Q-SYS NV-32-H (Core Capable)

STANDARD FEATURES

Core mode

- Fully integrated Q-SYS Core processor
- Onboard 3 x 2 HDMI video switcher
- 32 x 32 network audio channels
- Supports up to 32 x 32 Software-based Dante channels (none included)
- 8x AEC channels
- Supports up to three (3) Q-SYS NM-T1 tabletop microphones
- 1 x VoIP softphone instance
- Audio I/O via HDMI, USB and 3.5 mm

Peripheral mode

- Native HDMI video and audio distribution for Q-SYS
- Q-SYS Shift™ adaptive video compression codec
- Software-configurable as an encoder or decoder
- Simultaneous streaming capabilities

Licensable Features*

- Q-SYS Scripting Engine
- Q-SYS UCI Deployment
- Software-Based Dante
- Core Mode Video Streaming

Certified for
Microsoft Teams

works with
Google Meet

*To learn more about Licensable Features visit qsys.com/licenses

Q-SYS NV-32-H (Core Capable)

Native Network Video Endpoint for Q-SYS

The NV-32-H (Core Capable) is a multipurpose, software-configurable video endpoint native to Q-SYS that offers two operating modes to choose between, based on the needs of the application.

CORE MODE

Consolidated Q-SYS AV processor, control engine, and local HDMI video switcher to support video collaboration in small and medium sized meeting rooms and classrooms.

Native HDMI and audio distribution without the need for additional control processors, bridges or complicated programming.

Like all Q-SYS devices, the NV-32-H (Core Capable) offers native integration and control, simplifying setup, configuration and firmware management while eliminating the need for advanced programming knowledge.

PERIPHERAL MODE

Q-SYS NV-32-H (Core Capable)

CORE MODE

- **Fully integrated Q-SYS processor:** 'Core Mode' enables the same integrated audio, video and control features as the rest of the Q-SYS Core portfolio, but with I/O and processing capabilities specifically tuned for video collaboration in small meeting rooms or classrooms.

- **Onboard HDMI switch:** The 3 x 2 HDMI I/O enables in-room users to easily share presentation or video content from their laptops or other video sources (video encoding/decoding is unavailable in this mode). Onboard HDMI switching is 3 x 1 @ 4K60 or 3 x 2 @ 1080p.

- **Consolidated AV functionality:** The 1 RU, half-rack unit consolidates disparate AV functionality to free up physical space and reduce hardware and installation costs.

PERIPHERAL MODE

- **Quality:** The NV-32-H provides high-quality, low latency video streaming with resolutions of up to 4K60 4:4:4 over a standard gigabit network.

- **Network optimized compression scheme:** Q-SYS Shift™ video compression codec actively adjusts network bandwidth resources according to content, affording massive network savings for common meeting room content without compromising on the ability to stream full-motion video.

- **Single device solution:** The NV-32-H is configurable as an encoder or decoder, simplifying the ordering and specification process and providing flexibility for meeting spaces.

- **Simultaneous streaming:** With 3x HDMI inputs and 2x HDMI outputs, the NV-32-H enables flexible room design scenarios, such as simultaneous 1080p60 streaming for dual-monitor rooms, with a single device. It also enables soft codec applications that support dual video output.

- **Local output switching:** When set as a decoder, the NV-32-H can provide local video source selection in addition to displaying content from network streams.

- **Test your network:** The NV-32-H features a Network Test feature, accessible in Q-SYS Designer Software, that allows you to send full video data loads across your network to check for potential network configuration issues without needing actual video sources and/or sinks connected.

SHARED BENEFITS

- **Native integration and control:** Q-SYS software-based control allows you to add native Q-SYS Products, including the NV-32-H, to your system design and route them anywhere on the network with simple drag-and-drop components. This simplifies setup, configuration, and firmware management and eliminates the need for additional hardware or advanced programming knowledge.

- **Q-SYS AV Bridging:** The NV-32-H allows users to connect their device via USB to integrate Q-SYS audio and camera feeds easily enabling remote meetings.

- **Q-SYS audio integration:** The NV-32-H allows audio feeds from connected video sources to be routed natively, along with the video stream, to any other endpoint on the network, or use the HDMI output as a Q-LAN audio destination for source audio, paging or any other Q-SYS asset. Additionally, the onboard analog audio output allows for direct connection of Q-SYS non-networked amplifiers, external loudspeakers, or audio recorders.

- **USB HID Routing over IP:** Allows users to connect USB HID devices (keyboard, mouse or touchscreen) and route the signals over the network, simplifying installation and reducing costs by removing equipment from the room.

CONTROL

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

- **GPIO:** Three inputs and two outputs for control of third-party devices via Q-SYS Control, user configurable.

USB

- **USB HID routing over IP:** Support for USB HID sources, including keyboard, mouse, and touch screen.

- **Q-SYS AV Bridging:** The NV-32-H is a native endpoint for Q-SYS AV Bridging. This feature is available in both Core and Peripheral Mode. The NV-32-H allows users to connect their device via USB to integrate Q-SYS audio and camera feeds by emulating a webcam video driver, AEC speakerphone audio driver, and multi-channel soundcard driver over a single USB connection.

AUDIO

- **Network audio:** Use a total network channel count of 40x32, including Q-SYS native audio channels or Dante channels (licensable up to 32x32).

- **HDMI audio input:** Each HDMI input is able to receive up to eight channels of PCM audio, which are routable within Q-SYS Designer Software.

- **HDMI audio output:** Each HDMI output has the ability to output up to eight channels of PCM audio, making each HDMI output a full-featured Q-SYS audio destination for source audio content, or any other Q-SYS audio feature such as paging, audio playback etc.

- Supports up to three (3) Q-SYS NM-T1 network tabletop microphones.

- **Analog audio input:** Mic/line input on a 3.5 mm TRS connector, routable within Q-SYS Designer Software, for direct connection of microphones or audio players.

- **Analog audio output:** Line output on a 3.5 mm TRS connector, routable within Q-SYS Designer Software, for direct connection of QSC non-networked amplifiers, external speakers or audio recorders.

SECURITY

Supports AES-128 encryption for audio and video signals from encoders to decoders as well as 802.1x authentication (available in Q-SYS Designer Software v8.4 or higher).

- **Content Protection:** HDCP 2.2 compliant.

Q-SYS SHIFT® ADAPTIVE VIDEO CODEC (PERIPHERAL MODE ONLY)

- **Modes:** Multicast and unicast

- **Bitrates:** 10 Mbps - 800 Mbps

- **Streaming protocol:** RTP

Resolution	Frame rate (Hz)	Chroma sampling level
3840 x 2160 (4K UHD)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4
3440 x 1400	60	4:4:4
2560 x 1600	60	4:4:4
2560 x 1440	60	4:4:4
2560 x 1080	60, 59.94, 50,30, 29.97, 25, 24	4:4:4
1920 x 1200	60	4:4:4
1920 x 1080 (1080 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4
1920 x 720 (720 p)	60, 59.94, 50, 30, 29.97, 25, 24	4:4:4
640 x 480	60	4:4:4
* All video formats are progressive		

SCALER

Each HDMI output features a robust, polymorphic 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions. The scaler on each HDMI output is capable of operating in three modes (configurable within Q-SYS Designer Software):

- Stretch-to-fit

- Maintain aspect ratio

- 1:1 pixel mapping

CONNECTORS

- **USB type A:** Connect USB audio peripherals (headsets, microphones, or speakers) or USB HID devices (keyboard, mouse, or touchscreen); route signals over Q-SYS network.

- **USB type B:** The NV-32-H allows users to connect their device via USB to integrate Q-SYS audio and camera feeds by emulating a webcam video driver, AEC speakerphone audio driver, and multi-channel soundcard driver over a single USB connection.

- **Analog audio input:** 3.5 mm TRS connection for PC-Level audio input from a microphone or media player, such as mobile phone or tablet.

- **Analog audio output:** 3.5 mm TRS connection for Q-SYS non-networked amplifiers, external loudspeakers, or audio recorders.

- **LAN A:** Connection to network; includes PoE++ capability for the NV-32-H via 802.3bt Type 4 midspan injector or network switch.

- **LAN B:** Redundant connection for audio and control traffic (Core Mode only). Can be used to connect to alternate network for monitoring/ management traffic.

- **Power input:** Two-pin euroblock terminal connection for external 48 V DC, 1.5 A power supply (not included).

- **RS-232:** Three-pin euroblock terminal connection for extension of Q-SYS Control to third-party devices.

- **General purpose I/O:** Euroblock terminal connection for extension of Q-SYS Control to third-party devices.

SOFTWARE-CONFIGURABLE I/O CONFIGURATIONS (PERIPHERAL MODE ONLY)

When set as an encoder:

- **Encode:** Encode one 4K60 HDMI video stream or up to three 1080p HDMI videos streams for distribution across a standard gigabit network.

- **Courtesy monitor:** Use HDMI Out 1 as a "courtesy monitor", displaying any of the three locally connected HDMI sources at resolutions up to 4K60.

When set as an decoder:

- **Decode:** Decode one 4K60 network stream or up to two simultaneous 1080p60 streams (for dual display rooms) for displaying at formats up to 4K60 on a connected display.

- **Local source switching:** Toggle between network streams or locally connected HDMI sources (single 4K60 or dual 1080p60 sources).

Q-SYS NV-32-H (Core Capable)

Channel Capacity (Core Mode Only)

QLAN / AES67	40 x 32
Dante channels	Licensable up to 32 x 32 (none included)
AEC processors	8 @ 200 ms
VoIP instances	1
Audio recording / playback	4 ch recording / 16 ch playback
NM-T1 Capacity (Wideband)	3
Q-SYS peripheral limit*	32

Video I/O

HDMI 2.0 inputs	3x HDMI capable of receiving source input video formats up to 4K60 4:4:4
HDMI 2.0 outputs	2x HDMI capable of scaling and outputting video formats up to 4K60 4:4:4
Scaler	Each HDMI output features a robust, polymorphic 4K60 4:4:4 scaler that can accommodate the most challenging resolution and frame rate conversions.
Color formats	RGB Full or Limited, BT.601 & BT.709 (supported in Q-SYS Designer Software v8.3 or higher)

Audio I/O

HDMI inputs	8-channel PCM audio, Q-SYS routable
HDMI outputs	8-channel PCM audio, Q-SYS routable
Analog audio input	3.5 mm unbalanced stereo mic/line input Q-SYS routable **Signal-to-noise:** 80 dB **THD+N:** 0.009% @ 0 dB **Input frequency response:** 20 Hz to 20 kHz +0.05% / -0.5% **Input Impedance (unbalanced):** 5 k Ω nominal **Analog to digital converters:** 24 bit, 48 kHz
Analog audio output	3.5 mm unbalanced stereo line output Q-SYS routable **Signal-to-noise:** 90 dB **THD+N:** 0.0167% @ 0 dB **output frequency response:** 20 Hz to 20 kHz +0.02% / -0.5%

General

Dimensions	8.66 x 11.28 x 1.72 in (220 x 286.6 x 43.6 mm)
Weight	4.0 lb (1.81 kg)
Mounting options	Rack-mountable, 1 RU half-rack width, Surface-mountable, table or wall-mount, **All mounting hardware is included.**
Regulatory options	CE, FCC part 15 class B, RoHS

Other connectors

USB	Supports bridging of Q-SYS camera feeds, audio and USB HID
RS-232	Three-pin Euroblock terminal connector for extension of Q-SYS Control to third-party devices, user configurable.
GPIO	Euroblock terminal connector for extension of Q-SYS Control to third-party devices, user configurable.
LAN A	Gigabit LAN connection for interface with Q-LAN; PoE++ 802.3 bt Type 4 for power
LAN B	Redundant connection for audio & control traffic (Core Mode only)
Power over ethernet specification/wattage	Conforms to IEEE 802.3bt Type 4
Physical power supply info	48 V DC Nominal, 1.5 A on 2-pin Euro connector

Environmental

Ambient operating temperature range	0-50° C
Humidity	5 to 85% non-condensing
Storage temperature	-20 to 70° C

Heat Loss

Average observed @ 25°C ambient	40 W power, 136 BTU/HR
Maximum predicted @ 25°C ambient	57 W power, 195 BTU/HR
What's in the box?	NV-32-H (Core Capable) video endpoint, Euro-terminal connectors for RS-232, GPIO and power, Rack mounting accessories, Surface mounting accessories, Safety and warranty statement.

*includes native Q-SYS cameras, I/O, NV, TSCs, paging stations), Extensions and plugins with their "Is Managed" property set to "Yes". It does not include Streaming I/O, Loudspeakers, Scripts or plugins with their "Is Managed" property set to "No".