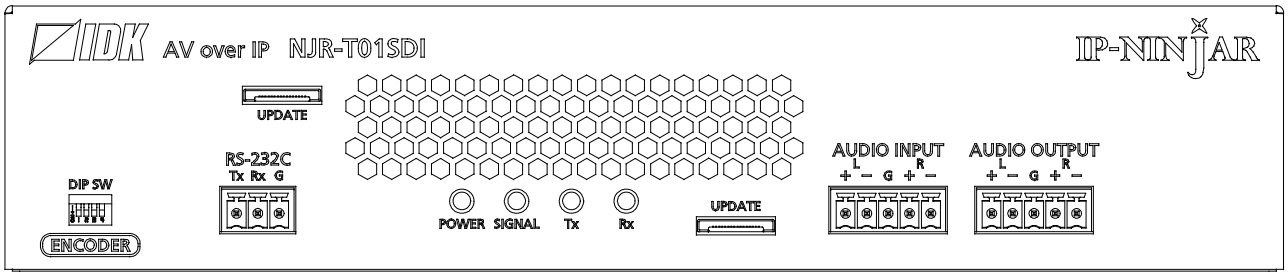
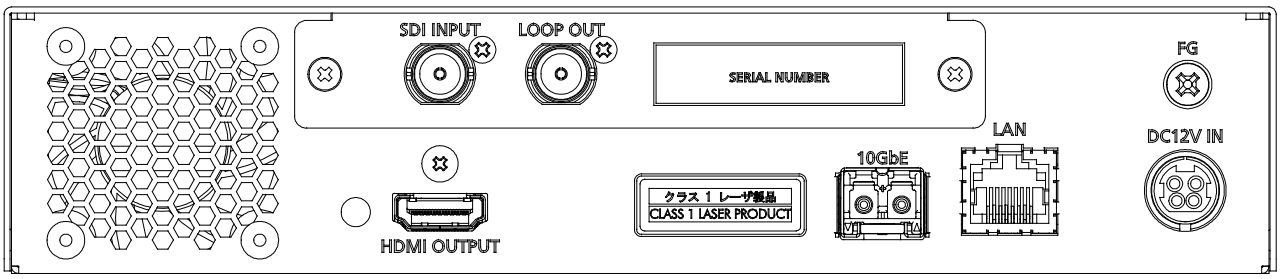
AV over IP Encoder for SDI

NJR-T01SDI

<Command Reference Guide>

Ver.1.1.0





- 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

- 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: http://www.idkav.com

The reference manual consists of the following two volumes:

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

Table of Contents

1 How to read this Guide

This guide contains the procedure for commanding NJR-T01SDI via RS-232C communication or LAN communication.
If other IP-NINJAR series products are connected, refer to each User Guide.

2 About this Guide

This guide contains the procedure for controlling NJR-T01SDI using commands via RS-232C communication or LAN communication.

■ **Communication commands enables the following main operations:**

- Setting input, output
- Setting audio
- Displaying information

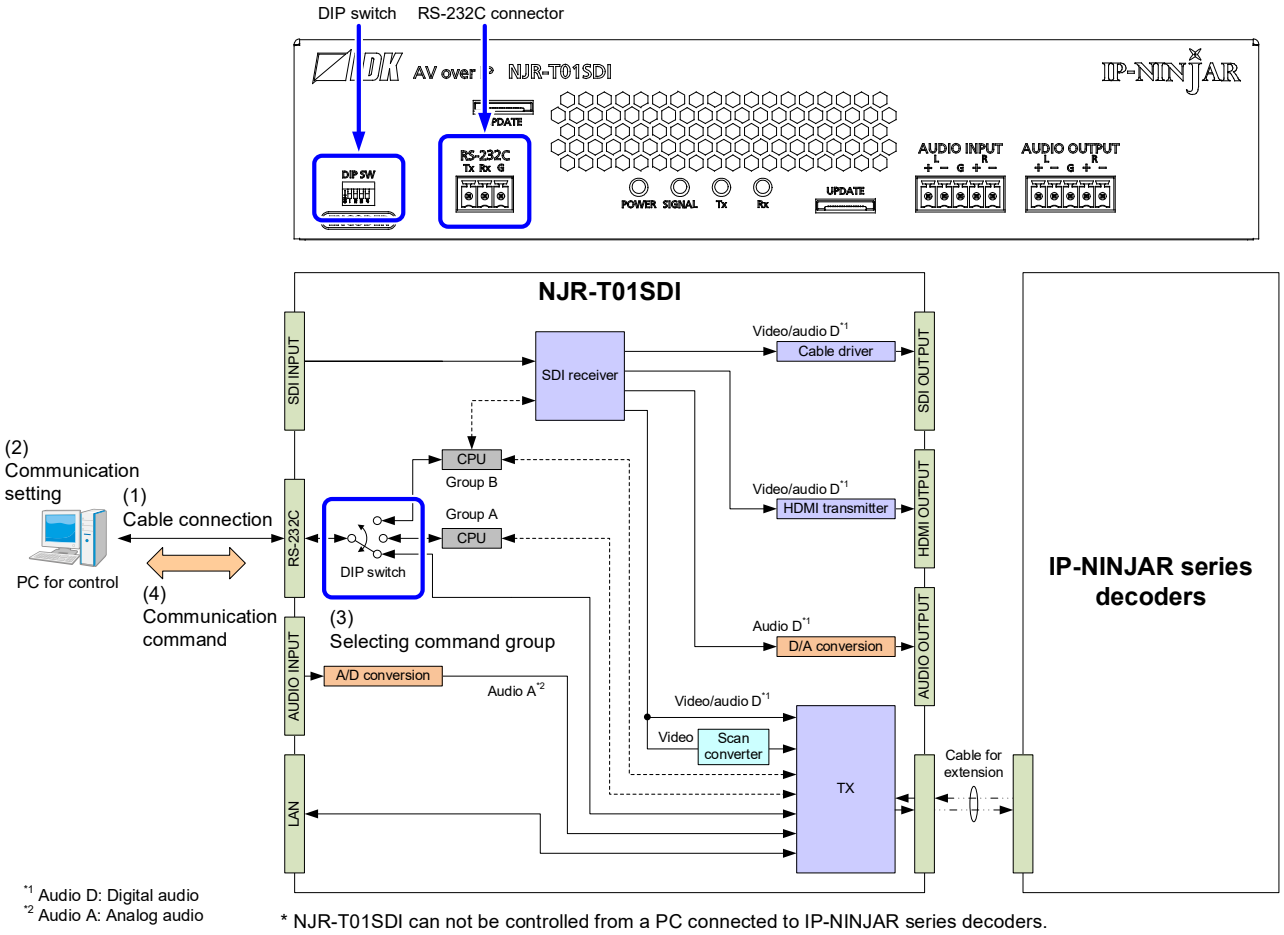
3 Communication configuration and Specifications

3.1 RS-232C communication

The NJR-T01SDI can be accessed and controlled via RS-232C communication.
Connecting a control device to the NJR-T01SDI's RS-232C connectors enables system control and status queries per the Command List.

3.1.1 Setup of RS-232C communication

Follow the procedure below.



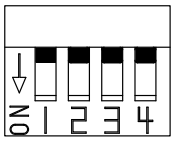
[Fig. 3.1] RS-232C communication setup

(1) Connect the control device to the RS-232C connector of the NJR-T01SDI through an RS-232C cable.
(2) See the control device according to "**[Table 3.2] RS-232C specification**".
(3) Set the DIP switch of the NJR-T01SDI to Group A or Group B depending on the communication command you use. ("**[Table 3.1] DIP switch**").

【See: 4.2 Command list】

(4) Send communication command from the control device to the NJR-T01SDI.
You can control the NJR-T01SDI and get the status information using communication command.

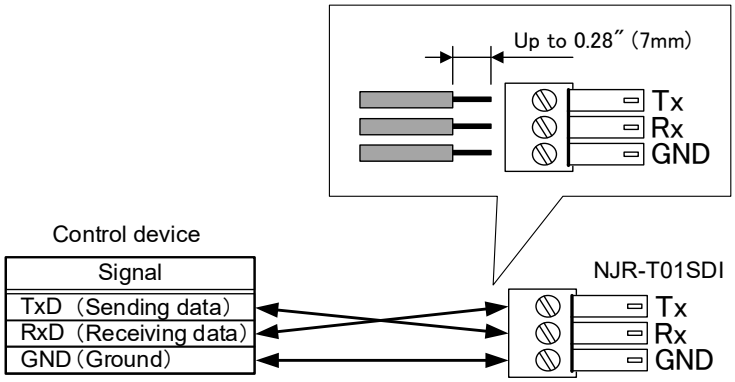
[Table 3.1] DIP switch

	1	2	3	4	Description
	OFF	OFF	—*	—*	Connecting to IP-NINJAR decoder (RS-232C connector) by default
	ON	OFF	—*	—*	Command group A
	OFF	ON	—*	—*	Setting disabled
	ON	ON	—*	—*	Command group B

*-: No Connection

3.1.2 RS-232C connector specification

The NJR's RS-232C connection is supported by a 3-pin captive screw connector.
Insert and secure the wires from the RS-232C cable into the supplied 3-pin captive screw connector, and then insert the captive screw connector into to the mating connector on the NJR-T01SDI.
28 AWG to 16 AWG conductor gauge is recommended. The recommended wire strip length is 0.28 in. (7 mm).
Short RTS/CTS and DTR/DSR as needed.



[Fig. 3.2] Connecting RS-232C cable to 3-pin captive screw connector

3.1.3 RS-232C communication specification

There are two RS-232C modes: control mode (setting NJR) and communication mode (controlling peripheral devices). Values for the former mode are fixed as mentioned in the table below and cannot be changed; values for the latter mode are settable.

【See: 4.5.2.4 RS-232C settings】

[Table 3.2] RS-232C specification

Compliant standard	RS-232C
Baud rate	9600 [bps]
Data bit	8 [bit]
Parity check	None
Stop bit	1 [bit]
X parameter	Invalid
Flow control	None
Communication method	Full duplex

3.2 LAN communication

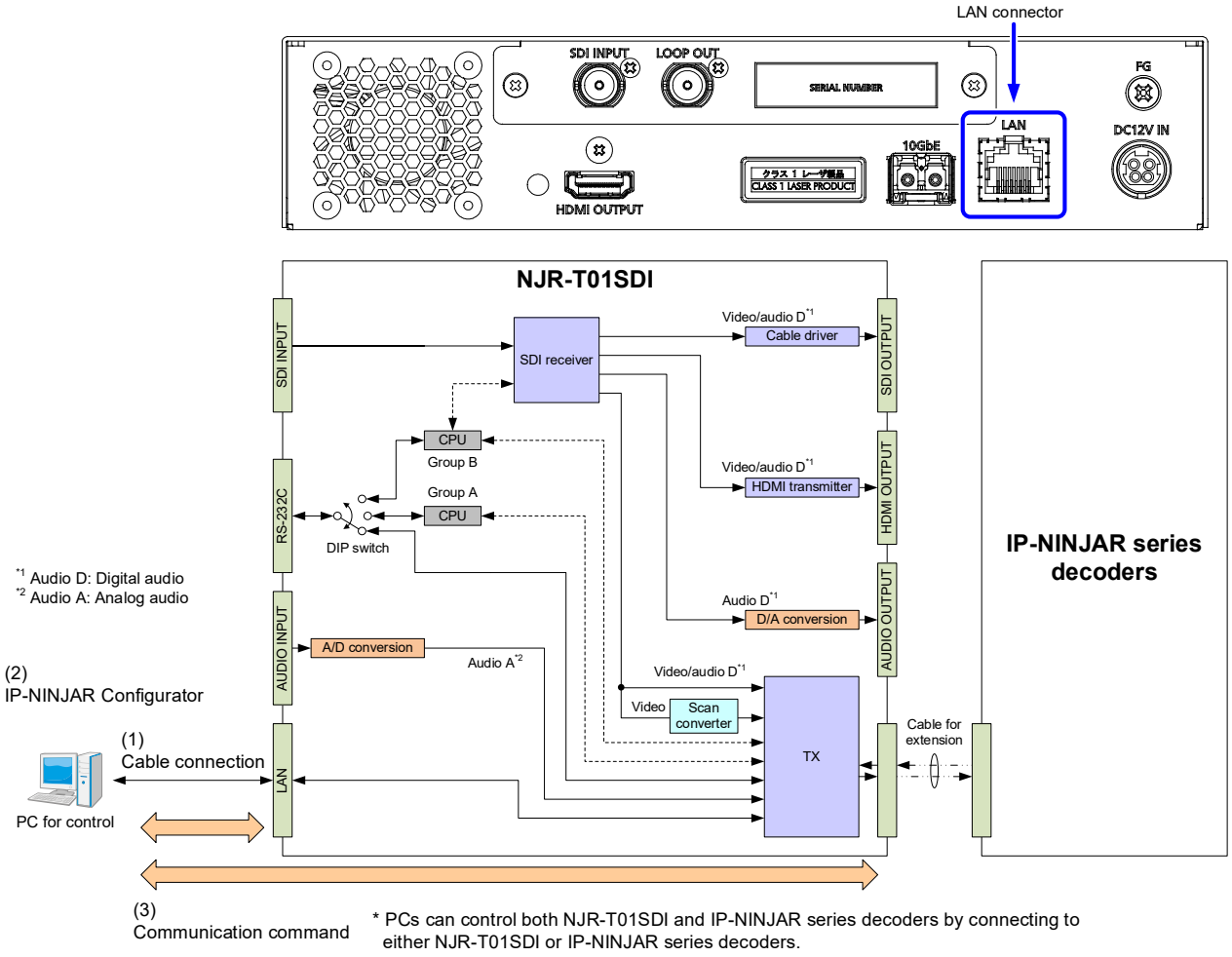
The NJR-T01SDI can be accessed and controlled through LAN communication.
Connecting a control device to the NJR-T01SDI's LAN connector enables system control and status queries using the IP-NINJAR Configurator (configuration software for IP-NINJAR).
For operations from the IP-NINJAR Configurator, refer to the User Guide of IP-NINJAR Configurator.
Please contact us to download the IP-NINJAR Configurator.

Note:
When using LAN communication to control the NJR-T01SDI, the terminal software cannot be used.

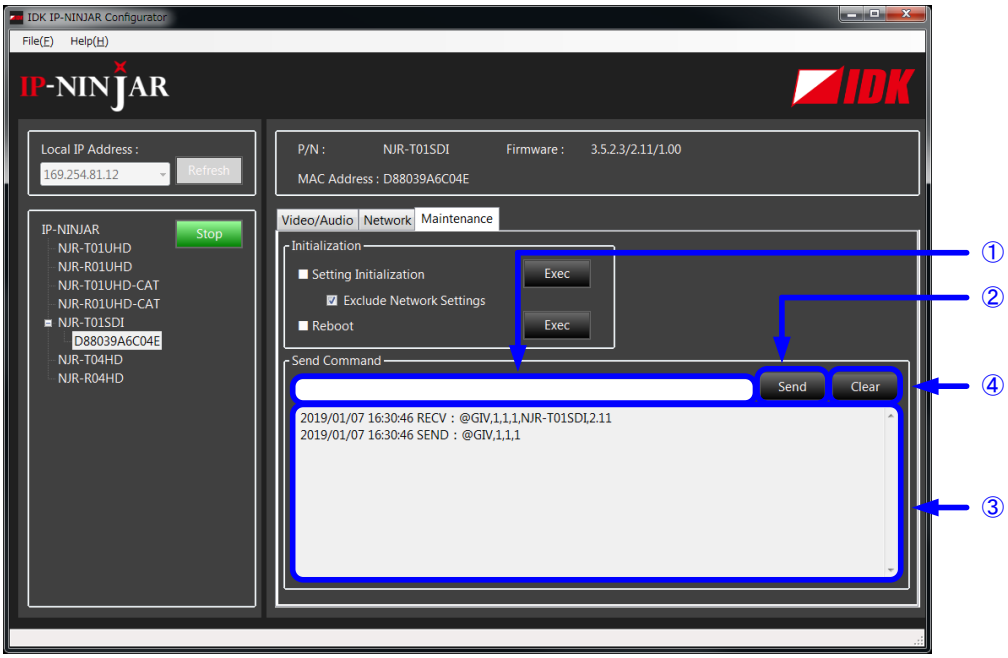
3.2.1 Setup LAN communication

Follow the procedure below.

(1) Connect the control device to the LAN connector of the NJR-T01SDI through a LAN cable.
(2) Start the IP-NINJAR Configurator in the control device.
(3) Send communication command from the Maintenance page of the IP-NINJAR Configurator.
You can control the NJR-T01SDI and get the status information using communication command.



[Fig. 3.3] LAN communication setup



① For entering the desired command.

② For sending the command to NJR-T01SDI or IP-NINJAR series decoders.

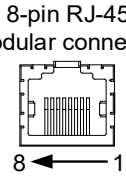
③ For displaying the log.

④ For deleting the log.

[Fig. 3.4] Command input from Maintenance page

3.2.2 LAN connector specification

Pin assignment of the LAN connector is as follows.
Since Auto MDI/MDI-X that distinguishes and switches straight/cross cables automatically is supported, extra care is not necessary to connect the NJR-T01SDI to PC, HUB or the like.



Pin number	Signal name			
	MDI		MDI-X	
	1000BASE-T	100BASE-TX/10BASE-T	1000BASE-T	100BASE-TX/10BASE-T
1	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)	TRX+ (Transmitted & Received data +)	RX+ (Received data +)
2	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)	TRX- (Transmitted & Received data -)	RX- (Received data -)
3	TRX+ (Transmitted & Received data +)	RX+ (Received data +)	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)
4	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*
5	TRX- (Transmitted & Received data -)	N.C. (Not connected)*	TRX- (Transmitted & Received data -)	N.C. (Not connected)*
6	TRX- (Transmitted & Received data -)	RX- (Received data -)	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)
7	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*
8	TRX- (Transmitted & Received data -)	N.C. (Not connected)*	TRX- (Transmitted & Received data -)	N.C. (Not connected)*

*Not used

[Fig. 3.5] LAN connector

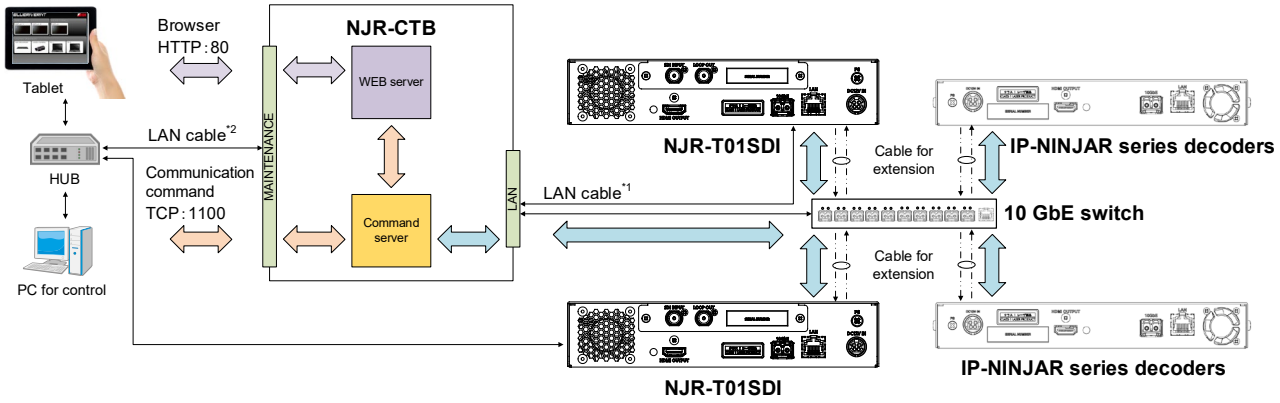
3.2.3 LAN communication specification

[Table 3.3] LAN communication

Physical layer	10Base-T (IEEE802.3i)/100Base-TX (IEEE802.3u)/ 1000Base-T (IEEE802.3ab)
Network layer	ARP, IP, ICMP
Transport layer	UDP

3.3 External control from NJR-CTB

Connecting a control device to the NJR-CTB's LAN connector enables system control and status queries per the Command List.
For operations from the NJR-CTB, refer to the Command Guide of NJR-CTB.



*1 LAN connector on NJR-CTB should be connected to the LAN connector on IP-NINJAR products or 10 GbE switch.
*2 PC for control should be connected to the MAINTENANCE connector on NJR-CTB or the LAN connector on IP-NINJAR products.

[Fig. 3.6] Connecting to NJR-CTB

3.4 Connecting LAN cable

When connecting a LAN cable to NJR-T01SDI/NJR-CTB, avoid making a network loop.

The NJR-T01SDI sends broadcast packets periodically for the purposes of internal system management.
*A broadcast storm occurs when a network is overwhelmed by continuous broadcast traffic resulting in a network meltdown.

During installation, it is important to avoid the creation of network loops. Contact IDK if you require assistance with network implementation.

4 Command

4.1 Summary

A command consists of “@” (“40” in hexadecimal), 3 or 4 one-byte alphabetical characters (upper and lower cases) followed by parameters (one-byte numbers). For some commands, multiple parameter values can be specified. Processing is executed by sending a delimiter at the end of the command.

Example: @GIV,1,1,1 ↵

“,” (a comma, “2C” in hex) is indicated between a command and parameter and between two parameters.
“↵” is indicated as a delimiter CR LF (return+line feed, “0D” and “0A” in hex).

■ **If an error occurs:**
An error response is returned if an undefined command or inappropriate parameter is included.

Example: @XYZ,1 ↵
@ERR,2 ↵

4.2 Command list

■ **Error status**

Command	Function	Group A	Group B	Page
@ERR	Error status	Supported	Supported	16

■ **Output settings**

Command	Function	Group A	Group B	Page
@GDM / @SDM	Output mode	Supported	N/A	17
@GDI / @SDI	Output deep color	Supported	N/A	18
@GHM / @SHM	Hot plug masking	Supported	N/A	19

■ **Audio**

Command	Function	Group A	Group B	Page
@GAM / @SAM	Digital audio output mute	Supported	N/A	20

■ **Input settings**

Command	Function	Group A	Group B	Page
@GAG / @SAG	SDI input audio group	N/A	Supported	21
@GDU / @SDU	SDI Dual Stream input video	N/A	Supported	22

■ **RS-232C settings**

Command	Function	Group A	Group B	Page
@GCTB / @SCTB	RS-232C communication setting	N/A	N/A	23

■ **LAN settings**

Command	Function	Group A	Group B	Page
@GIP / @SIP	LAN setting	N/A	N/A	24
@GMC	MAC address	N/A	N/A	25

■ **Other settings**

Command	Function	Group A	Group B	Page
@CLRC	Initialization	N/A	N/A	26
@RBTC	Reboot	N/A	N/A	26

■ **Information**

Command	Function	Group A	Group B	Page
@GQV	Input video status	N/A	Supported	27
@GQA	Input audio status	N/A	Supported	29
@GSS	I/O status	Supported	N/A	30
@GES	Monitor EDID	Supported	N/A	33
@GIV	Version	Supported	N/A	34

4.3 Setting items

Some setting items can be controlled via commands/GUI operation; the others cannot be controlled.

[Table 4.1] Available setting method

Command: Command input, GUI: GUI operation, WEB&C: WEB browser and command input, No: Not supported, -: N/A

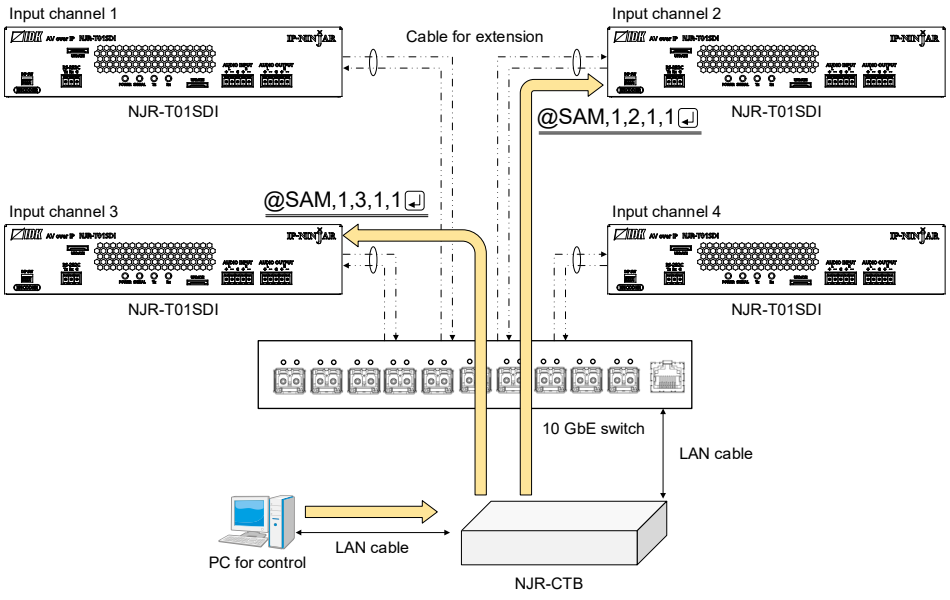
Command	Setting method		
	RS-232C	LAN (IP-NINJAR Configurator)	LAN (NJR-CTB)
Output settings			
@GDM / @SDM	Command	Command	WEB&C
@GDI / @SDI	Command	Command	WEB&C
@GHM / @SHM	Command	Command	WEB&C
Audio			
@GAM / @SAM	Command	Command	WEB&C
Input settings			
@GAG / @SAG	Command	Command	WEB&C
@GDU / @SDU	Command	Command	WEB&C
RS-232C settings			
@GCTB / @SCTB	No	GUI	WEB&C
LAN settings			
@GIP / @SIP	No	GUI	WEB&C
@GMC	No	GUI	WEB&C
Other settings			
@CLRC	No	GUI	WEB&C
@RBTC	No	GUI	WEB&C
Information			
@GQV	Command	Command	WEB&C
@GQA	Command	Command	WEB&C
@GSS	Command	Command	WEB&C
@GES	Command	Command	WEB&C
@GIV	Command	Command	WEB&C

4.4 Parameter input format

Parameter input formats are common for each setting.
If a command is input from the RS-232C connector of NJR-T01SDI or from the LAN connector using the IP-NINJAR Configurator, “1” (fixed) is specified to “ch” (channel) because only one NJR-T01SDI can be controlled.
If a command is input from the NJR-CTB, any channel can be specified because multiple NJR-T01SDI devices that are connected over a network switch can be controlled.

Example: The command for setting mute of digital audio output

Format	@SAM, device, ch, port, mute ↵
Parameter	device: Model “1” (fixed).
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).
	port: Connector “1” (fixed).
	mute: Audio mute 0 = Mute OFF [Default], 1 = Mute ON



[Fig. 4.1] Command input from NJR-CTB

4.5 Details of commands

4.5.1 Error status

@ERR	**Error status**	
Command group	—	
Format	Return value only.	
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. 99 = Error other than errors above	
Example	@GAM ↵ @ERR,1 ↵	Sending @GAM command Parameter error
Remarks	—	

4.5.2 Basic settings

4.5.2.1 Output settings

@GDM / @SDM	**Output mode**	
Command group	Group A	
Function	Getting	Setting
Format	@GDM, device, ch, reserved ↵	@SDM, device, ch, port, mode ↵
Return value	@GDM, device, ch, reserved, mode_1, mode_2 ↵	@SDM, device, ch, port, mode ↵
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	port: Output connector 0 = All outputs, 1 = Output connector for extension, 2 = HDMI output connector	
	mode_1: Output mode of output connector for extension mode_2: Output mode of HDMI output connector mode : Output mode 0 = AUTO [Default], 1 = DVI output, 2 = RGB output, 3 = YCbCr 4:2:2 output, 4 = YCbCr 4:4:4 output	
Example	@GDM,1,1,1 ↵ @GDM,1,1,1,0,4 ↵	Getting the output mode of channel 1 Output connector for extension : AUTO, HDMI output connector : YCbCr 4:4:4 output
	@SDM,1,1,2,4 ↵ @SDM,1,1,2,4 ↵	Setting the output mode of channel 1 HDMI output connector to “YCbCr 4:4:4” Completed
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.	

@GDI / @SDI	**Output deep color**	
Command group	Group A	
Function	Getting	Setting
Format	@GDI, device, ch, reserved ↵	@SDI, device, ch, reserved, color ↵
Return value	@GDI, device, ch, reserved, color ↵	@SDI, device, ch, reserved, color ↵
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	color: Maximum output deep color 0 = 24-BIT COLOR [Default], 1 = 30-BIT COLOR, 2 = 36-BIT COLOR	
Example	@GDI,1,1,1 ↵ @GDI,1,1,1,0 ↵	Getting the deep color of channel 1 24-BIT COLOR.
	@SDI,1,1,1,0 ↵ @SDI,1,1,1,0 ↵	Setting the deep color of channel 1 to 24-BIT COLOR Completed
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.	

@GHM / @SHM	**Hot plug masking**	
Command group	Group A	
Function	Getting	Setting
Format	@GHM, device, ch, reserved ↵	@SHM, device, ch, port, time ↵
Return value	@GHM, device, ch, reserved, time ↵	@SHM, device, ch, port, time ↵
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	port: Output connector “2” fixed.	
	time: Masking time 0 = OFF (no masking) [Default], 2000 = 2 sec. to 15000 = 15 sec. Set this value by the 1000 ms. If you set a value other than 0 for the lower 3 digits, these values will be rounded down. (For example, if you set it to 2955, the monitoring time is set to 2000 ms.)	
Example	@GHM,1,1,1 ↵ @GHM,1,1,1,0 ↵	Getting the hot plug masking of channel 1 OFF (no masking).
	@SHM,1,1,2,0 ↵ @SHM,1,1,2,0 ↵	Setting the hot plug masking of channel 1 to OFF Completed
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.	

4.5.2.2 Audio

@GAM / @SAM	**Digital audio output mute**	
Command group	Group A	
Function	Getting	Setting
Format	@GAM, device, ch, port ↵	@SAM, device, ch, port, mute ↵
Return value	@GAM, device, ch, port, mute ↵	@SAM, device, ch, port, mute ↵
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	port: Connector “1” (fixed).	
	mute: Audio mute 0 = Mute OFF [Default], 1 = Mute ON	
Example	@GAM,1,1,1 ↵ @GAM,1,1,1,0 ↵	Getting the audio mute of channel 1 Mute OFF.
	@SAM,1,1,1,0 ↵ @SAM,1,1,1,0 ↵	Setting the audio mute of channel 1 to OFF Completed
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.	

4.5.2.3 Input settings

@GAG / @SAG	**SDI input audio group**	
Command group	Group B	
Function	Getting	Setting
Format	@GAG, device, ch, reserved ↵	@SAG, device, ch, reserved, primary, secondary ↵
Return value	@GAG, device, ch, reserved, primary, secondary ↵	@SAG, device, ch, reserved, primary, secondary ↵
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	primary: Primary audio 1 = Audio group 1 (1ch to 4ch) [Default] 2 = Audio group 2 (5ch to 8ch) 3 = Audio group 3 (9ch to 12ch) 4 = Audio group 4 (13ch to 16ch)	
	secondary: Secondary audio 1 = Audio group 1 (1ch to 4ch) 2 = Audio group 2 (5ch to 8ch) [Default] 3 = Audio group 3 (9ch to 12ch) 4 = Audio group 4 (13ch to 16ch)	
Example	@GAG,1,1,1 ↵ @GAG,1,1,1,1,2 ↵	Getting the SDI input audio group of channel 1 Primary audio : Audio group 1 Secondary audio : Audio group 2
	@SAG,1,1,1,3,4 ↵ @SAG,1,1,1,3,4 ↵	Setting the primary audio of channel 1 to audio group 3, secondary audio to audio group 4 Completed
Remarks	An audio group cannot be specified as both primary and secondary audio group.	
	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group B.	

<table>
<tr><th>@GDU / @SDU</th><th colspan="3">SDI Dual Stream input video</th></tr>
<tr><td>Command group</td><td colspan="3">Group B</td></tr>
<tr><td>Function</td><td colspan="2">Getting</td><td>Setting</td></tr>
<tr><td>Format</td><td colspan="2">@GDU, device, ch, reserved ↵</td><td>@SDU, device, ch, reserved, select ↵</td></tr>
<tr><td>Return value</td><td colspan="2">@GDU, device, ch, reserved, select ↵</td><td>@SDU, device, ch, reserved, select ↵</td></tr>
<tr><td rowspan="4">Parameter</td><td colspan="3">device: Model
“1” (fixed).</td></tr>
<tr><td colspan="3">ch: Channel
1 to 512 = Channel 1 to Channel 512
If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).</td></tr>
<tr><td colspan="3">reserved: Reservation
“1” (fixed).</td></tr>
<tr><td colspan="3">select: SDI Dual Stream input video
1 = Video stream 1 [Default]
2 = Video stream 2</td></tr>
<tr><td rowspan="2">Example</td><td>@GDU,1,1,1 ↵
@GDU,1,1,1,1 ↵</td><td colspan="2">Getting the SDI Dual Stream input video of channel 1
SDI Dual Stream input video is video stream1.</td></tr>
<tr><td>@SDU,1,1,1,2 ↵

@SDU,1,1,1,2 ↵</td><td colspan="2">Setting the SDI Dual Stream input video of channel 1 to video stream 2
Completed</td></tr>
<tr><td>Remarks</td><td colspan="3">If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group B.</td></tr>
</table>

4.5.2.4 RS-232C settings

@GCTB / @SCTB	**RS-232C communication setting**	
Command group	N/A (only for NJR-CTB command server)	
Function	Getting	Setting
Format	@GCTB, device, ch, reserved ↵	@SCTB, device, ch, reserved, baudrate, databit, stopbit, parity ↵
Return value	@GCTB, device, ch, reserved, baudrate, databit, stopbit, parity ↵	@SCTB, device, ch, reserved, baudrate, databit, stopbit, parity ↵
Parameter	device: Model "1" (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation "1" (fixed).	
	baudrate: Baud rate 0 = 4800 bps, 1 = 9600 bps [Default], 2 = 19200 bps, 3 = 38400 bps, 4 = 57600 bps, 5 = 115200 bps	
	databit: Data bit length 7 = 7 bit, 8 = 8 bit [Default]	
	stopbit: Stop bit 1 = 1 bit [Default], 2 = 2 bit	
	parity: Parity check 0 = NONE [Default], 1 = ODD, 2 = EVEN	
Example	@GCTB,1,1,1 ↵ @GCTB,1,1,1,4,8,1,0 ↵	Getting the RS-232C communication setting of channel1 - Baud rate : 57600 bps - Data bit length : 8 bit - Stop bit : 1 bit - Parity check : NONE
	@SCTB,1,1,1,4,8,1,0 ↵ @SCTB,1,1,1,4,8,1,0 ↵	Setting the RS-232C communication setting of channel1 as follows: - Baud rate : 57600 bps - Data bit length : 8 bit - Stop bit : 1 bit - Parity check : NONE Completed
Remarks	This command can be input only via the NJR-CTB command server. Values for the control mode are fixed and cannot be changed.	

4.5.2.5 LAN settings

@GIP / @SIP	**LAN setting**	
Command group	N/A (only for NJR-CTB command server)	
Function	Getting	Setting
Format	@GIP, device, ch, reserved ↵	@SIP, device, ch, reserved, mode, ip, mask, gateway ↵
Return value	@GIP, device, ch, reserved, mode, ip, mask, gateway ↵	@SIP, device, ch, reserved, mode, ip, mask, gateway ↵
Parameter	device: Model "1" (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation "1" (fixed).	
	mode: IP address setting mode 0 = DHCP [Default], 1 = static After "DHCP" is set, parameters will be invalid.	
	ip: IP address 0 to 255 = 8 bits (decimal) x 4 pairs [Default] Automatic	
	mask: Subnet mask 0 to 255 = 8 bits (decimal) x 4 pairs [Default] Automatic	
	gateway: Default gateway 0 to 255 = 8 bits (decimal) x 4 pairs [Default] Automatic	
Example	@GIP,1,1,1 ↵ @GIP,1,1,1,1,192.168.3.2,255.255.255.0,192.168.3.254 ↵	Getting the LAN setting of channel 1 - IP address setting mode : Static - IP address : 192.168.3.2 - Subnet mask : 255.255.255.0 - Default gateway : 192.168.3.254
	@SIP,1,1,1,1,192.168.3.2,255.255.255.0,192.168.3.254 ↵ @SIP,1,1,1,1,192.168.3.2,255.255.255.0,192.168.3.254 ↵	Setting the LAN setting of channel 1 as follows: - IP address setting mode : Static - IP address : 192.168.3.2 - Subnet mask : 255.255.255.0 - Default gateway : 192.168.3.254 Completed
Remarks	This command can be input only via the NJR-CTB command server. If the LAN setting is changed, the communication may be disabled. Change the environmental settings based on the NJR-T01SDI settings.	

@GMC	**MAC address**	
Command group	N/A (only for NJR-CTB command server)	
Function	Getting	
Format	@GMC, device, ch, reserved ↵	
Return value	@GMC, device, ch, reserved, mac ↵	
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation “1” (fixed).	
	mac: MAC address 00 to FF = 8 bits (Hex) x 6 pairs	
Example	@GMC,1,1,1 ↵ @GMC,1,1,1,D88039A6D9DF ↵	Getting the MAC address of channel 1 D8:80:39:A6:D9:DF.
Remarks	This command can be input only via the NJR-CTB command server.	

4.5.2.6 Other settings

@CLRC	**Initialization**	
Command group	N/A (only for NJR-CTB command server)	
Function	Setting	
Format	@CLRC, device, ch, reserved, comm_setting ↵	
Return value	@CLRC, device, ch, reserved, comm_setting ↵	
Parameter	device: Model “1” (fixed).	
	ch: Channel 0 = All channels, 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation “1” (fixed).	
	comm_setting: Communication setting (Initialization of LAN, RS-232C) 0 = Not initialized [Default], 1 = Initialized	
Example	@CLRC,1,2,1,0 ↵ @CLRC,1,2,1,0 ↵	Initializing channel 2 settings other than communication setting Completed
Remarks	This command can be input only via the NJR-CTB command server. Settings of “**4.5.2.1 Output settings**” to “**4.5.2.5 LAN setting**” are initialized.	

@RBTC	**Reboot**	
Command group	N/A (only for NJR-CTB command server)	
Function	Setting	
Format	@RBTC, device, ch, reserved ↵	
Return value	@RBTC, device, ch, reserved ↵	
Parameter	device: Model “1” (fixed).	
	ch: Channel 0 = All channels, 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation “1” (fixed).	
Example	@RBTC,1,2,1 ↵ @RBTC,1,2,1 ↵	Rebooting the channel 2 Completed
Remarks	This command can be input only via the NJR-CTB command server.	

4.5.2.7 Information

@GQV	Input video status
Command group	Group B
Function	Getting
Format	@GQV, device, ch, reserved ↵
Return value	@GQV, device, ch, reserved, act_h, act_v, scan_type, frame_rate, dot_clock, pixel_repetition, sdi_type, mapping_structure, vic, h_pol, v_pol, h_total, v_total, color_depth, color_space ↵
Parameter	device: Model “1” (fixed).
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).
	reserved: Reservation “1” (fixed).
	act_h: The number of horizontal active pixels
	act_v: The number of vertical active pixels
	scan_type: Scanning method -6 = No signal, 0 = Progressive, 1 = Interlaced
	frame_rate: Frame rate -6 = No signal, 0 = 23.98 [Hz], 1 = 24 [Hz], 2 = 25 [Hz], 3 = 29.97 [Hz], 4 = 30 [Hz], 5 = 47.95 [Hz], 6 = 48 [Hz], 7 = 50 [Hz], 8 = 59.94 [Hz], 9 = 60 [Hz]
	dot_clock: Dot clock -6 = No signal, 0 = 27 [MHz], 1 = 74.1758 [MHz], 2 = 74.25 [MHz], 3 = 148.3516 [MHz], 4 = 148.5 [MHz]
	pixel_repetition: Pixel Repetition -6 = No signal, Value other than “-6”: Pixel repetition value
	sdi_type: SDI format -4 = Data error, 0 = HD-SDI, 1 = SD-SDI, 2 = 3G-SDI Level A, 3 = 3G-SDI Level B, 4 = 3G-SDI Level B (2xHD)
	mapping_structure: Mapping structure 0 = OFF, 1 = Structure 1, 2 = Structure 2, 3 = Structure 3, 4 = Structure 4, 5 = Dual Stream
	vic: CEA-861 video code 0 = N/A, Value other than “0”: CEA-861 video code
	h_pol: Horizontal synchronous signal polarity -6 = No signal, 0 = Negative, 1 = Positive
	v_pol: Vertical synchronous signal polarity -6 = No signal, 0 = Negative, 1 = Positive

@GQV	**Input video status (cont'd)**	
Parameter	h_total: The number of horizontal total pixels	
	v_total: The number of vertical total pixels	
	color_depth: Color depth -4 = No signal -3 = Data error 0 = 8 bit 1 = 10 bit 2 = 12 bit	
	color_space: Color space -4 = No signal -3 = Data error 0 = 4:2:2 (Y/Cb/Cr) 1 = 4:4:4 (Y/Cb/Cr) 2 = 4:4:4 (G/B/R) 3 = 4:2:0 4 = 4:2:2:4 (Y/Cb/Cr/A) 5 = 4:4:4:4 (Y/Cb/Cr/A) 6 = 4:4:4:4 (G/B/R/A) 8 = 4:2:2:4 (Y/Cb/Cr/D) 9 = 4:4:4:4 (Y/Cb/Cr/D) 10 = 4:4:4:4 (G/B/R/D) 14 = 4:4:4 (X'Y'Z')	
Example	@GQV,1,1,1 ↵ @GQV,1,1,1,1920,1080,0,4,2, 1,0,1,34,1,1,2200,1125,1,0 ↵	Getting the input video status of channel 1 1080p@30, HD, YCbCr4:2:2, 10 bit.
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group B.	

@GQA	**Input audio status**	
Command group	Group B	
Function	Getting	
Format	@GQA, device, ch, reserved ↵	
Return value	@GQA, device, ch, reserved, primary12_compress, primary12_length, primary12_freq, primary34_compress, primary34_length, primary34_freq, second12_compress, second12_length, second12_freq, second34_compress, second34_length, second34_freq, audio_n, audio_cts ↵	
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	primary12_compress : Compression status of primary CH1&CH2 primary34_compress : Compression status of primary CH3&CH4 second12_compress : Compression status of secondary CH1&CH2 second34_compress : Compression status of secondary CH3&CH4 -6 = No signal, -5 = Unstable, -4 = No data, 0 = LPCM, 1 = Compressed audio	
	primary12_length : Bit length of primary CH1&CH2 primary34_length : Bit length of primary CH3&CH4 second12_length : Bit length of secondary CH1&CH2 second34_length : Bit length of secondary CH3&CH4 -6 = No signal, -5 = Unstable, -4 = No data, -3 = Data error, -2 = Not specified, 16 to 24 = Bit length [bit]	
	primary12_freq : Sampling rate of primary CH1&CH2 primary34_freq : Sampling rate of primary CH3&CH4 second12_freq : Sampling rate of secondary CH1&CH2 second34_freq : Sampling rate of secondary CH3&CH4 -6 = No signal, -5 = Unstable, -4 = No data, -3 = Data error, -2 = Not specified, 0 = 22.05 [kHz], 1 = 24.0 [kHz], 2 = 32.0 [kHz], 3 = 44.1 [kHz], 4 = 48.0 [kHz], 5 = 88.2 [kHz], 6 = 96.0 [kHz], 7 = 176.4[kHz], 8 = 192.0 [kHz], 9 = 768.0[kHz]	
	audio_n: N value	
	audio_cts: CTS value	
Example	@GQA,1,1,1 ↵ @GQA,1,1,1,0,24,4,0,24,4,-4,-4,-4,-4,-4,-4,6144,74250 ↵	Getting the input audio status of channel 1 Primary : LPCM, 24 bit, 48 [kHz] Secondary : No data
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group B.	

<table>
<tr><th>@GSS</th><th>I/O status</th></tr>
<tr><td>Command group</td><td>Group A</td></tr>
<tr><td>Function</td><td>Getting</td></tr>
<tr><td>Format</td><td>@GSS, device, ch, port, mode ↵</td></tr>
<tr><td>Return value</td><td>@GSS, device, ch, port, mode, status_1 (, status_2, status_3, status_4) ↵</td></tr>
<tr><td>Parameter</td><td>device: Model
“1” (fixed).</td></tr>
<tr><td></td><td>ch: Channel
1 to 512 = Channel 1 to Channel 512
If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).</td></tr>
<tr><td></td><td>port: Input connector/output connector
“1” (fixed).</td></tr>
<tr><td></td><td>mode: Target status
For input status:
0 = All of 1 to 4
1 = Input signal type*1
2 = Video input signal format*2
3 = Audio input signal format*3
4 = with/without HDCP input*4
For HDMI output connector status:
10 = All of 11 to 13
11 = HDCP authentication status*5
12 = Output signal type*6
13 = Error code*7
0 to 4: Compatible with other models.
For NJR-T01SDI, the status of HDMI signal that is converted from SDI signal will be returned.</td></tr>
<tr><td></td><td>status_1 to status_4: Status

*1 For input signal type, one of the following values is returned.
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>Hxx</td><td>HDMI signal is input. xx stands for color depth which is 24, 30, or 36.</td></tr>
<tr><td>D</td><td>DVI signal is input.</td></tr>
<tr><td>N</td><td>No signal is input.</td></tr>
</table>
*2 For format of video input signal
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>1920 x 1080i 59.94Hz</td><td>SDTV/HDTV/UHDTV signal is input, which returns the format type and vertical synchronous frequency.</td></tr>
<tr><td>NO SIGNAL</td><td>No signal is input.</td></tr>
</table></td></tr>
</table>

@GSS	I/O status (cont'd)
Parameter	

*3 For format of audio input signal

Reply example	Description
LINEAR PCM 48kHz	LPCM signal is input, which returns the sampling frequency.
NO AUDIO	No signal is input.

*4 For HDCP presence, one of the following values is returned.

Reply example	Description
HDCP OFF	Signal without HDCP is input.
NO SIGNAL	No signal is input.

*5 For HDCP authentication, one of the following values is returned.

Reply example	Description
HDCP NOT SUPPORT	Not authenticated, because device that does not support HDCP is connected or input signal does not have HDCP.
HDCP CHECK NOW	Connection status of sink device was changed, and the status is being checked.
UNCONNECTED	No sink device is connected.

*6 For output signal type, one of the following values is returned.

Reply example	Description
Hxx	HDMI signal is output. xx stands for the color depth, 24, 30 or 36.
D	DVI signal is output.
N	No sink device is connected.

<table>
<tr><td>@GSS</td><td colspan="2">I/O status (cont'd)</td></tr>
<tr><td>Parameter</td><td colspan="2">*7 For status of the HDMI output connector, one of the codes below will be returned in the following order: video output/audio output.
<table>
<tr><th>Error code</th><th>Video output status</th><th>Audio output status</th></tr>
<tr><td>0</td><td>Video is output correctly.</td><td>Audio is output correctly.</td></tr>
<tr><td>1</td><td>—</td><td>“@GAM / @SAM Digital audio output mute” is set to “ON”.</td></tr>
<tr><td>2</td><td colspan="2">No source device is connected.</td></tr>
<tr><td>3</td><td>No video signal is input.</td><td>No audio signal is input.</td></tr>
<tr><td>4</td><td colspan="2">Video output or audio output of the source device is muted.</td></tr>
<tr><td>6</td><td colspan="2">The source device does not output the needed information (packets) for outputting video or audio.</td></tr>
<tr><td>7</td><td>Unsupported signal is input.</td><td>Audio cannot be output.</td></tr>
<tr><td>9</td><td>—</td><td>The sink device that does not support audio is connected.</td></tr>
<tr><td>B</td><td colspan="2">No sink device is connected.</td></tr>
<tr><td>C</td><td colspan="2">HDCP is being authenticated.</td></tr>
<tr><td>D</td><td colspan="2">HDCP authentication failed.</td></tr>
</table></td></tr>
<tr><td rowspan="2">Example</td><td>@GSS,1,1,1,0 ↵
@GSS,1,1,1,0,H30,1920 x 1080p 60Hz, LINEAR PCM 48kHz, HDCP OFF ↵</td><td>Getting all inputs statuses of channel 1
- Input signal type : 30-BIT COLOR HDMI signal
- Video input signal : 1080p 60Hz
- Audio input signal : LPCM 48kHz
- HDCP : No HDCP</td></tr>
<tr><td>@GSS,1,1,1,10 ↵
@GSS,1,1,1,10,HDCP 1.4 SUPPORT, H30,00 ↵</td><td>Getting all outputs statuses of channel 1
- HDCP authentication : HDCP 1.4
- Output signal type : 30-BIT COLOR HDMI signal
- Error code: Video and audio are output correctly.</td></tr>
<tr><td>Remarks</td><td colspan="2">If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.</td></tr>
</table>

<table>
<tr><th>@GES</th><th>Monitor EDID</th></tr>
<tr><td>Command group</td><td>Group A</td></tr>
<tr><td>Function</td><td>Getting</td></tr>
<tr><td>Format</td><td>@GES, device, ch, port, mode ↵</td></tr>
<tr><td>Return value</td><td>@GES, device, ch, port, mode, status_1 (, status_2, status_3, status_4) ↵</td></tr>
<tr><td rowspan="4">Parameter</td><td>device: Model
“1” (fixed).</td></tr>
<tr><td>ch: Channel
1 to 512 = Channel 1 to Channel 512
If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).</td></tr>
<tr><td>port: Output connector
“2” fixed.</td></tr>
<tr><td>mode: Status to be gotten Getting
0 = All of 1 to 4
1 = Monitor name*1
2 = Resolution and dot clock*2
3 = HDMI support status, sampling structure, and color depth*3,
4 = Audio support status, sampling frequency, bit length, the number of channels, and compressed audio support status*4</td></tr>
<tr><td colspan="2">status_1 to status_4: Status

*1 For monitor name:
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>MSD-6208</td><td>A sink device named “MSD-6208” is connected.</td></tr>
<tr><td>UNCONNECTED</td><td>No sink device is connected.</td></tr>
</table>
*2 For resolution and dot clock:
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>1920x1080
148.50MHz</td><td>A sink device supporting 1920x1080 (resolution) and 148.50 MHz (dot clock) is connected.</td></tr>
</table>
*3 For HDMI support status, sampling frequency, and color depth:
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>DVI</td><td>A sink device that does not support HDMI signal is connected.</td></tr>
<tr><td>HDMI-RGB/YCbCr422/YCbCr444-24/30BIT COLOR</td><td>A sink device supporting HDMI signal is connected. Supported sampling structure (RGB, YCbCr 4:2:2, YCbCr 4:4:4, YCbCr4:2:0) and color depth (24, 30, 36) are returned.</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>@GES</td><td colspan="2">Monitor EDID (cont’d)</td></tr>
<tr><td>Parameter</td><td colspan="2">*4 For audio support, sampling frequency, bit length, the number of channels, and compressed audio:
<table>
<tr><th>Reply example</th><th>Description</th></tr>
<tr><td>AUDIO NOT SUPPORT</td><td>A sink device that does not support audio signal is connected.</td></tr>
<tr><td>LINEAR PCM-32/44.1/48kHz-16/20/24BIT-8CHANNEL</td><td>A sink device supporting audio signal is connected. Supported sampling frequency (32, 44.1, 48, 88.2, 96, 176.4, 192), the number of bits (16, 20, 24), the number of channels (1 to 8), and compressed audio support status are returned.</td></tr>
</table></td></tr>
<tr><td>Example</td><td>@GES,1,1,2,0 ↵

@GES,1,1,2,0,MSD-6208,
1920x1080 148.50MHz,DVI,AUDIO
NOT SUPPORT ↵</td><td>Getting the sink device connected to channel 1
- Monitor name : MSD-6208
- Resolution : 1920x1080
- Dot clock : 148.50MHz
- HDMI : Not supported
- Audio : Not supported</td></tr>
<tr><td>Remarks</td><td colspan="2">If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.</td></tr>
</table>

@GIV	**Version**	
Command group	Group A	
Function	Getting	
Format	@GIV, device, ch, reserved↵	
Return value	@GIV, device, ch, reserved, id, ver ↵	
Parameter	device: Model “1” (fixed).	
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-T01SDI or from IP-NINJAR Configurator through LAN, the value is “1” (fixed).	
	reserved: Reservation “1” (fixed).	
	id: Model number	
	ver: Firmware version	
Example	@GIV,1,1,1 ↵ @GIV,1,1,1, NJR-T01SDI,2.10 ↵	Getting the product information of channel 1 - Model : NJR-T01SDI - Version : 2.10
Remarks	If setting from the RS-232C connector of the NJR-T01SDI, set the DIP switch to Group A.	

User Guide (Command Guide) of NJR-T01SDI

Ver.1.1.0

Issued on: 5 March 2020

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