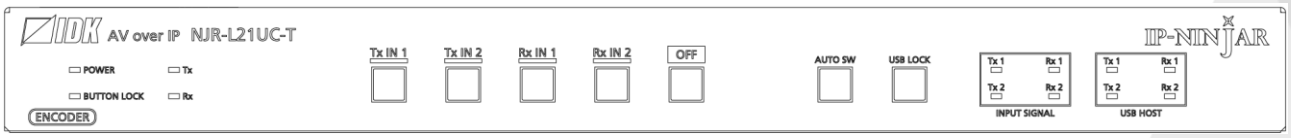
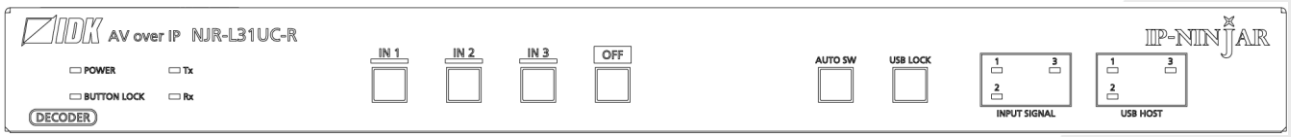
**HDMI/USB-C Encoder/Decoder**

# NJR-L21UC-T/NJR-L31UC-R

User Guide
Ver.1.0.0




Thank you for choosing our product.
Please thoroughly familiarize yourself with this guide before installing this equipment. We recommend keeping this manual together with the equipment for future reference as needed.

**IDK Corporation**

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

**About technical documentation**

**■ Please read the following guides before connecting this equipment to a power source.**

| | |
|---|---|
| **1. Safety Instructions**<br>Contains important safety instructions for the product to help ensure your own personal safety and protect the product and working environment from potential damage. | Provided with the product. |
| **2. Setup Guide**<br>Contains setup information and precautions for installing the product and connecting cables. | Download from www.idkav.com |

**■ Please refer to the following guides as needed.**

| | |
|---|---|
| **3. Operation Guide**<br>Describes how to configure and use the equipment. | Download from www.idkav.com |
| **4. User Guide**<br>Contains detailed explanation of functions, setting values, and restrictions. | |
| **5. Command Guide**<br>Contains information on controlling the equipment using communication commands through RS-232C or LAN communication. | |

## Trademarks

**FCC STATEMENT**

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

(Class A)

**Supplier's Declaration of Conformity**
**47 CFR § 2.1077 Compliance Information**

**Unique Identifier**
Type of Equipment: HDMI/USB-C Encoder/Decoder
Model Name: NJR-L21UC-T, NJR-L31UC-R
**Responsible Party – U.S. Contact Information**
Company Name: IDK America Inc.
Address: 72 Grays Bridge Road Suite 1-C, Brookfield, CT 06804
Telephone number: +1-203-204-2445
URL: www.idkav.com
**FCC Compliance Statement**
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(FCC SDoC)

**CE MARKING**

This equipment complies with the essential requirements of the relevant European health, safety and environmental protection legislation.

**WEEE MARKING**

Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC
(This directive is only valid in the EU.)
This equipment complies with the WEEE Directive (2002/96/EC) marking requirement. The left marking indicates that you must not discard this electrical/electronic equipment in domestic household waste.

# Safety Instructions

Read all safety and operating instructions before using this product. Follow instructions and heed warnings/cautions.
Instructions and warnings/cautions for all products are provided. Some of them may not be applicable to your product.

| | |
|---|---|
| **Warning** | Indicates the presence of a hazard that may result in death or serious personal injury if the warning is ignored or the product is handled incorrectly. |
| **Caution** | Indicates the presence of a hazard that may cause minor personal injury or property damage if the caution is ignored or the product is handled incorrectly. |

| Symbol | Description | Example |
|---|---|---|
|  Caution | This symbol is intended to alert the user. (Warning and caution) |  Hot surfaces Caution |
|  Prohibited | This symbol is intended to prohibit the user from specified actions. |  Do not disassemble |
|  Instruction | This symbol is intended to instruct the user. |  Unplug |

## Warning

**For lifting heavy products:**

| | |
|---|---|
|  Instruction | **● Lifting must be done by two or more personnel.**<br>To avoid injury: When lifting the product, bend your knees, keep your back straight and get close to it with two or more persons. |

**For installing and connecting products:**

| | |
|---|---|
|  Prohibited | **● Do not place the product in unstable place.**<br>Install the product in a horizontal and stable place, as this may fall or tip over and cause injury.<br>**● Secure the product if installing in the locations with vibration.**<br>Vibration may move or tip over the product unexpectedly, resulting in injury. |

# Warning

| | |
|---|---|
|  Instruction | **● Installation work must be performed by professionals.**<br>The product is intended to be installed by skilled technicians. For installation, please contact a system integrator or IDK. Improper installation may lead to the risk of fire, electric shock, injury, or property damage.<br>**● Insert the power plug into an outlet that is unobstructed.**<br>Unobstructed access to the plug enables unplugging the product in case of any extraordinary failure, abnormal situation or for easy disconnection during extended periods of non-use.<br>**● Insert the power plug into an appropriate outlet completely.**<br>If the plug is partially inserted, arching may cause the connection to overheat, increasing the risk of electric shock or fire. Do not use a damaged plug or connect to a loose outlet.<br>**● Unplug the product from an AC power source during installation or service.**<br>When connecting peripheral devices to this product, unplug all involved devices from outlets. Ground potential differences may cause fire or other difficulties.<br>**● The product must be electrically earthed/grounded.**<br>To reduce the risk of electric shock, ensure the product is connected to a mains socket outlet with a protective earthing connection.<br>**● For PoE/PoH, use category cables meeting IEEE802.3af/at.**<br>Otherwise, it may cause problems or a fire. |

**For operating products:**

| | |
|---|---|
|  Prohibited | **● Keep out any foreign objects.**<br>To avoid fire or electric shock, do not permit foreign objects, such as metal and paper, to enter the product from vent holes or other apertures.<br>**● For power cable/plug and Category cable,**<br>**・ Do not scratch, heat, or modify, including splicing or lengthening them.**<br>**・ Do not pull, place heavy objects on them, or pinch them.**<br>**・ Do not bend, twist, tie or clamp them together forcefully.**<br>Misuse of the power cable and plug may cause fire or electric shock. If power cables/plugs become damaged, contact your IDK representative. |
|  Do not disassemble | **● Do not repair, modify or disassemble.**<br>Since the product includes circuitry that uses potentially lethal, high voltage levels, disassembly by unauthorized personnel may lead to the risk of fire or electric shock. For internal inspection or repair, contact your IDK representative. |
|  Do not touch | **● Do not touch the product and connected cables during electric storms.**<br>Contact may cause electric shock. |
|  Instruction | **● Clean the power plug regularly.**<br>If the plug is covered in dust, it may increase the risk of fire. |

**If the following problem occurs:**

| | |
|---|---|
|  Unplug | **● Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor.**<br>**● Unplug immediately if the product is damaged by falling or having been dropped.**<br>**● Unplug immediately if water or other objects are directed inside.**<br>If you continue to use the product under these conditions, it may increase the risk of electric shock or fire. For maintenance and repair, contact your IDK representative. |

# Caution

**For installing and connecting products:**

| | |
|---|---|
|  **Prohibited** | **● Do not place the product in a location where it will be subjected to high temperatures.**<br>If the product is subjected to direct sunlight or high temperatures while under operation, it may affect the product's performance and reliability and may increase the risk of fire.<br>**● Do not store or operate the product in dusty, oil smoke filled, or humid place.**<br>Placing the product in such environment may increase the risk of fire or electric shock.<br>**● Do not block the vent holes.**<br>If ventilation slots are blocked, it may cause the product to overheat, affecting performance and reliability and may increase the risk of fire.<br>**● Do not place or stack heavy items on the product.**<br>Failure to observe this precaution may result in damage to the product itself as well as other property and may lead to the risk of personal injury.<br>**● Do not exceed ratings of outlet and wiring devices.**<br>Exceeding the rating of an outlet may increase the risk of fire and electric shock. |
|  **No wet hands** | **● Do not handle power plug with wet hands.**<br>Failure to observe this precaution may increase the risk of electric shock. |
|  **Instruction** | **● Use and store the product within the specified temperature/humidity range.**<br>If the product is used outside the specified range of temperature and humidity continuously, it may increase the risk of fire or electric shock.<br>**● Do not place the product at elevations of 1.24 mi. (2,000 m) or higher above sea level.**<br>Failure to do so may shorten the life of the internal parts and result in malfunctions.<br>**● When mounting the product into the rack, provide sufficient cooling space.**<br>Mount the product in a rack meeting EIA standards, and maintain spaces above and below for air circulation. For your safety as required, attach an L-shaped bracket in addition to the panel mount bracket kit to improve mechanical stability.<br>**● Never insert screws without the rubber feet into the threaded holes on the bottom of the product.**<br>Never insert screws alone into the threaded holes on the bottom of the product. Doing so may lead to damage when the screws contact electric circuitry or components inside the product.<br>Reinstall the originally supplied rubber feet using the originally supplied screws only. |

**For operating products:**

| | |
|---|---|
|  <br>**Hot surfaces Caution** | **For products with the hot surfaces caution label only:**<br>**● Do not touch the product's hot surface.**<br>If the product is installed without enough space, it may cause malfunction of other products.<br>If you touch product's hot surface, it may cause burns. |
|  <br>**Prohibited** | **● Use only the supplied power cable and AC adapter.**<br>**● Do not use the supplied power cable and AC adapter with other products.**<br>If non-compliant adapter or power cables are used, it may increase the risk of fire or electric shock. |
|  <br>**Unplug** | **● If the product won't be used for an extended period of time, unplug it.**<br>Failure to observe this precaution may increase the risk of fire.<br>**● Unplug the product before cleaning.**<br>To prevent electric shock. |
|  <br>**Instruction** | **● Do not prevent heat release.**<br>If cooling fan stops, power off the product and contact IDK.<br>Failure to do so may raise internal temperature and increase the risk of malfunction, fire, or electric shock.<br>**● Keep vents clear of dust.**<br>If the vent holes near the cooling fan or near the fan are covered with dust, internal temperatures increase and may increase the risk of malfunction. Clean the vent holes and near the fan as needed.<br>If dust accumulates inside of the product, it may increase the risk of fire or electric shock. Periodic internal cleaning, especially before humid rainy season, is recommended. For internal cleaning, contact your IDK representative. |

# Contents

# About this Guide

This guide describes features, notes, and configurations of the NJR-L.

## Conventions

- The following symbols are used in this guide.
  [ ] : Menus and messages displayed on the front display and a WEB GUI.
  “ ” : Reference
- ***Note*** : Addresses practices not related to personal injury, such as restrictions and attention.

# About this Product

The NJR-L21UC-T/NJR-L31UC-R are an encoder/decoder set for transmitting HDMI and USB-C video signals, RS-232C, LAN, and USB (HID) over CAT6A for point-to-point or AV over IP distribution. These NJR devices support video resolutions up to 4K@60 (4:4:4) and is HDCP 2.2 compliant.

For video inputs, the encoder features one (1) USB-C and one (1) HDMI inputs which is output over CAT6A (SDVoE) to the decoder as a 2x1 switcher. The decoder includes one (1) HDMI input, one (1) USB-C input, and one (1) 10GbE CAT (SDVoE), one of which can be selected and output out the local HDMI output.

Two (2) USB host ports and three (3) USB device ports enable host switching and USB hub features.
The USB host ports can connect to the device of the local NJR-L21UC-T/NJR-L31UC-R or the device of the NJR-L21UC-T/NJR-L31UC-R that is connected over 10GbE CAT (SDVoE).

Additionally, the USB-C connector supports USB Power Delivery that can provide power up to 60 W to the USB-C source device (upgraded PSU needed).

The NJR can be configured and controlled remotely using RS-232C or LAN.

This product can be used in combination with other SDVoE products within IDK’s product portfolio.

# Setting

The NJR-L can be set using the IP-NINJAR Configurator or NJR-CTB (IP-NINJAR Management Platform). Set “**Stopping sending device detection packet (P.14)**” to [OFF]. If it is set to [ON], the IP-NINJAR Configurator or NJR-CTB cannot detect the NJR-L.

The table below is used in this chapter.
Example:

| Item | NO INPUT MONITORING | Command |
|---|---|---|
| For | HDMI IN | |
| Value | OFF, 2s to 15s (10s) (by 1s)  Default value is shaded. | |

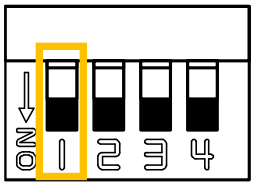
# DIP switch

[OFF] : Set a DIP switch to the upper position.
[ON] : Set a DIP switch to the down position.

***Note***

Set DIP switches No.1 and No.4 to [OFF] at all times.

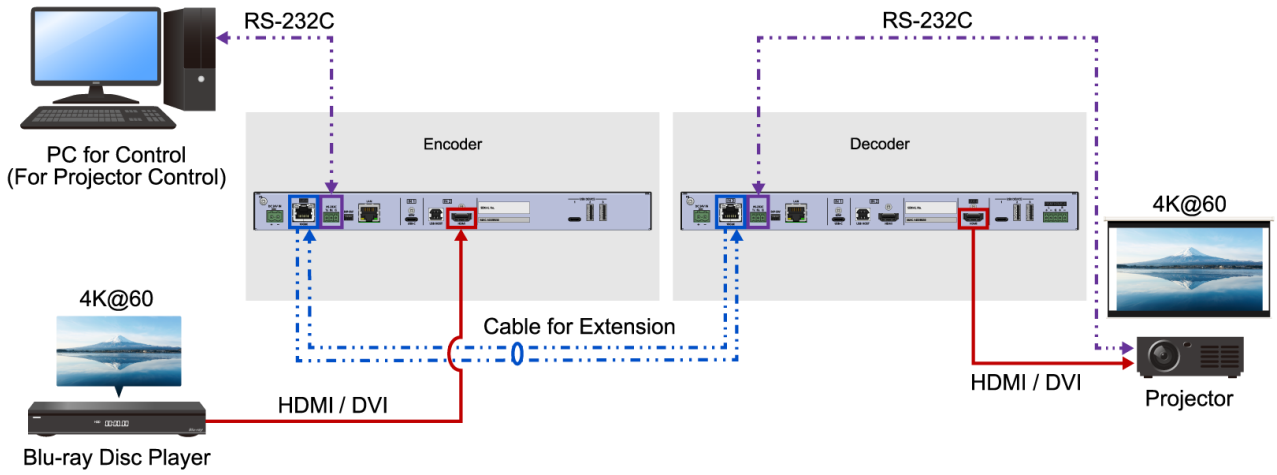
## RS-232C transmission mode




| Item | RS-232C transmission mode |
|---|---|
| Value | DIP switch No.1<br>OFF, ON |

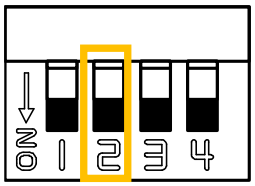
[OFF] : Transmits signals to the connected RS-232C connector via a cable for extension.
[ON] : Controls the NJR-L from an external device.

The data received from the NJR-L's RS-232C connector can be transmitted to the connected RS-232C connector via a cable for extension.



## Stopping sending device detection packet

You can stop sending all device detection packets of 10GbE input/output.




| Item | Stopping sending device detection packet |
|---|---|
| Value | DIP switch No.2<br>OFF, ON |

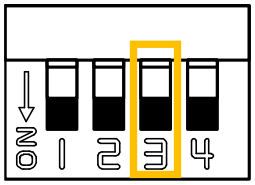
[OFF] : Sends device detection packet.
[ON] : Does not send device detection packet.

The NJR-L automatically sends device detection packet to LAN periodically for detection by the NJR-CTB or IP-NINJAR Configurator. If you do not want to send unnecessary packet to LAN, set DIP switch No.2 to [ON].

***Note***

If DIP switch No.2 is set to [ON], the IP-NINJAR Configurator or NJR-CTB cannot detect the NJR-L.

## Disabling HDCP or EDID settings




| Item | Disabling HDCP or EDID settings |
|---|---|
| For | IN1, IN2, IN3, HDMI OUT |
| Value | DIP switch No.3<br>OFF, ON |

[OFF] : Enables the settings of “**HDCP authentication (P.16)**” or ”**EDID (P.24)**”.
[ON] : Disables the settings of “**HDCP authentication (P.16)**” or ”**EDID (P.24)**”. Settings below will be applied.
HDCP authentication : HDCP INPUT ONLY
EDID : EXTERNAL EDID

# Output

## Video signal output

| Item | SIGNAL OUTPUT | @GVO/@SVO |
|---|---|---|
| For | HDMI OUT, SDVoE OUT | |
| Value | ON, OFF | |

[OFF] : Stops outputting video signal and DDC 5 V signal electrically.

If [OFF] is selected, some sink devices may switched into standby mode.

## DDC 5V signal output for when no video signal is input

You can set the DDC 5 V signal output when an input channel without video signal is selected or [OFF] is selected.

| Item | DDC POWER CONTROL | N/A |
|---|---|---|
| For | HDMI OUT | |
| Value | ON, 0 s to 60 s | |

[ON] : Outputs DDC 5 V signal at all times.
[0 s] to [60 s] : Disconnects DDC 5 V signal after the specified time passes.

When DDC 5 V signal is disconnected, a sink device may switch into standby mode.

## Signal format

| Item | SIGNAL FORMAT | N/A |
|---|---|---|
| For | HDMI OUT, SDVoE OUT | |
| Value | AUTO, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0, RGB, DVI | |

[AUTO] : Optimal color space for the connected device.
[YCbCr 4:4:4] : HDMI YCbCr 4:4:4 has priority.
[YCbCr 4:2:2] : HDMI YCbCr 4:2:2 has priority.
[YCbCr 4:2:0] : HDMI YCbCr 4:2:0 has priority.
Enabled only for input resolutions of 4K@50/59.94/60.
If the sink device does not support HDMI YCbCr 4:2:0 or the input resolution is 4K@30 or lower, video is output at the priority of [AUTO].
[RGB] : HDMI RGB has priority.
[DVI] : Outputs DVI signal.
Enabled only for input resolutions of 4K@30 or lower.

***Note***

If DVI signal is output, digital audio is not output.

## HDCP authentication

| Item | HDCP AUTHENTICATION | @GEN/@SEN |
|---|---|---|
| For | HDMI OUT | |
| Value | HDCP 2.2, HDCP INPUT ONLY, ALWAYS | |

[HDCP 2.2] : HDCP 2.2 authentication
[HDCP INPUT ONLY] : HDCP 2.2 or HDCP 1.4 authentication depending on the sink device
Outputs signal depending on HDCP presence of input signal.
If input signal is protected by HDCP, outputs signal with HDCP.
If input signal is not protected by HDCP, outputs signal without HDCP.
[ALWAYS] : HDCP 2.2 or HDCP 1.4 authentication depending on the sink device

For a sink device that is not supported by HDCP, video is displayed only if this setting is set to a value other than [HDCP 2.2] and input signal is not supported by HDCP.

If [HDCP INPUT ONLY] is set, HDCP presence of output signal changes depending on HDCP presence of input signal. Some sink devices may not be displayed temporarily.

To enable this setting, set “**Disabling HDCP or EDID settings (P.14)**” of DIP switch No.3 to [OFF].

## Hot plug ignoring duration

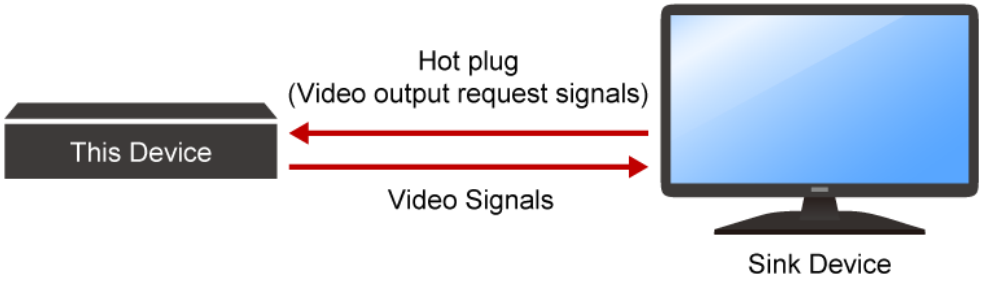
You can set the duration for ignoring video output request signals that are sent from the sink device.

| Item | HOTPLUG MASK | N/A |
|---|---|---|
| For | HDMI OUT | |
| Value | OFF, 2s to 15s | |

[OFF] : Always receives video output request signals from sink devices.

[2s] to [15s] : After receiving video output request signals, ignores these signals during the specified period.

If the signal request is repeated in a short cycle, the NJR-L resets the video output process. As a result, video may not be output. This problem can be solved by setting the ignoring duration.



# Input

## Hot plug output for when there is no active video input signal

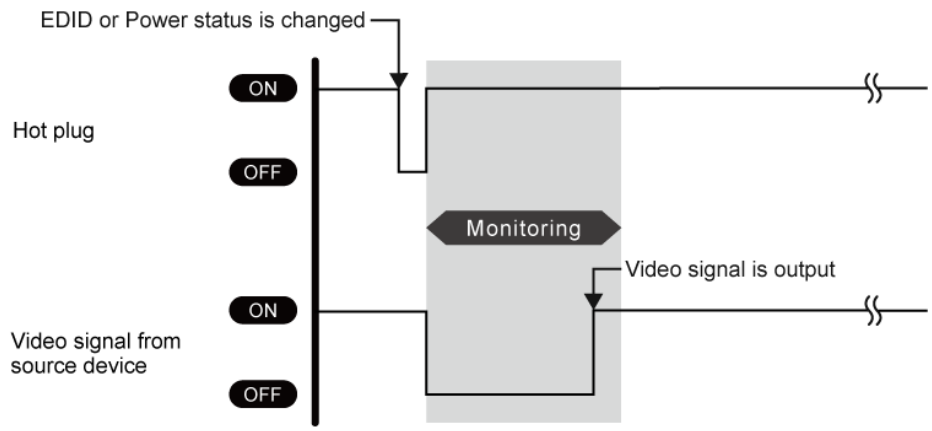
The NJR-L requests the source device to output video signal by sending hot plug when no active video signal is input. You can enable/disable this feature and set the request interval.

| Item | NO INPUT MONITORING | N/A |
|---|---|---|
| For | IN1, IN2 | |
| Value | OFF, 2s to 15s (10s) | |

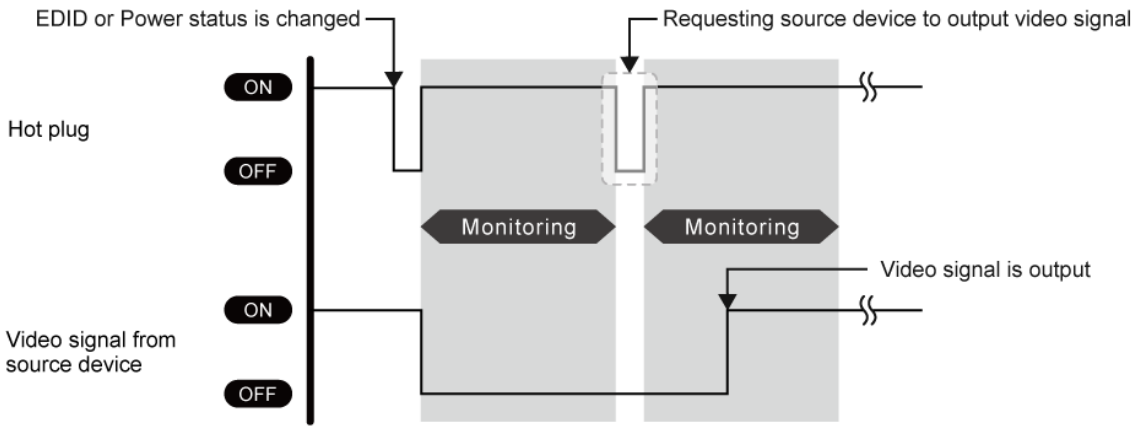
[OFF] : Does not request the source device to output video signal even if there is no active input signal.
[2s] to [15s] : Requests the source device to output video signal after the specified monitoring time if there is no active input signal.

If the NJR-L is powered on or EDID is changed with the connected source device is powered on, the source device may stop outputting video signal. In this case, use this feature to request the source device to output video signal.

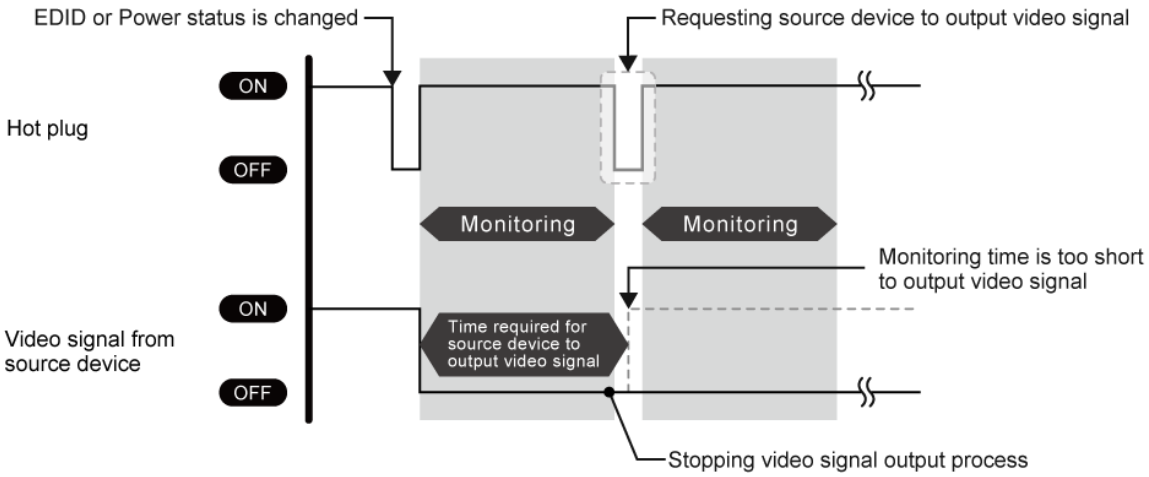
**■ Example: Video signal is output within the specified monitoring time**



■ **Example: The source device stops outputting video signals → Hot plug request is needed.**




■ **Example: The specified monitoring time is too short. → Set the longer monitoring time.**




If the interval is shorter than the time for source device output video signal, the source device repeats the video output process and does not output video signal. This problem can be solved by setting longer monitoring time.

***Note***

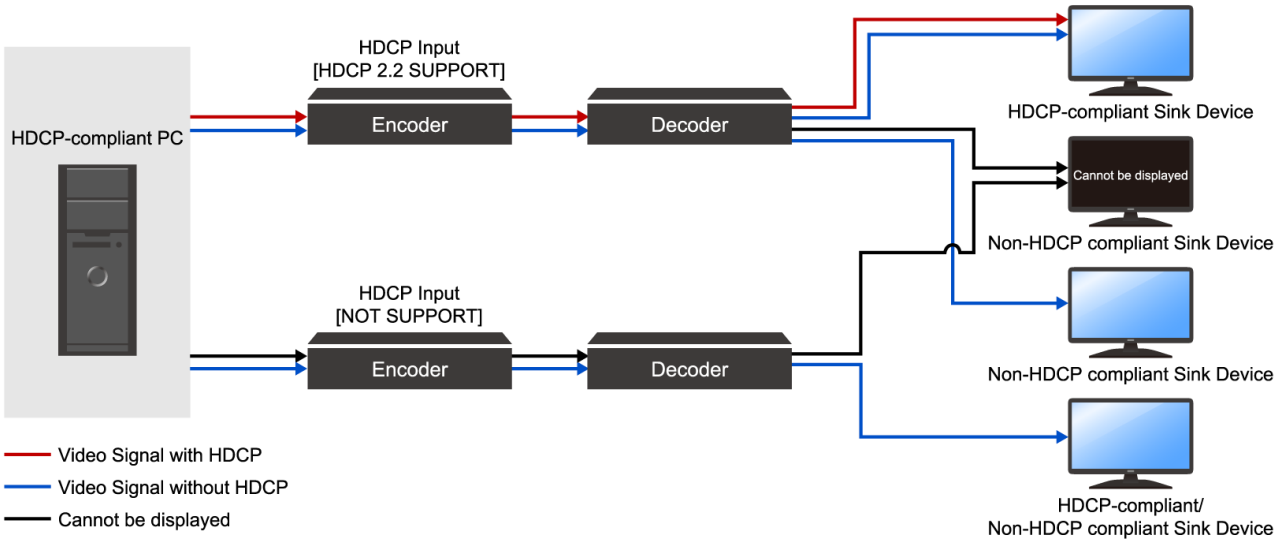
If the source device, such as a PC, disables the monitor power-saving or dual monitor features, set this setting to [OFF].

## HDCP input

| Item | HDCP INPUT | @GHE/@SHE |
|---|---|---|
| For | IN1, IN2 | |
| Value | HDCP 2.2 SUPPORT, HDCP 1.4 SUPPORT, NOT SUPPORT | |

[HDCP 2.2 SUPPORT] : Operates as an HDCP 2.2 supported device.
[HDCP 1.4 SUPPORT] : Operates as an HDCP 1.4 supported device.
[NOT SUPPORT] : Operates as a non-HDCP compliant device

Some source devices negotiate with the connected device to determine if HDCP encryption is supported. After this negotiation, the source device determines whether HDCP signal encryption is enforced or not. This process takes place with some source device, even if the content being presented is not copyright protected. The NJR-L is HDCP compliant, if it is connected to a display device that does not support HDCP, unprotected AV content may not be successfully displayed. Under these circumstances and if the content is indeed not protected, the problem can be solved by setting this menu to [NOT SUPPORT].




***Note***

HDCP 2.2 Type 0 video can be displayed on sink devices supporting HDCP 1.4.
HDCP 2.2 Type 1 video can be displayed on sink devices supporting HDCP 2.2 but cannot be displayed on sink devices supporting HDCP 1.4.

# Input channel automatic switching

When video input signal is detected/disconnected, the NJR-L automatically switches input channel to the one having the highest priority of input channel that has active video input signal.

## Automatic switching

Enabling/disabling the input channel automatic switching feature.

| Item | AUTO SWITCHING | @GUU/@SUU |
|---|---|---|
| Value | ON, OFF | |

[ON]: When video input signal is detected/disconnected, the NJR-L automatically switches input channel according to “**Automatic switching priority for when a video input signal is detected (P.21)**” and “**Automatic switching priority for when no active video signal is input (P.21)**”.

## Automatic switching priority for when a video input signal is detected

You can set the priority for automatic switching at the time of video input signal is detected.

| Item | SIGNAL ON PRIORITY | @GAU/@SAU |
|---|---|---|
| For | IN1 to IN3 | |
| Value | OFF (Disabled), 1 (Highest) to 3 (Lowest) | |

If the priority of the detected input channel is lower than the priority of the selected input channel, automatic switching is not performed.

If the same priority if set to several input channels, the last detected input channel will have the first priority.

To enable automatic switching, set ”**Automatic switching (P.21)**” to [ON].

## Automatic switching priority for when no active video signal is input

You can set the priority for automatic switching at the time of video input signal of the current selected input is disconnected.

| Item | SIGNAL OFF PRIORITY | @GOF/@SOF |
|---|---|---|
| For | IN1 to IN3, INOFF | |
| Value | OFF (Disabled), 1 (Highest) to 4 (Lowest) | |

If the same priority is set to several input channels, the smallest channel that detects video signal or USB host has the first priority. If there is no input channel having active video or USB hos signal, then it is switched to [ONOFF].

To enable automatic switching, set ”**Automatic switching (P.21)**” to [ON].

## Ignoring duration after automatic switching

You can set the time for disabling automatic switching temporarily after automatic input channel switching is performed.

| Item | IGNORING DURATION | N/A |
|---|---|---|
| Value | 0s to 10s | |

If video input signal is detected or disconnected in a short interval, the automatic switching is performed repeatedly. To avoid undesired automatic switching, set the ignoring duration.

# Output audio

## Mute

You can mute/unmute the output audio.

| Item | MUTE | @GAM/@SAM |
|---|---|---|
| For | HDMI OUT, SDVoE OUT, AUDIO OUT | |
| Value | ON, OFF | |

[ON]: Mute

# Input audio

## Input audio selection

You can select the audio of 10GbE input connector from digital or analog input audio.
Analog input audio is available when using IP-NINJAR encoder or transceiver that has analog audio input.

| Item | SDVoE AUDIO | N/A |
|---|---|---|
| For | IN3 | |
| Value | DIGITAL, ANALOG | |

# EDID

A source device that is connected to the input connector obtains information of supported video and audio signals from the EDID. You can change the information to be sent to a source device.

To enable EDID settings from an encoder, set “**Disabling HDCP or EDID settings (P.14)**” of the DIP switch No.3 to [OFF].

## EDID selection

You can set the EDID that will be sent to source device.

| Item | EDID SELECTION | @GED/@SED |
|---|---|---|
| For | IN1, IN2, IN3 | |
| Value | BUILT-IN EDID, EXTERNAL EDID, COPY DATA | |

[BUILT-IN EDID] : Uses the built-in EDID. You can change the following EDID information:
【Resolution (P.25)】
【Signal format (P.26)】
【Frame rate (P.26)】
【Deep Color (P.26)】
【Audio format (P.27)】
【Speaker Configuration (P.28)】

[EXTERNAL EDID] : Uses the EDID of the sink device that is connected to an output connector.
If EDID reading fails, the EDID is not changed.

[COPY DATA] : Uses the EDID that is saved to the NJR-L in “**Copying EDID (P.2525)**”.

***Note***

If HDR signal is used, set this menu to [EXTERNAL EDID] or copy EDID of the sink device supporting HDR signals and set this menu to [COPY DATA].

## Resolution

You can set the resolution of the NJR-L for if "**EDID (P.24)**" is set to [BUILT-IN EDID].

| Item | RESOLUTION | | @GVF/@SVF |
|---|---|---|---|
| For | IN1, IN2, IN3 | | |
| Value | 800x600 (SVGA)<br>1024x768 (XGA)<br>1280x720 (VESA720)<br>720p<br>1280x768 (WXGA)<br>1280x800 (WXGA)<br>1280x960 (QuadVGA)<br>1280x1024 (SXGA)<br>1360x768 (WXGA)<br>1366x768 (WXGA)*<br>1400x1050 (SXGA+)<br>1440x900 (WXGA+)<br>1600x900 (WXGA++)<br>1600x1200 (UXGA)<br>1680x1050 (WSXGA+)<br>1080i*<br>1920x1080 (VESA1080) | 1080p<br>1920x1200 (WUXGA)<br>2048x1152 (QWXGA)<br>2560x1080 (UWFHD)<br>2560x1440 (WQHD)<br>2560x1600 (WQXGA)<br>3240x1080<br>3440x1440 (UWQHD)<br>3840x1080 (DFHD)<br>3840x1600 (UWQHD+)<br>3840x2160@30<br>3840x2160@60 4:2:0<br>3840x2160@60 4:4:4<br>4096x2160@30<br>4096x2160@60 4:2:0<br>4096x2160@60 4:4:4 | |

*USB-C input connector cannot be selected.

Timing of [720p]/[1080i]/[1080p]/[2560x1080]/3840x2160]/[4096x2160] meets the CTA-861 standard.
For other resolutions, timing parameters meet the VESA DMT or VESA CVT standard.

## Copying EDID

The EDID of the sink device is read and saved to the NJR-L.

| Item | EDID COPY | N/A |
|---|---|---|
| For | - | |
| Value | - | |

## Signal format

You can set the signal format of the NJR-L for if “**EDID (P.24)**” is set to [BUILT-IN EDID].

| Item | SIGNAL FORMAT | N/A |
|---|---|---|
| For | IN1, IN2, IN3 | |
| Value | HDMI, DVI | |

[HDMI] : Sets the NJR-L as an HDMI device.
[DVI] : Sets the NJR-L as a DVI device. Audio signal is not supported.

If selecting [DVI], the following settings will be disabled:
【Deep Color (P.26)】
【Audio format (P.27)】
【Speaker Configuration (P.28)】

## Frame rate

You can set the vertical synchronous frequency (frame rate) of the NJR-L for if “**EDID (P.24)**” is set to [BUILT-IN EDID].

| Item | FRAME RATE | N/A |
|---|---|---|
| For | IN1, IN2, IN3 | |
| Value | 60Hz, 50Hz | |

If selecting [50Hz], 60 Hz and 30 Hz vertical synchronous frequency of “**Resolution (P.25)**” will be 50 Hz and 25 Hz, respectively.

## Deep Color

You can set the color depth of the NJR-L for if “**EDID (P.24)**” is set to [BUILT-IN EDID].

| Item | DEEP COLOR | N/A |
|---|---|---|
| For | IN1, IN2, IN3 | |
| Value | 24-BIT COLOR, 30-BIT COLOR, 36 BIT COLOR | |

If selecting a value other than [24-BIT COLOR] and the source device output video at 30 bit or higher, it may cause noise on the video or signal may not be transmitted. In such a case, the problem may be solved by setting the color to [24-BIT COLOR].

## Audio format

You can set the NJR-L's audio format and maximum sampling frequency for if "**EDID (P.24)**" is set to [BUILT-IN EDID].

| Item | AUDIO FORMAT | N/A |
|---|---|---|
| For | IN1 | |
| Value | PCM : 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 192kHz | |

| Item | AUDIO FORMAT | N/A |
|---|---|---|
| For | IN2, IN3 | |
| Value | PCM : 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz<br>Dolby Digital : OFF, 32kHz, 44.1kHz, 48kHz<br>AAC : OFF, 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96 kHz<br>Dolby Digital+ : OFF, 32kHz, 44.1kHz, 48kHz<br>DTS : OFF, 32kHz, 44.1kHz, 48kHz, 96kHz<br>DTS-HD : OFF, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz<br>Dolby TrueHD: OFF, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz | |

***Note:***

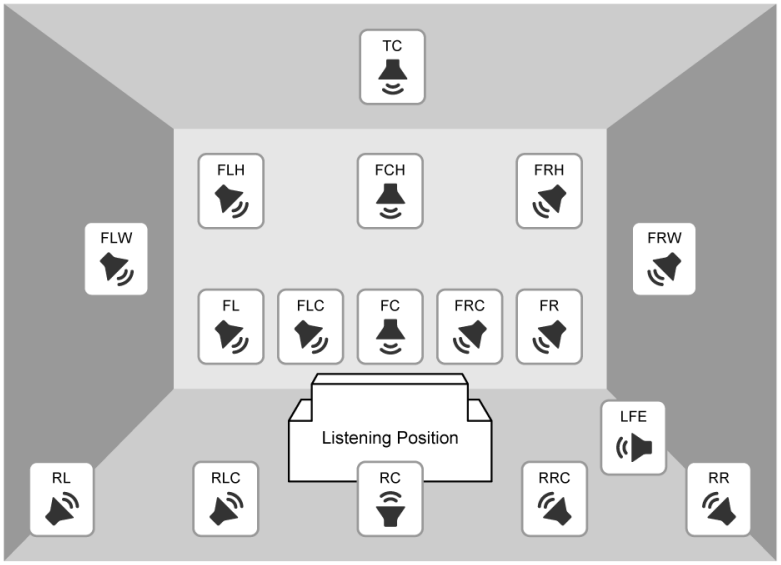
LC monitors do not support some audio formats. Select an audio format and sampling frequency supported by the device.

## Speaker Configuration

You can set the NJR-L's speaker configuration of multi-channel audio for if "**EDID (P.24)**" is set to [BUILT-IN EDID].

| Item | SPEAKER CONFIGRATION | | N/A |
|---|---|---|---|
| For | IN2, IN3 | | |
| | Number of speakers | Speaker configuration | |
| Value | 1 to 8 (2) | See the table below | |
| | | ON, OFF*<br>*FL/FR: ON | |

| Number of speakers | FL/ FR | LFE | FC | RL/ RR | RC | FLC/ FRC | RLC/ RRC | FLW/ FRW | FLH/ FRH | TC | FCH |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 |




| | |
|---|---|
| FL | Front Left |
| FC | Front Center |
| FR | Front Right |
| FLC | Front Left Center |
| FRC | Front Right Center |
| RL | Rear Left |
| RC | Rear Center |
| RR | Rear Right |
| RLC | Rear Left Center |

| | |
|---|---|
| RRC | Rear Right Center |
| LFE | Low Frequency Effect |
| FLW | Front Left Wide |
| FRW | Front Right Wide |
| FLH | Front Left High |
| FCH | Front Center High |
| FRH | Front Right High |
| TC | Top Center |

# RS-232C

## Communication setting

| Item | PARAMETERS | | | @GCT/@SCT |
|---|---|---|---|---|
| For | RS-232C TRANSMISSION, RS-232C RECEIVER, IN1 (USB-C) | | | |
| | Baud rate [bps] | Data bit length [bit] | Parity check | Stop bit [bit] |
| Value | 4800, 9600, 14400, 19200, 38400, 57600, 115200 | 7, 8 | NONE, ODD, EVEN | 1, 2 |

### ■ RS-232C TRANSMISSION

Communication setting for the RS-232C connector for when DIP switch No.1 “**RS-232C transmission mode (P.13)**” is set to [OFF] (Transmitting to the connected RS-232C connector via a cable for extension).

### ■ RS-232C RECEIVER

Communication setting for the RS-232C connector for when DIP switch No.1 “**RS-232C transmission mode (P.13)**” is set to [ON] (Controlled from an external device).

# LAN

## Network

| Item | IP ASSIGNMENT | @GIP/@SIP |
|---|---|---|
| Value | STATIC, DHCP/AutoIP, AutoIP | |

| Item | IP ADDRESS | @GIP/@SIP |
|---|---|---|
| Value | 0.0.0.0 to 255.255.255.255 (192.168.1.199) | |

| Item | SUBNET MASK | @GIP/@SIP |
|---|---|---|
| Value | 0.0.0.0 to 255.255.255.254 (255.255.255.0) | |

| Item | GATEWAY ADDRESS | @GIP/@SIP |
|---|---|---|
| Value | 0.0.0.0 to 255.255.255.255 (0.0.0.0) | |

The NJR-L can automatically acquire IP addresses using AUTO IP or DHCP (Dynamic Host Configuration Protocol).
If [IP ASSIGNMENT] is set to [DHCP/AutoIP] or [AutoIP], the IP address, subnet mask, and gateway address are set automatically.
Immediately after [IP ASSIGNMENT] is changed, the LAN communication temporarily disconnects because the IP address changes. Try again later.

## MAC address

| Item | MAC ADDRESS | @GMC |
|---|---|---|
| Value | Specific values of the device | |

## Automatic disconnection time (Timeout)

You can set the time to disconnect LAN communication automatically.

| Item | AUTO DISCONNECT | @GLD/@SLD |
|---|---|---|
| For | - | |
| Value | NOT DISCONNECT,<br>1s to 180s (30s) | |

[NOT DISCONNECT] : Does not disconnect LAN communication.
[1 s] to [180 s] : Disconnect LAN communication when the set time passes.

Up to eight connections from an external device to the NJR-L can be set. The NJR-L disconnects the LAN communication if the NJR-L does not receive a command for the specified time.

If selecting [NOT DISCONNECT], the NJR-L does not disconnect the communication from its side. Communication may not be disabled if exceeding the connection limit.

## Communication of extension connector

You can enable/disable the LAN communication of extension connector.

| Item | LAN THROUGH | N/A |
|---|---|---|
| For | - | |
| Value | ON, OFF | |

**■ LAN loop problem**

The NJR-L includes switching hub function. If two or more LAN communication connectors of the NJR-L are connected to the same network, the network may be down due to a loop problem. In this case, set the LAN communication to [OFF].

# Start-up settings

You can specify the settings for when the NJR-L is powered ON or starts up.

## Input channel

You can set the input channel status for when the NJR-L is powered ON.

| Item | INPUT CHANNEL | N/A |
|---|---|---|
| For | VIDEO/AUDIO | |
| Value | IN1 to IN3, INOFF, LAST CHANNEL | |

[INOFF] : Starts up with input channel OFF.
[LAST CHANNEL]: Starts up with the previous channel.

## USB host

You can set how the USB host starts.

| Item | INPUT CHANNEL | N/A |
|---|---|---|
| For | USB HOST | |
| Value | IN1 to IN3, INOFF, LAST CHANNEL | |

[INOFF] : Starts up with input channel [OFF].
[LAST CHANNEL] : Starts up with the previous input channel.

## Button security lockout

You can set the button security lockout when the NJR-L starts up.

| Item | BUTTON LOCK | N/A |
|---|---|---|
| Value | AUTO, LOCK, UNLOCK | |

[AUTO] : Starts up with the previous status.
[LOCK] : Buttons are locked.
[UNLOCK] : Button are unlocked.

# System

## USB-C power delivery

You can set the power delivery of the USB-C connector (IN1).

| Item | USB-C POWER DELIVERY | @GPD/@SPD |
|---|---|---|
| Value | 60W, 15W, OFF | |

## USB-C function

You can set the function of the USB-C connector (IN1).

| Item | USB-C FUNCTION | @GUF/@SUF |
|---|---|---|
| Value | FULL, DP ALT, DATA, PD ONLY | |

[FULL] : DisplayPort Alternate Mode signals and USB2.0 data signals can be used.
[DP ALT] : DisplayPort Alternate Mode signals can be used.
[DATA] : USB2.0 data can be used.
[PD ONLY] : Only power delivery is enabled.

## USB host lock

You can lock/unlock the USB host selection status.

| Item | USB HOST LOCK | @GUL/@SUL |
|---|---|---|
| Value | LOCK, UNLOCK | |

[LOCK]: The USB host status is fixed, and USB host selection of front panel operations or control commands will be disabled.

## Fan speed

| Item | FAN CONTROL | N/A |
|---|---|---|
| Value | AUTO, LOW, MIDDLE, HIGH | |

[AUTO] : Changes the fan speed depending on the internal temperature changes.
[LOW], [MIDDLE], [HIGH] : Keeps the fan speed according to the setting. If the internal temperature exceeds the limit, [AUTO] is applied.

## Front panel security lockout

You can enable/disable the front panel security lockout.

| Item | BUTTON LOCK | N/A |
|---|---|---|
| Value | LOCK, UNLOCK | |

## Backup/Restore

You can backup/restore the settings of the NJR-L.

| Item | BACKUP/RESTORE | N/A |
|---|---|---|
| Value | - | |

## Reboot

| Item | REBOOT | @RBT |
|---|---|---|
| Value | - | |

## Initialization of all settings

You can initialize all settings or settings except for RS-232C and LAN communication settings.

| Item | INITIALIZATION | @CLR |
|---|---|---|
| Value | ALL, NORMAL | |

[ALL] : Initializes all settings.

[NORMAL] : Initializes settings except for RS-232C and LAN communication settings.

【RS-232C (P.29)】

【LAN (P.30)】

***Note***

To restore settings, make a backup copy.

# Status

I/O signal status and the NJR-L status can be viewed from the IP-NINJAR Configurator or NJR-CTB (IP-NINJAR Management Platform).

# Factory default list

| Item | | Default |
|---|---|---|
| DIP switch | No.1 to 4 | OFF |
| Output | SIGNAL OUTPUT | ON |
| | DDC POWER CONTROL | ON |
| | SIGNAL FORMAT | AUTO |
| | HDCP AUTHENTICATION | HDCP INPUT ONLY |
| | HOTPLUG MASK | OFF |
| Input | NO INPUT MONITORING | 10s |
| | HDCP INPUT | NOT SUPPORT |
| Input channel automatic switching | AUTO SWITCHING | OFF |
| | SIGNAL ON PRIORITY | 1 |
| | SIGNAL OFF PRIORITY | 1 |
| | IGNORING DURATION | 0s |
| Output audio | MUTE | OFF |
| Input audio | SDVoE AUDIO | DIGITAL |
| EDID | EDID SELECTION | BUILT-IN EDID |
| | RESOLUTION | 3840x2160@60Hz 4:4:4 |
| | EDID COPY | --- |
| | SIGNAL FORMAT | HDMI |
| | FRAME RATE | 60Hz |
| | DEEP COLOR | 24-BIT COLOR |
| | AUDIO FORMAT | PCM: 48kHz<br>Dolby Digital, AAC, Dolby Digital+, DTS, DTS-HD<br>Dolby TrueHD: OFF |
| | SPEAKER CONFIGURATION | 2 |
| RS-232C | PARAMETERS | BPS: 9600, LENGTH: 8, PARITY: NONE, STOP: 1 |
| LAN | IP ASSIGNMENT | DHCP/AutoIP |
| | IP ADDRESS | 192.168.1.199 |
| | SUBNET MASK | 255.255.255.0 |
| | GATEWAY ADDRESS | 0.0.0.0 |
| | MAC ADDRESS | --- |
| | AUTO DISCONNECT | 30s |
| | LAN THROUGH | OFF |
| Start-up settings | INPUT CHANNEL | LAST CHANNEL |
| | USB HOST | LAST CHANNEL |
| | BUTTON LOCK | AUTO |
| System | USB-C POWER DELIVERY | 60W |
| | USB-C FUNCTION | FULL |
| | USB HOST LOCK | UNLOCK |
| | FAN SPEED | AUTO |
| | BUTTON LOCK | UNLOCK |

# License

The following table shows the licensed third-party software packages used by the NJR-L.
Transferring, copying, disassembling, decompiling, or reverse-engineering the included software other than open source software that is licensed by GPL, LGPL, or other licenses are prohibited.

| OSS | License | URL |
|---|---|---|
| FreeRTOS | MIT | https://github.com/aws/amazon-freertos/blob/main/LICENSE |
| lwIP | Modified BSD | https://savannah.nongnu.org/projects/lwip/ |

# Specification

## Product specification

| | | NJR-L21UC-T | NJR-L31UC-R |
|---|---|---|---|
| Video/Audio input | USB-C | 1 input | |
| | | DisplayPort Alternate Mode on USB Type-C*1, DisplayPort 1.2, HDCP 1.4/2.2 | |
| | | 640x480@60 to 3840x1600@60 Reduced Blanking<br>480p, 576p to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@24/25/30/50/59.94/60 (4:4:4)<br>Color depth: 24/30/36 bits<br>*For all supported video signals, see the table below. | |
| | | LPCM: Up to 2 channels<br>Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz<br>Reference level: -20 dBFS, Max. input level: 0 dBFS | |
| | | USB 2.0 compatible Host side, RS-232C<br>USB PD (Power Delivery) Up to 60 W (5V 3A, 9V 3A, 15V 3A, 20V 3A) | |
| | | Connector: USB Type-C<br>Maximum distance*2: 6.5 ft. (2 m) | |
| | HDMI | 1input | |
| | | HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2<br>TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps<br>Deep Color/HDR*3 | |
| | | 640x480@60 to 3840x1600@60 Reduced Blanking<br>480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0),<br>4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0)<br>Color depth: 24/30/36 bits<br>*For all supported video signals, see the table below. | |
| | | LPCM: Up to 8 channels<br>Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz<br>Reference level: -20 dBFS, Max. input level: 0 dBFS | |
| | | Connector: HDMI Type A<br>Maximum distances*2: 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60) | |
| | 10GbE | — | 1 input |
| | | SDVoE, AES-12<br>Deep Color/HDR*3 | |
| | | *Supported video signals are the same as those of HDMI. | |
| | | RS-232C/LAN/USB 2.0 compatible | |
| | | Connector: RJ-45<br>Maximum distance*2: 328 ft. (100 m)<br>Cable: CAT6A (STP) | |
| Video/Audio output | HDMI | — | 1 output |
| | | HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2<br>TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps<br>Deep Color/HDR*3 | |
| | | 640x480@60 to 3840x1600@60 Reduced Blanking<br>480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0),<br>4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0)<br>Color depth: 24/30/36 bits<br>*For all supported video signals, see the table below. | |
| | | LPCM: Up to 8 channels<br>Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz<br>Reference level: -20 dBFS, Max. output level: 0 dBFS | |
| | | Connector: HDMI Type A<br>Maximum distances*2: 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60) | |
| | 10GbE*4 | 1 output | — |
| | | SDVoE, AES-128<br>Deep Color/HDR*3 | |
| | | *Supported video signals are the same as those of HDMI. | |
| | | RS-232C/LAN/USB 2.0 compatible | |
| | | Connector: RJ-45<br>Maximum distance*2: 328 ft. (100 m)<br>Cable: CAT6A (STP) | |
| | Analog audio | — | 1 output |
| | | Stereo L/R<br>Output impedance: 100 Ω balanced/50 Ω unbalanced<br>Reference level: -10 dBu, Max. output level: +10 dBu | |
| | | Connector: Captive screw (5-pin) | |

| | | NJR-L21UC-T | NJR-L31UC-R |
|---|---|---|---|
| Other I/F | RS-232C | 1 port, Connector: Captive screw (3-pin) | |
| | LAN | 1 port, 10Base-T/100Base-TX (Auto Negotiation), Auto MDI/MDI-X, Connector: RJ-45 | |
| | USB[*5*6] | Host side 1 port, USB 2.0 compatible<br>Connector: Type-B × 1 | |
| | | Device side 3 ports, USB 2.0 compatible<br>Connector: Type-C × 1, Type-A × 2 | |
| Functions | Audio | — | De-embedding |
| | Control | Unsolicited notification | |
| | Others | Automatic input switching, EDID emulation, Last memory, Anti-snow, Connection reset[*7],<br>Button security lockout, USB host switching (3 ports) | |
| General | Power | DC 24 V 3.5 A | DC 24 V 3.6 A |
| | | AC adapter: AC 100 V - 240 V ±10%, 50 Hz/60 Hz ±3 Hz, DC 24 V 5 A 120.0 W | |
| | Power consumption | 89.6 W | 90.9 W |
| | Dimensions | 12.2 (W) × 1.2 (H) × 6.3 (D)" (310 (W) × 30 (H) × 160 (D) mm) (Excluding connectors and the like) | |
| | Weight | 3.7 lbs. (1.7 kg) | |
| | Temperature | Operating: 32°F to 104°F (0°C to +40°C), Storage: -4°F to +176°F (-20°C to +80°C) | |
| | Humidity | 20% to 90% (Non Condensing) | |

[*1] DisplayPort to USB-C cable or HDMI to USB-C cable are not supported.

[*2] The maximum specified distances may not be achievable with some device combinations, cabling method, or other manufacturer's cable. For the same reasons, video signal disturbances or interruptions may occur, even if signals are within the specified distance (cable length) parameters.
The maximum cable length varies depending on the connected devices. The specifications have been qualified under following conditions:

- USB-C DisplayPort Alternate Mode (4K@60): When USB3.2 Gen1 Type-C cable was used and signal of 3840x2160@60 24 bits was transmitted.
- HDMI (1080p@60) : When IDK cable was used and signal of 1080p@60 24 bits was transmitted.
- HDMI (4K@60) : When IDK's 18 Gbps supported cable was used and signal of 3840x2160@60 24 bits was transmitted.
- 10GbE : When CAT6A (STP) cable is used.

[*3] x.v.Color/3D/ARC/HEC/CEC are not supported.

[*4] For 10GbE extension, use this product in combination with IDK's other SDVoE supported product.

[*5] For connecting USB hubs, up to two tiers can be cascaded.

[*6] USB devices may not perform correctly depending on the environment and connected devices.

[*7] It creates the same condition as if the cable were physically disconnected and reconnected. This feature only works for the NJR's output. Connecting other devices between the NJR's outputs and sink devices, may interfere with the operation of this feature.

# Supported video signals

| Signal | Resolution | Frame Rate [Hz] | Pixel Clock [MHz] | Color Depth [bits] | INPUT | | OUTPUT |
|---|---|---|---|---|---|---|---|
| | | | | | USB-C*1 | HDMI 10GbE | HDMI 10GbE |
| 640x480@60 | 640x480 | 59.94 | 25.18 | 24/30/36 | ○ | ○ | ○ |
| 800x600@60 | 800x600 | 60.32 | 40.00 | 24/30/36 | ○ | ○ | ○ |
| 1024x768@60 | 1024x768 | 60.00 | 65.00 | 24/30/36 | ○ | ○ | ○ |
| 1280x768@60 | 1280x768 | 59.87 | 79.50 | 24/30/36 | ○ | ○ | ○ |
| 1280x800@60 | 1280x800 | 59.81 | 83.50 | 24/30/36 | ○ | ○ | ○ |
| 1280x960@60 | 1280x960 | 60.00 | 108.00 | 24/30/36 | ○ | ○ | ○ |
| 1280x1024@60 | 1280x1024 | 60.02 | 108.00 | 24/30/36 | ○ | ○ | ○ |
| 1360x768@60 | 1360x768 | 60.02 | 85.50 | 24/30/36 | ○ | ○ | ○ |
| 1366x768@60 | 1366x768 | 59.79 | 85.50 | 24/30/36 | – | ○ | ○ |
| 1400x1050@60 | 1400x1050 | 59.98 | 121.75 | 24/30/36 | ○ | ○ | ○ |
| 1440x900@60 | 1440x900 | 59.89 | 106.50 | 24/30/36 | ○ | ○ | ○ |
| 1600x900@60 | 1600x900 | 59.95 | 118.25 | 24/30/36 | ○ | ○ | ○ |
| 1600x1200@60 | 1600x1200 | 60.00 | 162.00 | 24/30/36 | ○ | ○ | ○ |
| 1680x1050@60 | 1680x1050 | 59.95 | 146.25 | 24/30/36 | ○ | ○ | ○ |
| 1920x1080@60 RB | 1920x1080 | 59.93 | 138.50 | 24/30/36 | ○ | ○ | ○ |
| 1920x1200@60 RB | 1920x1200 | 59.95 | 154.00 | 24/30/36 | ○ | ○ | ○ |
| 2048x1152@60 RB | 2048x1152 | 60.00 | 162.00 | 24/30/36 | ○ | ○ | ○ |
| 2560x1080@60 | 2560x1080 | 60.00 | 198.00 | 24/30/36 | ○ | ○ | ○ |
| 2560x1440@60 RB | 2560x1440 | 59.95 | 241.50 | 24/30/36 | ○ | ○ | ○ |
| 2560x1600@60 RB | 2560x1600 | 59.97 | 268.50 | 24/30/36 | ○ | ○ | ○ |
| 3240x1080@60 RB | 3240x1080 | 59.96 | 226.50 | 24/30/36 | ○ | ○ | ○ |
| 3440x1440@60 RB | 3440x1440 | 59.97 | 319.75 | 24/30/36 | ○ | ○ | ○ |
| 3840x1080@60 RB | 3840x1080 | 59.97 | 266.50 | 24/30/36 | ○ | ○ | ○ |
| 3840x1600@60 RB | 3840x1600 | 59.99 | 395.00 | 24/30/36 | ○ | ○ | ○ |
| 480i | 720x480 | 59.94 | 27.00 | 24/30/36 | – | ○ | ○ |
| 480p | 720x480 | 59.94 | 27.00 | 24/30/36 | ○ | ○ | ○ |
| 576i | 720x576 | 50.00 | 27.00 | 24/30/36 | – | ○ | ○ |
| 576p | 720x576 | 50.00 | 27.00 | 24/30/36 | ○ | ○ | ○ |
| 720p@50 | 1280x720 | 50.00 | 74.25 | 24/30/36 | ○ | ○ | ○ |
| 720p@59.94 | 1280x720 | 59.94 | 74.18 | 24/30/36 | ○ | ○ | ○ |
| 720p@60 | 1280x720 | 60.00 | 74.25 | 24/30/36 | ○ | ○ | ○ |
| 1080i@50 | 1920x1080 | 25.00 | 74.25 | 24/30/36 | – | ○ | ○ |
| 1080i@59.94 | 1920x1080 | 29.97 | 74.18 | 24/30/36 | – | ○ | ○ |
| 1080i@60 | 1920x1080 | 30.00 | 74.25 | 24/30/36 | – | ○ | ○ |
| 1080p@50 | 1920x1080 | 50.00 | 148.50 | 24/30/36 | ○ | ○ | ○ |
| 1080p@59.94 | 1920x1080 | 59.94 | 148.35 | 24/30/36 | ○ | ○ | ○ |
| 1080p@60 | 1920x1080 | 60.00 | 148.50 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@23.98 | 3840x2160 | 23.98 | 296.70 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@24 | 3840x2160 | 24.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@25 | 3840x2160 | 25.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@29.97 | 3840x2160 | 29.97 | 296.70 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@30 | 3840x2160 | 30.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 3840x2160@50 | 3840x2160 | 50.00 | 594.00 | 24/30/36*2 | ○ | ○ | ○ |
| 3840x2160@59.94 | 3840x2160 | 59.94 | 593.41 | 24/30/36*2 | ○ | ○ | ○ |
| 3840x2160@60 | 3840x2160 | 60.00 | 594.00 | 24/30/36*2 | ○ | ○ | ○ |
| 4096x2160@23.98 | 4096x2160 | 23.98 | 296.70 | 24/30/36 | ○ | ○ | ○ |
| 4096x2160@24 | 4096x2160 | 24.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 4096x2160@25 | 4096x2160 | 25.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 4096x2160@29.97 | 4096x2160 | 29.97 | 296.70 | 24/30/36 | ○ | ○ | ○ |
| 4096x2160@30 | 4096x2160 | 30.00 | 297.00 | 24/30/36 | ○ | ○ | ○ |
| 4096x2160@50 | 4096x2160 | 50.00 | 594.00 | 24/30/36*2 | ○ | ○ | ○ |
| 4096x2160@59.94 | 4096x2160 | 59.94 | 593.41 | 24/30/36*2 | ○ | ○ | ○ |
| 4096x2160@60 | 4096x2160 | 60.00 | 594.00 | 24/30/36*2 | ○ | ○ | ○ |

RB: Reduced Blanking
*1 YCbCr 4:2:0 is not supported.
*2 For RGB/YCbCr 4:4:4, only 24 bit is supported.

For best results, please confirm that the source device(s) video output can be configured to match the listed formats above. For questions regarding other input video signals, please contact your IDK representative.

# Troubleshooting

This chapter provides recommendations in case difficulties are encountered during NJR-L setup and operation.

In case the NJR-L does not work correctly, please check the following items first.

- Are the NJR-L and all devices connected to an active power source and are they powered on?
- Are signal cables connected correctly?
- Are there any loose or partially mated connections?
- Are the interconnecting cables specified correctly to support adequate bandwidth?
- Are specifications of connected devices matched to each other?
- Are configuration settings for the connected devices correct?
- Is there any nearby equipment that may cause electrical noise/RF interference?

Use the NJR-L built-in status display features to check for input signal presence and format. Also use the status display features to check for the presence of connected sink devices as well as for EDID and HDCP compatibility.

If difficulties persist, please refer to the peripheral device manuals as well, since connected equipment may be the cause of the trouble.

If the trouble persists, please contact us after checking the following items.

- Does the problem occur with all the signal connectors?
- Does the problem occur when you connect the source and display devices directly, bypassing the NJR-L?

HDMI/USB-C Encoder/Decoder

# NJR-L21UC-T/L31UC-R

User Guide

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