Q-SYS NV-21-HU

KEY FEATURES

- Single cable solution for video distribution, AV bridging[1], and device charging[2].
- Native HDMI video and audio distribution for Q-SYS
- Q-SYS Shift™ adaptive video compression
- Software configurable as an encoder or decoder
- HDMI and USB-C Mode selection

Q-SYS NV-21-HU

Native Network Video Endpoint for Q-SYS

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 video camera and audio feeds into a supported collaboration application[1] and charges their device simultaneously[2].

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 NV-21-HU supports the AV Bridging feature license to function as an AV bridging endpoint when needed.

- **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.

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. Optional AV Bridging feature license is required to activate AV Bridging on the NV-21-HU.
2. 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 license 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 license.

- **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

The NV-21-HU uses Q-SYS Shift™ video compression to provide 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

SUPPORTED VIDEO FORMAT

Resolution	Frame rate (Hz)	Chroma sampling level	Bit Depth
3840 x 2160 (4K UHD)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
3440 x 1400	60	4:4:4	8 bit
2560 x 1600	60	4:4:4	8 bit
2560 x 1440	60	4:4:4	8 bit
2560 x 1080	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
1920 x 1200	60	4:4:4	8 bit
1920 x 1080 (1080 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
1920 x 720 (720 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4	8 bit
640 x 480	60	4:4:4	8 bit

* All video formats are progressive

 4:2:0 Chroma subsampling and HDR not supported

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 mapping

CONNECTORS

- **Power In:** Two-pin euroblock terminal connection for an external 12 V DC, 9 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.

Q-SYS NV-21-HU

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 65W
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 accomodate the most challenging resolution and frame rate conversions.

Audio I/O

HDMI inputs	8-channel PCM audio, Q-SYS routable
USB Type C input	8-channel PCM audio, 1x1 speakerphone[1], 2x2 soundcard[1], 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[1].
	Device Charging: Supports charging up to 65 Watts[3]
	    - **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)[2]
Auxiliary Power Supply	12 V DC 9 A Power Supply. NV-21-PSU sold separately[3]

General

Dimensions	7.3 x 5.2 x 1.2 in (185 x 131.5 x 30.5 mm)
Weight	1.75 lbs (794 g)
Mounting options	Flexible surface mounting hardware included

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

What's in the box?	NV-21-HU video endpoint Euro Terminal connector for RS-232 Surface mounting accessories Safety and warranty statements

1. Requires Q-SYS AV Bridging feature license.
2. When powered via PoE, the NV-21-HU cannot charge devices over the USB-C connection.
3. An external power supply is required for any device charging over the USB-C connection.