HDMI Decoder
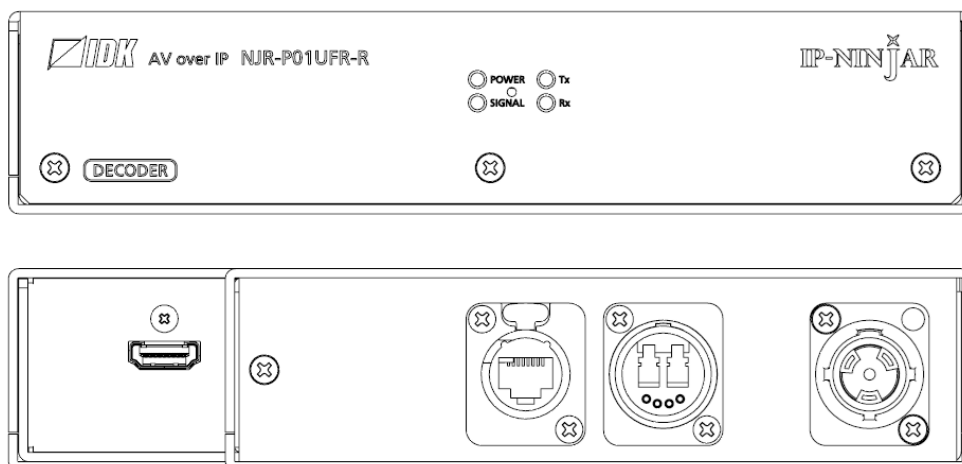
NJR-P01UFR-R

<Command Reference Guide>

Ver.1.0.0

- 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.

IDK Corporation

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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: http://www.idkav.com

The reference manual consists of the following two volumes:
- User guide: Please download the user guide from the website above.
- Command guide (this document)

Table of Contents

1 How to read this Guide

This guide contains the procedure for commanding NJR-P01UFR-R (hereafter referred to as "NJR-P") over 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-P using commands over LAN communication.

■ **Communication commands enable the following main operations:**
- ・ Setting output and audio
- ・ Displaying information

3 Communication configuration and Specifications

3.1 LAN communication

The NJR-P can be accessed and controlled over LAN communication.

Connecting a control device to the NJR-P'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-P, the terminal software cannot be used.

3.1.1 Setting up LAN communication

Follow the procedure below.

(1) Connect the control device to the LAN connector of the NJR-P over 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-P and get the status information using communication command.

PC for control
(For IP-NINJAR Configurator)

LAN cable

NJR-P01UFR-R
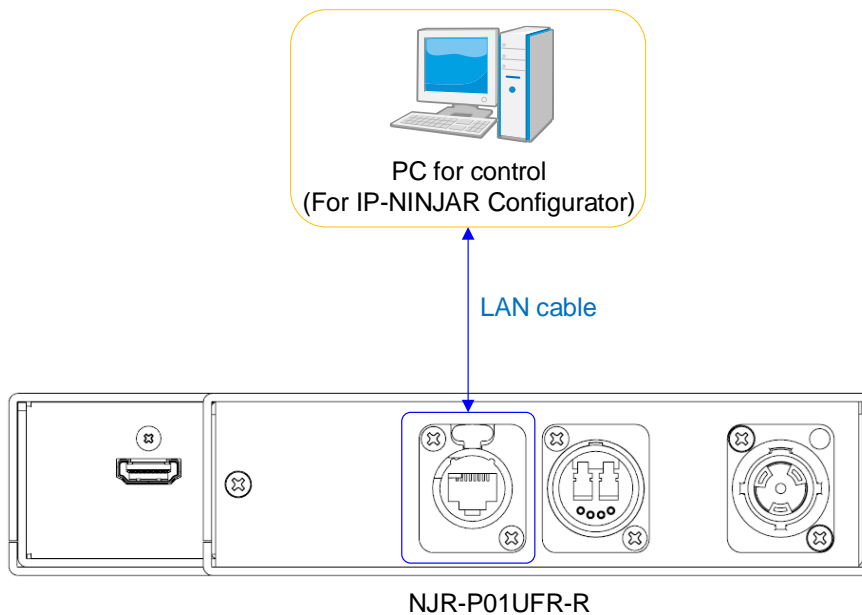
[Fig. 3.1] Connecting to LAN cable
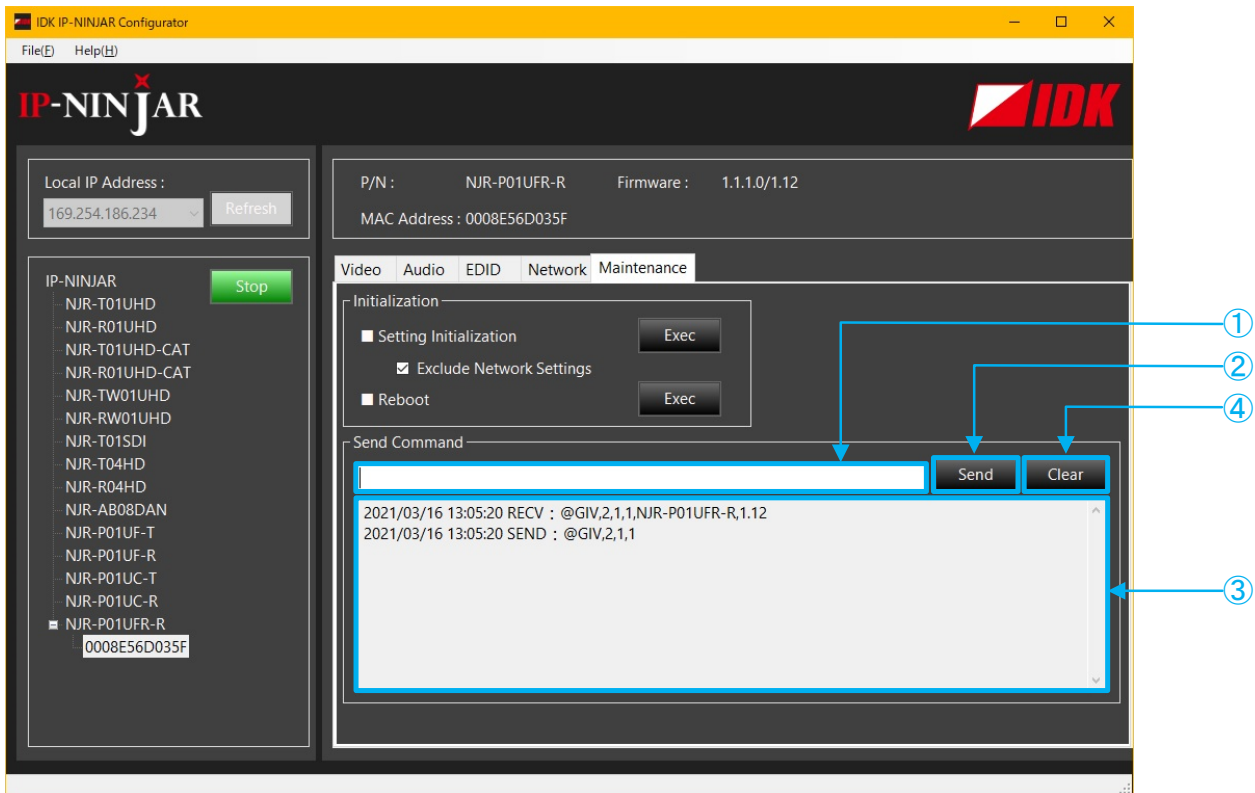
① For entering the desired command
② For sending the command to NJR-P
③ For displaying the log
④ For deleting the log

[Fig. 3.2] Command input from Maintenance page

3.1.2 LAN connector specification

LAN connector assignment 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-P to PC, HUB or the like.
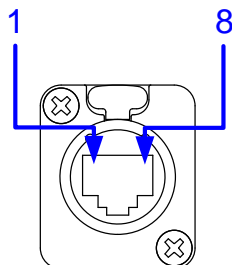
Pin No.	Signal name			
	MDI		MDI-X	
	1000BASE-T	100BASE-TX/10BASE-T	1000BASE-T	100BASE-TX/10BASE-T
1	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)	TRX+ (Transmitted & Received data +)	RX+ (Received data +)
2	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)	TRX- (Transmitted & 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. 3.3] LAN connector

3.1.3 LAN communication specification

**[Table 3.1] Specification of LAN communication**

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

3.2 Controlled by 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.
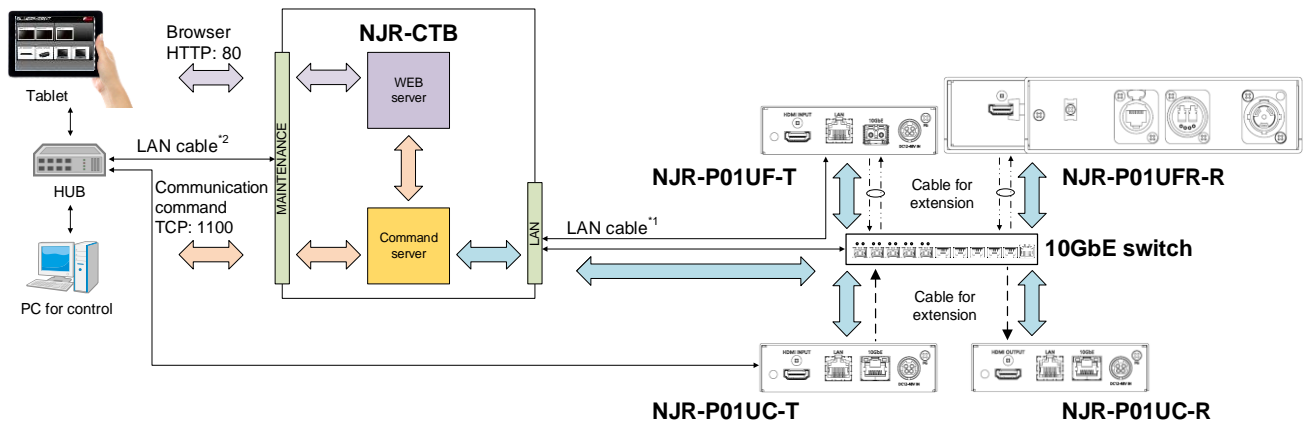
[*1] The LAN connector of NJR-CTB should be connected to the LAN connector of NJR-P or the 10GbE switch.
[*2] PC for control should be connected to the MAINTENANCE connector of NJR-CTB or the LAN connector of NJR-P.

[Fig. 3.4] Controlled by NJR-CTB

3.3 Connecting LAN cable

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

The NJR-P send 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: @SDM,2,1,1,4 ⏎

"," (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: @SDM,2 ⏎
           @ERR,1 ⏎

4.2 Command list

■ **Error status**

Command	Function	Page
@ERR	Error status	14

■ **Output**

Command	Function	Page
@GDM / @SDM	Output mode	15
@GEN / @SEN	HDCP output	16
@GHM / @SHM	Hot plug ignoring duration	17

■ **Audio**

Command	Function	Page
@GAM / @SAM	Muting/unmuting digital audio output	18
@GAAS / @SAAS	Output audio	19

■ **LAN**

Command	Function	Page
@GIP / @SIP	LAN	20
@GMC	MAC address	21

■ **Advanced setting**

Command	Function	Page
@CLRC	Initialization	22
@RBTC	Reboot	22

■ **Information**

Command	Function	Page
@GSS	I/O status	23
@GES	Monitor EDID	25
@GIV	Version	26

4.3 Setting items

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

[Table 4.1] Available setting method

Command: Command input, GUI: IP-NINJAR Configurator GUI operation,

WEB&C: WEB browser and command input

Command	Setting method	
	NJR-P01UFR-R	NJR-CTB
	LAN (IP-NINJAR Configurator)	LAN
Output		
@GDM / @SDM	Command	WEB&C
@GEN / @SEN	Command	WEB&C
@GHM / @SHM	Command	WEB&C
Audio		
@GAM / @SAM	Command	WEB&C
@GAAS / @SAAS	GUI	WEB&C
LAN		
@GIP / @SIP	GUI	WEB&C
@GMC	GUI	WEB&C
Advanced setting		
@CLRC	GUI	WEB&C
@RBTC	GUI	WEB&C
Information		
@GSS	Command	WEB&C
@GES	Command	WEB&C
@GIV	Command	WEB&C

4.4 Parameter input format

Parameter input formats are common for each setting.

If a command is input from IP-NINJAR Configurator (Software for setting IP-NINJAR) via a LAN connector, "1" is specified to "ch" (channel).

If a command is input from the NJR-CTB, any channel can be specified because multiple IP-NINJAR series products that are connected over a network switch can be controlled.

Example:

Format	@SAM, device, ch, port, mute ⏎
Parameter	device: Model "2" fixed
	ch: Channel 1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Connector "1" fixed
	mute: Audio mute 0 = Mute OFF [Default], 1 = Mute ON

[Fig. 4.1] Command input from IP-NINJAR Configurator
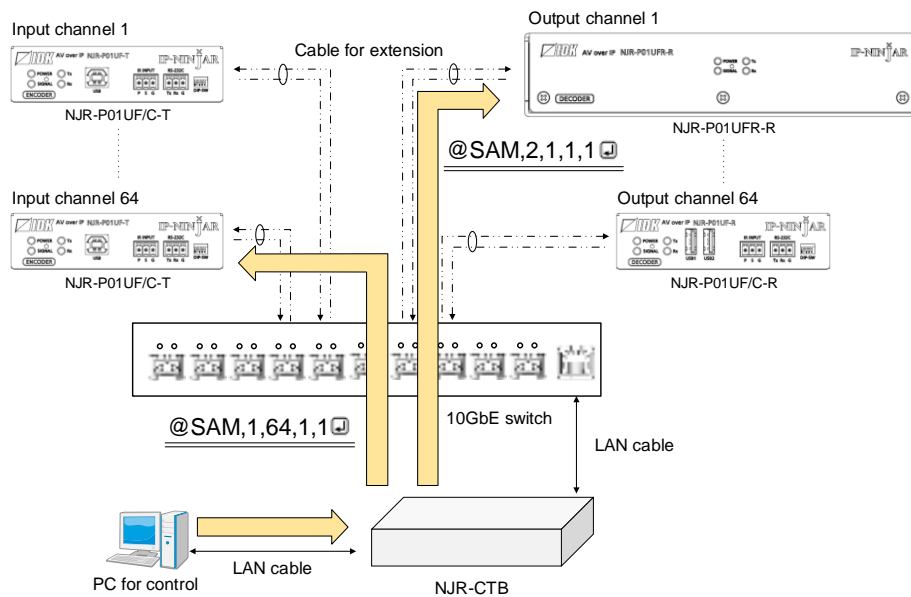
[Fig. 4.2] Command input from NJR-CTB

4.5 Details of commands

4.5.1 Error status

@ERR	Error status	
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 ⏎	Sending @GAM command
	@ERR,1 ⏎	Parameter error
Remarks	─	

4.5.2 Basic setting

4.5.2.1 Output

@GDM / @SDM	Output mode	
Function	Getting	Setting
Format	@GDM, device, ch, reserved ⏎	@SDM, device, ch, port, mode ⏎
Return value	@GDM, device, ch, reserved, mode ⏎	@SDM, device, ch, port, mode ⏎
Parameter	device: Model 　　"2" fixed	
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　　"1" fixed	
	port: Output connector 　　"1" fixed	
	mode: Output mode 　　0 = AUTO　[Default],　　1 = DVI output,　　　　2 = RGB output, 　　3 = YCbCr4:2:2 output,　4 = YCbCr4:4:4 output,　5 = YCbCr4:2:0 output	
Example	@GDM,2,1,1 ⏎ @GDM,2,1,1,0 ⏎	Getting the output mode of Channel 1 HDMI output connector AUTO
	@SDM,2,1,1,4 ⏎ @SDM,2,1,1,4 ⏎	Setting the output mode of Channel 1 HDMI output connector to YCbCr4:4:4 Completed
Remarks	—	

@GEN / @SEN	HDCP output	
Function	Getting	Setting
Format	@GEN, device, ch, reserved ⏎	@SEN, device, ch, port, hdcp ⏎
Return value	@GEN, device, ch, reserved, hdcp ⏎	@SEN, device, ch, port, hdcp ⏎
Parameter	device: Model 　　"2" fixed	
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　　"1" fixed	
	port: Output connector 　　"1" fixed	
	hdcp: HDCP output 　　1 = ALWAYS　[Default], 2 = HDCP INPUT ONLY, 3 = HDCP 2.2	
Example	@GEN,2,1,1 ⏎ @GEN,2,1,1,1 ⏎	Getting the HDCP output of Channel 1 ALWAYS
	@SEN,2,1,1,2 ⏎	Setting the HDCP output of Channel 1 to HDCP INPUT ONLY
	@SEN,2,1,1,2 ⏎	Completed
Remarks	—	

@GHM / @SHM	Hot plug ignoring duration	
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 　　"2" fixed	
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　　"1" fixed	
	port: Output connector 　　"1" fixed	
	time: Masking time 　　0 = OFF (No ignoring request signals)　　[Default], 　　2000 to 15000 = 2 sec. to 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,2,1,1 ↵ @GHM,2,1,1,2000 ↵	Getting the hot plug ignoring duration of Channel 1 For 2 seconds
	@SHM,2,1,1,0 ↵ @SHM,2,1,1,0 ↵	Setting the hot plug ignoring duration of Channel 1 to OFF Completed
Remarks	—	

4.5.2.2 Audio

@GAM / @SAM	Muting/unmuting digital audio output	
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 　"2" fixed	
	ch: Channel 　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Connector 　"1" fixed	
	mute: Audio mute 　0 = Mute OFF　[Default], 1 = Mute ON	
Example	@GAM,2,1,1 ↵ @GAM,2,1,1,0 ↵	Getting the audio mute of Channel 1 Mute OFF
	@SAM,2,1,1,0 ↵ @SAM,2,1,1,0 ↵	Setting the audio mute of Channel 1 to OFF Completed
Remarks	─	

@GAAS / @SAAS	Output audio	
Function	Getting	Setting
Format	@GAAS, device, ch, reserved_1 ↵	@SAAS, device, ch, reserved_1, reserved_2, digital ↵
Return value	@GAAS, device, ch, reserved_1, reserved_2, digital ↵	@SAAS, device, ch, reserved_1, reserved_2, digital ↵
Parameter	device: Model "2" fixed	
	ch: Channel 1 to 512 = Channel 1 to Channel 512	
	reserved_1: Reservation "1" fixed	
	reserved_2: Reservation "0" fixed	
	digital: Digital audio output connector 0 = Analog input audio, 1 = Digital input audio [Default]	
Example	@GAAS,2,1,1 ↵ @GAAS,2,1,1,0,1 ↵	Getting the output audio of Channel 1 Digital input audio is output from the digital audio output connector
	@SAAS,2,1,1,0,1 ↵ @SAAS,2,1,1,0,1 ↵	Setting the Channel 1 to output digital input audio Completed
Remarks	This command can be input only over the NJR-CTB command server. Commands for analog input audio can be used when using the NJR-P with other IP-NINJAR series products.	

4.5.2.3 LAN

@GIP / @SIP	LAN	
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 "2" fixed	
	ch: Channel 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation "1" fixed	
	mode: Mode 0 = Automatic (DHCP) [Default], 1 = static "0" is selected, the following three parameters will be invalid.	

	ip: IP address
	  0 to 255 = 8 bit (in decimal) × 4 combinations
	  [Default] Getting automatically	

	mask: Subnet mask
	  0 to 255 = 8 bit (in decimal) × 4 combinations
	  [Default] Getting automatically	

	gateway: Default gateway
	  0 to 255 = 8 bit (in decimal) × 4 combinations
	  [Default] Getting automatically	

Example	@GIP,2,1,1 ⏎ @GIP,2,1,1,1,192.168.3.2,255.255.255.0 ,192.168.3.254 ⏎	Getting the LAN setting of Channel 1 - Mode : Static - IP address : 192.168.3.2 - Subnet mask : 255.255.255.0 - Default gateway : 192.168.3.254
	@SIP,2,1,1,1,192.168.3.2,255.255.255.0 ,192.168.3.254 ⏎	Setting the LAN of Channel 1 as follows: - Mode : Static - IP address : 192.168.3.2 - Subnet mask : 255.255.255.0 - Default gateway : 192.168.3.254
	@SIP,2,1,1,1,192.168.3.2,255.255.255.0 ,192.168.3.254 ⏎	Completed
Remarks	This command can be input only over the NJR-CTB command server. If the LAN setting is changed, the communication may be disabled. Change the environmental settings based on the NJR-P settings.	

@GMC	MAC address	
Function	Getting	
Format	@GMC, device, ch, reserved ↵	
Return value	@GMC, device, ch, reserved, mac ↵	
Parameter	device: Model 　"2" fixed	
	ch: Channel 　1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation 　"1" fixed	
	mac: MAC address 　00 to FF = 8 bit (in hex) × 6 combinations	
Example	@GMC,2,1,1 ↵ @GMC,2,1,1,D88039A6D9DF ↵	Getting the MAC address of Channel 1 D8:80:39:A6:D9:DF
Remarks	This command can be input only over the NJR-CTB command server.	

4.5.2.4 Advanced setting

@CLRC	Initialization	
Function	Setting	
Format	@CLRC, device, ch, reserved ⏎	
Return value	@CLRC, device, ch, reserved ⏎	
Parameter	device: Model "2" fixed	
	ch: Channel 0 = All channels, 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation "1" fixed	
Example	@CLRC,2,2,1 ⏎	Initializing settings of Channel 2
	@CLRC,2,2,1 ⏎	Completed
Remarks	This command can be input only over the NJR-CTB command server. Settings of "**4.5.2.1 Output**" to "**4.5.2.3 LAN**" will be initialized.	

@RBTC	Reboot	
Function	Setting	
Format	@RBTC, device, ch, reserved ⏎	
Return value	@RBTC, device, ch, reserved ⏎	
Parameter	device: Model "2" fixed	
	ch: Channel 0 = All channels, 1 to 512 = Channel 1 to Channel 512	
	reserved: Reservation "1" fixed	
Example	@RBTC,2,2,1 ⏎	Rebooting Channel 2
	@RBTC,2,2,1 ⏎	Completed
Remarks	This command can be input only over the NJR-CTB command server.	

4.5.2.5 Information

@GSS	I/O status
Function	Getting
Format	@GSS, device, ch, port, mode ⏎
Return value	@GSS, device, ch, port, mode, status_1 (, status_2, status_3) ⏎
Parameter	device: Model 　 "2" fixed
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Output connector 　 "1" fixed
	mode: Target status 　10 = All of 11 to 13, 　11 = HDCP authentication status[1], 　12 = Output signal type[2], 　13 = Error code[3]
	status_1 to status_3: Status [1]　For HDCP authentication, one of the following values is returned.<table><tr><td>Value</td><td>Description</td></tr><tr><td>HDCP 1.4 SUPPORT</td><td>Authenticated with HDCP 1.4</td></tr><tr><td>HDCP 2.2 SUPPORT</td><td>Authenticated with HDCP 2.2</td></tr><tr><td>HDCP NOT SUPPORT</td><td>Not authenticated, because device that does not support HDCP is connected or input signal does not have HDCP.</td></tr><tr><td>HDCP ERROR</td><td>Device with HDCP is connected, but the authentication failed.</td></tr><tr><td>HDCP CHECK NOW</td><td>Connection status of sink device was changed, and the status is being checked.</td></tr><tr><td>UNCONNECTED</td><td>No sink device is connected.</td></tr></table> [2]　For output signal type, one of the following values is returned.<table><tr><td>Value</td><td>Description</td></tr><tr><td>Hxx</td><td>HDMI signal is output. xx stands for the color depth, 24, 30 or 36</td></tr><tr><td>D</td><td>DVI signal is output.</td></tr><tr><td>N</td><td>No sink device is connected.</td></tr></table>

@GSS	I/O status (Cont'd)
Parameter	*3 For status of the HDMI output connector, one of the codes below will be returned in the following order: video output/audio output.

Error code	Video output status	Audio output status
0	Video is output correctly.	Audio is output correctly.
1	—	**"@GAM / @SAM Muting/unmuting digital audio output**" is set to "ON".
2	No source device is connected.	
3	No video signal is input.	No audio signal is input.
4	Video output or audio output of the source device is muted.	
5	Signal with HDCP is input but the sink device does not support HDCP.	
6	The source device does not output the needed information (packets) for outputting video or audio.	
7	Signal that is not supported by NJR-P is input.	Since compressed audio is input, audio cannot be output.
9	—	The sink device that does not support audio is connected.
B	No sink device is connected.	
C	HDCP is being authenticated.	
D	HDCP authentication failed	

Example	@GSS,2,1,1,10 ⏎ @GSS,2,1,1,10,HDCP 1.4 SUPPORT, H30,00 ⏎	Getting all output statuses of Channel 1 - HDCP authentication： HDCP 1.4 - Output signal type　　： 30-BIT COLOR HDMI - Error code: Video and audio are output correctly
Remarks	—	

@GES	Monitor EDID
Function	Getting
Format	@GES, device, ch, port, mode ⏎
Return value	@GES, device, ch, port, mode, status_1 (, status_2, status_3···) ⏎
Parameter	device: Model "2" fixed
	ch: Output channel 1 to 512 = Output channel 1 to Output channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Output connector "1" fixed
	mode: Target status 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]
	status_1 to status_4: Status *1 For monitor name *2 For resolution and dot clock *3 For HDMI support status, sampling frequency, and color depth

*1 For monitor name

Value	Description
NJR-P01UF-T	A sink device named "NJR-P01UF-T" is connected.
UNCONNECTED	No sink device is connected.

*2 For resolution and dot clock

Value	Description
1920x1080 148.50MHz	A sink device supporting 1920x1080 (resolution) and 148.50 MHz (dot clock) is connected.

*3 For HDMI support status, sampling frequency, and color depth

Value	Description
DVI	A sink device that does not support HDMI signal is connected.
HDMI-RGB/YCbCr422/YCbCr444-24/30BIT COLOR	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.

@GES	Monitor EDID (Cont'd)	
Parameter	*4 For audio support, sampling frequency, bit length, the number of channels, and compressed audio <table><tr><th>Value</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>	
Example	@GES,2,1,1,0 ⏎ @GES,2,1,1,0,NJR-P01UF-T,3840x2160 594.00MHz,HDMI-RGB/YCbCr422/ YCbCr444/YCbCr420-24BITCOLOR, LINEAR PCM-32/44.1/48kHz-16/20/ 24BIT-2CHANNEL ⏎	Getting the EDID of the sink device connected to Channel 1 - Monitor name : NJR-P01UF-T - Resolution : 3840x2160 - Dot clock : 594.00MHz - HDMI : HDMI-RGB/YCbCr422/ YCbCr444/YCbCr420-24BIT COLOR - Audio : LINEAR PCM-32/44.1/ 48kHz-16/20/24BIT-2CHANNEL
Remarks	—	

@GIV	Version	
Function	Getting	
Format	@GIV, device, ch, reserved ⏎	
Return value	@GIV, device, ch, reserved, id, ver ⏎	
Parameter	device: Model 　　"2" fixed	
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　　"1" fixed	
	id : Model number	
	ver : Firmware version	
Example	@GIV,2,1,1 ⏎ @GIV,2,1,1,NJR-P01UFR-R,1.00 ⏎	Getting the product information of Channel 1 - Model number : NJR-P01UFR-R - Firmware version : 1.00
Remarks	—	

User Guide (Command Guide) of NJR-P01UFR-R

Ver.1.0.0

Issued on: 12 April 2021

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