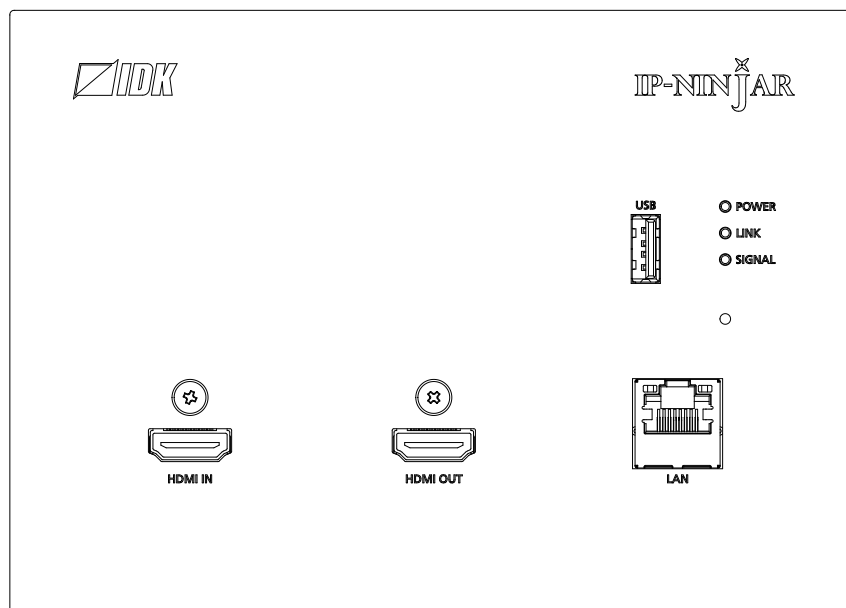**HDMI Encoder**

NJR-P01UFW-T/NJR-P01UCW-T

<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

Trademarks

- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
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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

The reference manual consists of the following two volumes:

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

Table of Contents

1 How to read this Guide

This guide contains the procedure for commanding NJR-P01UFW-T/NJR-P01UCW-T (hereafter referred to as "NJR-P") over 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-P using commands over RS-232C communication or LAN communication.

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

3 Communication configuration and Specifications

3.1 RS-232C communication

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

3.1.1 Setting up RS-232C communication

Follow the procedure below.

(1) Connect the control device to the RS-232C connector of the NJR-P through an RS-232C cable.
(2) Set the DIP switch 1 to "ON".
(3) See the control device according to "**[Table 3.1] RS-232C specification**".
(4) Send communication command from the control device to the NJR-P.
   You can control the NJR-P and get the status information using communication command.


NJR-P01UFW-T or NJR-P01UCW-T
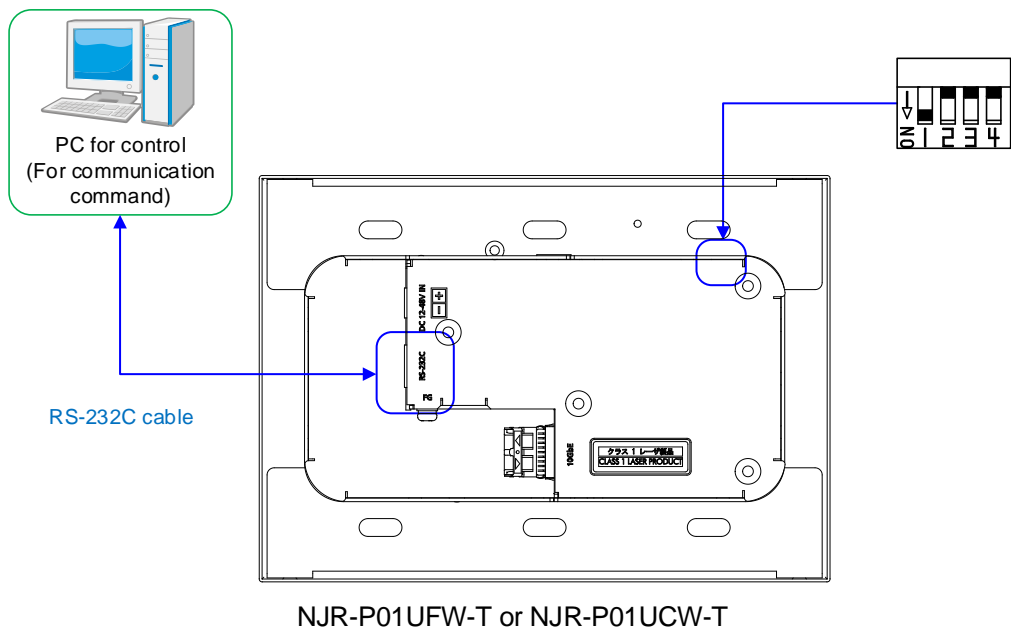
DIP switch (No.1)
 Setting internal connection selection of RS-232C connector
  OFF : NJR-P01UF/CW-T and NJR-P01UF/C-R are connected
  ON : Connected to CPU of NJR-P01UF/CW-T and can set NJR-P01UF/CW-T
  (Default: OFF)

[Fig. 3.1] Setting RS-232C communication

3.1.2 RS-232C connector specification

Insert and secure the wires from the RS-232C cable into the supplied 3-pin captive screw connector, and then insert the captive screw connector into the mating connector on the NJR-P.
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.
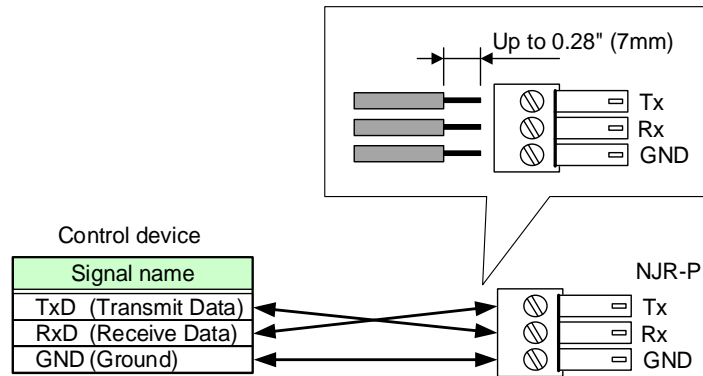
[Fig. 3.2] RS-232C connector

3.1.3 RS-232C communication specification

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

【See: 4.5.2.5 RS-232C】

[Table 3.1] RS-232C specification

Compliant standard	RS-232C
Baud rate	9600 [bps]
Data bit length	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-P can be accessed and controlled through 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.

3.2.1 Setting up LAN communication

Follow the procedure below.

(1) Connect the control device to the LAN connector of the NJR-P 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-P and get the status information using communication command.
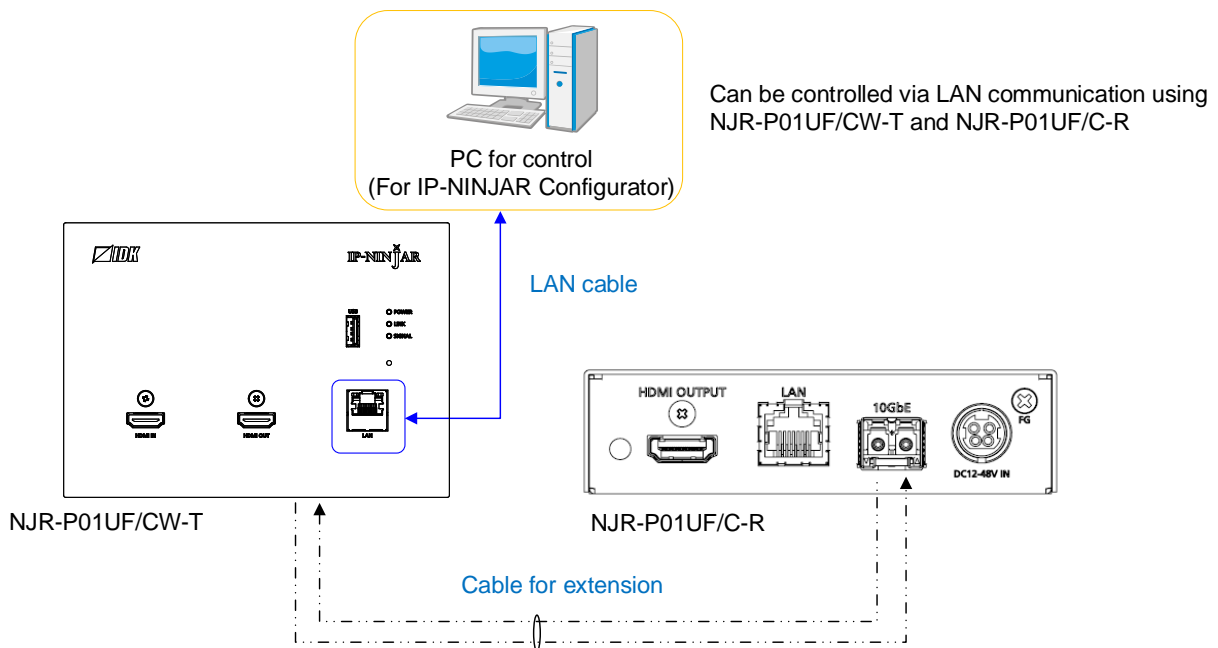
**[Fig. 3.3] Connecting to LAN cable**
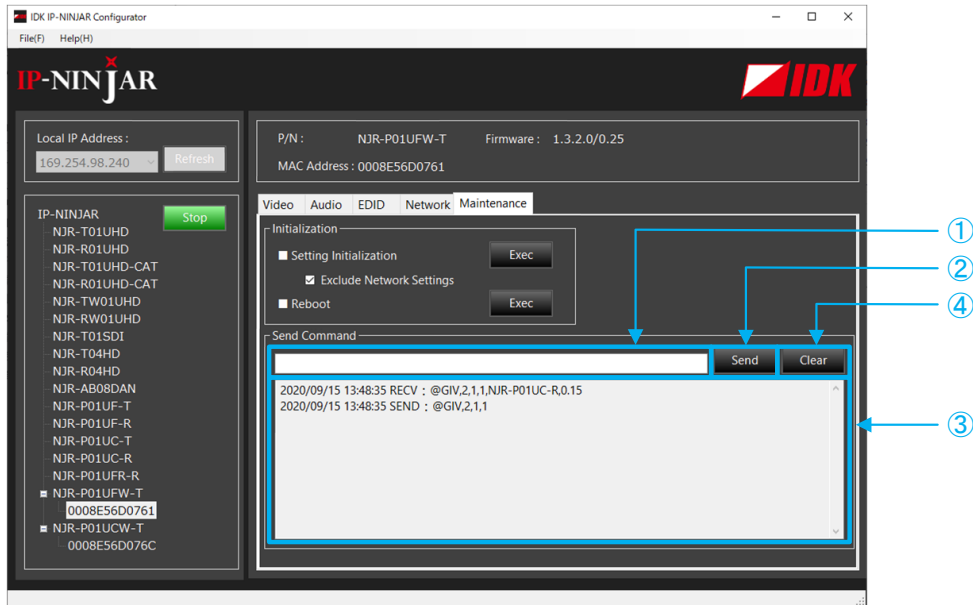
① For entering the desired command
② For sending the command to NJR-P
③ For displaying the log
④ For deleting the log

[Fig. 3.4] Command input from Maintenance page

3.2.2 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.

8-pin
Modular connector

8 ← 1
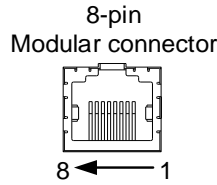
Pin No.	Signal name			
	MDI		MDI-X	
	1000BASE-T	100BASE-TX/10BASE-T	1000BASE-T	100BASE-TX/10BASE-T
1	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)	TRX+ (Transmitted & Received data +)	RX+ (Received data +)
2	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)	TRX- (Transmitted & 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

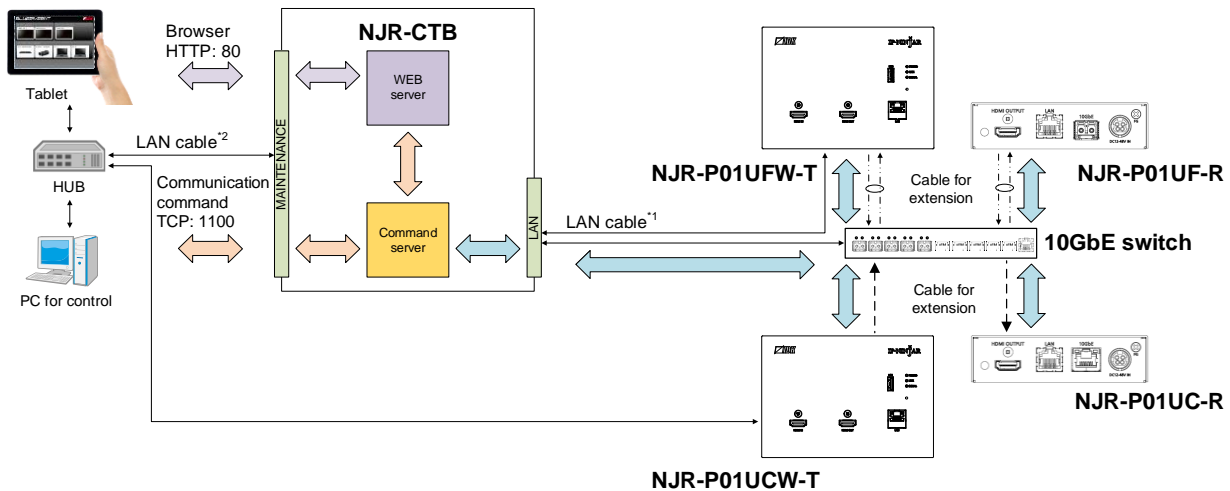**[Fig. 3.5] LAN connector**

3.2.3 LAN communication specification

[Table 3.2] 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

3.3 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 IP-NINJAR series products or the 10GbE switch.
[*2] PC for control should be connected to the MAINTENANCE connector of NJR-CTB or the LAN connector of IP-NINJAR series products.

[Fig. 3.6] Controlled by NJR-CTB

3.4 Connecting LAN cable

When connecting a LAN cable to NJR-P/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: @SDT,1,1,1,10000 ⏎

"," (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: @SDT,1 ⏎
      @ERR,1 ⏎

■ **Using as HELP**
If only delimiter is sent, command list as the help command is returned.

Example: ⏎
    ---------------- HELP (1/2) --------------- ⏎
    (INPUT SETTING Command) ⏎
    @GDT / @SDT : Getting/Setting No-signal input monitoring ⏎
                  Signal Detect Time ⏎
    @GHE / @SHE : Getting/Setting HDCP input enabled/disabled ⏎
    ⏎
    (OUTPUT SETTING Command) ⏎
    @GDM / @SDM : Getting/Setting Output Mode⏎
    ⏎
    (AUDIO Command) ⏎
    @GAM / @SAM : Getting mute status of digital audio output ⏎
                  Muting/unmuting digital audio output ⏎

4.2 Command list

■ **Error status**

Command	Function	Page
@ERR	Error status	18

■ **Input**

Command	Function	Page
@GDT / @SDT	No-signal input monitoring	19
@GHE / @SHE	HDCP input enabled/disabled	20

■ **Output**

Command	Function	Page
@GDM / @SDM	Output mode	21
@GHM / @SHM	Hot plug ignoring duration	22

■ **Audio**

Command	Function	Page
@GAM / @SAM	Muting/unmuting digital audio output	23

■ **EDID**

Command	Function	Page
@GVF / @SVF	EDID resolution	24
@RME	Copying EDID	25
@GWX / @SWX	Selecting WXGA mode	25
@GDI / @SDI	Deep Color	26
@GAF / @SAF	Audio format	27
@GSP / @SSP	Speaker configuration	28

■ **RS-232C**

Command	Function	Page
@GCTB / @SCTB	RS-232C	30

■ **LAN**

Command	Function	Page
@GIP / @SIP	LAN	31
@GMC	MAC address	32

■ **Advanced setting**

Command	Function	Page
@GFM / @SFM	Fan rotation speed	33
@GPW / @SPW	LED for status	33
@CLRC	Initialization	34
@RBTC	Reboot	34

■ **Information**

Command	Function	Page
@GSS	I/O status	35
@GES	Monitor EDID	38
@GFS	Fan status	39
@GIV	Version	40

4.3 Setting items

Some setting items can be controlled via RS-232C; 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, No: Not supported, -: N/A

Command	Setting method		
	NJR-P01UFW-T/NJR-P01UCW-T		NJR-CTB
	RS-232C	LAN (IP-NINJAR Configurator)	LAN
Input			
@GDT / @SDT	Command	Command	WEB&C
@GHE / @SHE	Command	Command	WEB&C
Output			
@GDM / @SDM	Command	Command	WEB&C
@GHM / @SHM	Command	Command	WEB&C
Audio			
@GAM / @SAM	Command	Command	WEB&C
EDID			
@GVF / @SVF	Command	Command	WEB&C
@RME	Command	Command	WEB&C
@GWX / @SWX	Command	Command	WEB&C
@GDI / @SDI	Command	Command	WEB&C
@GAF / @SAF	Command	Command	WEB&C
@GSP / @SSP	Command	Command	WEB&C
RS-232C			
@GCTB / @SCTB	No	GUI	WEB&C
LAN			
@GIP / @SIP	No	GUI	WEB&C
@GMC	No	GUI	WEB&C
Advanced setting			
@GFM / @SFM	Command	Command	WEB&C
@GPW / @SPW	Command	Command	WEB&C
@CLRC	No	GUI	WEB&C
@RBTC	No	GUI	WEB&C
Information			
@GSS	Command	Command	WEB&C
@GES	Command	Command	WEB&C
@GFS	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-P or from the LAN connector using the IP-NINJAR Configurator (Software for setting IP-NINJAR), "1" fixed is specified to "ch" (channel) because only one NJR-P can be controlled.
If a command is input from the NJR-CTB, any channel can be specified because multiple NJR-P devices that are connected over a network switch can be controlled.

Example:

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-P or from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Connector "1" fixed
	mute: Audio mute 0 = Mute OFF [Default], 1 = Mute ON
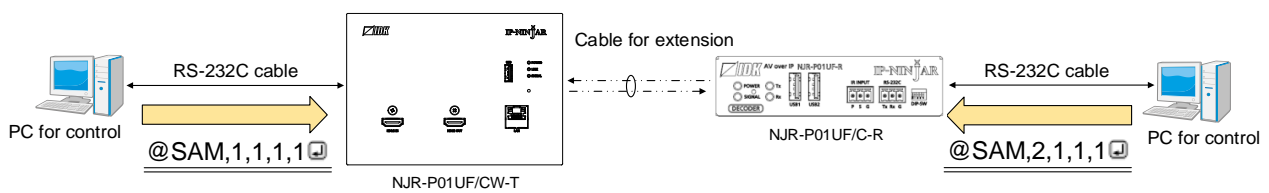
[Fig. 4.1] Command input from RS-232C
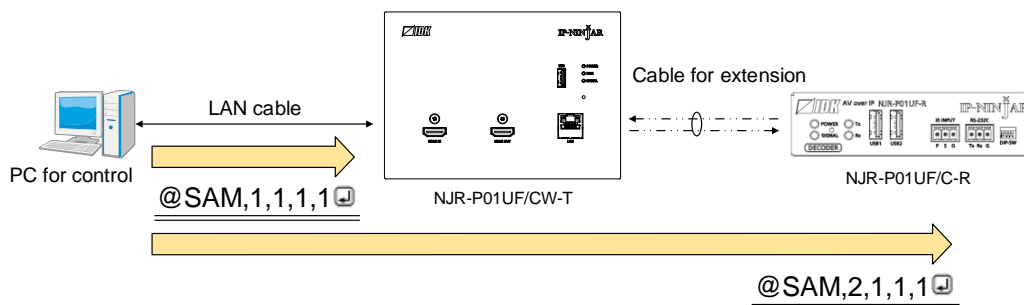
[Fig. 4.2] Command input from IP-NINJAR Configurator

Input channel 1

NJR-P01UF/CW-T

Cable for extension

Output channel 1

NJR-P01UF/C-R

@SAM,2,1,1,1

Input channel 64

NJR-P01UF/CW-T

Output channel 64

NJR-P01UF/C-R

@SAM,1,64,1,1

10GbE switch

LAN cable

PC for control

LAN cable
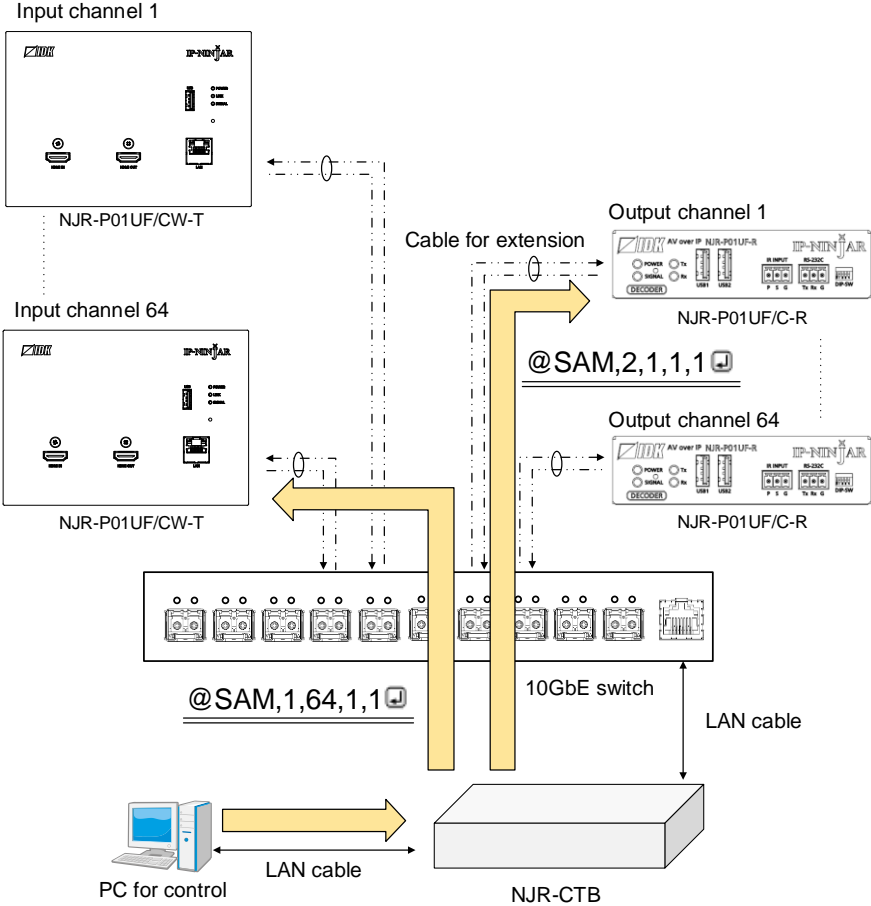
NJR-CTB

[Fig. 4.3] 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 ↵ @ERR,1 ↵	Sending @GAM command Parameter error
Remarks	—	

4.5.2 Basic setting

4.5.2.1 Input

@GDT / @SDT	No-signal input monitoring	
Function	Getting	Setting
Format	@GDT, device, ch, port ⏎	@SDT, device, ch, port, time ⏎
Return value	@GDT, device, ch, port, time ⏎	@SDT, device, ch, port, time ⏎
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	
	time: No-signal input monitoring 0 = OFF, 2000 to 15000 = 2 sec. to 15 sec. [Default] 10000 = 10 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	@GDT,1,1,1 ⏎ @GDT,1,1,1,6000 ⏎	Getting the no-signal input monitoring of Channel 1 6000 ms. (6 seconds)
	@SDT,1,1,1,6000 ⏎ @SDT,1,1,1,6000 ⏎	Setting the no-signal monitoring of Channel 1 to 6000 ms. (6 seconds) Completed
Remarks	―	

@GHE / @SHE	HDCP input enabled/disabled	
Function	Getting	Setting
Format	@GHE, device, ch, port ↵	@SHE, device, ch, port, hdcp ↵
Return value	@GHE, device, ch, port, hdcp ↵	@SHE, device, ch, port, hdcp ↵
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	
	hdcp: HDCP input enabled/disabled 0 = HDCP disabled, 1 = HDCP enabled [Default]	
Example	@GHE,1,1,1 ↵	Getting the HDCP input enabled/disabled of Channel 1
	@GHE,1,1,1,0 ↵	HDCP disabled
	@SHE,1,1,1,0 ↵	Setting the HDCP input of Channel 1 to be disabled
	@SHE,1,1,1,0 ↵	Completed
Remarks	—	

4.5.2.2 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_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-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation "1" fixed	
	port: Output connector 0 = All outputs, 1 = Output connector for extension, 2 = HDMI output connector	

	mode_1 = Output connector for extension, mode_2 = HDMI output connector
	mode_1 to mode_2, mode: Output mode
	  0 = AUTO [Default], 1 = DVI output, 2 = RGB output,
	  3 = YCbCr 4:2:2 output, 4 = YCbCr 4:4:4 output, 5 = YCbCr 4:2:0 output	

Example	@GDM,1,1,1 ⏎ @GDM,1,1,1,0,0 ⏎	Getting the output mode of Channel 1 All output connectors: AUTO
	@SDM,1,1,1,4 ⏎ @SDM,1,1,1,4 ⏎	Setting the output connector for extension of Channel 1 to YCbCr4:4:4 output Completed
Remarks	—	

@GHM / @SHM	Hot plug ignoring duration	
Function	Getting	Setting
Format	@GHM, device, ch, port ↵	@SHM, device, ch, port, time ↵
Return value	@GHM, device, ch, port, 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-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Output connector 　　2 = HDMI output connector (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,1,1,2 ↵	Getting the hot plug ignoring duration of Channel 1
	@GHM,1,1,2,2000 ↵	For 2 seconds
	@SHM,1,1,2,0 ↵	Setting the hot plug ignoring duration of Channel 1 to OFF
	@SHM,1,1,2,0 ↵	Completed
Remarks	－	

4.5.2.3 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 　"1" fixed	
	ch: Channel 　1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Output connector 　1 = Output connector for extension (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	—	

4.5.2.4 EDID

@GVF / @SVF	EDID resolution	
Function	Getting	Setting
Format	@GVF, device, ch, port ⏎	@SVF, device, ch, port, resolution ⏎
Return value	@GVF, device, ch, port, resolution ⏎	@SVF, device, ch, port, resolution ⏎
Parameter	device: Model 　　"1" fixed	
	ch: Input channel 　　1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector 　　"1" fixed	
	resolution: EDID resolution 　　1 = Copied EDID1, 　　5 = 1080p@50/59.94/60 (1920x1080), 　　6 = 720p@50/59.94/60 (1280x720), 　　7 = 1080i@50/59.94/60 (1920x1080), 　10 = SVGA (800x600),　　　　　　　　　11 = XGA (1024x768), 　12 = VESA720 (1280x720),　　　　　　　13 = WXGA (1280x768), 　14 = WXGA (1280x800),　　　　　　　　15 = Quad-VGA (1280x960), 　16 = SXGA (1280x1024),　　　　　　　　17 = WXGA (1360x768/1366x768), 　18 = SXGA+ (1400x1050),　　　　　　　19 = WXGA+ (1440x900), 　20 = WXGA++ (1600x900),　　　　　　　21 = UXGA (1600x1200), 　22 = WSXGA+ (1680x1050),　　　　　　23 = VESA1080 (1920x1080), 　24 = WUXGA (1920x1200),　　　　　　　25 = QWXGA (2048x1152), 　26 = WQHD (2560x1440),　　　　　　　27 = WQXGA (2560x1600), 　43 = 2160p@50/59.94/60 - 4:2:0 (3840x2160), 　44 = 4096x2160@50/59.94/60 - 4:2:0, 　45 = 2160p@50/59.94/60 - 4:4:4 (3840x2160)　[Default], 　46 = 4096x2160@50/59.94/60 - 4:4:4	
Example	@GVF,1,1,1 ⏎ @GVF,1,1,1,24 ⏎	Getting the EDID resolution of Channel 1 WUXGA
	@SVF,1,1,1,24 ⏎ @SVF,1,1,1,24 ⏎	Setting the EDID resolution of Channel 1 to WUXGA Completed
Remarks	Select EDID of 1360x768 and 1366x768 using "**@GWX / @SWX Selecting WXGA mode**".	

@RME	Copying EDID	
Function	Setting	
Format	@RME, device, ch, reserved, number ⏎	
Return value	@RME, device, ch, reserved, number ⏎	
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation "1" fixed	
	number: Destination memory number "0" fixed	
Example	@RME,1,1,1,0 ⏎ @RME,1,1,1,0 ⏎	Copying EDID of the sink device connected to the HDMI output connector Completed
Remarks	Only EDID of the sink device connected to the HDMI output connector can be copied.	

@GWX / @SWX	Selecting WXGA mode	
Function	Getting	Setting
Format	@GWX, device, ch, port ⏎	@SWX, device, ch, port, mode ⏎
Return value	@GWX, device, ch, port, mode ⏎	@SWX, device, ch, port, mode ⏎
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	
	mode: Selecting WXGA mode 0 = 1360x768 [Default], 1 = 1366x768	
Example	@GWX,1,1,1 ⏎ @GWX,1,1,1,0 ⏎	Getting the WXGA mode of Channel 1 1360x768
	@SWX,1,1,1,0 ⏎ @SWX,1,1,1,0 ⏎	Setting the WXGA mode of Channel 1 to 1360x768 Completed
Remarks	—	

@GDI / @SDI	Deep Color	
Function	Getting	Setting
Format	@GDI, device, ch, port ⏎	@SDI, device, ch, port, color ⏎
Return value	@GDI, device, ch, port, color ⏎	@SDI, device, ch, port, color ⏎
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	
	color: Color depth 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 color depth of Channel 1 24-BIT COLOR
	@SDI,1,1,1,0 ⏎	Setting the color depth of Channel 1 to 24-BIT COLOR
	@SDI,1,1,1,0 ⏎	Completed
Remarks	─	

@GAF / @SAF	Audio format	
Function	Getting	Setting
Format	@GAF, device, ch, port ⏎	@SAF, device, ch, port, format_1, frequency_1 (, format_2, frequency_2···) ⏎
Return value	@GAF, device, ch, port, format_1, frequency_1 (, format_2, frequency_2···) ⏎	@SAF, device, ch, port, format_1, frequency_1 (, format_2, frequency_2···) ⏎
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	

	format_1 to format_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	

	frequency_1 to frequency_7: Maximum sampling frequency
	   0 = OFF, 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] PCM: 48 kHz, others: OFF
	"OFF": Only setting command (@SAF) can be used.
	Maximum settable sampling frequency depends on audio format.
	
	<table><tr><td>Audio format</td><td>Maximum sampling frequency (kHz)</td></tr><tr><td>PCM</td><td>32/44.1/48/88.2/96/176.4/192</td></tr><tr><td>Dolby Digital</td><td>OFF/32/44.1/48</td></tr><tr><td>AAC</td><td>OFF/32/44.1/48/88.2/96</td></tr><tr><td>Dolby Digital+</td><td>OFF/32/44.1/48</td></tr><tr><td>DTS</td><td>OFF/32/44.1/48/96</td></tr><tr><td>DTS-HD</td><td>OFF/44.1/48/88.2/96/176.4/192</td></tr><tr><td>Dolby TrueHD</td><td>OFF/44.1/48/88.2/96/176.4/192</td></tr></table>	

	Getting commands : The set audio formats and maximum sampling frequency is returned Setting commands : Send the desired audio formats and the maximum sampling frequencies	

@GAF / @SAF	Audio format (Cont'd)	
Example	@GAF,1,1,1 ⏎	Getting the audio format that can be output to Channel 1
	@GAF,1,1,1,0,7 ⏎	Up to PCM 192 kHz
	@SAF,1,1,1,4,3 ⏎	Setting the Channel 1 to output audio up to PCM and DTS 48 kHz (The maximum PCM sampling frequency is not changed.)
	@SAF,1,1,1,4,3 ⏎	Completed
Remarks	—	

@GSP / @SSP	Speaker configuration	
Function	Getting	Setting
Format	@GSP, device, ch, port ⏎	@SSP, device, ch, port, number (, speaker_1, speaker_2···) ⏎
Return value	@GSP, device, ch, port, number, speaker_1 (, speaker_2···) ⏎	@SSP, device, ch, port, number (, speaker_1, speaker_2···) ⏎
Parameter	device: Model "1" fixed	
	ch: Input channel 1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	port: Input connector "1" fixed	
	number: The number of speakers 1 to 8 [Default] 2	

	speaker_1 to speaker_8: Speakers to be used
	    0 = Front Left/Right [Default], 1 = Low Frequency Effect,
	    2 = Front Center, 3 = Rear Left/Right,
	    4 = Rear Center, 5 = Front Left/Right Center,
	    6 = Rear Left/Right Center, 7 = Front Left/Right Wide,
	    8 = Front Left/Right High, 9 = Top Center,
	   10 = Front Center High	

@GSP / @SSP	Speaker configuration (Cont'd)	
Parameter	Getting commands： The number of speakers and which speakers will be used is returned Setting commands ： If you do not specify the speaker configuration, the following configuration will be applied depending on the set number of speakers *(table below)* The specified number and the total number of speakers do not match, the number is set automatically based on the setting of speakers to be used. In case the number exceeds the settable range, an error is returned.	

number	speaker										
	0	1	2	3	4	5	6	7	8	9	10
1	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
6	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF

Example	@GSP,1,1,1 ⏎	Getting the speaker configuration of Channel 1
	@GSP,1,1,1,6,0,1,2,3 ⏎	Six speakers are used: Front Left/Right, Low Frequency Effect, Front Center, Rear Left/Right
	@SSP,1,1,1,8 ⏎	Assign eight speakers to Channel 1: Front Left/Right, Low Frequency Effect, Front Center, Rear Left/Right, Rear Left/Right Center
	@SSP,1,1,1,8 ⏎	Completed
	@SSP,1,1,1,8,0,3,5,6,7 ⏎	Assign 10 speakers to Channel 1: Front Left/Right, Rear Left/Right, Front Left/Right Center, Rear Left/Right Center, Front Left/Right Wide
	@ERR,1 ⏎	The number of speakers exceeds the settable value.
Remarks	－	

4.5.2.5 RS-232C

@GCTB / @SCTB	RS-232C	
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 Channel 1 - 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 Channel 1 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.	

4.5.2.6 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 "1" 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) x 4 combinations
	  [Default] Getting automatically	

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

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

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 - 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 ⏎	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,1,1,1,1,192.168.3.2,255.255.255.0 ,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-P settings.	

@GMC	MAC address	
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 bit (in hex) x 6 combinations	
Example	@GMC,1,1,1 ↵ @GMC,1,1,1, 00,08,E5,69,00,00 ↵	Getting the MAC address of Channel 1 00:08:E5:69:00:00
Remarks	This command can be input only via the NJR-CTB command server.	

4.5.2.7 Advanced setting

@GFM / @SFM	Fan rotation speed	
Function	Getting	Setting
Format	@GFM, device, ch, reserved ⏎	@SFM, device, ch, reserved, mode ⏎
Return value	@GFM, device, ch, reserved, mode, rpm ⏎	@SFM, device, ch, reserved, mode ⏎
Parameter	device: Model 　"1" fixed	
	ch: Input channel 　1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　"1" fixed	
	mode: Fan rotation speed 　0 = AUTO　[Default], 1 = LOW, 2 = MIDDLE, 3 = HIGH	
	rpm: Rotation speed (rpm)	
Example	@GFM,1,1,1 ⏎ @GFM,1,1,1,0,2027 ⏎	Getting fan rotation speed of Channel 1 AUTO: 2027 rpm
	@SFM,1,1,1,1 ⏎ @SFM,1,1,1,1 ⏎	Setting fan rotation speed of Channel 1to LOW Completed
Remarks	—	

@GPW / @SPW	LED for status	
Function	Getting	Setting
Format	@GPW, device, ch, reserved ⏎	@SPW, device, ch, reserved, mode ⏎
Return value	@GPW, device, ch, reserved, mode ⏎	@SPW, device, ch, reserved, mode ⏎
Parameter	device: Model 　"1" fixed	
	ch: Input channel 　1 to 512 = Input channel 1 to Input channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　"1" fixed	
	mode: LED for status 　0 = Does not illuminate, 1 = Illuminate　[Default]	
Example	@GPW,1,1,1 ⏎ @GPW,1,1,1,0 ⏎	Getting LED for status of Channel 1 Does not illuminate
	@SPW,1,1,1,1 ⏎ @SPW,1,1,1,1 ⏎	Setting LED for status of Channel 1 to Illuminate Completed
Remarks	—	

@CLRC	Initialization	
Function	Setting	
Format	@CLRC, device, ch, reserved ⏎	
Return value	@CLRC, 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	@CLRC,1,2,1 ⏎ @CLRC,1,2,1 ⏎	Initializing settings of Channel 2 Completed
Remarks	This command can be input only via the NJR-CTB command server. Settings of "**4.5.2.1 Input**" to "**4.5.2.6 LAN**" will be initialized.	

@RBTC	Reboot	
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.	

4.5.2.8 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 　　"1" fixed
	ch: Channel 　　1 to 512 = Channel 1 to Channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Input connector/Output connector 　　"1" fixed
	mode: Target status 　　For HDMI input connector of NJR-P: 　　　　0 = All of 1 to 4, 　　　　1 = Input signal type[*1], 　　　　2 = Video input signal format[*2], 　　　　3 = Audio input signal format[*3], 　　　　4 = with/without HDCP input[*4] 　　For HDMI output connector of NJR-P: 　　　　10 = All of 11 to 13, 　　　　11 = HDCP authentication status[*5], 　　　　12 = Output signal type[*6], 　　　　13 = Error code[*7]
	status_1 to status_4: Status *1 For input signal type, one of the following values is returned. *2 For format of video input signal

*1 For input signal type, one of the following values is returned.

Value	Description
Hxx	HDMI signal is input. xx stands for color depth which is 24, 30, or 36
D	DVI signal is input.
N	No signal is input.

*2 For format of video input signal

Value	Description
1920 x 1080i 59.94Hz	SDTV/HDTV/UHDTV signal is input, which returns the format type and vertical synchronous frequency.
800 x 600p 60.00Hz	Signal having VESA resolution is input, and [Horizontal resolution x Vertical resolution] and vertical synchronous frequency are returned.
NO SIGNAL	No signal is input.

@GSS	I/O status (Cont'd)
Parameter	*3 For format of audio input signal

*3 For format of audio input signal

Value	Description
LINEAR PCM 48kHz	LPCM signal is input, which returns the sampling frequency.
COMPRESSED AUDIO	Compressed audio signal (such as Dolby Digital and DTS) is input (Because the NJR-P does not recognize detailed formats, "COMPRESSED AUDIO" is sent to all compressed audios).
NO AUDIO	No signal is input.

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

Value	Description
HDCP 1.4 ON	Signal with HDCP 1.4 is input.
HDCP 2.2 ON	Signal with HDCP 2.2 is input.
HDCP OFF	Signal without HDCP is input.
NO SIGNAL	No signal is input.

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

Value	Description
HDCP 1.4 SUPPORT	Authenticated with HDCP 1.4
HDCP 2.2 SUPPORT	Authenticated with HDCP 2.2
HDCP NOT SUPPORT	Not authenticated, because device that does not support HDCP is connected or input signal does not have HDCP.
HDCP ERROR	Device with HDCP is connected, but the authentication failed.
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.

Value	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.

@GSS	I/O status (Cont'd)
Parameter	*7 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".
3	No video signal is input.	No audio signal is input.
5	Signal with HDCP is input but the sink device does not support HDCP.	
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,1,1,1,0 ⏎ @GSS,1,1,1,0,H30,1920 x 1080p 60Hz, LINEAR PCM 48kHz,HDCP 1.4 ON ⏎	Getting all input statuses of Channel 1 - Input signal type : 30-BIT COLOR HDMI - Video input signal : 1080p 60Hz - Audio input signal : LPCM 48kHz - HDCP : 1.4
	@GSS,1,1,1,10 ⏎ @GSS,1,1,1,10,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 　"1" fixed
	ch: Output channel 　1 to 512 = Output channel 1 to Output channel 512 If a command is input from the RS-232C connector of NJR-P or from the IP-NINJAR Configurator, "1" is set (fixed).
	port: Output connector 　2 = HDMI output connector (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 <table><tr><th>Value</th><th>Description</th></tr><tr><td>NJR-P01UFW-T</td><td>A sink device named "NJR-P01UFW-T" 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>Value</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>Value</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>

@GES	Monitor EDID (Cont'd)	
Parameter	*4 For audio support, sampling frequency, bit length, the number of channels, and compressed audio	

Value	Description
AUDIO NOT SUPPORT	A sink device that does not support audio signal is connected.
LINEAR PCM-32/44.1/48kHz-16/20/24BIT-8CHANNEL	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.

| Example | @GES,1,1,2,0 ↵

@GES,1,1,2,0,NJR-P01UFW-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-P01UFW-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 | ─ | |

@GFS	Fan status	
Function	Getting	
Format	@GFS, device, ch, reserved ↵	
Return value	@GFS, device, ch, reserved, rpm, status ↵	
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-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation "1" fixed	
	rpm: Rotation speed (rpm)	
	status: 0 = Normal, 1 = Abnormal	
Example	@GFS,1,1,1 ↵ @GFS,1,1,1,2027,0 ↵	Getting the fan status of Channel 1 2027 rpm, normal
Remarks	─	

@GIV	Version	
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-P or from the IP-NINJAR Configurator, "1" is set (fixed).	
	reserved: Reservation 　"1" fixed	
	id: Model number	
	ver: Firmware version	
Example	@GIV,1,1,1 ⏎ @GIV,1,1,1, NJR-P01UFW-T,1.00 ⏎	Getting the product information of Channel 1 - Model number　: NJR-P01UFW-T - Firmware version: 1.00
Remarks	─	

User Guide (Command Guide) of NJR-P01UFW-T/NJR-P01UCW-T

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Headquarters　　　　　　IDK Corporation
　　　　　　　　　　　　　　　7-9-1 Chuo, Yamato-shi, Kanagawa-pref.
　　　　　　　　　　　　　　　242-0021 JAPAN
　　　　　　　　　　　　　　　TEL: +81-46-200-0764 FAX: +81-46-200-0765
Email: idk_eng@idk.co.jp　**URL: www.idkav.com**

USA　　　　　　　　　　　IDK America Inc.
　　　　　　　　　　　　　　　72 Grays Bridge Road Suite 1-C, Brookfield, CT 06804
　　　　　　　　　　　　　　　TEL: +1-203-204-2445
Email: sales@idkav.com　**URL: www.idkav.com**

Europe　　　　　　　　　IDK Europe GmbH
　　　　　　　　　　　　　　　Lise-Meitner-Str. 6, D-40878 Ratingen
　　　　　　　　　　　　　　　TEL: +49-2102-578-301-0
Email: info@idkav.eu　　**URL: www.idkav.com**

Product information　　　Arvanics Corporation
Support　　　　　　　　　7-9-1 Chuo, Yamato-shi, Kanagawa-pref.
　　　　　　　　　　　　　　　242-0021 JAPAN
　　　　　　　　　　　　　　　TEL: +81-46-259-6920 FAX: +81-46-259-6930
Email: info@arvanics.com　**URL: www.arvanics.com**