# IP-NINJAR
## Video over IP

IDK with your vision, Always.

A scalable 4K switching platform

## IP-NINJAR Features and Key benefits

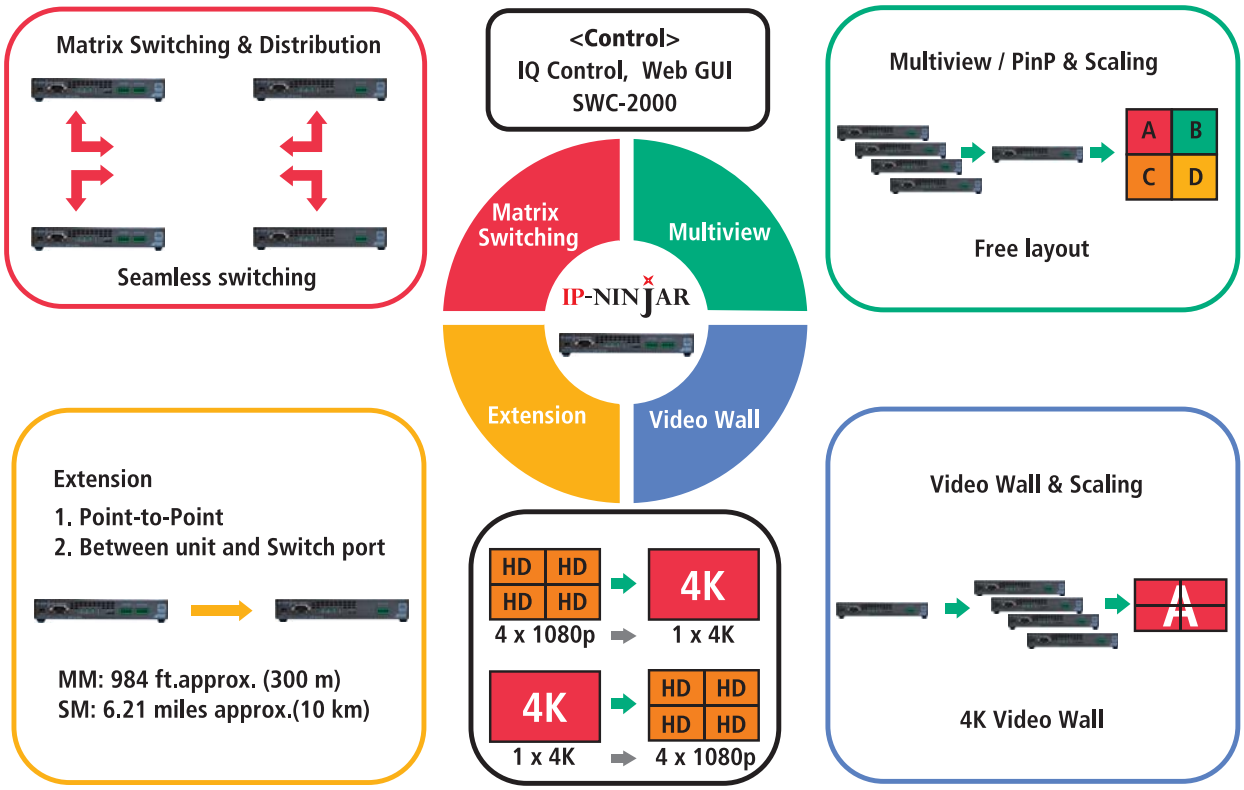
### Features

- Switching and extending true 4K / UHD 4:4:4 at 60 Hz video over IP switches
- Composing video for multi-view and video-wall applications
- Transmitting uncompressed (pixel-to-pixel) video with zero frame latency
- Supporting point-to-point transmission
- Unlimited scalable and flexible input / output configuration
- Supporting HDMI 2.0 and HDCP 1.4 / 2.2
- Supporting GbE, RS-232C and TCP / IP

### Key benefits

- Can be integrated into the existing network systems
- Saving costs by replacing AV switches with IP switches
- Distributing infinity number of source devices to any number of sink devices
- Quick and easy installation
- User-friendly control software
- Manage / Setup / Control all connected units via control box

## IP-NINJAR What can IP-NINJAR do?



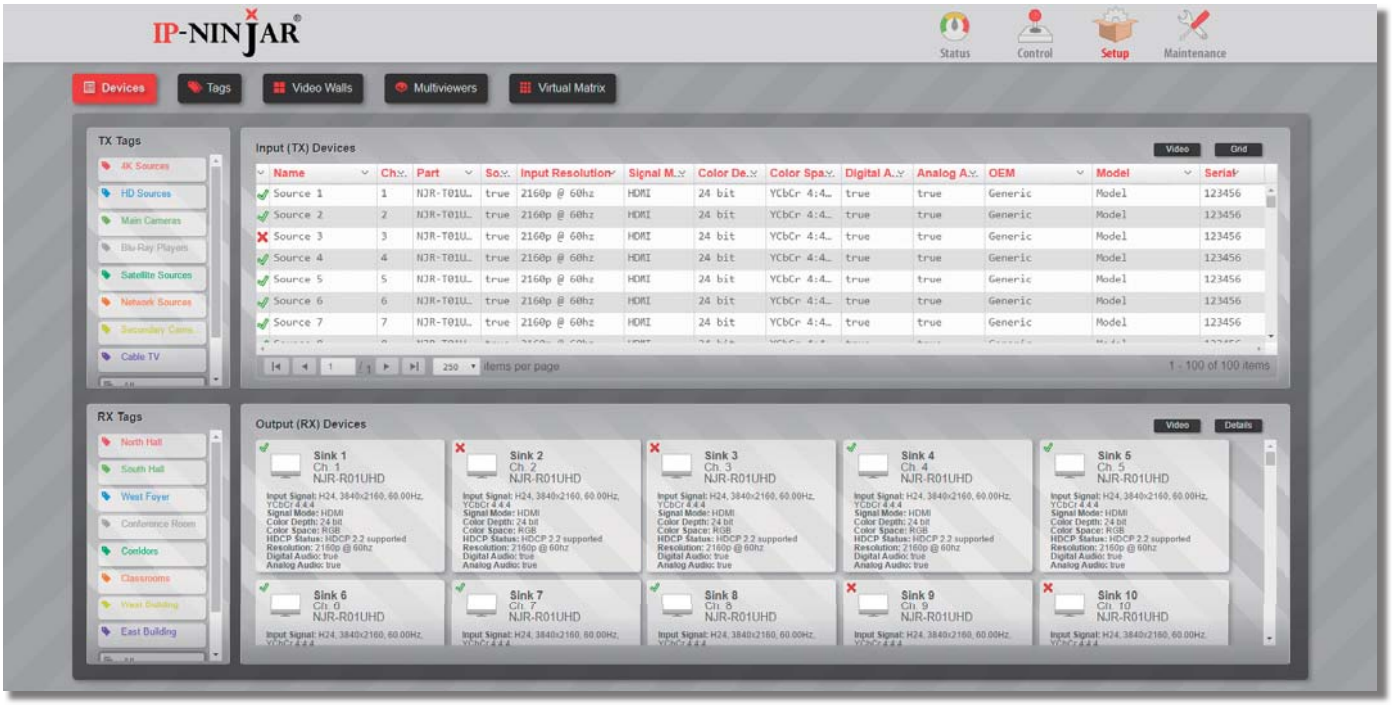
# “Setup”, “Manage”, and “Control” by Control Box

The IP-NINJAR system provides management and control environment for a system using control box NJR-CTB. The NJR-CTB provides “Web GUI”, and it enables easy system maintenance for customers. It also enables to control all system using 3rd party external controllers through the control box.

- **Setup:** setting all IP-NINJAR devices to meet customer’s system requirements
  - Details of all connected IP-NINJAR units (Device setup)
  - Configure Video Wall configuration
  - Configure Multi-View configuration

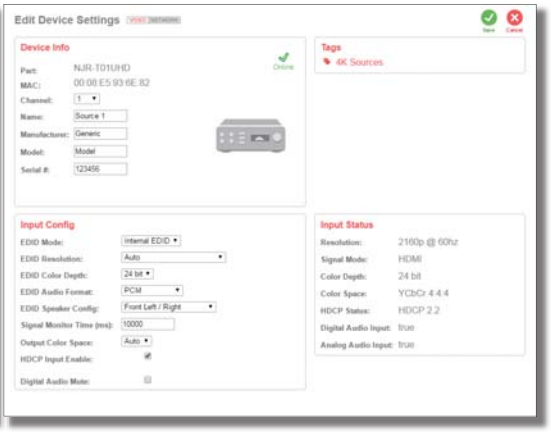
- **Status:** Showing various kinds of device status which are connected in a system
- **Device Tagging:** It provides grouping and filtering capabilities to maintain a system easily
- **Control:** Executing registered preset / external device commands via LAN / RS-232C

## Setup & Status

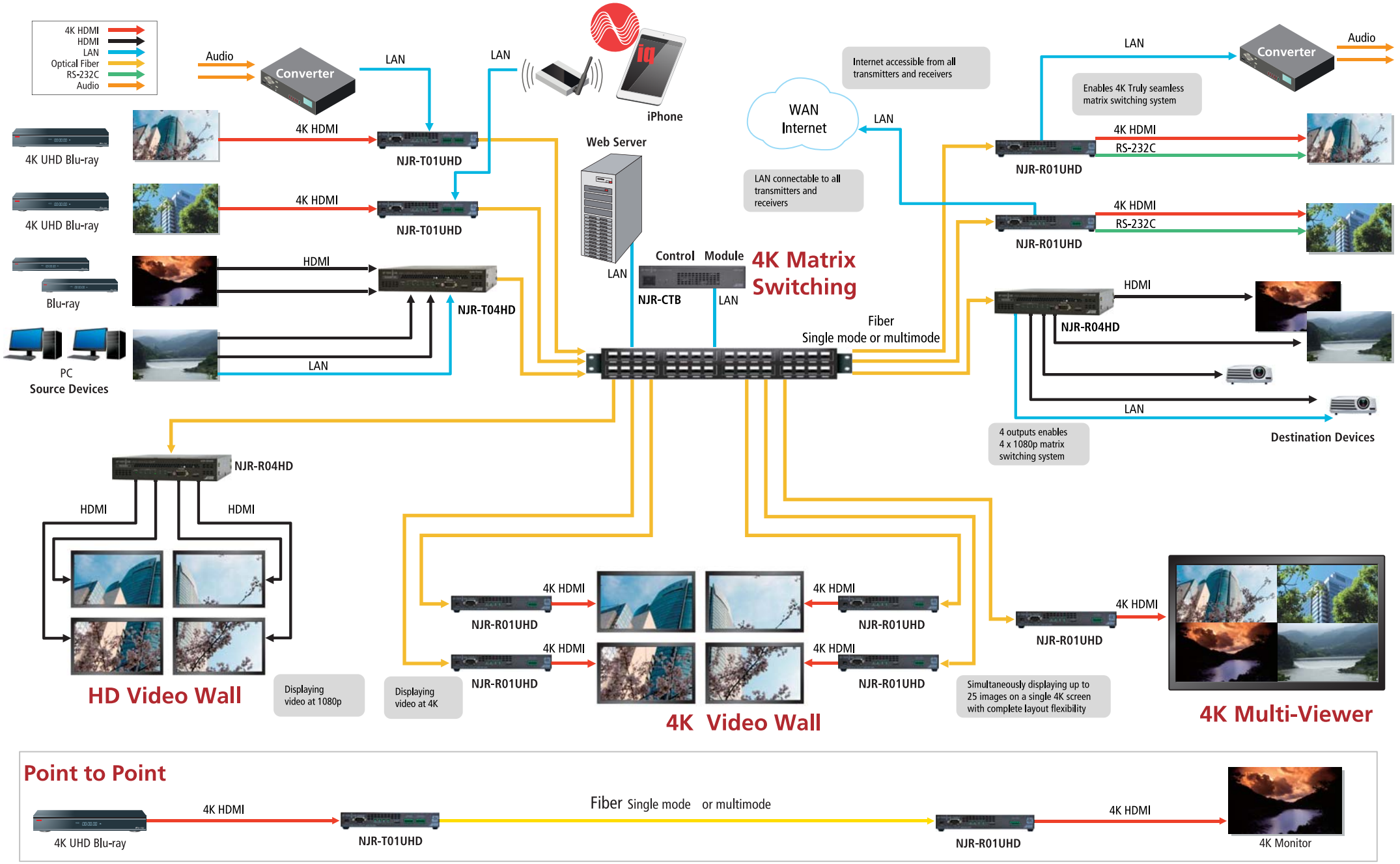



## Device Tagging

## Device setup



# IP-NINJAR IP/Base-4K Solution




## Point to Point

# 4K@60 and HDCP 2.2 supported HDMI Network Extender | NJR-01UHD

The IDK NJR-T01UHD / NJR-R01UHD is a transmitter and receiver set for long distance transmission of HDMI signals over a fiber optic cable.
This extender can transmit 4K@60 video signals that have four times the resolution of full HD, and it supports RS-232C bidirectional communication and LAN transmission.

The NJR-T01UHD/NJR-R01UHD can be used not only as a set of transmitter and receiver but also as a transmitter or receiver of "IP-NINJAR" series. When NJR-T01UHD and NJR-R04HD are used together in a system, NJR-R04HD can output 4K video image as four 1080p signals. When NJR-R01UHD and NJR-T04HD are used together in a system, NJR-R01UHD can output four 1080p signals from NJR-T04HD as one 4K video image.
It cannot be connected to OPF series units or FDX.

## •Features

**Video**
- **•Up to 4K@60 (4:4:4) •HDCP 1.4 / 2.2 supported •HDR supported**
- **•Local monitor output (through the input signal)**
- •Extension distances of each SFP+ module
  - Multimode fiber (OM3): 984.26 ft. approx. (300 m)
  - Singlemode fiber (OS1): 6.21 miles approx. (10 km)
  - Singlemode fiber (OS1): 24.84 miles approx. (40 km) (Optional)

**Audio**
- •Analog audio embedded (TX) •Analog audio de-embedded (TX / RX)

**Communication**
- •RS-232C bidirectional communication •LAN transmission

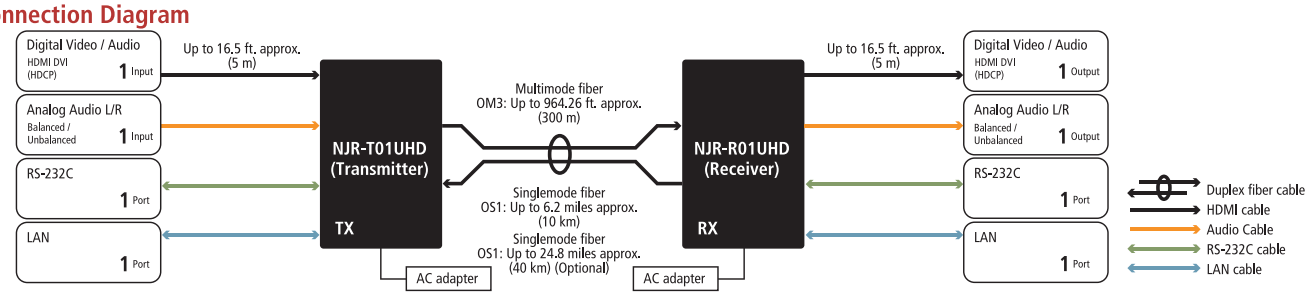
**Network**
- •Matrix switching, Video Wall, distribution, and extension using 10GbE switch
- •All TX and RX in network can be managed and controlled by NJR-CTB •Easy to build up a system later by adding transmitters and receivers. •Video Wall

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

## •Product Selection

| Model Number | Fiber Type | Max. Distance |
|---|---|---|
| NJR-T01UHD-MM | Multimode | OM3: 984 ft. approx. (300 m) |
| NJR-R01UHD-MM | | |
| NJR-T01UHD-SM | Singlemode | OS1: 6.2 miles approx. (10 km) |
| NJR-R01UHD-SM | | |
| NJR-T01UHD-SM40 | Singlemode | OS1: 24.8 miles approx. (40 km) |
| NJR-R01UHD-SM40 | | |

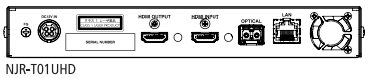
## •Connection Diagram



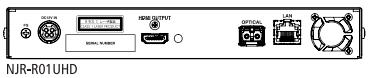

## •Specification

| Model number | | | | NJR-T01UHD (Transmitter) | NJR-R01UHD (Receiver) |
|---|---|---|---|---|---|
| Input | Video | HDMI / DVI | Number / Signal | 1 input / HDMI, DVI 1.0<br>HDCP 1.4 / 2.2, HDR, TMDS Single Link, Dot clock: 25 MHz to 600MHz,<br>TMDS clock: 25 MHz to 300 MHz, TMDS data rate: 0.75 Gbps to 18 Gbps | 1 input / Optical signal for extension |
| | | | Connector | 1 female HDMI Type A | 2 LC connectors |
| | | Others | | Color depth: 24 bit, 30 bit, 36 bit Deep Color | |
| | | Formats | | 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K<br>VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA / 4K | |
| | Audio | Digital | Number / Signal | 1 input / Multi-channel linear PCM up to 8 channels<br>Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit<br>Reference level: -20 dBFS, Max. input level: 0 dBFS | 1 input / Optical signal for extension |
| | | | Connector | 1 female HDMI Type A | 2 LC connectors |
| | | Analog | Number / Signal | 1 input / Stereo LR balanced and unbalanced signals<br>Balanced signal<br>Input impedance: 48 kΩ, Reference level: -10 dBu, Max. input level: +10 dBu<br>Unbalanced signal<br>Input impedance: 24 kΩ, Reference level: -10 dBu, Max. input level: +10 dBu | - |
| | | | Connector | 1 terminal blocks (5-pin) | - |
| Output | Video | HDMI / DVI | Number / Signal | 1 output / Optical signal for extension | 1 output / HDMI , DVI 1.0<br>HDCP 1.4 / 2.2, HDR, TMDS Single Link, Dot clock: 25 MHz to 600 MHz,<br>TMDS clock: 25 MHz to 300 MHz, TMDS data rate: 0.75 Gbps to 18 Gbps |
| | | | Connector | 2 LC connectors | 1 female HDMI Type A |
| | | | Number / Signal | 1 output / HDMI , DVI 1.0<br>HDCP 1.4 / 2.2, HDR, TMDS Single Link, Dot clock: 25 MHz to 600 MHz,<br>TMDS clock: 25 MHz to 300 MHz, TMDS data rate: 0.75 Gbps to 18 Gbps | - |
| | | | Connector | 1 female HDMI Type A | - |
| | | Others | | Color depth: 24 bit, 30 bit, 36 bit Deep Color | |
| | | Formats | | 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K<br>VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA / 4K | |
| | Audio | Digital | Number / Signal | 1 output / Optical signal for extension | 1 output / Multi-channel linear PCM up to 8 channels<br>Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit<br>Reference level: -20 dBFS, Max. output level: 0 dBFS |
| | | | Connector | 2 LC connectors | 1 female HDMI Type A |
| | | Analog | Number / Signal | 1 output / Stereo LR balanced and unbalanced signals<br>Balanced signal<br>Output impedance: 100 Ω, Reference level: -10 dBu, Max. output level: +10 dBu<br>Unbalanced signal<br>Output impedance: 50 Ω, Reference level: -10 dBu , Max. output level: +10 dBu | 1 output / Stereo LR balanced and unbalanced signals<br>Balanced signal<br>Output impedance: 100 Ω, Reference level: -10 dBu, Max. output level: +10 dBu<br>Unbalanced signal<br>Output impedance: 50 Ω, Reference level: -10 dBu, Max. output level: +10 dBu |
| | | | Connector | 1 terminal blocks (5-pin) | 1 terminal blocks (5-pin) |
| Fiber optic cable | Suitable cable | | | Duplex fiber cable, SFP+ module (2 LC connectors) | |
| | Polishing | | | SFP+ for Multimode: PC (recommended), SFP+ for Singlemode: UPC (recommended), SPC supported * APC is not supported | |
| Signal transmission distance | | | | Multimode fiber (OM3): 984 ft. approx. (300 m), Singlemode fiber (OS1): 6.2 miles approx. (10 km) | |
| Control | Serial control port | | Number / Signal | 1 port / Full duplex up to 115.2 kbps | |
| | | | Connector | 1 male 9-pin D-Sub | |
| | LAN control port | | Number / Signal | 1 port / 10Base-T, 100Base-TX, 1000Base-T (Auto Negotiation), Auto MDI/MDI-X | |
| | | | Connector | 1 RJ-45 | |
| General | AC adapter | | | Input: 100 - 240 VAC ± 10 %, 50 Hz / 60 Hz ± 3 Hz Output: 12 VDC, 3 A 36 Watts (AC adapter is supplied) | |
| | Power consumption | | | About 13 Watts | About 14 Watts |
| | Dimensions | | | 8.27 (W) × 1.18 (H) × 5.51 (D)" (approx.) / 210 (W) × 30 (H) × 140 (D) mm (EIA 1/2U rack width, lower height, not including projections) | |
| | Weight | | | 1.98 lbs. approx. (0.9 kg) | 1.98 lbs. approx. (0.9 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) | |

## •Rear Panel



NJR-T01UHD



NJR-R01UHD

# 4Channel HDMI Network Extender | NJR-04HD

The IDK NJR-T04HD / NJR-R04HD is an HDMI network transmitter and receiver set which have built-in scan converter and scaler.
This extender can transmit 4 channels of HDMI signal by one duplex fiber, and it supports RS-232C bidirectional communication and LAN transmission.
It can be used for 4 inputs and 4 outputs digital matrix switcher or splitter. NJR-R04HD can configure four multi-display Video Wall by one unit, and it can configure larger Video Wall by using multiple units with synchronization signals.

## •Features

**Video**
- **•Up to 1080p / QWXGA (RB)*** *(RB) = Reduced Blanking
- **•HDCP1.4 supported**
- **•Built-in Digital Cable EQ**
  - Input: From 33 ft. to 99 ft. approx. (10 m to 30 m) (NJR-T04HD)
  - Output: From 33 ft. to 165 ft. approx. (10 m to 50 m) (NJR-R04HD)
- •Extension distances of each SFP + module
  - Multimode fiber (OM3): 984.26 ft. approx. (300 m)
  - Singlemode fiber (OS1): 6.21 miles approx. (10 km)
  - Singlemode fiber (OS1): 24.84 miles approx. (40 km) (Option)
- •Motion adaptive I/P conversion •Scan conversion •Aspect ratio control

**Audio**
- •Lip Sync (up to 8 frame: NJR-R04HD)

**Communication**
- •RS-232C bidirectional communication •LAN transmission

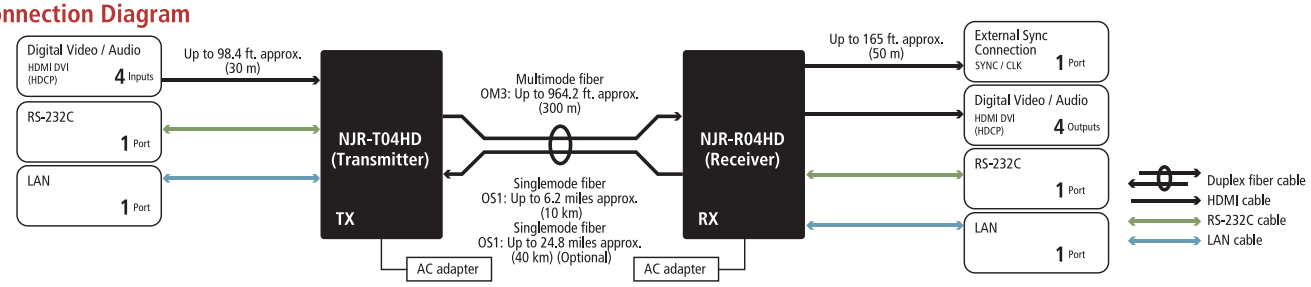
**Network**
- •Matrix switching, Video Wall, distribution, and extension using 10 GbE switch
- •All TX and RX in network can be managed and controlled by NJR-CTB •Easy to build up a system later by adding transmitters and receivers •Video Wall

**Others**
- •EDID emulation •Connection Reset

## •Product Selection

| Model Number | Fiber Type | Max. Distance |
|---|---|---|
| NJR-T04HD-MM | Multimode | OM3: 984 ft. approx. (300 m) |
| NJR-R04HD-MM | | |
| NJR-T04HD-SM | Singlemode | OS1: 6.2 miles approx. (10 km) |
| NJR-R04HD-SM | | |
| NJR-T04HD-SM40 | Singlemode | OS1: 24.8 miles approx. (40 km) |
| NJR-R04HD-SM40 | | |

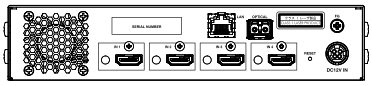
## •Connection Diagram



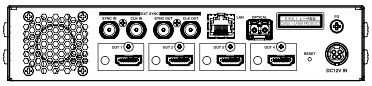

## •Specification

| Model number | | | | NJR-T04HD (Transmitter) | NJR-R04HD (Receiver) |
|---|---|---|---|---|---|
| Input | Video | HDMI / DVI | Number / Signal | 4 inputs / HDMI, DVI 1.0, HDCP 1.4, TMDS Single Link<br>Dot clock: 25 MHz to 165 MHz, TMDS clock: 25 MHz to 225 MHz | 1 input / Optical signal for extension |
| | | | Connector | 1 female HDMI Type A | 2 LC connectors |
| | | Formats | | 480i / 480p / 576i / 576p / 720p / 1080i / 1080p<br>VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA<br>* WUXGA / QWXGA are only supported by Reduced Blanking | |
| | | Color depth | | 24 bit, 30 bit, 36 bit Deep Color | |
| | | Others | | Built-in cable EQ, EDID emulation | - |
| | Audio | Digital | Number / Signal | 4 inputs / Multi-channel linear PCM up to 8 channels<br>Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit<br>Reference level: -20 dBFS, Max. input level: 0 dBFS | 1 input / Optical signal for extension |
| | | | Connector | 1 female HDMI Type A | 2 LC connectors |
| Output | Video | HDMI / DVI | Number / Signal | 1 output / Optical signal for extension | 4 outputs / HDMI , DVI 1.0, HDCP 1.4 , TMDS Single Link<br>Dot clock: 25 MHz to 165 MHz, TMDS clock: 25 MHz to 225 MHz |
| | | | Connector | 2 LC connectors | 1 female HDMI Type A |
| | | Formats | | 480i / 480p / 576i / 576p / 720p / 1080i / 1080p<br>VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA<br>* WUXGA / QWXGA are only output as Reduced Blanking | |
| | | Color depth | | 24 bit, 30 bit, 36 bit Deep Color | |
| | | Others | | - | Built-in cable EQ |
| | Audio | Digital | Number / Signal | 1 output / Optical signal for extension | 4 outputs / Multi-channel linear PCM up to 8 channels<br>Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit<br>Reference level: -20 dBFS, Max. input level: 0 dBFS |
| | | | Connector | 2 LC connectors | 1 female HDMI Type A |
| Fiber optic cable | Suitable cable | | | | Duplex fiber cable, SFP+ module (2 LC connectors) |
| | Polishing | | | SFP+ for Multimode: PC (recommended), SFP+ for Singlemode: UPC (recommended), SPC supported * APC is not supported | |
| Signal transmission distance | | | Fiber | Multimode fiber (OM3): 984.25 ft .approx. (300 m)<br>Singlemode fiber (OS1): 6.2 miles .approx. (10 km) | |
| | | | HDMI (EQ) | Max. 98.43 ft. approx. (30 m) | Max. 164.04 ft. approx. (50 m) |
| Control | Serial control port | | Number / Signal | 1 port / Full duplex up to 115.2 kbps | |
| | | | Connector | 1 male 9-pin D-Sub | |
| | LAN control port | | Number / Signal | 1 port / 10Base-T, 100Base-TX, 1000Base-T (Auto Negotiation), Auto MDI/MDI-X | |
| | | | Connector | 1 RJ-45 | |
| Functions | Scan conversion | | | Motion adaptive I/P conversion<br>Aspect ratio control | Aspect ratio control |
| | Others | | | Matrix switching | Matrix switching, Lipsync (up to 8 frame), Connection Reset |
| General | AC adapter | | | Input: 100 - 240 VAC ± 10 %, 50 Hz / 60 Hz ± 3 Hz Output: 12 VDC, 5 A 60 Watts (AC adapter is supplied) | |
| | Power consumption | | | About ** Watts | About ** Watts |
| | Dimensions | | | 8.27 (W) × 1.73 (H) ×9.84 (D)" approx. (210 (W) × 44 (H) × 250 (D) mm)<br>(EIA 1/2U rack width, lower height, not including projections) | |
| | Weight | | | ** lbs. approx. (** kg) | ** lbs. approx. (** 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) | |

## •Rear Panel



NJR-T04HD



NJR-R04HD

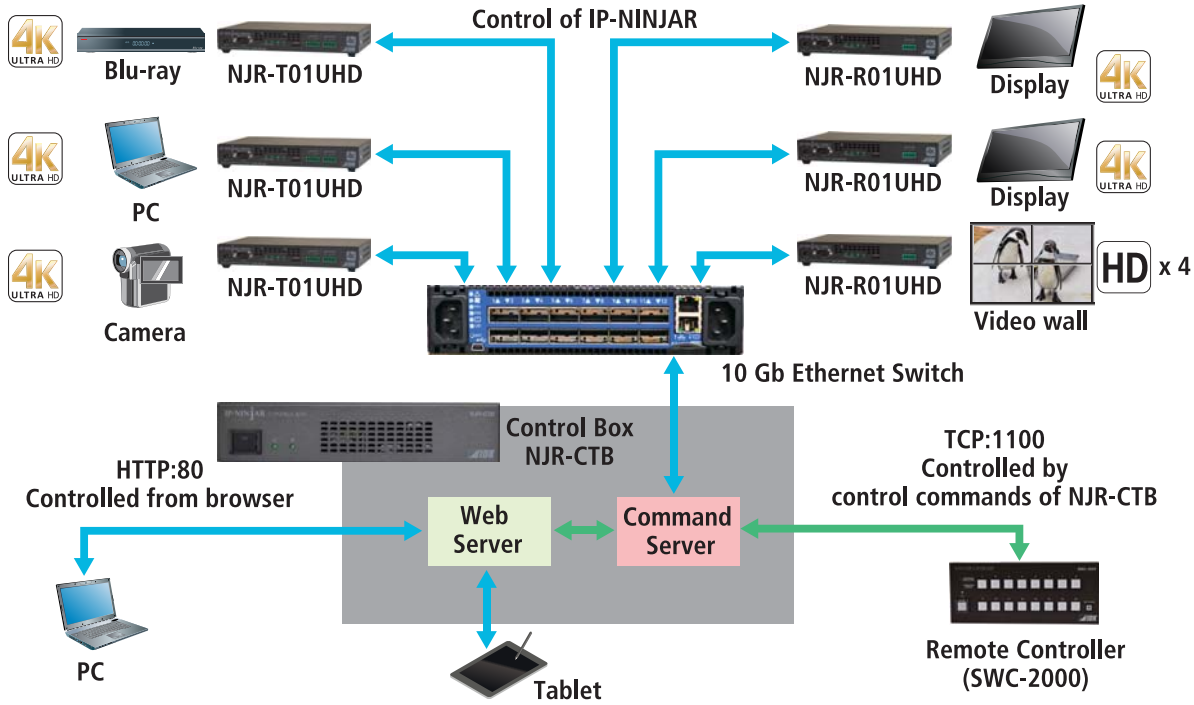
# IP-NINJAR Management and Control Box | NJR-CTB

The IDK NJR-CTB is a management and control box for IP-NINJAR series products. The NJR-CTB can confirm status of unit, configure Video Wall settings, and control IP-NINJAR units which are connected in a network through LAN or web browser.

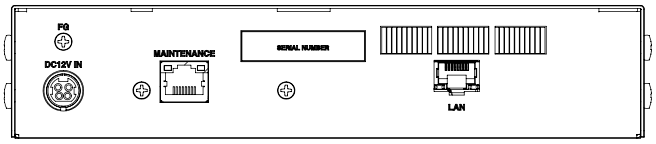
## •Features

| | |
|---|---|
| Management | •Auto recognition for IP-NINJAR units which are in a network and showing as a list<br>•Device name registration setting, device group registration<br>•Preset pattern registration |
| Control command input | •WEB browser control (no need to install extra software or application software)<br>•External control by using external commands |
| Control command output | •To execute control command to external devices |
| Others | •AC adapter with locking mechanism |

## •Sample Connection Diagram




## •Specification

| | | | |
|---|---|---|---|
| IP-NINJAR products management | Number of units | | Up to 512 units |
| | Number of groups | | Up to 32 groups |
| Display management capability | Preset | | Up to 256 patterns |
| | Video Wall | | Maximum configuration up to 5 x 5 |
| Network | Protocol | | TCP/IP, UDP/IP, HTTP, ICMP, and DHCP |
| | Number of connection | | Up to 8 connections |
| External control | LAN | Number / Signal | 2 ports / LAN<br>10Base-T / 100Base-TX / 1000Base-T (Auto Negotiation), Auto MDI / MDI-X |
| | | Connector | 2 RJ-45 |
| General | AC adapter | | Input: 100 - 240 VAC ± 10 %, 50 Hz / 60 Hz ± 3 Hz<br>Output: 12 VDC 3 A 36 Watts (AC adapter is supplied) |
| | Power consumption | | About 16 Watts |
| | Dimensions | | 8.27 (W) x 1.73 (H) x 5.91(D)" .approx. (210 (W) x 44 (H) x 150 (D) mm)<br>(EIA rack 1/2U widths and low height, not including projections) |
| | Weight | | 2.65 lbs. approx. (1.2 kg) |
| | Temperature | | Operating: 32 °F to 104 °F (0 °C to +40 °C)<br>Storage: -4 °F to +176 °F (-20 °C to +80 °C) |
| | Humidity | | Operating / Storage humidity: 20 % to 90 % (Non Condensing) |

## •Rear Panel