



# IP-NINJAR<sup>x</sup>

## Video over IP



A scalable 4K switching platform

### IP-NINJAR<sup>x</sup> Features and Key benefits

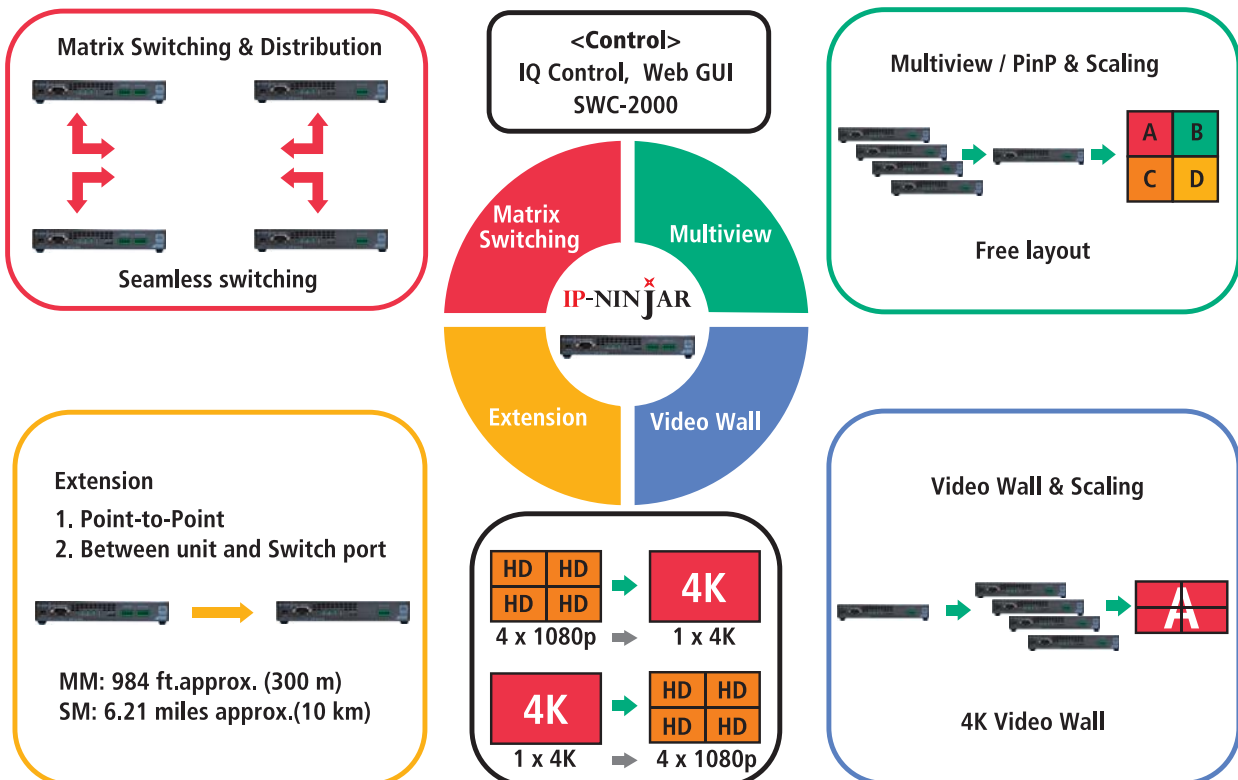
#### ● Features

- 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<sup>x</sup> What can IP-NINJAR do?



## "Setup", "Manage", and "Control" by Control Box

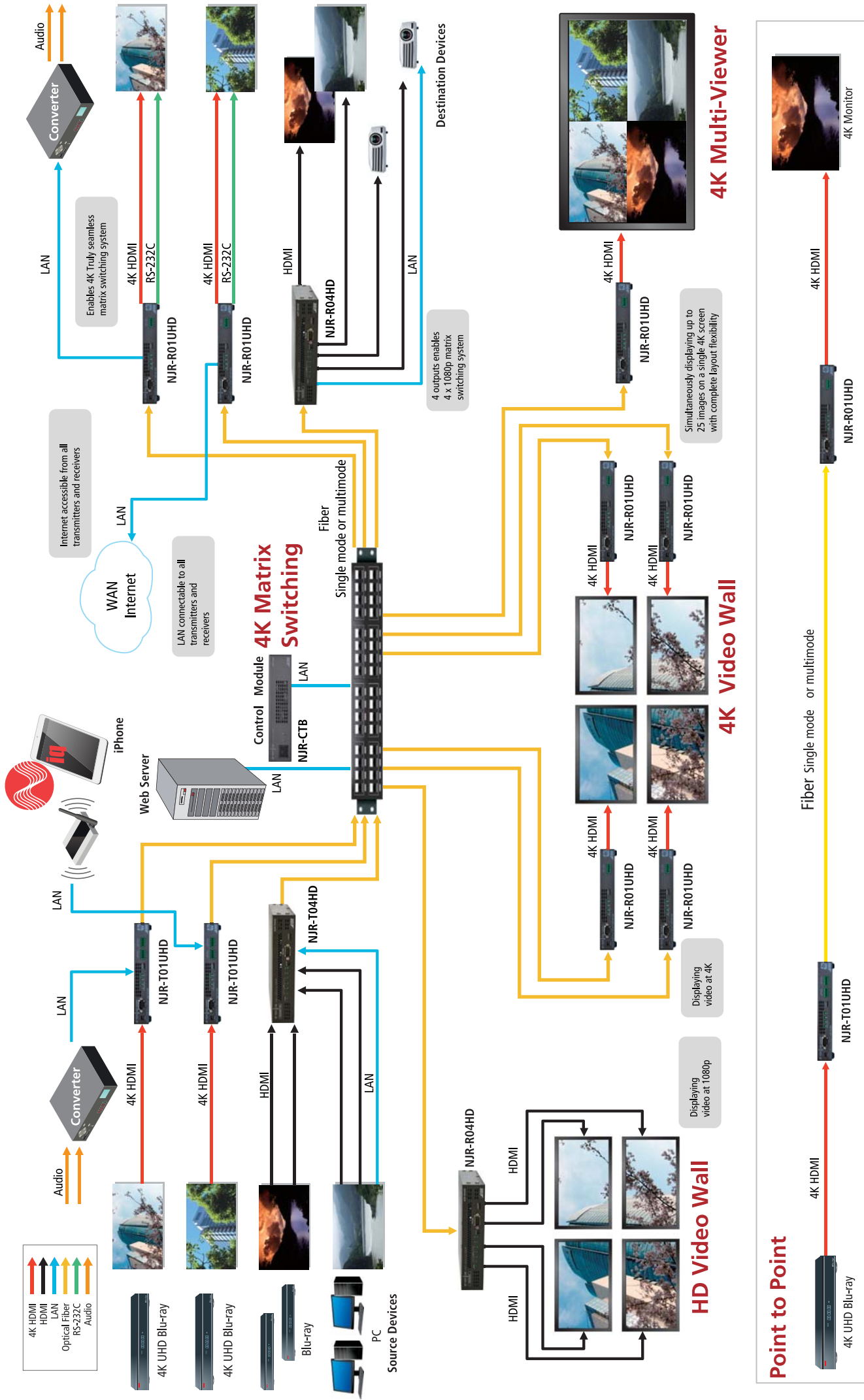
The IP-NINJAR system provides management and control environment for a system using control box NJR-CTB. The NJR-CTB provides "Web GUI", and it enables easy system maintenance for customers. It also enables to control all system using 3rd party external controllers through the control box.

- **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



## 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

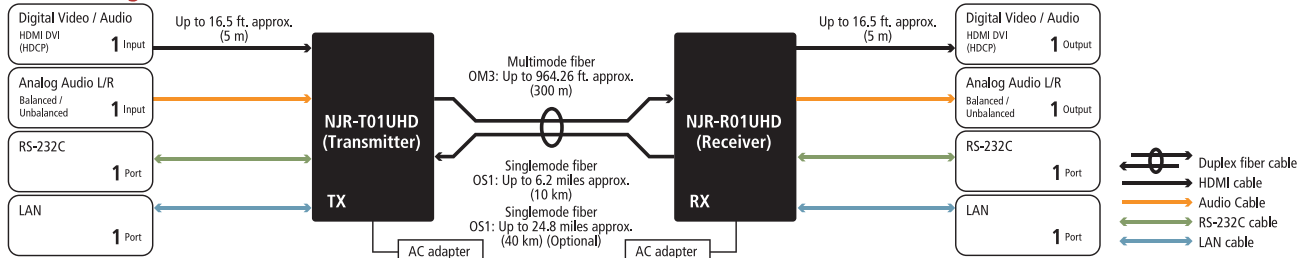
Video	•Up to 4K@60 (4:4:4) •HDCP 1.4 / 2.2 supported •HDR supported •Local monitor output (through the input signal) •Extension distances of each SFP+ module Multimode fiber (OM3): 984.26 ft. approx. (300 m) Singlemode fiber (OS1): 6.21 miles approx. (10 km) Singlemode fiber (OS1): 24.84 miles approx. (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	Multimode	OM3: 984 ft. approx. (300 m)
NJR-T01UHD-SM	Singlemode	OS1: 6.2 miles approx. (10 km)
NJR-R01UHD-SM	Singlemode	OS1: 6.2 miles approx. (10 km)
NJR-T01UHD-SM40	Singlemode	OS1: 24.8 miles approx. (40 km)
NJR-R01UHD-SM40	Singlemode	OS1: 24.8 miles approx. (40 km)

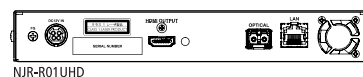
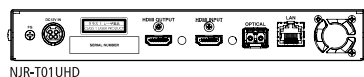
### •Connection Diagram



### •Specification

Model number				NJR-T01UHD (Transmitter)	NJR-R01UHD (Receiver)			
Input	Video	HDMI / DVI	Number / Signal	1 input / HDMI, DVI 1.0 HDCP 1.4 / 2.2, HDR, TMDS Single Link, Dot clock: 25 MHz to 600MHz, 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 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 Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit 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 Balanced signal Input impedance: 48 kΩ, Reference level: -10 dBu, Max. input level: +10 dBu Unbalanced signal 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 HDCP 1.4 / 2.2, HDR, TMDS Single Link, Dot clock: 25 MHz to 600 MHz, 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
Others	Formats	Color depth: 24 bit, 30 bit, 36 bit Deep Color 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA / 4K			-			
	Connector	1 female HDMI Type A			-			
Audio	Digital	Number / Signal	1 output / Optical signal for extension	1 output / Multi-channel linear PCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit 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 Balanced signal Output impedance: 100 Ω, Reference level: -10 dBu, Max. output level: +10 dBu Unbalanced signal Output impedance: 50 Ω, Reference level: -10 dBu , Max. output level: +10 dBu	1 output / Stereo LR balanced and unbalanced signals Balanced signal Output impedance: 100 Ω, Reference level: -10 dBu, Max. output level: +10 dBu Unbalanced signal 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)				
Signal transmission distance		Polishing		SFP+ for Multimode: PC (recommended), SFP+ for Singlemode: UPC (recommended), SPC supported * APC is not supported				
Control	Serial control port	Number / Signal	Connector	1 port / Full duplex up to 115.2 kbps				
				1 male 9-pin D-Sub				
	LAN control port	Number / Signal	Connector	1 port / 10Base-T, 100Base-TX, 1000Base-T (Auto Negotiation), Auto MDI/MDI-X 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					
	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)					
	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





## 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

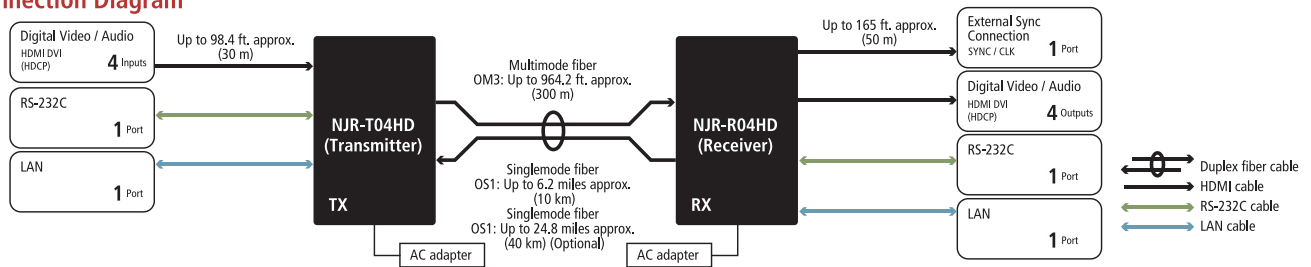
Video	<ul style="list-style-type: none"><li>•Up to 1080p / QWXGA (RB)*</li><li>•HDCP1.4 supported</li><li>•Built-in Digital Cable EQ<ul style="list-style-type: none"><li>Input: From 33 ft. to 99 ft. approx. (10 m to 30 m) (NJR-T04HD)</li><li>Output: From 33 ft. to 165 ft. approx. (10 m to 50 m) (NJR-R04HD)</li></ul></li><li>•Extension distances of each SFP + module<ul style="list-style-type: none"><li>Multimode fiber (OM3): 984.26 ft. approx. (300 m)</li><li>Singlemode fiber (OS1): 6.21 miles approx. (10 km)</li><li>Singlemode fiber (OS1): 24.84 miles approx. (40 km) (Option)</li></ul></li><li>•Motion adaptive I/P conversion</li><li>•Scan conversion</li><li>•Aspect ratio control</li></ul>	* (RB) = Reduced Blanking
Audio	<ul style="list-style-type: none"><li>•Lip Sync (up to 8 frame: NJR-R04HD)</li></ul>	
Communication	<ul style="list-style-type: none"><li>•RS-232C bidirectional communication</li><li>•LAN transmission</li></ul>	
Network	<ul style="list-style-type: none"><li>•Matrix switching, Video Wall, distribution, and extension using 10 GbE switch</li><li>•All TX and RX in network can be managed and controlled by NJR-CTB</li></ul>	•Easy to build up a system later by adding transmitters and receivers
Others	<ul style="list-style-type: none"><li>•EDID emulation</li><li>•Connection Reset</li></ul>	•Video Wall



### •Product Selection

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

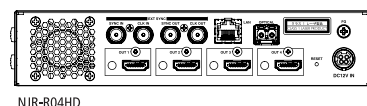
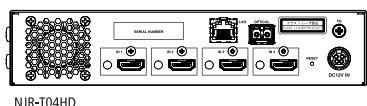
### •Connection Diagram



### •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 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 VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA * 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 Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit 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 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 VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA * WUXGA / QWXGA are only output as Reduced Blanking				
			Color depth	24 bit, 30 bit, 36 bit Deep Color			
	Others	-					
		Audio	Digital	Number / Signal	1 output / Optical signal for extension	4 outputs / Multi-channel linear PCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample bit: 16 bit to 24 bit 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) 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			
	LAN control port		Connector	1 male 9-pin D-Sub			
Functions	Scan conversion		1 port / 10Base-T, 100Base-TX, 1000Base-T (Auto Negotiation), Auto MDI/MDI-X				
			1 RJ-45				
	Others		Motion adaptive I/P conversion				
			Aspect ratio control				
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				
	Dimensions		8.27 (W) × 1.73 (H) ×9.84 (D)* approx. (210 (W) × 44 (H) × 250 (D) mm) (EIA 1/2U rack width, lower height, not including projections)				
	Weight		** 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



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

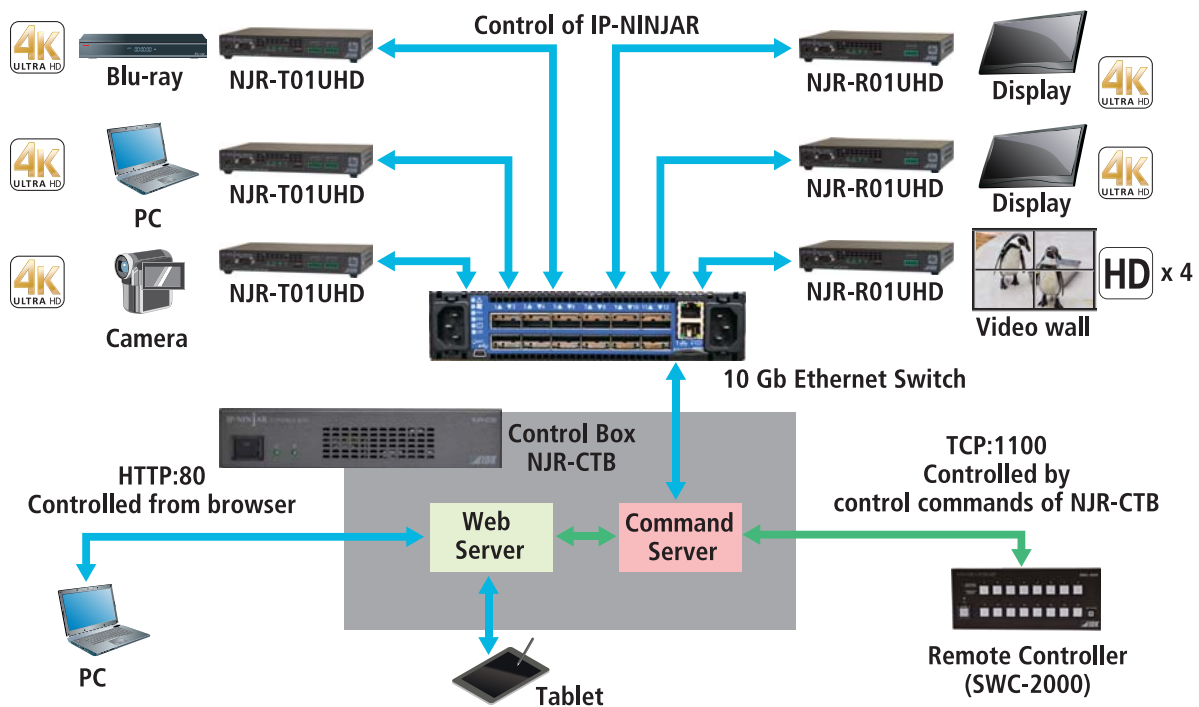
The IDK NJR-CTB is a management and control box for IP-NINJAR series products. The NJR-CTB can confirm status of unit, configure Video Wall settings, and control IP-NINJAR units which are connected in a network through LAN or web browser.

### •Features

Management	<ul style="list-style-type: none"> <li>•Auto recognition for IP-NINJAR units which are in a network and showing as a list</li> <li>•Device name registration setting, device group registration</li> <li>•Preset pattern registration</li> </ul>
Control command input	<ul style="list-style-type: none"> <li>•WEB browser control (no need to install extra software or application software)</li> <li>•External control by using external commands</li> </ul>
Control command output	<ul style="list-style-type: none"> <li>•To execute control command to external devices</li> </ul>
Others	<ul style="list-style-type: none"> <li>•AC adapter with locking mechanism</li> </ul>



### •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
		Connector	10Base-T / 100Base-TX / 1000Base-T (Auto Negotiation), Auto MDI / MDI-X 2 RJ-45
General	AC adapter		Input: 100 ~ 240 VAC $\pm$ 10 %, 50 Hz / 60 Hz $\pm$ 3 Hz 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) (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) Storage: -4 °F to +176 °F (-20 °C to +80 °C)
	Humidity		Operating / Storage humidity: 20 % to 90 % (Non Condensing)

### •Rear Panel

