

Q-SYS NV-21-HU

Native Network Video Endpoint for Q-SYS

KEY FEATURES

- Single cable solution for video distribution, AV bridging, and device charging¹
- Native HDMI video and audio distribution for Q-SYS
- Q-SYS Shift™ adaptive video compression
- Software configurable as an encoder or decoder
- Dual Streaming via HDMI and USB-C
- Q-SYS AV Bridging feature license



The Q-SYS NV Series NV-21-HU enables native video distribution on the Q-SYS Platform. The NV-21-HU is a software configurable endpoint offering a comprehensive single-cable solution for video distribution, AV bridging, and device charging via USB-C. The NV-21-HU's compact size and reduced I/O make it ideal for supporting meeting rooms, learning spaces, hospitality and entertainment installations. The NV-21-HU can be used alongside other Q-SYS NV Series video endpoints, providing system design flexibility. Like all Q-SYS products, the NV-21-HU offers native integration and control, simplifying configuration and operation.

SINGLE CABLE SOLUTION

The Q-SYS NV-21-HU simplifies the user experience and intuitively supports a wide range of devices. A single USB-C connection to the NV-21-HU enables a user's device to distribute video formats up to 4K60 4:4:4 via Q-SYS Shift™ video codec, integrates Q-SYS network camera and audio feeds into a supported collaboration application and charges their device simultaneously¹.

MAXIMIZE FLEXIBILITY IN DESIGN & SPECIFICATION

The NV-21-HU is software-configurable as an encoder or decoder in Q-SYS Designer Software and offers the ability to operate in either HDMI or USB-C mode, supporting a broader range of user devices without adapters or converters. In addition, the integrated AV Bridging capability eliminates the need for additional hardware and infrastructure to connect Q-SYS network cameras and audio feeds to a UC application.

- **HDMI Mode:** In HDMI mode, the NV-21-HU enables video distribution from the HDMI input and uses the USB-C connection to offer AV bridging and device charging.
- **USB-C Mode:** In USB-C mode, the NV-21-HU enables video distribution, AV bridging and device charging via the USB-C connection.
- **Dual Streaming Support (when set as encoder):** In dual streaming mode, the NV-21-HU enables both the HDMI in and USB-C to encode separate video streams to the network (1080p maximum resolution). Supported in Q-SYS Designer Software v9.10 and later.
- **Mediacast Mode:** Optional Mediacast Mode allows for use in same design along NVM Series network video encoders and decoders, supporting video formats up to 1080p30 4:2:0.

RIGHT-SIZED

The NV-21-HU provides designers with a more compact endpoint within the NV Series. The smaller design and reduced I/O (compared to the Q-SYS NV-32-H) enable simple and scalable designs across various applications, including meeting rooms, learning spaces, hospitality, and entertainment installations.

DESIGNED FOR Q-SYS

Q-SYS NV Series network video endpoints are native to Q-SYS, which is powered by the Q-SYS OS; this software foundation manages NV Series endpoints and all other Q-SYS Products from a single application. The Q-SYS Platform's modern IT architecture and development tools enable an entire ecosystem of third-party integrations developed by approved Q-SYS Partners and a worldwide community of developers using the available tools found in Q-SYS Open.

¹. An external power supply is required for any device charging over the USB-C connection. NV-21-PSU available separately.

CONTROL

- **RS-232:** Three Pin Euro terminal connection to control third-party devices with Q-SYS Control, user-configurable.

USB

- **USB HID control:** Control host PCs with a USB connection using USB HID components in Q-SYS Designer Software.
- **Q-SYS AV Bridging:** The Q-SYS AV Bridging feature licenses expands the functionality of the NV-21-HU, allowing users to connect their devices via USB-C directly to the network video endpoint to integrate Q-SYS audio and camera feeds for remote meetings easily. The NV-21-HU emulates a webcam (for video streams from Q-SYS network cameras), a speakerphone, and a multi-channel soundcard over a single driverless USB connection.

AUDIO

- **HDMI Audio Input:** Receive up to 8 channels of PCM audio from your video source, which are routable within Q-SYS Designer Software.
- **USB-C Audio Input:** Receive up to 8 channels of PCM Audio from your video source, which are routable within Q-SYS Designer. Additional 1x1 Speakerphone and 2x2 Soundcard options are available with the Q-SYS AV Bridging feature licenses¹.
- **HDMI Audio Output:** Embed up to 8 channels of PCM audio from Q-SYS to the HDMI output of the NV-21-HU to utilize the built-in speakers of a display as a Q-SYS audio destination for source audio content or any other audio, including paging, background music, etc.

SECURITY AND AUTHENTICATION

- **AES-128:** NV Series supports AES-128 encryption for audio and video signals from encoders to decoders
- **Content Protection:** HDCP 1.4 & HDCP 2.3 complaint
- **802.1x:** 802.1x authentication is available and configurable through Q-SYS Peripheral Manager

Q-SYS SHIFT™ ADAPTIVE BITRATE CODEC

Q-SYS Shift™ video compression provides high-quality, low-latency video streaming, supporting video formats up to 4K60 4:4:4 over a standard gigabit network. Q-SYS Shift™ leverages DCT and temporal compression technologies, much like those found in H.264 and H.265 video compression codecs. Q-SYS optimized Shift™ to provide flawless image quality from the most demanding content sources. Further, Shift™ intelligently manages and optimizes the resulting network bitrate by only refreshing changes within each frame, allowing for significantly reduced bandwidth usage as compared to other compression codecs.

- **Modes:** Multicast and Unicast
- **Bitrates:** 10 Mbps - 800 Mbps
- **Streaming Protocol:** RTP

SCALER

The NV-21-HU features a robust 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions from network streams or local HDMI and USB-C sources. The scaler is capable of operating in three modes (configurable within Q-SYS Designer Software):

- Stretch-to-fit
- Maintain aspect ratio
- 1:1 pixel mappin

SUPPORTED VIDEO FORMAT

Codec	Network Stream Resolution	Frame rate (Hz)	Chroma sampling level	Bit Depth
Q-SYS SHIFT® (All video formats are progressive; 4:2:0 Chroma subsampling and HDR not supported)	3840 × 2160 (4K UHD)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
	3440 × 1400	60	4:4:4	8 bit
	2560 × 1600	60	4:4:4	8 bit
	2560 × 1440	60	4:4:4	8 bit
	2560 × 1080	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
	1920 × 1200	60	4:4:4	8 bit
	1920 × 1080 (1080 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
Mediacast	1920 × 720 (720 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
	640 × 480	60	4:4:0	8 bit
	1920 × 1080 (1080 p)	30, 29.97, 25, 24	4:2:0	8 bit
	1920 × 720 (720 p)	30, 29.97, 25, 24	4:2:0	8 bit
	640 × 480	30	4:2:0	8 bit

CONNECTORS

- **Power In:** Two-pin euroblock terminal connection for an external 12 V DC, 10 A power supply (not included, NV-21-PSU available separately). **An external power supply connection is required for any device charging over the USB-C connection.**
- **POE/LAN:** Connection to Q-LAN network; includes PoE Type 3, Class 5 capability via a network switch or midspan injector. **When powered via PoE, the NV-21-HU cannot charge devices over the USB connection.**
- **USB-A:** Supports USB HID Routing (5 V DC 900 mA)
- **RS-232:** Three-pin euroblock terminal connection for extension of the Q-SYS Control Engine to third-party devices.
- **USB-C:** USB-C connection capable of receiving alt-mode DisplayPort video formats up to 4K60 4:4:4, Q-SYS Audio and Video Bridging and device charging up to 65 W. **An external power supply is required for any device charging over the USB-C connection.**
- **HDMI IN:** HDMI connection capable of receiving video formats up to 4K60 4:4:4, up to 8 channels PCM Audio from a connected source.
- **HDMI OUT:** HDMI connection capable of transmitting video formats up to 4K60 4:4:4, up to 8 channels PCM Audio to a connected output.
- **Simple Mounting:** Optional surface mounting brackets (included) provide installers with multiple options to optimize airflow in various installation scenarios. Mounting options and installation instructions are available in the hardware user guide.

¹Not supported at initial release, please use the 2x2 USB Soundcard for USB-C audio routing.

VIDEO I/O

HDMI 2.0 input	1x HDMI 2.0, capable of receiving input video formats up to 4K60 4:4:4
USB-C input	USB 3.2 Gen 1x1 (5Gbps) Type-C Device Port - supporting DisplayPort Alt-Mode (DP 1.4 Sink) - USB Power Delivery up to 65 W
HDMI 2.0 output	1x HDMI capable of scaling and outputting video formats up to 4K60 4:4:4
Scaler	HDMI output features a robust 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions.
Supported video codecs	Q-SYS Shift™: Up to 4K60 4:4:4 (Up to 1080p60 4:4:4 for dual streams) Mediacast: Up to 1080p30 4:2:0

AUDIO I/O

HDMI inputs	8-channel PCM audio, Q-SYS routable
USB Type C input	8-channel PCM audio, 1x1 speakerphone, 2x2 soundcard, Q-SYS routable
HDMI output	8-channel PCM audio, Q-SYS routable

OTHER CONNECTORS

USB Type C input	AV Bridging: Route Q-SYS network camera and audio feeds to a host via USB connection. - Supports resolutions up to 1920x1080p30 YUY2 for UC&C YUY2 and HD YUY2 video formats Device Charging: Supports charging up to 65 Watts (requires an external power supply) - 3A: 5V, 9V, 12V, 15V - 3.25A: 20V
USB Type A input	USB HID Routing - 5 V DC 900 mA
LAN	1000BASE-T, 2.5GBASE-T compliant
Power Over Ethernet	PoE Type 3, Class 5 (40W at PD, 45W at PSE) ¹
Auxiliary Power Supply	12 V DC 10 A Power Supply NV-21-PSU sold separately 90 W PoE injector POE-90W-PSU sold separately

GENERAL

Dimensions	7.3 × 5.2 × 1.2 in (185 × 131.5 × 30.5 mm)
Weight	1.75 lbs (794 g)
Mounting options	Flexible surface mounting hardware included
What's in the box?	NV-21-HU video endpoint Euro Terminal connector for RS-232 Surface mounting accessories Safety and warranty statements

ENVIRONMENTAL

Ambient operating temperature range	0° to 40° C
Humidity	5 to 90 RH % non-condensing
Storage temperature	-20 to 70° C
Expected Product lifecycle	10 years
Thermal dissipation	
Without device charging over USB-C (PoE or aux power) @ 25°C ambient	30 W max (102 BTU/hr)
With device charging over USB-C (aux power) @ 25°C ambient	35 W max (119 BTU/hr)

NV-21-PSU (SOLD SEPARATELY)

Output power	120 W
Output voltage	12.0 V
Output current	10.0 A
Input	2 A @ 115 VAC / 1 A @ 230 VAC
BTU usage/heat generation	18 W
PS dimensions (L x W x H)	6.61 × 2.80 × 1.48 in (168.0 × 71.0 × 37.5 mm)
Cable length	47.24 in (1.2 m)
Output connector	2-position 5.08mm-pitch Euroblock connector
Power supply weight	1.27 lbs (580 g)

