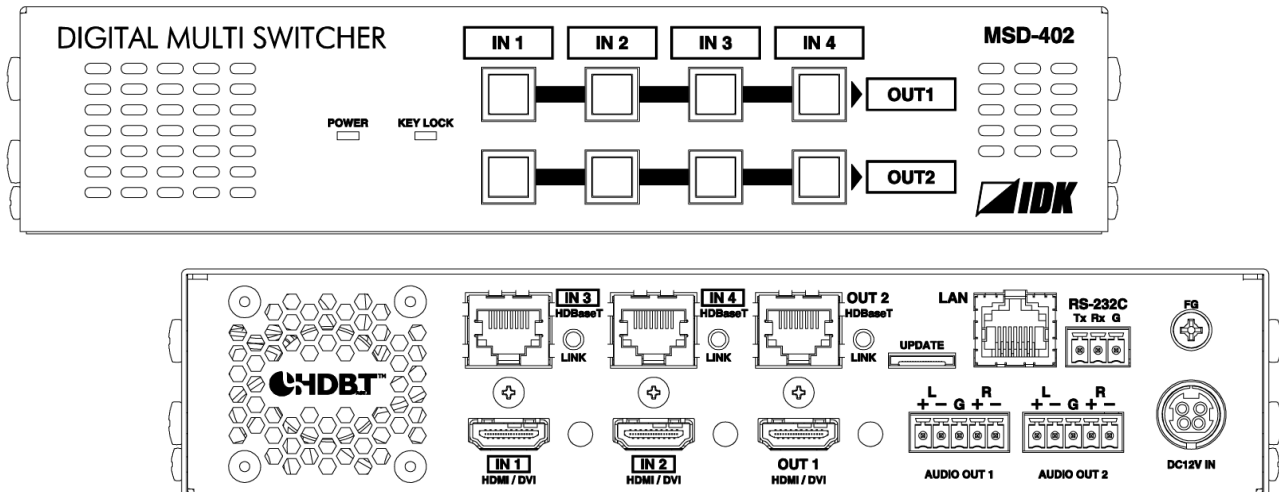


## Digital Multi Switcher

# MSD-402

<Command Reference Guide>

Ver.1.4.0



- 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

- All rights reserved.
- Some information contained in this Command guide such as exact product appearance, communication commands, and so on may differ depending on the product version.
- This Command guide is subject to change without notice. You can download the latest version from IDK's website at: [www.idkav.com](http://www.idkav.com)

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.

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# 1 About this guide

---

This guide contains information of communication commands that control the MSD via RS-232C or LAN communication.

■ **You can perform the following operations using communication commands**

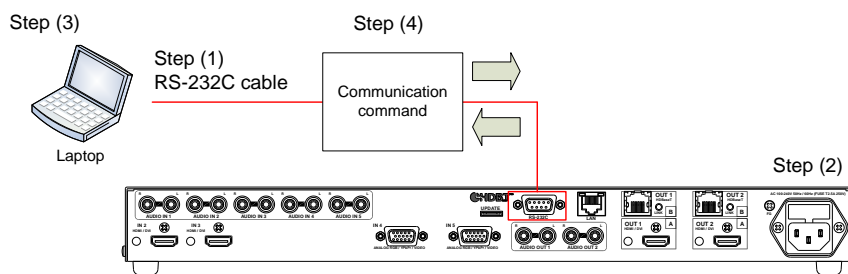
- Switching channels.
- Setting I/O, audio, and EDID.
- Setting preset memory.
- Setting and displaying bitmaps and such.

## 2 Setup and specification of communication

### 2.1 RS-232C communication

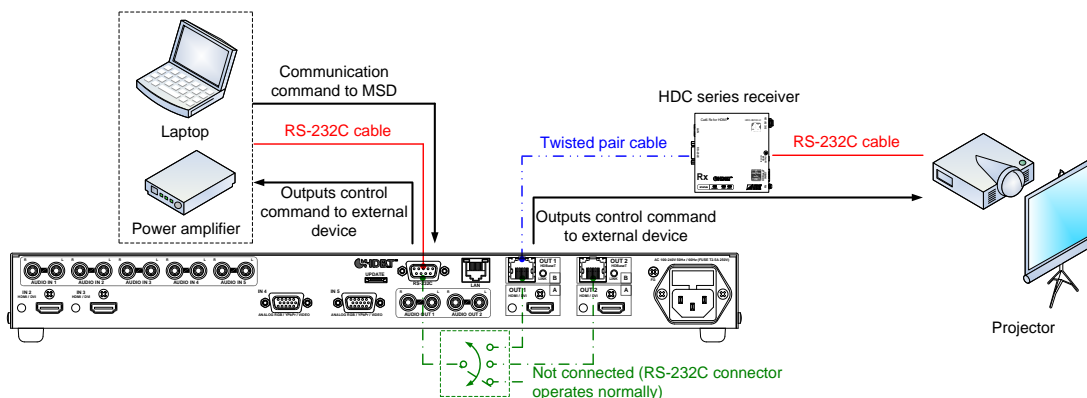
#### 2.1.1 Setup RS-232C communication

- (1) Connect the MSD and the control device over an RS-232C cable.  
If connecting an RS-232C cable to the provided 3-pin terminal block, please assemble the cable as needed. For connecting the terminal block, see “2.1.2 RS-232C connector (P.8)”.
- (2) Set the RS-232C communication as follows:
  - RS-232C communication: baud rate, data bit length, parity check, and stop bit  
【Reference: User’s 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. 2.1] Setting RS-232C communication

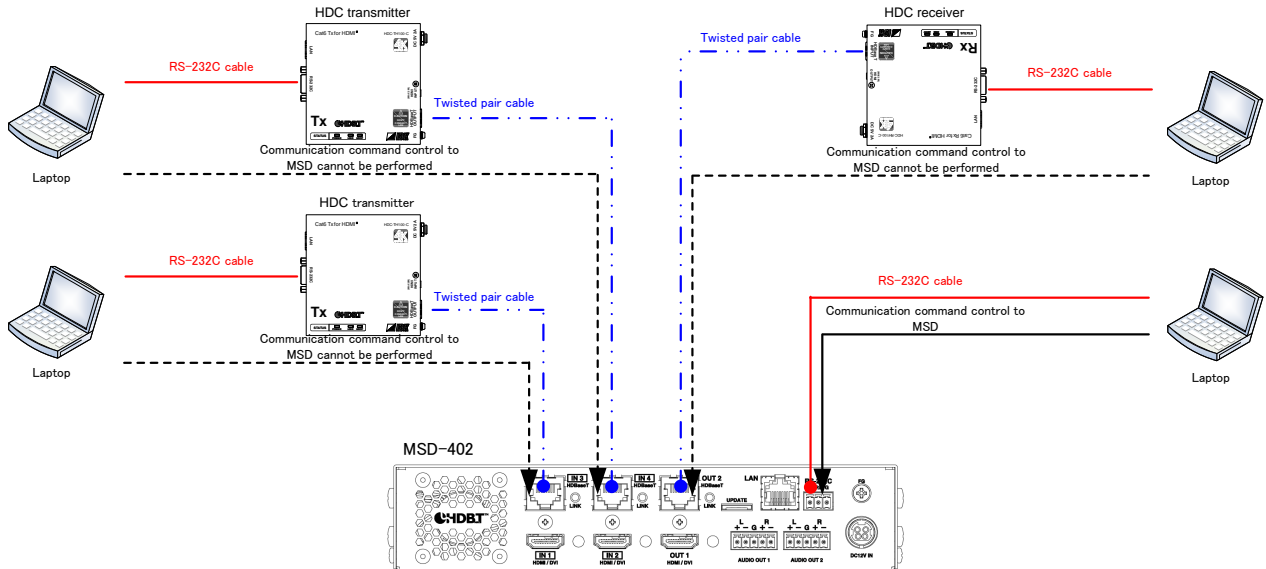
#### ■ Operation example of RS-232C communication



[Fig. 2.2] Sample application of RS-232C communication

## ■ Connecting control devices (RS-232C)

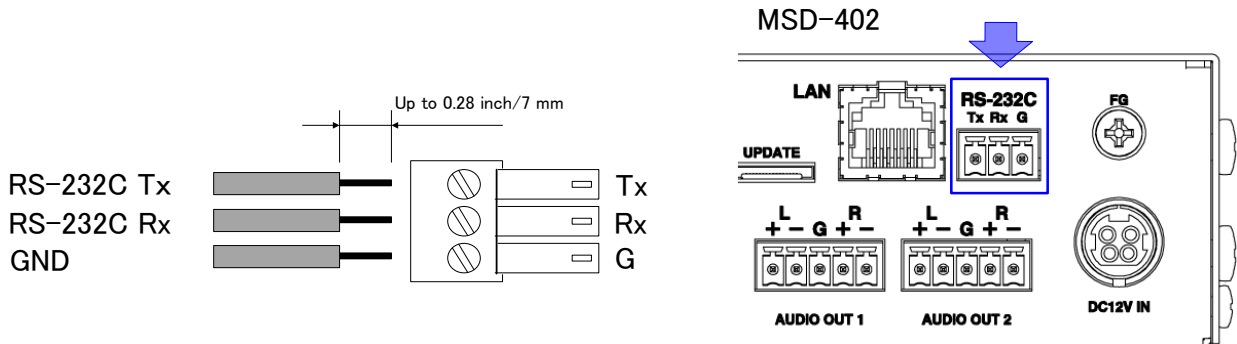
[Note] The MSD does not support communication command control from the RS-232C of an HDC product that is connected to the HDBaseT connector.



[Fig. 2.3] Connecting control devices (RS-232C)

## 2.1.2 RS-232C connector

Secure a cable to the provided 3-pin terminal block and connect them to the MSD. AWG28 to AWG16 are recommended. The peeling length is up to 0.28 inch/7 mm. If using the 9-pin D-sub connector, short RTS/CTS and DTR/DSR as needed.



[Fig. 2.4] RS-232C connector

## 2.1.3 Specification of RS-232C communication

[Table 2.1] RS-232C specification

Compliant standard	RS-232C
Baud rate	4800, 9600, 19200, 38400 [bps]
Data bit	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



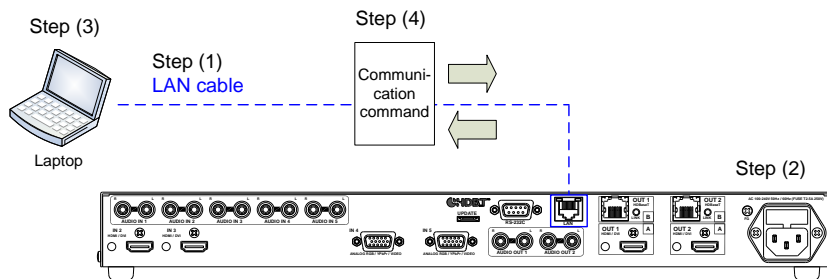
## 2.2 LAN communication

### 2.2.1 Setup 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
  - TCP port number: 23, 1100, 6000 to 6999

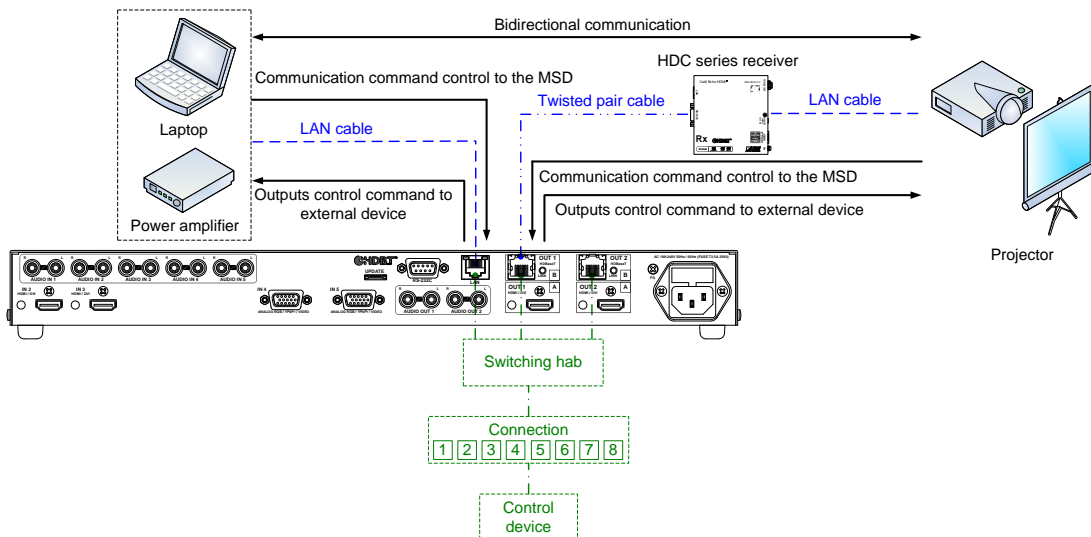
【Reference: User's Guide】

- (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] Control via LAN communication**

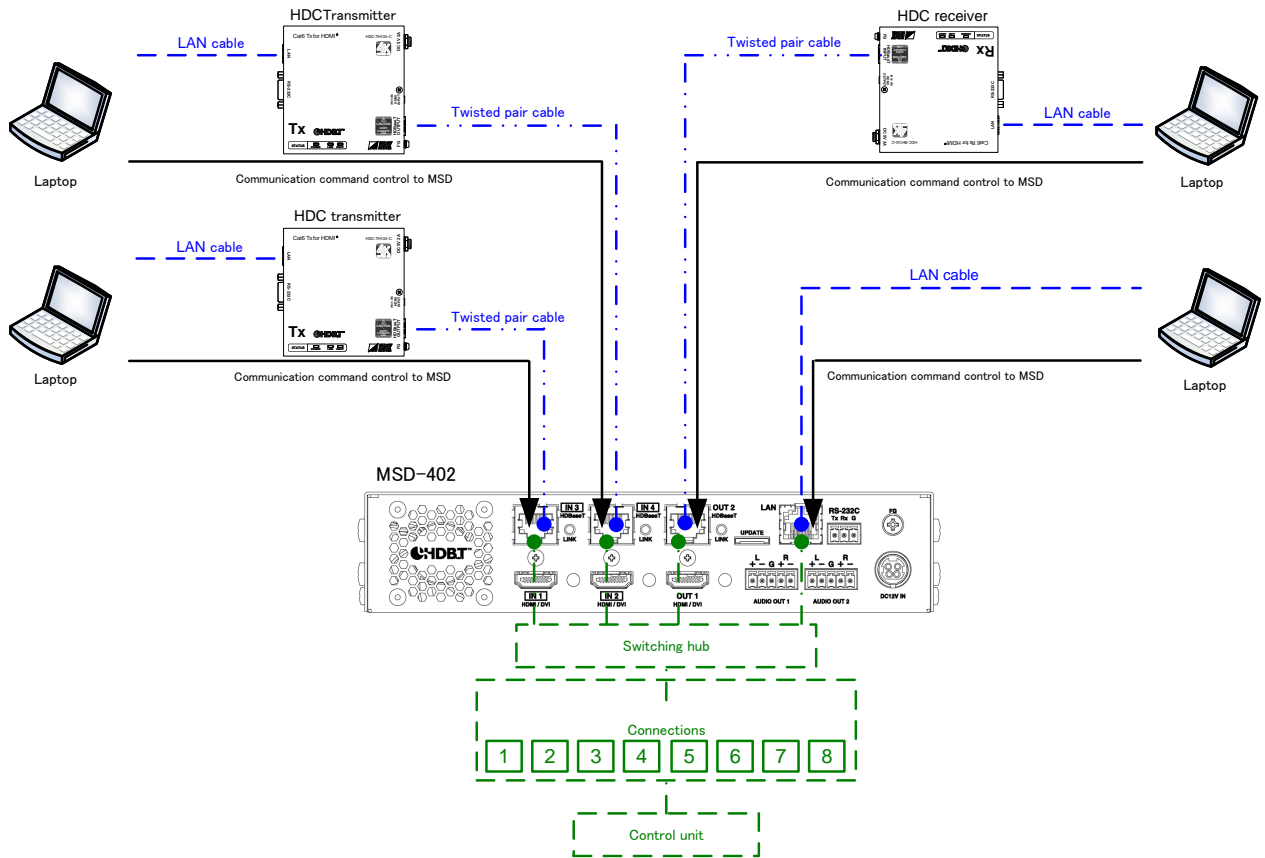
#### ■ Operation example of LAN communication



**[Fig. 2.6] Sample application of LAN communication**

■ **Connecting control devices (LAN)**

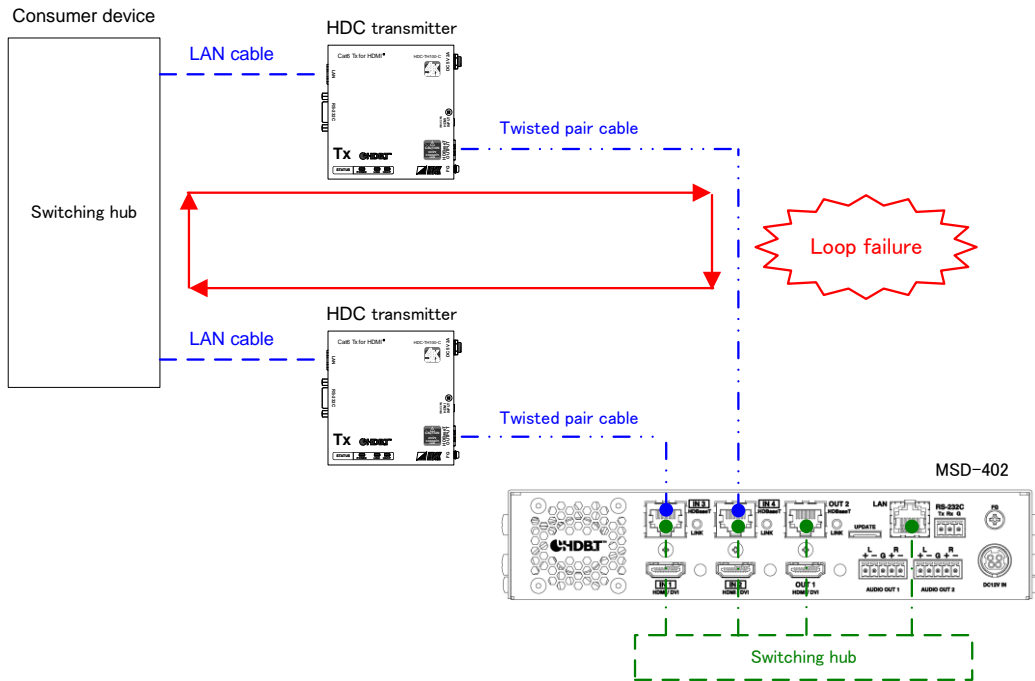
The LAN port of the MSD and LAN port of an HDC product that is connected to the HDBaseT connector are all connected over switching hub in the MSD. Communication command control to the MSD can be performed from all LAN ports of PCs.



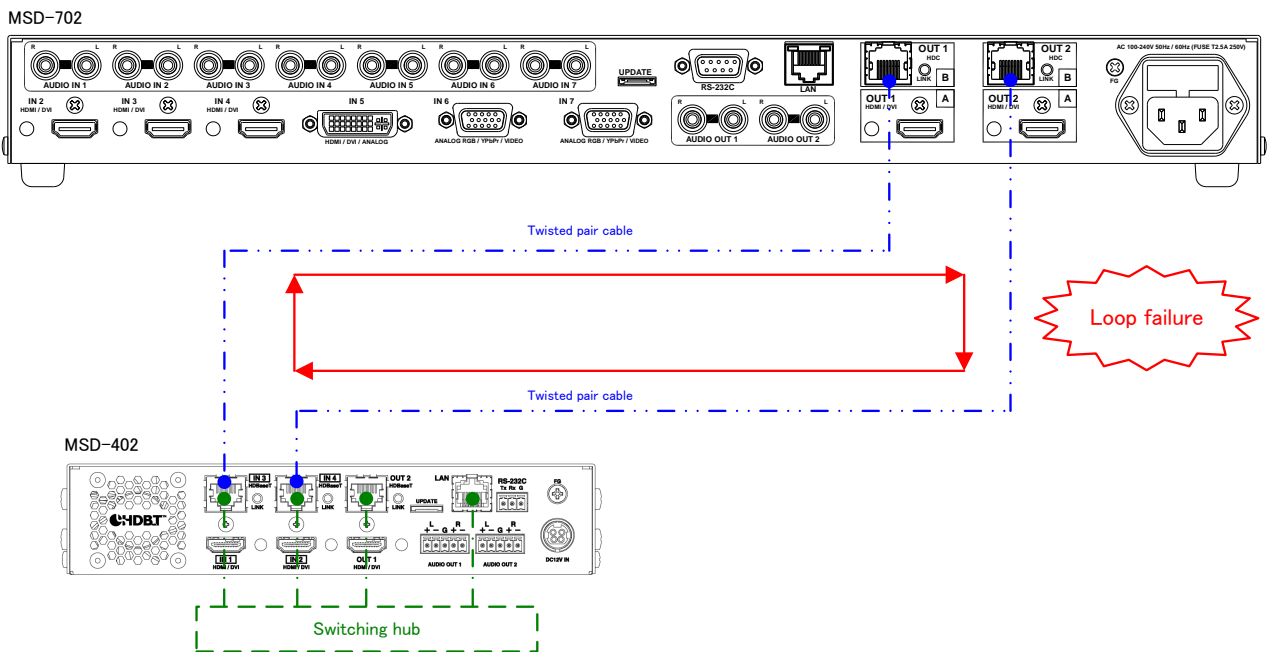
[Fig. 2.7] Connecting control devices (LAN)

■ Loop failure of LAN connection

The MSD has a function that is the same as a 4 ports (switching hub). The network may be down due to a loop failure caused by the connection shown below.



[Fig. 2.8] Loop failure problem with consumer device

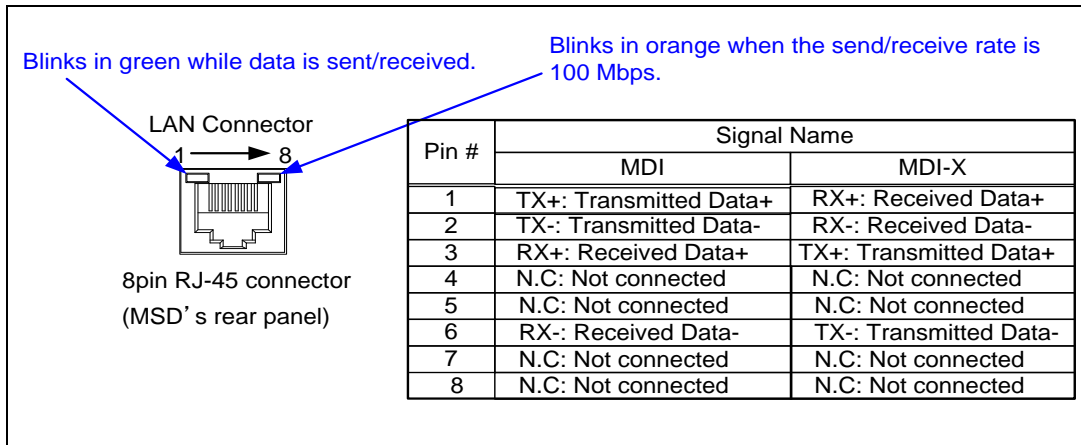


[Fig. 2.9] Loop problem with IDK product

## 2.2.2 LAN connector

LAN connector pin assignments:

It supports Auto MDI/MDI-X, which distinguishes/switches straight and cross cables automatically.



[Fig. 2.10] LAN connector

## 2.2.3 Specification of LAN communication

[Table 2.2] LAN communication specification

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.

## 2.2.4 The number of TCP-IP connections

The MSD series can connect up to eight connections (eight ports) simultaneously. If the MSD is controlled from nine or more PCs, they may not be connected to the MSD normally, since the number of connections that can be used is limited.

If you use nine connections or more, execute TCP-IP connection/close every time the communication command is sent or received from the software of user's side. By doing so, MSD's ports are occupied or released so that nine or more connections can be connected logically.

[Table 2.3] Increasing connections

Your PC software		MSD
<b>TCP-IP connection</b>	→	<b>(Occupied by 1 port)</b>
Send command (@xxx)	→	
	←	Send back command (@xxx)
<b>TCP-IP close</b>	→	<b>(Release 1 port)</b>

**Note:** If any command is not sent from the PC side to the MSD for 30 seconds, the MSD disconnects the connection to avoid the limitation problem on the number of connections. As a result, connection needs to be established again from the PC side after the current connection of the PC is disconnected. (Since the number of ports in the MSD is eight, ports are occupied permanently if the PC is turned off while connections are valid. To prevent this, the MSD disconnects connections if no communication command is sent from the PC side.)

## 3 Command

---

### 3.1 Summary

---

A command consists of “@” (“40” in hexadecimal), 3 one-byte alphabetical characters (upper and lower cases), and parameters.

“,” (a comma, “2C” in hex) is indicated between two characters.

“↵” 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: @SOT,1  
          @ERR,1

#### ■ Using as HELP:

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

Example:↵

```
----- HELP (1/12) -----
```

(CHANNEL SELECT Command)

@SSW / @GSW : Set/Get Input Channel

@SSV / @GSV : Set/Get Video Input Channel

@SSA / @GSA : Set/Get Audio Input Channel

## 3.2 Command list

---

### ■ Error status

Command	Function
@ERR	Error status

### ■ Input channel setting

Command	Function
@GSW / @SSW	Switching channel
@GPI / @SPI	PinP output
@GLI / @SLI	HDC-TH200 LINK mode
@GCG / @SCG	HDC-TH200 CHANGE
@GCH / @SCH	HDC-TH200 input channel remote switching
@GCS	HDC-TH200 connection status

### ■ Position, size, and masking

Command	Function
@GOT / @SOT	Output resolution
@GTD	Actual output resolution
@GUM / @SUM	Aspect ratio of sink device
@GAP / @SAP	Aspect ratio
@GAR / @SAR	Aspect ratio restoration
@GOV / @SOV	Overscan
@GNP / @SNP	Input position
@GNS / @SNS	Input size
@GNM / @SNM	Input masking
@IAS	Input automatic sizing
@GOP / @SOP	Output position
@GOS / @SOS	Output size
@GOM / @SOM	Output masking
@OAS	Output automatic sizing
@GBC / @SBC	Background color
@GTP / @STP	Test pattern

### ■ Image quality

Command	Function
@GFL / @SFL	Sharpness
@GBR / @SBR	Input brightness
@GCO / @SCO	Input contrast
@GHU / @SHU	Hue
@GST / @SST	Saturation
@GSU / @SSU	Black level
@IDC	Input default color
@GOB / @SOB	Output brightness
@GOC / @SOC	Output contrast
@GGM / @SGM	Gamma
@ODC	Output default color

### ■ Input setting

Command	Function
@GDT / @SDT	No-signal-input monitoring
@GHE / @SHE	HDCP input enabled/disabled
@GIQ / @SIQ	Input equalizer
@GID / @SID	Automatic detection of input video interruption
@GFX / @SFX	Setting fixing for each input signal

### ■ Input timing setting

Command	Function
@GHT	The total number of horizontal dots
@GHS / @SHS	Horizontal start position
@GHD / @SHD	Horizontal display period
@GVS / @SVS	Vertical start position
@GVD / @SVD	Vertical display period
@RTT	Initializing input timing setting

### ■ Output setting

Command	Function
@GDM / @SDM	Output mode
@GUY / @SUY	Synchronous signal output when no video signal is input
@GBO / @SBO	Output video when no video signal is input
@GFF / @SFF	Video switching effect
@GFT / @SFT	Video switching time
@GWC / @SWC	Wipe color
@GEN / @SEN	HDCP output
@GHR / @SHR	The number of HDCP retries
@GDC / @SDC	Deep Color
@GCE / @SCE	CEC connection
@HAU	HDCP re-authentication
@GAU / @SAU	Priority of input channel automatic switching (Input video signal OFF→ON)
@GOF / @SOF	Priority of input channel automatic switching (Input video signal ON→OFF)
@GMT / @SMT	Masking time after automatic switching of input channel



### ■ Audio setting

Command	Function
@GSL / @SSL	Audio output level
@SOL	Relative value of audio output level
@GOL	Limit status of audio output level
@GAM / @SAM	Audio output mute
@GSO / @SSO	Audio input level
@SIL	Relative value of audio input level
@GIL	Limit status of audio input level
@GDO / @SDO	Audio output connector
@GMD / @SMD	Multi channel audio output
@GAT / @SAT	Test tone

### ■ EDID setting

Command	Function
@GED / @SED	EDID data
@GVF / @SVF	Input resolution for PC
@GHF / @SHF	Input resolution for AV devices
@GDI / @SDI	Deep Color input
@GAF / @SAF	Audio format
@GSP / SSP	The number of speakers
@RME	Copying EDID

### ■ Communication setting

Command	Function
@GCT / @SCT	RS-232C communication
@GIP / @SIP	IP address
@GSB / @SSB	Subnet mask
@GGW / @SGW	Gateway address
@GLP / @SLP	TCP port number
@GMC	MAC address

### ■ Preset memory

Command	Function
@RCM	Loading cross point memory
@SCM / @SEM	Saving channels to cross point memory
@GCM / @ECM	Editing cross point memory
@RPM / @SPM	Loading/saving all settings
@SCP	Copying output setting
@GMU / @SMU	Startup settings

### ■ Bitmap setting

Command	Function
@GBM / @SBM	Outputting bitmap image
@GBB / @SBB	Background color
@GBT / @SBT	Aspect ratio
@GZP / @SZP	Display position
@GBA / @SBA	Bitmap assignment
@GPB / @SPB	Outputting bitmap at startup
@GBD / @SBD	Dividing bitmap memory
@GBV	Bitmap memory status
@GFZ / @SFZ	Freeze
@CAP	Capturing input image

### ■ Other setting

Command	Function
@GLS / @SLS	Key lock
@GIV	Version

### ■ Status display

Command	Function
@GSS	Input and output status
@GES	Monitor's EDID information

### 3.3 Detailed descriptions of each command

#### 3.3.1 Error status

@ERR	Error status	
Format	Only return value	
Return value	@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 = Not used. 6 = Not used. 7 = Not used. 8 = Loading EDID from the sink device failed. 9 = Not used. 10 = Not used. 11 = Not used. 12 = Not used. 13 = The image could not be captured since the image size to be captured exceeded the reserved memory size. 14 = Capturing input image failed.	
Example	@IOS ↴ @ERR,2 ↴	Sending @IOS command Command format error
Remarks	—	

### 3.3.2 Selecting input channel

@GSW / @SSW	Switching channel	
Function	Getting	Setting
Format	@GSW ↵	@SSW, input_1, output_1 (, input_2, output_2···) ↵
Return value	@GSW, video_o1, audio_o1, video_o2, audio_o2, video_p1, audio_p1, video_p2, audio_p2 ↵	@SSW, input_1, output_1 (, input_2, output_2···) ↵
Parameter	video_o1-o2: Video input channel of OUT audio_o1-o2: Audio input channel of OUT video_p1-p2: Video input channel of PinP audio_p1-p2: Audio input channel of PinP input_1-4 : Video/audio input channel 0 = OFF [Default], 1 = IN1, 2 = IN2, 3 = IN3, 4 = IN4	
	output_1-4:Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GSW ↵ @GSW,1,1,2,2,2,0,1,0 ↵	Getting output channel. OUT1 output channel: IN1 OUT2 output channel: IN2 PinP1 output channel: IN2 PinP2 output channel: IN1
	@SSW,1,1 ↵ @SSW,1,1 ↵	OUT1 output channel: IN1 Completed normally
Remarks	Video and audio cannot be set individually. Set to "0" automatically, since audio output channel of PinP is not used.	

@GPI / @SPI	PinP output	
Function	Getting	Setting
Format	@GPI ↵	@SPI, ch_1, out_1 (, ch_2, out_2) ↵
Return value	@GPI, out_1, out_2 ↵	@SPI, ch_1, out_1 (, ch_2, out_2) ↵
Parameter	ch_1-2:Output channel 0 = All outputs (PinP1, PinP2), 1 = PinP1, 2 = PinP2	
	out_1-2:PinP output 0 = OFF [Default], 1 = ON	
Example	@GPI ↵ @GPI,0,1 ↵	Getting PinP status (ON/OFF) PinP1: OFF, PinP2: ON
	@SPI,1,1 ↵ @SPI,1,1 ↵	PinP1 output: ON Completed normally
Remarks	—	









<b>@GLI / @SLI</b>	<b>HDC-TH200 LINK mode</b>	
Function	Getting	Setting
Format	@GLI ↵	@SLI, ch_1, link_1 (, ch_2, link_2) ↵
Return value	@GLI, link_1, link_2 ↵	@SLI, ch_1, link_1 (, ch_2, link_2) ↵
Parameter	ch_1-2 : Input channel 0 = All inputs, 3 = IN3, 4 = IN4	
	link_1-2 : LINK mode 0 = invalid * default, 1 = valid	
Example	@GLI ↵	Getting LINK mode status
	@GLI,1,0 ↵	IN3 : valid, IN4 : invalid
	@SLI,3,1 ↵	IN3 LINK mode : valid
	@SLI,3,1 ↵	Completed normally
Remarks	—	

<b>@GCG / @SCG</b>	<b>HDC-TH200 CHANGE mode</b>	
Function	Getting	Setting
Format	@GCG ↵	@SCG, ch_1, change_1 (, ch_2, change_2) ↵
Return value	@GCG, change_1, change_2 ↵	@SCG, ch_1, change_1 (, ch_2, change_2) ↵
Parameter	ch_1-2 : Input channel 0 = All inputs, 3 = IN3, 4 = IN4	
	change_1-2 : CHANGE mode 0 = invalid *default, 1 = valid	
Example	@GCG ↵	Getting CHANGE mode status
	@GCG,1,0 ↵	IN3 : valid, IN4 : invalid
	@SCG,3,1 ↵	IN3 CHANGE mode : valid
	@SCG,3,1 ↵	Completed normally
Remarks	—	

<b>@GCH / @SCH</b>	<b>HDC-TH200 input channel remote switching</b>	
Function	Getting	Setting
Format	@GCH [↵]	@SCH, ch_1, channel_1 (, ch_2, channel_2) [↵]
Return value	@GCH, channel_1, channel_2 [↵]	@SCH, ch_1, channel_1 (, ch_2, channel_2) [↵]
Parameter	ch_1-2 : Input channel 0 = All inputs, 3 = IN3, 4 = IN4	
	channel_1-2 : HDC-TH200 input channel 0 = digital input channel *default, 1 = analog input channel	
Example	@GCH [↵]	Getting input channel status of HDC-TH200 IN3: digital input channel IN4: analog input channel
	@GCH,0,1 [↵]	
	@SCH,3,1 [↵]	IN3: Setting HDC-TH200 input channel to analog Completed normally
Remarks	If this command is executed while <b>@GCG / @SCG HDC-TH200 CHANGE (P.21)</b> is invalid, it will be error.	

<b>@GCS</b>	<b>HDC-TH200 connection status</b>	
Function	Getting	
Format	@GCS [↵]	
Return value	@GCS, status_1, status_2 [↵]	
Parameter	status_1 : connection status between IN3 and HDC-TH200 status_2 : connection status between IN4 and HDC-TH200 0 = HDC-TH200 is not connected 1 = HDC-TH200 is connected as LINK mode (digital input channel is selected) 2 = HDC-TH200 is connected as LINK mode (analog input channel is selected) 3 = HDC-TH200 is connected as CHANGE mode	
Example	@GCS [↵]	Getting connection status between HDC-TH200 IN3: HDC-TH200 is connected as CHANGE mode, IN4 is not connected with HDC-TH200
	@GCS,3,0 [↵]	
Remarks	—	

### 3.3.3 Position, size, and masking

@GOT / @SOT	Output resolution	
Function	Getting	Setting
Format	@GOT 	@SOT, ch_1, resolution_1 (, ch_2, resolution_2) 
Return value	@GOT, resolution_1, resolution_2 	@SOT, ch_1, resolution_1 (, ch_2, resolution_2) 
Parameter	resolution_1-2: Output resolution 0 = AUTO-A [Default], 1 = VGA (640x480), 2 = SVGA (800x600), 3 = XGA (1024x768), 4 = WXGA (1280x768), 5 = WXGA (1280x800), 6 = Quad-VGA (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 = 480i 59.94 Hz, 19 = 480p 59.94 Hz, 20 = 576i 50 Hz, 21 = 576p 50 Hz, 22 = 720p 50 Hz, 23 = 720p 59.94 Hz, 24 = 720p 60 Hz, 25 = 1080i 50 Hz, 26 = 1080i 59.94 Hz, 27 = 1080i 60 Hz, 28 = 1080p 50 Hz, 29 = 1080p 59.94 Hz, 30 = 1080p 60 Hz	
	ch_1-2: Output channel 0 = All inputs, 1 = OUT1, 2 = OUT2	
Example	@GOT 	Getting output resolution
	@GOT,6,29 	OUT1: Quad-VGA; OUT2: 1080p 59.94Hz
	@SOT,1,10 	Setting OUT1 output resolution to SXGA+
	@SOT,1,10 	Completed normally
Remarks	—	

<b>@GTD</b>	<b>Actual output resolution</b>	
Function	Getting	
Format	@GTD	
Return value	@GTD, resolution_1, resolution_2	
Parameter	resolution_1-2: Actual output resolution 1 = VGA (640x480), 2 = SVGA (800x600), 3 = XGA (1024x768), 4 = WXGA (1280x768), 5 = WXGA (1280x800), 6 = Quad-VGA (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 = 480i 59.94 Hz, 19 = 480p 59.94 Hz, 20 = 576i 50 Hz, 21 = 576p 50 Hz, 22 = 720p 50 Hz, 23 = 720p 59.94 Hz, 24 = 720p 60 Hz, 25 = 1080i 50 Hz, 26 = 1080i 59.94 Hz, 27 = 1080i 60 Hz, 28 = 1080p 50 Hz, 29 = 1080p 59.94 Hz [Default], 30 = 1080p 60 Hz	
Example	@GTD @GTD,29,26	Getting actual output resolution OUT1:1080p 59.94Hz; OUT2: 1080i 59.94 Hz
Remarks	If @GOT / @SOT Output resolution (P.23) is set to "AUTO-A" or "AUTO-B", the actual output resolution is replied. If it is set to a resolution other than "AUTO-A" and "AUTO-B", the set resolution is replied.	

<b>@GUM / @SUM</b>	<b>Aspect ratio of sink device</b>	
Function	Getting	Setting
Format	@GUM	@SUM, ch_1, aspect_1 (, ch_2, aspect_2)
Return value	@GUM, aspect_1, aspect_2	@SUM, ch_1, aspect_1 (, ch_2, aspect_2)
Parameter	aspect_1-2: Aspect ratio of the sink device 0 = RESOLUTION [Default], 1 = 4:3, 2 = 5:4, 3 = 5:3, 4 = 16:9, 5 = 16:10 ch_1-2: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2	
Example	@GUM @GUM,4,5 @SUM,1,4 @SUM,1,4	Getting aspect ratio of the connected sink device. OUT1: 16:9; OUT2: 16:10 Connecting 16:9 sink device to OUT1. Completed normally.
Remarks	-	











<b>@GAP / @SAP</b>		<b>Aspect ratio</b>	
Function	Getting	Setting	
Format	@GAP ↵	@SAP, ch_1, aspect_1 (, ch_2, aspect_2···) ↵	
Return value	@GAP, aspect_1, aspect_2, aspect_3, aspect_4 ↵	@SAP, ch_1, aspect_1 (, ch_2, aspect_2···) ↵	
Parameter	aspect_1-4: 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_1-4:input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GAP ↵	Getting aspect ratio.	
	@GAP,0,0,2,0 ↵	IN3:4:3; Other input channels: AUTO-1	
	@SAP,4,2 ↵	Setting IN4 aspect ratio to 4:3.	
	@SAP,4,2 ↵	Completed normally.	
Remarks	—		

<b>@GAR / @SAR</b>		<b>Aspect ratio restoration</b>	
Function	Getting	Setting	
Format	@GAR ↵	@SAR, ch_1, mode_1 (, ch_2, mode_2···) ↵	
Return value	@GAR, mode_1, mode_2, mode_3, mode_4 ↵	@SAR, ch_1, mode_1 (, ch_2, mode_2···) ↵	
Parameter	mode_1-4: Aspect ratio restoration processing 0 = Letter box/Side panel [Default], 1 = Side cut/Top bottom cut		
	ch_1-4:input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GAR ↵	Getting aspect ratio restoration processing.	
	@GAR,0,0,1,0 ↵	IN3: Side cut/Top bottom cut Other input channels: Letter box/Side panel	
	@SAR,4,1 ↵	Setting IN4 to Side cut/Top bottom cut	
	@SAR,4,1 ↵	Completed normally.	
Remarks	—		

<b>@GOV / @SOV</b>		<b>Overscan</b>
Function	Getting	Setting
Format	@GOV ↵	@SOV, ch_1, overscan_1 (, ch_2, overscan_2···) ↵
Return value	@GOV, overscan_1, overscan_2, overscan_3, overscan_4 ↵	@SOV, ch_1, overscan_1 (, ch_2, overscan_2···) ↵
Parameter	overscan_1-4: Overscan 100 % to 115 % [Default]: SDTV:105 %, HDTV or PC: 100%	
	ch_1-4:input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GOV ↵	Getting overscan.
	@GOV,100,100,105,100 ↵	IN3: 105%, Other input channels: 100%
	@SOV,2,105 ↵ @SOV,2,105 ↵	Setting IN2 overscan to 105% Completed normally.
Remarks	—	









<b>@GNP / @SNP</b>		<b>Input position</b>
Function	Getting	Setting
Format	@GNP ↵	@SNP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2···) ↵
Return value	@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 ↵	@SNP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2···) ↵
Parameter	h_position_1-4: Horizontal input position -Horizontal input size to +Horizontal output resolution [Default]: 0	
	v_position_1-4: Vertical input position -Vertical input size to +Vertical output resolution [Default]: 0	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 5 = IN5	
Example	@GNP ↵ @GNP,-50,20,0,0,0,0,0,0 ↵	Getting input position. IN1: horizontal input display is -50, vertical input display +20 Other input channels: horizontal and vertical input positions are 0.
	@SNP,1,-50,20 ↵ @SNP,1,-50,20 ↵	Setting IN1 horizontal and vertical input positions are to -50 and +20, respectively. Completed normally.
	Remarks	If resolutions differ depending on output, the resolution of OUT1 will be the standard.

@GNS / @SNS	Input size	
Function	Getting	Setting
Format	@GNS 	@SNS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2···) 
Return value	@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 	@SNS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2···) 
Parameter	h_size_1-4: Horizontal input size Horizontal output resolution÷4 to Horizontal output resolution×4 [Default]: Horizontal output resolution	
	v_size_1-4: Vertical display size Vertical output resolution÷4 to Vertical output resolution×4 [Default]: Vertical output resolution	
	ch_1-4: Vertical display size 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GNS 	Getting input size.
	@GNS,1925,1084,1920,1080,1920,1080,1920,1080,1920,1080 	Horizontal and vertical display sizes of IN1 are 1925 and 1084, respectively; Other input channels: 1920 and 1080, respectively.
	@SNS,1,1925,1084 	Setting IN1 horizontal and vertical input size are 1925 and 1084, respectively.
	@SNS,1,1925,1084 	Completed normally.
Remarks	If resolutions differ depending on outputs, the resolution of OUT1 will be the standard.	

<b>@GNM / @SNM</b>	<b>Input masking</b>	
Function	Getting	Setting
Format	@GNM, ch	@SNM, ch, left, right, top, bottom
Return value	@GNM, ch, left, right, top, bottom	@SNM, ch, left, right, top, bottom
Parameter	ch: Input channel 1 = IN1 to 4 = IN4 left: Left side masking Horizontal input position to right side masking [Default]: 0 right: Right side masking Left side masking to horizontal input position +horizontal input size [Default]: Horizontal input size top: Top side masking Vertical input position to bottom side masking [Default]: 0 bottom: Bottom side masking Top side masking to vertical input position +vertical input size [Default]: Vertical input size	
Example	@GNM,1 @GNM,1,0,1920,0,1080 @SNM,1,0,1920,0,1080 @SNM,1,0,1920,0,1080	Getting IN1 input masking. Left: 0, right: 1920, top:0, bottom: 1080 Setting IN1 input masking to 0 for left, 1920 for right, 0 for top, 1080 for bottom. Completed normally.
Remarks	—	









<b>@IAS</b>	<b>Input automatic sizing</b>	
Function	Setting	
Format	@IAS, ch_1 (, ch_2···)	
Return value	@IAS, ch_1 (, ch_2···)	
Parameter	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@IAS,1  @IAS,1	Initialize the following settings in order to display images input from IN1 on the full screen: <b>@GAP / @SAP Aspect ratio (P.25)</b> <b>@GOV / @SOV Overscan (P.26)</b> <b>@GNP / @SNP Input position (P.26)</b> <b>@GNS / @SNS Input size (P.27)</b> <b>@GNM / @SNM Input masking (P.28)</b> Completed normally.
Remarks	—	

@GOP / @SOP	Output position	
Function	Getting	Setting
Format	@GOP [↵]	@SOP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2) [↵]
Return value	@GOP, h_position_o1, v_position_o1, h_position_o2, v_position_o2, h_position_p1, v_position_p1, h_position_p2, v_position_p2 [↵]	@SOP, ch_1, h_position_1, v_position_1 (, ch_2, h_position_2, v_position_2···) [↵]
Parameter	h_position_o1-o2: Horizontal output position of OUT h_position_p1-p2: Horizontal output position of PinP h_position_1-4: Horizontal output position of OUT -Horizontal input size to +Horizontal output resolution [Default]: 0	
	v_position_o1-o2: Vertical output position of OUT v_position_p1-p2: Vertical output position of PinP v_position_1-4: Vertical output position of OUT -Vertical input size to +Vertical output resolution [Default]: 0	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GOP [↵] @GOP,5,20,0,0,0,0,0,0 [↵]	Getting output position Horizontal output position of OUT1: +5, Vertical output position of OUT1: +20, Horizontal and vertical output positions of other outputs: 0
	@SOP,1,5,20 [↵]	Setting OUT1 horizontal and vertical positions to +5 and +20, respectively
	@SOP,1,5,20 [↵]	Completed normally.
Remarks	<b>Video image cannot be out side of image area when the position is set to out side of image area while bitmap is output by @GBM / @SBM Outputting bitmap image (P.71) or @GBA / @SBA Bitmap assignment (P.75).</b>	

@GOS / @SOS	Output size	
Function	Getting	Setting
Format	@GOS 	@SOS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2) 
Return value	@GOS, h_size_o1, v_size_o1, h_size_o2, v_size_o2, h_size_p1, v_size_p1, h_size_p2, v_size_p2 	@SOS, ch_1, h_size_1, v_size_1 (, ch_2, h_size_2, v_size_2) 
Parameter	h_size_o1-o2: Horizontal output size of OUT h_size_p1-p2: Horizontal output size of OUT PinP h_size_1-4: Horizontal output size Horizontal output resolution÷4 to Horizontal output resolution×4 [Default]: OUT: Horizontal output resolution, PinP: Horizontal output resolution÷4	
	v_size_o1-o2: Vertical output size of OUT v_size_p1-p2: Vertical output size of OUT PinP v_size_1-4: Vertical output size Vertical output resolution÷4 to Vertical output resolution×4 [Default] OUT: Vertical output resolution, PinP: Vertical output resolution÷4	
	ch_1-4:Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GOS 	Getting output size.
	@GOS,1920,1035,1920,1080,480,270,480,270 	OUT1 horizontal and vertical output sizes are 1920 and 1035, respectively. OUT2 horizontal and vertical output sizes are 1920 and 1080, respectively. PinP1 and PinP2 horizontal and vertical output sizes are 480 and 270, respectively.
	@SOS,1,1920,1080 	Setting OUT1 horizontal and vertical output sizes to 1920 and 1080, respectively.
	@SOS,1,1920,1080 	Completed normally.
Remarks	—	

@GOM / @SOM	Output masking	
Function	Getting	Setting
Format	@GOM, ch	@SOM, ch, left, right, top, bottom
Return value	@GOM, ch, left, right, top, bottom	@SOM, ch, left, right, top, bottom
Parameter	<p>ch: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2</p> <p>left: Left side masking Horizontal output position (0 or larger) to right side masking [Default]: 0</p> <p>right: Right side masking Left side masking to horizontal output position +horizontal output size (horizontal output resolution or smaller) [Default]: Horizontal output resolution, PinP: Horizontal output resolution ÷ 4</p> <p>top: Top side masking Vertical output position (0 or larger) to bottom side masking [Default]: 0</p> <p>bottom: Bottom side masking Output top size masking to vertical output position +vertical output size (vertical output resolution or smaller) [Default]: Vertical output resolution, PinP: Vertical output resolution ÷ 4</p>	
Example	@GOM,1	Getting OUT1 output masking.
	@GOM,1,0,1920,0,1080	Left: 0, right: 1920, top: 0, bottom: 1080
	@SOM,1,0,1920,0,1080	Setting OUT1 output masking to 0 for left, 1920 for right, 0 for top, and 1080 for bottom.
	@SOM,1,0,1920,0,1080	Completed normally.
Remarks	<b>Video image cannot be masked while bitmap is output by @GBM / @SBM Outputting bitmap image (P.71) or @GBA / @SBA Bitmap assignment (P.75).</b>	

@OAS	Output automatic sizing	
Function	Setting	
Format	@OAS, ch_1 (, ch_2)	
Return value	@OAS, ch_1 (, ch_2)	
Parameter	<p>ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2</p>	
Example	@OAS,1	Initialize the following settings in order to display OUT1 output images on the full screen: <b>@GOP / @SOP Output position (P.29)</b> <b>@GOS / @SOS Output size (P.30)</b> <b>@GOM / @SOM Output masking (P.31)</b>
	@OAS,1	Completed normally.
Remarks	—	

<b>@GBC / @SBC</b>	<b>Background color</b>	
Function	Getting	Setting
Format	@GBC, ch 	@SBC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) 
Return value	@GBC, ch, red, green, blue 	@SBC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) 
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
	red / red_1-2 : Background color (Red) green / green_1-2 : Background color (Green) blue / blue_1-2 : Background color (Blue) 0 to 255 [Default]: 0 (black)	
Example	@GBC,1 	Getting OUT1 background color.
	@GBC,1,128,128,128 	RGB: 128 (gray) .
	@SBC,1,128,128,128 	Setting OUT1 background color to 128 (gray) for all RGB.
	@SBC,1,128,128,128 	Completed normally.
Remarks	—	



@GTP / @STP	Test pattern	
Function	Getting	Setting
Format	@GTP ↵	@STP, ch_1, pattern_1, scroll_1 (,ch_2, pattern_2, scroll_2) ↵
Return value	@GTP, pattern_1, scroll_1, pattern_2, scroll_2 ↵	@STP, ch_1, pattern_1, scroll_1 (, ch_2, pattern_2, scroll_2) ↵
Parameter	pattern_1-2: Test pattern 0 = OFF [Default], 2 = HORIZONTAL COLOR BAR, 4 = HORIZONTAL GRAY SCALE, 6 = HORIZONTAL RAMP, 8 = 50% WHITE RASTER, 10 = 100% GREEN RASTER, 12 = CROSS HATCH, 14 = VERTICAL STRIPE, 16 = VERTICAL ZEBRA, 1 = VERTICAL COLOR BAR, 3 = VERTICAL GRAY SCALE, 5 = VERTICAL RAMP, 7 = 100% WHITE RASTER, 9 = 100% RED RASTER, 11 = 100% BLUE RASTER, 13 = OUTPUT FRAME, 15 = HORIZONTAL STRIPE, 17 = HORIZONTAL ZEBRA	
	scroll_1-2: Scrolling 0 = OFF	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GTP ↵ @GTP,3,0,0,0 ↵	Getting output setting of test pattern. OUT1: VERTICAL GRAY SCALE, UT2: test pattern is not output.
	@STP,1,1,0 ↵ @STP,1,1,0 ↵	OUT1: VERTICAL COLOR BAR Completed normally.
Remarks	Make sure to set this menu to "0", since the MSD does not support test pattern scrolling.	

### 3.3.4 Image quality

<b>@GFL / @SFL</b>		<b>Sharpness</b>	
Function	Getting	Setting	
Format	@GFL	@SFL, ch_1, sharp_1 (, ch_2, sharp_2···)	
Return value	@GFL, sharp_1, sharp_2, sharp_3, sharp_4	@SFL, ch_1, sharp_1 (, ch_2, sharp_2···)	
Parameter	sharp_1-4: Sharpness -5 to +15 [Default]: 0		
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GFL	Getting sharpness setting.	
	@GFL,5,0,0,0	IN1: +5; other input channels: 0.	
	@SFL,1,5 @SFL,1,5	Setting IN1 sharpness to +5. Completed normally.	
Remarks	—		

<b>@GBR / @SBR</b>		<b>Input brightness</b>	
Function	Getting	Setting	
Format	@GBR	@SBR, ch_1, bright_1 (, ch_2, bright_2···)	
Return value	@GBR, bright_1, bright_2, bright_3, bright_4	@SBR, ch_1, bright_1 (, ch_2, bright_2···)	
Parameter	bright_1-4: Input brightness 80 to 120 [Default] 100		
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GBR	Getting brightness setting.	
	@GBR,110,100,100,100	IN1: 110%; other input channels: 100%	
	@SBR,3,110 @SBR,3,110	Setting IN3 brightness to 110%. Completed normally.	
Remarks	—		

<b>@GCO / @SCO</b>		<b>Input contrast</b>
Function	Getting	Setting
Format	@GCO, ch	@SCO, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2···)
Return value	@GCO, ch, red, green, blue	@SCO, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2···)
Parameter	ch: Input channel 1 = IN1 to 4 = IN4	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
	red / red_1-4 : Input contrast (Red) green / green_1-4 : Input contrast (Green) blue / blue_1-4 : Input contrast (Blue) 0 to 200 [Default]:100	
Example	@GCO,3	Getting IN3 contrast setting.◦
	@GCO,3,105,100,95	Red: 105%, green: 100%, blue: 95%◦
	@SCO,3,105,100,95	Setting IN3 contrast to 105% for red, 100% for green, 95% for blue
	@SCO,3,105,100,95	Completed normally.
Remarks	—	

<b>@GHU / @SHU</b>		<b>Hue</b>
Function	Getting	Setting
Format	@GHU	@SHU, ch_1, hue_1 (, ch_2, hue_2···)
Return value	@GHU, hue _1, hue _2, hue _3, hue _4	@SHU, ch_1, hue_1 (, ch_2, hue_2···)
Parameter	hue_1-4: Hue 0 to 359 [Default]: 0	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GHU	Getting HUE settings
	@GHU,60,0,0,0	IN1: 60° ; Other input channels: 0°
	@SHU,1,60	Setting IN1 HUT to 60°
	@SHU,1,60	Completed normally.
Remarks	—	

<b>@GST / @SST</b>		<b>Saturation</b>
Function	Getting	Setting
Format	@GST ↵	@SST, ch_1, saturation_1 (, ch_2, saturation_2···) ↵
Return value	@GST, saturation_1, saturation_2, saturation_3, saturation_4 ↵	@SST, ch_1, saturation_1 (, ch_2, saturation_2···) ↵
Parameter	saturation_1-4: Saturation 0 to 200 [Default]: 100	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN5	
Example	@GST ↵	Getting saturations
	@GST,100,100,100,105 ↵	IN4: 105%; Other input channels: 100%。
	@SST,4,105 ↵ @SST,4,105 ↵	Setting IN4 saturation to 105% Completed normally.
Remarks	—	

<b>@GSU / @SSU</b>		<b>Black level</b>
Function	Getting	Setting
Format	@GSU ↵	@SSU, ch_1, setup_1 (, ch_2, setup_2···) ↵
Return value	@GSU, setup_1, setup_2, setup_3, setup_4 ↵	@SSU, ch_1, setup_1 (, ch_2, setup_2···) ↵
Parameter	setup_1-4: Black level -20 = $-20 \times 0.5$ (-10.0 %) to +20 = $+20 \times 0.5$ (+10.0 %) [Default]: $\pm 0 = \pm 0.0\%$	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GSU ↵	Getting black levels
	@GSU,0,0,0,15 ↵	I IN4: +7.5%; Other input channels: 0%.
	@SSU,4,15 ↵ @SSU,4,15 ↵	Setting IN4 black level to +7.5% Completed normally.
Remarks	—	

<b>@IDC</b>	<b>Input default color</b>	
Function	Setting	
Format	@IDC, ch_1 (, ch_2···) ↴	
Return value	@IDC, ch_1 (, ch_2···) ↴	
Parameter	ch_1-4:input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@IDC,1 ↴  @IDC,1 ↴	Initialize the following settings of IN1: <b>@GFL / @SFL Sharpness (P.34)</b> <b>@GBR / @SBR Input brightness (P.34)</b> <b>@GCO / @SCO Input contrast (P.35)</b> <b>@GHU / @SHU Hue (P.35)</b> <b>@GST / @SST Saturation (P.36)</b> <b>@GSU / @SSU Black level (P.36)</b> Completed normally.
Remarks	—	

<b>@GOB / @SOB</b>		<b>Output brightness</b>	
Function	Getting	Setting	
Format	@GOB ↵	@SOB, ch_1, bright_1 (, ch_2, bright_2) ↵	
Return value	@GOB, bright_o1, bright_o2, bright_p1, bright_p2 ↵	@SOB, ch_1, bright_1 (, ch_2, bright_2) ↵	
Parameter	bright_o1-o2: Output brightness of OUT bright_p1-p2: Output brightness of PinP bright_1-4: Output brightness 80 to 120 [Default] 100		
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
Example	@GOB ↵ @GOB,110,100,105,95 ↵	Getting brightness settings. OUT1: 110%; OUT2: 100%, PinP1: 105 %, PinP2: 95 %	
	@SOB,1,110 ↵ @SOB,1,110 ↵	Setting OUT1 brightness to 110%. Completed normally.	
Remarks	—		

<b>@GOC / @SOC</b>		<b>Output contrast</b>	
Function	Getting	Setting	
Format	@GOC, ch ↵	@SOC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) ↵	
Return value	@GOC, ch, red, green, blue ↵	@SOC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) ↵	
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
	red / red_1-4 : Output contrast (Red) green / green_1-4 : Output contrast (Green) blue / blue_1-4 : Output contrast (Blue) 0 to 200 [Default]: 100		
Example	@GOC,1 ↵ @GOC,1,105,100,95 ↵	Getting OUT1 contrast setting Red: 105%, green: 100%, blue: 95%	
	@SOC,1,105,100,95 ↵ @SOC,1,105,100,95 ↵	Setting OUT1 contrast to 105% for red, 100% for green, 95% for blue. Completed normally.	
	Remarks		
Remarks	—		

@GGM / @SGM	Gamma	
Function	Getting	Setting
Format	@GGM ↵	@SGM, ch_1, gamma_1 (, ch_2, gamma_2···) ↵
Return value	@GGM, gamma_o1, gamma_o2, gamma_p1, gamma_p2 ↵	@SGM, ch_1, gamma_1 (, ch_2, gamma_2···) ↵
Parameter	gamma_o1-o2: Gamma of OUT gamma_p1-p2: Gamma of PinP gamma_1-4: Gamma 1 = 1 x 0.1 (0.1) to 30 = 30 x 0.1 (3.0) [Default] 10 = 1.0	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GGM ↵ @GGM,9,10,11,12 ↵	Getting gamma setting OUT1: 0.9, OUT2:1.0, PinP1: 1.1, PinP2: 1.2
	@SGM,1,9 ↵ @SGM,1,9 ↵	Setting gamma of OUT1 to 0.9 Completed normally.
Remarks	—	

@ODC	Output default color	
Function	Setting	
Format	@ODC, ch_1 (, ch_2) ↵	
Return value	@ODC, ch_1 (, ch_2) ↵	
Parameter	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@ODC,1 ↵  @ODC,1 ↵	Initializing OUT1 image quality settings. <b>@GOB / @SOB Output brightness (P.38)</b> <b>@GOC / @SOC Output contrast (P.38)</b> <b>@GGM / @SGM Gamma (P.39)</b> Completed normally.
Remarks	—	

### 3.3.5 Input settings

@GDT / @SDT	No-signal-input monitoring	
Function	Getting	Setting
Format	@GDT ↵	@SDT, ch_1, time_1 (, ch_2, time_2···) ↵
Return value	@GDT, time_1, time_2, time_3, time_4 ↵	@SDT, ch_1, time_1 (, ch_2, time_2···) ↵
Parameter	time_1-4: No-signal-input monitoring 0 = OFF, 2000 = 2 sec. to 15000 = 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_1-4: Input channel 0 = All digital inputs, 1 = IN1 to 4 = IN4	
Example	@GDT ↵ @GDT,6000,10000,10000,10000 ↵	Getting the monitoring time of input video signals. IN1: 6000 ms. (6 sec.), IN2 and IN3: 10000 ms. (10 sec.)
	@SDT,3,6000 ↵	Setting the monitoring time of IN3 to 6000 ms. (6 sec.).
	@SDT,3,6000 ↵	Completed normally.
Remarks	-	

@GHE / @SHE	HDCP input enabled/disabled	
Function	Getting	Setting
Format	@GHE ↵	@SHE, ch_1, hdcp_1 (, ch_2, hdcp_2···) ↵
Return value	@GHE, hdcp_1, hdcp_2, hdcp_3, hdcp_4 ↵	@SHE, ch_1, hdcp_1 (, ch_2, hdcp_2···) ↵
Parameter	hdcp_1-4: HDCP input enabled/disabled 0 = DISABLE, 1 = ENABLE [Default]	
	ch_1-4: Input channel 0 = All digital inputs, 1 = IN1 to 4 = IN4	
Example	@GHE ↵ @GHE,1,1,1,0 ↵	Getting HDCP input enabled/disabled Setting IN4 and Other input channels of HDCP input to DISABLE and ENALBE, respectively.
	@SHE,1,0 ↵	Setting IN1 HDCP input to DISABLE.
	@SHE,1,0 ↵	Completed normally.
Remarks	-	



<b>@GIQ / @SIQ</b>	<b>Input equalizer</b>	
Function	Getting	Setting
Format	@GIQ ↵	@SIQ, ch_1, level_1 (, ch_2, level_2) ↵
Return value	@GIQ, level_1, level_2 ↵	@SIQ, ch_1, level_1 (, ch_2, level_2) ↵
Parameter	level_1-2: Input equalizer 0 = OFF, 1 = ON [Default]	
	ch_1-2: Input channel 0 = All digital inputs, 1 = IN1 to 2 = IN2	
Example	@GIQ ↵ @GIQ,0,1 ↵	Getting input equalizer. IN1: Input equalizer OFF; IN2: Input equalizer ON
	@SIQ,1,0 ↵ @SIQ,1,0 ↵	Setting IN1 input equalizer to OFF. Completed normally.
Remarks	Those commands are only for digital input.	

<b>@GID / @SID</b>	<b>Automatic detection of input video interruption</b>	
Function	Getting	Setting
Format	@GID ↵	@SID, ch_1, detect_1 (, ch_2, detect_2····) ↵
Return value	@GID, detect_1, detect_2, detect_3, detect_4 ↵	@SID, ch_1, detect_1 (, ch_2, detect_2····) ↵
Parameter	detect_1-4: Automatic detection 0 = OFF, 1 = ON [Default]	
	ch_1-4: Output channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GID ↵ @GID,1,0,1,1 ↵	Getting the setting of automatic detection of input video interruption. IN2: If input video signal is interrupted, the video output is not turned off instantly; other output channels: OFF
	@SID,2,0 ↵ @SID,2,0 ↵	If input video signal of IN2 is interrupted, not to turn off the video output instantly. Completed normally.
Remarks	—	

@GFX / @SFX	Setting fixing for each input signal	
Function	Getting	Setting
Format	@GFX, ch ↵	@SFX, ch, mode (, aspect, noused, audio) ↵
Return value	@GFX, ch, mode (, aspect, noused, audio) ↵	@SFX, ch, mode (, aspect, noused, audio) ↵
Parameter	Ch: Input channel 1 = IN1 to 4 = IN4	
	mode: Setting mode 0 = SELECTED [Default], 1 = ALL FIXED	
	aspect : Aspect ratio noused : Not used audio :Audio input level 0 = SELECTED, 1 = ON (FIXED) [Default] aspect :0 = OFF noused :0 = OFF audio :1 = ON (FIXED)	
Example	@GFX,1 ↵	Getting input video signal setting of IN1 Setting mode: SELECTED, Aspect ratio: OFF, Audio input level: ON (FIXED)
	@GFX,1,0,0,0,1 ↵	
	@SFX,1,0,0,0,1 ↵	Setting IN1 setting mode, aspect ratio, audio input level to SELECTED, OFF, ON (FIXED), respectively. Completed normally.。
	@SFX,1,0,0,0,1 ↵	
Remarks	Only "0" can be set for "noused".	

### 3.3.6 Input timing setting

<b>@GHT</b>		<b>The total number of horizontal dots</b>	
Function	Getting		
Format	@GHT ↵		
Return value	@GHT, h_total_1, h_total_2, h_total_3, h_total_4 ↵		
Parameter	h_total_1-4: The total number of horizontal dots 400 to 4125 (sampling block should be 13 MHz to 162 MHz) [Default] depends on input signal		
Example	@GHT ↵ @GHT,2200,2200,0,2640 ↵	Getting the total number of horizontal dots. "0" will be replied to channels without input signal.	
Remarks	This setting is only for getting; no setting.		

<b>@GHS / @SHS</b>		<b>Horizontal start position</b>	
Function	Getting	Setting	
Format	@GHS ↵	@SHS, ch, h_start ↵	
Return value	@GHS, h_start_1, h_start_2, h_start_3, h_start_4 ↵	@SHS, ch, h_start ↵	
Parameter	h_start_1-4 / h_start: Horizontal start position 64 to 2900 (should be [the total number of horizontal dots – horizontal display period] or less) [Default] depends on input signal		
	ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GHS ↵ @GHS,192,192,496,0 ↵	Getting horizontal start position. "0" will be replied to channels without input signal.	
	@SHS,4,296 ↵	Setting IN4 horizontal start position to "296".	
	@SHS,4,296 ↵	Completed normally.	
	@SHS,4,296 ↵ @ERR,3 ↵	If signal is not input, an error is replied.	
Remarks	Setting command is valid only when signal is input.		

<b>@GHD / @SHD</b>		<b>Horizontal display period</b>	
Function	Getting	Setting	
Format	@GHD ↵	@SHD, ch, h_disp ↵	
Return value	@GHD, h_disp_1, h_disp_2, h_disp_3, h_disp_4 ↵	@SHD, ch, h_disp ↵	
Parameter	h_disp_1-4 / h_disp: Horizontal display period 64 to 2900 (should be [the total number of horizontal dots – 64] or less) [Default]: depends on input signal		
	ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GHD ↵ @GHD,1920,1920,0,1920 ↵	Getting horizontal display period “0” will be replied to channels without input signals.	
	@SHD,4,1024 ↵ @SHD,4,1024 ↵	Setting IN4 horizontal display period to “1024”. Completed normally.	
	@SHD,4,1024 ↵ @ERR,3 ↵	“0” will be replied to channels without input signal.	
Remarks	Setting command is valid only when signal is input.		

<b>@GVS / @SVS</b>		<b>Vertical start position</b>	
Function	Getting	Setting	
Format	@GVS ↵	@SVS, ch, v_start ↵	
Return value	@GVS, v_start_1, v_start_2, v_start_3, v_start_4 ↵	@SVS, ch, v_start ↵	
Parameter	v_start_1-4 / v_start: Vertical start position 10 to 2048 (should be [the total number of vertical lines – vertical display period] or less) [Default]: depends on input signal		
	ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GVS ↵ @GVS,40,0,40,40 ↵	Getting vertical start position “0” will be replied to channels without input signals.	
	@SVS,4,35 ↵ @SVS,4,35 ↵	Setting IN4 vertical start position to “35”. Completed normally.	
	@SVS,4,35 ↵ @ERR,3 ↵	“0” will be replied to channels without input signal.	
Remarks	Setting command is valid only when signal is input.		

<b>@GVD / @SVD</b>	<b>Vertical display period</b>	
Function	Getting	Setting
Format	@GVD ↵	@SVD, ch, v_disp ↵
Return value	@GVD, v_disp_1, v_disp_2, v_disp_3, v_disp_4 ↵	@SVD, ch, v_disp ↵
Parameter	v_disp_1-4 / v_disp: Vertical display period 10 to 2048 (should be [the total number of vertical lines – 10] or less) [Default]: depends on input signal	
	ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GVD ↵ @GVD,0,1080,1080,900 ↵	Getting vertical display period “0” will be replied to channels without input signal.
	@SVD,4,768 ↵	Setting IN4 vertical display period to “768”.
	@SVD,4,768 ↵	Completed normally.
	@SVD,4,768 ↵ @ERR,3 ↵	“0” will be replied to channels without input signal.
Remarks	Setting command is valid only when signal is input.	









<b>@RTT</b>	<b>Initializing input timing setting</b>	
Function	Setting	
Format	@RTT, ch ↵	
Return value	@RTT, ch ↵	
Parameter	ch: Input channel 1 = IN1 to 4 = IN4	
Example	@RTT,1 ↵	Initializing input timing setting of IN1 to the value detected automatically by the MSD.
	@RTT,1 ↵	Completed normally.
Remarks	Valid only when signal is input.	

### 3.3.7 Output setting

<b>@GDM / @SDM</b>		<b>Output mode</b>
Function	Getting	Setting
Format	@GDM ↵	@SDM, ch_1, mode_1 (, ch_2, mode_2) ↵
Return value	@GDM, mode_1, mode_2 ↵	@SDM, ch_1, mode_1 (, ch_2, mode_2) ↵
Parameter	mode_1-2: Output mode 0 = DVI MODE, 1 = HDMI RGB MODE, 2 = HDMI YCbCr4:2:2 MODE, 3 = HDMI YCbCr4:4:4 MODE [Default]	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GDM ↵ @GDM,0,3 ↵	Getting output mode. OUT1: DVI MODE; OUT2: HDMI YCbCr4:4:4 MODE.
	@SDM,1,3 ↵	Setting OUT1 output mode to "HDMI YCbCr4:4:4 MODE".
	@SDM,1,3 ↵	Completed normally.
Remarks	—	

<b>@GUY / @SUY</b>		<b>Synchronous signal output when no video signal is input</b>
Function	Getting	Setting
Format	@GUY ↵	@SUY, ch_1, sync_1 (, ch_2, sync_2) ↵
Return value	@GUY, sync_1, sync_2 ↵	@SUY, ch_1, sync_1 (, ch_2, sync_2) ↵
Parameter	sync_1-2: Synchronous signal output 0 = Not output, 1 = Output [Default]	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GUY ↵ @GUY,1,0 ↵	Getting synchronous signal output when no video signal is input. OUT1: synchronous signal is output. OUT2: synchronous signal is not output.
	@SUY,1,1 ↵	Setting OUT1 to "1" (synchronous signal is output even if video signal is not input.).
	@SUY,1,1 ↵	Completed normally.
Remarks	—	

@GBO / @SBO	Output video when no video signal is input	
Function	Getting	Setting
Format	@GBO [↵]	@SBO, ch_1, video_1 (, ch_2, video_2···) [↵]
Return value	@GBO, video_o1, video_o2, video_p1, video_p2 [↵]	@SBO, ch_1, video_1 (, ch_2, video_2···) [↵]
Parameter	video_o1-o2: Output video when no video signal is input of OUT video_p1-p2: Output video when no video signal is input PinP video_1-4 : Output video when no video signal is input 0 = Black, 1 = Blue [Default], 2 = Background color For PinP output, "2" (Background color) cannot be set.	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GBO [↵] @GBO,1,0,0,1 [↵]	Getting output video when no video signals are input. OUT1 and PinP2: blue screen; OUT2 and PinP1: black screen
	@SBO,1,1 [↵] @SBO,1,1 [↵]	Setting OUT1 to blue when no video signal is input. Completed normally.
Remarks	—	

@GFF / @SFF	Video switching effect	
Function	Getting	Setting
Format	@GFF 	@SFF, ch_1, switching_1 (, ch_2, switching_2···) 
Return value	@GFF, switching_o1, switching_o2, switching_p1, switching_p2 	@SFF, ch_1, switching_1 (, ch_2, switching_2···) 
Parameter	switching_o1-o2: Video switching effect of OUT switching_p1-p2: Video switching effect of PinP switching_1-4 : Video switching 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 For PinP output, “3” to “6” cannot be set.	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GFF 	Getting input channel switching effect
	@GFF,0,1,2,2 	OUT1: CUT; OUT2: FADE OUT/IN; PinP1 and PinP2: FREEZE + FADE OUT/IN
	@SFF,1,1  @SFF,1,1 	OUT1: FADE OUT/IN Completed normally.
Remarks	—	



<b>@GFT / @SFT</b>		<b>Video switching time</b>	
Function	Getting	Setting	
Format	@GFT [↵]	@SFT, ch_1, time_1 (, ch_2, time_2···) [↵]	
Return value	@GFT, time_o1, time_o2, time_p1, time_p2 [↵]	@SFT, ch_1, time_1 (, ch_2, time_2···) [↵]	
Parameter	time_o1-o2: Video switching time of OUT time_p1-p2: Video switching time of PinP time_1-4 : Video switching time 100 = 0.1 sec. to 2000 = 2 sec. [Default] 350 = 0.35 sec. 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.)		
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
Example	@GFT [↵]	Getting switching time of video input channel.	
	@GFT,400,350,500,200 [↵]	OUT1: 400 ms.; OUT2: 350 ms; PinP1: 500 ms, PinP2: 200 ms	
	@SFT,1,400 [↵] @SFT,1,400 [↵]	Setting OUT1 switching time to 400 ms. Completed normally.	
Remarks	—		

<b>@GWC / @SWC</b>		<b>Wipe color</b>	
Function	Getting	Setting	
Format	@GWC, ch [↵]	@SWC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) [↵]	
Return value	@GWC, ch, red, green, blue [↵]	@SWC, ch_1, red_1, green_1, blue_1 (, ch_2, red_2, green_2, blue_2) [↵]	
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2		
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2		
	red / red_1-2 : Wipe color (Red) green / green_1-2 : Wipe color (Green) blue / blue_1-2 : Wipe color (Blue) 0 to 255 [Default] 0 (Black)		
Example	@GWC,1 [↵]	Getting OUT1 wipe color	
	@GWC,1,255,255,255 [↵]	255 (white), RGB also	
	@SWC,1,255,255,255 [↵] @SWC,1,255,255,255 [↵]	Setting OUT1 wipe colors to "255" (white), RGB also Completed normally.	
Remarks	—		

<b>@GEN / @SEN</b>		<b>HDCP output</b>	
Function	Getting	Setting	
Format	@GEN ↵	@SEN, ch_1, hdcp_1 (, ch_2, hdcp_2) ↵	
Return value	@GEN, hdcp_1, hdcp_2 ↵	@SEN, ch_1, hdcp_1 (, ch_2, hdcp_2) ↵	
Parameter	hdcp_1-2: HDCP output 0 = HDCP is output only if input signal is with HDCP. 1 = HDCP is always output [Default], 2 = HDCP is not authorized		
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2		
Example	@GEN ↵ @GEN,1,0 ↵	Getting HDCP output. OUT1: HDCP is always output. OUT2: HDCP is output only if input signals are with HDCP.	
	@SEN,1,1 ↵ @SEN,1,1 ↵	Setting OUT1 to always output HDCP Completed normally.	
Remarks	—		

<b>@GHR / @SHR</b>		<b>The number of HDCP retries</b>	
Function	Getting	Setting	
Format	@GHR ↵	@SHR, ch_1, retry_1 (, ch_2, retry_2) ↵	
Return value	@GHR, retry_1, retry_2 ↵	@SHR, ch_1, retry_1 (, ch_2, retry_2) ↵	
Parameter	retry_1-2: The number of HDCP retries -1 = Retry until succeed [Default], 0 = Not retry, 1 to 100 = Retry for the desired number of retries		
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2		
Example	@GHR ↵ @GHR,-1,10 ↵	Getting the number of HDCP retries Out1: continue to retry until succeed. OUT2: Retry for up to 10 times	
	@SHR,2,10 ↵ @SHR,2,10 ↵	Setting OUT2 to retry up to 10 times. Completed normally.	
Remarks	—		

@GDC / @SDC	Deep Color	
Function	Getting	Setting
Format	@GDC ↵	@SDC, ch_1, color_1 (, ch_2, color_2) ↵
Return value	@GDC, color_1, color_2 ↵	@SDC, ch_1, color_1 (, ch_2, color_2) ↵
Parameter	color_1-2: Deep Color 0 = 24-BIT COLOR [Default], 1 = 30-BIT COLOR	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GDC ↵ @GDC,0,1 ↵	Getting deep Color OUT1:24-BIT COLOR; OUT2: 30-BIT COLOR
	@SDC,1,0 ↵ @SDC,1,0 ↵	Setting OUT1 to 24-BIT COLOR Completed normally.
Remarks	—	

@GCE / @SCE	CEC connection	
Function	Getting	Setting
Format	@GCE ↵	@SCE, ch_1, connect_1 (, ch_2, connect_2) ↵
Return value	@GCE, connect_1, connect_2 ↵	@SCE, ch_1, connect_1 (, ch_2, connect_2) ↵
Parameter	connect_1-2: CEC connection 0 = Not connected [Default], 1 = Selected video input channel, 2 = Input channel1, 3 = Input channel2, 4 = Input channel3, 5 = Input channel4	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GCE ↵ @GCE,4,0 ↵	Getting CEC connection. OUT1: connecting to input channel3 OUT2 not connected.
	@SCE,1,4 ↵ @SCE,1,4 ↵	Setting OUT1 CEC to connect input channel3. Completed normally.
Remarks	—	

@HAU	HDCP re-authentication	
Function	Setting	
Format	@HAU, ch_1 (, ch_2) ↵	
Return value	@HAU, ch_1 (, ch_2) ↵	
Parameter	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@HAU,1 ↵ @HAU,1 ↵	Setting sink device HDCP of OUT1 to be re-authenticated Completed normally.
Remarks	—	

@GAU / @SAU	Priority of input channel automatic switching (Input video signal OFF→ON)	
Function	Getting	Setting
Format	@GAU, out ↵	@SAU, out_1, in1_1, in2_1, in3_1, in4_1 (, out_2, in1_2, in2_2, in3_2, in4_2···) ↵
Return value	@GAU, out, in1, in2, in3, in4 ↵	@SAU, out_1, in1_1, in2_1, in3_1, in4_1 (, out_2, in1_2, in2_2, in3_2, in4_2···) ↵
Parameter	out: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
	in1_1-4 to in4_1-4: Priority of IN1 to IN4 0 = OFF [Default], 1 = Higher priority to 4 = Lower priority	
	out_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GAU,1 ↵ @GAU,1,1,2,3,4 ↵ @SAU,1,1,2,3,4 ↵ @SAU,1,1,2,3,4 ↵	Getting priority of OUT1 OUT1: IN1>IN2>IN3>IN4 Setting the priority of OUT1 to IN1>IN2>IN3>IN4 Completed normally.
Remarks	—	

@GOF / @SOF	Priority of input channel automatic switching (Input video signal ON→OFF)	
Function	Getting	Setting
Format	@GOF, out ↵	@SOF, out_1, in1_1, in2_1, in3_1, in4_1 (, out_2, in1_2, in2_2, in3_2, in4_2···) ↵
Return value	@GOF, out, in1, in2, in3, in4 ↵	@SOF, out_1, in1_1, in2_1, in3_1, in4_1 (, out_2, in1_2, in2_2, in3_2, in4_2···) ↵
Parameter	out: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
	in1_1-4 to in4_1-4: Priority of IN1 to IN4 0 = OFF [Default], 1 = Higher priority to 4 = Lower priority	
	out_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GOF,1 ↵	Getting priority of OUT1
	@GOF,1,1,2,3,4 ↵	OUT1: IN1>IN2>IN3>IN4
	@SOF, 1,1,2,3,4 ↵	Setting the priority of OUT1 to IN1>IN2>IN3>IN4
	@SOF, 1,1,2,3,4 ↵	Completed normally.
Remarks	—	

@GMT / @SMT	Masking time after automatic switching of input channel	
Function	Getting	Setting
Format	@GMT ↵	@SMT, ch_1, time_1 (, ch_2, time_2···) ↵
Return value	@GMT, time_o1, time_o2, time_p1, time_p2 ↵	@SMT, ch_1, time_1 (, ch_2, time_2···) ↵
Parameter	time_o1-o2: Masking time of OUT time_p1-p2: Masking time of PinP time_1-4 : Masking time 0 = 0 to 999999 = 999.999 sec. [Default] 0 sec.	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GMT ↵	Getting masking time after automatic switching of input channel.
	@GMT,2000,10000,10000,10000 ↵	OUT1: 2000 ms. (2 sec.); other outputs: 10000 ms. (10 sec.)
	@SMT,1,2000 ↵	Setting masking time of OUT1 to 2000 ms. (2 sec.)
	@SMT,1,2000 ↵	Completed normally.
Remarks	—	

### 3.3.8 Audio Setting





@GSL / @SSL	Audio output level	
Function	Getting	Setting
Format	@GSL ↵	@SSL, ch_1, level_1 (, ch_2, level_2) ↵
Return value	@GSL, level_1, level_2 ↵	@SSL, ch_1, level_1 (, ch_2, level_2) ↵
Parameter	level_1-2: Audio output level -60 to +10 [Default] ±0	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GSL ↵	Getting audio output level
	@GSL,-4,0 ↵	OUT1: -4 dB; OUT2: ±0 dB
	@SSL,1,-4 ↵ @SSL,1,-4 ↵	Setting audio output level of OUT1 to -4 dB. Completed normally.
Remarks	If you change the output level while muted, it will be unmuted.	





@SOL	Relative value of audio output level	
Function	Setting	
Format	@SOL, ch_1, updown_1 (, ch_2, updown_2) ↵	
Return value	@SOL, ch_1, updown_1 (, ch_2, updown_2) ↵	
Parameter	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
	updown_1-2: Setting relative value -70 to +70 The specified value is added to the current audio output level. If the total value exceeds the limit value (-60 to +10), the limit value will be applied.	
Example	@SOL,1,-1 ↵	Lower 1 dB of audio output level of OUT1. Completed normally.
	@SOL,1,-1 ↵	
Remarks	If you change the output level while muted, it will be unmuted.	









@GOL	Limit status of audio output level	
Function	Getting	
Format	@GOL ↵	
Return value	@GOL, out_1, out_2 ↵	
Parameter	out_1-2: Limit status of audio output level -1 = minimum settable value (-60 dB), 0 = not limit status, 1 = maximum settable value (+10 dB)	
Example	@GOL ↵	Getting limit status of audio output level OUT1: maximum settable value OUT2: not limit value
	@GOL,1,0 ↵	
Remarks	—	

<b>@GAM / @SAM</b>		<b>Audio output mute</b>
Function	Getting	Setting
Format	@GAM	@SAM, ch_1, mute_1 (, ch_2, mute_2) 
Return value	@GAM, mute_1, mute_2	@SAM, ch_1, mute_1 (, ch_2, mute_2) 
Parameter	mute_1-2: Audio output mute 0 = Not muted [Default], 1 = Muted	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GAM	Setting audio output mute
	@GAM,1,0	OUT1: mute ON; OUT2: mute OFF
	@SAM,1,1 @SAM,1,1	Muting OUT1 audio output. Completed normally.
Remarks	—	

<b>@GSO / @SSO</b>		<b>Audio input level</b>
Function	Getting	Setting
Format	@GSO	@SSO, ch_1, level_1 (, ch_2, level_2···) 
Return value	@GSO, level_1, level_2, level_3, level_4 	@SSO, ch_1, level_1 (, ch_2, level_2···) 
Parameter	level_1-4: Audio input level -60 to $\pm 0$ [Default] $\pm 0$	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GSO	Getting audio input level
	@GSO,0,0,0,-4	IN4: -4 dB; other input channels: $\pm 0$ dB
	@SSO,4,-8 @SSO,4,-8	Setting audio input level of IN4 to -8 dB. Completed normally.
Remarks	—	

@SIL	Relative value of audio input level	
Function	Setting	
Format	@SIL, ch_1, updown_1 (, ch_2, updown_2···) 	
Return value	@SIL, ch_1, updown_1 (, ch_2, updown_2···) 	
Parameter	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
	updown_1-4: Relative value -60 to +60 The specified value is added to the current audio input level. If the total value exceeds the limit value (-60 to +10), the limit value will be applied.	
Example	@SIL,1,-1  @SIL,1,-1 	Lower 1 dB of audio output level of IN1. Completed normally.
Remarks	—	

@GIL	Limit status of audio input level	
Function	Getting	
Format	@GIL 	
Return value	@GIL, in_1, in_2, in_3, in_4 	
Parameter	in_1-4: Limit status of audio input level -1 = minimum settable value (-60 dB), 0 = not limit status, 1 = maximum settable value (+0 dB)	
Example	@GIL  @GIL,1,0,0,0 	Getting limit status of audio input level IN1: maximum settable value Other input channels: not limit value
Remarks	—	

@GDO / @SDO	Audio output connector	
Function	Getting	Setting
Format	@GDO 	@SDO, ch_1, out_1 (, ch_2, out_2) 
Return value	@GDO, out_1, out_2 	@SDO, ch_1, out_1 (, ch_2, out_2) 
Parameter	out_1-2: Audio output connector 0 = Only to analog audio output connector, 1 = To HDMI output or HDBaseT output connector, 2 = To analog audio output connector, HDMI output connector, or HDBaseT output connector [Default]	
	ch_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
Example	@GDO  @GDO,0,1 	Getting connectors that output audio OUT1: only to analog audio output connector; OUT2: only to HDBaseT output connector
	@SDO,1,0 	OUT1: only to analog audio output connector
	@SDO,1,0 	Completed normally.
Remarks	—	



<b>@GMD / @SMD</b>		<b>Multi channel audio output</b>	
Function	Getting	Setting	
Format	@GMD ↵	@SMD, ch_1, out_1 (, ch_2, out_2) ↵	
Return value	@GMD, out_1, out_2 ↵	@SMD, ch_1, out_1 (, ch_2, out_2) ↵	
Parameter	out_1-2: 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_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2		
Example	@GMD ↵ @GMD,4,8 ↵	Getting multi channel audio output. OUT1: outputs monaural audio of CH1 / CH2. OUT2: outputs downmixed audio.	
	@SMD,1,8 ↵ @SMD,1,8 ↵	Setting OUT1 to output down mixed audio. Completed normally.	
Remarks	—		

<b>@GAT / @SAT</b>		<b>Test tone</b>	
Function	Getting	Setting	
Format	@GAT ↵	@SAT, ch_1, tone_1, speaker_1 (, ch_2, tone_2, speaker_2) ↵	
Return value	@GAT, tone_1, speaker_1, tone_2, speaker_2 ↵	@SAT, ch_1, tone_1, speaker_1 (, ch_2, tone_2, speaker_2) ↵	
Parameter	tone_1-2: Test tone 0 = OFF [Default], 1 = ON (1 kHz)		
	speaker_1-2: 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_1-2: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2		
Example	@GAT ↵ @GAT,1,1,0,0 ↵	Getting test tone output settings. OUT1: outputs test tone (1k Hz) to FRONT L/R. OUT2: not output test tone.	
	@SAT,1,1,0 ↵ @SAT,1,1,0 ↵	Setting OUT1: outputs test tone (1k Hz) to all speakers Completed normally.	
Remarks	—		

### 3.3.9 EDID Setting

@GED / @SED	EDID data	
Function	Getting	Setting
Format	@GED ↵	@SED, ch_1, edid_1 (, ch_2, edid_2···) ↵
Return value	@GED, edid_1, edid_2, edid_3, edid_4 ↵	@SED, ch_1, edid_1 (, ch_2, edid_2···) ↵
Parameter	edid_1-4: EDID data 0 = Built-in EDID [Default], 1 = OUT1 MONITOR, 2 = OUT2 MONITOR, 101 to 108 = COPY DATA 1 to COPY DATA 8	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GED ↵ @GED,0,0,2,0 ↵	Getting EDID data. IN3: EDID of the sink device connected to OUT2 Other input channels: built-in EDID
	@SED,2,2 ↵	Setting IN2: EDID read from the sink device connected to OUT2.
	@SED,2,2 ↵	Completed normally.
Remarks	Those commands are only for digital input. In order to use a copied data, read EDID data from the sink device in “@RME <b>Copying EDID (P.63)</b> ” in advance.	

<b>@GVF / @SVF</b>		<b>Input resolution for PC</b>	
Function	Getting	Setting	
Format	@GVF	@SVF, ch_1, resolution_1 (, ch_2, resolution_2···)	
Return value	@GVF, resolution_1, resolution_2, resolution_3, resolution_4	@SVF, ch_1, resolution_1 (, ch_2, resolution_2···)	
Parameter	resolution_1-4: Input resolution for PC 0 = SVGA(800x600),                      1 = XGA(1024x768), 2 = 720p(1280x720),                    3 = WXGA(1280x768), 4 = WXGA(1280x800),                    5 = Quad-VGA(1280x960), 6 = SXGA(1280x1024),                    7 = WXGA(1360x768), 8 = WXGA(1366x768),                    9 = SXGA+(1400x1050), 10 = WXGA+(1440x900),                   11 = WXGA++(1600x900), 12 = UXGA(1600x1200),                   13 = WSXGA+(1680x1050), 14 = 1080i(1920x1080),                   15 = 1080p(1920x1080) [Default], 16 = WUXGA(1920x1200),                   17 = QWXGA(2048x1152)		
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GVF	Getting input resolution for PC.	
	@GVF,6,6,9,6	IN3: SXGA+; other input channels: SXGA	
	@SVF,1,12	Setting EDID of IN1 to UXGA.	
	@SVF,1,12	Completed normally.	
Remarks	—		

<b>@GHF / @SHF</b>		<b>Input resolution for AV devices</b>	
Function	Getting	Setting	
Format	@GHF	@SHF, ch_1, resolution_1 (, ch_2, resolution_2···)	
Return value	@GHF, resolution_1, resolution_2, resolution_3, resolution_4	@SHF, ch_1, resolution_1 (, ch_2, resolution_2···)	
Parameter	resolution_1-4: Input resolution for AV devices 0 = UNUSED, 1 = 480p, 2 = 720p, 3 = 1080i, 4 = 1080p, 5 = AUTO [Default]		
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GHF	Getting input resolution for AV devices.	
	@GHF,5,4,5,5	IN2: 1080p; other input channels: AUTO	
	@SHF,0,4	Setting EDIDs of all input channels to 1080p.	
	@SHF,0,4	Completed normally.	
Remarks	—		

@GDI / @SDI	Deep Color input	
Function	Getting	Setting
Format	@GDI ↵	@SDI, ch_1, color_1 (, ch_2, color_2···) ↵
Return value	@GDI, color_1, color_2, color_3, color_4 ↵	@SDI, ch_1, color_1 (, ch_2, color_2···) ↵
Parameter	color_1-4: Deep Color input 0 = 24-BIT COLOR [Default], 1 = 30-BIT COLOR	
	ch_1-4: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4	
Example	@GDI ↵ @GDI,1,1,0,1 ↵	Getting color depth. IN3: 24-BIT COLOR Other input channels: 30-BIT COLOR.
	@SDI,3,0 ↵ @SDI,3,0 ↵	Setting IN3 color depth to 24-BIT COLOR. Completed normally.
Remarks	—	

@GAF / @SAF	Audio format																	
Function	Getting	Setting																
Format	@GAF, ch	@SAF, ch, format_1, frequency_1 (, format_2, frequency_2···)																
Return value	@GAF, ch, format_1, frequency_1 (, format_2, frequency_2···)	@SAF, ch, format_1, frequency_1 (, format_2, frequency_2···)																
Parameter	<p>ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4 For “All inputs”, only setting commands can be specified.</p> <p>format_1-7: Audio format 0 = PCM, 1 = Dolby Digital, 2 = AAC, 3 = Dolby Digital+, 4 = DTS, 5 = DTS-HD, 6 = Dolby TrueHD [Default]: Only PCM can be output.</p> <p>frequency_1-7: Maximum sampling frequency 0 = Output disabled, 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, others: 48 kHz “Output disabled”: only set commands can be specified. Maximum settable sampling frequency depends on the audio format.</p> <table border="1"> <thead> <tr> <th>Audio format</th> <th>Maximum sampling frequency (kHz)</th> </tr> </thead> <tbody> <tr> <td>PCM</td> <td>32 / 44.1 / 48 / 88.2 / 96 / 176.4 / 192</td> </tr> <tr> <td>Dolby Digital</td> <td>Output disabled / 32 / 44.1 / 48</td> </tr> <tr> <td>AAC</td> <td>Output disabled / 32 / 44.1 / 48 / 88.2 / 96</td> </tr> <tr> <td>Dolby Digital+</td> <td>Output disabled / 32 / 44.1 / 48</td> </tr> <tr> <td>DTS</td> <td>Output disabled / 32 / 44.1 / 48 / 96</td> </tr> <tr> <td>DTS-HD</td> <td>Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192</td> </tr> <tr> <td>Dolby TrueHD</td> <td>Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192</td> </tr> </tbody> </table> <p>For getting commands, the permitted audio formats and maximum sampling frequency will be replied. For setting commands, specify the desired audio format and maximum sampling frequency. If sending parameters only to desired audio format, other audio formats will be set to “0” (Output disabled) automatically. You do not need to specify “0” parameter normally. Since PCM is always enabled, you can skip this menu unless you need to change the maximum sampling frequency.</p>		Audio format	Maximum sampling frequency (kHz)	PCM	32 / 44.1 / 48 / 88.2 / 96 / 176.4 / 192	Dolby Digital	Output disabled / 32 / 44.1 / 48	AAC	Output disabled / 32 / 44.1 / 48 / 88.2 / 96	Dolby Digital+	Output disabled / 32 / 44.1 / 48	DTS	Output disabled / 32 / 44.1 / 48 / 96	DTS-HD	Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192	Dolby TrueHD	Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192
Audio format	Maximum sampling frequency (kHz)																	
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Dolby Digital	Output disabled / 32 / 44.1 / 48																	
AAC	Output disabled / 32 / 44.1 / 48 / 88.2 / 96																	
Dolby Digital+	Output disabled / 32 / 44.1 / 48																	
DTS	Output disabled / 32 / 44.1 / 48 / 96																	
DTS-HD	Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192																	
Dolby TrueHD	Output disabled / 44.1 / 48 / 88.2 / 96 / 176.4 / 192																	
Example	@GAF,1  @GAF,1,0,7  @SAF,2,4,3  @SAF,2,4,3	Getting audio formats of IN1 that are allowed to be output. Up to 192k Hz of PCM.  Enabling IN2 to DTS and PCM up to 48k Hz (the maximum sampling frequency of PCM is not changed). Completed normally.																
Remarks	—																	

@GSP / SSP	The number of speakers																																																																																																																																
Function	Getting	Setting																																																																																																																															
Format	@GSP, ch [↵]	@SSP, ch, number (, speaker_1, speaker_2···) [↵]																																																																																																																															
Return value	@GSP, ch, number, speaker_1 (, speaker_2···) [↵]	@SSP, ch, number (, speaker_1, speaker_2···) [↵]																																																																																																																															
Parameter	ch: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4 For "All inputs", only setting commands can be specified.																																																																																																																																
	number: The number of speakers 1 to 8 [Default] 2																																																																																																																																
	speaker_1-8: Speaker 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																																																																																																																																
	Getting command: the number of speakers and which speakers will be used will be replied. Setting command: if you do not specify the speaker configuration, the following configuration will be applied depending on the set number of speakers.																																																																																																																																
	<table border="1"> <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> <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> <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> <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> <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> <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> <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> <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> <td>OFF</td> </tr> </tbody> </table>		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	OFF	2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	4	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	5	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	6	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	7	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
Number	Speaker																																																																																																																																
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8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF																																																																																																																					
	If you specify <i>speaker_1-8</i> and the <i>number</i> and total number of speakers ( <i>speaker_1-8</i> ) do not match, the <i>number</i> is set automatically. In case the <i>number</i> exceeds the settable range, an error is replied.																																																																																																																																
Example	@GSP,1 [↵] @GSP,1,2,0 [↵]	Getting IN1 speaker configuration Two speakers (Front Left / Right) are used.																																																																																																																															
	@SSP,2,2,0 [↵] @SSP,2,2,0 [↵]	IN2: Two speakers (Front Left / Right) are used. Completed normally.。																																																																																																																															
	@SSP,3,8,0,3,5,6,7 [↵]  @ERR,1 [↵]	IN3: Front Left / Right, Rear Left / Right, Front Left / Right Center, Rear Left / Right Center, Front Left / Right Wide are used. 10 speakers are used and it exceeds the settable range.																																																																																																																															
	Remarks	—																																																																																																																															

<b>@RME</b>	<b>Copying EDID</b>	
Function	Saving	
Format	@RME, out, number (, name) ↵	
Return value	@RME, out, number (, name) ↵	
Parameter	out: Connector to be loaded 1 = OUT1, 2 = OUT2	
	number: Destination COPY DATA number 1 to 8	
	name: Name of COPY DATA Up to 10 characters using 10 one-byte characters.. You can skip this setting. In this case, only EDID settings are saved without changing currently saved name.	
Example	@RME,1,1 ↵	Loading EDID data of the sink device connected to OUT1 and saving it in COPY DATA 1.
	@RME,1,1 ↵	Completed normally
	@RME,2,4,800x600 ↵	Loading EDID data of the sink device connected to OUT2, naming it "800x600" and saving it in COPY DATA 4.
	@RME,2,4,800x600 ↵	Completed normally.
Remarks	<b>@GED / @SED EDID (P.58)</b>	

### 3.3.10 Communication setting

@GCT / @SCT	RS-232C communication	
Function	Getting	Setting
Format	@GCT ↵	@SCT, port, setting ↵
Return value	@GCT, setting ↵	@SCT, port, setting ↵
Parameter	setting: Communication setting <ul style="list-style-type: none"> <li>▪ Baud rate (4800, 9600, 19200, 38400 [bps] [Default] 9600)</li> <li>▪ Data length (8, 7 [bit] [Default] 8)</li> <li>▪ Parity check (NONE, EVEN, ODD [Default]: NONE)</li> <li>▪ Stop bit (1, 2 [bit] [Default] 1)</li> </ul> For setting values, see the table below.	
	port: connector 1 = terminal block	
Example	@GCT ↵ @GCT,24 ↵	Getting communication settings of RS-232C. All baud rates = 19200 [bps], data bit length = 8 [bit], parity check = None, stop bit = 1 [bit]
	@SCT,1,24 ↵	Setting RS-232C connector as follows: baud rate =19200 [bps], data bit length = 8 [bit], parity check = NONE, stop bit = 1 [bit].
	@SCT,1,24 ↵	Completed normally.
Remarks	Once IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings of communication based on the MSD settings.	

[Table 3.1] RS-232C communication setting parameter

Value	Communication			
0	4800	8	NONE	1
1	4800	8	NONE	2
2	4800	8	ODD	1
3	4800	8	ODD	2
4	4800	8	EVEN	1
5	4800	8	EVEN	2
6	4800	7	NONE	1
7	4800	7	NONE	2
8	4800	7	ODD	1
9	4800	7	ODD	2
10	4800	7	EVEN	1
11	4800	7	EVEN	2

Value	Communication			
12	9600	8	NONE	1
13	9600	8	NONE	2
14	9600	8	ODD	1
15	9600	8	ODD	2
16	9600	8	EVEN	1
17	9600	8	EVEN	2
18	9600	7	NONE	1
19	9600	7	NONE	2
20	9600	7	ODD	1
21	9600	7	ODD	2
22	9600	7	EVEN	1
23	9600	7	EVEN	2

Value	Communication			
24	19200	8	NONE	1
25	19200	8	NONE	2
26	19200	8	ODD	1
27	19200	8	ODD	2
28	19200	8	EVEN	1
29	19200	8	EVEN	2
30	19200	7	NONE	1
31	19200	7	NONE	2
32	19200	7	ODD	1
33	19200	7	ODD	2
34	19200	7	EVEN	1
35	19200	7	EVEN	2

Value	Communication			
36	38400	8	NONE	1
37	38400	8	NONE	2
38	38400	8	ODD	1
39	38400	8	ODD	2
40	38400	8	EVEN	1
41	38400	8	EVEN	2
42	38400	7	NONE	1
43	38400	7	NONE	2
44	38400	7	ODD	1
45	38400	7	ODD	2
46	38400	7	EVEN	1
47	38400	7	EVEN	2



<b>@GIP / @SIP</b>	<b>IP address</b>	
Function	Getting	Setting
Format	@GIP	@SIP, unit_1, unit_2, unit_3, unit_4
Return value	@GIP, unit_1, unit_2, unit_3, unit_4	@SIP, unit_1, unit_2, unit_3, unit_4
Parameter	unit_1: Upper bit of the IP address to unit_4: lower bit of the IP address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.199	
Example	@GIP	Getting IP address of the MSD
	@GIP,192,168,3,2	IP address: 192.168.3.2.
	@SIP,192,168,3,2	Setting IP address to 192.168.3.2
	@SIP,192,168,3,2	Completed normally.
Remarks	Once IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings of communication based on the MSD settings.	

<b>@GSB / @SSB</b>	<b>Subnet mask</b>	
Function	Getting	Setting
Format	@GSB	@SSB, unit_1, unit_2, unit_3, unit_4
Return value	@GSB, unit_1, unit_2, unit_3, unit_4	@SSB, unit_1, unit_2, unit_3, unit_4
Parameter	unit_1: Upper bit of the subnet mask to unit_4: lower bit of the subnet mask 0 to 255 = 8 bit (Decimal notation) [Default] 255.255.255.0	
Example	@GSB	Getting subnet mask of the MSD.
	@GSB,255,255,192,0	255.255.192.0 (= 18 bit)
	@SSB,255,255,192,0	Setting subnet mask to 255.255.192.0
	@SSB,255,255,192,0	(=18 bit). Completed normally.
Remarks	Once IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings of communication based on the MSD settings.	

<b>@GGW / @SGW</b>	<b>Gateway address</b>	
Function	Getting	Setting
Format	@GGW	@SGW, unit_1, unit_2, unit_3, unit_4
Return value	@GGW, unit_1, unit_2, unit_3, unit_4	@SGW, unit_1, unit_2, unit_3, unit_4
Parameter	unit_1: Upper bit of the gateway address to unit_4: lower bit of the gateway address 0 to 255 = 8 bit (Decimal notation) [Default] 192.168.1.200	
Example	@GGW	Getting gateway address.
	@GGW,192,168,1,254	192.168.1.254.
	@SGW,192,168,1,254	Setting gateway address to
	@SGW,192,168,1,254	192.168.1.254. Completed normally.
Remarks	Once IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings of communication based on the MSD settings.	

<b>@GLP / @SLP</b>	<b>TCP port number</b>	
Function	Getting	Setting
Format	@GLP [↵]	@SLP, connection_1, port_1 (, connection_2, port_2···) [↵]
Return value	@GLP, port_1, port_2, port_3, port_4, port_5, port_6, port_7, port_8 [↵]	@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 = Connection 1 to 8 = connection 8	
Example	@GLP [↵] @GLP,1100,1100,1100,23,23,23,80,80 [↵]	Getting port number. Connection 1 to 3:1100; connection 4 to 6: 23; connection 7 and 8: 80
	@SLP,8,6000 [↵] @SLP,8,6000 [↵]	Setting port number of connection 8 to "6000". Completed normally.
Remarks	Once IP address or RS-232C communication setting is changed, the communication may be disabled. Change the environmental settings of communication based on the MSD settings.	

<b>@GMC</b>	<b>MAC address</b>	
Function	Getting	
Format	@GMC [↵]	
Return value	@GMC, unit_1, unit_2, unit_3, unit_4, unit_5, unit_6 [↵]	
Parameter	unit_1: Upper bit of the MAC address to unit_6: lower bit of the MAC address 00 to FF = 8 bit (in hexadecimal)	
Example	@GMC [↵] @GMC,00,08,E5,5F,00,00 [↵]	Example
Remarks	—	

### 3.3.11 Preset memory

@RCM	Loading cross point memory	
Function	Setting	
Format	@RCM, memory ↵	
Return value	@RCM, memory ↵	
Parameter	memory: cross point memory 1 to 9	
Example	@RCM,1 ↵	Loading video and audio channels of cross point memory 1. Completed normally.
	@RCM,1 ↵	
Remarks	—	

@SCM / @SEM	Saving channels to cross point memory	
Function	Overwriting	Saving settings other than channels set to Not controlled in “@GCM / @ECMEditing cross point memory”.
Format	@SCM, memory (, name) ↵	@SEM, memory (, name) ↵
Return value	@SCM, memory (, name) ↵	@SEM, memory (, name) ↵
Parameter	memory: Cross point memory 1 to 9	
	name: Memory name Up to 10 one-byte characters using 20 to 7D from ASCII codes. If you do not specify memory name, only cross point settings are saved without changing the current memory name.	
Example	@SCM,2 ↵ @SCM,2 ↵	Saving the current video and audio channels to cross point memory 2 without changing the memory name.
	@SEM,2,PATTERN2 ↵  @SEM,2,PATTERN2 ↵	Saving the current video and audio channels to cross point memory 2 with the name of “PATTERN2”. Output settings that are set to Not Controlled are not saved. Completed normally.
Remarks	The setting of “@GPI / @SPI PinP output (P.20)” which is set when it is saved to the cross point memory will be saved.	

@GCM / @ECM	Editing cross point memory	
Function	Getting	Setting
Format	@GCM, memory [↵]	@ECM, memory, video_o1, audio_o1, video_o2, audio_o2, video_p1, audio_p1, video_p2, audio_p2, on_p1, on_p2 [↵]
Return value	@GCM, memory, video_o1, audio_o1, video_o2, audio_o2, video_p1, audio_p1, video_p2, audio_p2, on_p1, on_p2, name [↵]	@ECM, memory, video_o1, audio_o1, video_o2, audio_o2, video_p1, audio_p1, video_p2, audio_p2, on_p1, on_p2 [↵]
Parameter	<p>memory: Cross point memory 1 to 9</p> <p>video_o1-o2: Video input channel of OUT audio_o1-o2: Audio input channel of OUT video_p1-p2: Video input channel of PinP audio_p1-p2: Audio input channel of PinP -1 = Not control [Default], 0 = OFF, 1 = IN1 to 4 = IN4</p> <p>on_p1-p2: PinP output -1 = Not control [Default], 0 = OFF, 1 = ON</p> <p>name: Memory name Up to 10 one-byte characters using 20 to 7D from ASCII codes</p>	
Example	<p>@GCM,2 [↵]</p> <p>@GCM,2,3,3,1,1,0,0,0,0,0,PATTERN2 [↵]</p> <p>@ECM,2,1,1,-1,-1,0,0,0,0,0 [↵]</p> <p>@ECM,2,1,1,-1,-1,0,0,0,0,0 [↵]</p>	<p>Getting video and audio channel of cross point memory 2.</p> <p>With the name of "PATTERN2", OUT1: IN3; OUT2: Not control; PinP1 and PinP2: OFF; PinP window output of PinP1 and PinP2: OFF</p> <p>When cross point memory 2 is loaded, OUT1 is set to IN1 and OUT2 is Not control. PinP1 and PinP2 are set to OFF; PinP window output of PinP1 and PinP2 is set to OFF.</p>
Remarks	<p>Nothing is saved in the memory by factory default, the state is "-1" (Not control).</p> <p>If a value that is different from the video input channel is specified to audio input channel of OUT1 and OUT2, an error is replied.</p> <p>If a value other than "OFF" is specified to audio input channel of PinP1 and PinP2, an error is replied.</p>	

<b>@RPM / @SPM</b>	<b>Loading/saving all settings</b>	
Function	Setting	Saving
Format	@RPM, preset	@SPM, preset (, name)
Return value	@RPM, preset	@SPM, preset (, name)
Parameter	preset: Preset memory 1 to 16  name: Memory name Up to 10 one-byte characters using 20 to 7D from ASCII codes. If you do not specify memory name, only cross point settings are saved without changing the memory name.	
Example	@RPM,3	Loading preset memory 3.
	@RPM,3	Completed normally.
	@SPM,2	Saving the current settings in preset memory 2 without changing the memory name.
	@SPM,2	Completed normally.
	@SPM,2,MEMORY2	Saving the current settings in preset memory 2 with the name of "MEMORY2".
	@SPM,2,MEMORY2	Completed normally.
Remarks	Note that once preset memory is loaded, all settings of video and audio I/O except for some environmental settings will be updated.	

<b>@SCP</b>	<b>Copying output setting</b>	
Function	Saving	
Format	@SCP, out_ori, out_des	
Return value	@SCP, out_ori, out_des	
Parameter	out_ori: Output channel to be copied 1 = OUT1, 2 = OUT2  out_des: Destination output channel 1 = OUT1, 2 = OUT2	
Example	@SCP,1,2	Copying output settings of OUT1 to OUT2
	@SCP,1,2	
Remarks	Note that once output settings are copied, all settings related to the output will be updated.	











<b>@GMU / @SMU</b>	<b>Startup settings</b>	
Function	Getting	Setting
Format	@GMU ↵	@SMU, state ↵
Return value	@GMU, state ↵	@SMU, state ↵
Parameter	state: Startup settings 1 to 9 = Cross point memory 1 to 9,                   10 = Channel OFF, 11 = Last channel [Default],                   12 to 27 = Preset memory 1 to 16	
Example	@GMU ↵	Getting settings for startup.
	@GMU,3 ↵	Channel settings of cross point memory 3 will be applied at startup.
	@SMU,3 ↵	Setting channel settings at startup to cross point memory 3.
	@SMU,3 ↵	Completed normally.
Remarks	—	

### 3.3.12 Bitmap setting

@GBM / @SBM	Outputting bitmap image	
Function	Getting	Setting
Format	@GBM ↵	@SBM, ch_1, out_1 (, ch_2, out_2···) ↵
Return value	@GBM, out_1, out_2 ↵	@SBM, ch_1, out_1 (, ch_2, out_2···) ↵
Parameter	out_1-4: Outputting bitmap image 0 = OFF [Default],            1 = bitmap 1 ON, 2 = bitmap 2 ON,            3 = bitmap 3 ON, 4 = bitmap 4 ON Only registered numbers can be specified.	
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
Example	@GBM ↵	Getting output image.
	@GBM,1,0 ↵	OUT1: bitmap 1; OUT2: not output a bitmap image.
	@SBM,1,1 ↵	Outputting bitmap 1 image to OUT 1 instead of the normal image.
	@SBM,1,1 ↵	Completed normally.
Remarks	—	

<b>@GBB / @SBB</b>	<b>Background color</b>	
Function	Getting	Setting
Format	@GBB, ch ↵	@SBB, ch_1, bitmap_1, red_1, green_1, blue_1 (, ch_2, bitmap_2, red_2, green_2, blue_2···) ↵
Return value	@GBB, ch, red_1, green_1, blue_1 (, red_2, green_2, blue_2···) ↵	@SBB, ch_1, bitmap_1, red_1, green_1, blue_1 (, ch_2, bitmap_2, red_2, green_2, blue_2···) ↵
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2	
	ch_1-8: Output channel 0 = All outputs (OUT1, OUT2), 1 = OUT1, 2 = OUT2	
	red_1-8 : Background color (Red) green_1-8 : Background color (Green) blue_1-8 : Background color (Blue) 0 to 255 [Default] 255 (White) For getting commands, registered bitmap settings will be replied in order.	
	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.	
Example	@GBB,2 ↵	Getting background color of OUT2.
	@GBB,2,255,0,0 ↵	R: 255; G and B: 0 (Red)
	@GBB,2 ↵	Getting background color of OUT2 when two bitmaps are registered
	@GBB,2,255,0,0,0,255,0 ↵	Bitmap1: R 255, G and B 0 (red); Bitmap2: G255, R and B 0 (green)
	@SBB,1,1,255,255,255 ↵	Setting background color for when Bitmap 1 is output to OUT1 to 255 for RGB (white).
	@SBB,1,1,255,255,255 ↵	Completed normally.
Remarks	—	



@GBT / @SBT	Aspect ratio	
Function	Getting	Setting
Format	@GBT, ch 	@SBT, ch_1, bitmap_1, aspect_1 (, ch_2, bitmap_2, aspect_2···) 
Return value	@GBT, ch, aspect_1 (, aspect_2···) 	@SBT, ch_1, bitmap_1, aspect_1 (, ch_2, bitmap_2, aspect_2···) 
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
	ch_1-16: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2	
	aspect_1-16: Aspect ratio 0 = AUTO [Default], 1 = FULL, 2 = THROUGH For getting commands, registered bitmap settings will be replied in order.	
	bitmap_1-16: Bitmap number 0 = all bitmaps, 1 = bitmap 1, 2 = bitmap 2, 3 = bitmap 3, 4 = bitmap 4 Only registered numbers can be specified.	
Example	@GBT,1 	Getting aspect ratio of OUT1. Displayed on FULL screen.
	@GBT,1,1 	Getting background color of OUT2 when two bitmaps are registered
	@GBT,1 	Bitmap1: FULL, Bitmap2: AUTO
	@GBT,1,1,0 	
	@SBT,1,1,1 	When bitmap1 is output to OUT1, setting its aspect ratio to FLL.
	@SBT,1,1,1 	Completed normally.
Remarks	—	

<b>@GZP / @SZP</b>		<b>Display position</b>	
Function	Getting	Setting	
Format	@GZP, ch [↵]	@SZP, ch_1, bitmap_1, position_1 (, ch_2, bitmap_2, position_2···) [↵]	
Return value	@GZP, ch, position_1 (, position_2···) [↵]	@SZP, ch_1, bitmap_1, position_1 (, ch_2, bitmap_2, position_2···) [↵]	
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2		
	ch_1-8: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2		
	position_1-8: Display position 0 = CENTER [Default], 1 = TOP-LEFT, 2 = BOTTOM-LEFT, 3 = TOP-RIGHT, 4 = BOTTOM-RIGHT For getting commands, registered bitmap settings will be replied in order.		
	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.		
Example	@GZP,1 [↵]	Getting display position of OUT1.	
	@GZP,1,1 [↵]	Displaying at upper left.	
	@GZP,1 [↵]	Getting display position of OUT2 when two bitmaps are registered	
	@GZP,1,1,0 [↵]	Bitmap1: upper left; Bitmap2: Front	
	@SZP,1,1,1 [↵]	Setting bitmap 1 to be displayed at upper left when it is output to OUT1.	
	@SZP,1,1,1 [↵]	Completed normally.	
Remarks	—		

<b>@GBA / @SBA</b>		<b>Bitmap assignment</b>	
Function	Getting	Setting	
Format	@GBA, ch	@SBA, ch_1, input_1, bitmap_1 (, ch_2, input_2, bitmap_2···)	
Return value	@GBA, ch, bitmap_1, bitmap_2, bitmap_3, bitmap_4	@SBA, ch_1, input_1, bitmap_1 (, ch_2, input_2, bitmap_2···)	
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
	ch_1-16: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
	bitmap_1-16: Assigning bitmap 0 = NONE [Default], 1 = Bitmap 1, 2 = Bitmap 2, 3 = Bitmap 3, 4 = Bitmap 4 Only registered numbers can be specified.		
	input_1-16: Input channel 0 = All inputs, 1 = IN1 to 4 = IN4		
Example	@GBA,1	Getting OUT1 bitmap assignment	
	@GBA,1,0,0,0,1	OUT1: bitmap1 is assigned to IN4.	
	@SBA,1,4,1	Setting OUT1: assigning bitmap1 to IN4 (if IN4 is selected, bitmap 1 will be output.)	
	@SBA,1,4,1	Completed normally.	
Remarks	—		

<b>@GPB / @SPB</b>		<b>Outputting bitmap at startup</b>	
Function	Getting	Setting	
Format	@GPB	@SPB, ch_1, out_1 (, ch_2, out_2···)	
Return value	@GPB, out_1, out_2, out_3, out_4	@SPB, ch_1, out_1 (, ch_2, out_2···)	
Parameter	out_1-4: Outputting bitmap 0 = OFF [Default], 1 = Bitmap1 ON, 2 = Bitmap2 ON, 3 = Bitmap3 ON, 4 = Bitmap4 ON Only registered numbers can be specified.		
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
Example	@GPB	Getting bitmap output at startup.	
	@GPB,0,1,3,4	Bitmap1 will be output to OUT2. Bitmap3 will be output to PinP1. Bitmap4 will be output to PinP2.	
	@SPB,1,0	OUT1: not output a bitmap at startup.	
	@SPB,1,0	Completed normally.	
Remarks	—		

<b>@GBD / @SBD</b>	<b>Dividing bitmap memory</b>	
Function	Getting	Setting
Format	@GBD	@SBD, num, mode (, size_1, size_2···)
Return value	@GBD, num, block_1 (, block_2···)	@SBD, num, mode, block_1 (, block_2···)
Parameter	<p>num: The number of divides 1 to 4 [Default] 1</p> <p>block_1-4: Block size of each memory 0 to 128 [Default] 128 If the memory is divided correctly, the block size after divide will be replied.</p> <p>mode: Divide mode 0 = AUTO, 1 = RESIZE, 2 = FORCE, 3 = Specify size If you select "3", set <i>size_1-4</i> below.</p> <p>size_1-4: Block size of each memory 0 to 128 [Default] 128 1 block: 65,536 bytes; the total size of all bitmaps: 128 blocks (8,388,608 bytes or smaller) Only if you select the divide mode to "3", specify this value.</p>	
Example	@GBD @GBD,2,64,64 @SBD,2,1 @SBD,2,1,64,64	Getting dividing bitmap memory. Bitmap1 and bitmap2: 64 blocks (4,194,304 bytes) are allocated for each. Dividing bitmap memory into two in RESIZE mode. Bitmap1 and bitmap2: 64 blocks (4,194,304 bytes) are allocated for each.
Remarks	—	

<b>@GBV</b>	<b>Bitmap memory status</b>	
Function	Getting	
Format	@GBV	
Return value	@GBV, num, block_1 (, block_2···)	
Parameter	<p>num: The number of divides 1 to 4 [Default] 1</p> <p>block_1-4: Block size of each memory actually used 0 to 128 [Default] 12</p>	
Example	@GBV @GBV,2,32,0	Getting actual state of bitmap memory. Bitmap 1: 32 blocks (2,097,152 bytes) are used; bitmap 2: not registered.
Remarks	—	

<b>@GFZ / @SFZ</b>		<b>Freeze</b>	
Function	Getting	Setting	
Format	@GFZ [↵]	@SFZ, ch_1, freeze_1 (, ch_2, freeze_2···) [↵]	
Return value	@GFZ, freeze_1, freeze_2, freeze_3, freeze_4 [↵]	@SFZ, ch_1, freeze_1 (, ch_2, freeze_2···) [↵]	
Parameter	freeze_1-4: Setting freeze 0 = OFF [Default], 1 = ON		
	ch_1-4: Output channel 0 = All outputs, 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP2		
Example	@GFZ [↵]	Getting freeze status.	
	@GFZ,1,0,0,0 [↵]	OUT1: input image is frozen and output.	
	@SFZ,1,1 [↵] @SFZ,1,1 [↵]	Freezing OUT1 image. Completed normally.	
Remarks	Images freeze temporarily. When input channel is switched or input signals are changed, the freeze is released automatically and input image is output normally.		

<b>@CAP</b>		<b>Capturing input image</b>	
Function	Setting		
Format	@CAP, ch, bitmap [↵]		
Return value	@CAP, ch, bitmap [↵]		
Parameter	ch: Output channel 1 = OUT1, 2 = OUT2, 3 = PinP1, 4 = PinP4		
	bitmap: Bitmap number 1 = Bitmap1, 2 = Bitmap2, 3 = Bitmap3, 4 = Bitmap4 Only the number of divides or smaller value can be specified.		
Example	@CAP,1,2 [↵]	Registering OUT1 input video in bitmap2.	
	@CAP,1,2 [↵]	Completed normally.	
Remarks	—		

### 3.3.13 Other setting

@GLS / @SLS	Key lock	
Function	Getting	Setting
Format	@GLS ↵	@SLS, lock ↵
Return value	@GLS, lock ↵	@SLS, lock ↵
Parameter	l lock: Key lock 0 = Releasing lock [Default], 1 = Locking, 2 = Reversing the setting	
Example	@GLS ↵ @GLS,1 ↵	Getting key lock status Input channel selection keys are being locked.
	@SLS,1 ↵ @SLS,1 ↵	Locking input channel selection keys Completed normally.。
Remarks	—	

@GIV	Version	
Function	Getting	
Format	@GIV ↵	
Return value	@GIV, id, ver ↵	
Parameter	id : Model number ver : Firmware version	
Example	@GIV ↵ @GIV,MSD-402,1.00 ↵	Getting product information. Model number and firmware version are replied.
Remarks	—	

### 3.3.14 Displaying status

@GSS	Input and output status																
Function	Getting																
Format	@GSS, channel, mode ↵																
Return value	@GSS, channel, mode, status_1 (, status_2, status_3···) ↵																
Parameter	<p>channel: I/O channel            1 = IN1,            2 = IN2,            3 = IN3,            4 = IN4,            11 = OUT1,        12 = OUT2,        13 = PinP1,        14 = PinP2</p> <p>mode: Getting status            channel = 1 to 4 (digital input channel)            0 = All of 1 to 4,            1 = Type of input signal*1,            2 = Format of video input signal*2,            3 = Format of audio input signal*3,            4 = with/without HDCP input            channel = 11 to 14 (output channel)            0 = All of 1 to 3, 1 = HDCP authorization*4, 2 = Type of output signal*5,            3 = Error code*6</p> <p>status_1-4: Status</p> <p>*1 For type of input signal</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Input signal type</th> </tr> </thead> <tbody> <tr> <td>Hxx</td> <td>HDMI signal is input. xx stands for color depth which is 24 or 30.</td> </tr> <tr> <td>D</td> <td>DVI signal is input.</td> </tr> <tr> <td>N</td> <td>No signal is input.</td> </tr> </tbody> </table> <p>*2 For format of video input signal</p> <table border="1"> <thead> <tr> <th>Reply example</th> <th>Format of video input signal</th> </tr> </thead> <tbody> <tr> <td>1080i 59.94Hz</td> <td>SDTV/HDTV signal is input and the format type and vertical synchronous frequency are replied.</td> </tr> <tr> <td>800 x 600 60.00Hz</td> <td>VESA signal is input, and [Horizontal resolution x Vertical resolution] and vertical synchronous frequency are replied.</td> </tr> <tr> <td>NO SIGNAL</td> <td>No video signal is input.</td> </tr> </tbody> </table>	Value	Input signal type	Hxx	HDMI signal is input. xx stands for color depth which is 24 or 30.	D	DVI signal is input.	N	No signal is input.	Reply example	Format of video input signal	1080i 59.94Hz	SDTV/HDTV signal is input and the format type and vertical synchronous frequency are replied.	800 x 600 60.00Hz	VESA signal is input, and [Horizontal resolution x Vertical resolution] and vertical synchronous frequency are replied.	NO SIGNAL	No video signal is input.
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<b>@GSS</b>	<b>Input and output status</b>	
Example	@GSS,1,0 ↵ @GSS,1,0,H30,1080P 60Hz, LINEAR PCM 48kHz, HDCP ON ↵	Getting IN1 all statuses. <ul style="list-style-type: none"> <li>• Type of input signal: 30-BIT COLOR HDMI signal</li> <li>• Video input signal: 1080P 60Hz</li> <li>• Audio input signal: LINEAR PCM 48kHz</li> <li>• HDCP:ON</li> </ul>
Remarks	If PinP is selected for an output channel, only error code is effective for the getting status. "0" is displayed for error codes of digital audio output, analog audio output.	

@GES	Monitor's EDID information						
Function	Getting						
Format	@GES, channel, mode ↵						
Return value	@GES, channel, mode, status_1 (, status_2) ↵						
Parameter	channel: Output connector 1 = OUT1, 2 = OUT2						
	mode: Getting statuses 0 = All of 1 to 4, 1 = Monitor name* <sup>1</sup> , 2 = Resolution and dot clock* <sup>2</sup> , 3 = HDMI support status, sampling structure, and color depth * <sup>3</sup> , 4 = Audio support status and sampling frequency, bit length, the number of channels, and support status of compressed audio * <sup>4</sup>						
	status_1 to status_4: Status						
	* <sup>1</sup> Monitor name						
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@GES	Monitor's EDID information							
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Example	<p>@GES,1,0 ↵</p> <p>@GES,1,0,MSD-402, 1920x1080 148.50MHz,DVI,AUDIO NOT SUPPORT ↵</p>	<p>Getting EDID information of the sink device connected to OUT1A.</p> <ul style="list-style-type: none"> <li>• Monitor name: MSD-402</li> <li>• Resolution: 1920x1080</li> <li>• Dot clock: 148.50MHz</li> <li>• HDMI: Not supported</li> <li>• Audio: Not supported</li> </ul>						
Remarks	—							

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## User guide (Command Guide) of MSD-402

Ver.1.4.0

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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](mailto:idk_eng@idk.co.jp)

URL: [www.idkav.com](http://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](mailto:sales@idkav.com)

URL: [www.idkav.com](http://www.idkav.com)

### Europe

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

Email: [info@idkav.eu](mailto:info@idkav.eu)

URL: [www.idkav.com](http://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](mailto:info@arvanics.com)

URL: [www.arvanics.com](http://www.arvanics.com)

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