HDMI/USB-C Encoder/Decoder

NJR-L21UC-T/NJR-L31UC-R

The NJR-L21UC-T/NJR-L31UC-R are an encoder/decoder set for transmitting HDMI and USB-C video signals, RS-232C, LAN, and USB (HID) over CAT6A for point-to-point or AV over IP distribution. These NJR devices support video resolutions up to 4K@60 (4:4:4) and is HDCP 2.2 compliant.

For video inputs, the encoder features one (1) USB-C and one (1) HDMI inputs which is output over CAT6A (SDVoE) to the decoder as a 2x1 switcher. The decoder includes one (1) HDMI input, one (1) USB-C input, and one (1) 10GbE CAT (SDVoE), one of which can be selected and output out the local HDMI output.

Two (2) USB host ports and three (3) USB device ports enable host switching and USB hub features.
The USB host ports can connect to the device of the local NJR-L21UC-T/NJR-L31UC-R or the device of the NJR-L21UC-T/NJR-L31UC-R that is connected over 10GbE CAT (SDVoE).

Additionally, the USB-C connector supports USB Power Delivery that can provide power up to 60 W to the USB-C source device (upgraded PSU needed).

The NJR can be configured and controlled remotely using RS-232C or LAN.

This product can be used in combination with other SDVoE products within IDK's product portfolio.

■ Specification

		NJR-L21UC-T	NJR-L31UC-R
Video/Audio input	USB-C	1 input	
		DisplayPort Alternate Mode on USB Type-C[*1], DisplayPort 1.2, HDCP 1.4/2.2	
		640x480@60 to 3840x1600@60 Reduced Blanking 480p, 576p to 3840x2160@24/25/30/50/59.94/60 (4:4:4), 4096x2160@24/25/30/50/59.94/60 (4:4:4) Color depth: 24/30/36 bits *For all supported video signals, see the table below.	
		LPCM: Up to 2 channels Sampling frequency: 32/44.1/48/88.2/96/176.4/192 kHz Reference level: -20 dBFS, Max. input level: 0 dBFS	
		USB 2.0 compatible Host side, RS-232C USB PD (Power Delivery) Up to 60 W (5V 3A, 9V 3A, 15V 3A, 20V 3A)	
		Connector: USB Type-C Maximum distance[*2]: 6.5 ft. (2 m)	
	HDMI	1input	
		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[*3]	
		640x480@60 to 3840x1600@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 Maximum distances[*2]: 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)	
	10GbE	—	1 input
		SDVoE, AES-12 Deep Color/HDR[*3]	
		*Supported video signals are the same as those of HDMI.	
		RS-232C/LAN/USB 2.0 compatible	
		Connector: RJ-45 Maximum distance[*2]: 328 ft. (100 m) Cable: CAT6A (STP)	
Video/Audio output	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[*3]	
		640x480@60 to 3840x1600@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 Maximum distances[*2]: 98 ft. (30 m) (1080p@60), 39 ft. (12 m) (4K@60)	
	10GbE[*4]	1 output	—
		SDVoE, AES-128 Deep Color/HDR[*3]	
		*Supported video signals are the same as those of HDMI.	
		RS-232C/LAN/USB 2.0 compatible	
		Connector: RJ-45 Maximum distance[*2]: 328 ft. (100 m) Cable: CAT6A (STP)	
	Analog audio	—	1 output
		Stereo L/R Output impedance: 100 Ω balanced/50 Ω unbalanced	
		Reference level: -10 dBu, Max. output level: +10 dBu	
		Connector: Captive screw (5-pin)	

Other I/F	RS-232C	NJR-L21UC-T	NJR-L31UC-R
		1 port, Connector: Captive screw (3-pin)	
	LAN	1 port, 10Base-T/100Base-TX (Auto Negotiation), Auto MDI/MDI-X, Connector: RJ-45	
	USB[*5][*6]	Host side 1 port, USB 2.0 compatible Connector: Type-B × 1	
		Device side 3 ports, USB 2.0 compatible Connector: Type-C × 1, Type-A × 2	
Functions	Audio	—	De-embedding
	Control	Unsolicited notification	
	Others	Automatic input switching, EDID emulation, Last memory, Anti-snow, Connection reset[*7], Button security lockout, USB host switching (3 ports)	
General	Power	DC 24 V 3.5 A	DC 24 V 3.6 A
		AC adapter: AC 100 V - 240 V ±10%, 50 Hz/60 Hz ±3 Hz, DC 24 V 5 A 120.0 W	
	Power consumption	89.6 W	90.9 W
	Dimensions	12.2 (W) × 1.2 (H) × 6.3 (D)" (310 (W) × 30 (H) × 160 (D) mm) (Excluding connectors and the like)	
	Weight	3.7 lbs. (1.7 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]   DisplayPort to USB-C cable or HDMI to USB-C cable 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:
・USB-C DisplayPort Alternate Mode (4K@60) : When USB3.2 Gen1 Type-C cable was used and signal of 3840x2160@60 24 bits was transmitted.
・HDMI (1080p@60)   : When IDK 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]   x.v.Color/3D/ARC/HEC/CEC are not supported.
[*4]   For 10GbE extension, use this product in combination with IDK's other SDVoE supported product.
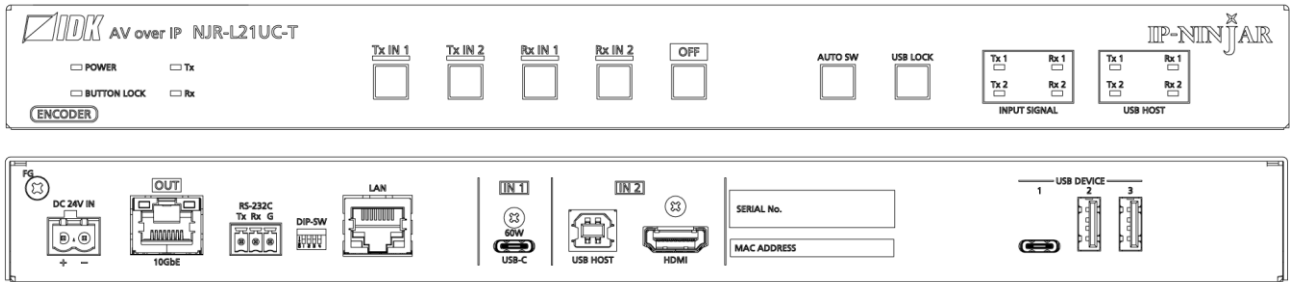[*5]   For connecting USB hubs, up to two tiers can be cascaded.
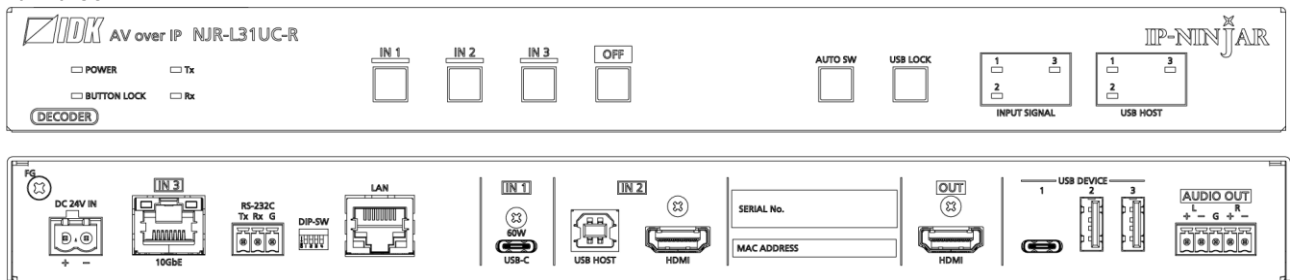[*6]   USB devices may not perform correctly depending on the environment and connected devices.
[*7]   It creates the same condition as if the cable were physically disconnected and reconnected. This feature only works for the NJR's output. Connecting other devices between the NJR's outputs and sink devices, may interfere with the operation of this feature.

■ **Front & Rear Panels**

NJR-L21UC-T

NJR-L31UC-R

HDMI/USB-C Encoder/Decoder

NJR-L21UC-T/NJR-L31UC-R supported video signals

Signal	Resolution	Frame Rate [Hz]	Pixel Clock [MHz]	Color Depth [bits]	INPUT		OUTPUT
					USB-C[*1]	HDMI 10GbE	HDMI 10GbE
640x480@60	640x480	59.94	25.18	24/30/36	O	O	O
800x600@60	800x600	60.32	40.00	24/30/36	O	O	O
1024x768@60	1024x768	60.00	65.00	24/30/36	O	O	O
1280x768@60	1280x768	59.87	79.50	24/30/36	O	O	O
1280x800@60	1280x800	59.81	83.50	24/30/36	O	O	O
1280x960@60	1280x960	60.00	108.00	24/30/36	O	O	O
1280x1024@60	1280x1024	60.02	108.00	24/30/36	O	O	O
1360x768@60	1360x768	60.02	85.50	24/30/36	O	O	O
1366x768@60	1366x768	59.79	85.50	24/30/36	−	O	O
1400x1050@60	1400x1050	59.98	121.75	24/30/36	O	O	O
1440x900@60	1440x900	59.89	106.50	24/30/36	O	O	O
1600x900@60	1600x900	59.95	118.25	24/30/36	O	O	O
1600x1200@60	1600x1200	60.00	162.00	24/30/36	O	O	O
1680x1050@60	1680x1050	59.95	146.25	24/30/36	O	O	O
1920x1080@60 RB	1920x1080	59.93	138.50	24/30/36	O	O	O
1920x1200@60 RB	1920x1200	59.95	154.00	24/30/36	O	O	O
2048x1152@60 RB	2048x1152	60.00	162.00	24/30/36	O	O	O
2560x1080@60	2560x1080	60.00	198.00	24/30/36	O	O	O
2560x1440@60 RB	2560x1440	59.95	241.50	24/30/36	O	O	O
2560x1600@60 RB	2560x1600	59.97	268.50	24/30/36	O	O	O
3240x1080@60 RB	3240x1080	59.96	226.50	24/30/36	O	O	O
3440x1440@60 RB	3440x1440	59.97	319.75	24/30/36	O	O	O
3840x1080@60 RB	3840x1080	59.97	266.50	24/30/36	O	O	O
3840x1600@60 RB	3840x1600	59.99	395.00	24/30/36	O	O	O
480i	720x480	59.94	27.00	24/30/36	−	O	O
480p	720x480	59.94	27.00	24/30/36	O	O	O
576i	720x576	50.00	27.00	24/30/36	−	O	O
576p	720x576	50.00	27.00	24/30/36	O	O	O
720p@50	1280x720	50.00	74.25	24/30/36	O	O	O
720p@59.94	1280x720	59.94	74.18	24/30/36	O	O	O
720p@60	1280x720	60.00	74.25	24/30/36	O	O	O
1080i@50	1920x1080	25.00	74.25	24/30/36	−	O	O
1080i@59.94	1920x1080	29.97	74.18	24/30/36	−	O	O
1080i@60	1920x1080	30.00	74.25	24/30/36	−	O	O
1080p@50	1920x1080	50.00	148.50	24/30/36	O	O	O
1080p@59.94	1920x1080	59.94	148.35	24/30/36	O	O	O
1080p@60	1920x1080	60.00	148.50	24/30/36	O	O	O
3840x2160@23.98	3840x2160	23.98	296.70	24/30/36	O	O	O
3840x2160@24	3840x2160	24.00	297.00	24/30/36	O	O	O
3840x2160@25	3840x2160	25.00	297.00	24/30/36	O	O	O
3840x2160@29.97	3840x2160	29.97	296.70	24/30/36	O	O	O
3840x2160@30	3840x2160	30.00	297.00	24/30/36	O	O	O
3840x2160@50	3840x2160	50.00	594.00	24/30/36[*2]	O	O	O
3840x2160@59.94	3840x2160	59.94	593.41	24/30/36[*2]	O	O	O
3840x2160@60	3840x2160	60.00	594.00	24/30/36[*2]	O	O	O
4096x2160@23.98	4096x2160	23.98	296.70	24/30/36	O	O	O
4096x2160@24	4096x2160	24.00	297.00	24/30/36	O	O	O
4096x2160@25	4096x2160	25.00	297.00	24/30/36	O	O	O
4096x2160@29.97	4096x2160	29.97	296.70	24/30/36	O	O	O
4096x2160@30	4096x2160	30.00	297.00	24/30/36	O	O	O
4096x2160@50	4096x2160	50.00	594.00	24/30/36[*2]	O	O	O
4096x2160@59.94	4096x2160	59.94	593.41	24/30/36[*2]	O	O	O
4096x2160@60	4096x2160	60.00	594.00	24/30/36[*2]	O	O	O

RB: Reduced Blanking
[*1]   YCbCr 4:2:0 is not supported.
[*2]   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.