32/44.1/48	Dolby TrueHD	Not output/44.1/48/88.2/96/176.4/192	DTS	Not output/32/44.1/48/96	DTS-HD	Not output /44.1/48/88.2/96/176.4/192
Audio format	Maximum sampling frequency (kHz)																	
LPCM	32/44.1/48/88.2/96/176.4/192																	
AAC	Not output/32/44.1/48/88.2/96																	
Dolby Digital	Not output/32/44.1/48																	
Dolby Digital Plus	Not output/32/44.1/48																	
Dolby TrueHD	Not output/44.1/48/88.2/96/176.4/192																	
DTS	Not output/32/44.1/48/96																	
DTS-HD	Not output /44.1/48/88.2/96/176.4/192																	
		Getting commands: The set audio formats and maximum sampling frequency is returned.																
		Setting commands: Set the desired audio formats and the maximum sampling frequencies, the other audio formats is set to 0 (Not output) automatically. PCM is always enabled, you can skip this menu unless you need to change the sampling frequency.																

@GAF / @SAF		Audio format (Cont'd)
Getting example	Command	@GAF,1 ↵
	Response	@GAF,1,0,7 ↵
	Description	Getting IN1 audio format Up to LPCM 192 kHz
Setting example	Command	@SAF,2,5,3 ↵
	Response	@SAF,2,5,3 ↵
	Description	Enabling IN2 to output LPCM and DTS up to 48 kHz (The maximum LPCM sampling frequency is not changed.) Completed
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for " @GIN / @SIN DVI input connector signal ". If "0" (Analog signal) is selected, "-1" is returned.

@GSP / @SSP		Speaker configuration
Getting	Command	@GSP, ch ↵
	Response	@GSP, ch, number, speaker_1 (, speaker_2···) ↵
Setting	Command	@SSP, ch, number (, speaker_1, speaker_2···) ↵
	Response	@SSP, ch, number (, speaker_1, speaker_2···) ↵
Parameter		ch: Input channel 0 = All digital inputs (for setting only), 1 to 7 = IN1 to 7
		number: The number of speakers 1 to 8 [Default] 2
		speaker_1-8: Speakers to be used 0 = Front Left/Right [Default], 1 = Low Frequency Effect, 2 = Front Center, 3 = Rear Left/Right, 4 = Rear Center, 5 = Front Left/Right Center, 6 = Rear Left/Right Center, 7 = Front Left/Right Wide, 8 = Front Left/Right High, 9 = Top Center, 10 = Front Center High

@GSP / @SSP		Speaker configuration (Cont'd)																																																																																																																							
Parameter		<p>Getting commands: The number of speakers and which speakers will be used is returned.</p> <p>Setting commands: If you do not specify the speaker configuration, the following configuration will be applied depending on the set number of speakers.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">number</th> <th colspan="11">speaker</th> </tr> <tr> <th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th> </tr> </thead> <tbody> <tr> <td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>2</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>3</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>4</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>5</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>6</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>7</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> <tr> <td>8</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td> </tr> </tbody> </table> <p>The specified number and the total number of speakers do not match, the number is set automatically based on the setting of speakeers to be used. In case the number exceeds the settable range, an error is returned.</p>	number	speaker											0	1	2	3	4	5	6	7	8	9	10	1	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	4	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	5	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	6	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	7	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
number	speaker																																																																																																																								
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2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF																																																																																																														
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF																																																																																																														
4	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF																																																																																																														
5	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF																																																																																																														
6	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF																																																																																																														
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8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF																																																																																																														
Getting example	Command Response	@GSP,1 ↵ @GSP,1,6,0,1,2,3 ↵																																																																																																																							
	Description	Getting the IN1 speaker configuration Six speakers are used - Front Left/Right - Low Frequency Effect - Front Center - Rear Left/Right																																																																																																																							
Setting example	Command Response	@SSP,2,8 ↵ @SSP,2,8 ↵																																																																																																																							
	Description	Assigning the following eight speakers to IN2: - Front Left/Right - Low Frequency Effect - Front Center - Rear Left/Right - Rear Left/Right Center Completed																																																																																																																							
Setting example	Command Response	@SSP,3,8,0,3,5,6,7 ↵ @ERR,1 ↵																																																																																																																							
	Description	Assigning the following ten speakers to IN3: - Front Left/Right - Rear Left/Right - Front Left/Right Center - Rear Left/Right Center - Front Left/Right Wide The number of speakers exceeds the settable value.																																																																																																																							
Remarks		These commands are only for digital input. IN6 and IN7 are available only if "1" (Digital signal) is selected for "@GIN / @SIN DVI input connector signal". If "0" (Analog signal) is selected, "-1" is returned.																																																																																																																							

3.3.14 RS-232C

@GCT / @SCT		RS-232C communication
Getting	Command	@GCT, port ↵
	Response	@GCT, port, baudrate, length, parity, stop ↵
Setting	Command	@SCT, port, baudrate, length, parity, stop ↵
	Response	@SCT, port, baudrate, length, parity, stop ↵
Parameter		port: Connector 1 = RS1, 2 = RS2, 3 = HDBT OUT C, 4 = HDBT IN5
		baudrate: Baud rate 0 = 4800 bps, 1 = 9600 bps [Default], 2 = 14400 bps, 3 = 19200 bps, 4 = 38400 bps, 5 = 57600 bps, 6 = 115200 bps
		length: Data bit length 0 = 7 bit, 1 = 8 bit [Default]
		parity: Parity check 0 = NONE [Default], 1 = ODD, 2 = EVEN,
		stop: Stop bit 0 = 1 bit [Default], 1 = 2 bit
Getting example	Command	@GCT,1 ↵
	Response	@GCT,1,3,1,0,0 ↵
	Description	Getting the RS-232C connector (RS1) communication settings - Baud rate : 19200 bps - Data bit length : 8 bit - Parity check : NONE - Stop bit : 1 bit
Setting example	Command	@SCT,1,3,1,0,0 ↵
	Response	@SCT,1,3,1,0,0 ↵
	Description	Setting the RS-232C connector (RS1) communication as follows: - Baud rate : 19200 bps - Data bit length : 8 bit - Parity check : NONE - Stop bit : 1 bit Completed
Remarks		RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings. For IN5, @GCT/@SCT is valid only if “@GIE / @SIE Input connector” is set to “1” (HDBaseT).

@GCF / @SCF		RS-232C operation mode
Getting	Command	@GCF ↵
	Response	@GCF, mode_1, mode_2, mode_3, mode_4 ↵
Setting	Command	@SCF, port, mode ↵
	Response	@SCF, port, mode ↵
Parameter		mode: Operation mode 0 = RECEIVER mode, 1 = TRANSMITTER mode [Default] RS1 = 0, RS2 = 0, HDBT OUT C = 1, HDBT IN5 = 0
		port: Connector 0 = All connectors, 1 = RS1, 2 = RS2, 3 = HDBT OUT C, 4 = HDBT IN5
Getting example	Command	@GCF ↵
	Response	@GCF,1,1,1,1 ↵
	Description	Getting the RS-232C connector (RS1) operation mode All connectors: TRANSMITTER mode
Setting example	Command	@SCF,1,1 ↵
	Response	@SCF,1,1 ↵
	Description	Setting the RS-232C connector (RS1) to TRANSMITTER mode Completed
Remarks		These commands are only for RS-232C connector. RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.









3.3.15 LAN

@GIP / @SIP		IP address
Getting	Command	@GIP ↵
	Response	@GIP, unit_1, unit_2, unit_3, unit_4 ↵
Setting	Command	@SIP, unit_1, unit_2, unit_3, unit_4 ↵
	Response	@SIP, unit_1, unit_2, unit_3, unit_4 ↵
Parameter		unit_1 to unit_4: Upper bit of the IP address to Lower bit of the IP address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.199
Getting example	Command	@GIP ↵
	Response	@GIP,192,168,3,2 ↵
	Description	Getting the IP address of the MSD 192.168.3.2
Setting example	Command	@SIP,192,168,3,2 ↵
	Response	@SIP,192,168,3,2 ↵
	Description	Setting the IP address to 192.168.3.2 Completed
Remarks		IP address setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.

@GSB / @SSB		Subnet mask
Getting	Command	@GSB ↵
	Response	@GSB, unit_1, unit_2, unit_3, unit_4 ↵
Setting	Command	@SSB, unit_1, unit_2, unit_3, unit_4 ↵
	Response	@SSB, unit_1, unit_2, unit_3, unit_4 ↵
Parameter		unit_1 to unit_4: Upper bit of the subnet mask to Lower bit of the subnet mask 0 to 255 = 8 bit (Decimal notation) [Default] 255.255.255.0
Getting example	Command	@GSB ↵
	Response	@GSB,255,255,192,0 ↵
	Description	Getting the subnet mask of the MSD 255.255.192.0 (= 18 bit)
Setting example	Command	@SSB,255,255,192,0 ↵
	Response	@SSB,255,255,192,0 ↵
	Description	Setting the subnet mask of the MSD to 255.255.192.0 (= 18 bit) Completed
Remarks		IP address setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.

@GGW / @SGW		Gateway address
Getting	Command	@GGW ↵
	Response	@GGW, unit_1, unit_2, unit_3, unit_4 ↵
Setting	Command	@SGW, unit_1, unit_2, unit_3, unit_4 ↵
	Response	@SGW, unit_1, unit_2, unit_3, unit_4 ↵
Parameter		unit_1 to unit_4: Upper bit of the gateway address to Lower bit of the gateway address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.200
Getting example	Command	@GGW ↵
	Response	@GGW,192,168,1,254 ↵
	Description	Getting the gateway address 192.168.1.254
Setting example	Command	@SGW,192,168,1,254 ↵
	Response	@SGW,192,168,1,254 ↵
	Description	Setting the gateway address to 192.168.1.254 Completed
Remarks		IP address setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.

@GMC		MAC address
Getting	Command	@GMC ↵
	Response	@GMC, unit_1, unit_2, unit_3, unit_4, unit_5, unit_6 ↵
Parameter		unit_1 to unit_6: Upper bit of the MAC address to Lower bit of the MAC address 00 to FF = 8 bit (in hexadecimal)
Getting example	Command	@GMC ↵
	Response	@GMC,00,08,E5,5F,00,00 ↵
	Description	Getting the MAC address 00-08-E5-5F-00-00
Remarks		—

@GLP / @SLP		TCP port number
Getting	Command	@GLP 
	Response	@GLP, port_1, port_2, port_3, port_4, port_5, port_6, port_7, port_8 
Setting	Command	@SLP, connection_1, port_1 (, connection_2, port_2····) 
	Response	@SLP, connection_1, port_1 (, connection_2, port_2····) 
Parameter		port_1-8: TCP port number 23, 80, 1100, 5000 to 5999, 6000 to 6999 [Default] Connection 1 to 3 = 1100, Connection 4 to 6 = 23, Connection 7 to 8 = 80
		connection_1-8: Connection number 0 = All connections, 1 to 8 = Connection 1 to 8
Getting example	Command	@GLP 
	Response	@GLP,1100,1100,1100,23,23,23,80,80 
	Description	Getting the TCP port number - Connection 1 to 3 : 1100 - Connection 4 to 6 : 23 - Connection 7 and 8 : 80
Setting example	Command	@SLP,8,6000 
	Response	@SLP,8,6000 
	Description	Setting the port number of Connection 8 to "6000" Completed
Remarks		IP address setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.

@GLF / @SLF		LAN operation mode
Getting	Command	@GLF, connection <input type="checkbox"/>
	Response	@GLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) <input type="checkbox"/>
Setting	Command	@SLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) <input type="checkbox"/>
	Response	@SLF, connection, mode (, ip_1, ip_2, ip_3, ip_4, pjlink, tcp, password) <input type="checkbox"/>
Parameter		<p>connection: Connection number 1 to 8 = Connection 1 to 8</p> <p>mode: Operation mode 0 = RECEIVER mode [Default], 1 = TRANSMITTER mode</p> <p>ip_1 to ip_4: Upper bit of the destination IP address to Lower bit of the destination IP address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.198 Available only in TRANSMITTER mode.</p> <p>pjlink: PJLink protocol connection 0 = PJLink not used [Default], 1 = PJLink used Available only in TRANSMITTER mode.</p> <p>tcp: Destination port number 1 to 65535 [Default] 1100 Available only in TRANSMITTER mode and "pjlink" is set to "0" (PJLink not used). If "pjlink" is set to "1" (PJLink used), "tcp" is "4352" fixed.</p> <p>password: Password of PJLink protocol Up to 32 characters of the following ASCII codes: 20, 30 to 39, 41 to 5A, 61 to 7A (alphanumeric characters). [Default] All: 20 (space) Available only in TRANSMITTER mode and "pjlink" is set to "1" (PJLink used). Getting commands: Returned only if the password is set. Setting commands: You can skip this password setting if you do not use password authentication for PJLink protocol connection.</p>
Getting example	Command	@GLF,3 <input type="checkbox"/>
	Response	@GLF,3,1,192,168,1,2,1,PROJECTOR1 <input type="checkbox"/>
	Description	<p>Getting the operation mode of Connection 3</p> <ul style="list-style-type: none"> - Operation mode = TRANSMITTER mode - The destination IP address = 192.168.1.2 - PJLink = To be used - Password = PROJECTOR1
Setting example	Command	@SLF,3,1,192,168,1,2,1 <input type="checkbox"/>
	Response	@SLF,3,1,192,168,1,2,1 <input type="checkbox"/>
	Description	<p>Setting the Connection 3 as follows:</p> <ul style="list-style-type: none"> - Operation mode = TRANSMITTER mode - The destination IP address = 192.168.1.2 - PJLink = To be used - Password = Disabling password authentication <p>Completed</p>
Remarks		IP address setting is changed, the communication may be disabled. Change the environmental settings based on the MSD settings.

3.3.16 Control commands

@GEC / @SEC		Registering/Editing control command (Communication command)																																				
Getting	Command	@GEC, no <input type="checkbox"/>																																				
	Response	@GEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) <input type="checkbox"/>																																				
Setting	Command	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) <input type="checkbox"/>																																				
	Response	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display (, recv_1, recv_2···) <input type="checkbox"/>																																				
Parameter		<p>no: Control command number 1 to 32</p> <p>delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.</p> <p>port: Output port 1 to 8191</p> <table border="1"> <tr> <td>bit</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>port</td> <td>LAN 4</td> <td>LAN 3</td> <td>LAN 2</td> <td>LAN 1</td> <td>RS-232C IN5</td> <td>RS-232C OUT C</td> <td>RS-232C CH2</td> <td>RS-232C CH1</td> </tr> </table> <table border="1"> <tr> <td>bit</td> <td>15</td> <td>14</td> <td>13</td> <td>12</td> <td>11</td> <td>10</td> <td>9</td> <td>8</td> </tr> <tr> <td>port</td> <td>—</td> <td>—</td> <td>—</td> <td>LOOP BACK</td> <td>LAN 8</td> <td>LAN 7</td> <td>LAN 6</td> <td>LAN 5</td> </tr> </table> <p>“1” is for the bit of the output port to send a command (Since 13 bit to 15 bit are not used, they are always “0”). For example, if you want to send a command from RS-232C CH1, specify “1”. If sending a command from LAN1, specify “16”.</p> <p>memo: Memo Up to 14 characters from 20 to 7D of ASCII code except for 2C (,)</p> <p>length: Data size of send command (The number of bytes) 0 to 30</p> <p>command: Send command data (ASCII code) Specify “length” × 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)</p> <p>timeout: Time-out duration 0 to 99999 = 0 sec. to 99.999 sec.</p> <p>retry: The number of retries 0 to 99</p> <p>interval: Retry interval 0 to 99999 = 0 sec. to 99.999 sec.</p> <p>retryover: Processing at retry over 0 = Stop processing, 1 = Continue processing</p> <p>display: Displaying received data 0 = Communication command control</p>	bit	7	6	5	4	3	2	1	0	port	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C IN5	RS-232C OUT C	RS-232C CH2	RS-232C CH1	bit	15	14	13	12	11	10	9	8	port	—	—	—	LOOP BACK	LAN 8	LAN 7	LAN 6	LAN 5
bit	7	6	5	4	3	2	1	0																														
port	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C IN5	RS-232C OUT C	RS-232C CH2	RS-232C CH1																														
bit	15	14	13	12	11	10	9	8																														
port	—	—	—	LOOP BACK	LAN 8	LAN 7	LAN 6	LAN 5																														

@GEC / @SEC		Registering/Editing control command (Communication command) (Cont'd)
Parameter		recv_1-32: Presence or absence of reply command check 1 to 32 Getting commands : Reply command numbers are separated from each other by a comma. Setting commands : The reply command number to be checked can be specified. Up to 32 commands can be specified by separating them by a comma. If you send only parameters of reply command number you want to check, the reply commands without sent parameter are automatically set to "not check". Register reply commands in "@GRC / @SRC Registering/Editing reply command" .
Getting example	Command Response	@GEC,1 ↵ @GEC,1,10,1,POWER,7,5057204F4E0D0A,1000,2,500,0,0,1,2 ↵
	Description	Getting the settings registered in Control command number 1 - Delay time : 10 ms. - Output port : RS-232C CH1 - Memo : POWER - Data size : 7 bytes - Command data : PW ON CR LF (ASCII codes) - Time-out : 1000 ms. - The number of retries : 2 times - Retry interval : 500 ms. - Retry over : Stop - Received data : Not displayed - Reply command : Check 1 and 2
Setting example	Command Response	@SEC,2,0,4096,IN1 SELECT,10,405353572C312C310D0A,0,0,0,1,0 ↵ @SEC,2,0,4096,IN1 SELECT,10,405353572C312C310D0A,0,0,0,1,0 ↵
	Description	Setting the Control command 2 as follows: - Delay time : 0 ms. - Output port : LOOP BACK - Memo : IN1 SELECT - Data size : 10 bytes - Command data : @SSW,1,1 CR LF (ASCII codes) - Time-out : 0 ms. - The number of retries : 0 time - Retry interval : 0 ms. - Retry over : Execute - Received data : Not displayed - Reply command : No checked Completed

@GEC / @SEC		Registering/Editing control command (Displaying received data)																																				
Getting	Command	@GEC, no <input type="checkbox"/>																																				
	Response	@GEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter <input type="checkbox"/>																																				
Setting	Command	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter <input type="checkbox"/>																																				
	Response	@SEC, no, delay, port, memo, length, command, timeout, retry, interval, retryover, display, delimiter <input type="checkbox"/>																																				
Parameter		<p>no: Control command number 1 to 32</p> <p>delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.</p> <p>port: Output port 1 to 8191</p> <table border="1"> <tr> <td>bit</td> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>port</td> <td>LAN 4</td> <td>LAN 3</td> <td>LAN 2</td> <td>LAN 1</td> <td>RS-232C IN5</td> <td>RS-232C OUT C</td> <td>RS-232C CH2</td> <td>RS-232C CH1</td> </tr> </table> <table border="1"> <tr> <td>bit</td> <td>15</td> <td>14</td> <td>13</td> <td>12</td> <td>11</td> <td>10</td> <td>9</td> <td>8</td> </tr> <tr> <td>port</td> <td>—</td> <td>—</td> <td>—</td> <td>LOOP BACK</td> <td>LAN 8</td> <td>LAN 7</td> <td>LAN 6</td> <td>LAN 5</td> </tr> </table> <p>The bit corresponding to the output port to which the command is sent is "1" (Since bit 12-15 are not used, they are always "0"). For example, if a command is sent to RS-232C, the value is "1" (0000000000000001 in binary). If a command is sent to LAN 1, the value is "8" (0000000000001000 in binary).</p> <p>memo: Memo Up to 14 characters from 20 to 7D of ASCII code except for 2C (,)</p> <p>length: Data size of send command (The number of bytes) 0 to 30</p> <p>command: Send command data Specify "length" × 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)</p> <p>timeout: Time-out duration 0 to 99999 = 0 sec. to 99.999 sec.</p> <p>retry: The number of retries 0 to 99</p> <p>interval: Retry interval 0 to 99999 = 0 sec. to 99.999 sec.</p> <p>retryover: Processing at retry over 0 = Stop processing, 1 = Continue processing</p> <p>display: Displaying received data 1 = In ASCII codes, 2 = In hexadecimals</p> <p>delimiter: Delimiter 2 digits of 0 to 9, A to F, a to f = 4 bit per digit (in hexadecimal) for monitoring delimiter 100 = Not monitor</p>	bit	7	6	5	4	3	2	1	0	port	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C IN5	RS-232C OUT C	RS-232C CH2	RS-232C CH1	bit	15	14	13	12	11	10	9	8	port	—	—	—	LOOP BACK	LAN 8	LAN 7	LAN 6	LAN 5
bit	7	6	5	4	3	2	1	0																														
port	LAN 4	LAN 3	LAN 2	LAN 1	RS-232C IN5	RS-232C OUT C	RS-232C CH2	RS-232C CH1																														
bit	15	14	13	12	11	10	9	8																														
port	—	—	—	LOOP BACK	LAN 8	LAN 7	LAN 6	LAN 5																														

@GEC / @SEC		Registering/Editing control command (Displaying received data) (Cont'd)
Getting example	Command	@GEC,3 ↵
	Response	@GEC,3,0,16,POWER STATUS,9,47455420504F570D0A,2000,2,200,0,1,0D ↵
	Description	Getting the settings registered in Control command number 3 - Delay time : 0 ms. - Output port : LAN1 - Memo : POWER STATUS - Data size : 9 bytes - Command data : GET POW CR LF (ASCII codes) - Time-out : 2000 ms. - The number of retries : 2 times - Retry interval : 200 ms. - Retry over : Stop - Received data : In ASCII codes - Delimiter : 0D in hex (CR =ASCII codes)
Setting example	Command	@SEC,3,0,16,POWER STATUS,9,47455420504F570D0A,2000,2,200,0,1,0D ↵
	Response	@SEC,3,0,16,POWER STATUS,9,47455420504F570D0A,2000,2,200,0,1,0D ↵
	Description	Setting the Control command 3 as follows: - Delay time : 0 ms. - Output port : LAN1 - Memo : POWER STATUS - Data size : 9 bytes - Command data : GET POW CR LF (ASCII codes) - Time-out : 2000 ms. - The number of retries : 2 times - Retry interval : 200 ms. - Retry over : Stop - Received data : In ASCII codes - Delimiter : 0D in hex (CR =ASCII codes) Completed

@GEC / @SEC		Registering/Editing control command (Contact closure)																														
Getting	Command	@GEC, no <input type="checkbox"/>																														
	Response	@GEC, no, delay, port, memo, ccno_1, cc_1, pulse_1 (, ccno_2, cc_2, pulse_2···) <input type="checkbox"/>																														
Setting	Command	@SEC, no, delay, port, memo, ccno_1, cc_1, pulse_1 (, ccno_2, cc_2, pulse_2···) <input type="checkbox"/>																														
	Response	@SEC, no, delay, port, memo, ccno_1, cc_1, pulse_1 (, ccno_2, cc_2, pulse_2···) <input type="checkbox"/>																														
Parameter		<p>no: Control command number 1 to 32</p> <p>delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.</p> <p>port: Contact closure control 8192 = For contact closure control</p> <p>memo: Memo Up to 14 characters from 20 to 7D of ASCII code except for 2C (,)</p> <p>ccno_1-8: Contact closure number</p> <table border="1"> <thead> <tr> <th>ccno</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> </tr> </thead> <tbody> <tr> <td>Contact</td> <td colspan="3">CONTACT CLOSURE 1</td> <td colspan="3">CONTACT CLOSURE 2</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>closure</td> <td>CH1</td> <td>CH2</td> <td>CH3</td> <td>CH1</td> <td>CH2</td> <td>CH3</td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table> <p>Getting commands: Only contact closure numbers to be controlled are replied. Setting commands: Specify only contact closure numbers to be controlled. For contact closure numbers that do not specify parameter, "Not check" is set.</p> <p>cc_1-8: Contact closure control 0 = OFF, 1 = ON, 2 = Toggle, 3 = Not control</p> <p>pulse_1-8: Pulse width 0 = Hold, 100 to 9990 = 100 ms. to 9990 ms. (by 10 ms.) Pulse width after the completion of contact closure.</p>	ccno	1	2	3	4	5	6	7	8	9	Contact	CONTACT CLOSURE 1			CONTACT CLOSURE 2			—	—	—	closure	CH1	CH2	CH3	CH1	CH2	CH3	—	—	—
ccno	1	2	3	4	5	6	7	8	9																							
Contact	CONTACT CLOSURE 1			CONTACT CLOSURE 2			—	—	—																							
closure	CH1	CH2	CH3	CH1	CH2	CH3	—	—	—																							
Getting example	Command	@GEC,7 <input type="checkbox"/>																														
	Response	@GEC,7,20,8192,SCREEN UP,1,1,100 <input type="checkbox"/>																														
	Description	Getting the settings registered in Control command number 7 - Delay time : 20 ms. - Memo : SCREEN UP - CH1 of Contact closure 1: ON for 100 ms. - Other contact closures : Not controlled																														
Setting example	Command	@SEC,6,50,8192,PROJECTOR ON,1,0,200,2,1,0 <input type="checkbox"/>																														
	Response	@SEC,6,50,8192,PROJECTOR ON,1,0,200,2,1,0 <input type="checkbox"/>																														
	Description	Setting the Control command number 6 as follows: - Delay time : 50 ms. - Memo : PROJECTOR ON - CH1 of Contact closure 1: OFF for 200 ms. - CH2 of Contact closure 1: ON - Other contact closures : Not controlled Completed																														
Remarks		—																														

@GEC / @SEC		Registering/Editing control command (CEC)
Getting	Command	@GEC, no [↵]
	Response	@GEC, no, delay, port, memo, error, ch_1, cec_1 (, ch_2, cec_2····) [↵]
Setting	Command	@SEC, no, delay, port, memo, error, ch_1, cec_1 (, ch_2, cec_2····) [↵]
	Response	@SEC, no, delay, port, memo, error, ch_1, cec_1 (, ch_2, cec_2····) [↵]
Parameter		<p>no: Control command number 1 to 32</p> <p>delay: Delay time 0 to 999999 = 0 sec. to 999.999 sec.</p> <p>port: CEC 16384 = For CEC control</p> <p>memo: Memo Up to 14 characters from 20 to 7D of ASCII code except for 2C (,)</p> <p>error: Processing if no response from sink device. 0 = Stop processing, 1 = Continue processing</p> <p>ch_1-4: Output connector 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p> <p>cec_1-4: Control command 0 = Not controlled, 1 = POWER OFF, 2 = POWER ON</p> <p>Getting commands: The control output connector and control command are separated from each other by a comma.</p> <p>Setting commands: Specify output connector to be controlled and control commands. For outputs that do not specify parameter, "Not check" is set.</p>
Getting example	Command	@GEC,7 [↵]
	Response	@GEC,7,0,16384,DISPLAY1 ON,0,1,2 [↵]
	Description	<p>Getting the settings registered in Control command number 7</p> <ul style="list-style-type: none"> - Delay time : 0 ms. - Memo : DISPLAY1 ON - Error : Stop - HDMI OUT A sink device: Turning ON - Other outputs : Not controlled.
Setting example	Command	@SEC,7,0,16384,DISPLAY1 ON,0,1,2 [↵]
	Response	@SEC,7,0,16384,DISPLAY1 ON,0,1,2 [↵]
	Description	<p>Setting the Control command number 7 as follows:</p> <ul style="list-style-type: none"> - Delay time : 0 ms. - Memo : DISPLAY1 ON - Error : Stop - HDMI OUT A sink device: Turning ON - Other outputs : Not controlled. <p>Completed</p>
Remarks		—

@GRC / @SRC		Registering/Editing reply command
Getting	Command	@GRC, no
	Response	@GRC, no, process, length, command, mask, memo
Setting	Command	@SRC, no, process, length, command, mask, memo
	Response	@SRC, no, process, length, command, mask, memo
Parameter		no: Control command number 1 to 32
		process: Process 0 = Stop processing, 1 = Continue processing, 2 = Resending commands
		length: Reply command data size (bytes) 0 to 30
		command: Reply command data Specify "length" x 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)
		mask: Mask data Specify "length" x 2 digits with 0 to 9, A to F, a to f: (4 bit per digit in hexadecimal)
		memo: Memo Up to 14 characters from 20 to 7D of ASCII code except for 2C (,)
Getting example	Command	@GRC,2
	Response	@GRC,2,0,1,40,40,NG
	Description	Getting the settings registered in Reply command number 2 - Processing : Stop - Data size : 1 byte - Command data : 40 (In hex) - Mask data : 40 (Checking the second bit from the top) - Memo : NG
Setting example	Command	@SRC,1,1,9,52454356204F4B0D0A,FFFFFFFFFFFFFFFF,OK
	Response	@SRC,1,1,9,52454356204F4B0D0A,FFFFFFFFFFFFFFFF,OK
	Description	Setting the Reply command number 1 as follows - Processing : Continue - Data size : 9 bytes - Command data : RECV OK CR LF (ASCII codes) - Mask data : ALL: FF (Checking all bits) - Memo : OK Completed
Remarks		—

@GCC / @SCC		Command link
Getting	Command	@GCC, event
	Response	@GCC, event, c_1 (, c_2, c_3···)
Setting	Command	@SCC, event, c_1 (, c_2, c_3···)
	Response	@SCC, event, c_1 (, c_2, c_3···)
Parameter		event: Control command execution condition For settable values, see the "[Table 3.4]" c_1-10: Send command 0 = Not link, 1 to 32 = Control command 1 to 32 Control commands that are registered in one of the following commands can be linked. - @GEC / @SEC Registering/Editing control command (Communication command) - @GEC / @SEC Registering/Editing control command (Displaying received data) - @GEC / @SEC Registering/Editing control command (Contact closure) - @GEC / @SEC Registering/Editing control command (CEC)
Getting example	Command	@GCC,19
	Response	@GCC,19,5,2,1
	Description	Getting control commands that will be executed when the MSD is powered on Executing in order of control command 5, 2, and 1
Setting example	Command	@SCC,19,5,2,1
	Response	@SCC,19,5,2,1
	Description	Executing in order of control command 5, 2, and 1 when the MSD is powered on Completed
Remarks		—

[Table 3.4] Parameter of control command execution condition





event	Execution condition	event	Execution condition	event	Execution condition
1	COMMAND A-PLANE A	17	COMMAND I-PLANE A	33	AUDIO:IN3 SELECT
2	COMMAND A-PLANE B	18	COMMAND I-PLANE B	34	AUDIO:IN4 SELECT
3	COMMAND B-PLANE A	19	POWER ON	35	AUDIO:IN5 SELECT
4	COMMAND B-PLANE B	20	POWER OFF	36	AUDIO:IN6 SELECT
5	COMMAND C-PLANE A	21	DISPLAY POWER ON	37	AUDIO:IN7 SELECT
6	COMMAND C-PLANE B	22	DISPLAY POWER OFF	38	AUDIO:OFF SELECT
7	COMMAND D-PLANE A	23	VIDEO:IN1 SELECT		
8	COMMAND D-PLANE B	24	VIDEO:IN2 SELECT		
9	COMMAND E-PLANE A	25	VIDEO:IN3 SELECT		
10	COMMAND E-PLANE B	26	VIDEO:IN4 SELECT		
11	COMMAND F-PLANE A	27	VIDEO:IN5 SELECT		
12	COMMAND F-PLANE B	28	VIDEO:IN6 SELECT		
13	COMMAND G-PLANE A	29	VIDEO:IN7 SELECT		
14	COMMAND G-PLANE B	30	VIDEO:OFF SELECT		
15	COMMAND H-PLANE A	31	AUDIO:IN1 SELECT		
16	COMMAND H-PLANE B	32	AUDIO:IN2 SELECT		









@GTG / @STG		Toggle operation
Getting	Command	@GTG, event_1 (, event_2···)
	Response	@GTG, event_1, toggle_1 (, event_2, toggle_2···)
Setting	Command	@STG, event_1, toggle_1 (, event_2, toggle_2···)
	Response	@STG, event_1, toggle_1 (, event_2, toggle_2···)
Parameter		event_1-9: Command execution condition 0 = All control commands, 1 to 9 = COMMAND A to I
		toggle_1-9: Toggle operation 0 = Disabled [Default], 1 = Enabled
Getting example	Command	@GTG,1
	Response	@GTG,1,1
	Description	Getting the toggle operation of COMMAND A Enabled
Setting example	Command	@STG,1,1
	Response	@STG,1,1
	Description	Setting the COMMAND A to "1" (Enabled) Completed
Remarks		—









@GUP / @SUP		Plane to be executed when powered ON
Getting	Command	@GUP, event_1 (, event_2···)
	Response	@GUP, event_1, plane_1 (, event_2, plane_2···)
Setting	Command	@SUP, event_1, plane_1 (, event_2, plane_2···)
	Response	@SUP, event_1, plane_1 (, event_2, plane_2···)
Parameter		event_1-9: Command execution condition 0 = All control commands, 1 to 9 = COMMAND A to I
		plane_1-9: Plane to be executed when powered ON 0 = AUTO [Default], 1 = PLANE A, 2 = PLANE B
Getting example	Command	@GUP,1
	Response	@GUP,1,1
	Description	Getting the plane to be executed for COMMAND A COMMAND A executes PLANE A
Setting example	Command	@SUP,1,1
	Response	@SUP,1,1
	Description	Setting the COMMAND A to execute PLANE A Completed
Remarks		—









@EXC		Command execution
Setting	Command	@EXC, command_1 (, command_2···) ↵
	Response	@EXC, command_1 (, command_2···) ↵
Parameter		command_1-5: Control command 1 to 32 = CMD 1 to 32 A / a to I / i = COMMAND A to I
Setting example	Command	@EXC,1,2,3 ↵
	Response	@EXC,1,2,3 ↵
		Description Executing COMMAND in order of 1→2→3 Completed
Setting example	Command	@EXC,6 ↵
	Response	@EXC,6,RECV:POWER OFF ↵
		Description Executing CMD 6 Completed If a command for displaying received data is executed, the received result will be displayed.
Remarks		It may take some time to return a reply command.

@GSK / @SSK		DISPLAY POWER button
Getting	Command	@GSK ↵
	Response	@GSK, onoff ↵
Setting	Command	@SSK, ch, onoff ↵
	Response	@SSK, ch, onoff ↵
Parameter		onoff: DISPLAY POWER button 0 = OFF, 1 = ON ch: Output channel "1" fixed
Getting example	Command	@GSK ↵
	Response	@GSK,1 ↵
		Description Getting the DISPLAY POWER button status ON
Setting example	Command	@SSK,1,1 ↵
	Response	@SSK,1,1 ↵
		Description Setting the DISPLAY POWER button to ON Completed
Remarks		It may take some time to return a reply command.

@DEC		Initializing registered command and link
Setting	Command	@DEC, no_1 (, no_2, no_3···) 
	Response	@DEC, no_1 (, no_2, no_3···) 
Parameter		no_1-32: Commands or links you want to initialize 1 to 32 : Control command 1 to 32, 101 to 132 : Reply command 1 to 32 ("1xx": xx is the reply command number) 【See: @GRC / @SRC Registering/Editing reply command】 201 to 238 : Control command association 1 to 38 ("2xx": xx is the control command execution condition) 【See: @GCC / @SCC Command link】
Setting example	Command	@DEC,221 
	Response	@DEC,221 
	Description	Deleting the DISPLAY POWER ON link Completed
Remarks		—

@GIT / @SIT		Invalid duration at control command execution
Getting	Command	@GIT 
	Response	@GIT, time 
Setting	Command	@SIT, time 
	Response	@SIT, time 
Parameter		time: Invalid duration 0 to 999999 = 0 sec. to 999.999 sec. [Default] 0 sec.
Getting example	Command	@GIT 
	Response	@GIT,2000 
		Description Getting the invalid duration at control command execution Disabling the operation during control command execution or 2000 ms. (2 seconds) after control command starts
Setting example	Command	@SIT,2000 
	Response	@SIT,2000 
	Description	Setting the invalid duration at control command execution to 2000 ms. (2 seconds) Completed
Remarks		—

@GTL / @STL		COMMAND button illuminating condition
Getting	Command	@GTL, switch_1 (, switch_2···) 
	Response	@GTL, switch_1, led_1 (, switch_2, led_2···) 
Setting	Command	@STL, switch_1, led_1 (, switch_2, led_2···) 
	Response	@STL, switch_1, led_1 (, switch_2, led_2···) 
Parameter		<p>switch_1-10: COMMAND button 0 = All command execution buttons, 1 to 9 = COMMAND A to I</p> <p>led_1-10: Illuminating condition If a command only for one plane (PLANE A or PLANE B) is registered: 0 = Illuminates if a control command is registered [Default] 1 = Illuminates while a control command is being executed</p> <p>If commands for both two planes (PLANE A and PLANE B) are registered: 0 = A control command(s) that is linked to a button is executed by pressing the desired button when the control command execution button illuminates/blinks. Illuminates : Control command registered to PLANE A. Blinks : Control command registered to PLANE B. 1 = The control command that is linked to a button is executed by pressing a desired button when the control command execution button illuminates/does not illuminate. Illuminates : Control command registered to PLANE A Does not illuminate : Control command registered to PLANE B</p>
Getting example	Command	@GTL,5 
	Response	@GTL,5,0 
	Description	Getting the illuminating condition of COMMAND E Illuminates if COMMAND E is registered. (If a command only for one plane is registered.)
Setting example	Command	@STL,5,1 
	Response	@STL,5,1 
	Description	Setting the COMMAND E to illuminate while a control command is being executed (If a command only for one plane is registered.) Completed
Remarks		—

@GTF / @STF		Blinking at command button
Getting	Command	@GTF, switch_1 (, switch_2····) 
	Response	@GTF, switch_1, flash_1 (, switch_2, flash_2····) 
Setting	Command	@STF, switch_1, flash_1 (, switch_2, flash_2····) 
	Response	@STF, switch_1, flash_1 (, switch_2, flash_2····) 
Parameter		<p>switch_1-10: COMMAND/DISPLAY POWER button 0 = All buttons, 1 to 6 = COMMAND A to F 10 = DISPLAY POWER</p> <p>flash_1-10: Blinking duration -1 = Blinks while a control command is being executed, 0 = Not blink, 1 to 1000 = Blinks for the specified time (1 sec. to 1000 sec.) [Default] COMMAND A to F = 0, DISPLAY POWER = -1</p>
Getting example	Command	@GTF,1 
	Response	@GTF,1,-1 
	Description	Getting the blinking duration of COMMAND A Blinks while a control command is being executed
Setting example	Command	@STF,1,5 
	Response	@STF,1,5 
	Description	Setting the COMMAND A blink 5 seconds after control command execution starts. Completed
Remarks		—

3.3.17 Preset memory









@RCM		Recalling crosspoint
Setting	Command	@RCM, memory ↵
	Response	@RCM, memory ↵
Parameter		memory: Crosspoint 1 to 9
Setting example	Command	@RCM,1 ↵
	Response	@RCM,1 ↵
	Description	Recalling the video and audio channels of Crosspoint memory 1 Completed
Remarks		—

@RCV		Recalling crosspoint (Setting video channel)
Setting	Command	@RCV, memory ↵
	Response	@RCV, memory ↵
Parameter		memory: Crosspoint 1 to 9
Setting example	Command	@RCV,1 ↵
	Response	@RCV,1 ↵
	Description	Recalling the video channel of Crosspoint memory 1 Completed
Remarks		—

@RCA		Recalling crosspoint (Setting audio channel)
Setting	Command	@RCA, memory ↵
	Response	@RCA, memory ↵
Parameter		memory: Crosspoint 1 to 9
Setting example	Command	@RCA,1 ↵
	Response	@RCA,1 ↵
	Description	Recalling the audio channel of Crosspoint memory 1 Completed
Remarks		—

@SCM / @SEM		Saving crosspoint
Setting	Description	Overwriting all
	Command	@SCM, memory (, name) ↵
	Response	@SCM, memory (, name) ↵
Setting	Description	Overwriting partly
	Command	@SEM, memory (, name) ↵
	Response	@SEM, memory (, name) ↵
Parameter		memory: Crosspoint 1 to 9
		name: Crosspoint name Up to 10 characters from 20 to 7D from ASCII code If you skip this parameter ("name"), only crosspoint settings are saved without changing its name.
Setting example	Command	@SCM,2 ↵
	Response	@SCM,2 ↵
	Description	Saving the current video and audio channels in Crosspoint memory 2 without changing memory name Completed
Setting example	Command	@SEM,2,PATTERN2 ↵
	Response	@SEM,2,PATTERN2 ↵
	Description	Saving the current video and audio channels in Crosspoint memory 2 with the name of "PATTERN2". The channels are set to "Not control" (@GCM / @ECM Editing crosspoint) are not saved. Completed
Remarks		—

@SCV / @SEV		Saving crosspoint (Setting video channel)
Setting	Description	Overwriting all
	Command	@SCV, memory (, name) ↵
	Response	@SCV, memory (, name) ↵
Setting	Description	Overwriting partly
	Command	@SEV, memory (, name) ↵
	Response	@SEV, memory (, name) ↵
Parameter		memory: Crosspoint 1 to 9
		name: Crosspoint name Up to 10 characters from 20 to 7D from ASCII code If you skip this parameter (“name”), only crosspoint settings are saved without changing its name.
Setting example	Command	@SCV,2 ↵
	Response	@SCV,2 ↵
	Description	Saving the current video channel in Crosspoint memory 2 without changing memory name Completed
Setting example	Command	@SEV,2,PATTERN2 ↵
	Response	@SEV,2,PATTERN2 ↵
	Description	Saving the current video channel in Crosspoint memory 2 with the name of “PATTERN2”. The channels are set to “Not control” (@GCM / @ECM Editing crosspoint) are not saved. Completed
Remarks		—

@SCA / @SEA		Saving crosspoint (Setting audio channel)
Setting	Description	Overwriting all
	Command	@SCA, memory (, name) 
	Response	@SCA, memory (, name) 
Setting	Description	Overwriting partly
	Command	@SEA, memory (, name) 
	Response	@SEA, memory (, name) 
Parameter		memory: Crosspoint 1 to 9
		name: Crosspoint name Up to 10 characters from 20 to 7D from ASCII code If you skip this parameter (“name”), only crosspoint settings are saved without changing its name.
Setting example	Command	@SCA,2 
	Response	@SCA,2 
	Description	Saving the current audio channel in Crosspoint memory 2 without changing memory name Completed
Setting example	Command	@SEA,2,PATTERN2 
	Response	@SEA,2,PATTERN2 
	Description	Saving the current audio channel in Crosspoint memory 2 with the name of “PATTERN2”. The channels are set to “Not control” (@GCM / @ECM Editing crosspoint) are not saved. Completed
Remarks		—

@GCM / @ECM		Editing crosspoint
Getting	Command	@GCM, memory ↵
	Response	@GCM, memory, main_v, main_a, pinp_v, pinp_a, pinp_on, name ↵
Setting	Command	@ECM, memory, v_1, a_1, v_2, a_2, pinp_on ↵
	Response	@ECM, memory, v_1, a_1, v_2, a_2, pinp_on ↵
Parameter		<p>memory: Crosspoint 1 to 9</p> <p>main_v : Video channel of main window pinp_v : Video channel of PinP window v_1-2 : Video channel</p> <p>main_a : Audio channel of main window pinp_a : Audio channel of PinP window a_1-2 : Audio channel -1 = Not controlled [Default], 0 = OFF, 1 to 7 = IN1 to 7</p> <p>pinp_on: PinP layout pattern -1 = Not controlled [Default], 0 = OFF, 1 = PinP PATTERN1, 2 = PinP PATTERN2, 3 = PinP PATTERN3, 4 = PinP PATTERN4, 5 = PinP PATTERN5</p> <p>name: Crosspoint memory name Up to 10 characters from 20 to 7D from ASCII code [Default] 20 (space)</p>
Getting example	Command	@GCM,2 ↵
	Response	@GCM,2,3,3,0,-1,0,PATTERN2 ↵
	Description	Getting the video and audio channels of Crosspoint memory 2 Name : "PATTERN2" Main window : IN3 PinP window : OFF PinP : Disabled
Setting example	Command	@ECM,2,-1,-1,-1,-1,0 ↵
	Response	@ECM,2,-1,-1,-1,-1,0 ↵
	Description	When the Crosspoint memory 2 is recalled, main window and PinP window are set to "-1" (Not controlled), and "0" (PinP disabled). Completed
Remarks		Nothing is saved in the memory by factory default, the state is "-1" (Not controlled). If you save only video (@SCV) or audio (@SCA) at the first saving of crosspoint settings, "-1" (Not controlled) is returned to unsaved audio and video. An error is returned if a value other than "-1" (Not controlled) or "0" (disabled) is set for PinP audio channel.

@GCV / @ECV		Editing crosspoint (Setting video channel)
Getting	Command	@GCV, memory ↵
	Response	@GCV, memory, main_v, pinp_v, pinp_on, name ↵
Setting	Command	@ECV, memory, v_1, v_2, pinp_on ↵
	Response	@ECV, memory, v_1, v_2, pinp_on ↵
Parameter		<p>memory: Crosspoint 1 to 9</p> <p>main_v: Video channel of main window pinp_v: Video channel of PinP window v_1-2 : Video channel -1 = Not controlled [Default], 0 = OFF, 1 to 7 = IN1 to 7</p> <p>pinp_on: PinP layout pattern -1 = Not controlled [Default], 0 = OFF, 1 = PinP PATTERN1, 2 = PinP PATTERN2, 3 = PinP PATTERN3, 4 = PinP PATTERN4, 5 = PinP PATTERN5</p> <p>name: Crosspoint memory name Up to 10 characters from 20 to 7D from ASCII code [Default] 20 (space)</p>
Getting example	Command	@GCV,2 ↵
	Response	@GCV,2,3,-1,0,PATTERN2 ↵
	Description	Getting the video channel of Crosspoint memory 2 Name : "PATTERN2" Main window : IN3 PinP window : Not controlled PinP : Disabled
Setting example	Command	@ECV,2,-1,-1,0 ↵
	Response	@ECV,2,-1,-1,0 ↵
	Description	When the Crosspoint memory 2 is recalled, main window and PinP window are set to "-1" (Not controlled), and "0" (PinP disabled). Completed
Remarks		Nothing is saved in the memory by factory default, the state is "-1" (Not controlled). If you save only audio (@SCA) at the first saving of crosspoint settings, "-1" (Not controlled) is returned to unsaved video.

@GCA / @ECA		Editing crosspoint (Setting audio channel)
Getting	Command	@GCA, memory ↵
	Response	@GCA, memory, a , name ↵
Setting	Command	@ECA, memory, a ↵
	Response	@ECA, memory, a ↵
Parameter		memory: Crosspoint 1 to 9
		a: Audio channel -1 = Not controlled [Default], 0 = OFF, 1 to 7 = IN1 to 7
		name: Crosspoint memory name Up to 10 characters from 20 to 7D from ASCII code [Default] 20 (space)
Getting example	Command	@GCA,2 ↵
	Response	@GCA,2,3,PATTERN2 ↵
	Description	Getting the audio channel of Crosspoint memory 2 Name : "PATTERN2" Main window : IN3
Setting example	Command	@ECA,2,1 ↵
	Response	@ECA,2,1 ↵
	Description	When the Crosspoint memory 2 is recalled, main window is set to "-1" (Not controlled). Completed
Remarks		Nothing is saved in the memory by factory default, the state is "-1" (Not controlled). If you save only video (@SCV) at the first saving of crosspoint settings, "-1" (Not controlled) is returned to unsaved audio.

@RPM		Recalling all settings
Setting	Command	@RPM, preset ↵
	Response	@RPM, preset ↵
Parameter		preset: Preset memory 1 to 8
Setting example	Command	@RPM,3 ↵
	Response	@RPM,3 ↵
	Description	Recalling the Preset memory 3 Completed
Remarks		Once preset memory is recalled, all settings of video and audio I/O except for some environmental settings will be updated.









@SPM		Saving all settings
Setting	Command	@SPM, preset (, name) ↵
	Response	@SPM, preset (, name) ↵
Parameter		<p>preset: Preset memory 1 to 8</p> <p>name: Preset memory name Up to 10 characters from 20 to 7D from ASCII code If you skip this parameter ("name"), only other settings are saved without changing its name.</p>
Setting example	Command	@SPM,2 ↵
	Response	@SPM,2 ↵
	Description	Saving the current settings in Preset memory 2 without changing the memory name Completed
Setting example	Command	@SPM,2,MEMORY2 ↵
	Response	@SPM,2,MEMORY2 ↵
	Description	Saving the current settings in Preset memory 2 with the name of "MEMORY2" Completed
Remarks		Once preset memory is recalled, all settings of video and audio I/O except for some environmental settings will be updated.

@GMU / @SMU		Start-up setting
Getting	Command	@GMU ↵
	Response	@GMU, state ↵
Setting	Command	@SMU, state ↵
	Response	@SMU, state ↵
Parameter		<p>state: Start-up setting 1 to 9 = Crosspoint 1 to 9, 10 = Channel OFF, 11 = Last channel [Default], 12 to 19 = Preset memory 1 to 8</p>
Getting example	Command	@GMU ↵
	Response	@GMU,3 ↵
	Description	Getting the start-up setting Starts with the channel settings saved in Crosspoint memory 3
Setting example	Command	@SMU,3 ↵
	Response	@SMU,3 ↵
	Description	Setting the start-up channels to Crosspoint memory 3 Completed
Remarks		—

3.3.18 Bitmap









@GBM / @SBM		Bitmap image output
Getting	Command	@GBM ↵
	Response	@GBM, main, pinp ↵
Setting	Command	@SBM, ch_1, out_1 (, ch_2, out_2) ↵
	Response	@SBM, ch_1, out_1 (, ch_2, out_2) ↵
Parameter		main : Bitmap image output of main window pinp : Bitmap image output of PinP window out_1-2 : Bitmap image output 0 = OFF [Default], 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.
		ch_1-2: Output channel 0 = All outputs, 1 = MAIN, 2 = PinP
Getting example	Command	@GBM ↵
	Response	@GBM,1, 0 ↵
	Description	Getting the output video Main window : Bitmap 1 PinP window : Not output a bitmap image
Setting example	Command	@SBM,1,1 ↵
	Response	@SBM,1,1 ↵
	Description	Outputting BITMAP1 to main window Completed
Remarks		—

@GBB / @SBB		Background color
Getting	Command	@GBB, ch ↵
	Response	@GBB, ch, red, green, blue ↵
Setting	Command	@SBB, ch_1, bitmap_1, red_1, green_1, blue_1 (, ch_2, bitmap_2, red_2, green_2, blue_2···) ↵
	Response	@SBB, ch_1, bitmap_1, red_1, green_1, blue_1 (, ch_2, bitmap_2, red_2, green_2, blue_2···) ↵
Parameter		<p>ch / ch_1-4: Output channel "1" fixed</p> <p>reg / red_1-4: Background color (Red) green / green_1-4: Background color (Green) blue / blue_1-4: Background color (Blue) 0 to 255 [Default] 255 (White) Getting commands: Registered bitmap settings are returned.</p> <p>bitmap_1-4: Bitmap number 0 = All bitmaps, 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.</p>
Getting example	Command	@GBB,1 ↵
	Response	@GBB,1,255,0,0 ↵
	Description	Getting the background color R : 255 G and B: 0 (Red)
Setting example	Command	@SBB,1,1,255,255,255 ↵
	Response	@SBB,1,1,255,255,255 ↵
	Description	Setting the background color of Bitmap 1 to "255" (White) for all (RGB) Completed
Remarks		—

@GBT / @SBT		Aspect ratio
Getting	Command	@GBT, ch 
	Response	@GBT, ch, aspect_1, aspect_2, aspect_3, aspect_4 
Setting	Command	@SBT, ch_1, bitmap_1, aspect_1 (, ch_2, bitmap_2, aspect_2) 
	Response	@SBT, ch_1, bitmap_1, aspect_1 (, ch_2, bitmap_2, aspect_2) 
Parameter		<p>ch: Output channel 1 = MAIN, 2 = PinP</p> <p>ch_1-2: Output channel 0 = All outputs, 1 = MAIN, 2 = PinP</p> <p>aspect / aspect_1-8: Aspect ratio 0 = AUTO [Default], 1 = FULL, 2 = THROUGH Getting commands: Registered bitmap settings are returned in order.</p> <p>bitmap_1-8: Bitmap number 0 = All bitmaps, 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.</p>
Getting example	Command	@GBT,1 
	Response	@GBT,1,1,1,1,1 
	Description	Getting the aspect ratio of main window Displayed on FULL screen.
Setting example	Command	@SBT,1,1,1 
	Response	@SBT,1,1,1 
	Description	Setting the aspect ratio of Bitmap 1 that is output to main window to FULL Completed
Remarks		—

@GZP / @SZP		Image position
Getting	Command	@GZP, ch ↵
	Response	@GZP, ch, position ↵
Setting	Command	@SZP, ch_1, bitmap_1, position_1 (, ch_2, bitmap_2, position_2···) ↵
	Response	@SZP, ch_1, bitmap_1, position_1 (, ch_2, bitmap_2, position_2···) ↵
Parameter		<p>ch / ch_1-4: Output channel "1" fixed</p> <p>position / position_1-4: Image position 0 = CENTER [Default], 1 = TOP-LEFT, 2 = BOTTOM-LEFT, 3 = TOP-RIGHT, 4 = BOTTOM-RIGHT Getting commands: Registered bitmap settings are returned in order.</p> <p>bitmap_1-4: Bitmap number 0 = All bitmaps, 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.</p>
Getting example	Command	@GZP,1 ↵
	Response	@GZP,1,1 ↵
	Description	Getting the image position of main window TOP-LEFT
Setting example	Command	@SZP,1,1,1 ↵
	Response	@SZP,1,1,1 ↵
	Description	Setting Bitmap 1 (that is output to main window) to be displayed in the upper left Completed
Remarks		—

@GBA / @SBA		Assigning input channel
Getting	Command	@GBA, ch ↵
	Response	@GBA, ch, bitmap_1, bitmap_2, bitmap_3, bitmap_4, bitmap_5, bitmap_6, bitmap_7 ↵
Setting	Command	@SBA, ch_1, input_1, bitmap_1 (, ch_2, input_2, bitmap_2···) ↵
	Response	@SBA, ch_1, input_1, bitmap_1 (, ch_2, input_2, bitmap_2···) ↵
Parameter		ch: Output channel 1 = MAIN, 2 = PinP
		ch_1-14: Output channel 0 = All outputs, 1 = MAIN, 2 = PinP
		bitmap_1-14: Bitmap assignment 0 = OFF [Default], 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.
		input_1-14: Input channel 0 = All inputs, 1 to 7 = IN1 to 7
Getting example	Command	@GBA,1 ↵
	Response	@GBA,1,0,0,0,0,0,1 ↵
	Description	Getting the bitmap assignment of main window Main window : Bitmap 1 to IN7 Other input channels: No bitmap is assigned.
Setting example	Command	@SBA,1,7,1 ↵
	Response	@SBA,1,7,1 ↵
	Description	Setting the main window: Assigning Bitmap 1 to IN7 (If IN7 is selected, Bitmap 1 is output.) Completed
Remarks		—

@GPB / @SPB		Start-up bitmap output
Getting	Command	@GPB 
	Response	@GPB, out_1, out_2 
Setting	Command	@SPB, ch_1, out_1 (, ch_2, out_2) 
	Response	@SPB, ch_1, out_1 (, ch_2, out_2) 
Parameter		out_1-2: Bitmap image output 0 = OFF [Default], 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.
		ch_1-2: Output channel 0 = All outputs, 1 = MAIN, 2 = PinP
Getting example	Command	@GPB 
	Response	@GPB,0,1 
	Description	Getting the start-up bitmap output PinP window: Bitmap 1
Setting example	Command	@SPB,0,0 
	Response	@SPB,0,0 
	Description	Setting all outputs not to output bitmap at start-up Completed
Remarks		—

@GBD / @SBD		Dividing memory area
Getting	Command	@GBD
	Response	@GBD, num, block_1 (, block_2···)
Setting	Command	@SBD, num, mode (,block_1, block_2···)
	Response	@SBD, num, mode, block_1 (, block_2···)
Parameter		<p>num: The number of partitions 1 to 4 [Default] 1</p> <p>block_1-4: Block size of each memory 0 to 128 [Default] 128 Specify and return the divided block size. 1 block : 65,536 bytes The total size of all bitmaps: 128 blocks (8,388,608 bytes or smaller) Specify only if "3" is selected for the "mode" below. If the divide mode is set to "3", specify this value.</p> <p>mode: Dividing mode 0 = AUTO, 1 = RESIZE, 2 = FORCE, 3 = Specify size If "3" is selected, set the value for "block_1-4".</p>
Getting example	Command	@GBD
	Response	@GBD,2,64,64
	Description	Getting the dividing memory area for bitmap Bitmap 1 and 2: 64 blocks (4,194,304 bytes) are allocated for each.
Setting example	Command	@SBD,2,1
	Response	@SBD,2,1,64,64
	Description	Dividing the bitmap memory into two in RESIZE Bitmap 1 and 2: 64 blocks (4,194,304 bytes) are allocated for each. Completed
Remarks		—

@GBV		Memory area status
Getting	Command	@GBV
	Response	@GBV, num, block_1 (, block_2···)
Parameter		<p>num: The number of partitions 1 to 4 [Default] 1</p> <p>block_1-4: Block size of each memory actually used 0 to 128 [Default] 12</p>
Getting example	Command	@GBV
	Response	@GBV,2,32,0
	Description	Getting the actual memory area status Bitmap 1: 32 blocks (2,097,152 bytes) are used Bitmap 2: Not registered
Remarks		—

@GFZ / @SFZ		Freeze
Getting	Command	@GFZ ↵
	Response	@GFZ, freeze ↵
Setting	Command	@SFZ, ch, freeze ↵
	Response	@SFZ, ch, freeze ↵
Parameter		freeze: Setting freeze 0 = OFF [Default], 1 = ON
		ch: Output channel "1" fixed
Getting example	Command	@GFZ ↵
	Response	@GFZ,1 ↵
	Description	Getting the freeze status Input video is frozen and output.
Setting example	Command	@SFZ,1,1 ↵
	Response	@SFZ,1,1 ↵
	Description	Freezing the video Completed
Remarks		Images freeze temporarily. When input channel is switched or input signal is changed, the freeze is released automatically and input video is output normally.

@CAP		Input image capture
Setting	Command	@CAP, ch, bitmap ↵
	Response	@CAP, ch, bitmap ↵
Parameter		ch: Output channel "1" fixed
		bitmap: Bitmap number 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only the number of partitions or less value can be specified.
Setting example	Command	@CAP,1,2 ↵
	Response	@CAP,1,2 ↵
	Description	Registering the input image in Bitmap 2 Completed
Remarks		—



3.3.19 Configuring MSD

@GLS / @SLS		Front panel security lockout
Getting	Command	@GLS ↵
	Response	@GLS, lock ↵
Setting	Command	@SLS, lock ↵
	Response	@SLS, lock ↵
Parameter		lock: Front panel security lockout 0 = Unlocking [Default], 1 = Locking, 2 = Changing the current setting
Getting example	Command	@GLS ↵
	Response	@GLS,1 ↵
	Description	Getting the lock status Locked
Setting example	Command	@SLS,1 ↵
	Response	@SLS,1 ↵
	Description	Enabling the front panel security lockout Completed
Remarks		You can set the lockout targets in “ @GLM / @SLM Grouping front panel security lockout ”.

@GLM / @SLM		Grouping front panel security lockout
Getting	Command	@GLM ↵
	Response	@GLM, channel, menu, recall_crosspoint, command, unlock_button, power, pinp, volume ↵
Setting	Command	@SLM, channel, menu, recall_crosspoint, command, unlock_button, power, pinp, volume ↵
	Response	@SLM, channel, menu, recall_crosspoint, command, unlock_button, power, pinp, volume ↵
Parameter		channel : Input channel selection buttons menu : Menu operation button recall_crosspoint : Preset load execution command : Control command execution unlock_button : UNLOCK button power : DISPLAY POWER button pinp : PinP button, WINDOW button volume : MIC/LINE volume knob, SOURCE volume knob 0 = Not locked, 1 = Locked [Default]
Getting example	Command	@GLM ↵
	Response	@GLM,1,0,0,0,0,0,0,0 ↵
	Description	Getting the button security lockout target Input channel selection buttons are locked.
Setting example	Command	@SLM,1,0,0,0,0,0,0,0 ↵
	Response	@SLM,1,0,0,0,0,0,0,0 ↵
	Description	Setting the input channel selection buttons to be locked Completed
Remarks		—



@GBZ / @SBZ		Beep
Getting	Command	@GBZ ↵
	Response	@GBZ, bz ↵
Setting	Command	@SBZ, bz ↵
	Response	@SBZ, bz ↵
Parameter		bz: Beep 0 = OFF, 1 = ON [Default]
Getting example	Command	@GBZ ↵
	Response	@GBZ,1 ↵
	Description	Getting the beep status ON
Setting example	Command	@SBZ,1 ↵
	Response	@SBZ,1 ↵
	Description	Enabling beep Completed
Remarks		—

3.3.20 Status

@GSS		Input signal and sink device status														
Getting	Command	@GSS, channel, mode 														
	Response	@GSS, channel, mode, status_1 (, status_2, status_3···) 														
Parameter		<p>channel: I/O channel</p> <p>1 = IN1, 2 = IN2, 3 = IN3, 4 = IN4, 5 = IN5, 6 = IN6, 7 = IN7, 11 = HDMI OUT A, 12 = HDMI OUT B, 13 = HDBT OUT C</p> <p>mode / status_1-4: Target status</p> <p>channel = 1 to 7 (Digital input channel)</p> <p>0 = All of 1 to 4, 1 = Input signal type^{*1}, 2 = Video input signal format^{*2}, 3 = Audio input signal format^{*3}, 4 = HDCP input</p> <p>channel = 6 to 7 (Analog input channel)</p> <p>0 = All of 1 to 2, 1 = Input signal type^{*1}, 2 = Video input signal format^{*2}</p> <p>channel = 11 to 13 (Output channel)</p> <p>0 = All of 1 to 3, 1 = HDCP authentication status^{*4}, 2 = Output signal type^{*5}, 3 = Error code^{*6}</p> <p>*1 For input signal type, one of the following values is returned</p> <table border="1"> <tbody> <tr> <td>Hxx</td> <td>HDMI signal is input. xx stands for color depth (24 or 30).</td> </tr> <tr> <td>D</td> <td>DVI signal is input.</td> </tr> <tr> <td>R</td> <td>Analog RGB signal is input.</td> </tr> <tr> <td>Y</td> <td>Analog YPbPr signal is input.</td> </tr> <tr> <td>V</td> <td>Analog composite video signal is input.</td> </tr> <tr> <td>S</td> <td>Analog S-video signal is input.</td> </tr> <tr> <td>N</td> <td>No signal is input.</td> </tr> </tbody> </table>	Hxx	HDMI signal is input. xx stands for color depth (24 or 30).	D	DVI signal is input.	R	Analog RGB signal is input.	Y	Analog YPbPr signal is input.	V	Analog composite video signal is input.	S	Analog S-video signal is input.	N	No signal is input.
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S	Analog S-video signal is input.															
N	No signal is input.															

@GSS	Input signal and sink device status (Cont'd)																	
Parameter	*2 For format of video input signal																	
	<table border="1"> <thead> <tr> <th data-bbox="443 309 722 353">Example</th> <th data-bbox="722 309 1409 353">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 353 722 432">1080i 59.94Hz</td> <td data-bbox="722 353 1409 432">SDTV/HDTV signal is input, which returns the format type and vertical sync frequency.</td> </tr> <tr> <td data-bbox="443 432 722 510">800 x 600 60.00Hz</td> <td data-bbox="722 432 1409 510">RGB signal is input, and [Horizontal resolution x Vertical resolution] and vertical sync frequency are returned.</td> </tr> <tr> <td data-bbox="443 510 722 589">NTSC</td> <td data-bbox="722 510 1409 589">Analog composite video signal or analog S-video signal is input, which returns the format type.</td> </tr> <tr> <td data-bbox="443 589 722 667">56.83kHz 60.02Hz</td> <td data-bbox="722 589 1409 667">Undetectable signal is input, which returns the horizontal and vertical sync frequencies.</td> </tr> <tr> <td data-bbox="443 667 722 712">NO SIGNAL</td> <td data-bbox="722 667 1409 712">No video signal is input.</td> </tr> </tbody> </table>	Example	Description	1080i 59.94Hz	SDTV/HDTV signal is input, which returns the format type and vertical sync frequency.	800 x 600 60.00Hz	RGB signal is input, and [Horizontal resolution x Vertical resolution] and vertical sync frequency are returned.	NTSC	Analog composite video signal or analog S-video signal is input, which returns the format type.	56.83kHz 60.02Hz	Undetectable signal is input, which returns the horizontal and vertical sync frequencies.	NO SIGNAL	No video signal is input.					
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<table border="1"> <thead> <tr> <th data-bbox="443 1272 722 1317">Example</th> <th data-bbox="722 1272 1409 1317">Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="443 1317 722 1350">HDCP SUPPORT</td> <td data-bbox="722 1317 1409 1350">Device with HDCP is connected.</td> </tr> <tr> <td data-bbox="443 1350 722 1429">HDCP NOT SUPPORT</td> <td data-bbox="722 1350 1409 1429">Device without HDCP is connected.</td> </tr> <tr> <td data-bbox="443 1429 722 1507">HDCP ERROR</td> <td data-bbox="722 1429 1409 1507">Device with HDCP is connected, but the authorization failed.</td> </tr> <tr> <td data-bbox="443 1507 722 1585">HDCP CHECK NOW</td> <td data-bbox="722 1507 1409 1585">Connection status of sink device was changed, and the status is being checked.</td> </tr> <tr> <td data-bbox="443 1585 722 1664">SINK DEVICE DISCONNECT</td> <td data-bbox="722 1585 1409 1664">Sink device is disconnected.</td> </tr> <tr> <td data-bbox="443 1664 722 1742">Cat6 LINK DISCONNECT</td> <td data-bbox="722 1664 1409 1742">Cat6/Cat5e cable is disconnected.</td> </tr> <tr> <td data-bbox="443 1742 722 1776">Cat6 NO LINK</td> <td data-bbox="722 1742 1409 1776">Cat6/Cat5e cable is not connected.</td> </tr> <tr> <td data-bbox="443 1776 722 1821">UNCONNECTED</td> <td data-bbox="722 1776 1409 1821">Sink device is not connected.</td> </tr> </tbody> </table>	Example	Description	HDCP SUPPORT	Device with HDCP is connected.	HDCP NOT SUPPORT	Device without HDCP is connected.	HDCP ERROR	Device with HDCP is connected, but the authorization failed.	HDCP CHECK NOW	Connection status of sink device was changed, and the status is being checked.	SINK DEVICE DISCONNECT	Sink device is disconnected.	Cat6 LINK DISCONNECT	Cat6/Cat5e cable is disconnected.	Cat6 NO LINK	Cat6/Cat5e cable is not connected.	UNCONNECTED	Sink device is not connected.
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Getting example	Command	@GSS,1,0 																											
	Response	@GSS,1,0,H30,1080P 60Hz,LINEAR PCM 48kHz, HDCP ON 																											
	Description	Getting IN1 all statuses - Input signal type : 30-BIT COLOR HDMI signal - Video input signal : 1080P 60Hz - Audio input signal : LINEAR PCM 48kHz - HDCP : ON																											
Remarks		If PinP is selected for output channel, only error code is valid for getting status. “0” is returned for error code of digital and analog audio outputs.																											

@GES		Viewing sink device EDID
Getting	Command	@GES, channel, mode ↵
	Response	@GES, channel, mode, status_1 (, status_2, status_3) ↵
Parameter		<p>channel: Output connector 1 = HDMI OUT A, 2 = HDMI OUT B, 3 = HDBT OUT C</p> <p>mode: Target status 0 = All of 1 to 4, 1 = Monitor name, 2 = Resolution and dot clock, 3 = HDMI support status, sampling structure, and color depth*¹, 4 = Audio support status and sampling frequency, bit length, the number of channels, and support status of compressed audio *²</p> <p>status_1-3: Status</p> <p>*1 For sink device that does not support HDMI, "DVI" is returned. For sink device that supports HDMI, "HDMI" is returned, and then supported sampling structures (RGB, YCbCr 4:2:2, and YCbCr 4:4:4 separated with "/") and supported color depths (24, 30, and 36, separated with "/") are returned in that order.</p> <p>*2 For sink device that does not support audio, "AUDIO NOT SUPPORT" is returned. For sink device that supports audio, "LINEAR PCM" is returned, and then supported sampling frequencies (32, 44.1, 48, 88.2, 96, 176.4, and 192, separated with "/"), bit length (16, 20, and 24, separated with "/"), the number of channels (one of 1 to 8), and "COMPRESSED AUDIO SUPPORT" (If compressed audio is supported) are returned in that order.</p>
Getting example	Command	@GES,1,0 ↵
	Response	@GES,1,0,MSD-701AMP,1920x1080 148.50MHz,DVI,AUDIO NOT SUPPORT ↵
	Description	<p>Getting the EDID of the sink device connected to HDMI OUT A</p> <ul style="list-style-type: none"> - Monitor name : MSD-701AMP - Resolution : 1920x1080 - Dot clock : 148.50MHz - HDMI : Not supported - Audio : Not supported
Remarks		—

@GHC		System status
Getting	Command	@GHC ↵
	Response	@GHC, fan, temp ↵
Parameter		fan : Rotation speed 0 = Normal, 1 = Abnormal
		temp_in: Internal temperature status 0 = Normal, 1 = Abnormal
Getting example	Command	@GHC ↵
	Response	@GHC,1,0 ↵
	Description	Getting the system check result - Rotation speed : Abnormal - Internal temperature status : Normal
Remarks		—

@GIV		Device information
Getting	Command	@GIV ↵
	Response	@GIV, id, ver ↵
Parameter		id : Model number ver : Firmware version
Getting example	Command	@GIV ↵
	Response	@GIV, MSD-701AMP,1.00 ↵
Description		Getting the product information Model number: MSD-701AMP; Firmware version: 1.00
Remarks		—

User Guide (Command Guide) of MSD-701AMP

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Headquarters

IDK Corporation
7-9-1 Chuo, Yamato-shi, Kanagawa-pref.
242-0021 JAPAN
TEL: +81-46-200-0764 FAX: +81-46-200-0765

Email: idk_eng@idk.co.jp

URL: www.idkav.com

USA

IDK America Inc.
72 Grays Bridge Road Suite 1-C, Brookfield, CT 06804
TEL: +1-203-204-2445

Email: sales@idkav.com

URL: www.idkav.com

Europe

IDK Europe GmbH
Lise-Meitner-Str. 6, D-40878 Ratingen
TEL: +49-2102-578-301-0

Email: info@idkav.eu

URL: www.idkav.com



Product information Support

Arvanics Corporation
7-9-1 Chuo, Yamato-shi, Kanagawa-pref.
242-0021 JAPAN
TEL: +81-46-259-6920 FAX: +81-46-259-6930

Email: info@arvanics.com

URL: www.arvanics.com

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