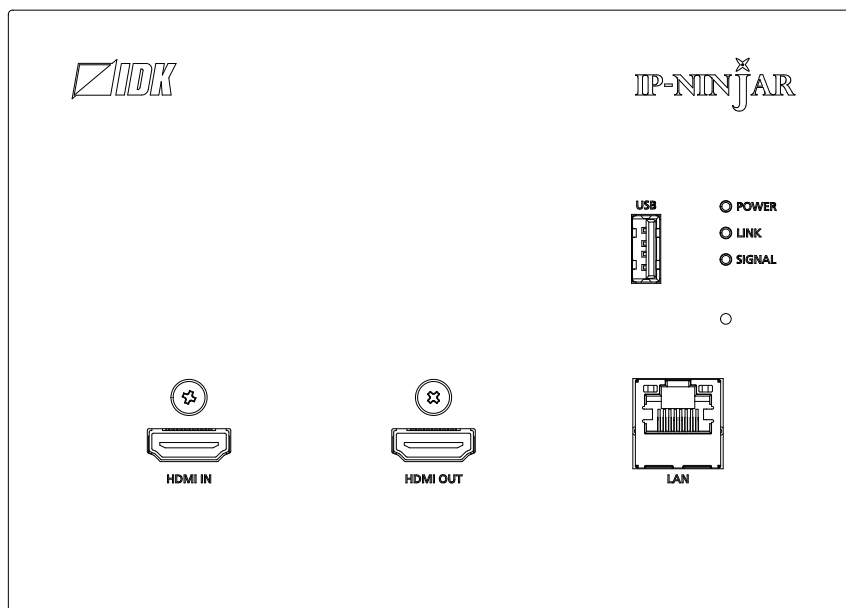


HDMI Transceiver

NJR-P01UFW-TR/NJR-P01UCW-TR

<User Guide>

Ver.1.2.0



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

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Before reading this manual

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

The reference manual consists of the following two volumes:

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

FCC STATEMENT

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

(Class A)

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

Unique Identifier

Type of Equipment: 4K@60 HDMI Transceiver Wallplate
Model Name: NJR-P01UFW-TR, NJR-P01UCW-TR

Responsible Party – U.S. Contact Information

Company Name: IDK America Inc.
Address: 72 Grays Bridge Road Suite 1-C, Brookfield, CT 06804
Telephone number: +1-203-204-2445
URL: www.idkav.com

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(FCC SDoC)

CE MARKING

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

WEEE MARKING





Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC
(This directive is only valid in the EU.)







This equipment complies with the WEEE Directive (2002/96/EC) marking requirement.
The left marking indicates that you must not discard this electrical/electronic equipment in domestic household waste.

Safety Instructions

Read all safety and operating instructions before using this product. Follow instructions and heed warnings/cautions.


Instructions and warnings/cautions for all products are provided. Some of them may not be applicable to your product.

	<h2>Warning</h2>	Indicates the presence of a hazard that may result in death or serious personal injury if the warning is ignored or the product is handled incorrectly.
	<h2>Caution</h2>	Indicates the presence of a hazard that may cause minor personal injury or property damage if the caution is ignored or the product is handled incorrectly.


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

Warning


For lifting heavy products:

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





For installing and connecting products:

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


Warning

 Instruction	<ul style="list-style-type: none"> ● Installation work must be performed by professionals. The product is intended to be installed by skilled technicians. For installation, please contact a system integrator or IDK. Improper installation may lead to the risk of fire, electric shock, injury, or property damage. ● Insert the power plug into an outlet that is unobstructed. Unobstructed access to the plug enables unplugging the product in case of any extraordinary failure, abnormal situation or for easy disconnection during extended periods of non-use. ● Insert the power plug into an appropriate outlet completely. If the plug is partially inserted, arcing may cause the connection to overheat, increasing the risk of electric shock or fire. Do not use a damaged plug or connect to a loose outlet. ● Unplug the product from an AC power source during installation or service. When connecting peripheral devices to this product, unplug all involved devices from outlets. Ground potential differences may cause fire or other difficulties. ● The product must be electrically earthed/grounded. To reduce the risk of electric shock, ensure the product is connected to a mains socket outlet with a protective earthing connection. ● For PoE/PoH, use category cables meeting IEEE802.3af/at. Otherwise, it may cause problems or a fire.
---	--

For operating products:

 Prohibited	<ul style="list-style-type: none"> ● Keep out any foreign objects. To avoid fire or electric shock, do not permit foreign objects, such as metal and paper, to enter the product from vent holes or other apertures. ● For power cable/plug and Category cable, <ul style="list-style-type: none"> • Do not scratch, heat, or modify, including splicing or lengthening them. • Do not pull, place heavy objects on them, or pinch them. • Do not bend, twist, tie or clamp them together forcefully. <p>Misuse of the power cable and plug may cause fire or electric shock. If power cables/plugs become damaged, contact your IDK representative.</p>
 Do not disassemble	<ul style="list-style-type: none"> ● Do not repair, modify or disassemble. Since the product includes circuitry that uses potentially lethal, high voltage levels, disassembly by unauthorized personnel may lead to the risk of fire or electric shock. For internal inspection or repair, contact your IDK representative.
 Do not touch	<ul style="list-style-type: none"> ● Do not touch the product and connected cables during electric storms. Contact may cause electric shock.
 Instruction	<ul style="list-style-type: none"> ● Clean the power plug regularly. If the plug is covered in dust, it may increase the risk of fire.




If the following problem occurs:

 Unplug	<ul style="list-style-type: none"> ● Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor. ● Unplug immediately if the product is damaged by falling or having been dropped. ● Unplug immediately if water or other objects are directed inside. <p>If you continue to use the product under these conditions, it may increase the risk of electric shock or fire. For maintenance and repair, contact your IDK representative.</p>
--	--



Caution

For installing and connecting products:

 <p>Prohibited</p>	<ul style="list-style-type: none"> ● Do not place the product in a location where it will be subjected to high temperatures. If the product is subjected to direct sunlight or high temperatures while under operation, it may affect the product's performance and reliability and may increase the risk of fire. ● Do not store or operate the product in dusty, oil smoke filled, or humid place. Placing the product in such environment may increase the risk of fire or electric shock. ● Do not block the vent holes. If ventilation slots are blocked, it may cause the product to overheat, affecting performance and reliability and may increase the risk of fire. ● Do not place or stack heavy items on the product. Failure to observe this precaution may result in damage to the product itself as well as other property and may lead to the risk of personal injury. ● Do not exceed ratings of outlet and wiring devices. Exceeding the rating of an outlet may increase the risk of fire and electric shock.
 <p>No wet hands</p>	<ul style="list-style-type: none"> ● Do not handle power plug with wet hands. Failure to observe this precaution may increase the risk of electric shock.
 <p>Instruction</p>	<ul style="list-style-type: none"> ● Use and store the product within the specified temperature/humidity range. If the product is used outside the specified range of temperature and humidity continuously, it may increase the risk of fire or electric shock. ● Do not place the product at elevations of 1.24 mi. (2,000 m) or higher above sea level. Failure to do so may shorten the life of the internal parts and result in malfunctions. ● When mounting the product into the rack, provide sufficient cooling space. Mount the product in a rack meeting EIA standards, and maintain spaces above and below for air circulation. For your safety as required, attach an L-shaped bracket in addition to the panel mount bracket kit to improve mechanical stability. ● Never insert screws without the rubber feet into the threaded holes on the bottom of the product. Never insert screws alone into the threaded holes on the bottom of the product. Doing so may lead to damage when the screws contact electric circuitry or components inside the product. Reinstall the originally supplied rubber feet using the originally supplied screws only.

For operating products:





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

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1 About this Guide

This user guide explains how to use the NJR-P01UFW-TR/NJR-P01UCW-TR (hereafter referred to as NJR-P) and about external control through the IP-NINJAR Configurator and NJR-CTB.

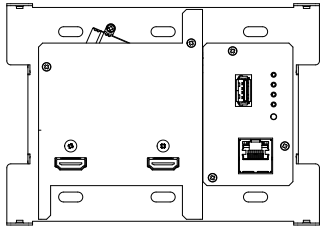
The NJR-P01UFW-TR/NJR-P01UCW-TR is a transceiver.

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

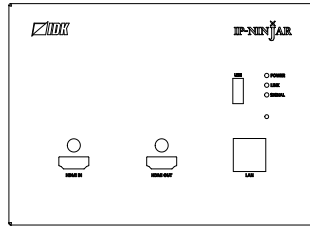
2 Included Items

Ensure all items below are included in the package.

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



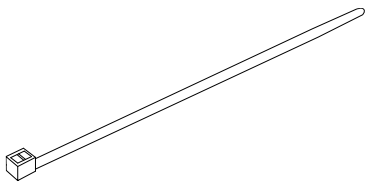
NJR-P01UFW-TR/
NJR-P01UCW-TR



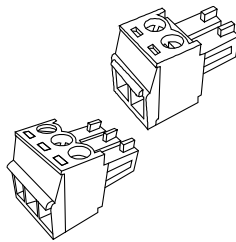
One (1) faceplate



Four (4) flat head screws



One (1) zip tie
(CAT model only)



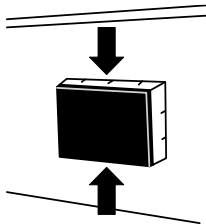
One (1) 2-pin captive screw
connector

One (1) 3-pin captive screw
connector

Installed before shipping.

Tip

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



3 Precautions for shipping

SFP+ optical transceiver is vulnerable to damage caused by mishandling during shipment if it is improperly packaged.

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

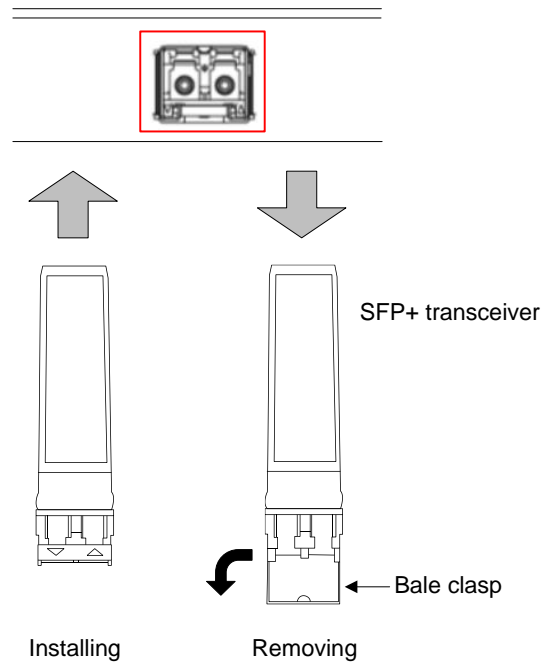
To install a transceiver:

Make sure the bale clasp is closed.

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

Removing a transceiver:

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



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

Note

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

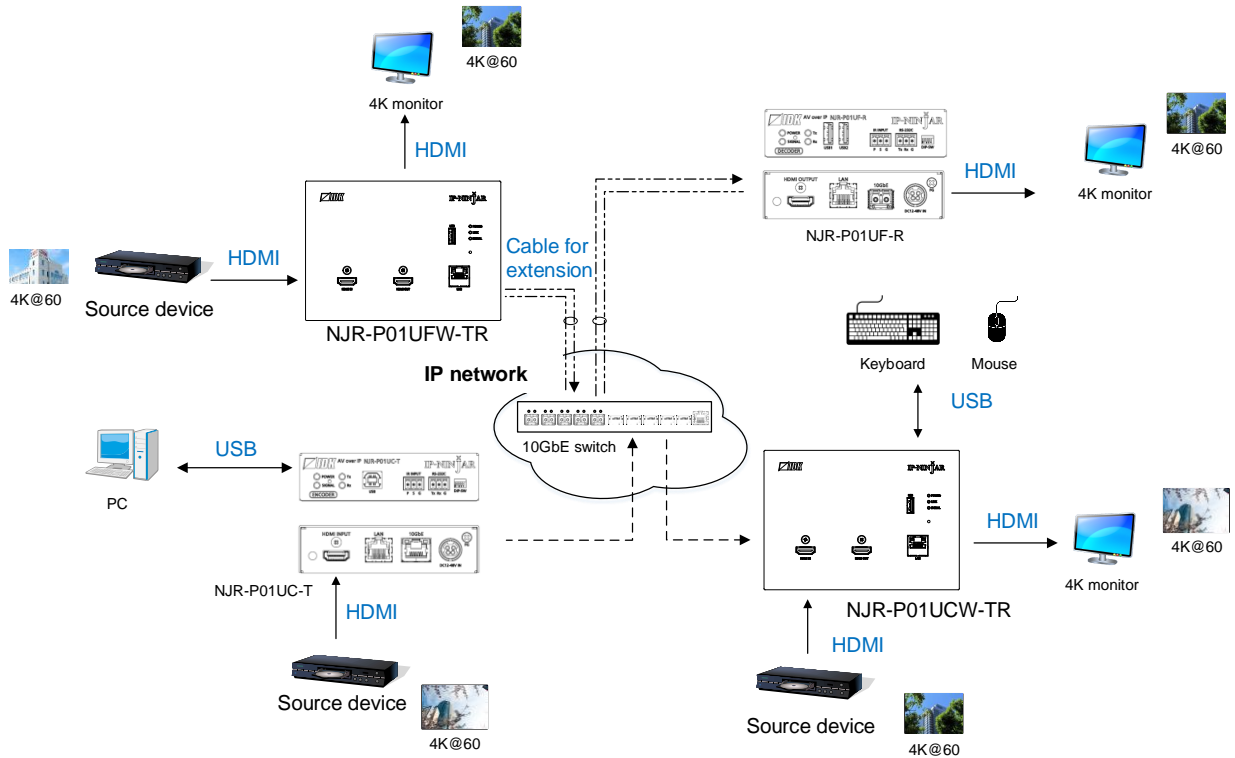
4 Product Outline

The NJR-P is a wallplate type transceiver for transmitting and receiving 4K@60 HDMI signals simultaneously over a 10GbE AV over IP network via fiber optic cables or twisted pair cables.

Bidirectional RS-232C communication, LAN, USB (HID) data can be carried over the same fiber optic cable or twisted pair cable for extension.

The NJR-P01UCW-TR is PoE enabled and can draw its power directly from a PoE supported 10GbE network switch which eliminates the need for a separate or external power supply.

The NJR-P can be used in combination with other IP-NINJAR products.



[Fig. 4.1] HDMI signals transmission

Note

This product can be used in combination with other IP-NINJAR products.

5 Features

■ Video

- Encoder and decoder are integrated into a single unit.
- Transmitting and receiving signals simultaneously
- Up to 4K@60 (4:4:4)
- HDCP 1.4/2.2
- HDR
- Maximum distances
 - Fiber optic cable
 - 984 ft. (300 m) (OM3 Multimode fiber), 6.21 mi. (10 km) (OS1 Singlemode fiber)
 - Twisted pair cable
 - CAT6A: 328 ft. (100 m)

■ Communication

- Bidirectional RS-232C
- LAN
- USB HID class

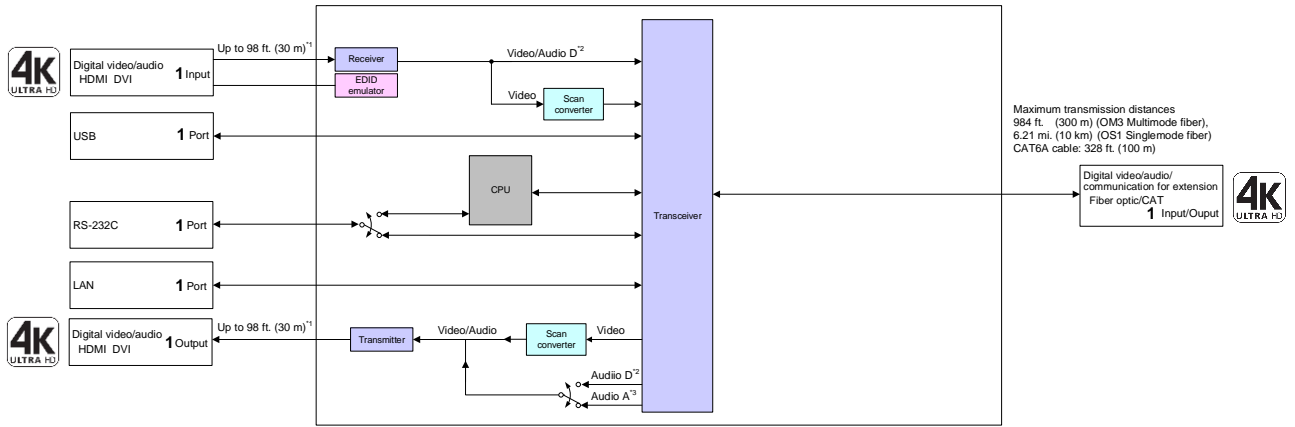
■ Network

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

■ Others

- EDID emulation
- DDC buffer
- Connection Reset
- PoE power supplied (PD) (NJR-P01UCW-TR)

NJR-P01UFW-TR/NJR-P01UCW-TR User Guide

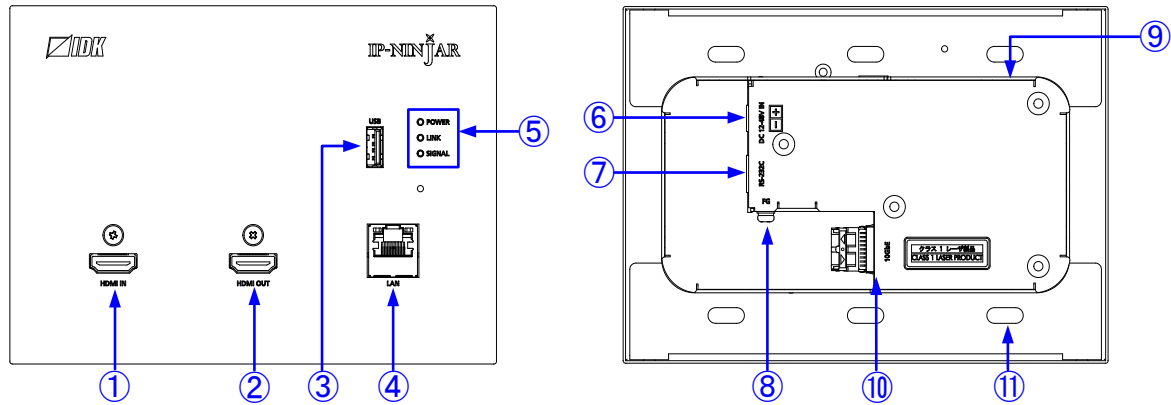


¹ Maximum transmission distances
 98 ft. (30 m): 1080p@60
 33 ft. (12 m): 4K@60 (When cable supporting 18 Gbps transmission is used)
² Audio D: Digital audio
³ Audio A: Analog audio

[Fig. 5.1] Diagram

6 Panels

6.1 NJR-P01UFW-TR (Fiber optic model)

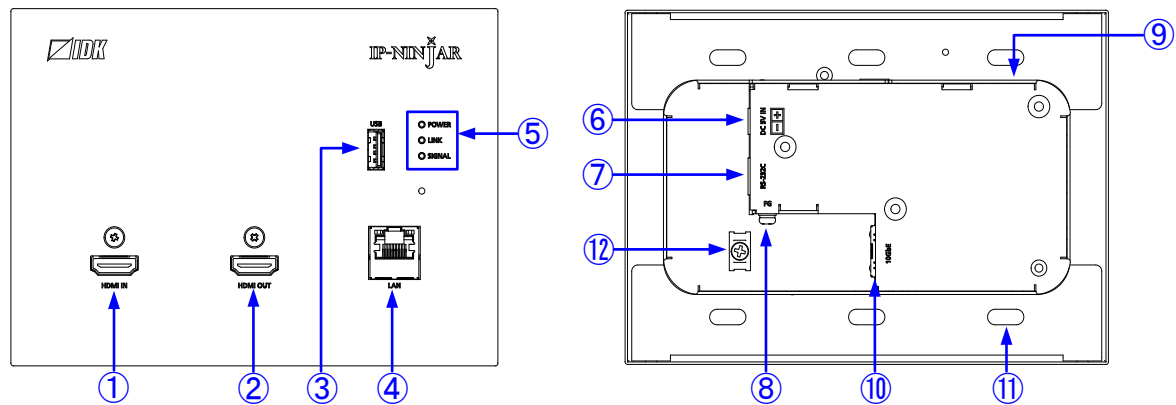


[Fig. 6.1] NJR-P01UFW-TR drawing

[Table 6.1] NJR-P01UFW-TR features

#	Feature	Description
①	HDMI input connector	Input connectors for HDMI signal to connect to a source devices (e.g.: Blu-ray player)
②	HDMI output connector	Output connector for HDMI signals Connects to a sink device. (e.g.: LCD monitor)
③	USB connector	Connector for a USB host (e.g.: PC) or USB device (e.g.: mouse and keyboard)
④	LAN connector	Connector for LAN signals
⑤	Status LEDs (Green)	POWER : Illuminates when power is supplied. LINK : Illuminates when an IP-NINJAR fiber model or 10GbE switch is detected. SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmitted correctly. 【10.7.3 SIGNAL LED illumination】 If a problem occurs in the fan and internal temperature, all LEDs blink.
⑥	Power supply connector	Connector for power supply 【8.1 Power supply】
⑦	RS-232C connector	Connector for RS-232C signals
⑧	Frame ground	Use for bonding chassis to local ground. M3 screws are used.
⑨	DIP switch	Switches internal connections of RS-232C signals. 【8.4 Setting DIP switch】
⑩	I/O connector for extension	I/O connector for digital signal extension A fiber optic cable is used; connects to an IP-NINJAR fiber model or 10GbE switch. SFP+ optical transceivers are sold separately.
⑪	Screw hole	Hole for installing the NJR-P to a switch box or the like.

6.2 NJR-P01UCW-TR (CAT model)



[Fig. 6.2] NJR-P01UCW-TR drawing

[Table 6.2] NJR-P01UCW-TR features

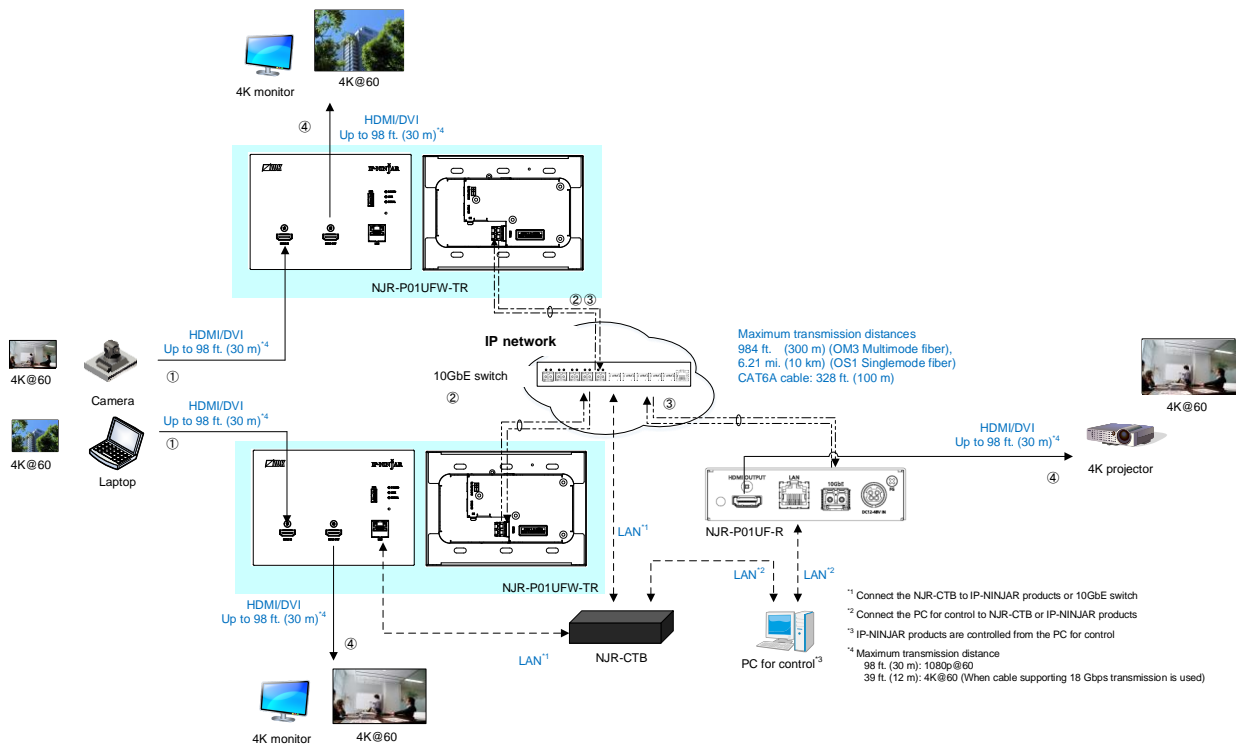
#	Feature	Description
①	HDMI input connector	Input connectors for HDMI signal to connect to a source devices (e.g.: Blu-ray player)
②	HDMI output connector	Output connector for HDMI signals Connects to a sink device. (e.g. LCD monitor)
③	USB connector	Connector for a USB host (e.g.: PC) or USB device (e.g.: mouse and keyboard)
④	LAN connector	Connector for LAN signals
⑤	Status LEDs (Green)	POWER : Illuminates when power is supplied. LINK : Illuminates when a valid code is being sent or received to an IP-NINJAR CAT model or 10GbE switch. SIGNAL : Illuminates when video signals are valid; blinks when video signals cannot be transmitted correctly. 【10.7.3 SIGNAL LED illumination】 If a problem occurs in the fan and internal temperature, all LEDs blink.
⑥	Power supply connector	Connector for power supply 【8.1 Power supply】
⑦	RS-232C connector	Connector for RS-232C signals
⑧	Frame ground	Use for bonding chassis to local ground. M3 screws are used.
⑨	DIP switch	Switches internal connections of RS-232C signals. 【8.4 Setting DIP switch】
⑩	I/O connector for extension	I/O connector for digital signal extension A twisted pair cable is used; connects to an IP-NINJAR CAT model or 10GbE switch. PoE is supported. 【8.1 Power supply】
⑪	Screw hole	Hole for installing the NJR-P to a switch box or the like.
⑫	Part for fixing cable	For fixing twisted pair cable using a zip tie.

7 System configuration example

7.1 Used as Network Extender

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

- ① Video and audio signals are input from the laptop or camera to the HDMI input connector of NJR-P01UFW-TR.
- ② NJR-P01UFW-TR sends these signals over a fiber optic cable.
- ③ 10GbE switch sends video and audio signals to the NJR-P01UFW-TR/NJR-P01UF-R according to the setting of NJR-CTB.
- ④ NJR-P01UFW-TR/NJR-P01UF-R outputs received video and audio signals from the HDMI output connector to the monitor and projector.



[Fig. 7.1] Used as Network extender

8 Precautions

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

8.1 Power supply

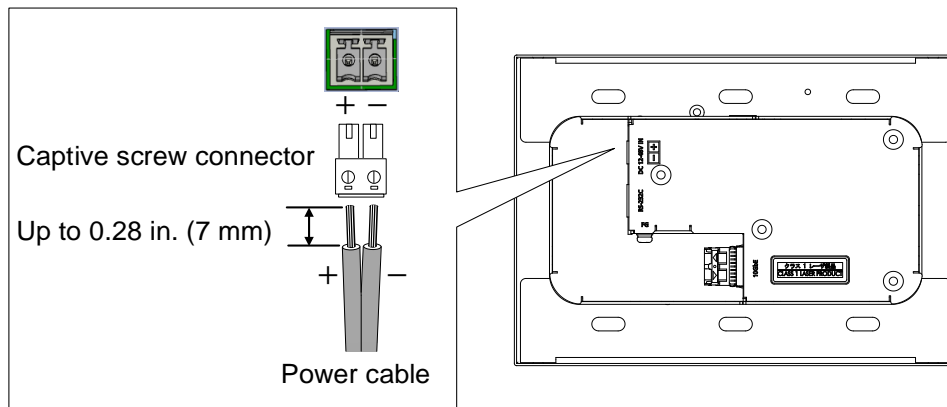
Power is supplied from DC 12 V - 48 V or DC 5 V power source.

Model	Power supply
Fiber optic	From DC 12 V - 48 V power source
CAT	From DC 5 V power source From a device supporting PoH PSE (IEEE 802.3at)

■ From DC power supply

Insert a non-energized power cable into the captive screw connector. Connect the captive screw connector to the power supply connector (DC 12-48V IN or DC 5V IN).

28 AWG to 26 AWG conductor gauge is recommended. The recommended wire strip length is 0.28 in. (7 mm).



[Fig. 8.1] Connecting DC power cable



Instruction

- **Use [Class 2] or [LPS] power supply.**

Otherwise, it may cause problems or a fire.

- **Ensure the output voltage of power supply device does not exceed the maximum input voltage of NJR-P.**

If overvoltage is applied, it may cause problems or a fire.

- **Ensure the polarity is correct when inserting the power cable to the terminal block.**


Otherwise, it may cause problems or a fire.

- **Do not supply power from a device supporting PoE.**

Otherwise, it may cause problems or a fire.

■ **Powered from a device supporting PoE**

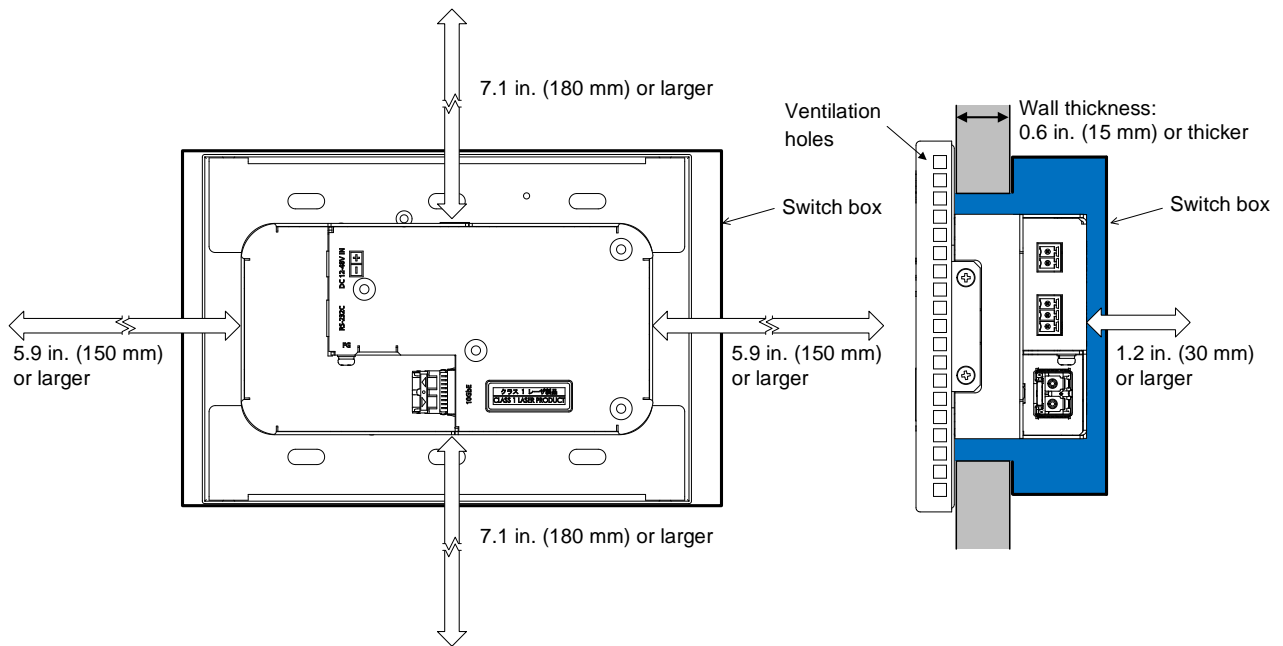
Power is supplied from a device supporting PoH over a twisted pair cable that is connected to 10GbE (Input/ Output for extension) connector. Turn all devices off when connecting to the twisted pair cable.

 Instruction	<ul style="list-style-type: none"> ● Use twisted pair cables meeting IEEE802.3af/at. Otherwise, it may cause problems or a fire. ● Connect to a device supporting PoE that meets IEEE802.3af/at. Otherwise, it may cause problems or a fire. ● Do not connect a power cable to power input connector (DC 12-48V IN or DC 5V IN) connector. Otherwise, it may cause problems or a fire.
---	--

8.2 Installation

When installing the NJR-P, please observe the following precautions.

- Ensure the twisted pair cable is fixed with a zip tie to protect the connector.
- Wall thickness: 0.6 in. (15 mm) or thicker
- When the NJR-P needs to be installed in an enclosed space or switch box, maintain the following sufficient clearances to provide adequate ventilation. Area indicated in blue should be within operating temperature range.
- To provide adequate ventilation, maintain sufficient clearances around the NJR-P (1.2 in. (30 mm) or more)

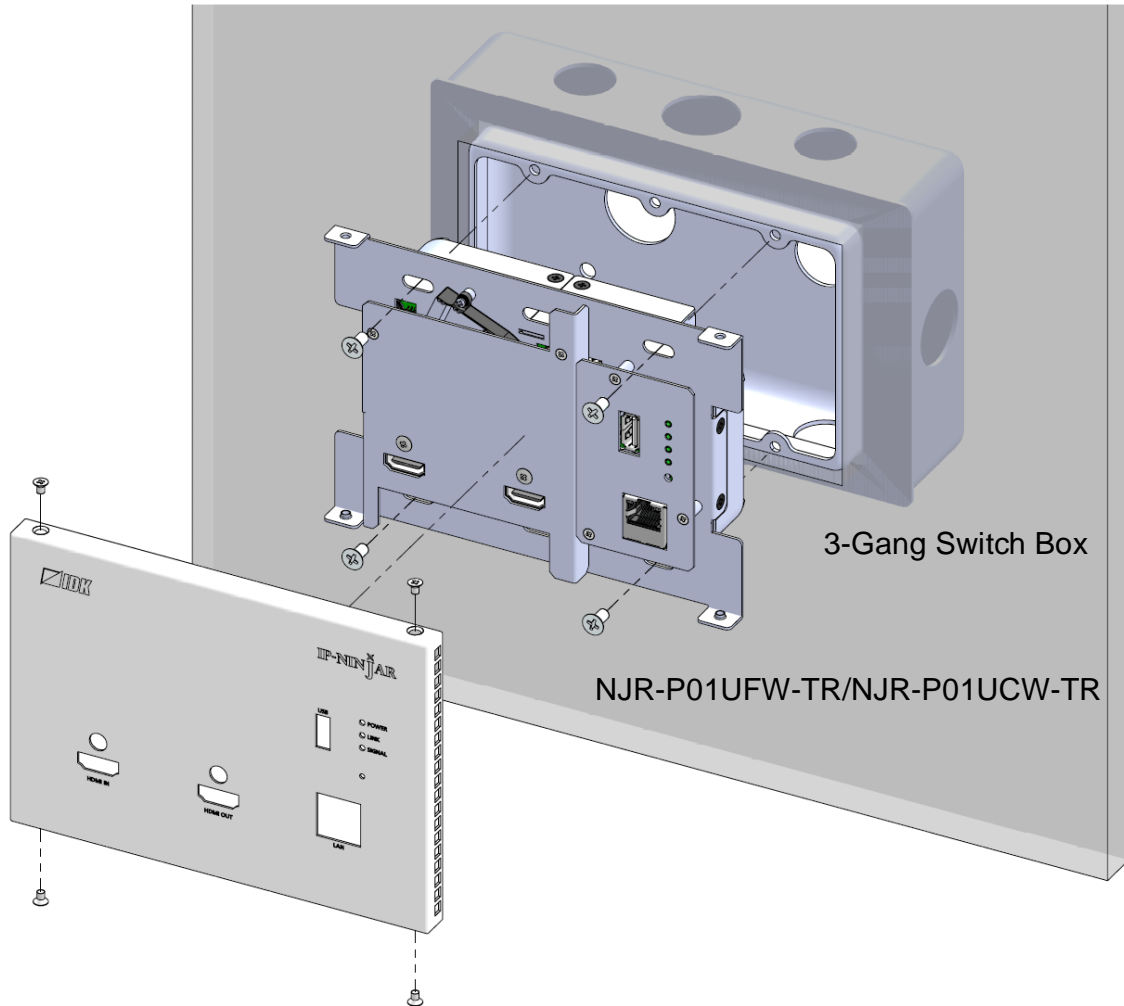


[Fig. 8.2] Space for heat dissipation

8.2.1 Switch box, bracket, and wallplate

IDK has confirmed that the following switch box, bracket, and wallplate can be mounted to the NJR-P.

- DS4913 (Panasonic)
- WN3998 (Panasonic)



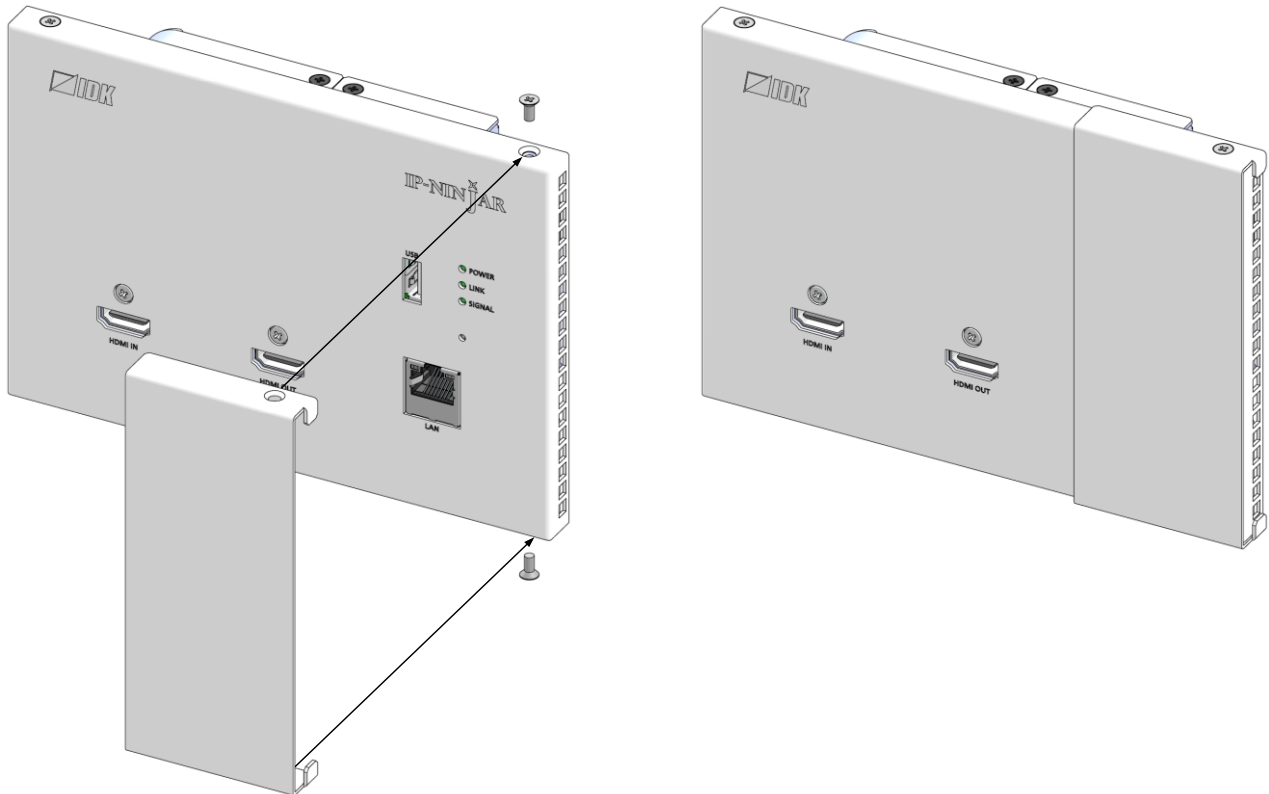
[Fig. 8.3] Example: Switch box is used

Tip

If installing the NJR-P directly in the wall without a switch box, use WN3998 (Panasonic).

8.2.2 Plate cover (Optional)

The optional plate cover is for covering connectors other than HDMI input/output connectors.



Use right upper and lower screws.

[Fig. 8.4] Plate cover (WC-3S)

Tip

White (WC-3S) and black (WC-3S-B) are available.

8.3 Cabling

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

- Read manuals for the external devices.
- Before connecting cables to the NJR-P or an external device, dissipate static electricity by touching grounded metal such as equipment racks before handling signal cables. Failure to observe this precaution may result in ESD (electrostatic discharge) damage.
- Power all units off before connecting cables.
- Be sure to fully seat all plugs and connections and dress cables to reduce stress on connectors.
- Secure HDMI cables using cable clamps to prevent connectors from being accidentally pulled out of ports.

8.3.1 HDMI cable

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

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

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

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

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

Note

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

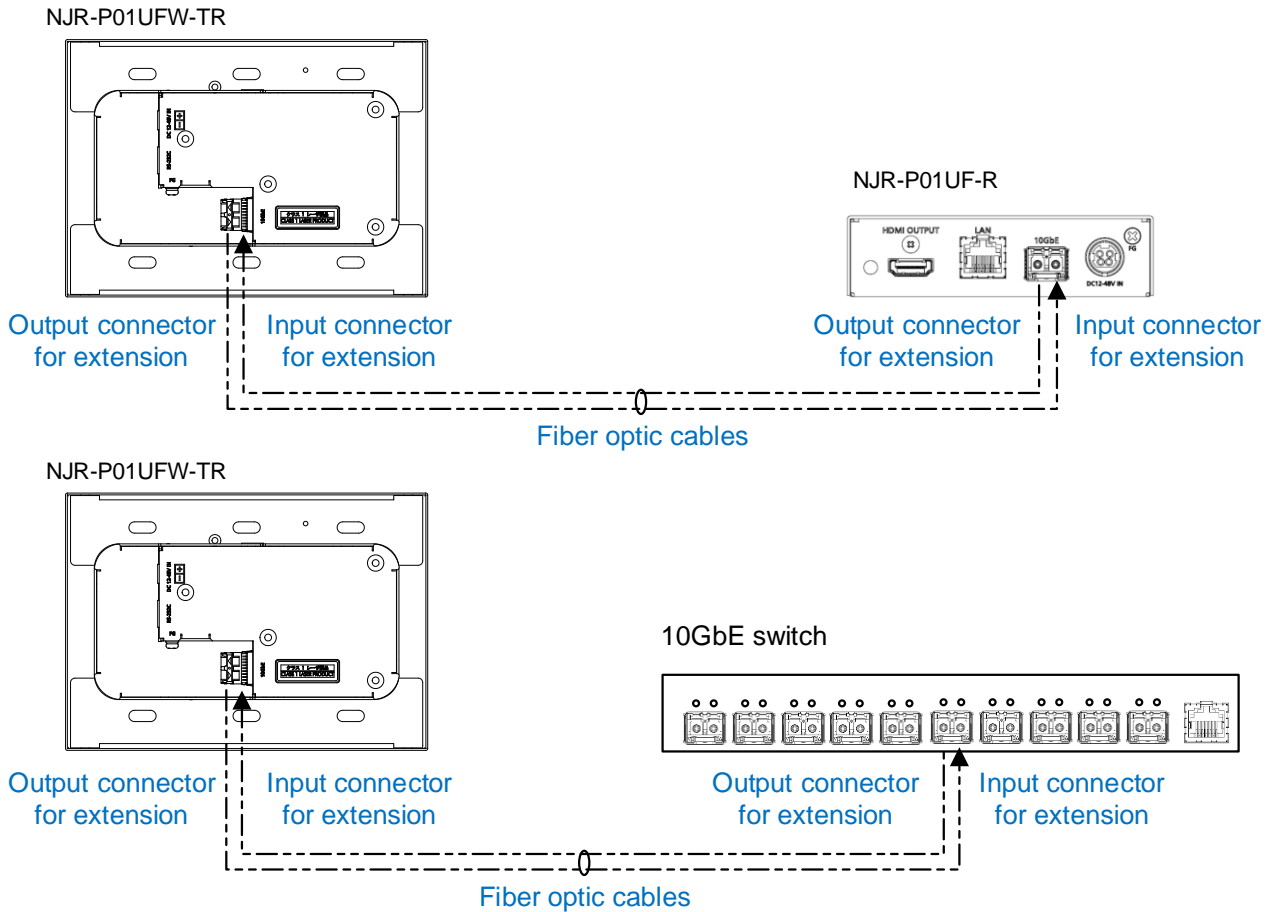
8.3.2 Fiber optic cable for extension

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

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

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

The target device should be an IP-NINJAR fiber model encoder, decoder or 10GbE switch.



[Fig. 8.5] Connecting fiber optic cable

- To polish connectors:
 For SFP+ optical transceiver for multimode : PC polishing is recommended.
 For SFP+ optical transceiver for singlemode : UPC polishing is recommended.

Note

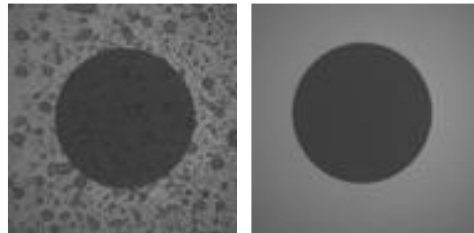
APC polishing is not supported.

- Transmission distance varies depending on attenuation of the fiber, connector and other contact portions.
- Make sure not to exceed the allowable tension and bend radius of fiber optic cable or the performance of the product and the life of the fiber optic cable may be affected.
- Plug the dust caps to both faces of the fiber optic cable when connecting the fiber optic cable and when not in use.
- Before inserting a fiber optic cable, make sure there is no damage or dirt on the end-face of the optical connector. Clean up it or NJR-P may not operate correctly.



Left : without dust cap
 Right : with dust cap

[Fig. 8.6] Dust caps



Before cleaning

After cleaning

[Fig. 8.7] Cleaning connector

8.3.3 Twisted pair cable for extension

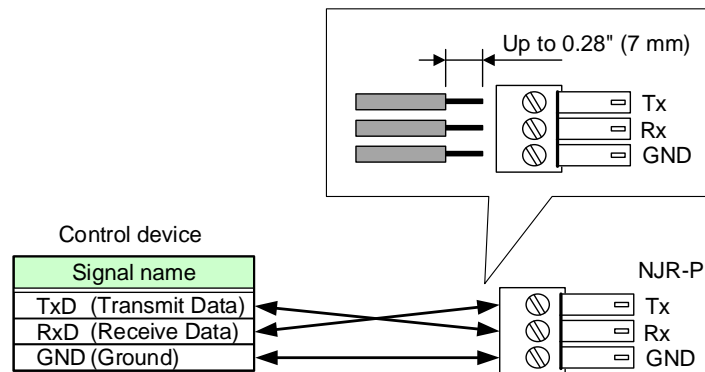
To ensure the best performance of twisted pair cables, select a correct twisted pair cable and connect it correctly.

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

8.3.4 Connecting RS-232C cable

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

28 AWG to 16 AWG conductor gauge is recommended. The recommended wire strip length is 0.28 in. (7 mm). Short RTS/CTS and DTR/DSR as needed.



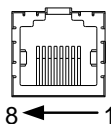
[Fig. 8.8] Connecting RS-232C cable to 3-pin captive screw connector

8.3.5 Connecting LAN cable

Pin assignment of the LAN connector is as follows.

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

8-pin RJ-45
Modular connector



Pin No.	Signal name			
	MDI		MDI-X	
	1000BASE-T	100BASE-TX/10BASE-T	1000BASE-T	100BASE-TX/10BASE-T
1	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)	TRX+ (Transmitted & Received data +)	RX+ (Received data +)
2	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)	TRX- (Transmitted & Received data -)	RX- (Received data -)
3	TRX+ (Transmitted & Received data +)	RX+ (Received data +)	TRX+ (Transmitted & Received data +)	TX+ (Transmitted data +)
4	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*
5	TRX- (Transmitted & Received data -)	N.C. (Not connected)*	TRX- (Transmitted & Received data -)	N.C. (Not connected)*
6	TRX- (Transmitted & Received data -)	RX- (Received data -)	TRX- (Transmitted & Received data -)	TX- (Transmitted data -)
7	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*	TRX+ (Transmitted & Received data +)	N.C. (Not connected)*
8	TRX- (Transmitted & Received data -)	N.C. (Not connected)*	TRX- (Transmitted & Received data -)	N.C. (Not connected)*

*Not used

[Fig. 8.9] LAN connector

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

NJR-P 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 Connecting USB

USB HID communication is supported. The NJR-P can be used as USB local unit or USB remote unit.

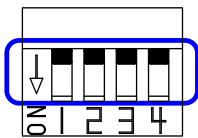
- If the NJR-P is used as an extender or as an USB local unit of the network extender, connect the NJR-P's USB connector to the USB port of the PC via a Type-A - Type-A cable.
- If the NJR-P is used as an USB remote unit of the network extender, use a USB HID keyboard and mouse. Up to two devices can be supported by using a USB hub.

Notes

- Only HID class is supported. USB products other than HID class (gaming mouse/keyboard, and the like) are not supported.
- Use a USB-supported product of less than 100 mA.

8.4 Setting DIP switch

Use the DIP switch to change settings of NJR-P.



Default: OFF (SW1 to SW4)

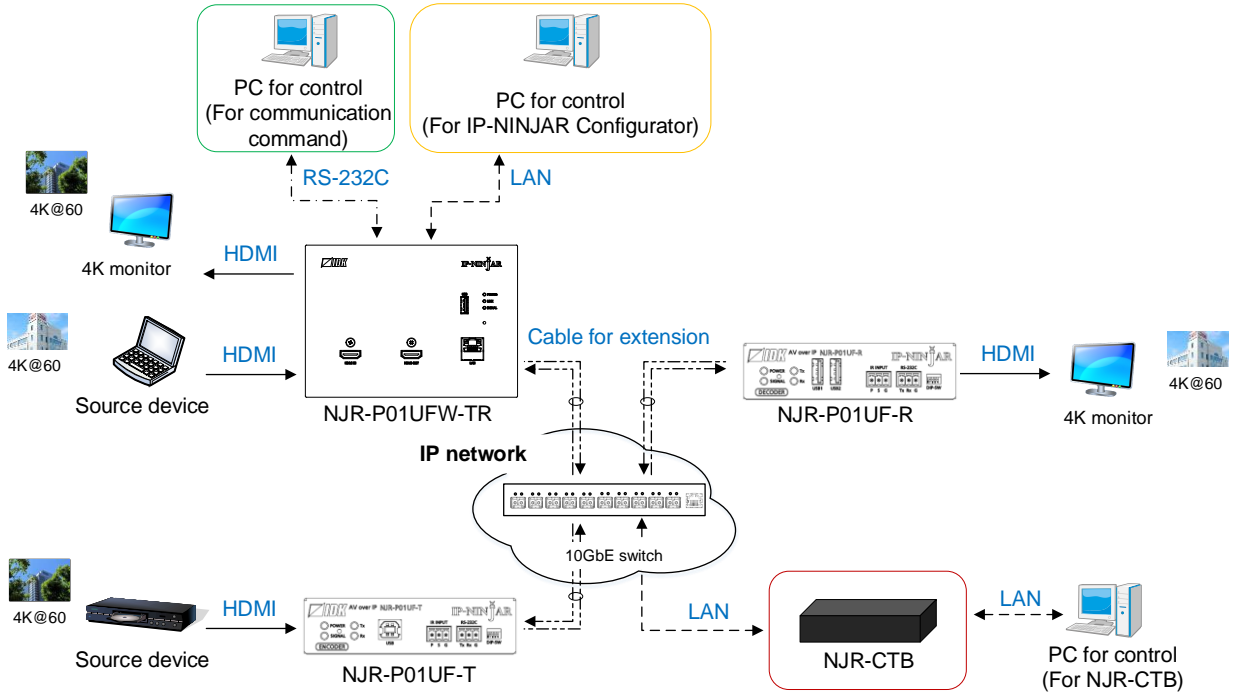
No.	Description
1	Selects internal connection of the RS-232C connector. OFF : Connects to IP-NINJAR products. ON : Sets settings of NJR-P.
2	Not connected*
3	Not connected*
4	Not connected*

*Not used

[Fig. 8.10] Functions of DIP switch

9 Basic Operation

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



[Fig. 9.1] Setting NJR-P

9.1 Control over RS-232C communication

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

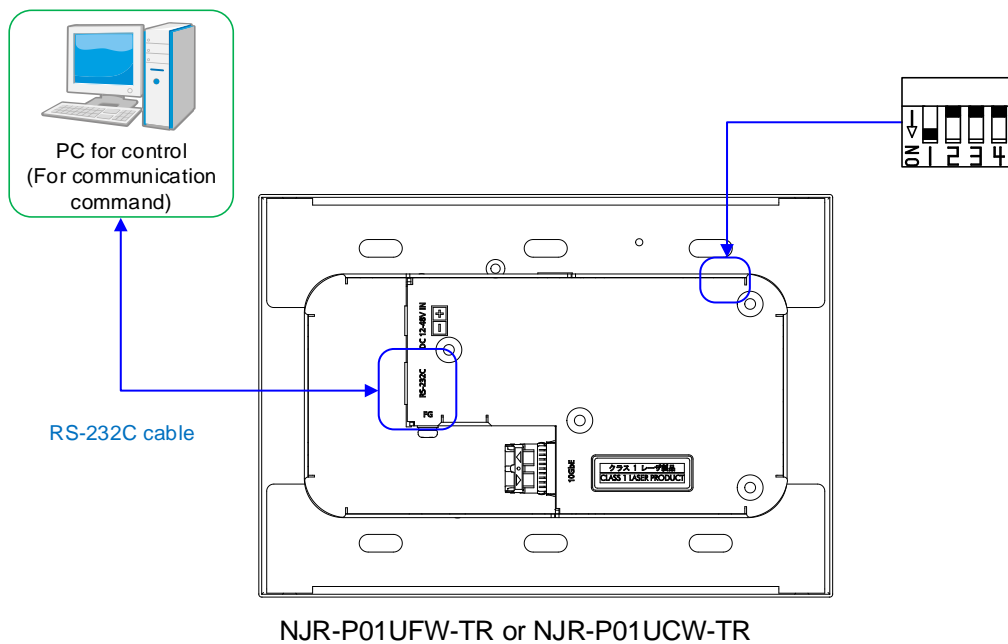
You can control NJR-P and get its status by connecting a control unit, such as PCs, to NJR-P over an RS-232C cable.

The RS-232C connector has two modes: control mode is controlling the NJR-P and communication mode is communicating between peripheral devices connected to the NJR-P and other IP-NINJAR encoder or decoder.

Turn the DIP switch No.1 to [ON] to control the NJR-P.

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

【8.4 Setting DIP switch】



DIP switch (No.1)
 Setting internal connection selection of the RS-232C connector
 OFF : Connects to IP-NINJAR products.
 ON : Sets settings of NJR-P.
 (Default: OFF)

[Fig. 9.2] Control over communication command

Note

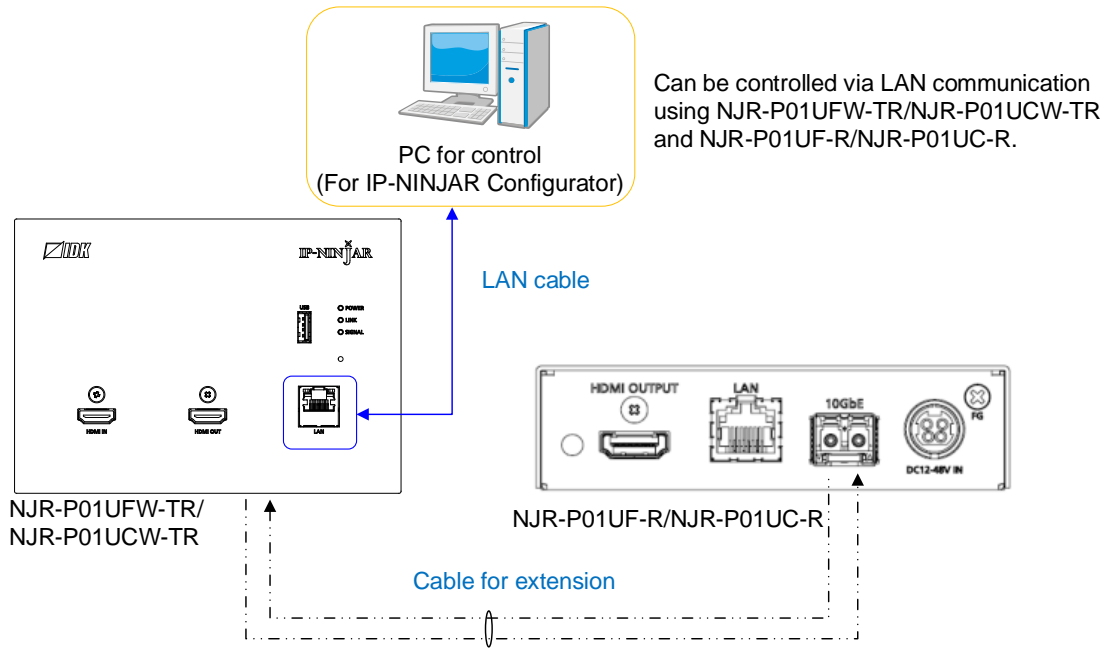
Settings of NJR-P01UFW-TR/NJR-P01UCW-TR or IP-NINJAR products cannot be set from IP-NINJAR products or NJR-P01UFW-TR/NJR-P01UCW-TR, respectively.

9.2 Controlled by IP-NINJAR Configurator

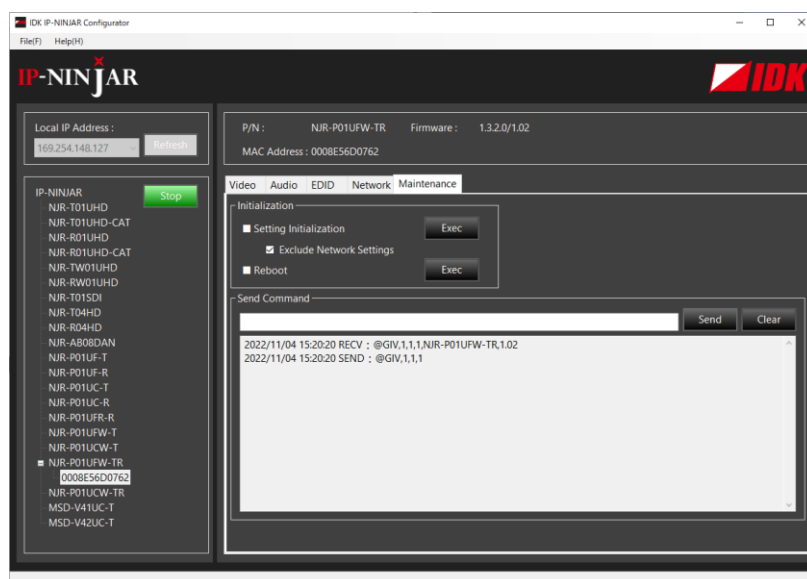
IP-NINJAR The NJR-P connected to LAN can be set from the IP-NINJAR Configurator remotely over LAN communication.

The following settings can be set from the GUI: setting RS-232C, setting LAN, resetting settings, and rebooting NJR-P. For other settings, communication commands can be input from the command line. Refer to the IP-NINJAR Configurator User Guide for operations from the IP-NINJAR Configurator. Refer to the Command Guide for NJR-P for details of communication commands.

Please contact us to download the IP-NINJAR Configurator.



[Fig. 9.3] Control from IP-NINJAR Configurator



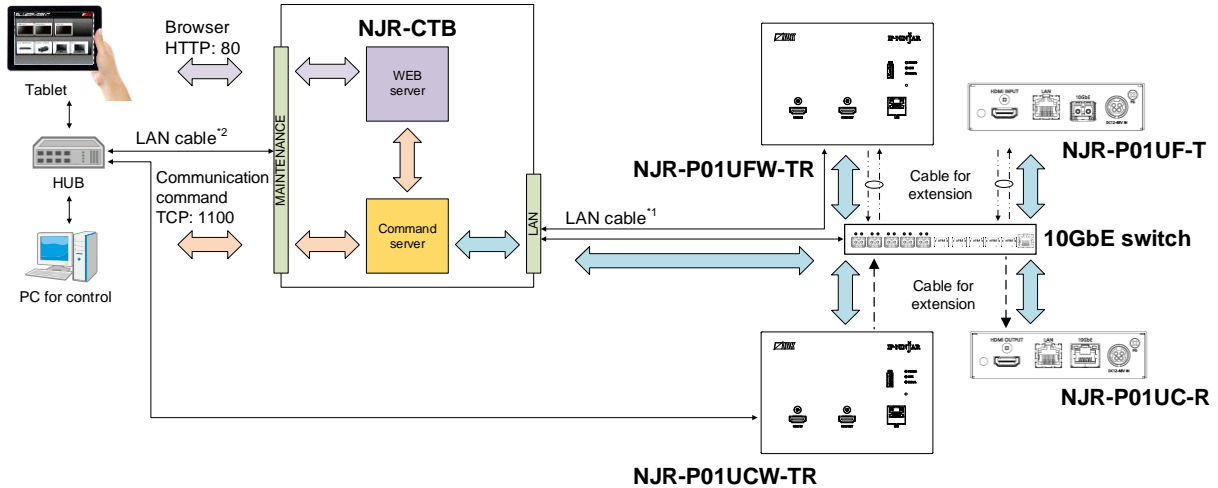
[Fig. 9.4] IP-NINJAR Configurator's GUI

9.3 Controlled by NJR-CTB

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

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

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



¹ The LAN connector of NJR-CTB should be connected to the LAN connector of IP-NINJAR series products or the 10GbE switch.

² PC for control should be connected to the MAINTENANCE connector of NJR-CTB or the LAN connector of IP-NINJAR series products.

[Fig. 9.5] Controlled by NJR-CTB

9.4 Setting items

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

[Table 9.1] Setting items

Setting items	NJR-P01UFW-TR/ NJR-P01UCW-TR		NJR-CTB	Page
	RS-232C	LAN (IP-NINJAR Configurator)	LAN	
Non-signal input monitoring	Command	Command	WEB&C	38
HDCP input enabled/disabled	Command	Command	WEB&C	39
Output mode	Command	Command	WEB&C	40
HDCP output	Command	Command	WEB&C	40
Hot plug ignoring duration	Command	Command	WEB&C	41
Muting digital audio	Command	Command	WEB&C	42
Selecting output audio	No	GUI	WEB&C	42
EDID resolution	Command	Command	WEB&C	43
Copying EDID	Command	Command	WEB&C	46
Selecting WXGA mode	Command	Command	WEB&C	46
Deep Color	Command	Command	WEB&C	46
Audio format	Command	Command	WEB&C	47
Speaker configuration	Command	Command	WEB&C	48
RS-232C communication	No	GUI	WEB&C	49
LAN	No	GUI	WEB&C	50
MAC address	No	GUI	WEB&C	50
Fan rotation speed	Command	Command	WEB&C	51
LED for status	Command	Command	WEB&C	51
SIGNAL LED illumination	Command	Command	WEB&C	51
Input status	Command	Command	WEB&C	—
Output status	Command	Command	WEB&C	—
Monitor EDID	Command	Command	WEB&C	—
Fan status	Command	Command	WEB&C	—
Version	Command	Command	WEB&C	—
Initialization	No	GUI	WEB&C	36
Reboot	No	GUI	WEB&C	36
Setting channel information*	No	No	WEB&C	—
Selecting I/O channel*	No	No	WEB&C	—
Operating preset memory*	No	No	WEB&C	—
Videowall*	No	No	WEB&C	—
RS-232C crosspoint*	No	No	WEB&C	—
USB HID crosspoint*	No	No	WEB&C	—
NJR-CTB LAN*	No	No	WEB&C	—

*In this manual, only settings of NJR-P are explained. Refer to NJR-CTB User Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, and setting videowall, setting RS-232C/USB HID crosspoint, and setting NJR-CTB LAN.

9.5 Initialization

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

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

【9.2 Controlled by IP-NINJAR Configurator】

【9.3 Controlled by NJR-CTB】

9.6 Reboot

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

【9.2 Controlled by IP-NINJAR Configurator】

【9.3 Controlled by NJR-CTB】

10 Setting

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

In this manual, only settings of NJR-P are explained. Refer to NJR-CTB User Guide for the following operations: Using as Network Extender base on 10GbE Switcher, setting channel information, selecting input/output channel, operating preset memory, setting videowall, setting RS-232C/USB HID crosspoint, and setting NJR-CTB LAN.

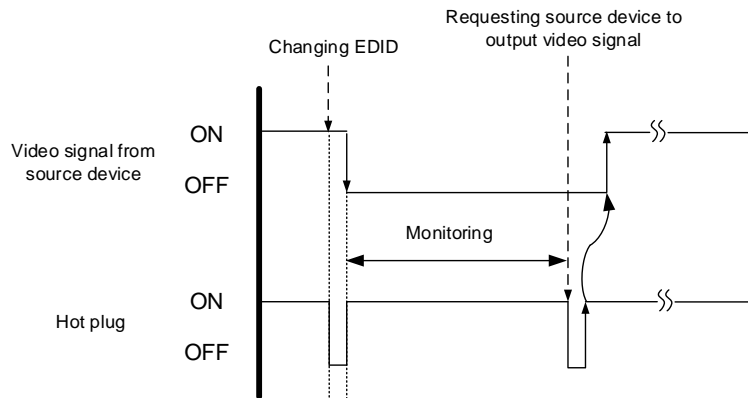
[Table 10.1] Setting items

Item	Setting value		Page
	Value	Default	
Non-signal input monitoring	OFF/2 to 15 (sec.)	10 (sec.)	38
HDCP input enabled/disabled	HDCP enabled/HDCP disabled	HDCP enabled	39
Output mode	AUTO/DVI/RGB/YCbCr 4:2:2/ YCbCr 4:4:4/YCbCr 4:2:0	AUTO	40
HDCP output	ALWAYS/HDCP INPUT ONLY/ HDCP 2.2	ALWAYS	40
Hot plug ignoring duration	OFF (Not ignoring request signals)/ 2 to 15 (sec.)	OFF (Not ignoring request signals)	41
Muting digital audio	Mute OFF/Mute ON	Mute OFF	42
Selecting output audio	Analog input audio/ Digital input audio	Digital input audio	42
EDID resolution	SVGA to 4096x2160 (50/59.94/60, 4:4:4)/Copied EDID1	2160p 50/59.94/60 4:4:4	43
Copying EDID	—	—	46
Selecting WXGA mode	1360x768/1366x768	1360x768	46
Deep Color	24/30/36-BIT COLOR	24-BIT COLOR	46
Audio format	PCM/Dolby Digital/AAC/ Dolby Digital+/DTS/DTS-HD/ Dolby TrueHD OFF/32/44.1/48/88.2/96/176.4/ 192 (kHz)	PCM 48 (kHz)	47
Speaker configuration	1 to 8	2	48
RS-232C communication	4800/9600/19200/38400/57600/ 115200 (bps) 7/8 (bit) 1/2 (bit) NONE/EVEN/ODD	9600 (bps) 8 (bit) 1 (bit) NONE	49
LAN	Automatic/Fix	Automatic	50
Fan rotation speed	AUTO/LOW/MIDDLE/HIGH	AUTO	51
LED for status	Illuminates/Does not illuminate	Illuminates	51
SIGNAL LED illumination	HDMI input video signal/ Input video signal for extension	HDMI input video signal	51

10.1 Input

10.1.1 Non-signal input monitoring

If no video signal is input, you can set the time length which is from when a source device stops outputting signal to when the encoder requests the source device to output video signal.



[Fig. 10.1] Monitoring absence of input

Setting value

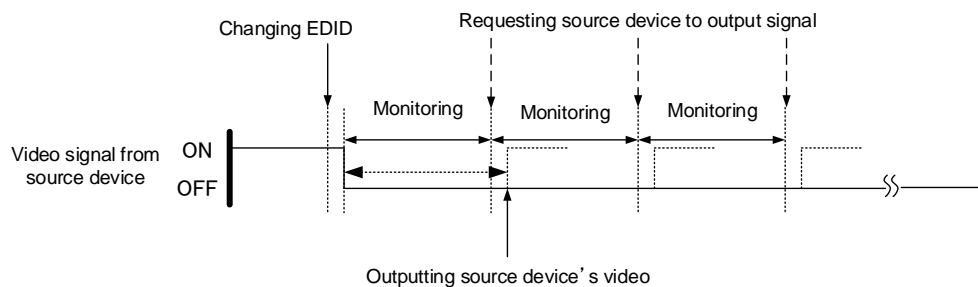
OFF

2 to 15 (sec.) [Default] 10 (sec.)

Note

If you are using the monitor power-saving or dual monitor features on your PC, set this feature to [OFF]. This will avoid potentially unpredictable operation.

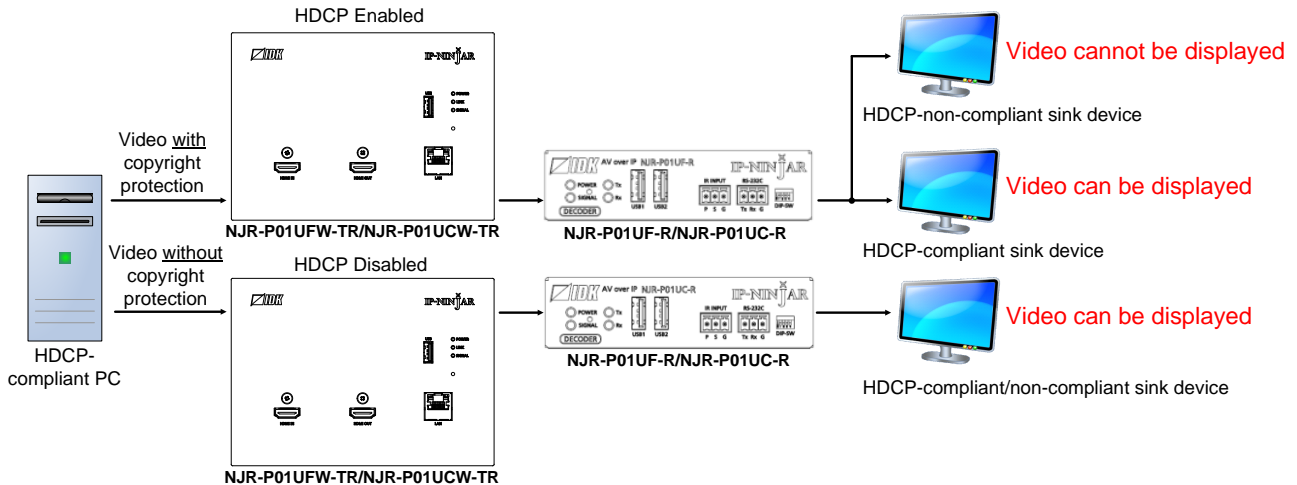
When using this feature, ensure that the monitoring time is set for a value greater than the amount of time needed for the source to provide an output signal.



[Fig. 10.2] Repeating output reset

10.1.2 HDCP input enabled/disabled

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



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

Setting value

HDCP enabled [Default]

HDCP disabled

Note

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

- HDCP 2.2 (stream type 0) can be displayed on a sink device supported HDCP 1.4.
- HDCP 2.2 (stream type 1) can be displayed on a sink device supported HDCP 2.2 but not on a sink device supported HDCP 1.4.

10.2 Output

10.2.1 Output mode

You can set the color space of extension output connector and the color space to be sent to a device connected to the HDMI output connector.

If [AUTO] is selected, the best color space for the selected sink device is selected automatically.

Setting value

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

Note

This setting is enabled when video signal is input.

10.2.2 HDCP output

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

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

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

If [HDCP 2.2] is selected, HDCP 2.2 is output at all times regardless of input signal status.

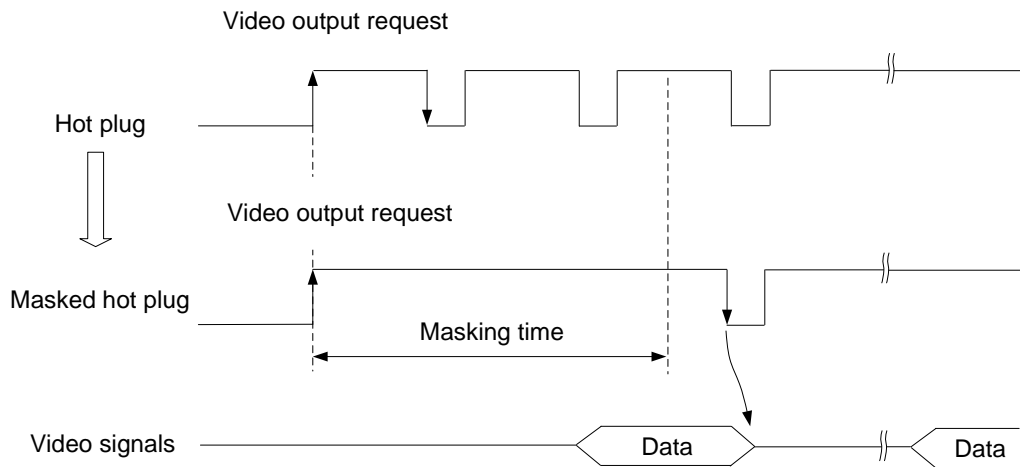
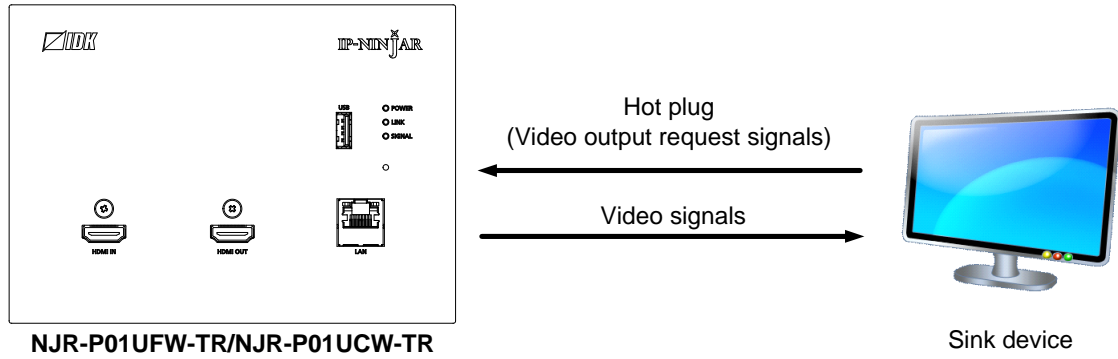
Setting value

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

10.2.3 Hot plug ignoring duration

Time for ignoring the video output request signals sent from the sink device that is connected to the HDMI output connector.

If the request signals are repeated in a short cycle, the NJR-P processes video output from the first cycle. As a result, video may not be output. This problem can be solved by setting the ignoring time.



[Fig. 10.4] Hot plug mask

Setting value

- OFF (Not ignoring request signals) [Default]
- 2 to 15 (sec.)

10.3 Audio

10.3.1 Muting digital audio

You can enable or disable the digital audio mute for extension output and HDMI output.

Setting value

Mute OFF [Default]

Mute ON

10.3.2 Selecting output audio

You can select analog or digital audio that is embedded to output video and output from the HDMI output connector.

Commands for analog input audio can be used when using the NJR-P with other IP-NINJAR series products.

Setting value

Analog input audio

Digital input audio [Default]

10.4 EDID

10.4.1 EDID resolution

You can set the desired resolution that is output from the source device. Timing of [720p], [1080i], [1080p], [2160p], and [4096x2160] is the same as that of HD signal meeting the CEA-861 standard. For other resolutions, timing parameters meet the VESA DMT or VESA CVT standard.

Setting value

[Table 10.2] Maximum resolution of EDID

Max. resolution	Pixel	Standard	Remarks
Copied EDID1	—	—	If no acquired data, [2160p (50/59.94/60, 4:4:4)]
1080p (50/59.94/60)	1920x1080	HDTV	
720p (50/59.94/60)	1280x720		
1080i (50/59.94/60)	1920x1080		
SVGA	800x600	VESA	
XGA	1024x768		
VESA720	1280x720		For DVI device input
WXGA	1280x768		
WXGA	1280x800		
Quad-VGA	1280x960		
SXGA	1280x1024		
WXGA	1360x768、 1366x768		Pixel can be set in “10.4.3 Selecting WXGA mode”.
SXGA+	1400x1050		
WXGA+	1440x900		
WXGA++	1600x900		(RB)
UXGA	1600x1200		
WSXGA+	1680x1050		
VESA1080	1920x1080		(RB), For DVI device input
WUXGA	1920x1200		(RB)
QWXGA	2048x1152		(RB)
WQHD	2560x1440	(RB)	
WQXGA	2560x1600	(RB)	
2160p (50/59.94/60, 4:2:0)	3840x2160	UHDTV	YCbCr 4:2:0 supported
4096x2160 (50/59.94/60, 4:2:0)	4096x2160	DCI	YCbCr 4:2:0 supported
2160p (50/59.94/60, 4:4:4)	3840x2160	UHDTV	Default YCbCr 4:2:0, YCbCr 4:2:2, YCbCr 4:4:4 supported
4096x2160 (50/59.94/60, 4:4:4)	4096x2160	DCI	YCbCr 4:2:0, YCbCr 4:2:2, YCbCr 4:4:4 supported

(RB): Reduced Blanking

Notes

- For 4096×2160:
The source device may select 3840×2160 (30p, YCbCr 4:4:4) depending on the EDID definition.
First set built-in EDID and then select 4096×2160 in the source device side.
- For YCbCr4:2:0:
The source device may select 3840×2160 (30p, YCbCr 4:4:4) depending on the EDID definition.
First set built-in EDID and then select YCbCr 4:2:0 in the source device side.
- For HDR:
Copy the EDID of the connected sink device supporting HDR and select [Copied EDID1].
- If a source device that does not support 4K is connected to an input connector having 4K EDID, the source device may output DVI signal meaning audio is not output. To output HDMI signal, change the EDID setting to a format other than 4K.

[Table 10.3] Maximum resolution and supported pixels

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

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

*Set the EDID supported pixels of [1360x768] and [1366x768] in “10.4.3 Selecting WXGA mode”. [1360x768] is set by default.

10.4.2 Copying EDID

You can load and register EDID of the sink device that is connected to the NJR-P or NJR decoder.

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

【9.2 Controlled by IP-NINJAR Configurator】

【9.3 Controlled by NJR-CTB】

Note

To use a registered EDID, set “**10.4.1 EDID resolution**” [Copied EDID1].

10.4.3 Selecting WXGA mode

You can set the pixel for when WXGA is selected from EDID resolution setting.

Setting value

1360x768 [Default]

1366x768

10.4.4 Deep Color

You can set the Deep color (Color depth) to be output from the source device.

Setting value

24-BIT COLOR [Default]

30-BIT COLOR

36-BIT COLOR

Note

If the source device outputs 30-BIT COLOR or 36-BIT COLOR, the transmission clock speed increases.

Noise may occur if a bad-quality cable or long cable is connected.

In these cases, the noise may be removed by selecting [24-BIT COLOR].

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

10.4.5 Audio format

You can set the audio format and maximum sampling frequency to be output from a source device. This setting is enabled if “**10.4.1 EDID resolution**” is selected to an item other than [Copied EDID1] is.

Note

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

Setting value

[Table 10.4] Audio format

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

10.4.6 Speaker configuration

You can set the speaker configuration of multi-channel audio.

Once changing the number of speaker, the configuration is automatically set as follows.

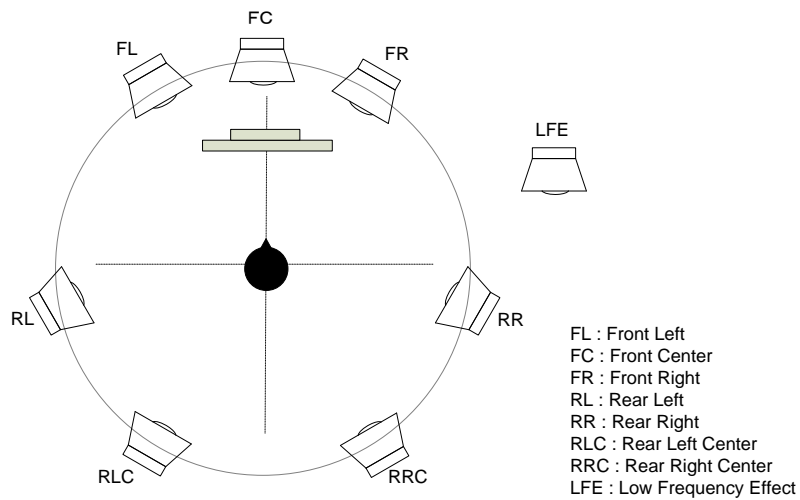
You can change the default configuration, and you can also set each speaker individually

This setting is enabled if “10.4.1 EDID resolution” is selected to an item other than [Copied EDID1] is.

Setting value

[Table 10.5] Default speaker configuration

Number of speakers	FL/FR	LFE	FC	RL/RR	RC	FLC/FRC	RLC/RRC	FLW/FRW	FLH/FRH	TC	FCH
1	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2 [Default]	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
6	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
8	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF



[Fig. 10.5] Speaker configuration

10.5 RS-232C

10.5.1 RS-232C communication

You can set the control mode and the RS-232C communication between devices that connected to encoder/decoder. The same setting should be set for encoder/decoder.

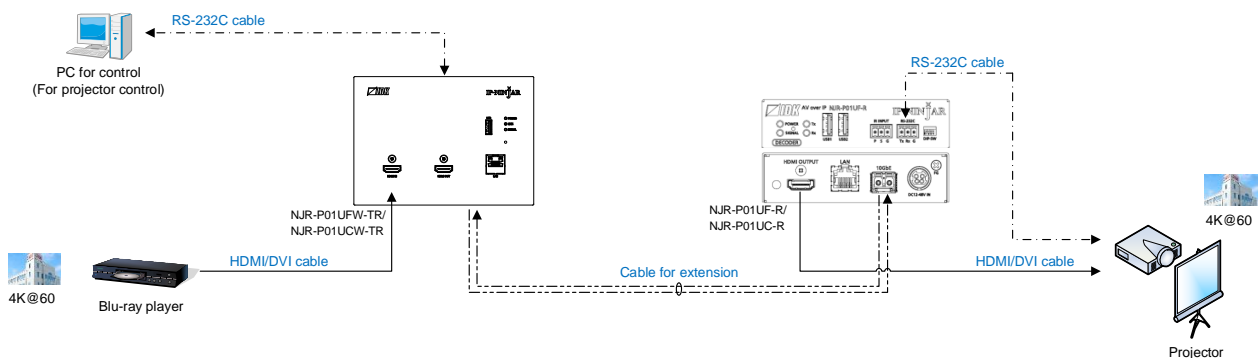
Notes

The RS-232C connector is used for two modes: controlling encoder or decoder and communicating between devices that connected to encoder/decoder. For the latter mode, set the DIP switch (No.1) to [OFF].

【8.4 Setting DIP switch】

Values for the former mode are fixed and cannot be changed; values for the latter mode are settable. Refer to the Command Guide for details.

For communicating between encoder/decoder and connected device, only RD (Received data) and TD (Transmitted data) are sent.



[Fig. 10.6] Communication over RS-232C

Setting value

[Table 10.6] RS-232C setting items

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

10.6 LAN

10.6.1 LAN

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

Setting value

[Table 10.7] LAN setting items

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

10.6.2 MAC address

You can display the MAC address.

Information to be displayed

[Table 10.8] MAC address

Item	Example
MAC address	00,08,E5,69,00,00

10.7 Advanced settings

10.7.1 Fan rotation speed

You can set the fan speed.

Setting value

[Table 10.9] Rotation speed mode of fan

Value	Description
AUTO [Default]	Rotation speed is changed depending on the internal temperature.
LOW, MIDDLE, HIGH	Keeps certain rotation speed. If internal temperature exceeds the upper limit, the NJR-P changes the rotation speed depending on the internal temperature. After that, the internal temperature drops the lower limit, he NJR-P changes the rotation speed depending on the selected mode.

10.7.2 LED for status

You can turn ON/OFF of the status LEDs and LAN connector LED.

If a problem occurs in the fan and internal temperature, all LEDs blink regardless of this setting.

Setting value

ON (Illuminates) [Default]

OFF (Does not illuminate)

10.7.3 SIGNAL LED illumination

You can set the SIGNAL LED illumination conditions.

Setting value

HDMI input video signal [Default]

Input video signal for extension

10.8 Information

Refer to the Command Guide for NJR-P for details of I/O status and NJR-P status.

11 Product specification

11.1 NJR-P01UFW-TR/NJR-P01UCW-TR

		NJR-P01UFW-TR
Video/Audio input	HDMI	1 input HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2 TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps Deep Color/HDR ¹ 640x480@60 to 3840x2160@60 Reduced Blanking 480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0), 4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0) Color depth: 24/30/36 bits *For all supported video signals, see the table below. LPCM: Up to 8 channels Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz Reference level: -20 dBFS, Max. input level: 0 dBFS Connector: HDMI Type A (19-pin) Maximum distances ² : 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)
	HDMI	1 output HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2 TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps Deep Color/HDR ¹ 640x480@60 to 3840x2160@60 Reduced Blanking 480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0), 4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0) Color depth: 24/30/36 bits *For all supported video signals, see the table below. LPCM: Up to 8 channels Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz Reference level: -20 dBFS, Max. output level: 0 dBFS Connector: HDMI Type A (19-pin) Maximum distances ² : 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)
Video/Audio input/output	10GbE ³	1 input/output *Input/Output can be carried simultaneously. SDVoE, AES-128 Deep Color/HDR ¹ *Supported video signals are the same as those of HDMI. RS-232C/LAN/USB Connector: SFP+ Maximum distances ⁴ : 984 ft. (300 m) (OM3 Multimode fiber), 6.21 mi. (10 km) (OS1 Singlemode fiber)
Control I/F	RS-232C	1 port/Connector: Captive screw (3-pin)
	LAN	1 port/10Base-T/100Base-TX/1000Base-T (Auto Negotiation), Auto MDI/MDI-X, Connector: RJ-45
	USB	1 port/HID class, Connector: Female Type-A
Functions		EDID emulation, Connection Reset ⁵
General	Power ⁶	DC 12 V 0.9 A - DC 48 V 0.25 A, Connector: Captive screw (2-pin)
	Power consumption	12 W
	Dimensions	6.4 (W) × 4.5 (H) × 2.1 (D)" (162 (W) × 114.3 (H) × 52.8 (D) mm) (Excluding connectors and the like)
	Weight	1.8 lbs. (0.8 kg)
	Temperature	Operating: 32°F to 104°F (0°C to +40°C), Storage: -4°F to +176°F (-20°C to +80°C)
	Humidity	20% to 90% (Non Condensing)

¹ x.v.Color/3D/ARC/HEC/CEC are not supported.

² The maximum specified distances may not be achievable with some device combinations, cabling method, or other manufacturer's cable. For the same reasons, video signal disturbances or interruptions may occur, even if signals are within the specified distance (cable length) parameters.

The maximum cable length varies depending on the connected devices. The specifications have been qualified under following conditions:

- HDMI (1080p@60) : When IDK's 24 AWG cable was used and signal of 1080p@60 24 bits was transmitted.
- HDMI (4K@60) : When IDK's 18 Gbps supported cable was used and signal of 3840x2160@60 24 bits was transmitted.

³ For 10GbE extension, use this product in combination with IDK's other SDVoE supported products.

⁴ Only if the SFP+ optical transceiver sold by IDK is used, signals can be transmitted to the mentioned maximum transmission distance. If using other SFP+ optical transceiver, check the compatible fiber and maximum distance of the SFP+ optical transceiver.

⁵ 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 correct 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-P's output. Connecting other devices between the NJR-P's outputs and sink devices, may interfere with the operation of this feature.

⁶ Use Class 2 or LPS.

NJR-P01UFW-TR/NJR-P01UCW-TR User Guide

		NJR-P01UCW-TR
Video/Audio input	HDMI	1 input HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2 TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps Deep Color/HDR ¹ 640x480@60 to 3840x2160@60 Reduced Blanking 480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0), 4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0) Color depth: 24/30/36 bits *For all supported video signals, see the table below. LPCM: Up to 8 channels Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz Reference level: -20 dBFS, Max. input level: 0 dBFS Connector: HDMI Type A (19-pin) Maximum distances ² : 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)
		1 output HDMI/DVI 1.0 TMDS single link, HDCP 1.4/2.2 TMDS clock: Up to 300 MHz, TMDS data rate: Up to 18 Gbps Deep Color/HDR ¹ 640x480@60 to 3840x2160@60 Reduced Blanking 480i, 576i to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 3840x2160@50/59.94/60 (4:2:0), 4096x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@50/59.94/60 (4:2:0) Color depth: 24/30/36 bits *For all supported video signals, see the table below. LPCM: Up to 8 channels Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz Reference level: -20 dBFS, Max. output level: 0 dBFS Connector: HDMI Type A (19-pin) Maximum distances ² : 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)
Video/Audio input/output	10GbE ³	1 input/output *Input/Output can be carried simultaneously. SDVoE, AES-128 Deep Color/HDR ¹ *Supported video signals are the same as those of HDMI. RS-232C/LAN/USB Connector: RJ-45 Maximum distance ² : 328 ft. (100 m) Cable: CAT6A (STP) *For PoE, 24 AWG or thicker cable is recommended.
Control I/F	RS-232C	1 port/Connector: Captive screw (3-pin)
	LAN	1 port/10Base-T/100Base-TX/1000Base-T (Auto Negotiation), Auto MDI/MDI-X, Connector: RJ-45
	USB	1 port/HID class, Connector: Female Type-A
Functions		EDID emulation, Connection Reset ⁴
General	Power ⁵	PoE, Connector: RJ-45 (10GbE input) DC 5 V 2.8 A, Connector: Captive screw (2-pin)
	Power consumption	PoE: 14 W DC 5 V: 14 W
	Dimensions	6.4 (W) × 4.5 (H) × 2.1 (D)" (162 (W) × 114.3 (H) × 52.8 (D) mm) (Excluding connectors and the like)
	Weight	1.8 lbs. (0.8 kg)
	Temperature	Operating: 32°F to 104°F (0°C to +40°C), Storage: -4°F to +176°F (-20°C to +80°C)
	Humidity	20% to 90% (Non Condensing)

¹ x.v.Color/3D/ARC/HEC/CEC are not supported.

² The maximum specified distances may not be achievable with some device combinations, cabling method, or other manufacturer's cable. For the same reasons, video signal disturbances or interruptions may occur, even if signals are within the specified distance (cable length) parameters.

The maximum cable length varies depending on the connected devices. The specifications have been qualified under following conditions:

- HDMI (1080p@60) : When IDK's 24 AWG cable was used and signal of 1080p@60 24 bits was transmitted.
- HDMI (4K@60) : When IDK's 18 Gbps supported cable was used and signal of 3840x2160@60 24 bits was transmitted.
- 10GbE : When CAT6A (STP) cable is used.

³ For 10GbE extension, use this product in combination with IDK's other SDVoE supported products.

⁴ 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 correct 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-P's output. Connecting other devices between the NJR-P's outputs and sink devices, may interfere with the operation of this feature.

⁵ Use Class 2 or LPS.

11.1.1 Supported video signals

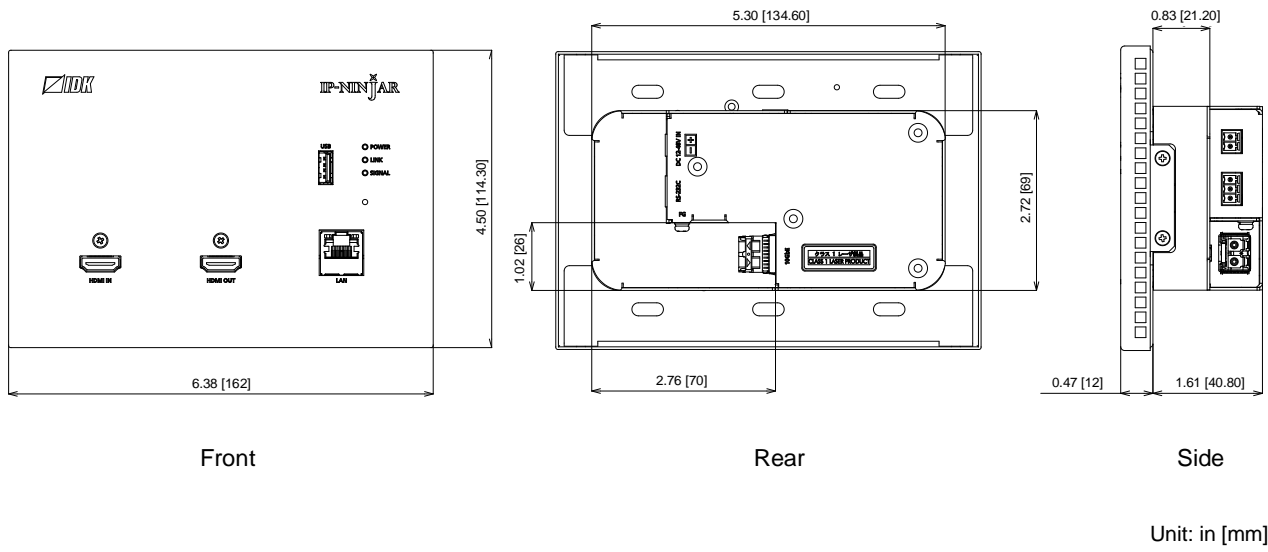
Signal	Resolution	Frame Rate [Hz]	Pixel Clock [MHz]	Color Depth [bits]	INPUT	
					HDMI 10GbE	OUTPUT HDMI 10GbE
640x480@60	640x480	59.94	25.18	24/30/36	○	○
800x600@60	800x600	60.32	40.00	24/30/36	○	○
1024x768@60	1024x768	60.00	65.00	24/30/36	○	○
1280x768@60	1280x768	59.87	79.50	24/30/36	○	○
1280x800@60	1280x800	59.81	83.50	24/30/36	○	○
1280x960@60	1280x960	60.00	108.00	24/30/36	○	○
1280x1024@60	1280x1024	60.02	108.00	24/30/36	○	○
1360x768@60	1360x768	60.02	85.50	24/30/36	○	○
1366x768@60	1366x768	59.79	85.50	24/30/36	○	○
1400x1050@60	1400x1050	59.98	121.75	24/30/36	○	○
1440x900@60	1440x900	59.89	106.50	24/30/36	○	○
1600x900@60	1600x900	59.95	118.25	24/30/36	○	○
1600x1200@60	1600x1200	60.00	162.00	24/30/36	○	○
1680x1050@60	1680x1050	59.95	146.25	24/30/36	○	○
1920x1080@60 RB	1920x1080	59.93	138.50	24/30/36	○	○
1920x1200@60 RB	1920x1200	59.95	154.00	24/30/36	○	○
2048x1152@60 RB	2048x1152	60.00	162.00	24/30/36	○	○
2560x1440@60 RB	2560x1440	59.95	241.50	24/30/36	○	○
2560x1600@60 RB	2560x1600	59.97	268.50	24/30/36	○	○
3840x2160@60 RB	3840x2160	60.00	522.61	24/30/36*	○	○
480i	720x480	59.94	27.00	24/30/36	○	○
480p	720x480	59.94	27.00	24/30/36	○	○
576i	720x576	50.00	27.00	24/30/36	○	○
576p	720x576	50.00	27.00	24/30/36	○	○
720p@50	1280x720	50.00	74.25	24/30/36	○	○
720p@59.94	1280x720	59.94	74.18	24/30/36	○	○
720p@60	1280x720	60.00	74.25	24/30/36	○	○
1080i@50	1920x1080	25.00	74.25	24/30/36	○	○
1080i@59.94	1920x1080	29.97	74.18	24/30/36	○	○
1080i@60	1920x1080	30.00	74.25	24/30/36	○	○
1080p@50	1920x1080	50.00	148.50	24/30/36	○	○
1080p@59.94	1920x1080	59.94	148.35	24/30/36	○	○
1080p@60	1920x1080	60.00	148.50	24/30/36	○	○
3840x2160@23.98	3840x2160	23.98	296.70	24/30/36	○	○
3840x2160@24	3840x2160	24.00	297.00	24/30/36	○	○
3840x2160@25	3840x2160	25.00	297.00	24/30/36	○	○
3840x2160@29.97	3840x2160	29.97	296.70	24/30/36	○	○
3840x2160@30	3840x2160	30.00	297.00	24/30/36	○	○
3840x2160@50	3840x2160	50.00	594.00	24/30/36*	○	○
3840x2160@59.94	3840x2160	59.94	593.41	24/30/36*	○	○
3840x2160@60	3840x2160	60.00	594.00	24/30/36*	○	○
4096x2160@23.98	4096x2160	23.98	296.70	24/30/36	○	○
4096x2160@24	4096x2160	24.00	297.00	24/30/36	○	○
4096x2160@25	4096x2160	25.00	297.00	24/30/36	○	○
4096x2160@29.97	4096x2160	29.97	296.70	24/30/36	○	○
4096x2160@30	4096x2160	30.00	297.00	24/30/36	○	○
4096x2160@50	4096x2160	50.00	594.00	24/30/36*	○	○
4096x2160@59.94	4096x2160	59.94	593.41	24/30/36*	○	○
4096x2160@60	4096x2160	60.00	594.00	24/30/36*	○	○

RB: Reduced Blanking

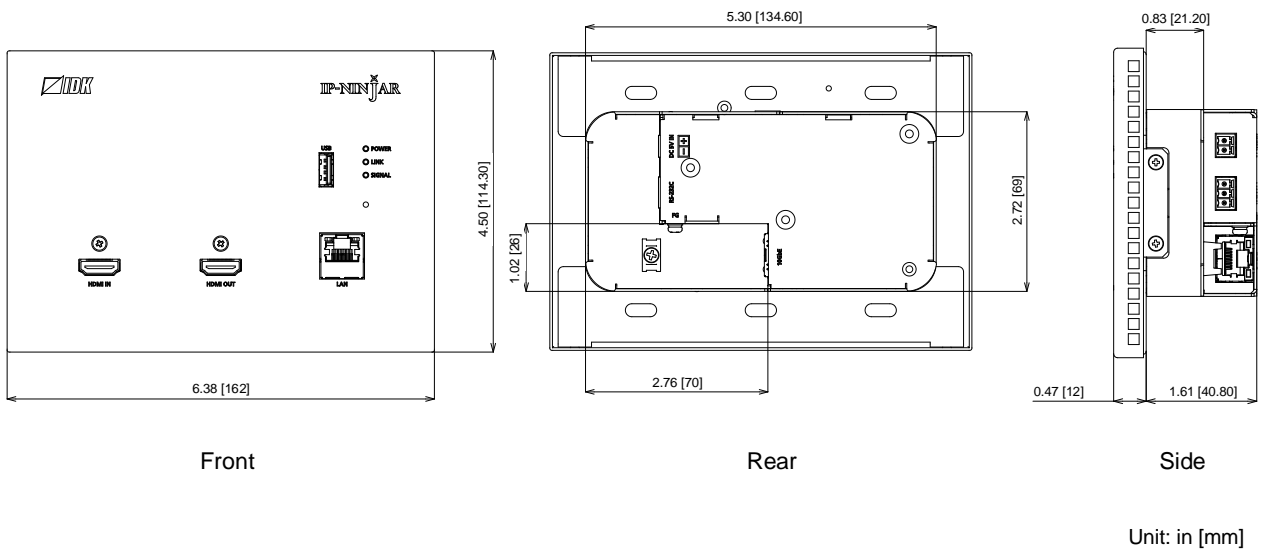
*For RGB/YCbCr 4:4:4, only 24 bit is supported.

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

11.1.2 Dimensions



[Fig. 11.1] NJR-P01UFW-TR



[Fig. 11.2] NJR-P01UCW-TR

12 Troubleshooting

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

If additional assistance is required, please perform the following tests and then contact us.

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

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