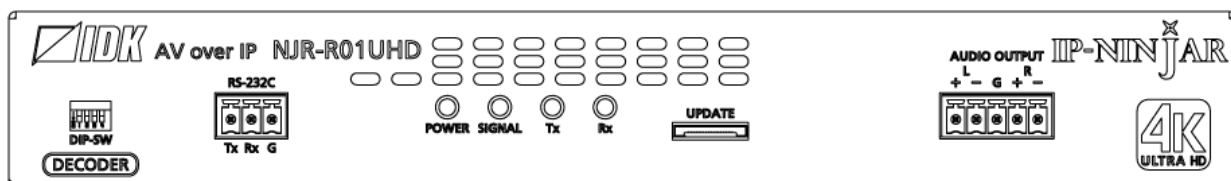
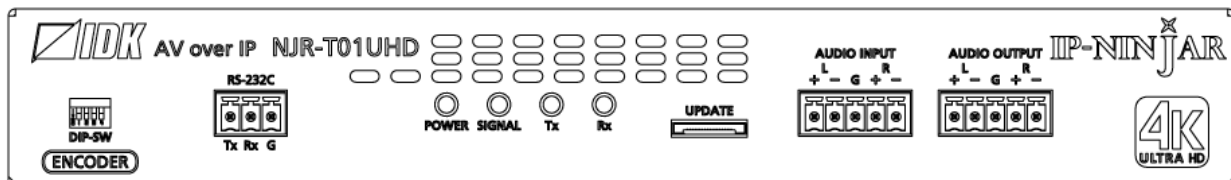


4K@60/HDCP 2.2 AV over IP Encoder/Decoder for HDMI

NJR-T01UHD/NJR-R01UHD

<User Guide>

Ver.6.2.0



- 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.

Trademarks

- HDBaseT™ and the HDBaseT Alliance Logo are trademarks of the HDBaseT Alliance.
- 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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- All other company and product names mentioned in this document are either registered trademarks or trademarks of their respective owners. In this document, the “®” or “™” marks may not be specified.
- ©2018 IDK Corporation, all rights reserved.

Before reading this manual

- All rights reserved.
- Some information contained in this User guide such as exact product appearance, diagrams, menu operations, and so on may differ depending on the product version.
- This User 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 (this document):
Provides explanations and procedures for operations, installation, connections among devices, I/O adjustment and settings.
- Command guide: Please download the command guide from the website above.
Provides explanations and procedures for external control using RS-232C and LAN communications.

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: VIDEO OVER IP for HDMI TRANSMITTER, VIDEO OVER IP for HDMI RECEIVER, AV over IP for HDMI®

Model Name: NJR-T01UHD, NJR-R01UHD, NJR-T01UHD-CAT, NJR-R01UHD-CAT

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.

	<h2>Warning</h2>	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.
	<h2>Caution</h2>	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	<ul style="list-style-type: none"> ● Lifting must be done by two or more personnel. <p>To avoid injury: When lifting the product, bend your knees, keep your back straight and get close to it with two or more persons.</p>
--	--





For installing and connecting products:

 Prohibited	<ul style="list-style-type: none"> ● Do not place the product in unstable place. <p>Install the product in a horizontal and stable place, as this may fall or tip over and cause injury.</p> <ul style="list-style-type: none"> ● Secure the product if installing in the locations with vibration. <p>Vibration may move or tip over the product unexpectedly, resulting in injury.</p>
---	--


Warning

 Instruction	<ul style="list-style-type: none"> ● Installation work must be performed by professionals. 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. ● Insert the power plug into an outlet that is unobstructed. 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. ● Insert the power plug into an appropriate outlet completely. If the plug is partially inserted, arcing 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. ● Unplug the product from an AC power source during installation or service. When connecting peripheral devices to this product, unplug all involved devices from outlets. Ground potential differences may cause fire or other difficulties. ● The product must be electrically earthed/grounded. To reduce the risk of electric shock, ensure the product is connected to a mains socket outlet with a protective earthing connection. ● For PoE/PoH, use category cables meeting IEEE802.3af/at. Otherwise, it may cause problems or a fire.
---	--

For operating products:

 Prohibited	<ul style="list-style-type: none"> ● Keep out any foreign objects. 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. ● For power cable/plug and Category cable, <ul style="list-style-type: none"> • Do not scratch, heat, or modify, including splicing or lengthening them. • Do not pull, place heavy objects on them, or pinch them. • Do not bend, twist, tie or clamp them together forcefully. <p>Misuse of the power cable and plug may cause fire or electric shock. If power cables/plugs become damaged, contact your IDK representative.</p>
 Do not disassemble	<ul style="list-style-type: none"> ● Do not repair, modify or disassemble. 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	<ul style="list-style-type: none"> ● Do not touch the product and connected cables during electric storms. Contact may cause electric shock.
 Instruction	<ul style="list-style-type: none"> ● Clean the power plug regularly. If the plug is covered in dust, it may increase the risk of fire.




If the following problem occurs:

 Unplug	<ul style="list-style-type: none"> ● Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor. ● Unplug immediately if the product is damaged by falling or having been dropped. ● Unplug immediately if water or other objects are directed inside. <p>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.</p>
--	--



Caution

For installing and connecting products:

 <p>Prohibited</p>	<ul style="list-style-type: none"> ● Do not place the product in a location where it will be subjected to high temperatures. 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. ● Do not store or operate the product in dusty, oil smoke filled, or humid place. Placing the product in such environment may increase the risk of fire or electric shock. ● Do not block the vent holes. If ventilation slots are blocked, it may cause the product to overheat, affecting performance and reliability and may increase the risk of fire. ● Do not place or stack heavy items on the product. 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. ● Do not exceed ratings of outlet and wiring devices. Exceeding the rating of an outlet may increase the risk of fire and electric shock.
 <p>No wet hands</p>	<ul style="list-style-type: none"> ● Do not handle power plug with wet hands. Failure to observe this precaution may increase the risk of electric shock.
 <p>Instruction</p>	<ul style="list-style-type: none"> ● Use and store the product within the specified temperature/humidity range. If the product is used outside the specified range of temperature and humidity continuously, it may increase the risk of fire or electric shock. ● Do not place the product at elevations of 1.24 mi. (2,000 m) or higher above sea level. Failure to do so may shorten the life of the internal parts and result in malfunctions. ● When mounting the product into the rack, provide sufficient cooling space. 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. ● Never insert screws without the rubber feet into the threaded holes on the bottom of the product. 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. Reinstall the originally supplied rubber feet using the originally supplied screws only.

For operating products:





 <p>Hot surfaces Caution</p>	<p>For products with the hot surfaces caution label only:</p> <ul style="list-style-type: none"> ● Do not touch the product's hot surface. <p>If the product is installed without enough space, it may cause malfunction of other products. If you touch product's hot surface, it may cause burns.</p>
 <p>Prohibited</p>	<ul style="list-style-type: none"> ● Use only the supplied power cable and AC adapter. ● Do not use the supplied power cable and AC adapter with other products. <p>If non-compliant adapter or power cables are used, it may increase the risk of fire or electric shock.</p>
 <p>Unplug</p>	<ul style="list-style-type: none"> ● If the product won't be used for an extended period of time, unplug it. <p>Failure to observe this precaution may increase the risk of fire.</p> <ul style="list-style-type: none"> ● Unplug the product before cleaning. <p>To prevent electric shock.</p>
 <p>Instruction</p>	<ul style="list-style-type: none"> ● Do not prevent heat release. <p>If cooling fan stops, power off the product and contact IDK. Failure to do so may raise internal temperature and increase the risk of malfunction, fire, or electric shock.</p> <ul style="list-style-type: none"> ● Keep vents clear of dust. <p>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. 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.</p>

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1 About this Guide

This user guide explains how to use the NJR-01UHD and about external control through the IP-NINJAR Configurator and NJR-CTB.

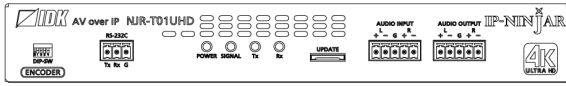
If other IP-NINJAR series products are connected, refer to each User Guide.

■ Models

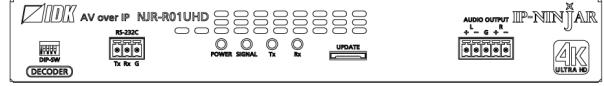
Model		Type	Model number
Fiber optic	No SFP+ optical transceiver	Encoder	NJR-T01UHD
		Decoder	NJR-R01UHD
	Multimode fiber	Encoder	NJR-T01UHD-MM
		Decoder	NJR-R01UHD-MM
	Singlemode fiber	Encoder	NJR-T01UHD-SM
		Decoder	NJR-R01UHD-SM
Cat6A (No SFP+ transceiver)		Encoder	NJR-T01UHD-CAT
		Decoder	NJR-R01UHD-CAT

2 Included Items

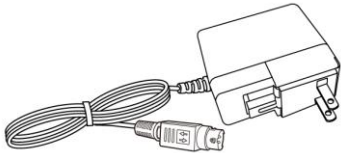
Ensure all items below are included in the package.
If any items are missing or damaged, please contact IDK.



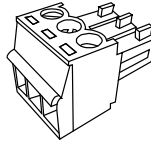
NJR-T01UHD



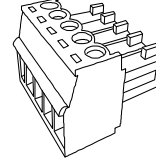
NJR-R01UHD



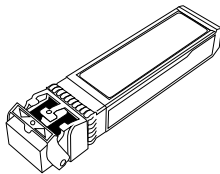
One (1) AC adapter (4 ft. (1.2 m))



One (1) 3-pin captive screw connectors



5-pin captive screw connectors:
Two (2) for NJR-T01UHD
One (1) for NJR-R01UHD

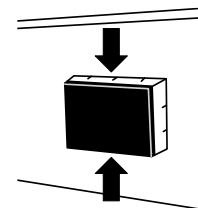


One (1) SFP+ optical transceiver
(MM/SM model only)

[Fig. 2.1] Included items

Tip:

Dust caps are attached to SFP+ optical transceiver and the connector. These caps will be used for shipping or repairing the NJR unit.



3 Precautions for shipping

The MM/SM model (NJR-01UHD-MM/SM) has an SFP+ optical transceiver that is vulnerable to damage caused by mishandling during shipment if it is improperly packaged.

If, for any reason, you need to ship the device, remove the transceiver from the device and plug the dust cap into the transceiver and the connector. Put the removed transceiver in an electrostatic bag with enough cushion and keep the bag and device together in the same box.

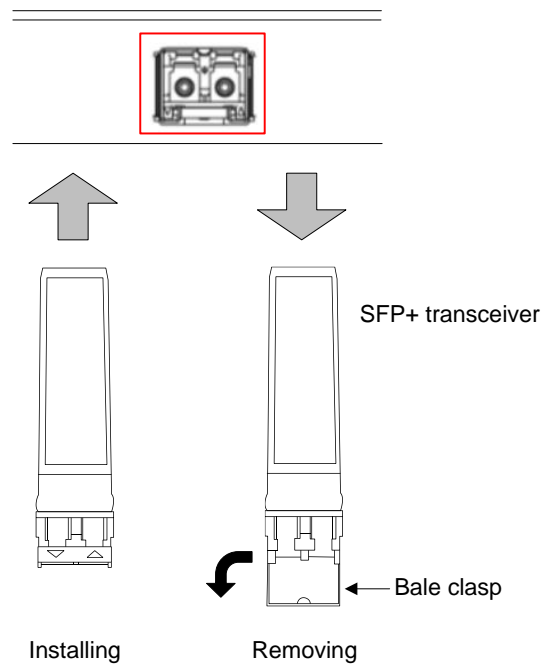
To install a transceiver:

Make sure the bale clasp is closed.

Line up the transceiver with the port and slide it into the port until you hear a click.

Removing a transceiver:

Open the bale clasp and pull the transceiver out of the port.



[Fig. 3.1] Removing and installing SFP+ optical transceiver

Note:

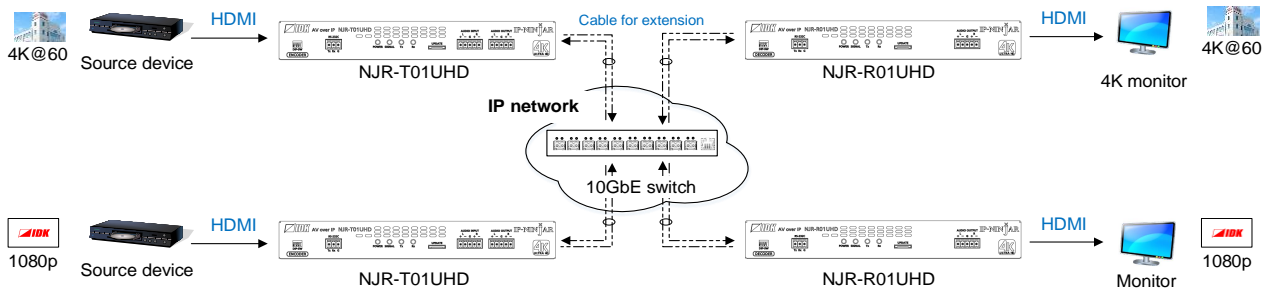
When installing the SFP+ transceiver, push it firmly and ensure that it is completely seated and the bale clasp is locked. Do not open the bale clasp except for removing the transceiver.

4 Product Outline

The NJR-01UHD is an AV over IP solution for high definition signal extension, switching and manipulation. This 4K solution leverages 10 Gb Ethernet switches and enables signal management of 4K@60 (4:4:4) signals with zero latency.

4K@60 (4:4:4) signal can be transmitted over fiber optic cables or category cables. Additionally, extend and switch your standard 1GB LAN connection, RS-232, and analog audio output.

Combined with the control box, the NJR-CTB, the NJR-01UHD is fully configurable and controllable over the LAN with a web browser.



[Fig. 4.1] HDMI signals transmission

Note:

Use the NJR-01UHD with a combination of NJR-T01UHD and NJR-R01UHD or other IP-NINJAR products. It cannot be connected to OPF or FDX series products.

5 Features

■ Video

- Up to 4K@60 (4:4:4)
- HDCP 1.4/2.2
- HDR
- Local monitor output
- Transmission distances
 - Fiber optic cable (NJR-T01UHD-MM/SM, NJR-R01UHD-MM/SM)
 - Multimode fiber (OM3): Up to 984 ft. (300 m)
 - Singlemode fiber (OS1) : Up to 6.21 mi. (10 km)
 - Singlemode fiber (OS1) : Up to 24.85 mi. (40 km, optional)
 - Category cable (NJR-T01UHD-CAT, NJR-R01UHD-CAT)
 - Cat6A : Up to 328 ft. (100 m)

■ Audio

- De-embedding

■ Communication

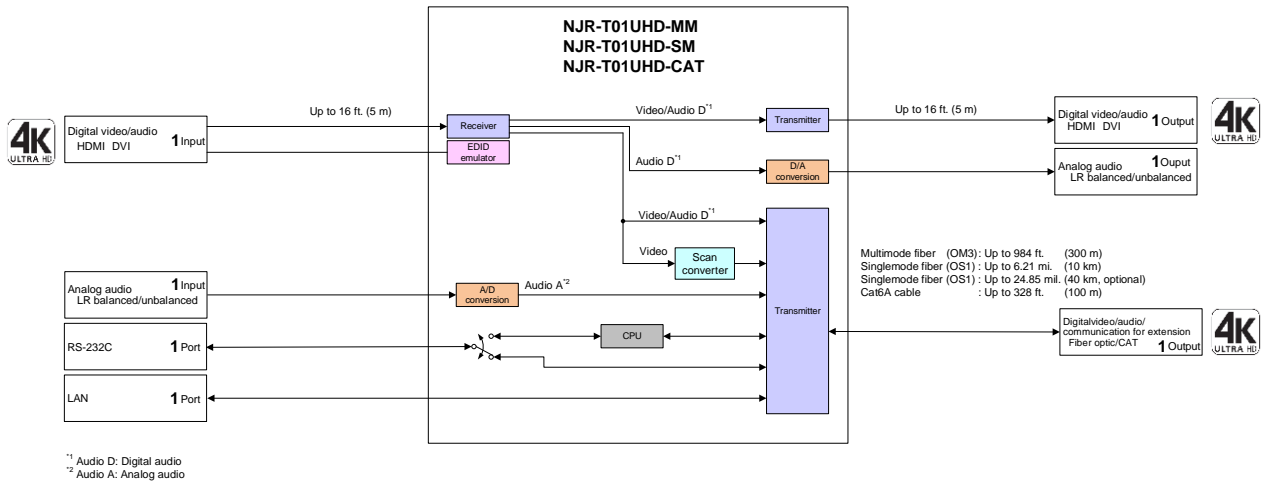
- Bidirectional RS-232C
- LAN

■ Network

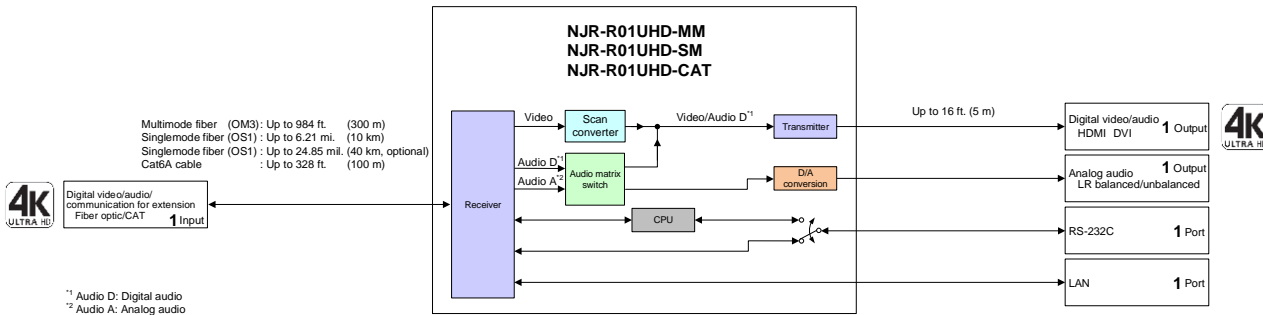
- 10 Gb switch allows: extension, distribution, matrix switching, videowall, and multiview
- Controllable through network using NJR-CTB
- IP-NINJAR encoders and decoders can easily be added and replaced

■ Others

- EDID emulation
- DDC buffer
- Connection Reset
- AC adapter with locking mechanism



[Fig. 5.1] NJR-T01UHD Connection Diagram

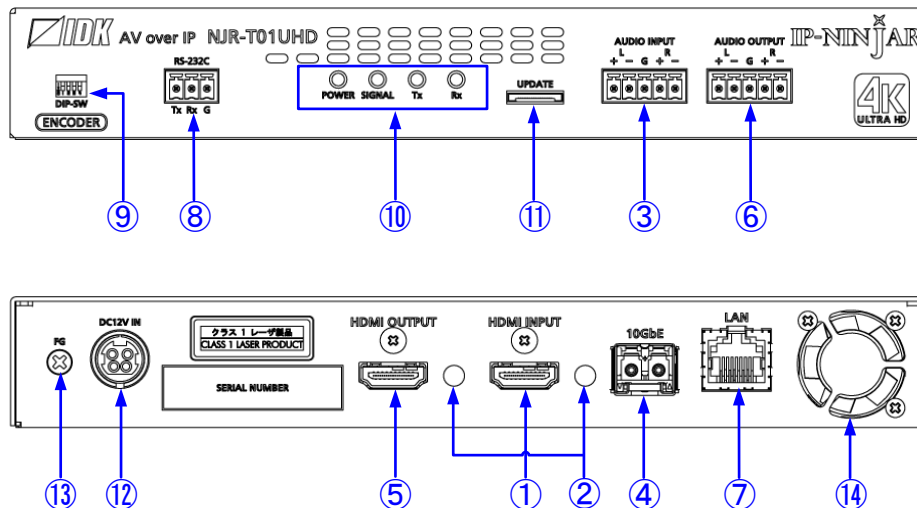


[Fig. 5.2] NJR-R01UHD Connection Diagram

6 Panels

6.1 NJR-T01UHD (Encoder)

6.1.1 NJR-T01UHD (Fiber optic model)



[Fig. 6.1] NJR-T01UHD drawing

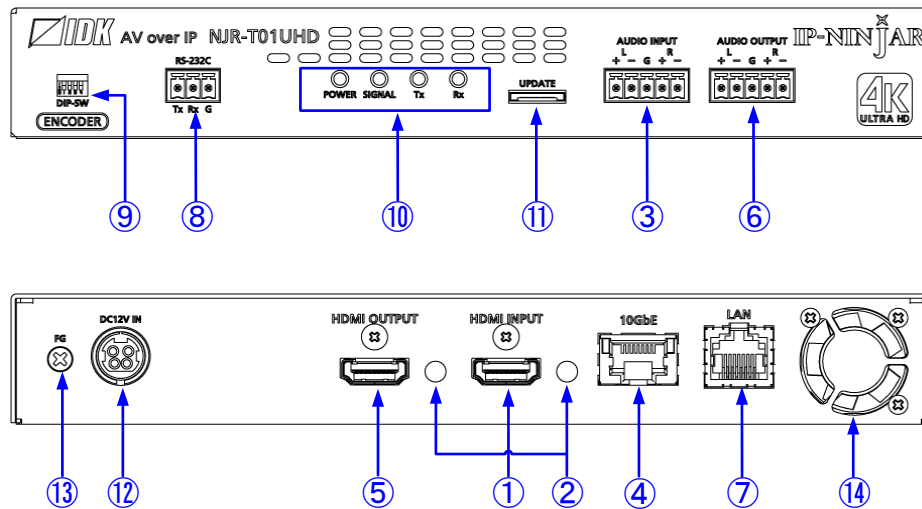
[Table 6.1] NJR-T01UHD features

#	Feature	Description
①	HDMI input connector	Input connectors for HDMI signal to connect to a source devices, such as Blu-ray players
②	HDMI cable fixing hole (Not used)	Not used.
③	Audio input connectors	Input connector for analog audio signal
④	I/O connector for extension	I/O connector for digital signal extension A fiber optic cable is used; connects to an NJR decoder or 10 GbE switch
⑤	HDMI output connector	Outputs HDMI signal that is input from HDMI input connector Connecting a sink device, such as a LCD monitor, enables monitoring input signals
⑥	Audio output connectors	Converts digital audio signals input from HDMI input connector to analog audio signals and outputs these signals Connects to amplifiers, speakers, and mixers
⑦	LAN connector	For LAN signals
⑧	RS-232C connector	For RS-232C signals
⑨	DIP switch	Switches internal connections of RS-232C signals 【See: 8.3 Setting DIP switch】

[Table 6.2] NJR-T01UHD features (Cont'd)

#	Feature	Description
⑩	LEDs (green)	POWER : Illuminates when power is supplied from the AC adapter SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmit correctly TX : Blinks when a valid code is being sent to NJR-R01UHD, other IP-NINJAR decoder, or 10 GbE switch RX : Blinks when a valid code is being received from NJR-R01UHD, other IP-NINJAR decoder, or 10 GbE switch
⑪	MAINTENANCE port	Not used Keep this connector free
⑫	Power supply connector	For the provided AC adapter
⑬	Frame ground	Use for bonding chassis to local ground. M3 screws are used
⑭	Cooling fan	Releases heat from the unit

6.1.2 NJR-T01UHD (Cat6A model)



[Fig. 6.2] NJR-T01UHD drawing

[Table 6.3] NJR-T01UHD features

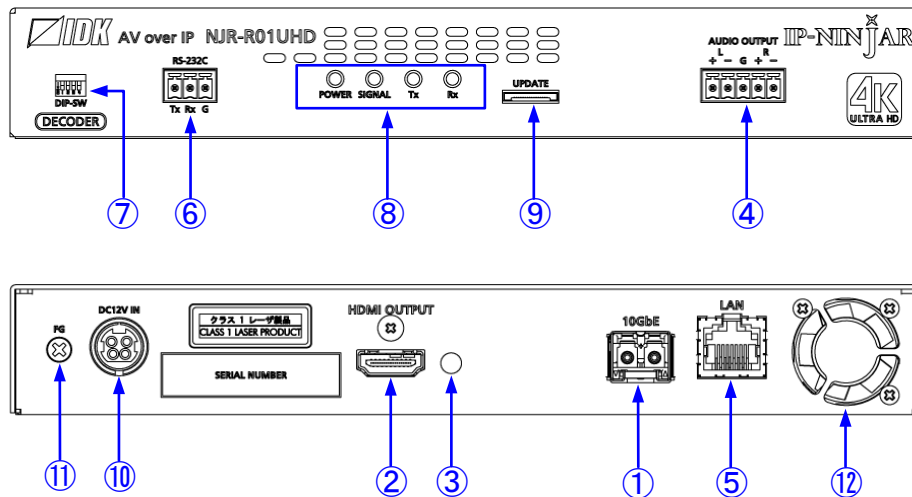
#	Feature	Description
①	HDMI input connector	Input connectors for HDMI signal to connect to a source devices, such as Blu-ray players
②	HDMI cable fixing hole (Not used)	Not used.
③	Audio input connectors	Input connector for analog audio signal
④	I/O connector for extension	I/O connector for digital signal extension A category cable is used; connects to an NJR decoder or 10 GbE switch
⑤	HDMI output connector	Outputs HDMI signal that is input from HDMI input connector Connecting a sink device, such as a LCD monitor, enables monitoring input signals
⑥	Audio output connectors	Converts digital audio signals input from HDMI input connector to analog audio signals and outputs these signals Connects to amplifiers, speakers, and mixers
⑦	LAN connector	For LAN signals
⑧	RS-232C connector	For RS-232C signals
⑨	DIP switch	Switches internal connections of RS-232C signals 【See: 8.3 Setting DIP switch】

[Table 6.4] NJR-T01UHD features (Cont'd)

#	Feature	Description
⑩	LEDs (green)	POWER : Illuminates when power is supplied from the AC adapter SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmit correctly TX : Blinks when a valid code is being sent to NJR-R01UHD, other IP-NINJAR decoder, or 10 GbE switch RX : Blinks when a valid code is being received from NJR-R01UHD, other IP-NINJAR decoder, or 10 GbE switch
⑪	MAINTENANCE port	Not used Keep this connector free
⑫	Power supply connector	For the provided AC adapter
⑬	Frame ground	Use for bonding chassis to local ground. M3 screws are used
⑭	Cooling fan	Releases heat from the unit

6.2 NJR-R01UHD (Decoder)

6.2.1 NJR-R01UHD (Fiber optic model)



[Fig. 6.3] NJR-R01UHD drawing

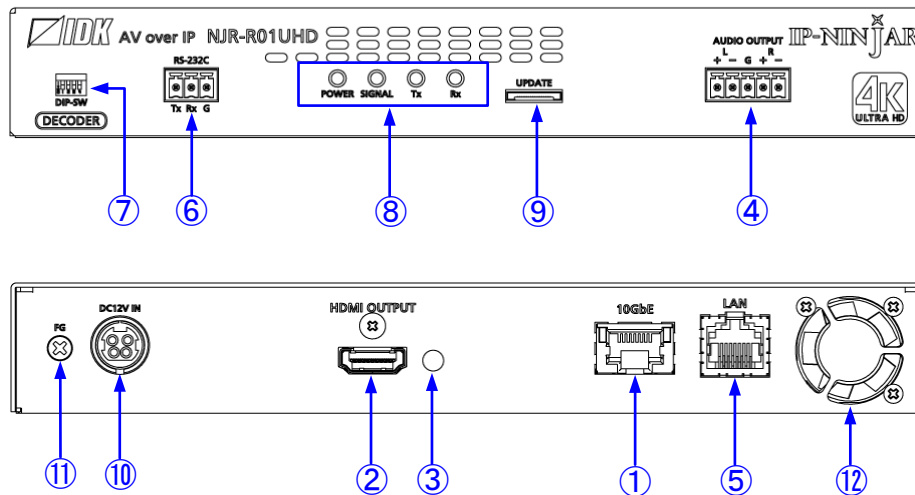
[Table 6.5] NJR-R01UHD features

#	Feature	Description
①	I/O connector for extension	I/O connector for digital signal extension A fiber optic cable is used; connects to an NJR encoder or 10 GbE switch
②	HDMI output connector	Output connector for HDMI signals Connects to a sink device, such as a LCD monitor
③	HDMI cable fixing hole (Not used)	Not used.
④	Audio output connectors	Outputs digital or analog audio signals received from NJR-T01UHD as analog audio signals Connects to amplifiers, speakers, and mixers The output audio signals are converted by using NJR-CTB or IP-NINJAR Configurator 【See: 10.3.2 Selecting output audio】
⑤	LAN connector	For LAN signals
⑥	RS-232C connector	For RS-232C signals
⑦	DIP switch	Switches internal connections of RS-232C signals 【See: 8.3 Setting DIP switch】

[Table 6.6] NJR-R01UHD features (Cont'd)

#	Feature	Description
⑧	LED (green)	POWER : Illuminates when power is supplied from the AC adapter. SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmit correctly TX : Blinks when a valid code is being sent to NJR-T01UHD, other IP-NINJAR encoder, or 10 GbE switch RX : Blinks when a valid code is being received from NJR-T01UHD, other IP-NINJAR encoder, or 10 GbE switch
⑨	Maintenance port	Not used Keep this connector free
⑩	Power supply connector	For the provided AC adapter
⑪	Frame ground	Use for bonding chassis to local ground. M3 screws are used
⑫	Cooling fan	Releases heat from the unit

6.2.2 NJR-R01UHD (Cat6A model)



[Fig. 6.4] NJR-R01UHD drawing

[Table 6.7] NJR-R01UHD features

#	Feature	Description
①	I/O connector for extension	I/O connector for digital signal extension A category cable is used; connects to an NJR encoder or 10 GbE switch
②	HDMI output connector	Output connector for HDMI signals Connects to a sink device, such as a LCD monitor
③	HDMI cable fixing hole (Not used)	Not used.
④	Audio output connectors	Outputs digital or analog audio signals received from NJR-T01UHD as analog audio signals Connects to amplifiers, speakers, and mixers The output audio signals are converted by using NJR-CTB or IP-NINJAR Configurator 【See: 10.3.2 Selecting output audio】
⑤	LAN connector	For LAN signals
⑥	RS-232C connector	For RS-232C signals
⑦	DIP switch	Switches internal connections of RS-232C signals 【See: 8.3 Setting DIP switch】

[Table 6.8] NJR-R01UHD features (Cont'd)

#	Feature	Description
⑧	LED (green)	POWER : Illuminates when power is supplied from the AC adapter. SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmit correctly TX : Blinks when a valid code is being sent to NJR-T01UHD, other IP-NINJAR encoder, or 10 GbE switch RX : Blinks when a valid code is being received from NJR-T01UHD, other IP-NINJAR encoder, or 10 GbE switch
⑨	Maintenance port	Not used Keep this connector free
⑩	Power supply connector	For the provided AC adapter
⑪	Frame ground	Use for bonding chassis to local ground. M3 screws are used
⑫	Cooling fan	Releases heat from the unit

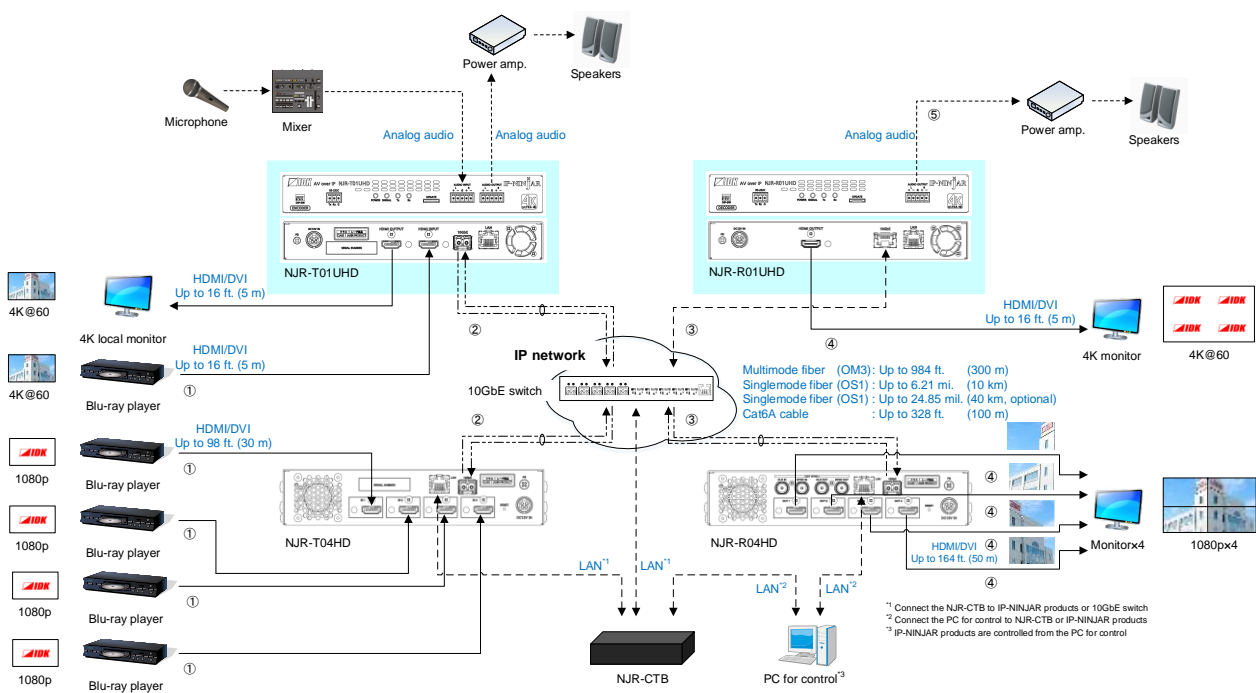
7 System configuration example

This chapter cites two system configuration examples.

7.1 Used as Network Extender

Using the NJR-01UHD and other IP-NINJAR encoders/decoders with a 10 GbE switch enables extending, distributing, matrix switching, videowall, and multiview.

- ① Video and audio signals are input from the Blu-ray player to the HDMI input connector of NJR-T01UHD/NJR-T04HD
- ② NJR-T01UHD/NJR-T04HD sends these signals to the 10 Gbe switch over a fiber optic cable
- ③ 10 GbE switch sends video and audio signals to the/several NJR-T01UHD/NJR-T04HD according to the setting of NJR-CTB
- ④ NJR-T01UHD/NJR-T04HD outputs received video and audio signals from the HDMI output connector to the monitor
- ⑤ Digital or analog audio of NJR-T01UHD/NJR-T04HD can be selected and output from the analog audio output connector of NJR-R01UHD



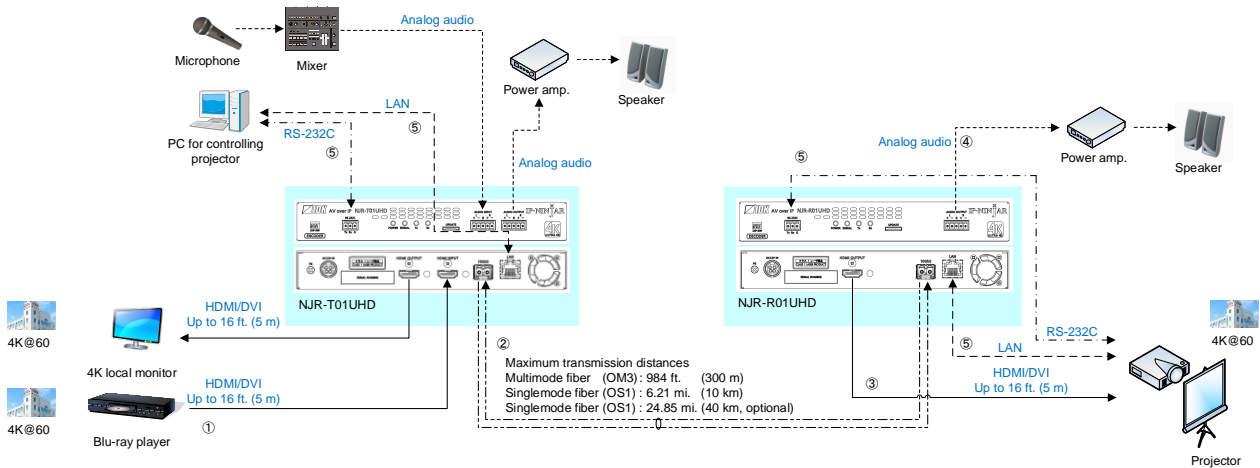
[Fig. 7.1] Used as Network extender

7.2 Used as Extender

The NJR-01UHD and other IP-NINJAR encoders/decoders are connected as Point To Point.

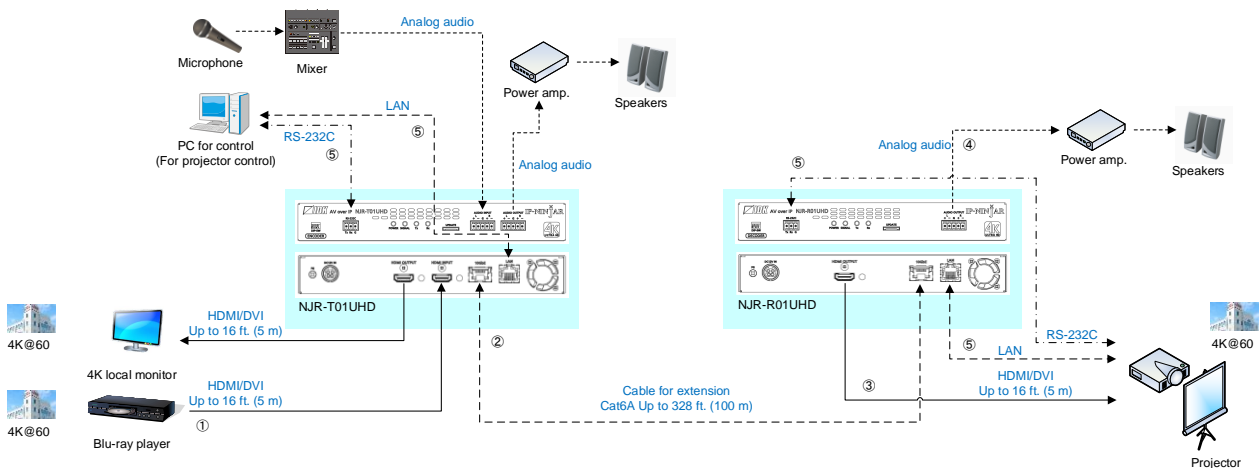
- ① Video and audio signals are input from the Blu-ray player to the HDMI input connector of NJR-T01UHD/NJR-T04HD
- ② NJR-T01UHD/NJR-T04HD sends these signals to NJR-R01UHD/NJR-R04HD over a fiber optic cable or category cable
- ③ NJR-R01UHD/NJR-R04HD outputs received video and audio signals from the HDMI output connector to the monitor
- ④ Digital or analog audio of NJR-T01UHD/NJR-T04HD can be selected and output from the analog audio output connector of NJR-R01UHD
- ⑤ NJR-T01UHD/NJR-T04HD and NJR-R01UHD/NJR-R04HD enables RS-232C communication, LAN communication, and peripheral device control (such as projectors) by using a control device (such as PCs)

Using NJR-T01UHD and NJR-R01UHD



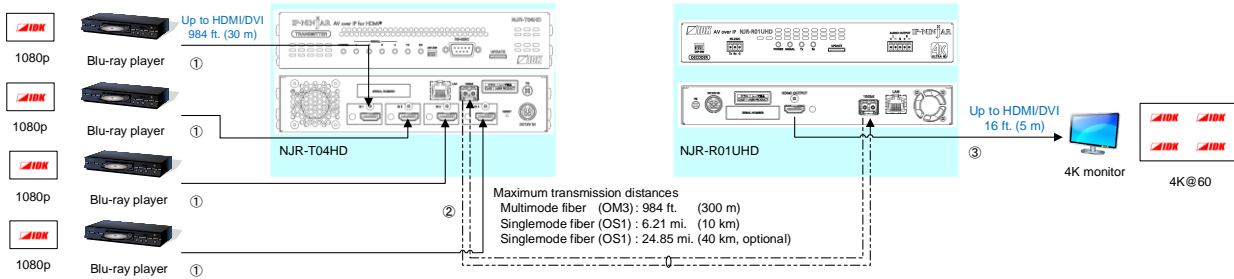
[Fig. 7.2] NJR-T01UHD and NJR-R01UHD (MM/SM)

Using NJR-T01HD-CAT and NJR-R01UHD-CAT



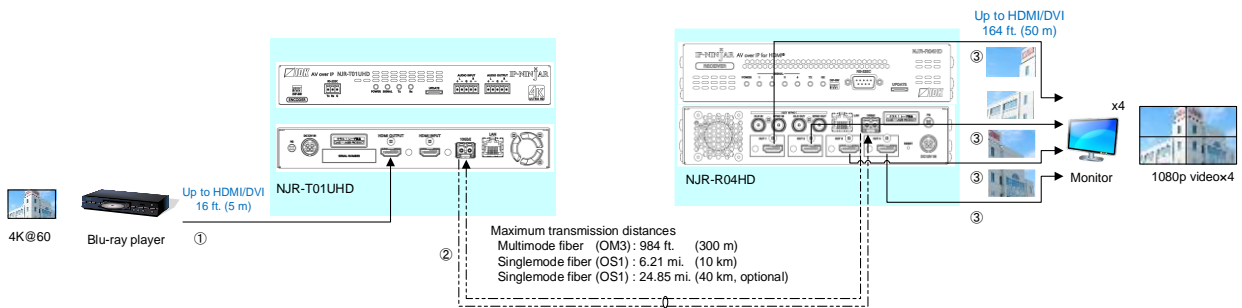
[Fig. 7.3] NJR-T01UHD and NJR-R01UHD (CAT)

Multiview using NJR-T04HD and NJR-R01UHD



[Fig. 7.4] NJR-T04HD and NJR-R01UHD: Multiview

Videowall using NJR-T01UHD and NJR-R04HD



[Fig. 7.5] NJR-T01UHD and NJR-R04HD: Videowall

8 Precautions and preparations

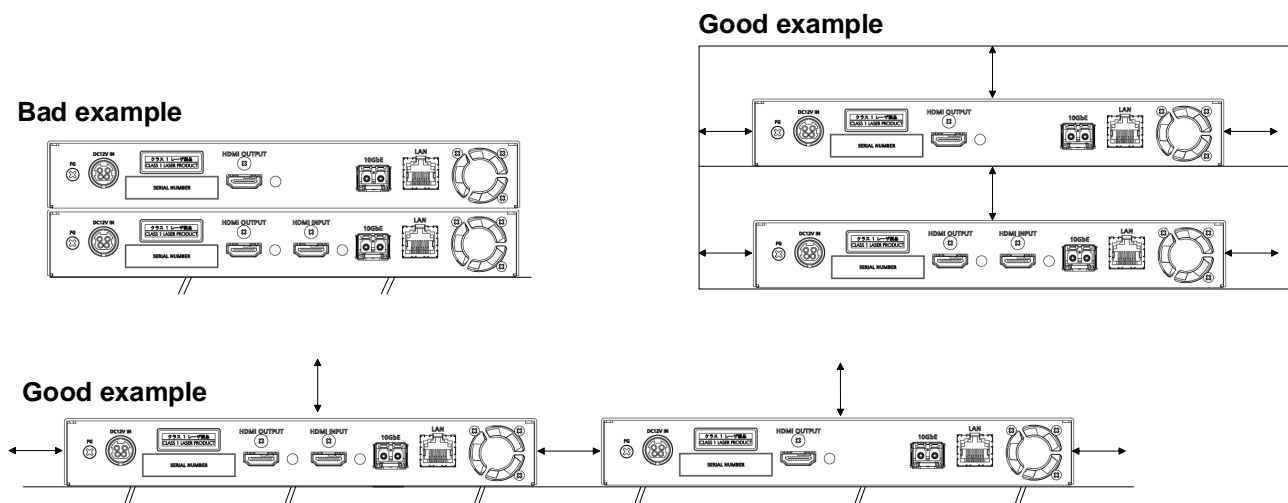
Before using NJR-01UHD, follow the precautions and instructions below.

8.1 Installation

When installing the NJR-01UHD, please observe the following precautions.

- Do not stack or place the NJR-01UHD directly on top of another NJR-01UHD
- Do not block vent holes. To provide adequate ventilation, maintain sufficient clearances around the NJR-01UHD (1.2 in. (30 mm) or more)
- When the NJR-01UHD needs to be mounted in an enclosed space or an EIA rack without using IDK's rack mounting hardware (RM-SF, RM-SH), ensure that a sufficient ventilation/cooling system is provided to keep the ambient temperature at 104°F (40°C) or lower. If inadequately vented, the product's service life, operation, and reliability may be affected.

Maintain adequate clearances (1.2 in. (30 mm) or more) as shown below

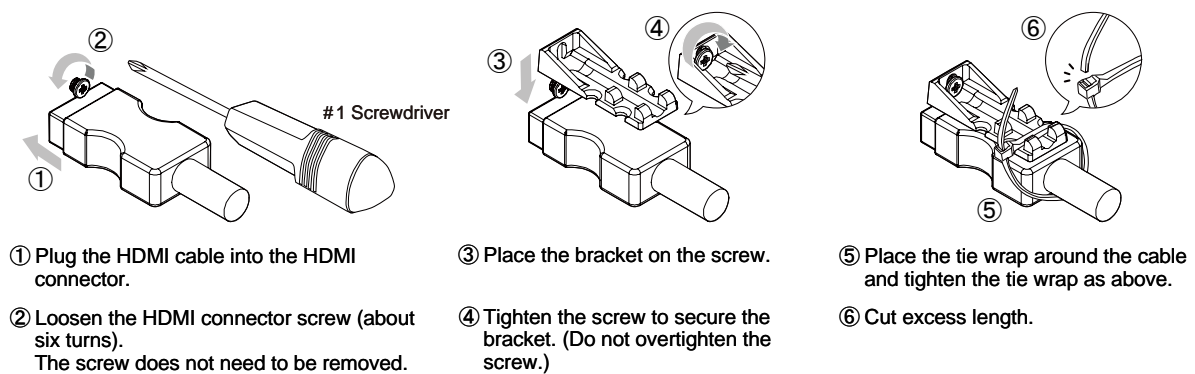


[Fig. 8.1] Necessary clearances

8.2 Cabling

When connecting the NJR to external devices, please observe the following precautions.

- Read manuals for the external devices.
- Before connecting cables to the NJR or an external device, dissipate static electricity by touching grounded metal such as equipment racks before handling signal cables. Failure to observe this precaution may result in ESD (electrostatic discharge) damage.
- Power all units off before connecting cables.
- Be sure to fully seat all plugs and connections and dress cables to reduce stress on connectors.
- Use the cable lacing bracket to secure a standard HDMI cable as shown.



[Fig. 8.2] Cable Lacing Bracket (FB-01 For IDK products only)

8.2.1 HDMI cable

When the video is 4K format, the maximum TMDS data rate (transmission speed) is 18 Gbps. If a high-speed HDMI cable is used, the maximum TMDS data rate of 10.2 Gbps can be transferred, and the video cannot be displayed stably.

Please select an 18 Gbps high-speed cable depending on the 4K format. The maximum transmission distance depends on the cable type, source and sink devices. You are recommended to use high quality cables.

[Table 8.1] 18 Gbps high-speed cable for 4K format

	TMDS data rate (Gbps)								
	RGB, YCbCr 4:4:4			YCbCr 4:2:2			YCbCr 4:2:0		
4K format	24 bit	30 bit	36 bit	24 bit	30 bit	36 bit	24 bit	30 bit	36 bit
3840x2160 (24/25/30)	10.2 Gbps	18 Gbps	18 Gbps	10.2 Gbps	10.2 Gbps	10.2 Gbps	—	—	—
4096x2160 (24/25/30)	10.2 Gbps	18 Gbps	18 Gbps	10.2 Gbps	10.2 Gbps	10.2 Gbps	—	—	—
3840x2160 (50/59.94/60)	18 Gbps	—	—	18 Gbps	18 Gbps	18 Gbps	10.2 Gbps	18 Gbps	18 Gbps
4096x2160 (50/59.94/60)	18 Gbps	—	—	18 Gbps	18 Gbps	18 Gbps	10.2 Gbps	18 Gbps	18 Gbps

18 Gbps: 18 Gbps high-speed cable, 10.2 Gbps: 10.2 Gbps transmission cable, —:N/A

Note:

If a cable joint (JJ) or the like is used to extend the distance, the video may not be displayed correctly.

8.2.2 Fiber optic cable for extension

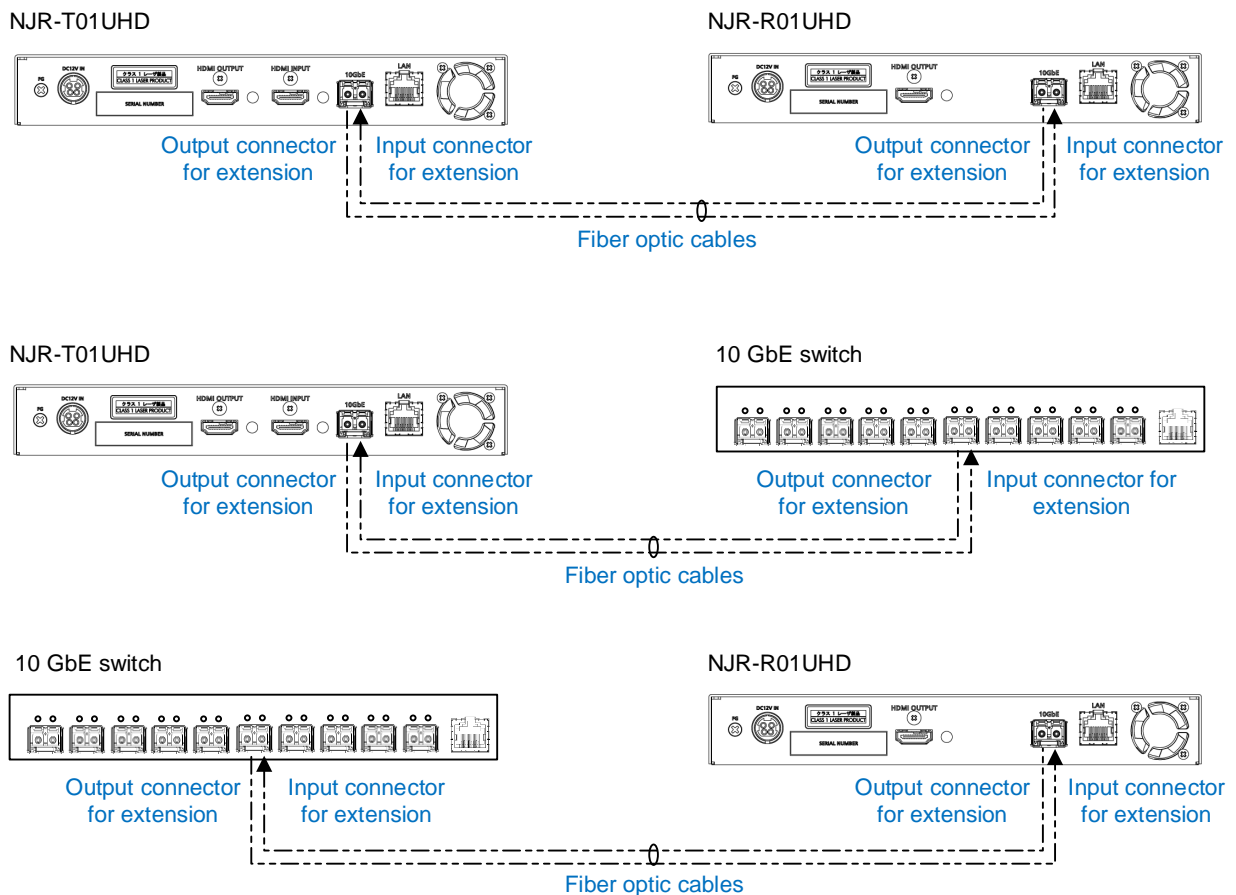
The NJR-01UHD can reach their full potential by selecting appropriate fiber optic cables for long-haul extension and installing the cable correctly.

Connect the output connector of this device to the input connector of the target device

Connect the input connector of this device to the output connector of the target device

NJR-T01UHD : The target device should be NJR-R01UHD and other IP-NINJAR decoders or 10 GbE switch

NJR-R01UHD : The target device should be NJR-T01UHD and other IP-NINJAR encoders or 10 GbE switch



[Fig. 8.3] Connecting fiber optic cable

Note:

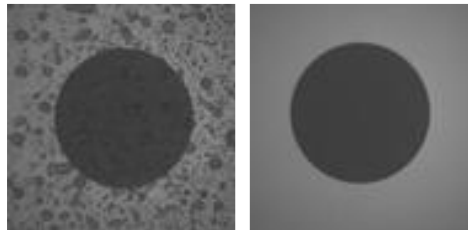
For the connectors of 10 GbE switch, refer to the switch's manual

- To polish connectors:
 - For SFP+ optical transceiver for multimode : PC polishing is recommended.
 - For SFP+ optical transceiver for singlemode : UPC polishing is recommended.
- Note:** APC polishing is not supported.
- Transmission distance varies depending on attenuation of the fiber, connector and other contact portions
- Make sure not to exceed the allowable tension and bend radius of fiber optic cable or the performance of the product and the life of the fiber optic cable may be affected
- Plug the dust caps to both faces of the fiber optic cable when connecting the fiber optic cable and when not in use
- Before inserting a fiber optic cable, make sure there is no damage or dirt on the end-face of the optical connector. Clean up it or NJR-01UHD may not operate correctly



Left : without dust cap
Right : with dust cap

[Fig. 8.4] Dust caps



Before cleaning After cleaning

[Fig. 8.5] Cleaning connector

8.2.3 SFP+ optical transceiver

The fiber type and transmission distance vary depending on the SFP+ optical transceiver.

[Table 8.2] Specification of standard SFP+ optical transceiver

Item	10G-MM-SFP	10G-SM-SFP	10G-SM40-SFP (Optional)
Cable	Multimode fiber	Singlemode fiber	Singlemode fiber
Wave length	850 nm (VCSEL laser*)	1310 nm (DFB laser*)	1550 nm (EML laser*)
Max. transmission distance	OM3: 984ft. (300 m)	OS1: 6.21 mi. (10 km)	OS1: 24.85 mi. (40 km)
Receiver sensitivity (OMA) @10.3Gbps	-11.1 dBm or higher	-12.6 dBm or higher	-16 dBm or higher
Average Launch Power	-5 dBm to -1 dBm	-8.2 dBm to +0.5 dBm	-1 dBm to +2 dBm
Max. input power	+0.5 dBm	+0.5 dBm	-1 dBm
Connector	LC (Duplex)		

* The lasers in these models meet class1.

- When no fiber optic cable is connected, plug dust caps.
- Do not use the SFP+ optical transceiver for other products. Also, do not connect fiber optic cables that is connected to other products to the SFP+ optical transceiver or the SFP+ optical transceiver may be damaged.
- If you need to replace the SFP+ optical transceiver, please contact us.

8.2.4 Category cable for extension

To ensure the best performance of category cables, select a correct category cable and connect it correctly.

- CAT6A is recommended for optimal performance.
- If using an STP cable, connect the FG connector to a ground source. Otherwise, the shielding feature does not work correctly. When using a UTP cable, we still recommend using the ground connector.
- The shielded STP cables are less affected by interference or external noise than UTP cables.
- Pin assignments: T568A or T568B straight
- Do not pull the cable using excessive force. The allowable tension of the category cable is 110 N.
- Do not bend the cable at a sharp angle. Keep the bend radius four times of the cable diameter or larger.
- Do not clamp or tie the cable tightly; leave some space allowing the cable to move slightly.
- If you use multiple category cables, we recommended keeping a distance between the cables or not to place the cables closely in parallel.
- Keep the category cable running as straight as possible. Looping or coiling the cable, causes it to be more easily affected by noise; especially when using longer cable run lengths.
- Do not place the cable in an electrically noisy environment, since high-speed noise impulses may couple into the category cable. Use of a high-output radio transmission device near the NJR or remote receivers may interfere with or interrupt video and or audio signals.
- If the total transmission distance from the encoder to decoder is 328 ft. (100 m) or less, up to two cable interconnection points can be used. Products supporting Cat6A (10GBase-T) are recommended.

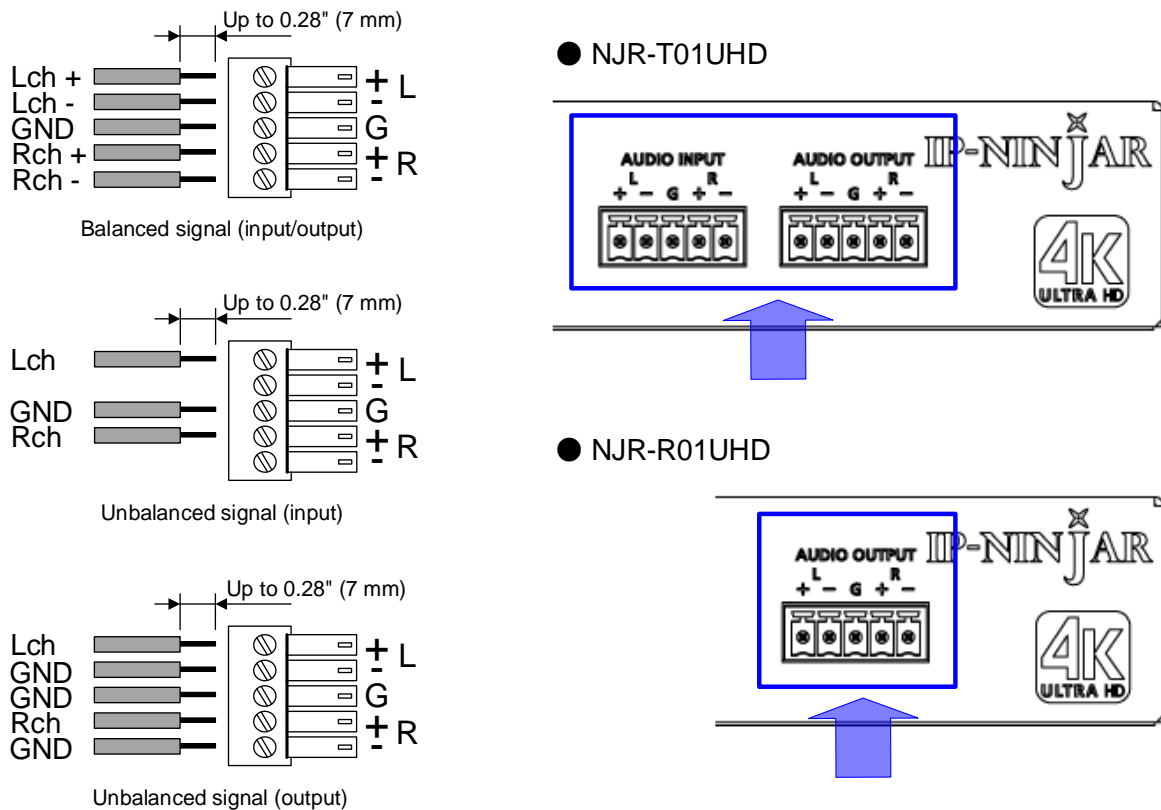
Note:

If there is a problem in the transmission path, video or audio may be interrupted. Check the precautions above. If the problem still cannot be solved, shortening the category cable may remedy the problem.

8.2.5 Connecting audio cable

In order to input or output audio signals, connect the audio cables to the provided 5-pin terminal block and connect to NJR-T01UHD or NJR-R01UHD. NJR-T01UHD/NJR-R01UHD support balanced and unbalanced signals.

AWG 28 to AWG16 is recommended for the cable. The maximum length of stripped ends is 0.28 in. (7 mm).



[Fig. 8.6] Connecting audio cable

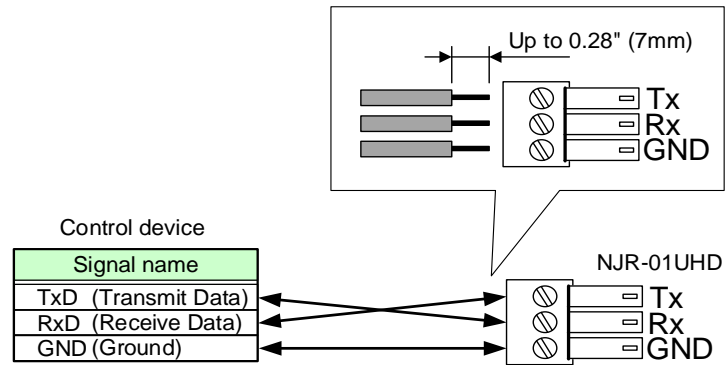
8.2.6 Connecting RS-232C cable

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-01UHD.

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.



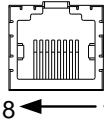
[Fig. 8.7] Connecting RS-232C cable to 3-pin captive screw connector

8.2.7 Connecting LAN cable

Pin assignment of the LAN port is as follows.

Auto MDI/MDI-X that detecting and switching straight cable/cross cable is supported.

8-pin RJ-45
Modular connector



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

*Not used

[Fig. 8.8] LAN connector

Make sure not to form a loop by NJR-01UHD when connecting a LAN cable to NJR-01UHD.

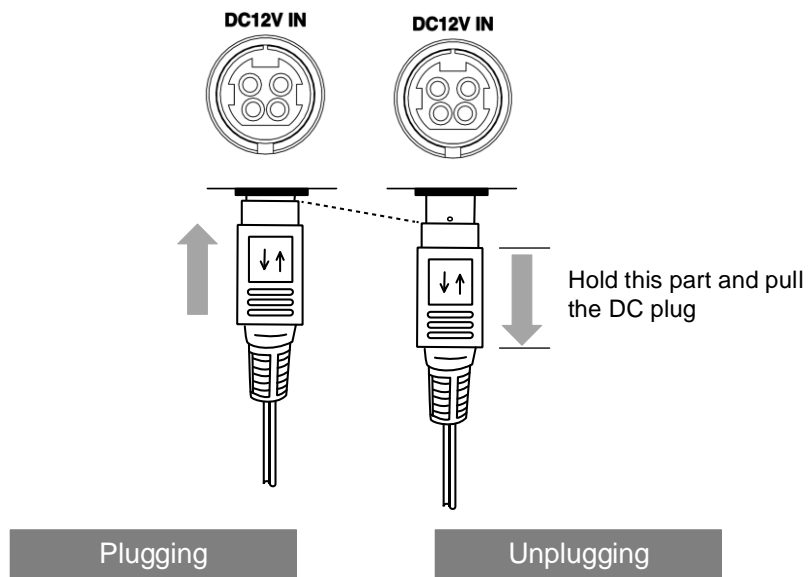
NJR-01UHD constantly send broadcast packet in order to notify status.

If adding the LAN cable to the existing network, avoid problems, such as broadcast storm caused by broadcast traffic.

Broadcast storm: This problem occurs when a network system is overwhelmed by continuous broadcast traffic or the like.

■ **Plugging and unplugging DC plug**

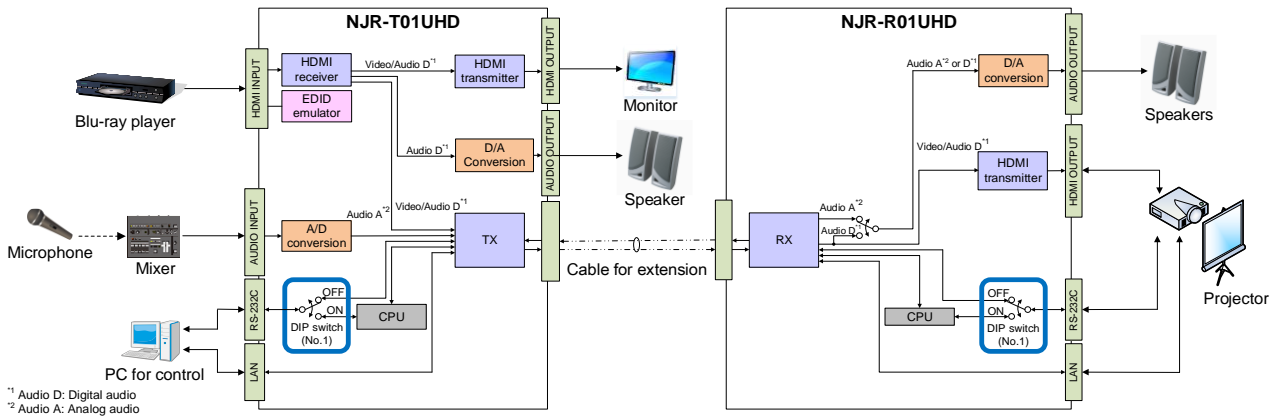
Plug the DC plug to the power supply connector of the unit until it clicks
Hold the portion mentioned below when unplugging the DC plug



[Fig. 8.11] Plugging and unplugging DC plug

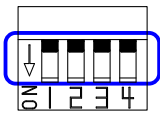
8.3 Setting DIP switch

Use the DIP switch to change settings of NJR-01UHD.



[Fig. 8.12] Block Diagram of DIP switch function

■ Settings for NJR-T01UHD



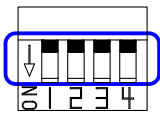
Default: OFF (SW1 to SW4)

No.	Description
1	Selects internal connection of the RS-232C connector OFF : Connects to NJR-R01UHD ON : Connects to the CPU and sets settings of NJR-T01UHD
2	Not connected*
3	Not connected*
4	Not connected*

*Not used

[Fig. 8.13] Functions of DIP switch (NJR-T01UHD)

■ Settings for NJR-R01UHD



Default: OFF (SW1 to SW4)

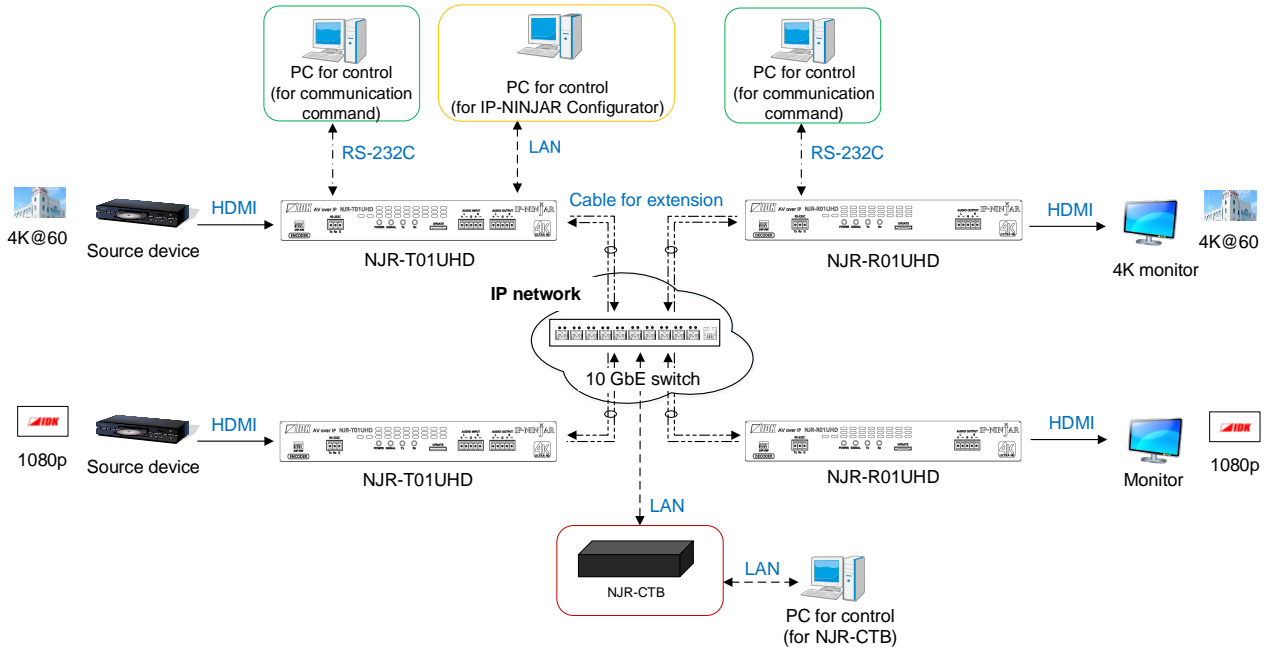
No.	Description
1	Selects internal connection of the RS-232C connector OFF : Connects to NJR-T01UHD ON : Connects to the CPU and sets settings of NJR-R01UHD
2	Not connected*
3	Not connected*
4	Not connected*

*Not used

[Fig. 8.14] Functions of DIP switch (NJR-R01UHD)

9 Basic Operation

NJR-01UHD can be set from commands over RS-232C communication and NJR-CTB or IP-NINJAR Configurator.



[Fig. 9.1] Setting NJR-01UHD

9.1 Control over RS-232C communication

The NJR-01UHD can be controlled over RS-232C communication.

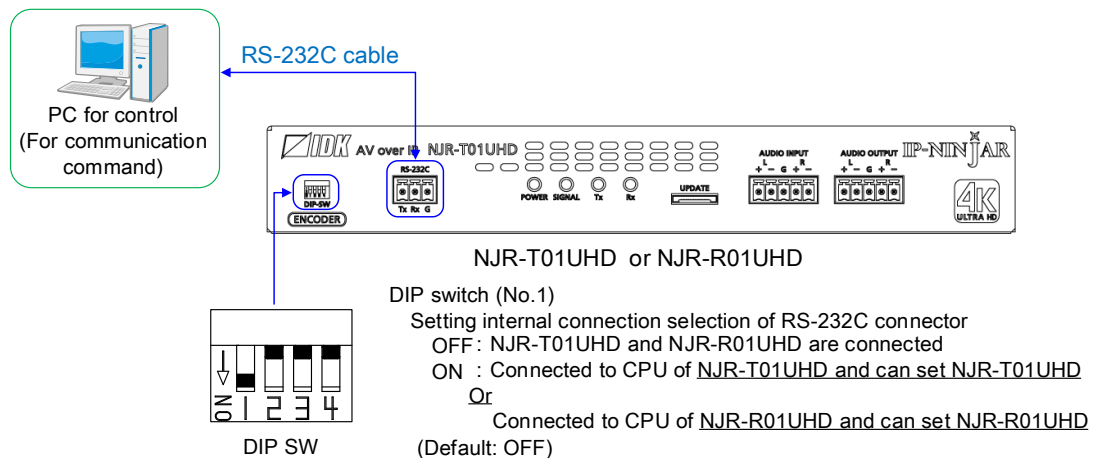
You can control NJR-T01UHD or NJR-R01UHD and get its status by connecting a control unit, such as PCs, to NJR-T01UHD or NJR-R01UHD over an RS-232C cable.

The RS-232C port has two modes: one is controlling NJR-T01UHD or NJR-R01UHD and another is communicating between peripheral devices connected to NJR-T01UHD or NJR-R01UHD.

Turn the DIP switch No.1 to ON to control NJR-T01UHD or NJR-R01UHD.

For details of communication commands, refer to the Command Guide for the NJR-01UHD.

【See: 8.3 Setting DIP switch】



[Fig. 9.2] Control over communication command

Note:

Settings of NJR-R01UHD or NJR-T01UHD cannot be set from NJR-T01UHD or NJR-R01UHD, respectively.

9.2 Controlled by IP-NINJAR Configurator

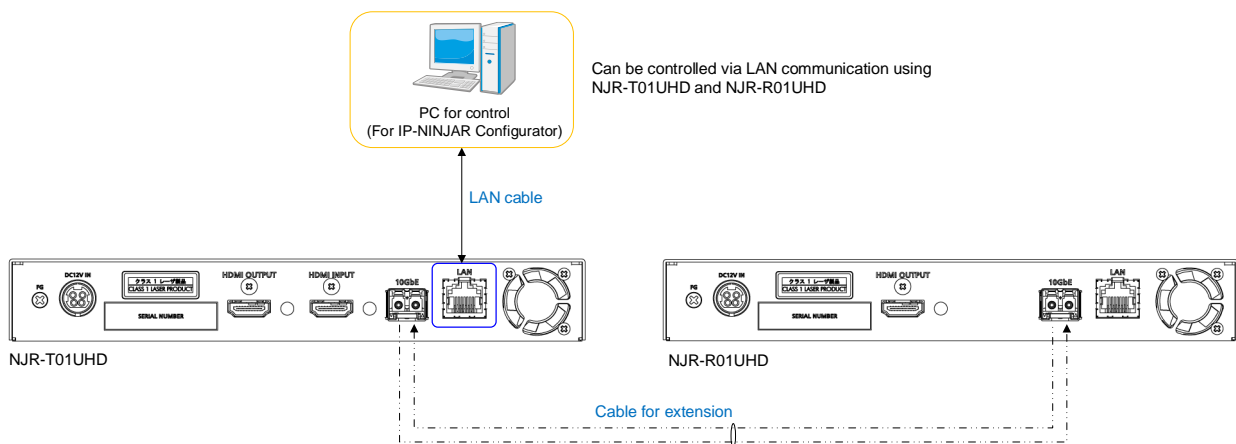
The NJR-01UHD connected to LAN can be set from the IP-NINJAR Configurator remotely over LAN communication.

The following settings can be set from the GUI: selecting output audio, setting RS-232C, setting LAN, resetting settings, and rebooting NJR-01UHD. For other settings, communication commands can be input from the command line.

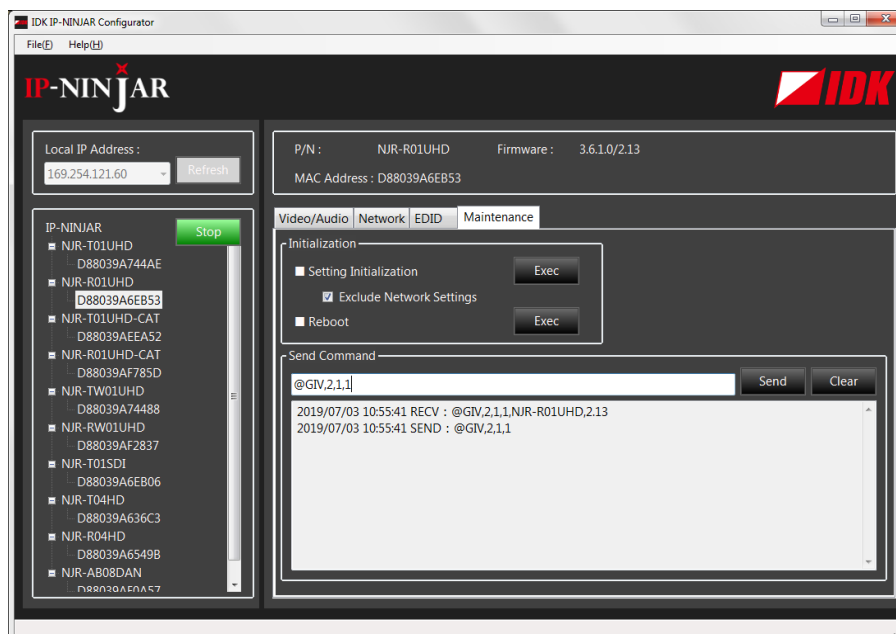
Refer to the IP-NINJAR Configurator User Guide for operations from the IP-NINJAR Configurator.

Refer to the Command Guide for NJR-01UHD for details of communication commands.

Please contact us to download the IP-NINJAR Configurator.



[Fig. 9.3] Control from IP-NINJAR Configurator



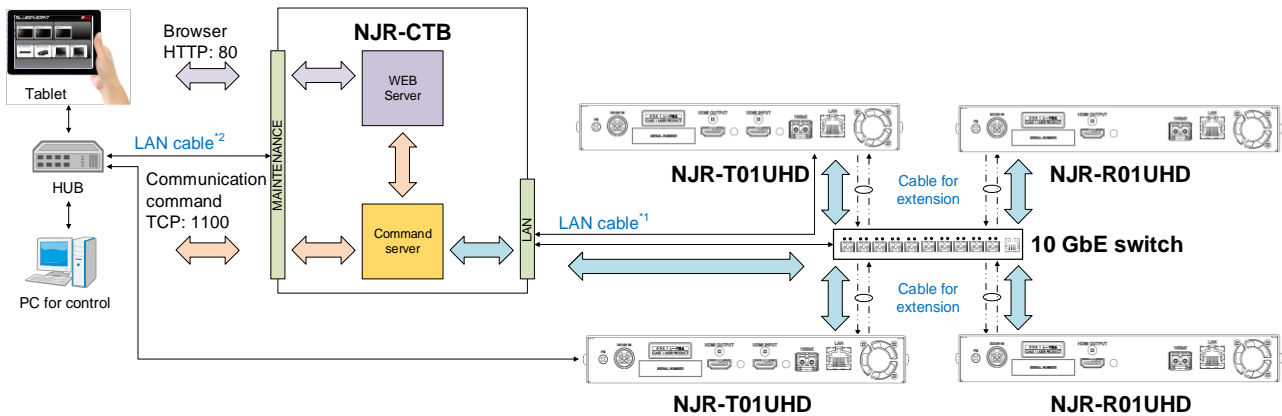
[Fig. 9.4] IP-NINJAR Configurator's GUI

9.3 Controlled by NJR-CTB

The NJR-CTB is the integrated control unit for NP-NINJARs connected to a network over a 10 GbE switch. The control box can control all devices and acquire their statuses using communication commands through WEB browser or LAN by connecting to NJR-01UHD or 10 GbE switch.

Refer to NJR-CTB User Guide for operations via a web browser.

Refer to the Command Guide for NJR-01UHD or the Command Guide for NJR-CTB for details of communication commands.



¹ LAN connector on NJR-CTB should be connected to the LAN connector on NJR-T01UHD/NJR-R01UHD or 10 GbE switch

² PC for control should be connected to the MAINTENANCE connector on NJR-CTB or the LAN connector on NJR-T01UHD/NJR-R01UHD

[Fig. 9.5] Controlled by NJR-CTB

9.4 Setting Items

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

[Table 9.1] Setting items

Command: Command input, GUI: GUI operation, WEB&C: WEB browser and command input, No: Not supported

Setting item	NJR-T01UHD/NJR-R01UHD		NJR-CTB	Page
	RS-232C	LAN (IP-NINJAR Configurator)	LAN	
Non-signal input monitoring	Command	Command	WEB&C	47
HDCP input Enabled/Disabled	Command	Command	WEB&C	48
Output mode	Command	Command	WEB&C	49
HDCP output	Command	Command	WEB&C	49
Hot plug ignoring duration	Command	Command	WEB&C	50
Muting digital audio	Command	Command	WEB&C	51
Selecting output audio	No	GUI	WEB&C	52
EDID resolution	Command	Command	WEB&C	53
Copying EDID	Command	Command	WEB&C	55
Selecting WXGA mode	Command	Command	WEB&C	55
Deep Color	Command	Command	WEB&C	56
Audio format	Command	Command	WEB&C	56
Speaker configuration	Command	Command	WEB&C	57
RS-232C	No	GUI	WEB&C	58
LAN	No	GUI	WEB&C	59
MAC	No	GUI	WEB&C	59
Input status	Command	Command	WEB&C	60
Output status	Command	Command	WEB&C	61
Monitor EDID	Command	Command	WEB&C	62
Version	Command	Command	WEB&C	63
Initialization	No	GUI	WEB&C	45
Reboot	No	GUI	WEB&C	45
Setting channel information*	No	No	WEB&C	-
Selecting I/O channel*	No	No	WEB&C	-
Operating preset memory*	No	No	WEB&C	-
Videowall*	No	No	WEB&C	-
RS-232C cross point*	No	No	WEB&C	-
NJR-CTB LAN*	No	No	WEB&C	-

*: In this manual, only settings of NJR-01UHD are explained. Refer to NJR-CTB User Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, setting videowall, setting cross point, and setting NJR-CTB LAN.

9.5 Initialization

You can initialize settings to factory defaults using IP-NINJAR Configurator or NJR-CTB via LAN communication.

When initialization completes, NJR-01UHD reboots with new settings automatically.

Note:

Once values are initialized, they cannot be restored.

Communication command

@CLRC Initialization

【See: 9.2 Controlled by IP-NINJAR Configurator】

【See: 9.3 Controlled by NJR-CTB】

9.6 Reboot

You can reboot NJR-01UHD using IP-NINJAR Configurator or NJR-CTB over LAN communication.

Communication command

@RBTC Reboot

【See: 9.2 Controlled by IP-NINJAR Configurator】

【See: 9.3 Controlled by NJR-CTB】

10 Setting

The following items of NJR-01UHD can be set using the RS-232C communication, IP-NINJAR Configurator, or NJR-CTB.

In this manual, only settings of NJR-01UHD are explained. Refer to NJR-CTB User Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, setting videowall, setting cross point, and setting NJR-CTB LAN.

[Table 10.1] Setting items

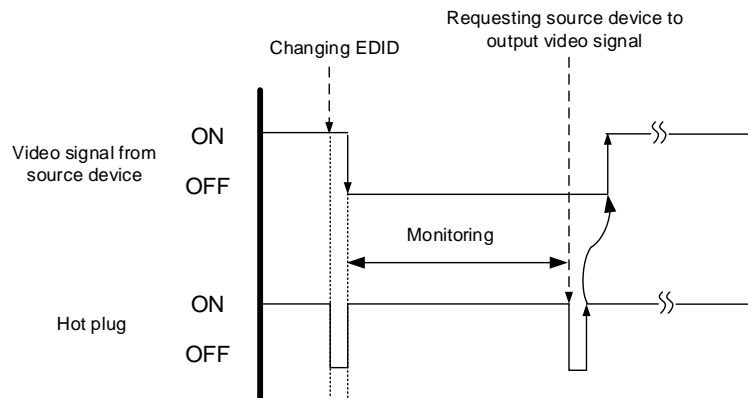
Item	Setting value		Related pages
	Value	Default	
Non-signal input monitoring	OFF/2 to 15 [sec.]	10 [sec.]	47
HDCP input Enabled/Disabled	HDCP enabled/HDCP disabled	HDCP enabled	48
Output mode	AUTO/DVI/RGB/YCbCr 4:2:2/ YCbCr 4:4:4/YCbCr 4:2:0	AUTO	49
HDCP output	ALWAYS/HDCP INPUT ONLY/ HDCP 2.2	ALWAYS	49
Hot plug ignoring duration	OFF/2 to 15 [sec.]	OFF (Not ignoring request signals)	50
Muting digital audio	Mute OFF/Mute ON	Mute OFF	51
Selecting output audio	Analog input audio/Digital input audio	Analog input audio	52
EDID resolution	SVGA to UHDTV	2160p 50/59.94/60 4:4:4	53
Selecting WXGA mode	1360x768/1366x768	1360x768	55
Deep Color	24/30/36-BIT COLOR	24-BIT COLOR	56
Audio format	PCM/Dolby Digital/AAC/ Dolby Digital+/DTS/DTS-HD/ Dolby TrueHD 32/44.1/48/88.2/96/176.4/192 [kHz]	PCM 48 [kHz]	56
Speaker configuration	1 to 8	2	57
RS-232C	4800/9600/19200/38400/57600/115200 [bps] 7/8 [bit] 1/2 [bit] NONE/EVEN/ODD	9600 [bps] 8 [bit] 1 [bit] NONE	58
LAN	Automatic/Fix	Automatic	59

10.1 Setting input

10.1.1 Non-signal input monitoring

NJR-T01UHD

If EDID of the NJR-T01UHD is changed or it is turned ON/OFF, the source device may not output video signal. In this case, you can set the time length which is from when a source device stops outputting signal to when the NJR-T01UHD requests the source device to output video signal.



[Fig. 10.1] Monitoring absence of input

Setting value

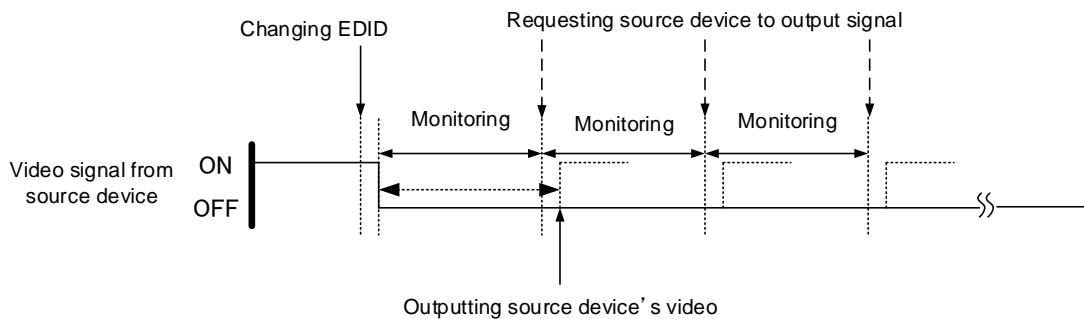
OFF

2 to 15 sec. [Default] 10 sec.

Note:

If you use the monitor power-saving function or Dual monitor function of the PC, set this menu to "OFF". The PC that receives output request may cancel those functions.

If you set shorter time than the time the source device outputs video, the source device may not output video. In such case, set the longer time.



[Fig. 10.2] Repeating output reset

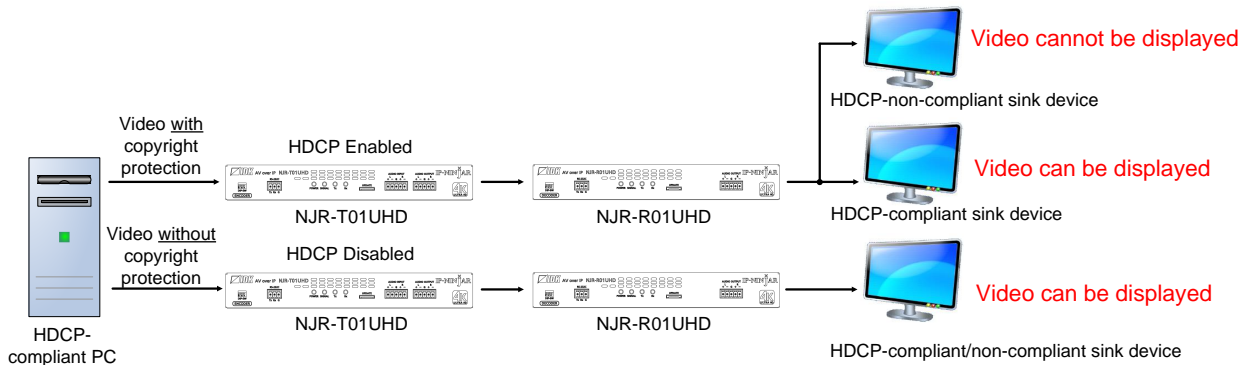
Communication command

@SDT Setting the no-signal input monitoring

@GDT Getting the no-signal input monitoring

10.1.2 HDCP input Enabled/Disabled

You can set whether NJR-T01UHD encrypts HDCP to the source device. Some source devices check whether the connected device supports HDCP and then determine whether they encrypt HDCP signal or not. Since NJR-T01UHD is HDCP compliant, if it is connected to a sink device that is not HDCP compliant, the sink device may not display video. In such a case, select “DISABLE” to display video.



[Fig. 10.3] PC and HDCP-compliant/HDCP-non-compliant sink device

Setting value

- HDCP enabled [Default]
- HDCP disabled

Note:

Set this setting to HDCP enabled in order to display video with copyright protection.

- HDCP 2.2 (stream type 0) can be displayed on a sink device supported HDCP 1.4.
- HDCP 2.2 (stream type1) can be displayed on a sink device supported HDCP 2.2 but not on a sink device supported HDCP 1.4.

Communication command

- @SHE Setting HDCP input enabled/disabled
- @GHE Getting HDCP input enabled/disabled

10.2 Setting output

10.2.1 Output mode

NJR-T01UHD/NJR-R01UHD

You can set the color space to be sent to the sink device.

The sink device selects the best color space for the color space of the input video automatically, but if for some reason the sink device cannot select the color space, set the desired color space in NJR-T01UHD or NJR-R01UHD.

For NJR-T01UHD, output mode can individually be set to the output from the HDMI OUTPUT connector (local output) and output connector for extension.

Setting value

- AUTO [Default]
- DVI output
- RGB output
- YCbCr 4:2:2 output
- YCbCr 4:4:4 output
- YCbCr 4:2:0 output

Note:

This setting is enabled when HDMI signal is input.

Communication command

- @SDM Setting output mode
- @GDM Getting output mode

10.2.2 HDCP output

NJR-R01UHD

You can set the HDCP output for when a HDCP-compliant device is connected.

Normally select "ALWAYS" to output HDCP at all times regardless of input signal status.

If you select "HDCP INPUT ONLY", HDCP will be output only if the input signal has HDCP. However, some sink devices fails HDCP authentication when HDCP is switched from OFF to ON; this results in that video and audio may not be output temporarily.

Setting value

- ALWAYS [Default]
- HDCP INPUT ONLY
- HDCP 2.2

Communication command

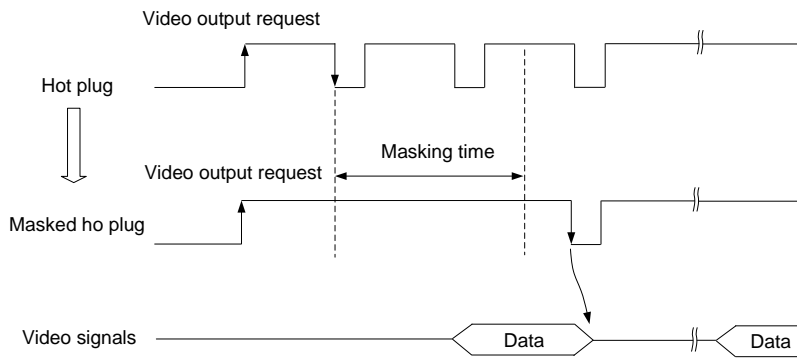
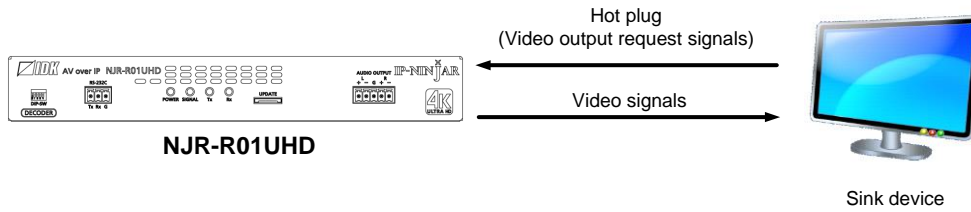
- @SEN Setting HDCP output
- @GEN Getting HDCP output

10.2.3 Hot plug ignoring duration

Time for ignoring the video output request signals sent from the sink device.

If the request signals are repeated in a short cycle, the NJR-01UHD processes video output from the first cycle.

As a result, video may not be output. This problem can be solved by setting the ignoring time.



[Fig. 10.4] Hot plug mask

Setting value

OFF (Not ignoring request signals) [Default]

2 to 15 [sec.]

Communication command

@SHM Setting hot plug ignoring duration

@GHM Getting hot plug ignoring duration

10.3 Setting audio

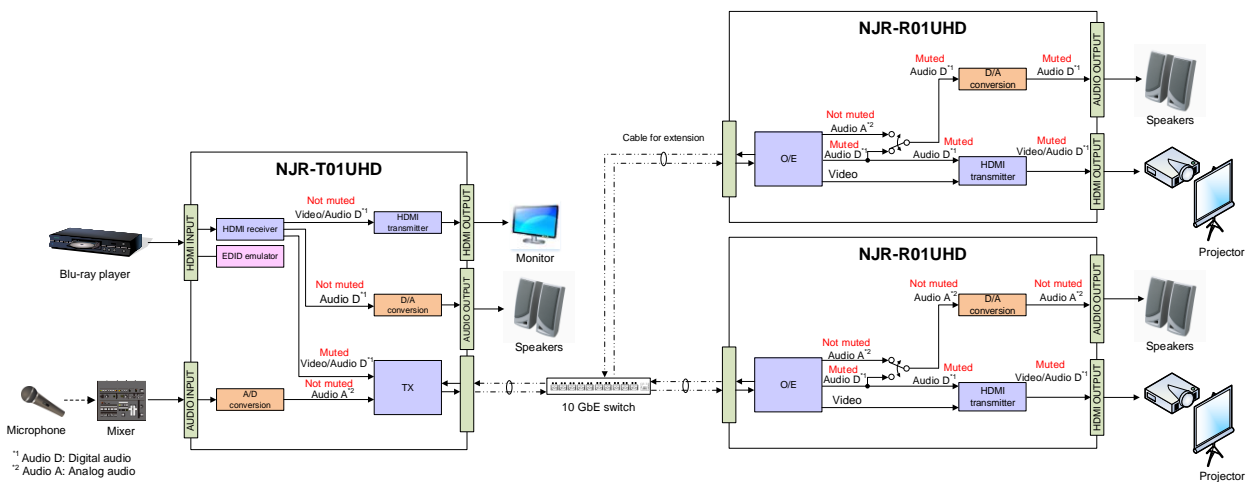
10.3.1 Muting digital audio

NJR-T01UHD/NJR-R01UHD

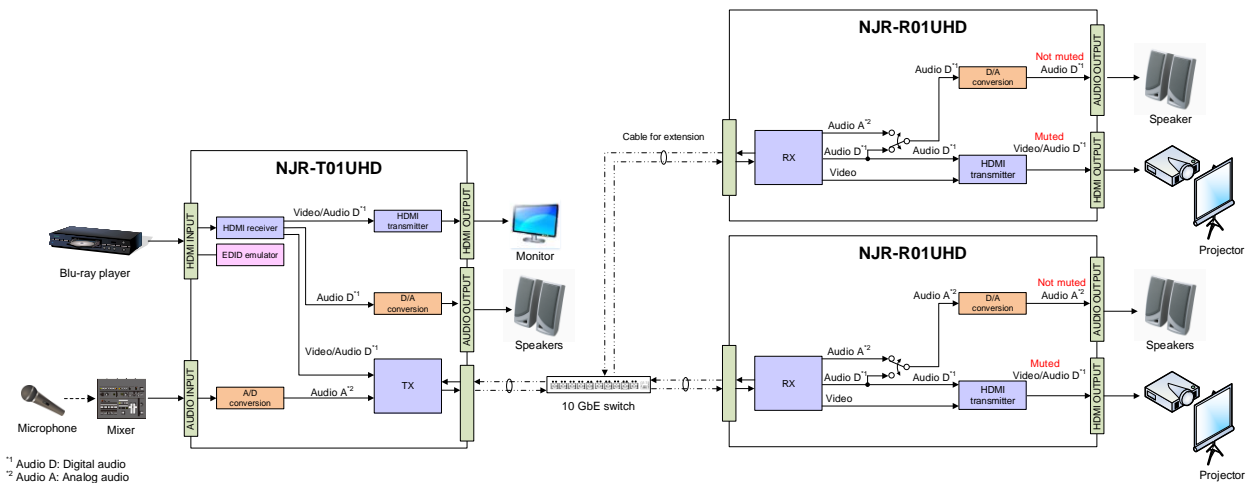
You can enable or disable the audio output mute.

Once you mute NJR-T01UHD, all audio of NJR-R01UHD connected through the 10 GbE switch can be muted. If digital audio is output from the analog audio output connector of NJR-R01UHD, these output audio is also muted.

When you mute NJR-R01UHD, output audio from the HDMI output connector of NJR-R01UHD is muted.



[Fig. 10.5] Muting NJR-T01UHD



[Fig. 10.6] Muting NJR-R01UHD

Setting value

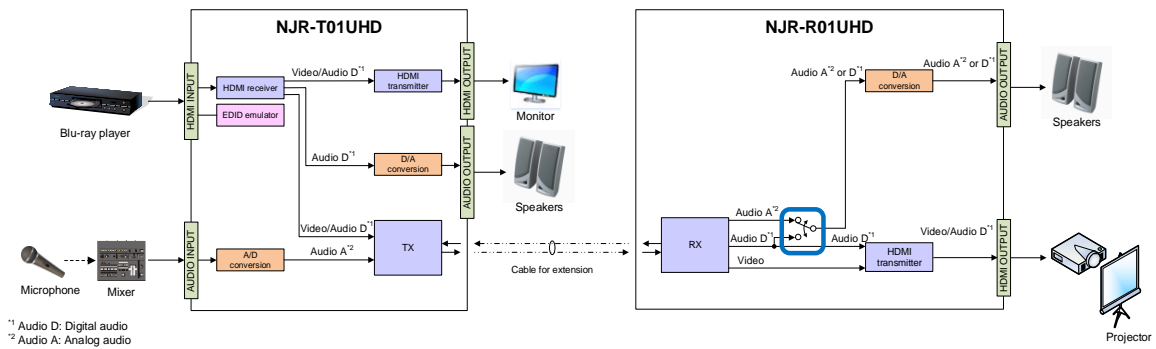
- Mute OFF [Default]
- Mute ON

Communication command

- @SAM Muting/Unmuting digital audio output
- @GAM Getting mute status of digital audio output

10.3.2 Selecting output audio

You can select the audio that is output from the analog audio output connector.



[Fig. 10.7] Selecting output audio

Setting value

Analog input audio [Default]

Digital input audio

Communication command

@SAAS Setting output audio

@GAAS Getting output audio

10.4 Setting EDID

10.4.1 EDID resolution

NJR-T01UHD

You can set the desired resolution that is output from the source device.

Setting value

[Table 10.2] Maximum resolution of EDID

Max. resolution	Pixel	Standard	Remarks
Copied EDID	—	—	If no data, "2160p (50/59.94/60, 4:4:4)"
1080p (50/59.94/60)	1920×1080	HDTV	
720p	1280×720		
1080i	1920×1080		
SVGA	800×600	VESA	
XGA	1024×768		
VESA720	1280×720		For DVI device input
WXGA	1280×768		
WXGA	1280×800		
Quad-VGA	1280×960		
SXGA	1280×1024		
WXGA	1360×768, 1366×768		Pixel can be set in " Selecting @GWX/@SWX WXGA mode "
SXGA+	1400×1050		
WXGA+	1440×900		
WXGA++	1600×900		(RB)
UXGA	1600×1200		
WSXGA	1680×1050		
VESA1080	1920×1080		(RB), For DVI device input
WUXGA	1920×1200		(RB)
QWXGA	2048×1152		(RB)
WQHD	2560×1440	(RB)	
WQXGA	2560×1600	(RB)	
2160p (50/59.94/60, 4:2:0)	3840×2160	UHDTV	YCbCr 4:2:0 supported
4096x2160 (50/59.94/60, 4:2:0)	4096×2160	DCI	YCbCr 4:2:0 supported
2160p (50/59.94/60, 4:4:4)	3840×2160	UHDTV	Default YCbCr 4:2:0, YCbCr 4:2:2, YCbCr 4:4:4 supported
4096x2160 (50/59.94/60, 4:4:4)	4096×2160	DCI	YCbCr 4:2:0, YCbCr 4:2:2, YCbCr 4:4:4 supported

(RB): Reduced Blanking

Notes:

- For resolution of 4096 x 2160
According to the EDID definition, the source device may select 3840 x 2160 (30p,YCbCr 4:4:4) for the first resolution. If using the resolution of 4096 x 2160, set the internal EDID and then select the resolution of 4096 x 2160 in the source device.
- For resolution of YCbCr4:2:0
According to the EDID definition, the source device may select 3840 x 2160 (30p,YCbCr 4:4:4) for the first resolution. If using the color depth of YCbCr 4:2:0, set the internal EDID and then select the color depth of YCbCr 4:2:0 in the source device.

[Table 10.3] Maximum resolution and supported pixels

Max. resolution \ Pixels	Pixels																											
	640x480	800x600	1024x768	1280x720	1280x768	1280x800	1280x960	1280x1024	1360x768*	1366x768*	1400x1050	1440x900	1600x900	1600x1200	1680x1050	1920x1080	1920x1200	2048x1152	2560 x 1440	2560 x 1600	3840x2160 (30p)	4096x2160 (30p)	3840x2160 (60p)	4096x2160 (60p)				
1080p (50/59.94/60)	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	
720p	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1080i	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
800x600	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1024x768	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1280x720	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1280x768	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1280x800	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1280x960	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1280x1024	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1360x768	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1400x1050	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1440x900	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1600x900	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1600x1200	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	
1680x1050	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	
1920x1080	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	
1920x1200	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	
2048x1152	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	
2560x1440	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	
2560x1600	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	
2160p (50/59.94/60,4:2:0)	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	P	N		
4096x2160 (50/59.94/60,4:2:0)	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	P	P		
2160p (50/59.94/60,4:4:4)	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N		
4096x2160 (50/59.94/60,4:4:4)	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Y: Supported, P: Only YCbCr 4:2:0 supported, N: Not supported

* EDID supported pixel of 1360x768 and 1366x768 can be set in “10.4.3 Selecting WXGA mode”.
The default value is 1360x768.

Communication command

@SVF Setting EDID resolution
 @GVF Getting EDID resolution

10.4.2 Copying EDID

NJR-T01UHD

EDID of the sink device connected to NJR-T01UHD or NJR-R01UHD can be loaded and registered, and the copied EDID can be treated in the same way as the internal EDID.

In order to copy the EDID of the sink device connected to NJR-R01UHD, set this item from the IP-NINJAR Configurator or NJR-CTB.

Communication command

@RME Copying EDID

【See: 9.2 Controlled by IP-NINJAR Configurator】

【See: 9.3 Controlled by NJR-CTB】

Note:

To use a registered EDID, set “**10.4.1 EDID resolution**” to Copied EDID.

10.4.3 Selecting WXGA mode

NJR-T01UHD

You can set the WXGA pixel (1360x768 or 1366x768) depending on the resolution of EDID. This setting is enabled if selecting an item other than copied EDID.

Setting value

1360x768 [Default]
 1366x768

Communication command

@SWX Setting WXGA mode
 @GWX Getting WXGA mode

10.4.4 Deep Color

NJR-T01UHD

You can set the color depth that is output from the source device.

Setting value

24-BIT COLOR [Default]
 30-BIT COLOR
 36-BIT COLOR

Note:

If you select “30-BIT COLOR” or “36-BIT COLOR”, the transmission clock speed increases. Noise may occur if a bad-quality cable or long cable is connected. In these cases, the noise may be removed by selecting “24-BIT COLOR”.

For 4K@50/59.94/60 (YCbCr 4:4:4), “24-BIT COLOR” is selected automatically regardless of this menu’s setting.

Communication command

@SDI Setting Deep Color input
 @GDI Getting Deep Color input

10.4.5 Audio format

NJR-T01UHD

You can set the audio format and maximum sampling frequency to be output from a source device.

Note:

Some formats are not supported; select an audio format and sampling frequency that are supported by the device you use.

Setting value

[Table 10.4] Audio formats

Audio format	Max. sampling frequency (kHz)	Default
PCM	32/44.1/48/88.2/96/176.4/192	48
Dolby Digital	OFF/32/44.1/48	OFF
AAC	OFF/32/44.1/48/88.2/96	OFF
Dolby Digital+	OFF/32/44.1/48	OFF
DTS	OFF/32/44.1/48/96	OFF
DTS-HD	OFF/44.1/48/88.2/96/176.4/192	OFF
Dolby TrueHD	OFF/44.1/48/88.2/96/176.4/192	OFF

Communication command

@SAF Setting audio format
 @GAF Getting audio format

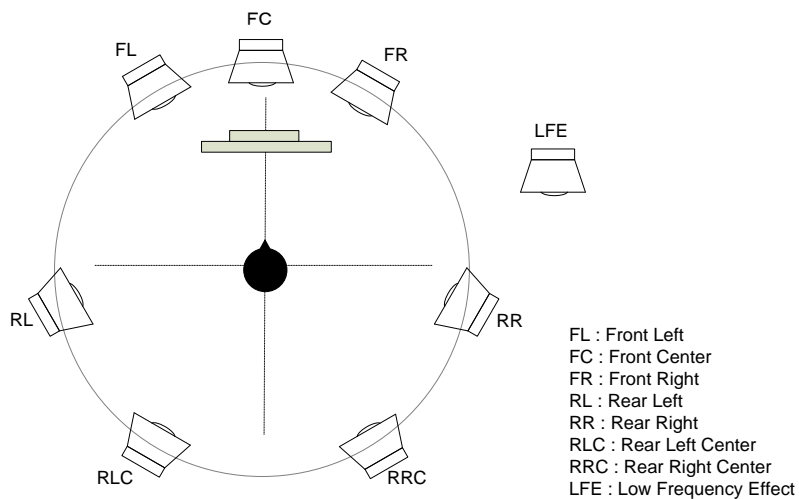
10.4.6 Speaker configuration

You can set the speaker configuration of multi-channel audio.
 Once changing the number of speaker, the configuration is automatically set as follows.
 You can change the default configuration, and you can also set each speaker individually.

Setting value

[Table 10.5] Default speaker configuration

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 [Default]	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



[Fig. 10.8] Speaker configuration

Communication command

- @SSP Setting speaker configuration
- @GSP Getting speaker configuration

10.5 Setting RS-232C

10.5.1 RS-232C communication

NJR-T01UHD/NJR-R01UHD

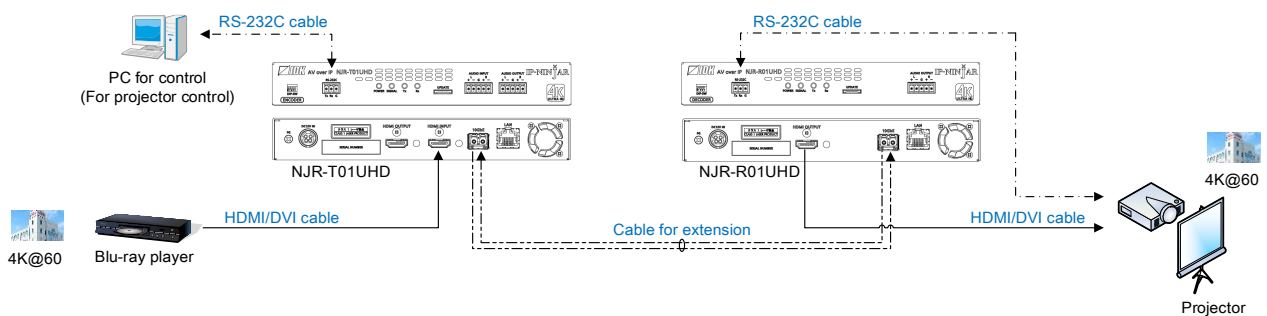
You can set the RS-232C communication between devices that connected to NJR-T01UHD/NJR-R01UHD. The same setting should be set for NJR-T01UHD/NJR-R01UHD.

Notes:

The RS-232C port is used for two modes: controlling NJR-T01UHD or NJR-R01UHD and communicating between devices that connected to NJR-T01UHD/NJR-R01UHD. For the latter mode, set the DIP switch (No.1) to “OFF”.

【See: 8.3 Setting DIP switch】

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



[Fig. 10.9] Communication over RS-232C

Note:

For communicating between NJR-T01UHD/NJR-R01UHD and connected device, only RD (Received data) and TD (Transmitted data) are sent.

Setting value

[Table 10.6] Setting items of RS-232C communication

Setting item	Setting value	Default value
Baud rate [bps]	4800,9600,19200,38400,57600,115200	9600
Data bit length [bit]	7,8	8
Stop bit [bit]	1,2	1
Parity check	NONE, EVEN, ODD	NONE

Communication command

- @SCTB Setting RS-232C communication
- @GCTB Getting RS-232C communication

10.6 Setting LAN

10.6.1 LAN

NJR-T01UHD/NJR-R01UHD

The IP address can be obtained automatically by DHCP (Dynamic Host Configuration Protocol). Static IP address, subnet mask, and default gateway can also be configured manually.

Setting value

[Table 10.7] Setting items of LAN communication

Setting item	Setting value	Default
IP address	0.0.0.0 to 255.255.255.255	Automatic
Subnet mask	0.0.0.0 to 255.255.255.254	
Default gateway	0.0.0.0 to 255.255.255.255	

Communication command

- @SIP Setting LAN
- @GIP Getting LAN setting

10.6.2 MAC address

NJR-T01UHD/NJR-R01UHD

You can display the MAC address.

Information to be displayed

[Table 10.8] MAC address

Item to be displayed	Example
MAC address	0008E5690000

Communication command

- @GMC Getting MAC address

10.7 Information

10.7.1 Input status

NJR-T01UHD

You can display the signal status that is input from the HDMI input connector.

Information to be displayed

[Table 10.9] Input signals

Value to be displayed	Description
Hxx	HDMI signal is input. xx: color depth(24, 30, or 36)
D	DVI signal is input.
N	No signal is input.

[Table 10.10] Format of video input signal

Value to be displayed	Description
1920 x 1080i 59.94Hz	SDTV/HDTV/UHDTV signal is input. Format type and vertical synchronizing frequency
800 x 600p 60.32Hz	VESA resolution signal is input. Horizontal resolution x Vertical resolution and synchronizing frequency
NO SIGNAL	No signal is input.

[Table 10.11] Format of audio input signal

Value to be displayed	Description
LINEAR PCM 48kHz	LPCM signal is input. Sampling frequency
COMPRESSED AUDIO	Compressed audio signal (e.g. Dolby Digital, DTS) is input. (Since NJR-T01UHD does not determine detailed format, the same value is displayed for all compressed audio.)
NO AUDIO	No signal is input.

[Table 10.12] HDCP

Value to be displayed	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.

Communication command

@GSS Getting I/O status

10.7.2 Output status

NJR-T01UHD/NJR-R01UHD

You can display the status of the sink device connected to the HDMI output connector.

Information to be displayed

[Table 10.13] HDCP authentication

Value to be displayed	Description
HDCP 1.4 SUPPORT	HDCP 1.4 authorized.
HDCP 2.2 SUPPORT	HDCP 2.2 authorized.
HDCP NOT SUPPORT	Not authorized because sink device that does not support HDCP is connected or input signal does not have HDCP.
HDCP ERROR	The sink device that supports HDCP is connected, but authentication failed.
HDCP CHECK NOW	The sink device status is checking. e.g. When sink device status is changed, this message is displayed.
UNCONNECTED	A sink device is not connected.

[Table 10.14] Output signal

Value to be displayed	Description
Hxx	HDMI signal is output. xx: color depth(24, 30, or 36)
D	DVI signal is output.
N	A sink device is not connected.

[Table 10.15] Error code

HDMI output connector status of video output is displayed and then the status of audio output is displayed.

Value to be displayed	Video output	Audio output
0	Video is output correctly.	Audio is output correctly.
1	—	“10.3.1 Muting digital audio” is set to “ON”.
2	No source device is connected.	
3	Video signal is not input.	Audio signal is not input.
4	Video or audio output of the source device is muted.	
5	Signal with HDCP is input, but the sink device does not support HDCP.	
6	The source device does not output necessary data (packet) for video or audio output.	
7	Signal that is not supported by NJR-T01UHD/NJR-R01UHD is input.	Audio cannot be output, because compressed audio is input.
9	—	A sink device that is not supported by audio is connected.
B	No sink device is connected.	
C	HDCP is being authorized.	
D	HDCP authentication failed	

Communication command

@GSS Getting I/O status

10.7.3 Monitor EDID

NJR-T01UHD/NJR-R01UHD

You can display the EDID of the sink device connected to the HDMI output connector.

Information to be displayed

[Table 10.16] Monitor's EDID

Displayed value	Displayed value	Example	Remarks
Monitor name	—	MSD-5402	If no monitor is connected, "UNCONNECTED" is displayed and parameter is not displayed any more.
Resolution and pixel clock	—	1920x1080 148.50MHz	—
Supported HDMI	HDMI/DVI	HDMI	If the sink device does not support HDMI, "DVI" is displayed.
Sampling configuration*1	RGB/YCbCr422/ YCbCr444/YCbCr420	YCbCr444	All supported sampling configurations are displayed. If the sink device resolution is 4K@50/59.94/60 and only up to YCbCr 4:2:0 is supported, "YCbCr420" is displayed.
Color depth*1	24/30/36 BIT COLOR	24BIT COLOR	All supported color depths are displayed.
Supported audio	LINEAR PCM/ AUDIO NOT SUPPORT	LINEAR PCM	If the sink device is not support audio, "AUDIO NOT SUPPORT" is displayed.
Sampling frequency*2	32/44.1/48/88.2/96/176.4/ 192 kHz	32/44.1/48kHz	All supported sampling frequencies are displayed.
Bit length*2	16/20/24 BIT	16/20/24BIT	All supported bit lengths are displayed.
Number of channels*2	1 to 8 CHANNEL	2CHANNEL	—
Supported compressed audio*2	COMPRESSED AUDIO SUPPORT	COMPRESSED AUDIO SUPPORT	If only compressed audio is supported, "COMPRESSED AUDIO SUPPORT" is displayed.

*1 Displayed only if a sink device supporting HDMI is connected.

*2 Displayed only if a sink device supporting audio is connected.

Communication command

@GES Getting monitor EDID

10.7.4 Version

NJR-T01UHD/NJR-R01UHD

You can display the model number and firmware version.

Information to be displayed

[Table 10.17] Version

Item	Example
Model number	NJR-T01UHD
Firmware version	1.00

Communication command

@GIV Getting version

11 Product Specification

Item	NJR-T01UHD (Encoder)		NJR-R01UHD (Decoder)		
	Model	Fiber optic	Cat6A	Fiber optic	Cat6A
Input	1 input HDMI (*1)/DVI 1.0 TMDS single link HDCP 1.4/2.2 HDR (*2) EDID emulation Connector: Female HDMI Type A (19-pin) (*3)		1 input Digital signal for extension Format: IP-NINJAR protocol RS-232C, LAN Connector: 2 LCs		1 input Digital signal for extension Format: IP-NINJAR protocol RS-232C, LAN Connector: RJ-45
Output	1 output Digital signal for extension Format: IP-NINJAR protocol RS-232C, LAN Connector: 2 LCs		1 output Digital signal for extension Format: IP-NINJAR protocol RS-232C, LAN Connector: RJ-45		1 output HDMI (*1)/DVI 1.0 TMDS single link HDCP 1.4/2.2 HDR (*2) Connector: Female HDMI Type A (19-pin) (*3)
	1 output HDMI (*1)/DVI 1.0 *For monitoring input signals TMDS single link HDCP 1.4/2.2 HDR (*2) Connector: Female HDMI Type A (19-pin) (*3)				
Format	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA / 4K (*4) 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (*4)				
Color depth	24 bit, 30 bit, 36 bit Deep Color (*5)				
Dot clock	25 MHz to 600 MHz				
TMDS clock	25 MHz to 300 MHz				
TMDS data rate	0.75 Gbps to 18 Gbps				
Digital audio input	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz Sample size: 16 bit to 24 bit Reference level: -20 dBFS Max. input level: 0 dBFS		-		
Digital audio output	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz Sample size: 16 bit to 24 bit Reference level: -20 dBFS Max. output level: 0 dBFS		Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz Sample size: 16 bit to 24 bit Reference level: -20 dBFS Max. output level: 0 dBFS		
Analog audio input	1 input Balanced/Unbalanced Stereo LR Input impedance: 48 kΩ balanced/24 kΩ unbalanced Reference level: -10 dBu Max. input level: +10 dBu Connector: Captive screw (5-pin)		-		
Analog audio output	1 output Stereo LR balanced/unbalanced Output impedance:100 Ω balanced/50 Ω unbalanced Reference level: -10 dBu Max. output level: +10 dBu Connector: Captive screw (5-pin)		1 output Balanced/Unbalanced Stereo LR Output impedance:100 Ω balanced/50 Ω unbalanced Reference level: -10 dBu Max. output level: +10 dBu Connector: Captive screw (5-pin)		

Item		NJR-T01UHD (Encoder)		NJR-R01UHD (Decoder)	
Model		Fiber optic	Cat6A	Fiber optic	Cat6A
Cable for extension	Cable	Duplex fiber cable, SFP+ optical transceiver	Cat6A STP cable	Duplex fiber cable, SFP+ optical transceiver	Cat6A STP cable
	Polishing (*6)	SFP+ optical transceiver for Multimode: PC polishing (Recommended) SFP+ optical transceiver for Singlemode: UPC polishing (Recommended), SPC *APC is not supported	—	SFP+ optical transceiver for Multimode: PC polishing (Recommended) SFP+ optical transceiver for Singlemode: UPC polishing (Recommended), SPC *APC is not supported	—
	Transmission distances	Multimode fiber (OM3): Up to 984 ft. (300 m) Singlemode fiber (OS1): Up to 6.21 mi. (10 km) Singlemode fiber (OS1): Up to 24.85 mi. (40 km, optional) (*7)	Cat6A STP: Up to 328 ft. (100 m) (*8)	Multimode fiber (OM3): Up to 984 ft. (300 m) Singlemode fiber (OS1): Up to 6.21 mi. (10 km) Singlemode fiber (OS1): Up to 24.85 mi. (40 km, optional) (*7)	Cat6A STP: Up to 328 ft. (100 m) (*8)
Control	RS-232C	1 port/captive screw (3-pin), full duplex, up to 115.2 kbps			
	LAN	1 port/RJ-45 10Base-T/100Base-TX/1000Base-T (Auto Negotiation), Auto MDI/MDI-X			
Function		DDC buffer, Connection Reset (*9)			
General	AC adapter	Input : 100 - 240 VAC ±10%, 50 Hz/60 Hz ±3 Hz Output : DC 12 V 3 A 36.0 W (A dedicated AC adapter is provided)			
	Power consumption	About 18 W	About 21 W	About 17 W	About 20 W
	Dimensions	8.3 (W) × 1.2 (H) × 5.5 (D)" (210 (W) × 30 (H) × 140 (D) mm) (Half rack wide, thin type) (Excluding connectors and the like)			
	Weight	2.2 lbs. (1.0 kg)	2.2 lbs. (1.0 kg)	2.2 lbs. (1.0 kg)	2.2 lbs. (1.0 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	Operating/Storage: 20% to 90% (Non Condensing)			

- *1 x.v.Color, 3D, ARC, HEC, and CEC are not supported.
- *2 HDR is supported if the connected sink device supports HDR and its copied EDID is set for EDID setting.
- *3 Use 16.4 ft. (5 m) or shorter HDMI cables.
- *4 Supported 4K formats : 24 Hz/25 Hz/30 Hz/50 Hz (4:4:4)/59.94 Hz (4:4:4)/60 Hz (4:4:4)
- *5 Supported 4K format : only 24 bit
- *6 It is possible to connect without using the recommended polishing method, but that may cause a change of extension distance ability due to an increase in return loss.
- *7 The maximum transmission distance is measured under the following conditions: Fiber that is polished by a recommended method is used, there is no interconnection, and the allowable bending radius is not exceeded.
- *8 The actual maximum transmission distance may be shorter than the stated distance depending on the following conditions: quality and cabling of the Cat 6A cable, combination with 10GbE switch, and installation status of the 10GbE switch.
Video may be interrupted or may not be output even if signals are within the range of the maximum transmission distance.
- *9 For digital systems, some problems, such as an HDCP authentication error, can often be recovered by physically disconnecting and reconnecting the digital cables. However, the Connection Reset feature will fix these problems automatically without the need to physically plug and unplug the cables. It creates the same condition as if the cable were physically disconnected and reconnected. This feature only works for the NJR's output. If other devices are connected between the NJR's output and sink device, this feature may be invalid.

12 Troubleshooting

In case the NJR-01UHD does not work correctly, please check the following items first. Also refer to manuals for connected devices as well, since they may possibly be the cause of the problem.

- Are the NJR-01UHD and all devices plugged in and powered on normally?
- Are cables connected correctly?
- Are there no loose connections?
- Are correct cables for NJR-01UHD being used?
- Are signal specifications of connected devices matched to each other?
- Are settings of the sink device correct?
- Are there any nearby objects that may cause noise?

If additional assistance is required, please check the following items and then contact us.

No.	Checking items	Result
1	The problem occurs at all connectors?	Yes or No
2	Connect the devices using genuine cables without connecting the NJR-01UHD. The problem still cannot be solved? Please contact us for assistance.	Yes or No

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