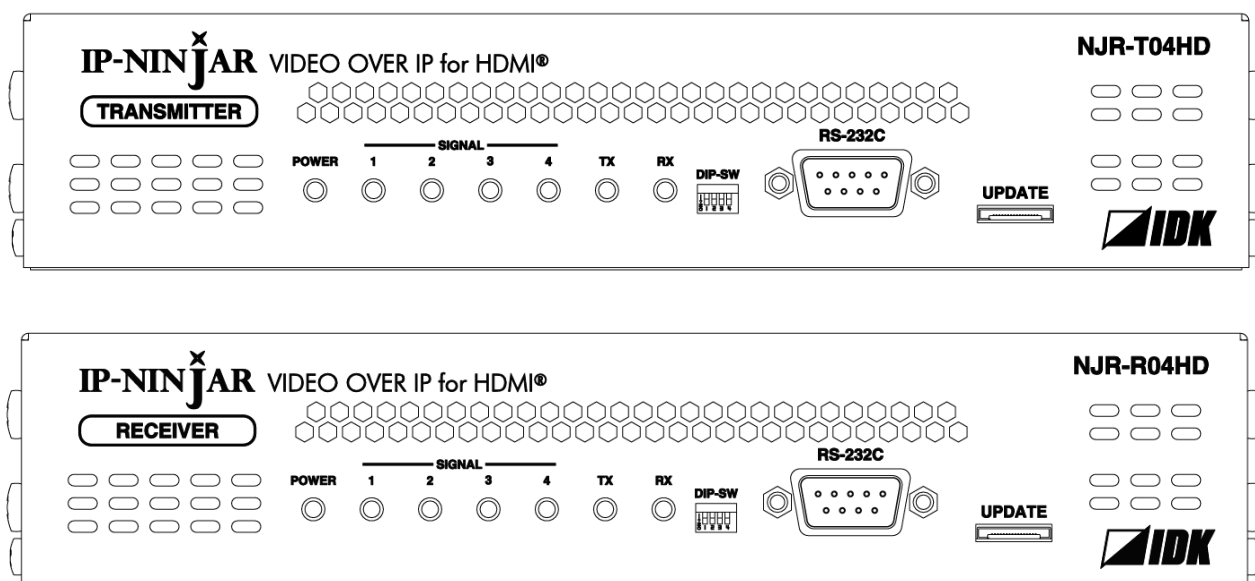


4-channel HDMI Network Extender

NJR-T04HD / NJR-R04HD

<User's Guide>

Ver.1.4.0



- Thank you for choosing our product.
- To ensure the best performance of this product, please read this User's Guide fully and carefully before using it and keep this manual together with the product for reference as needed.

IDK Corporation

Trademarks

- Blu-ray Disc and Blu-ray are trademarks of Blu-ray Disc Association.
- 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.
- Connection Reset is a registered trademark of IDK Corporation in Japan.
- All other company and product names mentioned in this manual are either registered trademarks or trademarks of their respective owners. In this manual, the “®” or “™” marks may not be specified.

Before reading this manual

- All rights reserved.
- Some of the contents in this user's guide such as the appearance of diagrams, menu operations, communication commands, and so on may differ between products depending on the specific version.
- This Users guide is subject to change without notice. You can download the latest version from IDK's website at: <http://www.idkav.com>

The reference manual consists of the following two volumes:

- User's 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.



The lasers in this product meet Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 laser safety standards which specifies design safety.

FCC STATEMENT

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.

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 and understand all safety and operating instructions before using this product. Follow all instructions and cautions as detailed in this document.

Enforcement Symbol	Description
 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)	 Electrical Hazard
 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	
 Prohibited	Do not place the product in any unstable place. Install the product in a horizontal and stable place. Otherwise, it may fall/turn over and lead to injury.
	Do not place the product in any environment with vibration. Otherwise, it may move/fall and lead to injury.
	Keep out any foreign objects. In order to avoid fire or electric shock, do not allow foreign objects, such as metal and paper, to enter the product from the vent holes.
	For power cable/ plug: <ul style="list-style-type: none"> Do not scratch, heat, or modify, including lengthening them. Do not pull, place heavy objects on them, or pinch them. Do not bend, twist, or tie them together forcefully. 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. 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	In the event of electrical storms, keep away from the main unit and cables such as power cable and LAN cable. Contact may cause electric shock
 Instruction	For installation: 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.
	Set the power plug in a convenient place to unplug easily. 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 electrical shock or fire. Do not use a damaged plug or connect to a damaged outlet.
	Clean the power plug regularly. If the plug is covered in dust, it may increase the risk of fire.
 Unplug	Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor. If you continue to use the product under these conditions, it may cause electric shock or fire. After confirming that the product stops smoking, contact your IDK representative.
	Unplug immediately if the product falls and/or if the cabinet is damaged. If you continue to use the product under these conditions, it may increase the risk of electrical shock or fire. For maintenance and repair, contact your IDK representative.
	Unplug immediately if water or other objects are directed inside. If you continue to use the product under these conditions, it may increase the risk of electrical shock or fire. For maintenance and repair, contact your IDK representative.
For connection	
 Instruction	Differences in ground potential among product population of interconnected products and other external devices may increase the risk of electric shock to personnel or cause damage to the devices or cabling infrastructure. When using cables to connect devices, including connection of long-distance transmission cables, unplug the power cables of all interconnected devices. Power may be restored after all signal/control cables are connected to each device.









 Caution	
 Prohibited	Do not place the product in any place 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 place the product in humid, oil smoke filled, or dusty place. If the product is placed near humidifiers or in a dusty area, it 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 objects on the product. Failure to observe this precaution may result in damage to the product and 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.
	Use only the supplied AC adapter and power cable. Do not use the supplied AC adapter and power cable with other products. If non-compliant adapter or power cables are used, it may increase the risk of fire or electrical shock. Always use the supplied AC power connection cable for this product.
 No wet hands	Do not plug or unplug with wet hands. Failure to observe this precaution may increase the risk of electrical shock.
 Instruction	Use and store the product within the specified temperature/humidity range. If the product is used outside the specified range for temperature and humidity continuously, it may increase the risk of fire or electric shock.
	Turn off devices while making connections to another device. Failure to observe this precaution may increase the risk of fire or electric shock.
 Unplug	If the product won't be used for an extended period of time, unplug it. Failure to observe this precaution may increase the risk of fire.
	Unplug the product before cleaning. To prevent electric shock.
For installation	
For rack mount devices:	
 Instruction	Mount the product in a the rack meeting EIA standards, and maintain spaces above and below for air circulation. For your safety, attach an L-shaped bracket in addition to the panel mount bracket kit to improve mechanical stability.
For devices with rubber feet:	
 Instruction	Never insert screws without the rubber feet into the threaded holes on the bottom of the product. Doing so may lead to damage when the screws contact electrical circuitry or components inside the product. Reinstall the originally supplied rubber feet using only the originally supplied screws.
Altitude:	
 Instruction	Do not place the product at elevations of 2,000 meters (6562 feet) or higher above sea level. Failure to do so may shorten the life of the internal parts and result in malfunctions.

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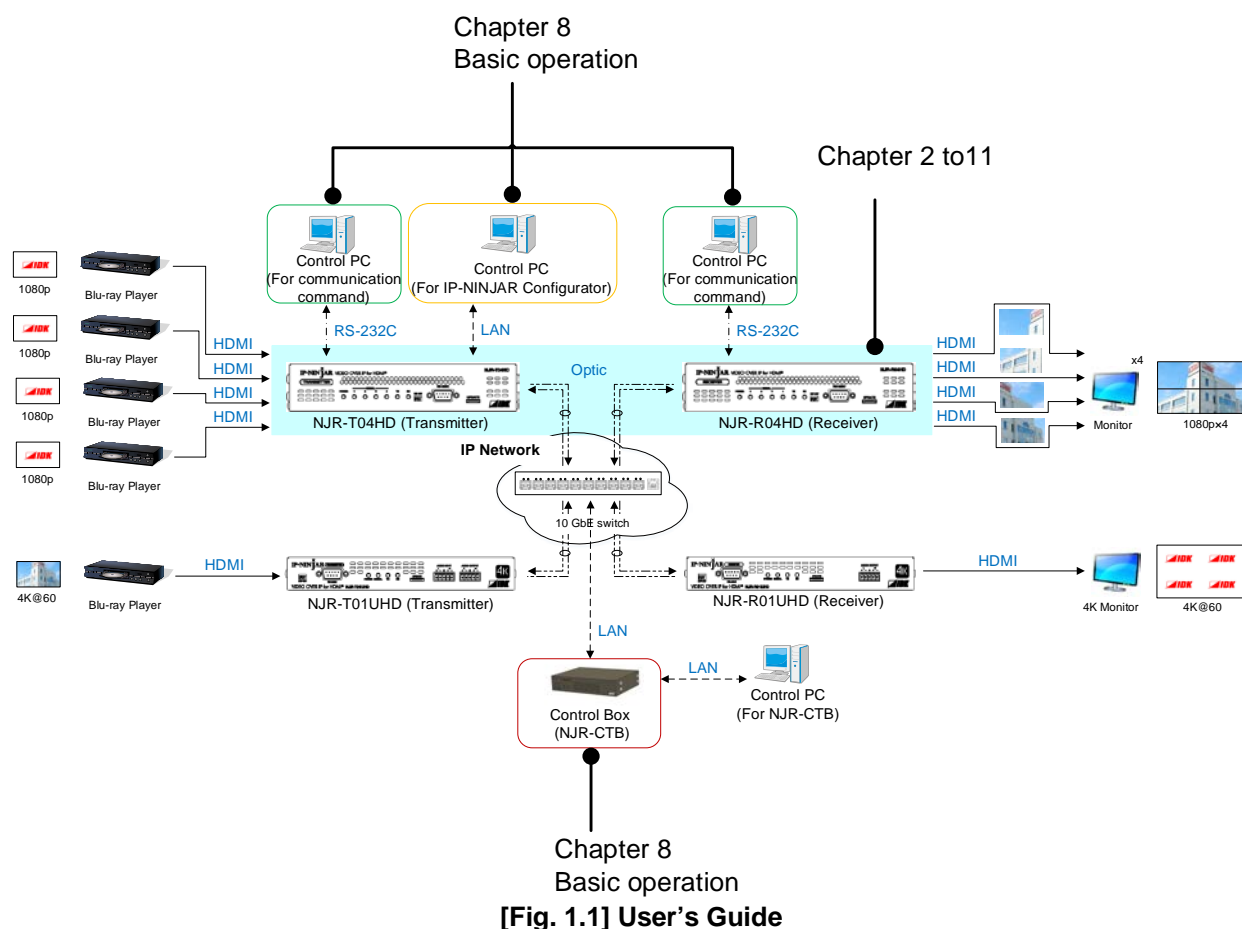
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1 How to read this manual

This User's Guide contains the basic explanation of the 4-channel HDMI network extender, NJR-T04HD (transmitter) and NJR-R04HD (receiver).



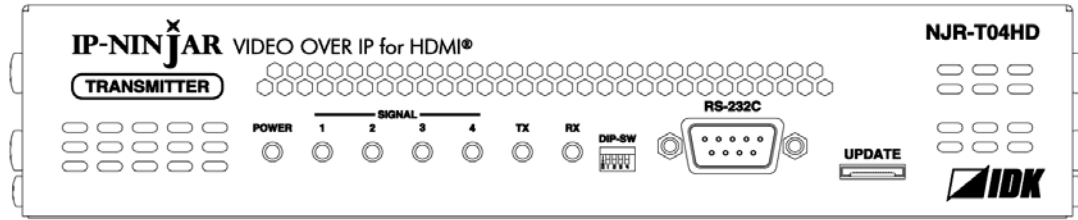
[Table 1.1] User's Guide of IP-NINJAR series

Model	User's Guide	Command Guide
NJR-T01UHD / NJR-R01UHD	NJR-T01UHD / NJR-R01UHD User's Guide	NJR-T01UHD / NJR-R01UHD Command Guide
NJR-T04HD / NJR-R04HD	NJR-T04HD / NJR-R04HD User's Guide	NJR-T04HD / NJR-R04HD Command Guide
NJR-CTB	NJR- CTB User's Guide	NJR- CTB Command Guide
IP-NINJAR Configurator	IP-NINJAR Configurator User's Guide	

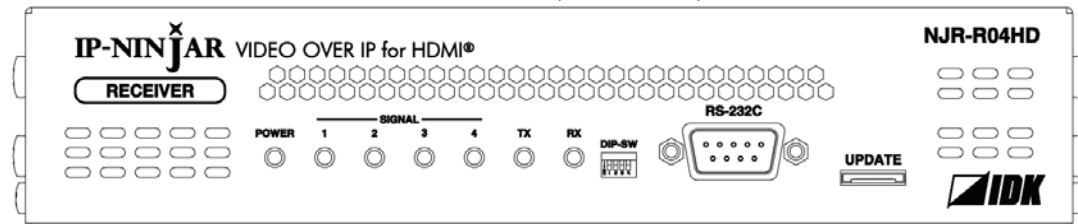
2 Included Items

Ensure that all items below are included in the package.

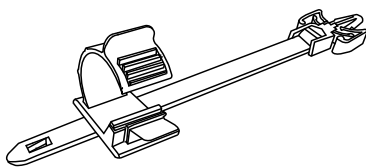
If any items are missing or damaged, please contact IDK.



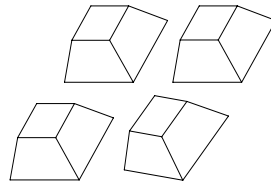
NJR-T04HD (Transmitter)



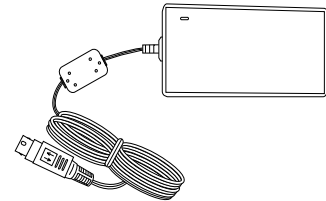
NJR-R04HD (Receiver)



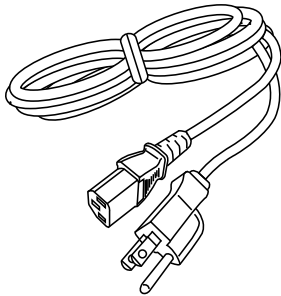
Cable clamp



Rubber feet



DIN plug AC cable with lock
3.9 ft. (1.2 m)



Power cord 5.9 ft. (1.8 m)

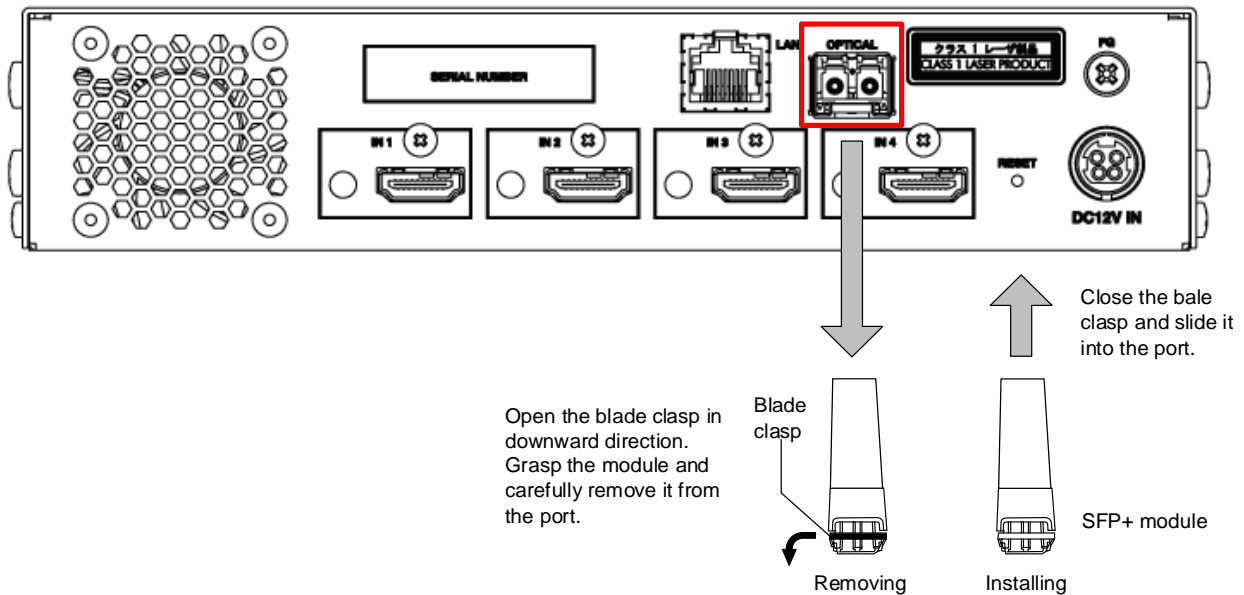
Item	NJR-T04HD (Transmitter)	NJR-R04HD (Receiver)
Main body	1	1
DIN plug AC cable with lock 3.9 ft. (1.2 m)	1	1
Power cord 5.9 ft. (1.8 m)	1	1
Cable clamp	4	4
Rubber feet	4	4

[Fig. 2.1] Included items

3 Precautions for shipping

The MM / SM model (NJR -04HD-MM / SM) has an SFP+ module that make it vulnerable to damage caused by mishandling during shipment if it is improperly packaged.

If, for any reason, you need to ship the NJR, use the carton and cushion which were used at the time of purchase. If you do not have the carton and cushion, remove the SFP+ module from the NJR and put it in an antistatic bag with enough cushion. Use the appropriate carton and cushion for shipping.



[Fig. 3.1] Removing and installing SFP+ module (Example: NJR-T04HD-SM / MM)

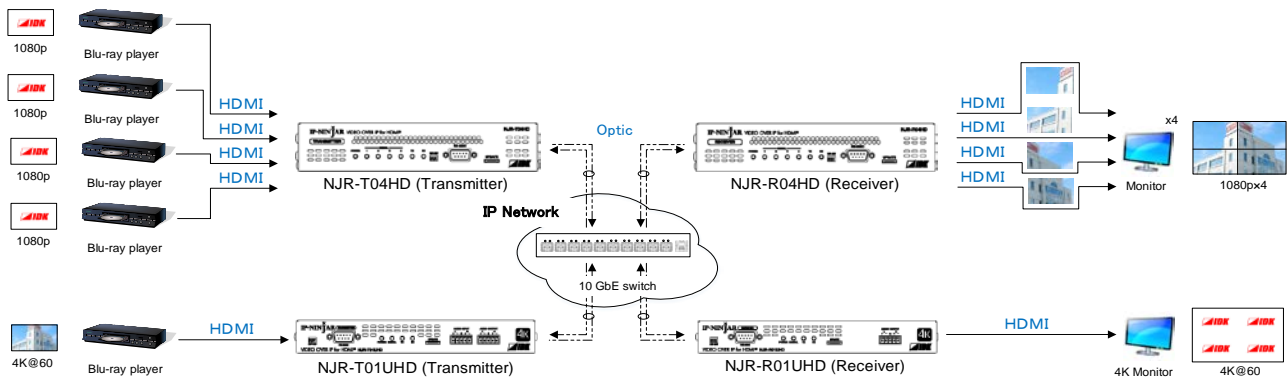
4 Product Outline

NJR-T04HD (transmitter) / NJR-R04HD (receiver) is a 4-port HDMI network extender with built-in scan converter. HDMI signals from four ports are transmitted over a pair of fiber optic cables. RS-232C bidirectional communication and LAN transmission are also supported.

The NJR-T04HD / NJR-R04HD can be used as a 4-input and 4-output matrix switcher or distribution system. One NJR-R04HD enables 4-screen videowall and even larger number of screens can be used in a videowall using multiple NJR-R04HDs.

The NJR-T04HD / NJR-R04HD can be used with other IP-NINJAR products. For example, if the NJR-R01UHD is connected to the NJR-T04HD, 4-port full HD video signals that are input to the NJR-T04HD can be displayed as 1-port 4K@60 video signals in a sink device.

If the NJR-T01UHD is connected to the NJR-R04HD, 1-port 4K@60 video signals that are input to the NJR-T01UHD can be divided into four and displayed in four sink devices. (In case the 4K video is protected by HDCP 2.2, the NJR-R04HD cannot display video signals.)



[Fig. 4.1] HDMI signal transmission

Note:

The NJR-T04HD / NJR-R04HD have to be used with IP-NINJAR series products. The NJR-T04HD / NJR-R04HD cannot be connected to FDX's optic slot boards or OPF series products.

Four models are available depending on the optic fiber cable you use.

Optic fiber type	Model number	
	Transmitter	Receiver
Multimode	NJR-T04HD-MM	NJR-R04HD-MM
Singlemode	NJR-T04HD-SM	NJR-R04HD-SM

5 Features

■ Video

- Up to QWXGA (Reduced Blanking): 1080p
- HDCP
- Extension distance
 - Input (NJR-T04HD) : Up to 98 ft. (30 m)
 - Output (NJR-R04HD) : Up to 164 ft. (50 m)
- Motion adaptive I/P conversion
- Matrix switching
- Distribution to multiple sink devices (NJR-R04HD)
- Scan conversion
- Aspect control
- Extension distance of each SFP+ module
 - Multimode fiber (OM3) : 984 ft. (300 m)
 - Singlemode fiber (OS1) : 6.21 mi. (10 km) (Optional: 24.85 mi. (40 km))

■ Audio

- Lip Sync (NJR-R04HD)

■ Communication

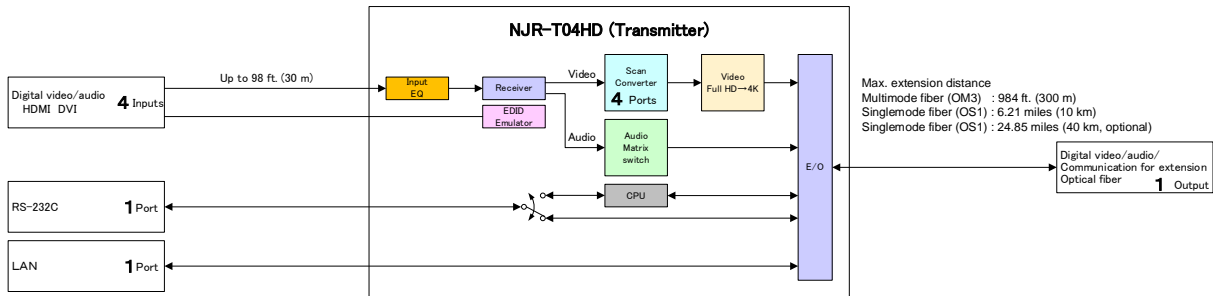
- RS-232C bidirectional communication
- LAN transmission

■ Network

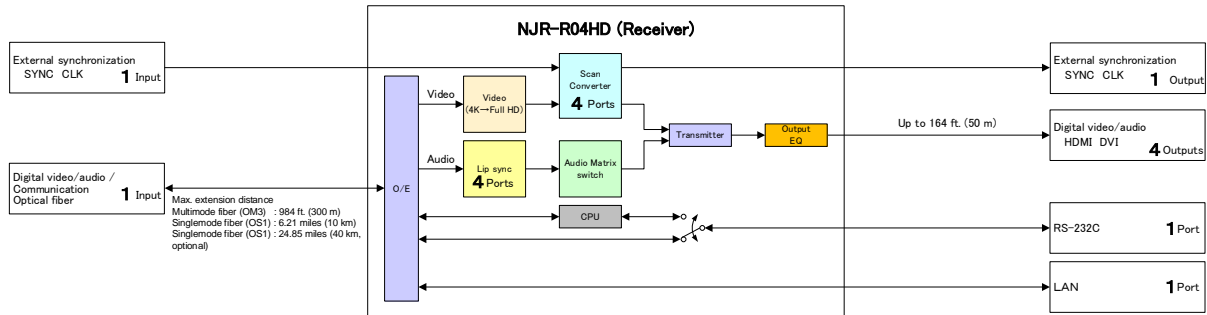
- Matrix switching, videowall, multiviewer, and distribution using 10 GbE switch
- All transmitter and receivers in the network can be managed and controlled by NJR-CTB
- Easy to re-build by adding IP-NINJAR transmitters and receivers

■ Others

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



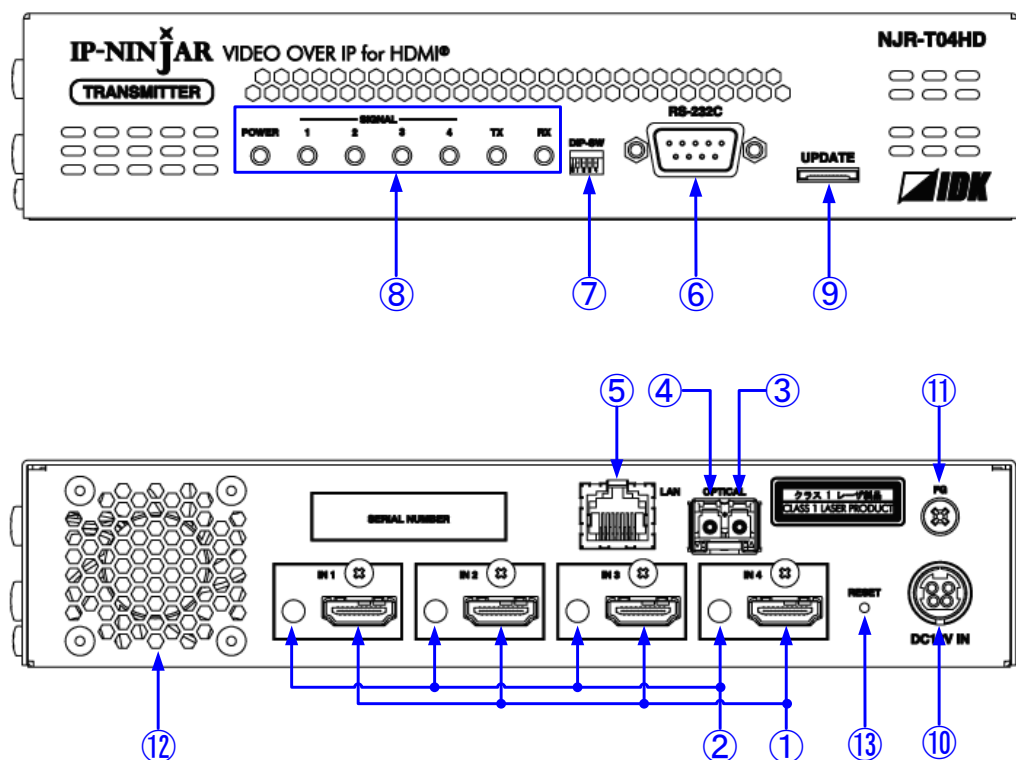
[Fig. 5.1] NJR-T04HD Connection Diagram



[Fig. 5.2] NJR-R04HD Connection Diagram

6 Front and Rear Panels

6.1 NJR-T04HD (Transmitter)



[Fig. 6.1] Panel drawing

[Table 6.1] Part names and descriptions of NJR-T04HD

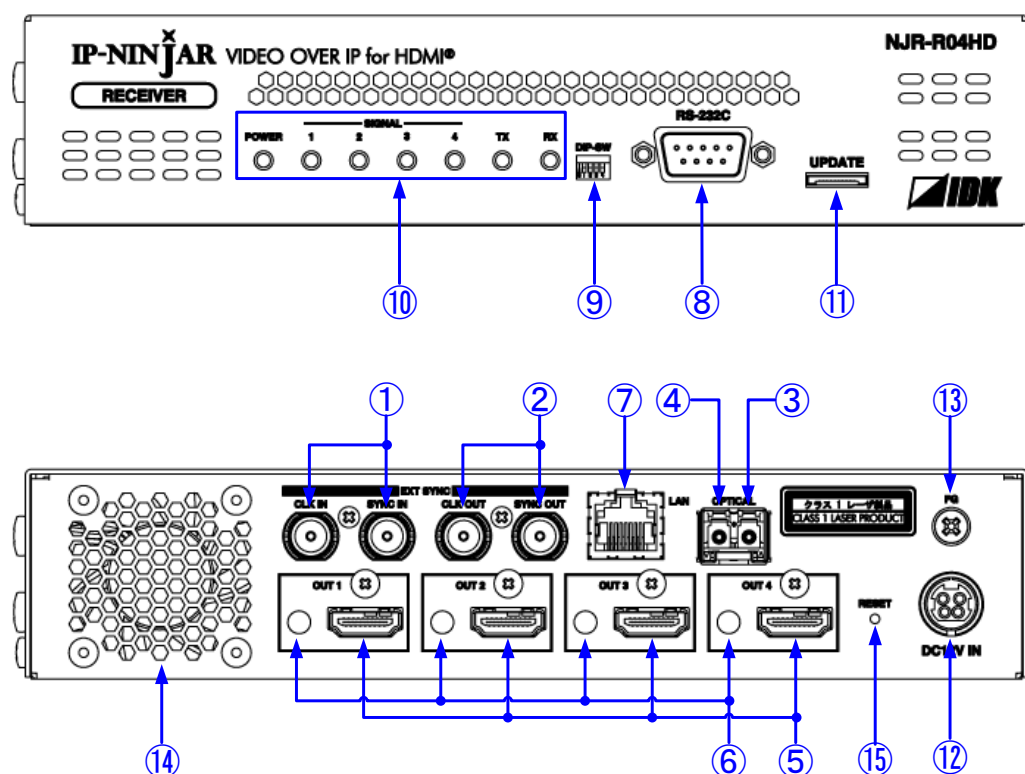
Number	Name	Description
①	HDMI input connector	Input connectors for HDMI signal to connect to a source devices, such as Blu-ray players.
②	HDMI cable fixing hole	Fixes HDMI cables by inserting provided cable clamps.
③	Optic input connector for extension	Digital optical signal input connector for extension A fiber optic cable is used; connects to an optic output connector of NJR-R04HD, other IP-NINJAR's receiver, or 10 GbE switch.
④	Optic output connector for extension	Digital optical signal output connector for extension A fiber optic cable is used; connects to an optic input connector of NJR-R04HD, other IP-NINJAR's receiver, or 10 GbE switch.
⑤	LAN port	For LAN signals
⑥	RS-232C port	For RS-232C signals
⑦	DIP switch	Switches internal connections of RS-232C signals.

【See: 8.4 Setting】

[Table 6.2] Part names and descriptions of NJR-T04HD (Cont'd)

Number	Name	Description
⑧	LEDs (green)	<ul style="list-style-type: none"> • 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 (blinking) : Blinks when a valid code is being sent to NJR-R04HD, other IP-NINJAR's receiver, or 10 GbE switch. • RX (blinking) : Blinks when a valid code is being received from NJR-R04UHD, other IP-NINJAR's receiver, or 10 GbE switch.
⑨	Maintenance port	Not used. Keep this connector free
⑩	AC power connector	For the provided AC adapter
⑪	Frame ground	Can be used to provide an electrical bond between the NJR and surrounding equipment ground potential. An M3 screw is used.
⑫	Cooling fan	Releases heat from the unit.
⑬	RESET button	Reboots with the set values kept.

6.2 NJR-R04HD (Receiver)



[Fig. 6.2] Panel drawing

[Table 6.3] Part names and descriptions of NJR-R04HD

Number	Name	Description
①	Sync signal input connector	For synchronizing multiple NJR-R04HDs' output video. Connects to the desired NJR-R04HD's synchronous signal output connector.
②	Sync signal output connector	For synchronizing multiple NJR-R04HDs' output video. Connects to the desired NJR-R04HD's synchronous signal input connector.
③	Optic input connector for extension	Digital optical signal input connector for extension An optic fiber cable is used; connects to an optic output connector of NJR-T04HD, other IP-NINJAR's transmitter, or 10 GbE switch.
④	Optic output connector for extension	Digital optical signal output connector for extension A fiber optic cable is used; connects to an optic input connector of NJR-T04HD, other IP-NINJAR's transmitter, or 10 GbE switch.
⑤	HDMI output connector	Output connector for HDMI signals Connects to a sink device, such as a LCD monitor.
⑥	HDMI cable fixing hole	Fixes HDMI cables by inserting provided cable clamps.

[Table 6.4] Part names and descriptions of NJR-R04HD (Cont'd)

Number	Name	Description
⑦	LAN port	For LAN signals
⑧	RS-232C port	For RS-232C signals
⑨	DIP switch	Switches internal connections of RS-232C signals. 【See: 8.4 Setting】
⑩	LED (green)	<ul style="list-style-type: none"> • 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 (blinking): Blinks when a valid code is being sent to NJR-R01UHD, other IP-NINJAR's transmitter, or 10 GbE switch. • RX (blinking): Blinks when a valid code is being received from NJR-R01UHD, other IP-NINJAR's transmitter, or 10 GbE switch.
⑪	Maintenance port	Not used. Keep this connector free
⑫	AC power connector	For the provided AC adapter
⑬	Frame ground	For indoor ground terminal. M3 screws are used.
⑭	Cooling fan	Releases heat from the unit.
⑮	RESET button	Reboots with the set values kept.

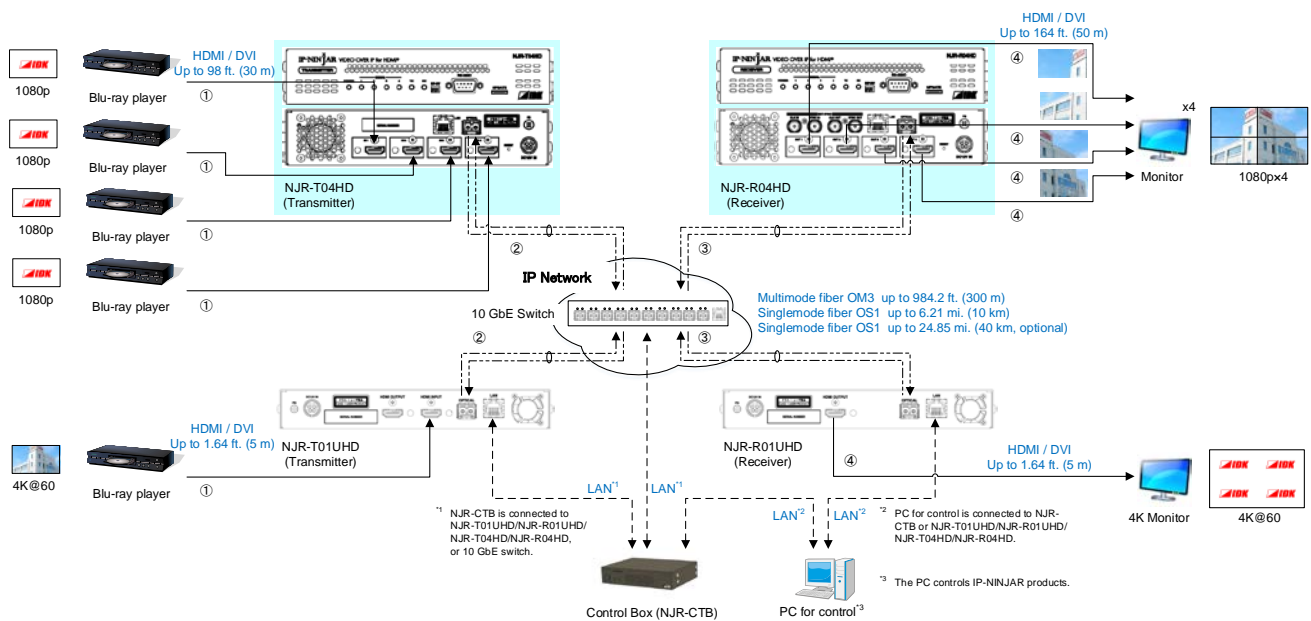
7 System Configuration Example

This chapter cites two system configuration examples.

7.1 NJR-T4HD / NJR-R04HD are used as Network Extender

Using NJR-T01UHDs / NJR-R01UHDs or IP-NINJAR transmitters/receivers with a 10 GbE switch enables extending, distributing, matrix switching, videowall, and multiviewer.

- ① Video and audio signals are input from the Blu-ray disc 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 (control box for IP-NINJAR).
- ④ NJR-T01UHD / NJR-T04HD outputs received video and audio signals from the HDMI output connector to the monitor.

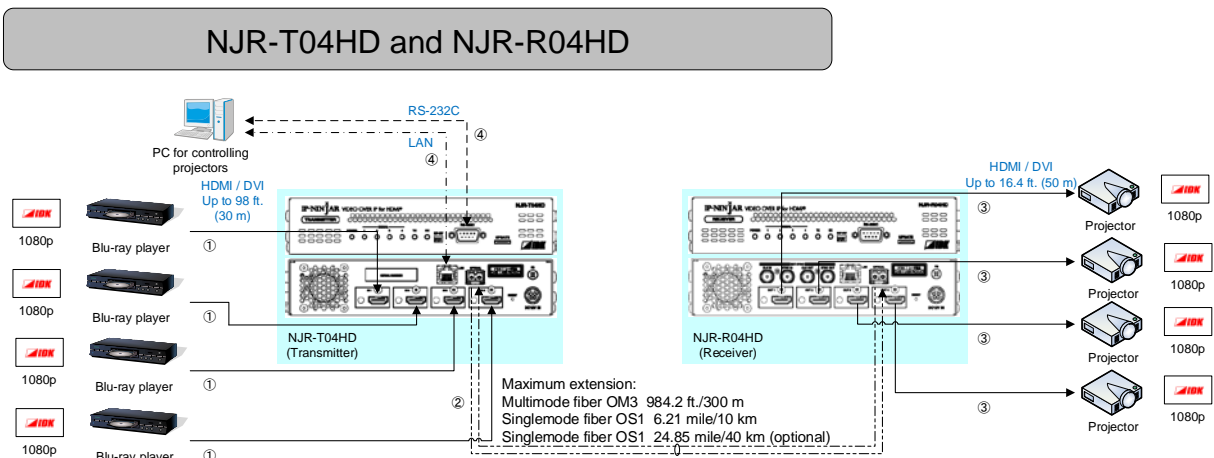


[Fig. 7.1] Used as Network Extender

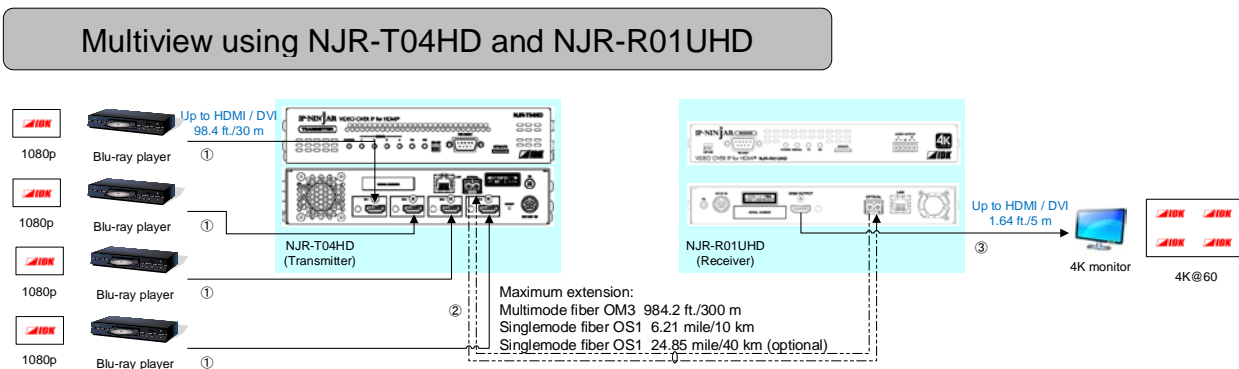
7.2 NJR-T04HD / NJR-R04HD are used as Extender

An IP-NINJAR transmitter and receiver are connected as Point To Point.

- ① Video and audio signals are input from the Blu-ray disc 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.
- ③ NJR-R01UHD / NJR-R04HD outputs received video and audio signals from the HDMI output connector to the monitor.
- ④ 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).

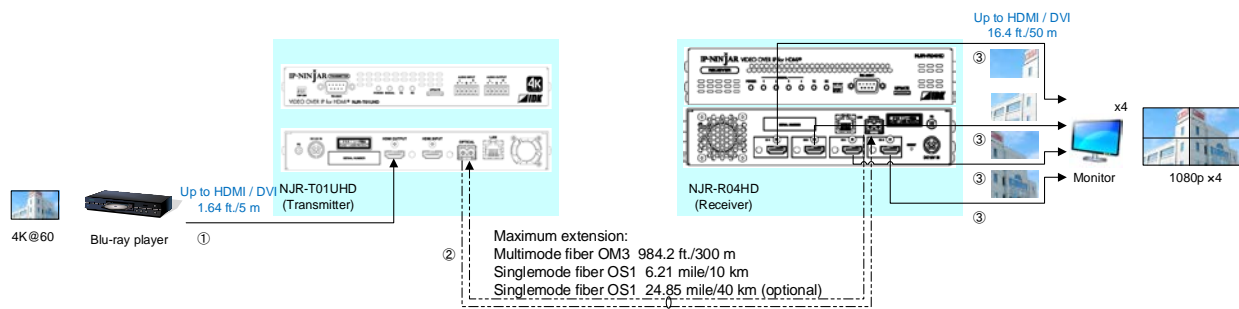


[Fig. 7.2] System configuration example3: Network switch is not used



[Fig. 7.3] System configuration example2: Network switch is not used

Videowall using NJR-T01UHD and NJR-R04HD



[Fig. 7.4] System configuration example3: Network switch is not used

8 Precautions and Preparations

Before using the NJR-T04HD / NJR-R04HD, follow the precautions and instructions below.

8.1 Attaching Rubber feet

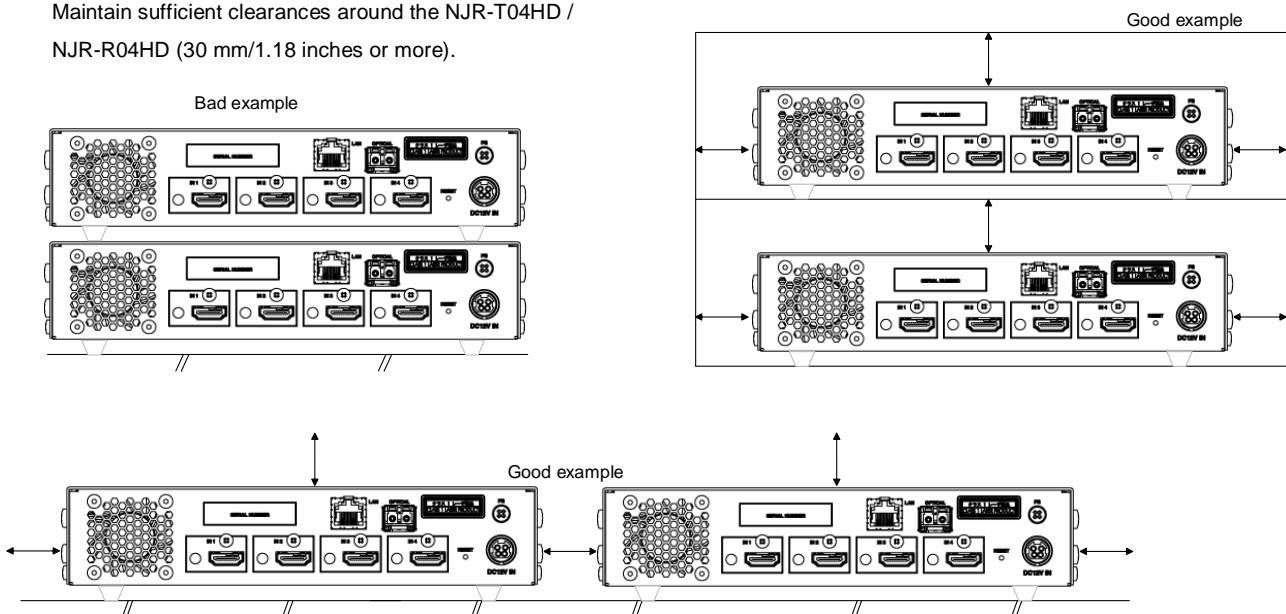
First, clean the bottom surface of the NJR-T04HD / NJR-R04HD as needed, and then peel the release papers from the rubber feet and place them in each of the four corners.

8.2 Installation

Follow the instructions below when installing the NJR-T04HD / NJR-R04HD.

- Do not place the NJR-T04HD / NJR-R04HD on another device directly. The temperature of its bottom surface is elevated after it is powered on.
- Do not block vent holes. To provide adequate ventilation, maintain sufficient clearances around the NJR-T04HD / NJR-R04HD (30 mm/1.18 inches or more).
- When placing the NJR-T04HD / NJR-R04HD in an EIA rack-mount unit, use IDK's RM-44S, RM-44D, or RM-4442. If you do not use it, prepare ventilating equipment to keep the ambient temperature at 40 degrees C/104 degrees F or less. If inadequately vented, the life of parts may be shortened and operation may be affected.

Maintain sufficient clearances around the NJR-T04HD /
NJR-R04HD (30 mm/1.18 inches or more).



[Fig. 8.1] Minimum required clearances (when an EIA rack-mount unit is not used)

8.3 Cabling

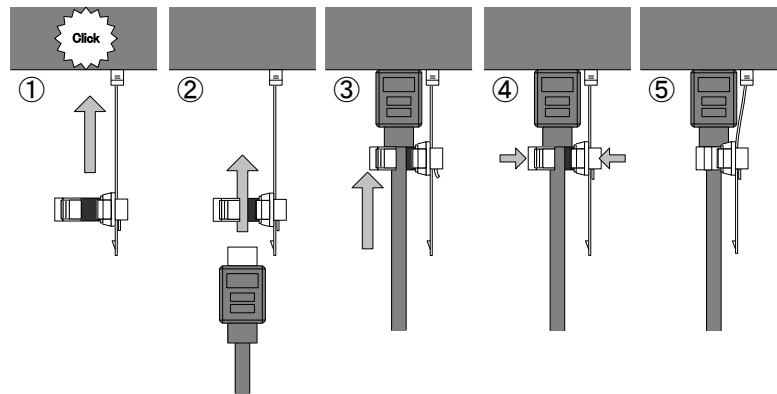
Follow the precautions below when connecting the NJR-T04HD / NJR-R04HD to target devices.

- Read the user's guides of connected devices carefully.
- When connecting a cable to the NJR-T04HD / NJR-R04HD or a compatible product, dissipate static electricity by touching grounded metal such as racks before handling single cables. Failure to observe this precaution may result in ESD (electrostatic discharge) damage.
- Power off all devices.
- Be sure to fully seat all plugs and connections and dress cables to reduce stress on connectors.

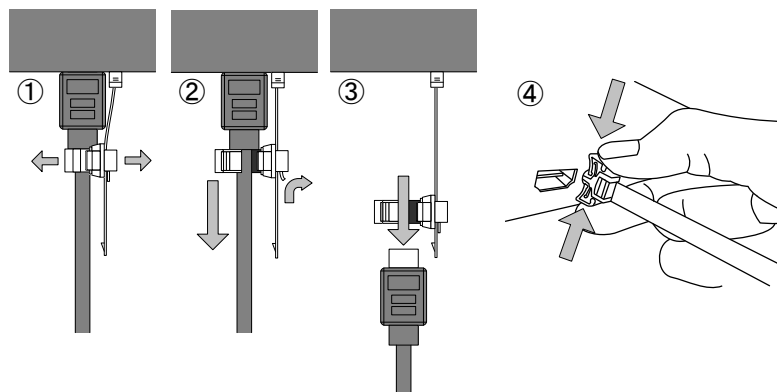
8.3.1 HDMI cable

Fix HDMI cables using cable clamps to prevent those cables from falling off.

Fixing HDMI cable with cable clamp



Removing HDMI cable and cable clamp

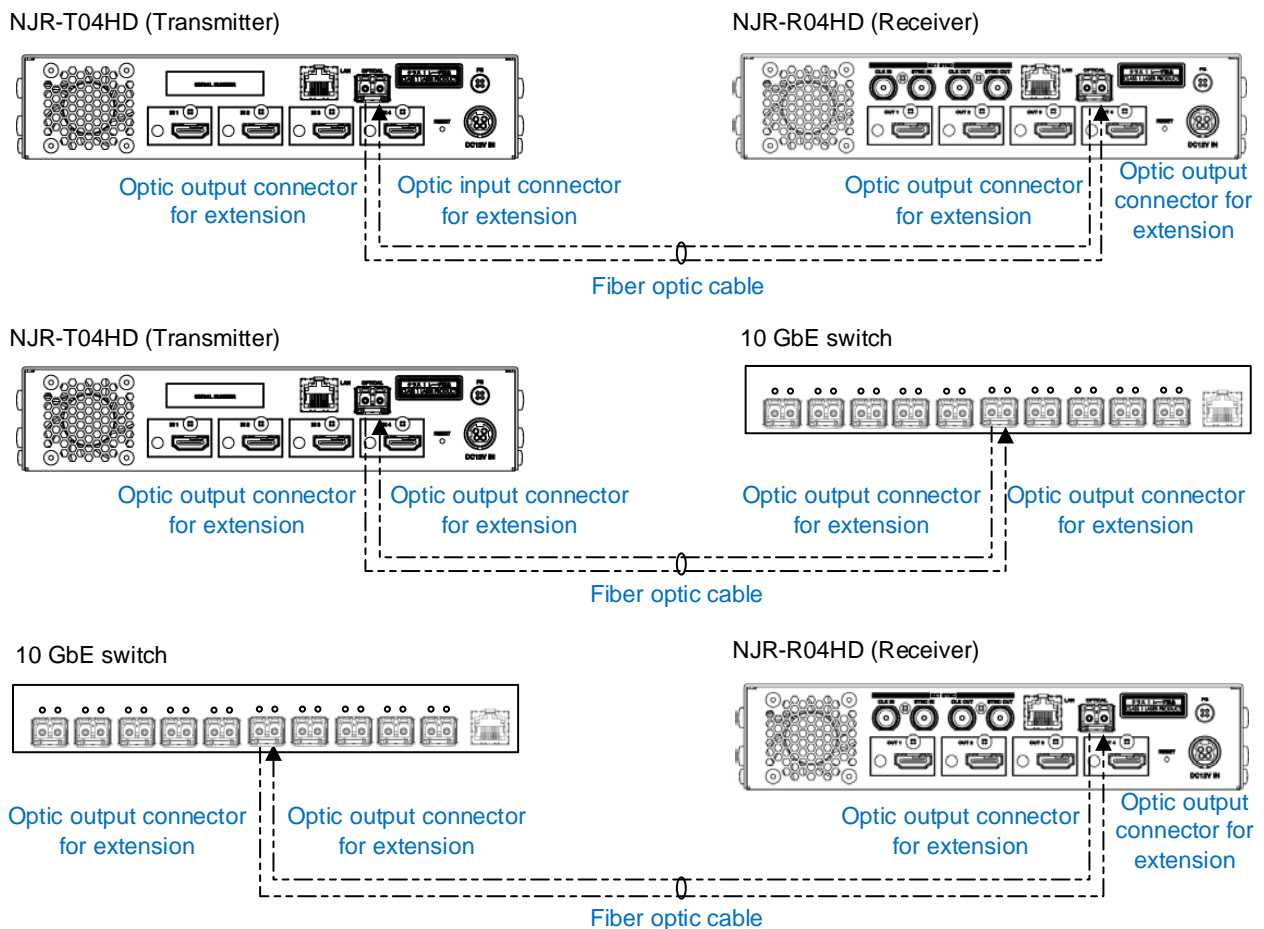


[Fig. 8.2] Attaching cable clamp

8.3.2 Fiber optic cable

NJR-T04HD / NJR-R04HD can reach their full potential by selecting appropriate fiber optic cables 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-T04HD: The target device should be NJR-R04HD, receiver of other IP-NINJAR product, or 10 GbE switch.
NJR-R04HD: The target device should be NJR-T04HD, transmitter of other IP-NINJAR product, or 10 GbE switch.



[Fig. 8.3] Connecting fiber optic cable

Note:

For the connectors of 10 GbE switch, refer to its manual.

Tip:

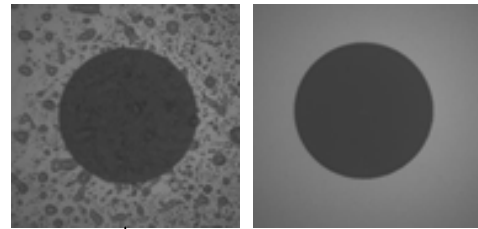
IDK supplies various optical cables, such as high-performance optical cables and non-strip fiber optic cables. See our web site for details.

- To polish connectors:
For SFP module for multimode: PC polishing is recommended.
For SFP module for singlemode: UPC polishing is recommended.
Note: APC polishing is not supported.
- Extension 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-T04HD/NJR-R04HD 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

8.3.3 SFP+Module

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

[Table 8.1] Specification of standard SFP+modules

Item	10G-MM-SFP	10G-SM-SFP	10G-SM40-SFP ^{*1}
Cable	Multimode fiber	Singlemode fiber	Singlemode fiber
Wave length	850 nm (VCSEL laser (²))	1310 nm (DFB laser (²))	1550 nm (EML laser (²))
Maximum extension distance	OM3: 984.25 feet/300 m	OS1: 6.21 mile/10 km	OS1: 24.85 mile/40 km
Input level	-11.1 dBm or higher	-12.6 dBm or higher	-16 dBm or higher
Output level	-5 dBm to -1 dBm	-8.2 dBm to +0.5 dBm	-1 dBm to +2 dBm
Receiver Overload	+0.5 dBm	+0.5 dBm	-1 dBm
Connector	LC (Duplex)		

^{*1} 10G-SM40-SFP is optional.

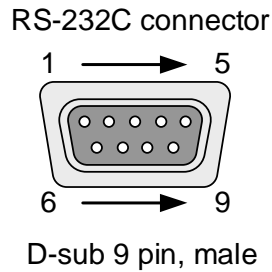
^{*2} NJR-T01UHD/NJR-R01UHD have lasers that meet Class 1 Laser Safety.

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

8.3.4 Connecting RS-232C

Pin assignment of the RS-232C connector is as follows.

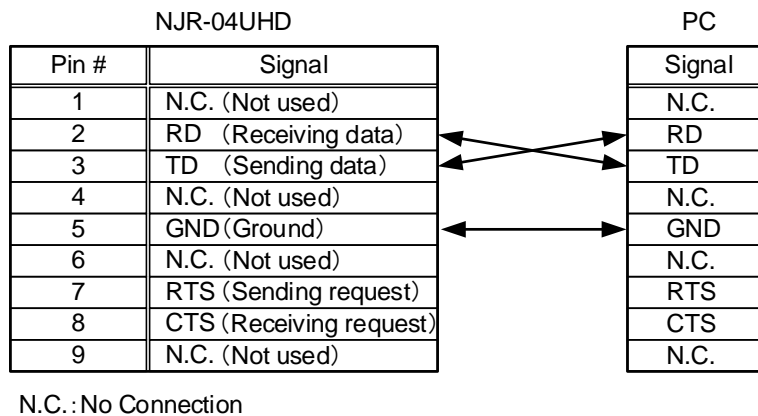
Use a cross cable or a straight cable depending on device to be connected.



[Fig. 8.6] Specification of RS-232C connector

■ Connecting NJR-04UHD to PC

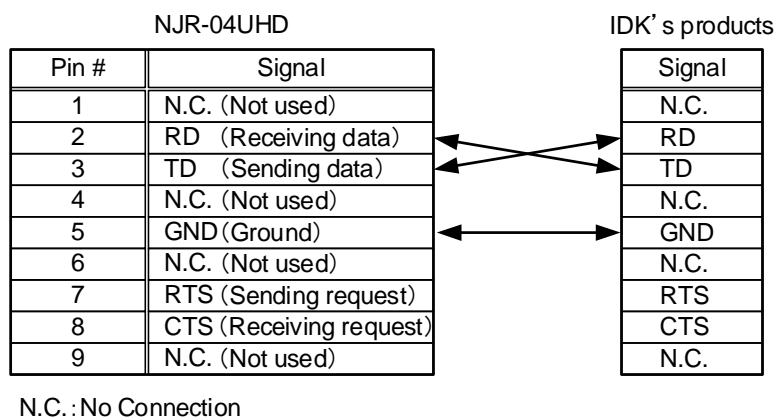
Use a cross cable to connect the NJR-04UHD to a PC.



[Fig. 8.7] RS-232C pin assignment (connecting to PC)

■ Connecting NJR-04UHD to IDK's products

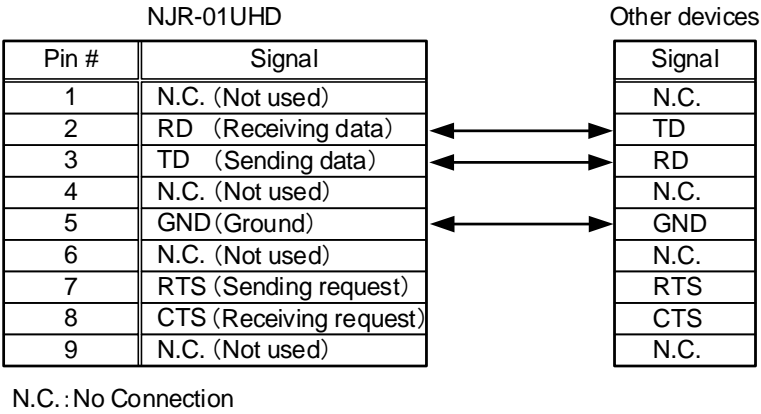
Use a cross cable to connect the NJR-04UHD to an IDK's product.



[Fig. 8.8] RS-232C pin assignment (connecting to IDK's product)

■ **Connecting NJR-04UHD to another device requiring straight connection**

Use a straight cable to connect the NJR-04UHD to other devices requesting straight connection.

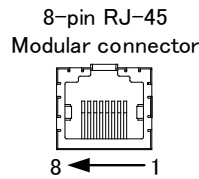


[Fig. 8.9] RS-232C pin assignment (connecting to device requiring straight connection)

8.3.5 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.



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. (No connection)	TRX+ (Transmitted & Received data+)	N.C. (No connection)
5	TRX- (Transmitted & Received data)	N.C. (No connection)	TRX- (Transmitted & Received data)	N.C. (No connection)
6	TRX- (Transmitted & Received data)	RX- (Received data)	TRX- (Transmitted & Received data)	TX- (Transmitted data)
7	TRX+ (Transmitted & Received data+)	N.C. (No connection)	TRX+ (Transmitted & Received data+)	N.C. (No connection)
8	TRX- (Transmitted & Received data)	N.C. (No connection)	TRX- (Transmitted & Received data)	N.C. (No connection)

*N.C.: No Connection

[Fig. 8.10] LAN connector specification

Make sure not to form a loop by NJR-T04HD / NJR-R04HD when connecting a LAN cable to NJR-T04HD / NJR-R04HD.

NJR-T04HD / NJR-R01UHD 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.

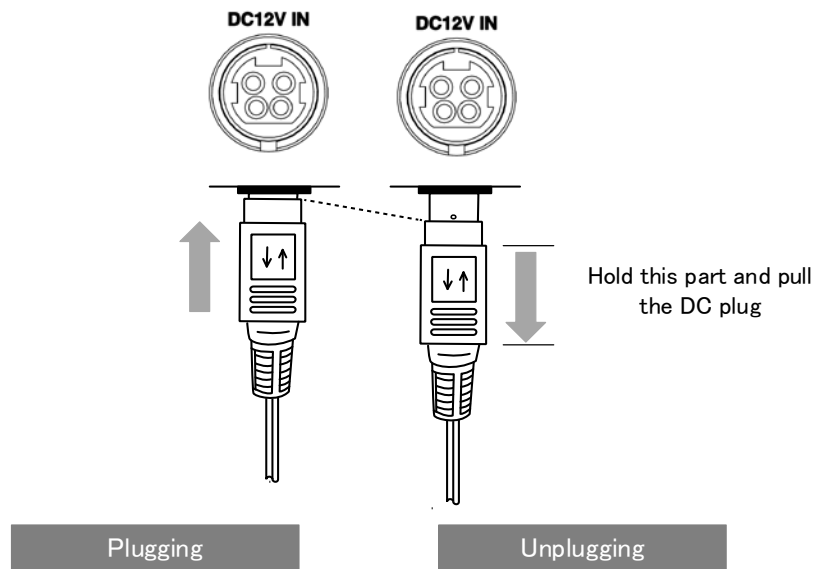
Broadcast storm: This problem occurs when a network system is overwhelmed by continuous broadcast traffic or the like.

8.3.6 DIN plug AC adapter with lock

■ Plugging and unplugging DC plug

Plug the DC plug to the power supply connector of the unit until it clicks.

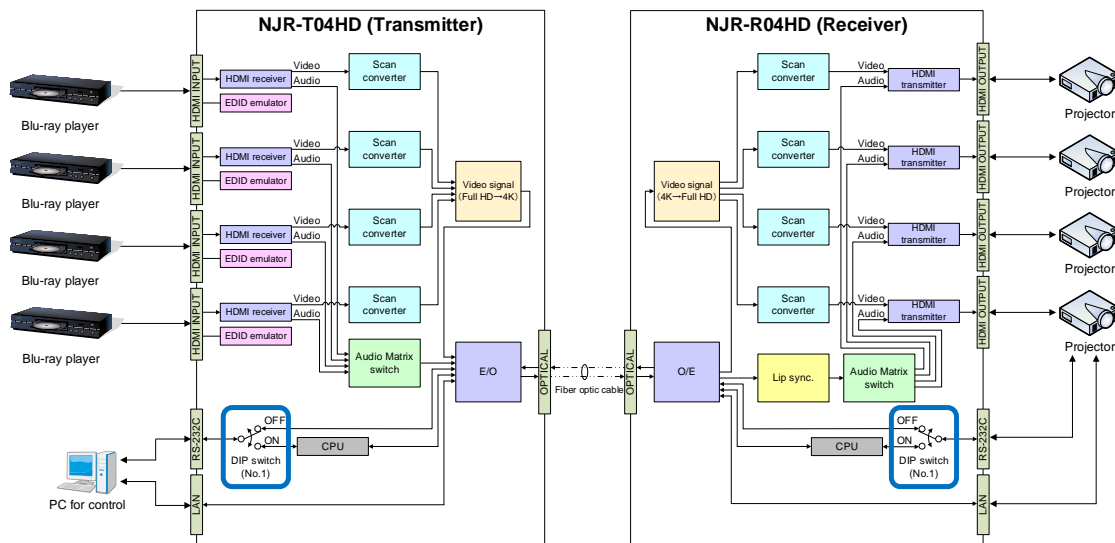
Hold the portion mentioned below when unplugging the DC plug.



[Fig. 8.11] Plugging and unplugging DC plug

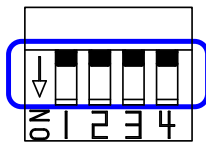
8.4 Setting DIP switch

Use the DIP switch to change settings of NJR-T04HD / NJR-R04HD.



[Fig. 8.12] Block Diagram of DIP switch function

■ Settings for NJR-T04HD

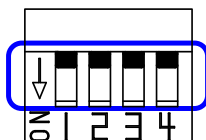


Default: OFF (SW1 to SW4)

No.	Description
1	Selects internal connection of the RS-232C port. OFF : Connects to NJR-R04HD. ON : Connects to the CPU and sets settings of NJR-T04HD.
2	No connection
3	No connection
4	No connection

[Fig. 8.13] Functions of DIP switch (NJR-T04HD)

■ Settings for NJR-R04HD



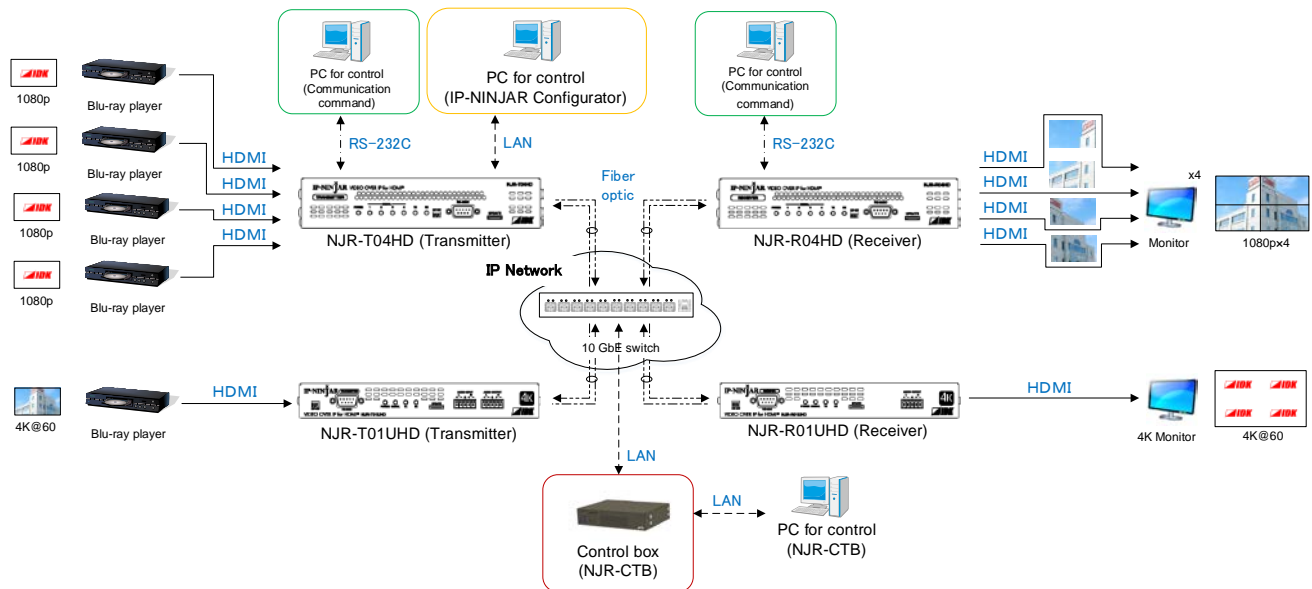
Default: OFF (SW1 to SW4)

No.	Description
1	Selects internal connection of the RS-232Cport. OFF : Connects to NJR-T04HD. ON : Connects to the CPU and sets settings of NJR-R04HD.
2	No connection
3	No connection
4	No connection

[Fig. 8.14] Functions of DIP switch (NJR-R04HD)

9 Basic Operation

NJR-T04HD / NJR-R04HD can be set from commands over RS-232C communication and NJR-CTB (control box for IP-NINJAR) or IP-NINJAR Configurator.



[Fig. 9.1] Setting NJR-T04HD and NJR-R04HD

9.1 Control over RS-232C communication

The NJR-T04HD / NJR-R04HD can be controlled over RS-232C communication.

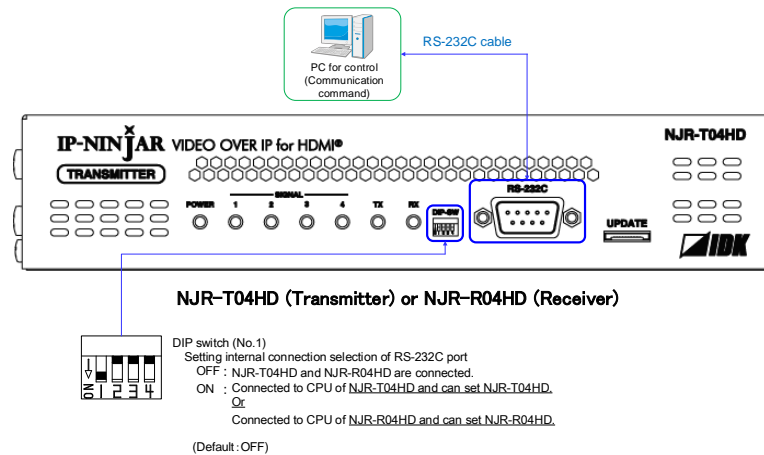
You can control the NJR-T04HD or NJR-R04HD and get its status by connecting a control unit, such as PCs, to the NJR-T04HD or NJR-R04HD over an RS-232C cable.

The RS-232C port has two modes: one is controlling the NJR-T04HD or NJR-R04HD and another is communicating between peripheral devices connected to the NJR-T04HD or NJR-R04HD.

Turn the DIP switch No.1 to ON to control the NJR-T04HD or NJR-R04HD

For details of communication commands, refer to the Command Guide for the NJR-T04HD / NJR-R04HD.

【See: 8.4 Setting】



[Fig. 9.2] Control over communication command

Note:

Settings of NJR-R04HD or NJR-T04HD cannot be set from NJR-T04HD or NJR-R04HD, respectively.

9.2 IP-NINJAR Configurator

The NJR-T04HD / NJR-R04HD connected to LAN can be set from the IP-NINJAR Configurator remotely over LAN communication.

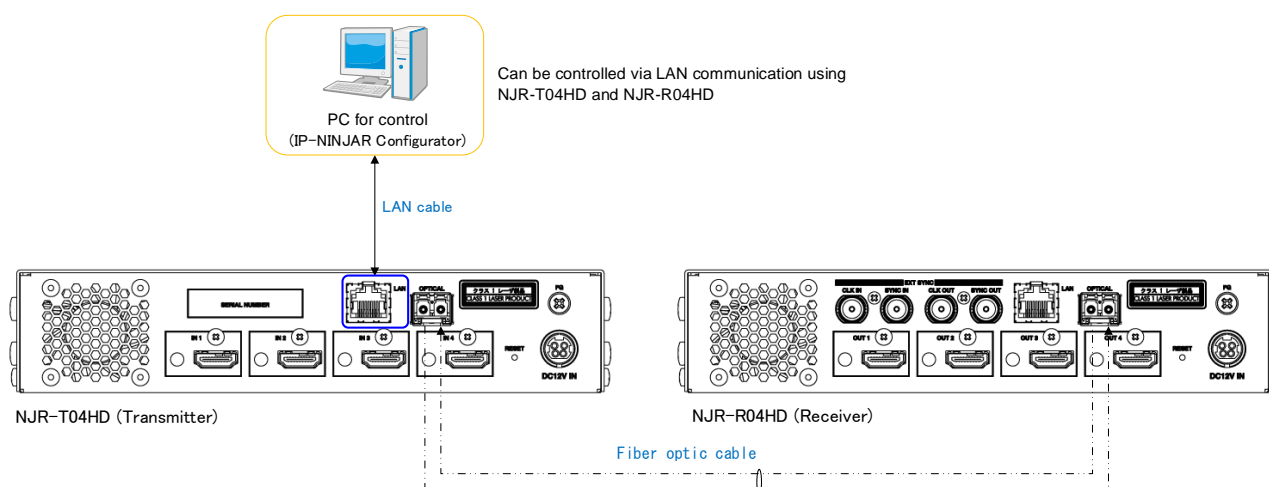
The following settings can be set from the GUI: setting RS-232C, setting LAN, resetting settings, and rebooting the NJR-T04HD / NJR-R04HD. For other settings, communication commands can be input from the command line.

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

Refer to the Command Guide for the NJR-T04HD / NJR-R04HD for details of communication commands.

You can download the IP-NINJAR Configurator from our Web site below:

<http://www.idkav.com>



[Fig. 9.3] Control from IP-NINJAR Configurator



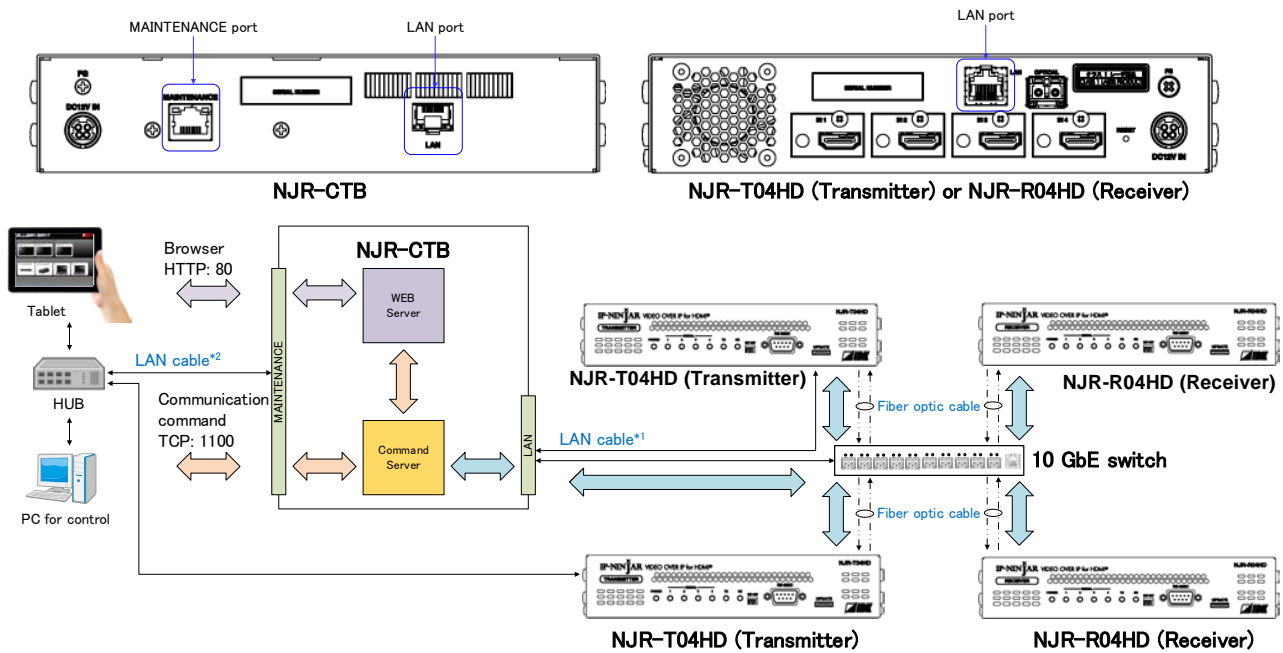
[Fig. 9.4] IP-NINJAR Configurator's GUI

9.3 Control over NJR-CTB (Control box for IP-NINJAR)

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-T04HD / NJR-R04HD or 10 GbE switch.

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

Refer to the Command Guide for NJR-T04HD / NJR-R04HD or the Command Guide for NJR-CTB for details of communication commands.



^{*1} LAN port on NJR-CTB should be connected to the LAN port on NJR-T01UHD/NJR-R01UHD or 10 GbE switch.

^{*2} PC for control should be connected to the MAINTENANCE port on NJR-CTB or the LAN port on NJR-T01UHD/NJR-R01UHD.

[Fig. 9.5] Control over 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

C: Command input, G: GUI, W: WEB browser and command input, No: Not supported

Setting item	NJR-T04HD / NJR-R04HD		NJR-CTB	Page
	RS-232C	LAN (IP-NINJAR Configurator)	LAN	
Output resolution	C	C	C	45
Aspect ratio for sink device	C	C	C	46
Aspect ratio	C	C	C	47
Overscan	C	C	C	48
Display position	C	C	C	49
Setting display size	C	C	C	50
Masking	C	C	C	51
Automatic sizing	C	C	C	53
Background color	C	C	C	53
Test pattern	C	C	C	54
Videowall screen number	C	C	C	55
Videowall enabled / disabled and coordinate grid	C	C	C	56
Bezel	C	C	C	57
Frame delay	C	C	C	58
Brightness	C	C	C	59
Contrast	C	C	C	60
HUE	C	C	C	60
Saturation	C	C	C	61
Sharpness	C	C	C	61
Gamma	C	C	C	62
Default color	C	C	C	62
Non-signal input monitoring	C	C	W	63
HDCP input Enabled/Disabled	C	C	W	63
Setting output equalizer	C	C	C	65
Setting output mode	C	C	W	65
HDCP re-authentication	C	C	C	66
Synchronous signal output for when no input video	C	C	C	66
Output video for when no input video	C	C	C	67
Deep Color	C	C	C	67
Video type	C	C	C	68
Matrix switch	C	C	C	70
Master synchronous signal	C	C	C	70
Frame delay	C	C	C	71

[Table 9.2] Setting items (Cont'd)

C: Command input, G: GUI, W: WEB browser and command input, No: Not supported

Setting item	NJR-T04HD / NJR-R04HD		NJR-CTB	Page
	RS-232C	LAN (IP-NINJAR Configurator)	LAN	
Muting digital audio	C	C	W	72
Setting audio level	C	C	C	72
Audio input for combining 4K	C	C	C	73
Lip sync	C	C	C	74
Test tone	C	C	C	75
Setting EDID resolution	C	C	W	76
Selecting WXGA mode	C	C	W	78
Enabling / Disabling telop	C	C	C	79
Telop background color	C	C	C	79
Telop font color	C	C	C	80
Telop font size	C	C	C	80
Telop position	C	C	C	81
Telop text	C	C	C	81
RS-232C communication	No	G	W	82
LAN	No	G	W	84
MAC address	No	G	W	84
Devices to be connected	C	C	C	85
Initialization	No	G	W	85
Reboot	No	G	W	86
Input status	C	C	W	87
Output status	C	C	W	88
Monitor EDID	C	C	W	90
Displaying version	C	C	W	91
Setting channel information*	No	No	W	-
Setting distribution*	No	No	W	-
Selecting I/O channel*	No	No	W	-
Setting NJR-CTB LAN*	No	No	W	-

* In this manual, only settings of NJR-T04HD / NJR-R04HD are explained. Refer to NJR-CTB User's Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, setting video wall, setting cross point, and setting NJR-CTB LAN.

10 Setting

The following items of NJR-T04HD / NJR-R04HD can be set using the RS-232C communication, IP-NINJAR Configurator, or NJR-CTB.

In this manual, only settings of NJR-T04HD / NJR-R04HD are explained. Refer to NJR-CTB User's Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, setting video wall, setting cross point, and setting NJR-CTB LAN.

[Table 10.1] Setting items

Setting item		Setting value		Page
		Value	Default	
Output resolution		AUTO / VGA to QWXGA / 480i / 480p / 576i / 576 / 720p / 1080i / 1080p	AUTO	45
Aspect ratio for sink device		RESOLUTION / 4:3 / 5:4 / 5:3 / 16:9 / 16:10	RESOLUTION	46
Aspect ratio		AUTO-1 / AUTO-2 / 4:3 / 16:9 / 14:9 / 16:9 LETTER BOX / 14:9 LETTER BOX / 4:3 SIDE PANEL / 14:9 SIDE PANEL / FULL / THROUGH	AUTO-1	47
Overscan		100% to 115%	SDTV: 105%, HDTV / PC: 100%	48
Horizontal Display position	[NJR-T04HD] "Video type" is set to "All Inputs".	— Horizontal display size to +1920	0	49
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4".	— Horizontal display size to + Horizontal input resolution	0	
	[NJR-R04HD]	— Horizontal display size to + Horizontal output resolution	0	
Vertical Display position	[NJR-T04HD] "Video type" is set to "All Inputs"	— Vertical display size to + 1080	0	49
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4".	— Vertical display size to + Vertical input resolution	0	
	[NJR-R04HD]	— Vertical display size to + Vertical output resolution	0	

[Table 10.2] Setting items (Cont'd)

Setting item		Setting value		Page
		Value	Default	
Setting display size	[NJR-T04HD] "Video type" is set to "All Inputs".	1920÷4 to 1920×4	1920	50
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4".	Horizontal input resolution÷4 to Horizontal input resolution×4	Horizontal input resolution	
	[NJR-R04HD]	Horizontal output resolution÷6 to Horizontal output resolution×6	Horizontal output resolution	
Setting display size	[NJR-T04HD] "Video type" is set to "All Inputs"	1080÷4 to 1080×4	1080	50
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4"	Vertical input resolution÷4 to Vertical input resolution×4	Vertical input resolution	
	[NJR-R04HD]	Vertical output resolution÷6 to Vertical output resolution×6	Vertical output resolution	
Left Masking	[NJR-T04HD]	Horizontal display position (0 or more) to Right masking	0	51
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Disabled"	Horizontal display position (0 or more) to Right masking	0	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Enabled"	0 to Right masking	0	
Right Masking	[NJR-T04HD] "Video type" is set to "All Inputs"	Left masking to horizontal display position + Horizontal display size (1920 or less)	1920	51
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4"	Left masking to horizontal display position+horizontal display size (Horizontal input resolution or less)	Horizontal input resolution	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Disabled"	Left masking to horizontal display position+horizontal display size (Horizontal output resolution or less)	Horizontal output resolution	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Enabled"	Left masking to horizontal display size	Horizontal display size	

[Table 10.3] Setting items (Cont'd)

Setting item		Setting value		Page
		Value	Default	
Top Masking	[NJR-T04HD]	Vertical display position (0 or more) to Bottom masking	0	51
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Disabled"	Vertical display position (0 or more) to Bottom masking	0	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Enabled"	0 to Bottom masking	0	
Bottom Masking	[NJR-T04HD] "Video type" is set to "All Inputs"	Top masking to Vertical display position+ Vertical display size (1080 or less)	1080	51
	[NJR-T04HD] "Video type" is set to "IN1" to "IN4"	Top masking to Vertical display position+ Vertical display size (Vertical input resolution or less)	Vertical input resolution	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Disabled"	Top masking to Vertical display position+ Vertical display size (Vertical output resolution or less)	Vertical output resolution	
	[NJR-R04HD] "Videowall enabled / disabled and coordinate grid" is set to "Enabled"	Top masking to Vertical display size	Vertical display size	
Automatic sizing		—	—	53
Background color		R / G / B: 0 to 255	R / G / B: 0 (Black)	53
Test pattern		Pattern: OFF / V-COLOR BAR / H-COLOR BAR / V-GRAY SCALE / H-GRAY SCALE / VERTICAL RAMP / HORIZONTAL RAMP / 100% WHITE RASTER / 50% WHITE RASTER / RED RASTER / GREEN RASTER / BLUE RASTER / CROSS HATCH / OUTPUT FRAME / VERTICAL STRIPE / HORIZONTAL STRIPE / VERTICAL ZEBRA / HORIZONTAL ZEBRA	OFF	54
		Scroll: 0 pixel / frame to 30 pixel / frame (by 3 pixel / frame)	0 pixel / frame	

[Table 10.4] Setting items (Cont'd)

Setting item		Setting value		Page
		Value	Default	
Videowall screen number	"Frame delay" is set to "Normal mode"	Horizontal / Vertical: 1 to 2	Horizontal / Vertical: 2	55
	"Frame delay" is set to "Expand mode"	Horizontal / Vertical: 1 to 5	Horizontal / Vertical: 2	
Videowall enabled / disabled and coordinate grid		Videowall with video other than 4K: Disabled / Enabled	Enabled	56
		Videowall with 4K video from NJR-T04HD: Disabled / Enabled	Disabled	
		Videowall with 4K video from NJR-T01UHD: Disabled / Enabled	Enabled	
		Horizontal coordinate point: -1,0 to videowall screen number -1	OUT1:0 OUT2:1 OUT3:0 OUT4:1	
		Vertical coordinate point: -1,0 to videowall screen number -1	OUT1:0 OUT2:0 OUT3:1 OUT4:1	
Bezel		Left / Right / Top / Bottom: 0 to 200	Left / Right / Top / Bottom: 0	57
Frame delay		Normal mode / Expand mode	Normal mode	58
Brightness		80% to 120%	100%	59
Contrast		R / G / B:0% to 200%	R / G / B: 100%	60
HUE		0° to 359°	0°	60
Saturation		0% to 200%	100%	61
Sharpness		-5 to +15	±0	61
Gamma		0.1 to 3.0	1.0	62
Default color		—	—	62
Non-signal input monitoring		OFF / 2 to 15 [sec.]	10 [sec.]	63
HDCP input Enabled/Disabled		HDCP enabled / HDCP disables	HDCP enabled	63
Setting output equalizer		OFF / LOW / MIDDLE / HIGH	OFF	65
Setting output mode		DVI / RGB / YCbCr 4:2:2 / YCbCr 4:4:4	YCbCr 4:4:4	65
HDCP re-authentication		—	—	66
Synchronous signal output for when no input video		OFF / ON	ON	66
Output video for when no input video		Black / Blue / Background color	Blue	67

[Table 10.5] Setting items (Cont'd)

Setting item	Setting value		Page
	Value	Default	
Deep Color	24-BIT COLOR / 30-BIT COLOR	24-BIT COLOR	67
Video type	All Inputs / IN1 / IN2 / IN3 / IN4	All Inputs	68
Matrix switch	Input number1 to Input number4	OUT1: Input number1, OUT2: Input number2, OUT3: Input number3, OUT4: Input number4	70
Master synchronous signal	Automatic detection / Internal / External synchronous signal (Master) / External synchronous signal (Slave)	Automatic detection	70
Frame delay	No frame delay / 1-frame delay / 2-frame delay	When videowall is disabled: No frame delay When videowall is enabled and "Frame delay" is set to "Normal mode": OUT1 and OUT2: No frame delay; OUT3 and OUT4: 1-frame delay When videowall is enabled and "Frame delay" is set to "Expand mode": All outputs: 1-frame delay	71
Muting digital audio	OFF / ON	OFF	72
Setting audio level	−60dB to +10dB	±0dB	72
Audio input for combining 4K	Each 2-channel audio of IN1 to IN4 [Default] 8-channel audio of IN1 8-channel audio of IN2 8-channel audio of IN3 8-channel audio of IN4	Each 2-channel audio of IN1 to IN4	73

[Table 10.6] Setting items (Cont'd)

Setting item	Setting value		Page
	Value	Default	
Lip sync	0 ms to 160 ms	0 ms	74
Test tone	Test tone ON / OFF: OFF / ON	OFF	75
	Test tone level: -20 dBFS / ± 0 dBFS	-20 dBFS	75
	HIGH frequency: 400 Hz / 1 kHz	1 kHz	75
	LOW frequency: 30 Hz / 80 Hz	80 Hz	75
	ON / OF for each channel Frequency: OFF / LOW / HIGH	CH1 / CH2 / CH4toCH8:HIGH,CH3:LOW	75
Setting EDID resolution	1080p / 720p / 1080i / SVGA to QWXGA	1080p	76
Selecting WXGA mode	1360x768 / 1366x768	1360x768	78
Enabling / Disabling telop	Output number: OFF / ON	OFF	79
	Input number: OFF / ON	OFF	
Telop background color	Background color: R / G / B: 0 to 255	R / G / B: 0	79
	Transparency: OFF / ON	OFF	
Telop font color	R / G / B: 0 to 255	R / G / B: 255	80
Telop font size	12x12 / 24x24	24x24	80
Telop position	TOP-LEFT / TOP-CENTER / TOP-RIGHT / BOTTOM-LEFT / BOTTOM-CENTER / BOTTOM-RIGHT	TOP-LEFT	81
Telop text	Up to 10 characters 20 to 7D except for 2C and 2F of ASCII code	Input number = IN1 to IN4; Output number = OUT1 to OUT4	81
RS-232C communication	Baud rate: 4800 / 9600 / 19200 / 38400 / 57600 / 115200 [bps]	9600 [bps]	82
	Data bit length: 7 / 8 [bit]	8 [bit]	
	Stop bit: 1 / 2 [bit]	1 [bit]	
	Parity check: NONE / EVEN / ODD	NONE	
LAN	Mode: Automatic / Static	Automatic	84
	IP address Subnet mask Default gateway	Automatic	
Devices to be connected	Only NJR-T04HD and NJR-R04HD / NJR-T01UHD or NJR-R01UHD is included	Only NJR-T04HD and NJR-R04HD	85

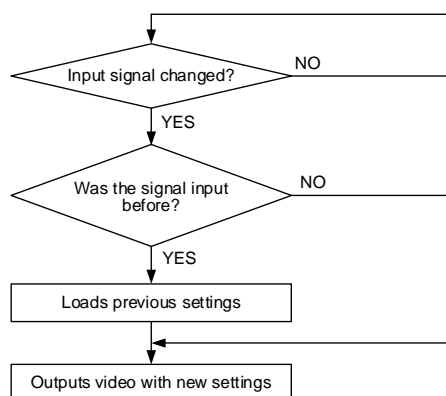
10.1 Input signal automatic detection

NJR-T04HD

The NJR-T04HD continuously monitors its input signals. If a particular signal has previously been connected to the NJR's input, the output signal will be presented in the same format as it was during the most recent session. If an input signal does not match any signal previously presented to the NJR, the current settings will be applied. The output image size and format settings can be adjusted if required.

【See: 10.2 Setting position, size, and masking】

【See: 10.3 Quality setting】



[Fig. 10.1] How signal is recognized

The NJR-T04HD retains data for up to 50 input devices for each input port. The data is used to determine if a signal has been presented to that port previously by a particular device. If input data storage exceeds 50 memory locations, the new memory entries will replace the earliest entries (in ascending order of frequency).

	IN1	IN2	IN3	IN4
1	1080i	1080i	UXGA	UXGA
2	720p	480i	WXGA	VGA
3	480i		SXGA+	
4	XGA			
5	SXGA			
6	UXGA			
⋮				
49	VGA			
50	1080p			

Data for up to 50 input devices for each input port can be retained.

↑
If input data storage exceeds 50 memory locations, the new memory entries will replace the earliest entries.

[Fig. 10.2] Memory table per channel

The following attributes are saved for each input signal.

[Table 10.7] Attributes saved for each input signal

Setting for	Attributes
Setting position, size, and masking	Aspect ratio, Overscan, Display position, Setting display size, Masking
Quality setting	Brightness, Contrast, HUE, Saturation, Sharpness, Gamma
Audio setting	Setting audio level

10.2 Setting position, size, and masking

10.2.1 Output resolution

NJR-R04HD

If you set this attribute to "AUTO", the optimal resolution will be selected automatically.

Numbers following "@" represent the vertical sync frequency.

480i / 480p / 576i / 576p / 720p / 1080i / 1080p are timing formats relating to the CEA-861 standard.

Others are timing formats meeting either the VESA DMT standard or the VESA CVT standard.

VESAHD@60, WUXGA@60, and QWXGA@60 are output formats that incorporate Reduced Blanking.

Setting for

For each HDMI output connector

The setting of OUT1 will be applied for all outputs in the following cases.

- An NJR-T01UHD is used as a transmitter and 4K video is input.
- An NJR-T04HD is used as a transmitter and "**10.11.1 Devices to be connected**" is set to "NJR-T01UHD or NJR-R01UHD is included" and "**10.5.7 Video type**" is set to "All Inputs".
- "**10.2.12 Videowall enabled / disabled and coordinate grid**" is set to "Enabled".

Setting value

AUTO [Default]		WXGA+@60 (1440x900)	720p@50 (1280x720)
VGA@60 (640x480)		WXGA++@60 (1600x900)	720p@59.94 (1280x720)
SVGA@60 (800x600)		UXGA@60 (1600x1200)	720p@60 (1280x720)
XGA@60 (1024x768)		WSXGA+@60 (1680x1050)	1080i@50 (1920x1080)
WXGA@60 (1280x768)		VESAHD@60 (1920x1080)	1080i@59.94 (1920x1080)
WXGA@60 (1280x800)		WUXGA@60 (1920x1200)	1080i@60 (1920x1080)
Quad-VGA@60 (1280x960)		QWXGA@60 (2048x1152)	1080p@50 (1920x1080)
SXGA@60 (1280x1024)		480i@59.94 (720x480)	1080p@59.94 (1920x1080)
WXGA@60 (1360x768)		480p@59.94 (720x480)	1080p@60 (1920x1080)
WXGA@60 (1366x768)		576i@50 (720x576)	
SXGA+@60 (1400x1050)		576p@50 (720x576)	

Communication command

@SOT Setting output resolution

@GOT Getting output resolution

@GTD Getting actual output resolution

10.2.2 Aspect ratio for sink device

NJR-R04HD

You can set the aspect ratio of the connected sink device.

If you select "RESOLUTION," the aspect ratio of the resolution selected in "Output resolution" will be applied. If aspect ratio of the target sink device and the ratio set in "Output resolution" are different from each other, you can select an aspect ratio for the sink device of: 4:3, 5:4, 5:3, 16:9, 16:10

【See: 10.2.1 Output resolution】

Setting for

For each HDMI output connector

For outputs whose "**10.2.12 Videowall enabled / disabled and coordinate grid**" is set to "Enabled", the setting of OUT1 will be applied.

The aspect ratio can be set for each output separately in the following cases. However, the same setting is applied for all outputs. If reduction ratio is not the same, the smallest reduction ratio will be applied.

- An NJR-T01UHD is used as a transmitter and 4K video is input.
- An NJR-T04HD is used as a transmitter and "**10.11.1 Devices to be connected**" is set to "NJR-T01UHD or NJR-R01UHD is included" and "**10.5.7 Video type**" is set to IN1 to IN4.

Setting value

RESOLUTION [Default]

4:3

5:4

5:3

16:9

16:10

Communication command

@SUM Setting aspect ratio for sink device

@GUM Getting aspect ratio for sink device

10.2.3 Aspect ratio

NJR-T04HD

You can set the aspect ratio for each video input.

If you select "AUTO-1" or "AUTO-2," the aspect ratio is restored automatically to the original ratio according to the input signal.

"AUTO-1" and "AUTO-2" work differently only when a letter box signal is presented to the input. "AUTO-1" processes them as a 16:9 or 14:9 video signal, while "AUTO-2" sets them as 4:3.

Normally, no problem occurs if you set the aspect ratio to "AUTO-1", but some DVD players and other devices display subtitles or setup menus in the un-displayed area. In such case, set the aspect to "AUTO-2" to display the entire area of the video signal.

Setting options of "16:9", "14:9", "4:3", "16:9 / 14:9 LETTER BOX", and "4:3 / 14:9 SIDE PANEL" are accessible only when a TV signal is input. When PC signal is input, the aspect ratio will be restored automatically according to the aspect ratio of the input signal regardless of the settings:

"AUTO-1", "AUTO-2", "16:9", "14:9", "4:3", "16:9/14:9 LETTER BOX", and "4:3/14:9 SIDE PANEL".

"FULL": video signal is displayed always in full screen mode.

"THROUGH": video signal is displayed always in pixel 1:1.

If "**10.5.7 Video type**" is set to "All Inputs", each input video is converted to 1920x1080 so that output aspect ratio is 16:9.

Setting for

For each HDMI input connector, each input signal

If "**10.11.1 Devices to be connected**" is set to "NJR-T01UHD or NJR-R01UHD is included" or "**10.5.7 Video type**" is set to "All Inputs", @SAP communication command cannot be used.

Setting value

AUTO-1 [Default]	14:9 LETTER BOX
AUTO-2	4:3 SIDE PANEL
4:3	14:9 SIDE PANEL
16:9	FULL
14:9	THROUGH
16:9 LETTER BOX	

Communication command

@SAP Setting aspect ratio

@GAP Getting aspect ratio

10.2.4 Overscan

NJR-T04HD

You can create an enlarged display of input video.

Setting for

For each HDMI input connector, each input signal

If “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” or “**10.5.7 Video type**” is set to “All Inputs”, @SOV communication command cannot be used.

Setting value

100% to 115%

[Default] SDTV: 105%, HDTV / PC: 100%

Communication command

@SOV Setting overscan

@GOV Getting overscan

10.2.5 Display position

NJR-T04HD / NJR-R04HD

You can set the position where input video is displayed.

Setting for

NJR-T04HD: For each HDMI input connector, each input signal

“**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” or “**10.5.7 Video type**” is set to “All Inputs”, @SNP communication command cannot be used.

NJR-R04HD: For each HDMI output connector

Settings for when videowall is enabled and for when videowall is disabled can be kept individually.

【See: 10.2.12 Videowall enabled / disabled and coordinate grid】

Setting value

Horizontal display position

[Table 10.8] Horizontal display position

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	—Horizontal display size to + 1920	0
	Input video of IN1 to IN4	—Horizontal display size to + Horizontal input resolution	0
NJR-R04HD	—	—Horizontal display size to + Horizontal output resolution	0

Vertical display position

[Table 10.9] Vertical display position

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	—Vertical display size to + 1080	0
	Input video of IN1 to IN4	—Vertical display size to + Vertical input resolution	0
NJR-R04HD	—	—Vertical display size to + Vertical output resolution	0

Communication command

@SNP Setting display position

@GNP Getting display position

@SPS Setting relative movement of display position

10.2.6 Setting display size

NJR-T04HD / NJR-R04HD

You can set the display size of input video.

The video size is scaled based on the upper left quadrant of the input video.

【See: 10.2.5 Display position】

Setting for

NJR-T04HD: For each HDMI input connector, each input signal

If “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” or “**10.5.7 Video type**” is set to “All Inputs”, @SNS communication command cannot be used.

NJR-R04HD: For each HDMI output connector

For outputs whose “**10.2.12 Videowall enabled / disabled and coordinate grid**” is set to “Enabled”, the setting of OUT1 will be applied.

Display size can be set for each output separately, in the following cases. However, if reduction ratio is not the same, the smallest reduction ratio will be applied.

- An NJR-T01UHD is used as a transmitter and 4K video is input.
- An NJR-T04HD is used as a transmitter and “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” and “**10.5.7 Video type**” is set to IN1 to IN4.

Settings for when videowall is enabled and for when videowall is disabled can be kept individually.

Setting value

Horizontal display size

[Table 10.10] Setting horizontal display size

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	1920÷4 to 1920×4	1920
	Input video of IN1 to IN4	Horizontal input resolution÷4 to horizontal input resolution×4	Horizontal input resolution
NJR-R04HD	—	Horizontal output resolution÷6 to horizontal output resolution×6	Horizontal output resolution

Vertical display size

[Table 10.11] Setting vertical display size

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	1080÷4 to 1080×4	1080
	Input video of IN1 to IN4	Vertical input resolution÷4 to vertical input resolution×4	Vertical input resolution
NJR-R04HD	—	Vertical output resolution÷6 to vertical output resolution×6	Vertical output resolution

Communication command

@SNS Setting display size

@GNS Getting display size

10.2.7 Masking

NJR-T04HD / NJR-R04HD

You can set the masking of video inputs video to hide unnecessary portions of the displayed area (top/bottom and right/left).

Setting for

NJR-T04HD: For each HDMI input connector, each input signal

If “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included”, or “**10.5.7 Video type**” is set to “All Inputs”, @SNM communication command cannot be used.

NJR-R04HD: For each HDMI output connector

Settings for when videowall is enabled and for when videowall is disabled can be kept individually.

【See: 10.2.12 Videowall enabled / disabled and coordinate grid】

Setting value

Left masking

[Table 10.12] Left masking

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs / Input video of IN1 to IN4	Horizontal display position (0 or more) to Right masking	0

Model	10.2.12 Videowall enabled / disabled and coordinate grid	Set value	Default
NJR-R04HD	Disabled	Horizontal display position (0 or more) to Right masking	0
	Disabled	0 to Right masking	0

Right masking

[Table 10.13] Right masking

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	Left masking to horizontal display position + Horizontal display size (1920 or less)	1920
	Input video of IN1 to IN4	Left masking to horizontal display position + horizontal display size (Horizontal input resolution or less)	Horizontal input resolution

Model	10.2.12 Videowall enabled / disabled and coordinate grid	Set value	Default
NJR-R04HD	Disabled	Left masking to horizontal display position + horizontal display size (Horizontal output resolution or less)	Horizontal output resolution
	Enabled	Left masking to horizontal display size	Horizontal display size

Top masking

[Table 10.14] Top masking

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs / IN1 to IN4	Vertical display position (0 or more) to Making (Bottom)	0

Model	10.2.12 Videowall enabled / disabled and coordinate grid	Set value	Default
NJR-R04HD	Disabled	Vertical display position (0 or more) to Making (Bottom)	0
	Enabled	0 to Bottom masking	0

Bottom masking

[Table 10.15] Bottom masking

Model	10.5.7 Video type	Set value	Default
NJR-T04HD	All Inputs	Top masking to Vertical display position+Vertical display size (1080 or less)	1080
	Input video of IN1 to IN4	Top masking to Vertical display position+Vertical display size (Vertical input resolution or less)	Horizontal input resolution

Model	10.2.12 Videowall enabled / disabled and coordinate grid	Set value	Default
NJR-R04HD	Disabled	Top masking to Vertical display position+Vertical display size (Vertical output resolution or less)	Vertical output resolution
	Enabled	Top masking to Vertical display size	Vertical display size

Communication command

@SNM Setting masking

@GNM Getting masking

10.2.8 Automatic sizing

NJR-T04HD / NJR-R04HD

This function adjusts output signal optimally, and as a result, the following settings will be initialized automatically.

[Table 10.16] Attributes to be initialized

Attribute	NJR-T04HD	NJR-R04HD
10.2.3 Aspect ratio 10.2.4 Overscan	Yes	No
10.2.5 Display position 10.2.6 Setting display size 10.2.7 Masking	Yes	Yes

Setting for

NJR-T04HD: For each HDMI input connector, each input signal

The setting command cannot be used if “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” and “**10.5.7 Video type**” is set to “All Inputs”.

NJR-R04HD: For each HDMI output connector

Communication command

@IAS Automatic sizing

10.2.9 Background color

NJR-T04HD / NJR-R04HD

You can set the background color of output video.

Setting for

NJR-T04HD: If “**10.5.7 Video type**” is set to “All Inputs”, @SBC communication command cannot be used.

NJR-R04HD: For each HDMI output connector

Setting value

R / G / B: 0 to 255 [Default] R / G / B: 0 (Black)

Communication command

@SBC Setting background color

@GBC Getting background color

10.2.10 Test pattern

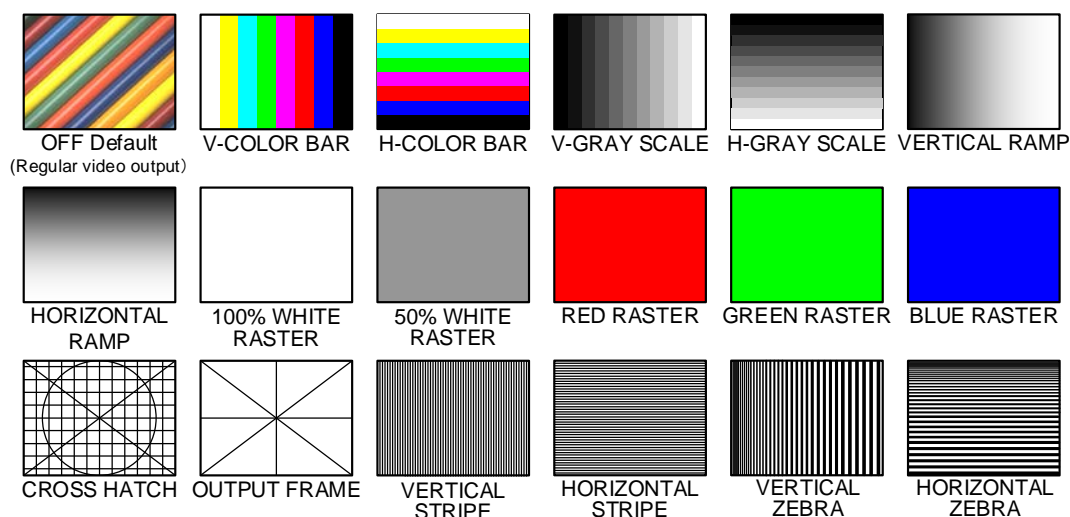
NJR-T04HD / NJR-R04HD

You can activate the NJR's internal test pattern generator and direct its signal to each output port. All settings of **"10.3 Quality setting"** will be invalid while a test pattern is displayed.

For "OUTPUT FRAME": use this pattern if edges are cut off due to enlargement display on the sink device. Settings of **"10.2.5 Display position"** and **"10.2.6 Setting display size"** in the output side will be adjusted in order to display the test pattern on full screen.

For test patterns other than "OUTPUT FRAME": video is output on full screen with the resolution set in **"10.2.1 Output resolution"** and the settings of **"10.2.5 Display position"**, **"10.2.6 Setting display size"** and **"10.2.7 Masking"**, will be invalid.

You can scroll through the available patterns "COLOR BAR," "GRAY SCALE," "RAMP," and "ZEBRA". The scroll speed can be set by 3 pixels per frame up to 30 pixels per frame. You can check the residual image (resolution of moving picture) by displaying and scrolling the "ZEBRA" pattern.



[Fig. 10.3] Test pattern

Setting for

NJR-T04HD: If **"10.5.7 Video type"** is set to "All Inputs", @STP communication command cannot be used.
 NJR-R04HD: For each HDMI output connector

Setting value

[Fig. 10.3] Test pattern

Communication command

@STP Setting test pattern
 @GTP Getting test pattern

10.2.11 Videowall screen number

NJR-R04HD

You can set the number of screens that display a video signal simultaneously.

Once this menu is changed, the videowall coordinate grid will be changed automatically as follows and the settings of “**10.2.5 Display position**”, “**10.2.6 Setting display size**”, “**10.2.7 Masking**”, “**10.5.10 Frame delay**” will be initialized.

- OUT1: Horizontal coordinate point=0, vertical coordinate point=0
- OUT2: Horizontal coordinate point=1, vertical coordinate point=0
- OUT3: Horizontal coordinate point=0, vertical coordinate point=1
- OUT4: Horizontal coordinate point=1, vertical coordinate point=1

【See: 10.2.12 Videowall enabled / disabled and coordinate grid】

Setting value

[Table 10.17] Videowall screen

10.2.14 Frame delay	Set value	Default
Normal mode	1 to 2	2
Expand mode	1 to 5	2

1×1: Videowall is disabled. Video will be distributed to each output.

Communication command

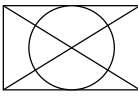
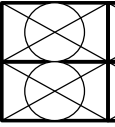
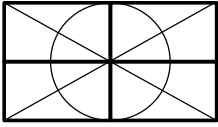
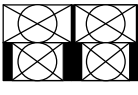
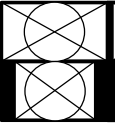
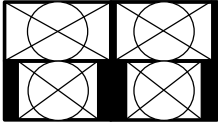
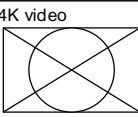
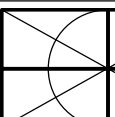
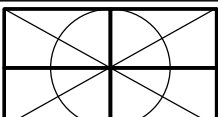
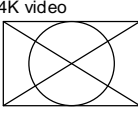
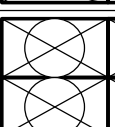
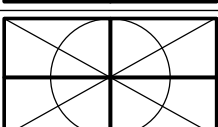
- @SVW Setting videowall screen number
- @GVW Getting videowall screen number

10.2.12 Videowall enabled / disabled and coordinate grid

NJR-R04HD

You can enable / disable videowall and set horizontal / vertical coordinate points.

Once this menu is changed, the settings of “10.2.5 Display position”, “10.2.6 Setting display size”, “10.2.7 Masking”, “10.5.10 Frame delay” will be initialized.

Transmitter	Input signal	Videowall disabled	Videowall enabled
NJR-T04HD	Video other than 4K 		
NJR-T01UHD			
NJR-T04HD	4K video 		
	4K video 		
NJR-T01UHD	4K video 		

[Fig. 10.4] Videowall enabled / disabled

(0, 0)	(1, 0)	(2, 0)	(3, 0)	(4, 0)
(0, 1)	(1, 1)	(2, 1)	(3, 1)	(4, 1)
(0, 2)	(1, 2)	(2, 2)	(3, 2)	(4, 2)
(0, 3)	(1, 3)	(2, 3)	(3, 3)	(4, 3)
(0, 4)	(1, 4)	(2, 4)	(3, 4)	(4, 4)

(Horizontal, Vertical)

[Fig. 10.5] Videowall coordinate grid

Setting for

For each HDMI output connector

Notes:

- For 4K video: Videowall cannot be enabled / disabled for each output separately.
- For video other than 4K video: Since OUT1's synchronous signal is used for videowall, ensure to enable OUT1's setting when using Videowall.

Setting value**[Table 10.18] Videowall setting**

Item	Setting value	Default
Videowall with video other than 4K	Disabled / Enabled	Enabled
Videowall with 4K video from NJR-T04HD	Disabled / Enabled	Disabled
Videowall with 4K video from NJR-T01UHD	Disabled / Enabled	Enabled
Horizontal coordinate point	— 1,0 to videowall screen number — 1	OUT1:0,OUT2:1,OUT3:0,OUT4:1
Vertical coordinate point	— 1,0 to videowall screen number — 1	OUT1:0,OUT2:0,OUT3:1,OUT4:1

If “-1” is specified to the horizontal or vertical coordinate point, videowall setting is enabled / disabled without changing coordinate point.

Communication command

@SWA Setting videowall enabled / disabled and coordinate grid

@GWA Getting videowall enabled / disabled and coordinate grid

10.2.13 Bezel

NJR-R04HD

You can set the bezel of monitors in pixels.

Setting value

Left bezel: 0 to 200 [Default]: 0

Right bezel: 0 to 200 [Default]: 0

Top bezel: 0 to 200 [Default]: 0

Bottom bezel: 0 to 200 [Default]: 0

Communication command

@SBE Setting bezel

@GBE Getting bezel

10.2.14 Frame delay

NJR-R04HD

You can set the frame delay mode when videowall is enabled.

Normal mode: 1 NJR-R04HD supports up to 2×2.

When moving image is displayed on multiple monitors, time lag occurs between upper and lower monitors. In order to prevent this problem, the NJR outputs video to the lower monitors 1 frame later than the upper monitors.

Expand mode: Multiple NJR-R04HDs support up to 5×5.

Since the amount of frame delay for each output is the same, time lag occurs between upper and lower monitors. Correct the gap using or the vertical scanning inverting function or the like.

When this mode is changed, setting of “**10.5.10 Frame delay**” will be initialized.

Setting value

Normal mode [Default]

Expand mode

Communication command

@SWD Setting frame delay mode

@GWD Getting frame delay mode

10.3 Quality setting

The NJR-T04HD can be used under the following conditions.

[Table 10.19] Setting for NJR-T04HD

10.11.1 Devices to be connected	10.5.7 Video type	Setting for
Connected device: Only NJR-T04HD and NJR-R04HD	All Inputs	Can be set for each input separately ^{*1}
	IN1 to IN4	Can be set for all inputs.
Connected device: NJR-T01UHD or NJR-R01UHD is included	All Inputs	Can be set for all inputs.
	IN1 to IN4	Can be set for all inputs.

^{*1} If the setting of “**10.11.1 Devices to be connected**” is changed from “Only NJR-T04HD and NJR-R04HD” to “NJR-T01UHD or NJR-R01UHD is included”, this setting will be initialized.

10.3.1 Brightness

NJR-T04HD / NJR-R04HD

You can set the brightness level.

Setting for

NJR-T04HD: See “[Table 10.19] Setting for NJR-T04HD”.

NJR-R04HD: For each HDMI output connector

Setting value

80% to 120% [Default] 100%

Communication command

@SBR Setting brightness

@GBR Getting brightness

10.3.2 Contrast

NJR-T04HD / NJR-R04HD

You can set the contrast of video image.

Setting for

NJR-T04HD: See "[Table 10.19] Setting for NJR-T04HD".

NJR-R04HD: For each HDMI output connector

Setting value

R / G / B: 0% to 200% [Default] R / G / B: 100%

Communication command

@SCO Setting contrast

@GCO Setting contrast

10.3.3 HUE

NJR-T04HD / NJR-R04HD

You can set the color HUE.

Setting for

NJR-T04HD: See "[Table 10.19] Setting for NJR-T04HD".

NJR-R04HD: For each HDMI output connector

Setting value

0° to 359° [Default] 0°

Communication command

@SHU Setting HUE

@GHU Getting HUE

10.3.4 Saturation

NJR-T04HD / NJR-R04HD

You can set the color saturation.

Setting for

NJR-T04HD: See "[Table 10.19] Setting for NJR-T04HD".

NJR-R04HD: For each HDMI output connector

The OUT1's setting will be applied to all four outputs if "10.11.1 Devices to be connected" is set to "NJR-T01UHD or NJR-R01UHD is included" and "10.5.7 Video type" is set to "All Inputs".

Setting value

0% to 200% [Default] 100%

Communication command

@SST Setting saturation

@GST Getting saturation

10.3.5 Sharpness

NJR-T04HD / NJR-R04HD

You can set the sharpness.

Setting for

NJR-T04HD: See "[Table 10.19] Setting for NJR-T04HD".

NJR-R04HD: For each HDMI output connector

Setting value

-5 to +15 [Default] ± 0

Communication command

@SFL Setting sharpness

@GFL Getting sharpness

10.3.6 Gamma

NJR-T04HD / NJR-R04HD

You can set the gamma curve.

Setting for

NJR-T04HD: See “[Table 10.19] Setting for NJR-T04HD”.

NJR-R04HD: For each HDMI output connector

Setting value

0.1 to 3.0 [Default] 1.0

Communication command

@SGM Setting gamma

@GGM Getting gamma

10.3.7 Default color

NJR-T04HD / NJR-R04HD

You can initialize settings of the following items.

“10.3.1 Brightness”, “10.3.2 Contrast”, “10.3.3 HUE”, “10.3.4 Saturation”, “10.3.5 Sharpness”,
“10.3.6 Gamma”

Setting for

NJR-T04HD: See “[Table 10.19] Setting for NJR-T04HD”

NJR-R04HD: For each HDMI output connector

Communication command

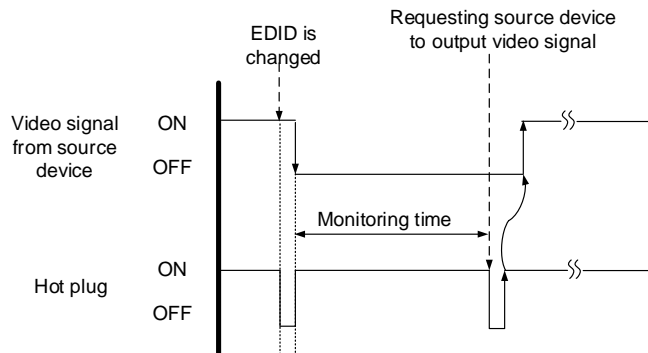
@IDC Default color

10.4 Input setting

10.4.1 Non-signal input monitoring

NJR-T04HD

If EDID of the NJR-T04HD 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-T04HD requests the source device to output video signal.



[Fig. 10.6] Monitoring absence of input

Setting for

For each HDMI input connector

Setting value

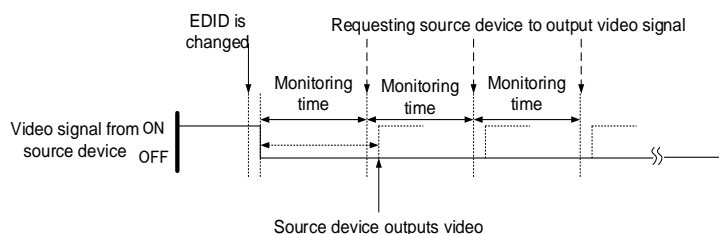
OFF

2 to 15 [second] [Default] 10 [second]

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. 10.7] Repeating reset

Communication command

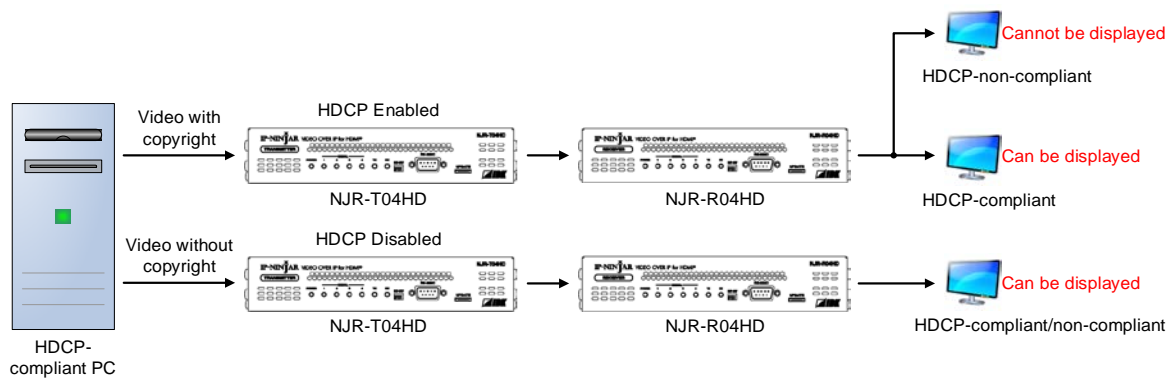
@SDT Set monitoring time of video

@GDT Get monitoring time of video

10.4.2 HDCP input Enabled/Disabled

NJR-T04HD

You can set whether NJR-T04HD supports 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-T04HD 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. 10.8] PC and HDCP-compliant/HDCP-non-compliant sink device

Setting for

For each HDMI input connector

Setting value

HDCP enabled [Default]

HDCP disabled

Communication command

@SHE Setting HDCP input enabled/disabled

@GHE Getting HDCP input enabled/disabled

10.5 Output setting

10.5.1 Setting output equalizer

NJR-R04HD

You can set the output equalizer.

Setting for

For each HDMI output connector

Setting value

OFF [Default]
 LOW
 MIDDLE
 HIGH

Communication command

@SEQ Setting output equalizer
 @GEQ Getting output equalizer

10.5.2 Setting output mode

NJR-R04HD

You can set the color space and mode of the video to be output.

Higher priority	YCbCr 4:4:4 output
↑	YCbCr 4:2:2 output
↓	RGB output
Lower priority	DVI output

Setting for

For each HDMI output connector

Setting value

DVI
 RGB
 YCbCr 4:2:2
 YCbCr 4:4:4 [Default]

Communication command

@SDM Setting output mode
 @GDM Getting output mode

10.5.3 HDCP re-authentication

NJR-R04HD

If a sink device supporting HDCP is connected, HDCP is authorized automatically (NJR-R04HD). You can re-authorize HDCP manually using this menu.

Setting for

For each HDMI output connector

Communication command

@HAU HDCP re-authentication

10.5.4 Synchronous signal output for when no input video

NJR-R04HD

You can set whether synchronous signal is output when no video signal is input from the selected input. If you set this menu to "ON", you can prevent the sink device from being switched to the standby mode.

Setting for

For each HDMI output connector

Setting value

OFF

ON [Default]

Communication command

@SUY Setting synchronous signal output for when no input video

@GUY Getting synchronous signal output for when no input video

10.5.5 Output video for when no input video

NJR-T04HD / NJR-R04HD

You can set the color of the video to be output when no video signal is input from the selected input.

If "10.5.4 Synchronous signal output for when no input video" is set to "OFF", synchronous signal is not output.

Setting for

NJR-T04HD: "10.5.7 Video type" is set to "All Inputs", @SBO cannot be used and black is output.

NJR-R04HD: For each HDMI output connector

Setting value

Black

Blue [Default]

Background color

Communication command

@SBO Setting output video for when no input video

@GBO Getting output video for when no input video

10.5.6 Deep Color

NJR-R04HD

You can set the deep color of HDMI output.

Setting for

For each HDMI output connector

Setting value

24-BIT COLOR [Default]

30-BIT COLOR

Note:

Since the transmission clock of "30-BIT COLOR" is faster than that of "24-BIT COLOR", noise may occur if a low-quality cable or long cable is connected. In those cases, the noise may be removed by selecting "24-BIT COLOR".

Communication command

@SDC Setting Deep Color

@GDC Getting Deep Color

10.5.7 Video type

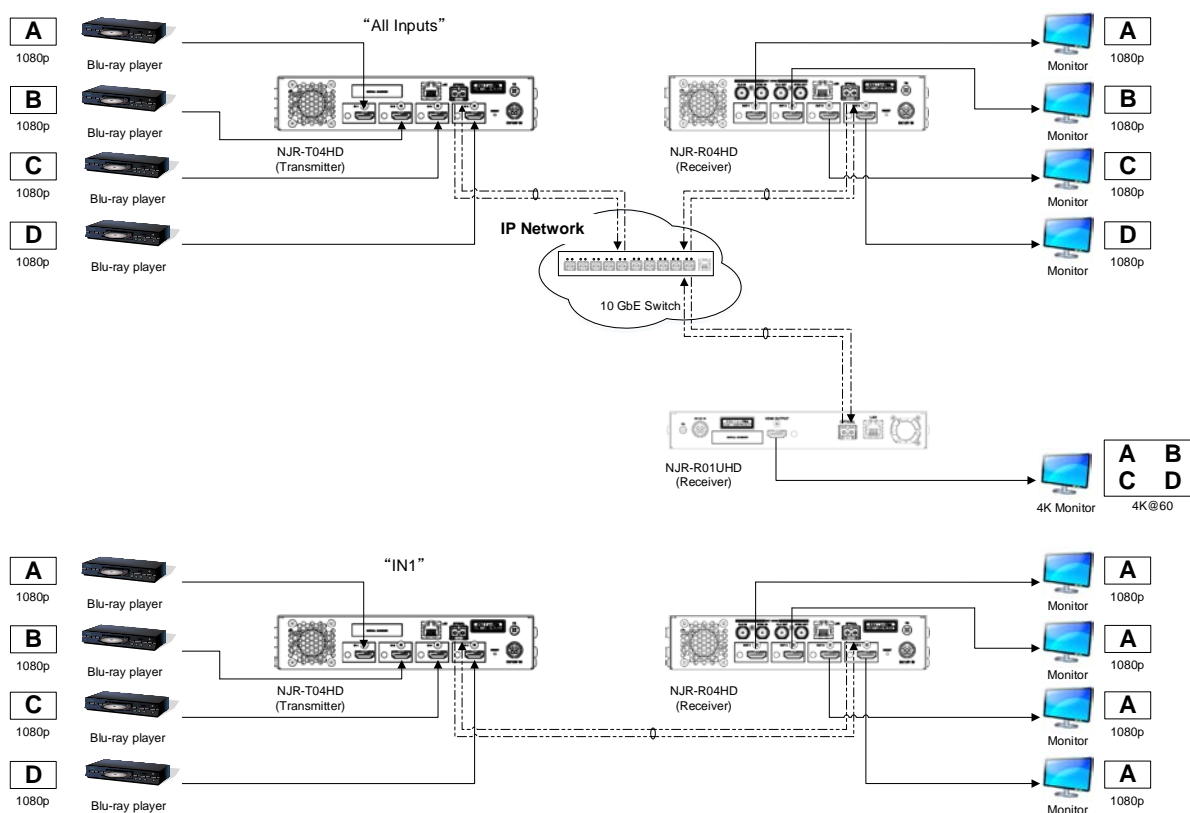
NJR-T04HD

You can set the video that is output from NJR-T04HD.

When “10.11.1 Devices to be connected” is set to “NJR-T01UHD or NJR-R01UHD is included” and “10.5.7 Video type” is set to “All Inputs”, the following settings will be initialized.

“10.2.3 Aspect ratio”, “10.2.4 Overscan”, “10.2.5 Display position”, “10.2.6 Setting display size”, “10.2.7 Masking”

If this function is set to “All Inputs”, “10.2.10 Test pattern” and “10.5.5 Output video for when no input video” are automatically set to OFF and Black, respectively.



[Fig. 10.9] Video type

Setting value

All Inputs (Combined 4K video) [Default]

IN1

IN2

IN3

IN4

If “All Inputs” is selected, output audio (each 2-channel audio from IN1 to IN4 or an 8-channel audio from one of IN1 to IN4) will be set according to the setting of “**10.6.3 Audio input for combining 4K**”.

[Table 10.20] Audio to be output

Setting		Output	
Video type	10.6.3 Audio input for combining 4K	Video	Audio
All Inputs	IN1 to IN4 (2channel audio)	All Inputs	IN1 to IN4 (2channel audio)
	IN1 (8-channel audio)		IN1 (8-channel audio)
	IN2 (8-channel audio)		IN2 (8-channel audio)
	IN3 (8-channel audio)		IN3 (8-channel audio)
	IN4 (8-channel audio)		IN4 (8-channel audio)
IN1		IN1	IN1 (8-channel audio)
IN2		IN2	IN2 (8-channel audio)
IN3		IN3	IN3 (8-channel audio)
IN4		IN4	IN4 (8-channel audio)

Communication command

@SVT Setting video type

@GVT Getting video type

10.5.8 Matrix switch

NJR-T04HD / NJR-R04HD

NJR-T04HD: Sets where the four input video will be displayed on the combined 4K video.

NJR-R04HD: Divides one 4K video into four full HD video and sets HDMI output connectors that each full HD video will be output to.

Upper left: Input number1, Upper right: Input number2, Lower left: Input number3, Lower right: Input number4

Setting for

NJR-T04HD: Enabled only if “**10.5.7 Video type**” is set to “All Inputs”.

NJR-R04HD: Enabled only if NJR-T04HD is used, “**10.5.7 Video type**” is set to “All Inputs”, and “**10.2.12 Videowall enabled / disabled and coordinate grid**” is set to disabled

Setting value

Input numbers 1 to 4

[Default] OUT1: Input number 1, OUT2: Input number 2, OUT3: Input number 3, OUT4: Input number 4

Communication command

@SMT Setting matrix switch

@GMT Getting setting of matrix switch

10.5.9 Master synchronous signal

NJR-R04HD

Use this function to synchronize all output video for videowall application.

If multiple NJR-R04HDs are used, up to 5x5 videowall can be configured. However, by using frame delay function (“**10.5.10 Frame delay**”), up to 2x2 can be synchronized.

Automatic detection:

If no external synchronous signal is input, signals are treated as “Internal / External synchronous signal (Master)”.

If external synchronous signals are input, signals are treated as “External synchronous signal (Slave)”.

Internal / External synchronous signal (Master):

For master devices that use internal synchronous signals or generate external synchronous signals

External synchronous signal (Slave):

For slave devices. Synchronous signals are input from the external synchronous signal input connector

Setting value

Automatic detection [Default]

Internal / External synchronous signal (Master)

External synchronous signal (Slave)

Communication command

@SSK Setting master synchronous signal

@GSK Getting master sync signal

10.5.10 Frame delay

NJR-R04HD

Time lag occurring between upper and lower monitors can be avoided by setting “**10.2.14 Frame delay**” to “Normal mode”.

If “**10.2.14 Frame delay**” is set to “Expand mode” and videowall is enabled, set this menu of all outputs to the same value (1-frame latency or 2-frame delay).

Setting for

For each HDMI output connector

Settings for when videowall is enabled and disabled can be kept separately.

【See: 10.2.12 Videowall enabled / disabled and coordinate grid】

Setting value

No frame delay

1-frame delay

2-frame delay

[Table 10.21] Default value of frame delay

10.2.12 Videowall enabled / disabled and coordinate grid	10.2.14 Frame delay	Default
Disabled	—	No frame delay for all outputs
Enabled	Normal mode	OUT1:0,OUT2:0, OUT3:1,OUT4:1
	Expand mode	1-frame delay for all outputs

Communication command

@SDL Setting frame delay

@GDL Getting frame delay

10.6 Audio setting

10.6.1 Muting digital audio

NJR-T04HD / NJR-R04HD

You can enable or disable the audio output mute.

Once you mute NJR-T04HD, all audio of NJR-R04HD connected through the 10 GbE switch can be muted.

Setting for

NJR-T04HD: For each HDMI input connector

NJR-R04HD: For each HDMI output connector

Setting value

Mute OFF [Default]

Mute ON

Communication command

@SAM Setting digital audio output mute

@GAM Getting digital audio output mute

10.6.2 Setting audio level

NJR-T04HD / NJR-R04HD

You can set the audio level.

Setting for

NJR-T04HD: For each HDMI input connector, For each input signal

NJR-R04HD: For each HDMI output connector

Setting value

−60dB to +10dB [Default] ±0dB

Communication command

@SSL Setting audio level

@GSL Getting audio level

10.6.3 Audio input for combining 4K

NJR-T04HD

You can select the audio that is output from NJR-T04HD.

Setting for

If “10.5.7 Video type” is set to “IN1” to “IN4”, @SAS cannot be used.

Setting value

IN1 to IN4 (2channel audio) [Default]
IN1 (8-channel audio)
IN2 (8-channel audio)
IN3 (8-channel audio)
IN4 (8-channel audio)

Communication command

@SAS Setting audio input for combining 4K
@GAS Getting audio input for combining 4K

10.6.4 Lip sync

NJR-R04HD

You can adjust the gap between video (motion) and audio (sound).

Setting for

Each input number

The setting of Input number1 will be applied in the following conditions.

- If the NJR-T01UHD is used as the transmitter, the amount of gap will be the same for 4 ports.
- If the NJR-T04HD is used as the transmitter and “**10.5.7 Video type**” is set to “IN1” to “IN4”, the amount of the latency will be the same for 4 ports.
- If the NJR-T04HD is used as the transmitter, “**10.5.7 Video type**” is set to “All Inputs” and “**10.6.3 Audio input for combining 4K**” is set to “IN1 (8-channel audio)” to “IN4 (8-channel audio)”, the amount of the latency will be the same for 4 ports.

Setting value

0 ms to 160 ms [Default] 0 ms

[Table 10.22] Maximum amount of latency

Sampling frequency	Max. latency
32 kHz	160 ms
44.1 kHz	160 ms
48 kHz	160 ms
88.2 kHz	93 ms
96 kHz	85 ms
176.4 kHz	46 ms
192 kHz	43 ms

Communication command

@SLO Setting lip sync

@GLO Getting lip sync

10.6.5 Test tone

NJR-T04HD / NJR-R04HD

Since test tone can be output only to specific speakers, you can check the positions and connections of the speakers. You can also set test tone level and frequency.

Setting for

NJR-T04HD: N/A

NJR-R04HD: Test tone ON / OFF can be set only for each HDMI output connector individually.

Setting value

Test tone ON / OFF:

OFF [Default]

ON

Test tone level:

-20 dBFS [Default]

±0 dBFS

Frequency HIGH:

400 Hz

1 kHz [Default]

Frequency LOW:

30 Hz

80 Hz [Default]

Test tone ON / OFF and frequency for each audio channel:

OFF

LOW

HIGH

[Default]: CH1:HIGH, CH2:HIGH, CH3:LOW, CH4:HIGH,
CH5:HIGH, CH6:HIGH, CH7:HIGH, CH8:HIGH

Communication command

@SAT Setting test tone output

@GAT Getting test tone output

@SAC Setting test tone level / frequency

@GAC Getting test tone level / frequency

10.7 EDID setting

10.7.1 Setting EDID resolution

NJR-T04HD

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

Setting for

For each HDMI input connector

Setting value

[Table 10.23] EDID maximum resolution

Max. resolution	Pixel	Standard	Remarks
1080p (50 / 59.94 / 60)	1920×1080	HDTV	
720p (50 / 59.94 / 60)	1280×720		
1080i (50 / 59.94 / 60)	1920×1080		
SVGA	800×600	VESA	
XGA	1024×768		
WXGA	1280×768		
WXGA	1280×800		
Quad-VGA	1280×960		
SXGA	1280×1024		
WXGA	1360×768, 1366×768		Pixel can be set in “ 10.7.2 Selecting WXGA mode ”.
SXGA+	1400×1050		
WXGA+	1440×900		
WXGA++	1600×900		(RB)
UXGA	1600×1200		
WSXGA	1680×1050		
WUXGA	1920×1200		(RB)
QWXGA	2048×1152		(RB)

(RB): Reduced Blanking

[Table 10.24] Supported resolution**Y: Supported; N: Not supported**

Resolution Maximum resolution	640x480	800x600	1024x768	1280x720	1280x768	1280x800	1280x960	1280x1024	1360x768*	1366x768*	1400x1050	1440x900	1600x900	1600x1200	1680x1050	1920x1080 i	1920x1080 p	1920x1200	2048x1152
1080p (50 / 59.94 / 60)	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N
720p (50 / 59.94 / 60)	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1080i (50 / 59.94 / 60)	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
800x600	Y	Y	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
1280x768	Y	Y	Y	Y	Y	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
1280x960	Y	Y	Y	Y	Y	Y	Y	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
1360x768	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
1366x768	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	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
1440x900	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	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
1600x1200	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	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
1920x1200	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	N
2048x1152	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y

EDID supported pixel of 1360 x 768 and 1366 x 768 can be set in “**10.7.2 Selecting WXGA mode**”.
The default value is 1360 x 768.

Communication command

@SVF Setting EDID resolution

@GVF Getting EDID resolution

10.7.2 Selecting WXGA mode

NJR-T04HD

You can set the WXGA pixel (1360x768 or 1366x768) depending on the resolution of EDID.

Setting for

For each HDMI input connector

Setting value

1360x768 [Default]

1366x768

Communication command

@SWX Setting WXGA mode

@GWX Getting WXGA mode

10.8Telop

10.8.1 Enabling / Disabling telop

NJR-R04HD

You enable / disable telop that displays output and input numbers.

Setting for

For each HDMI output connector

Setting value

Output number:

OFF [Default]

ON

Input number:

OFF [Default]

ON

Communication command

@STO Setting telop

@GTO Getting telop status

10.8.2 Telop background color

NJR-R04HD

You can set the telop background color.

Setting for

For each HDMI output connector

Setting value

Background color: R / G / B: 0 to 255

[Default] R / G / B: 0 (Black)

Transparency:

OFF [Default]

ON

Communication command

@STB Setting telop background color

@GTB Getting telop background color

10.8.3 Telop font color

NJR-R04HD

You can set the telop background color.

Setting for

For each HDMI output connector

Setting value

R / G / B: 0 to 255

[Default] R / G / B: 255 (White)

Communication command

@STC Setting telop font color

@GTC Getting telop font color

10.8.4 Telop font size

NJR-R04HD

You can set the telop font size.

Setting for

For each HDMI output connector

Setting value

12×12

24×24 [Default]

Communication command

@SFS Setting telop font size

@GFS Getting telop font size

10.8.5 Telop position

NJR-R04HD

You can set the telop position.

Setting for

For each HDMI output connector

Setting value

TOP-LEFT [Default]

TOP-CENTER

TOP-RIGHT

BOTTOM-LEFT

BOTTOM-CENTER

BOTTOM-RIGHT

Communication command

@STA Setting telop position

@GTA Getting telop position

10.8.6 Telop text

NJR-R04HD

You can set the character string to be displayed.

Setting for

For each HDMI output connector

Setting value

Up to 10 characters 20 to 7D except for 2C and 2F of ASCII code

[Default] Input number = IN1 to IN4; Output number = OUT1 to OUT4

Communication command

@STN Setting telop text

@GTN Getting telop text

10.9 RS-232C setting

10.9.1 RS-232C communication

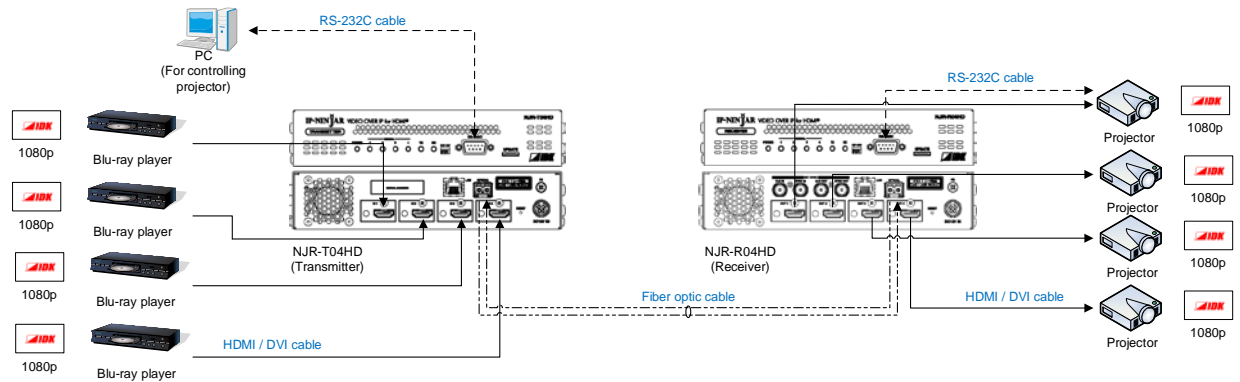
NJR-T04HD / NJR-R04HD

You can set the RS-232C communication between devices that connected to NJR-T04HD / NJR-R04HD. The same setting should be set for NJR-T04HD / NJR-R04HD.

Note:

The RS-232C port is used for two modes: controlling NJR-T04HD or NJR-R04HD and communicating between devices that connected to NJR-T04HD / NJR-R04HD. For the latter mode, set the DIP switch (No.1) to “OFF”.

【See: 8.4 Setting】



[Fig. 10.10] Communication over RS-232C

RS-232C port

D-Sub9 pin, male
(Front panel)

Pin number	Signal
1	N.C. (Not used)
2	RD (Received data)
3	TD (Transmitted data)
4	N.C. (Not used)
5	GND (Ground)
6	N.C. (Not used)
7	N.C. (Not used)
8	N.C. (Not used)
9	N.C. (Not used)

*N.C.: No Connection

[Fig. 10.11] Specification of RS-232C port

Note:

For communicating between NJR-T04HD / NJR-R04HD and connected device, only RD (Received data) and TD (Transmitted data) are sent.

Setting value**[Table 10.25] Setting items for 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, ODD, EVEN	NONE

Communication command

@SCTB Setting RS-232C communication

@GCTB Getting RS-232C communication

10.10 LAN setting

10.10.1 LAN

NJR-T04HD / NJR-R04HD

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 10.26] 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

10.10.2 MAC address

NJR-T04HD / NJR-R04HD

You can display the MAC address.

Display information

[Table 10.27] MAC address

Item to be displayed	Example
MAC address	D88039A6D9DF

Communication command

@GMC Getting MAC address

10.11 Others

10.11.1 Devices to be connected

NJR-T04HD / NJR-R04HD

You can select devices to be connected.

If multiple NJR series products are connected via a network switch, you do not need to set this menu because the NJR-CTB automatically set devices to be connected.

If “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included” and “**10.5.7 Video type**” is set to “All Inputs”, the following settings of the NJR-T04HD will be initialized: “**10.2.3 Aspect ratio**”, “**10.2.4 Overscan**”, “**10.2.5 Display position**”, “**10.2.6 Setting display size**”, and “**10.2.7 Masking**”

If “**10.11.1 Devices to be connected**” is set to “NJR-T01UHD or NJR-R01UHD is included”, the following settings will be initialized: “**10.3.1 Brightness**”, “**10.3.2 Contrast**”, “**10.3.3 HUE**”, “**10.3.4 Saturation**”, “**10.3.5 Sharpness**”, and “**10.3.6 Gamma**”.

Setting value

Only NJR-T04HD and NJR-R04HD [Default]

NJR-T01UHD or NJR-R01UHD is included

Communication command

@SSY Setting devices to be connected

@GSY Getting devices to be connected

10.11.2 Initialization

NJR-T04HD / NJR-R04HD

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

When initialization completes, the NJR reboots with new settings automatically.

Note:

Once values are initialized, they cannot be restored.

Communication command

@CLRC Initialization

【See: 9.2 IP-NINJAR Configurator 】

【See: 9.3 Control over NJR-CTB (Control box for IP-NINJAR) 】

10.11.3 Reboot

NJR-T04HD / NJR-R04HD

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

Communication command

@RBTC Reboot

【See: 9.2 IP-NINJAR Configurator 】

【See: 9.3 Control over NJR-CTB (Control box for IP-NINJAR) 】

10.12 Information

10.12.1 Input status

NJR-T04HD

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

Setting for

For each HDMI input connector

Information to be displayed

[Table 10.28] Input signals

Value to be displayed	Description
H24	HDMI signal is input. Color depth: 24
D	DVI signal is input.
N	No signal is input.

[Table 10.29] Format of video input signal

Value to be displayed	Description
1080i 59.94Hz	SDTV / HDTV signal is input. Format type and vertical synchronizing frequency
800x600 60.32Hz	VESA resolution signal is input. Horizontal resolution x Vertical resolution and synchronizing frequency
NO SIGNAL	No signal is input.

[Table 10.30] Format of audio input signal

Value to be displayed	Description
LINEAR PCM 48kHz	Linear PCM signal is input. Sampling frequency
LINEAR PCM 48kHz (MULTI CHANNEL)	Multi channel linear PCM signal is input. Sampling frequency
COMPRESSED AUDIO	Compressed audio signal (e.g. Dolby Digital, DTS) is input. (Since NJR-T04HD does not determine detailed format, the same value is displayed for all compressed audio.)
NO AUDIO	No signal is input.

[Table 10.31] HDCP

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

Communication command

@GSS Getting I/O status

10.12.2 Output status

NJR-R04HD

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

Setting for

For each HDMI output connector

Information to be displayed**[Table 10.32] HDCP authentication**

Value to be displayed	Description
HDCP 1.4 SUPPORT	HDCP 1.4 authorized.
HDCP NOT SUPPORT	Sink device that does not support HDCP is connected.
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 10.33] Output signal

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

[Table 10.34] 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	—	"10.6.1 Muting digital audio" is set to "ON".
2	No source device is connected.	
3	Video signal is not input.	Video 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-T04HD/NJR-R04HD is input.	Signal that is not supported by NJR-T04HD/NJR-R04HD is input.
9	—	"10.5.2 Setting output mode" is set to "DVI" or 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

10.12.3 Monitor EDID

NJR-R04HD

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

Setting for

For each HDMI output connector

Information to be displayed

[Table 10.35] 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	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

10.12.4 Displaying version

NJR-T04HD / NJR-R04HD

You can display the model number (NJR-T04HD or NJR-R04HD) and firmware version.

Information to be displayed

[Table 10.36] Version

Item	Example
Model number	NJR-T04HD
Firmware version	1.10

Communication command

@GIV Getting version

11 Product specification

Item		NJR-T04HD (Transmitter)	NJR-R04HD (Receiver)
Input		4 inputs HDMI (*1) / DVI 1.0 TMDS single link HDCP 1.4 Built-in cable EQ EDID emulation Connector: Female, HDMI TypeA (19-pin)	1 input Digital optical signal for extension
Output		1 output Digital optical signal for extension	4 outputs HDMI (*1) / DVI 1.0 TMDS single link HDCP 1.4 Built-in cable EQ Connector: Female, HDMI TypeA (19-pin)
Format		VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA (*2) *For WUXGA / QWXGA, only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA (*2) *For WUXGA / QWXGA, only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (3840 x 2160) / 4K (4096 x 2160) (*3)
Color depth		24 bit	24 bit, 30 bit Deep Color (*4)
Dot clock		25 MHz to 165 MHz	
TMDS clock		25 MHz to 225 MHz	
TMDS data rate		0.75 Gbps to 6.75 Gbps	
Digital audio input / output		Multi-channel linear PCM up to 8 channels (*5) Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit	
Lip sync. delay		-	Max. 160 ms
External sync. I/O		-	1 input and output (SYNC, CLK) Level: TTL Connector: BNC *For synchronization between IDK's NJR-R04HD only.
HDMI cable for maximum extension distance		98 ft. (30 m) (*6)	164 ft. (50 m) (*6)
Fiber optic cable for extension	Cable	Duplex fiber cable SFP+ module (2 LCs)	
	Polishing (*7)	SFP+ for Multimode : PC polishing (recommended) SFP+ for Singlemode : UPC polishing (recommended), SPC supported *APC is not supported	
	Maximum extension distance (*8)	Multimode fiber (OM3): 984 ft. (300 m) Singlemode fiber (OS1): 6.21 mi. (10 km) Singlemode fiber (OS1): 24.85 mi. (40 km , optional)	
Control	RS-232C	1 port / male D-sub (9 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	
Functions	Scan conversion	Motion adaptive I/P conversion, Aspect Ratio Control	Aspect Ratio Control
	Others	Matrix switch	Matrix switch Lip Sync Connection Reset (*9)
General	AC adapter	Input: 100 - 240 VAC \pm 10%, 50 Hz / 60 Hz \pm 3 Hz Output: DC 12 V 5 A (A dedicated AC adapter is provided)	
	Power consumption	About 33 Watts	About 35 Watts
	Dimensions	8.3 (W) \times 1.7 (H) \times 9.8 (D)" (210 (W) \times 44 (H) \times 250 (D) mm) (EIA 1U high, half rack wide) (Excluding connectors and the like)	
	Weight	4.2lbs. (1.9 kg)	4.2lbs. (1.9 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 If the NJR-T01UHD or NJR-R01UHD is included in the system, UXGA / WUXGA / QWXGA are not supported for NJR-T04HD input; the same video format is applied to 4 outputs of the NJR-R04HD.

If only NJR-T04HDs and NJR-R04HDs are configured in the system, all formats including UXGA / WUXGA / QWXGA are supported for NJR-T04HD input; desired video format can be specified for each output of the NJR-R04HD.

*3 When the NJR-T01UHD is connected, only CEA-861 timing is supported for 4K input video.

*4 30 bit / pixel (10 bit / component) Deep Color is supported only for 1-channel transmission.

*5 8-channel audio is supported when only 1 audio input channel is transmitted.

*6 The value of the maximum extension distance was obtained when IDK's cable (AWG 24) was used and 1080p@60 24 bit / pixel (8 bit / component) signals were transmitted. The maximum extension distance depends on the connected devices. The distance may not be extended with some device combinations, cabling method, or other manufacturer's cable. Video may be disturbed or may not be output even if signals are within the range mentioned above.

*7 We do not recommend other polishing methods, because it increases the return loss.

*8 The maximum extension 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.

*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-T04HD / NJR-R04HD 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-T04HD / NJR-R04HD and all devices plugged in and powered on normally?
- Are cables connected correctly?
- Are there no loose connections?
- Are correct cables for NJR-T04HD / NJR-R04HD 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 same problem occurs at all connectors?	Yes or No
2	Operates correctly when connect devices using genuine cables without connecting of NJR-T04HD/NJR-R04HD?	Yes or No

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