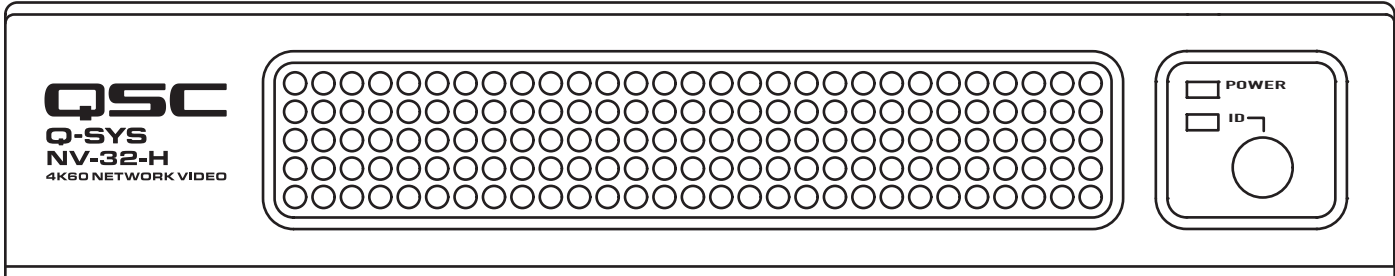


Hardware User Manual

Q-SYS NV-32-H (Core Capable) Network Video Endpoint for the Q-SYS Ecosystem



EXPLANATION OF TERMS AND SYMBOLS

The term "WARNING!" indicates instructions regarding personal safety. If the instructions are not followed the result may be bodily injury or death.

The term "CAUTION!" indicates instructions regarding possible damage to physical equipment. If these instructions are not followed, it may result in damage to the equipment that may not be covered under the warranty.

The term "IMPORTANT!" indicates instructions or information that are vital to the successful completion of the procedure.

The term "NOTE" is used to indicate additional useful information.



The intent of the lightning flash with arrowhead symbol in a triangle is to alert the user to the presence of un-insulated "dangerous" voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The intent of the exclamation point within an equilateral triangle is to alert the user to the presence of important safety, and operating and maintenance instructions in this manual.



IMPORTANT SAFETY INSTRUCTIONS


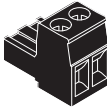
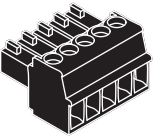

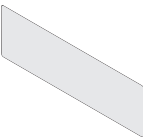
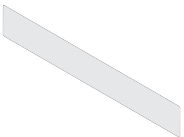
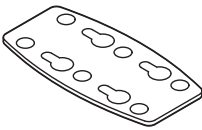
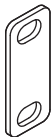
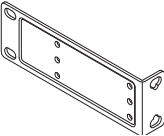
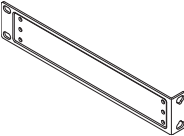
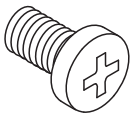
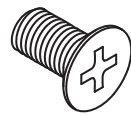




Refer to *Safety Information and Regulatory Statements Q-SYS NV-32-H (Core Capable) 4K60 Network Video* for important information.

Warranty

For a copy of the QSC Limited Warranty, visit the QSC website at www.qsc.com

What's in the Box

 (1x) Q-SYS NV-32-H (Core Capable)	 (1x) Power 2-POS 5.08 Pitch	 (2x) GPIO 5-POS 3.5 Pitch	 (1x) Foam Spacer
 (2x) Rack-Ear Cover Label 1/4, 1RU	 (1x) Rack-Ear Cover Label	 (2x) Joining Plate	 (2x) Rack Spacer Plate
 (2x) Rack Ear 1/4, 1RU	 (1x) Rack Ear	 (6x) Phillips Pan Head M4 x 7 mm	 (6x) Phillips Flathead M3 x 6 mm
	 (1x) Q-SYS NV-32-H (Core Capable) Safety Instructions TD-001542	 (1x) QSC Warranty TD-000453	

Introduction

The Q-SYS NV-32-H (Core Capable) can operate in two modes.

In peripheral mode, the device functions as a network video endpoint native to the Q-SYS Ecosystem, serving as a multi-stream configurable HDMI encoder or decoder enabling network based video distribution. The endpoint uses Q-SYS Shift, which delivers the right balance of high quality (supporting resolutions up to 4K60 4:4:4), low latency and network efficient distribution across a standard gigabit infrastructure.

In Core Mode, the device functions as a Q-SYS Core Audio and Control processor with an integrated HDMI video switch. In this mode users can run the product as they would any other Core, but will not be able to encode or decode streams.

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



WARNING! To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth when using class I power supply.

The Q-SYS NV-32-H (Core Capable) has a flexible power solution that allows the integrator to choose to use either a 48 VDC power supply or a 802.3bt type 4 PoE++ injector. Please note that 802.3bt type 4 is a high-power over Ethernet standard that allows for up to 71W of power delivered to end-point devices over standard Ethernet cabling. Equipment meeting the 802.3bt type 4 standard is required to power the Q-SYS NV-32-H (Core Capable). The Q-SYS NV-32-H (Core Capable) will not work using PoE or PoE+ (802.3af or 802.3at) equipment.

With either power solution please make sure to follow the safety instructions for the specific power supply or injector chosen. For details on the 48 VDC or PoE++ power supply requirements please see the product specifications at the end of this document.

Installation

Ventilation

Minimum open space of 6 inches measured from the back of the Q-SYS NV-32-H (Core Capable).

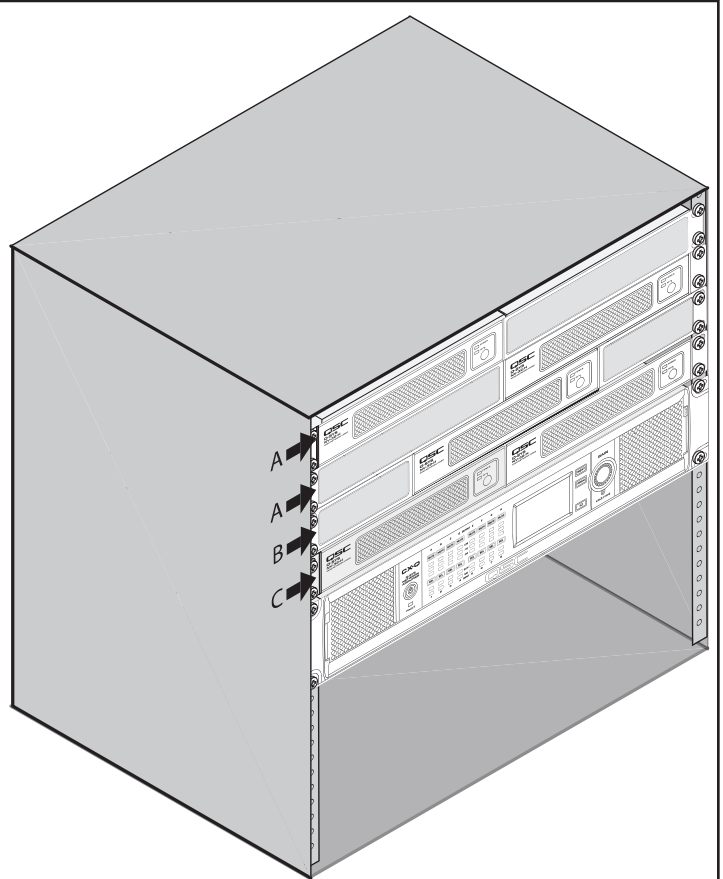


NOTE: In order to provide adequate dissipation of heat, keep the space directly to the rear of the Q-SYS NV-32-H (Core Capable) free of obstacles.

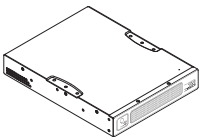
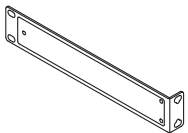
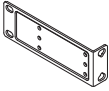

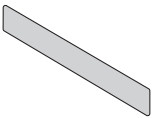
Select the Installation Configuration

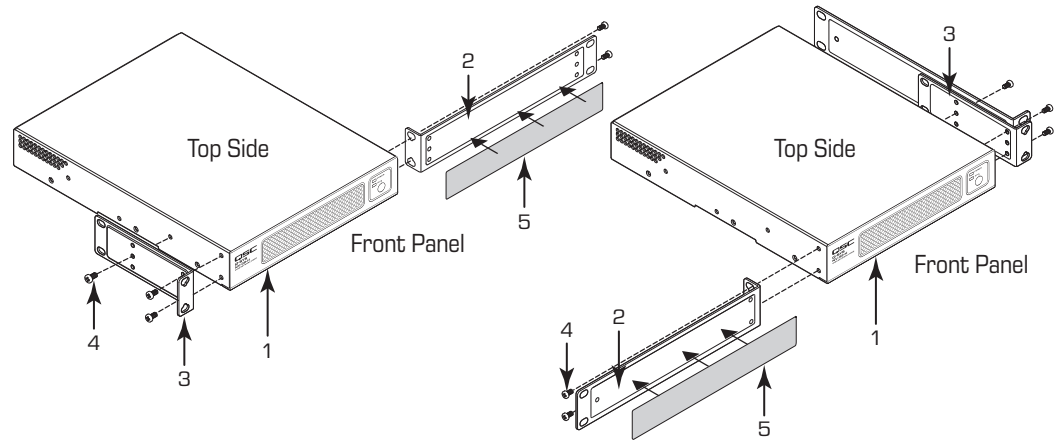
Choose one of the following configuration options:

- A.** One Q-SYS NV-32-H (Core Capable) 19-inch Rack (Left or Right Mount)
- B.** One Q-SYS NV-32-H (Core Capable) 19-inch Rack (Center Mount)
- C.** Two Q-SYS NV-32-H (Core Capable)'s 19-inch Rack
- D.** One Q-SYS NV-32-H (Core Capable) Half Rack
- E.** Under Table or on Wall

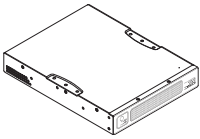
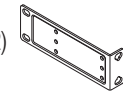

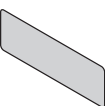


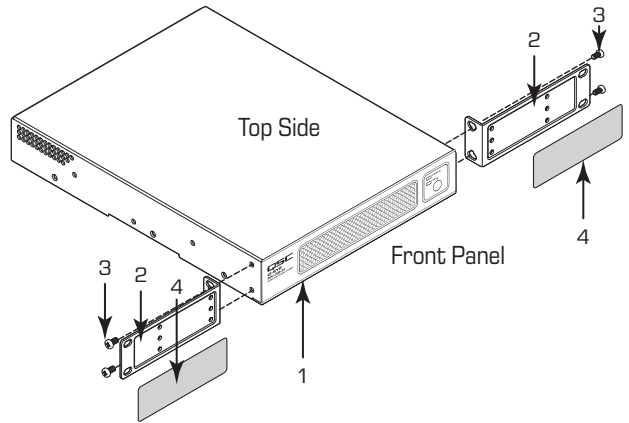
A. One Q-SYS NV-32-H (Core Capable) 19-inch Rack (Left or Right Mount)

- 1. (x1) 
- 2. (x1) 
- 3. (x1) 
- 4. (x5) 
- 5. (x1) 

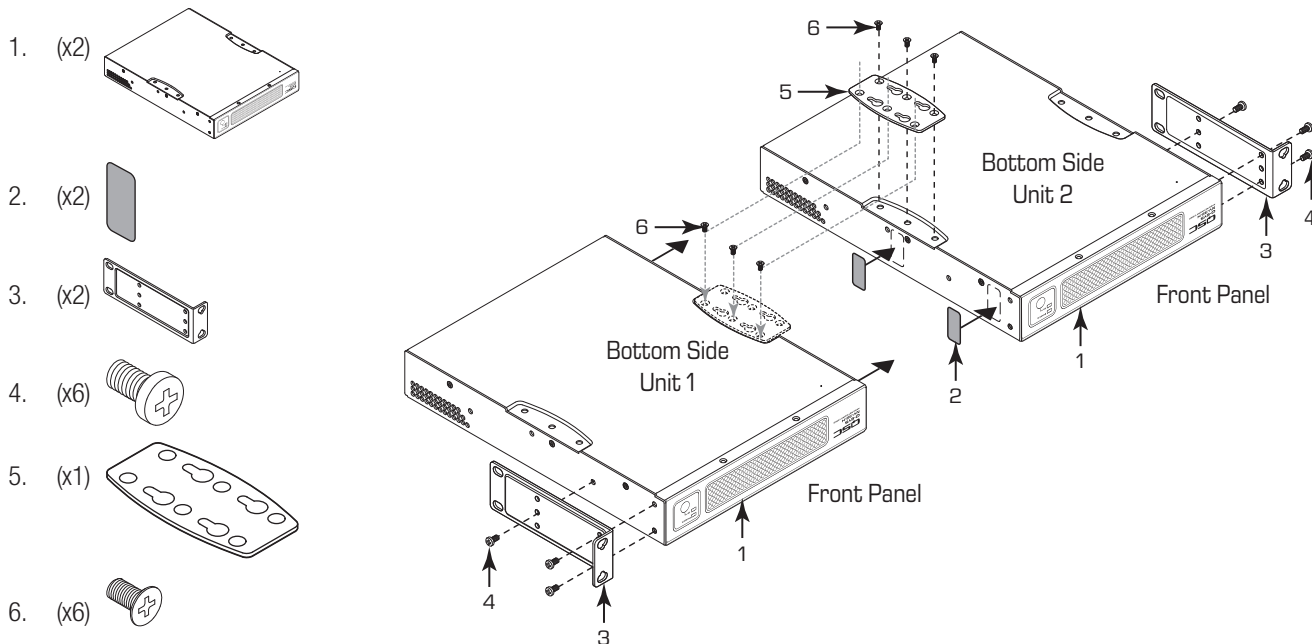


B. One Q-SYS NV-32-H (Core Capable) 19-inch Rack (Center Mount)

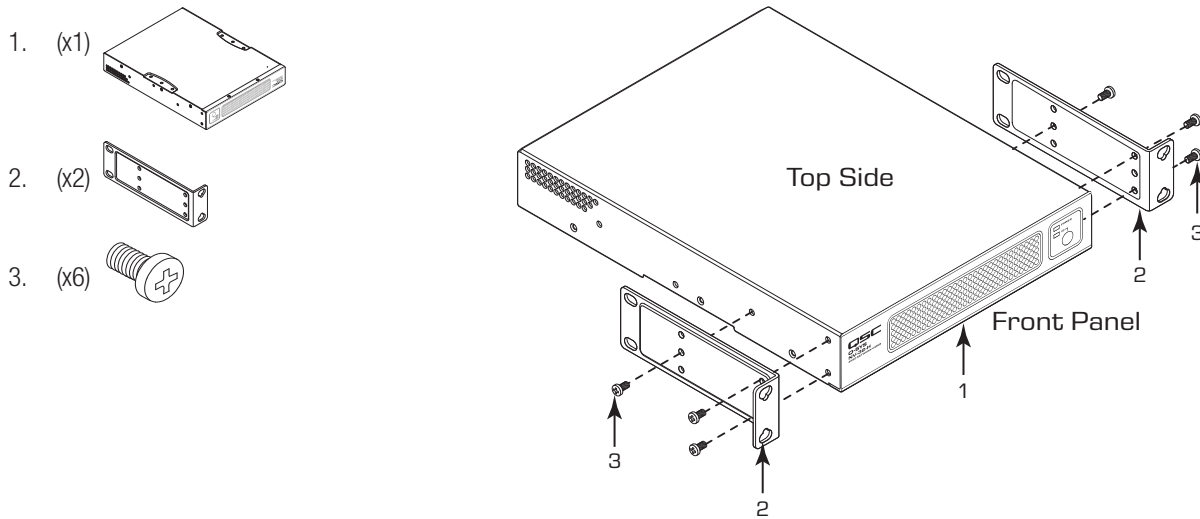
- 1. (x1) 
- 2. w(x2) 
- 3. (x4) 
- 4. (x2) 



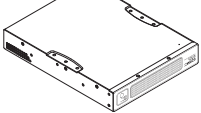
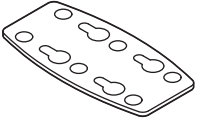


C. Two Q-SYS NV-32-H (Core Capable)'s 19-inch Rack

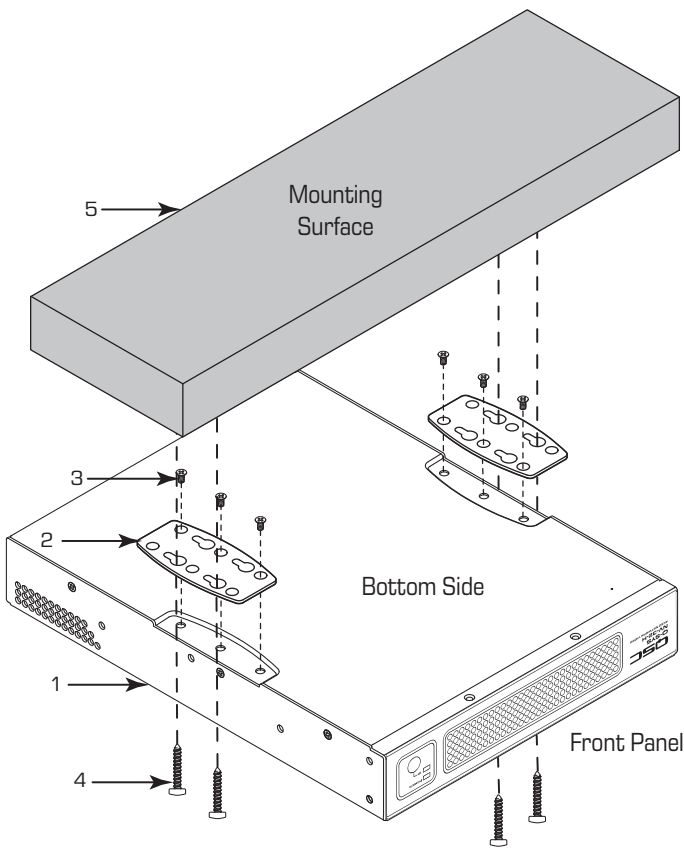


D. One Q-SYS NV-32-H (Core Capable) Half Rack



E. Under Table or on Wall


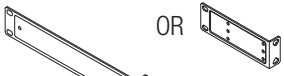


1. (x1) 
2. (x2) 
3. (x6) 
4. (x4)  Not supplied – use appropriate screws for mounting surface.
5. Mounting Surface

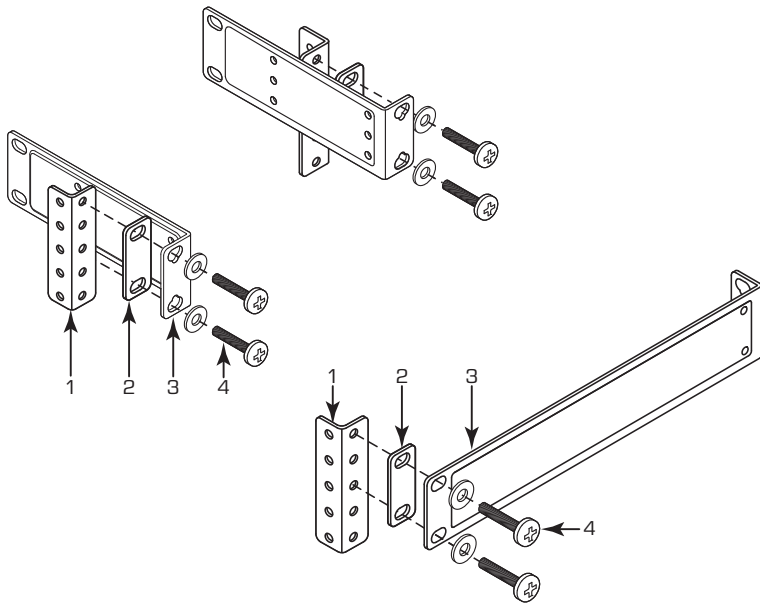


Rack Mounting Options

All Configurations

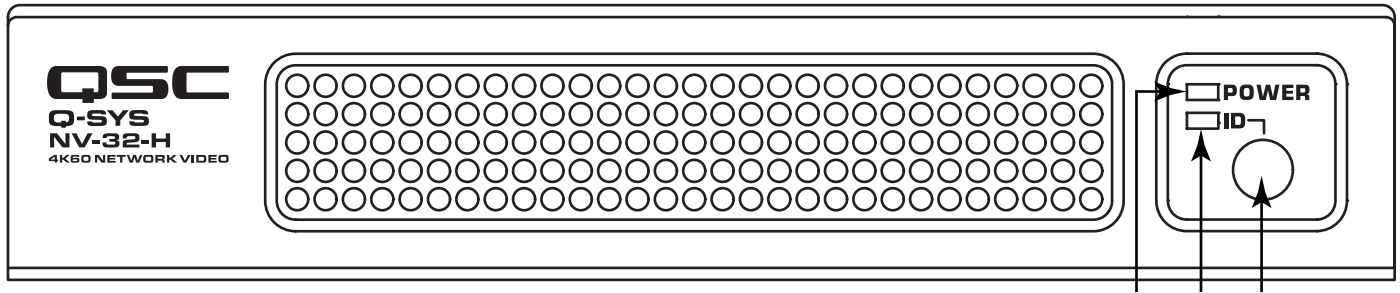
Using the examples shown in mounting options **A** through **E**, you can mount any of the Q-SYS NV-32-H (Core Capable) configurations. The example at the lower right can be flipped to accommodate a single Q-SYS NV-32-H (Core Capable) on the left side.

1. Equipment Rack (not supplied)
2. (2) Rack Ear Spacer 
3. (2) Rack Ear  OR 
4. (4) Rack-Washers (not supplied)  Mounting Screws and supplied



Features

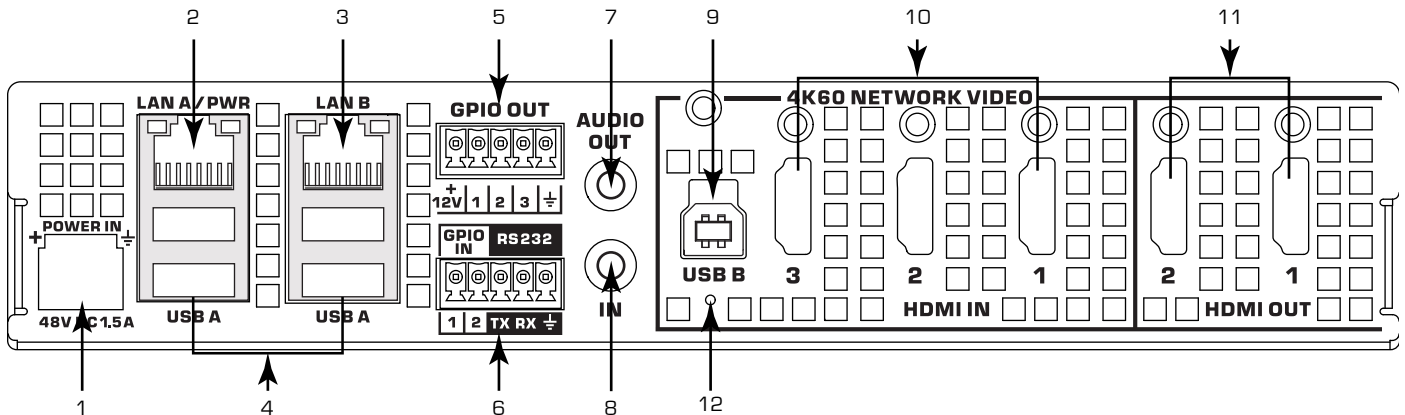
Front Panel



— Figure 1 —

1. **Power LED** – illuminates blue when the Q-SYS NV-32-H (Core Capable) is powered on
2. **ID LED** – LED blinks when placed into ID Mode via ID Button or Q-SYS Core Manager/Peripheral Manager Software
3. **ID Button** – Locates the Q-SYS NV-32-H (Core Capable) in Q-SYS Designer GUI and by Q-SYS Core Manager/Peripheral Manager

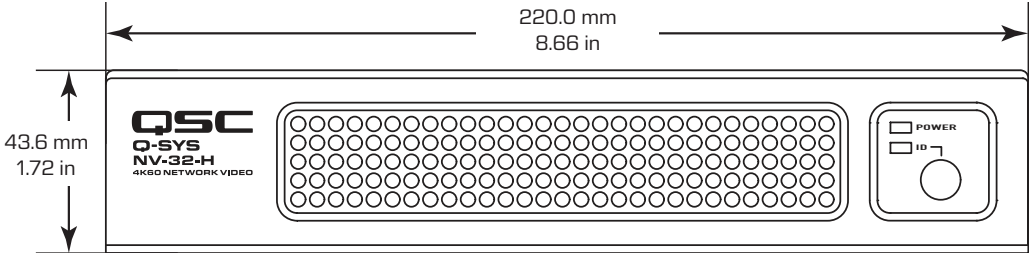
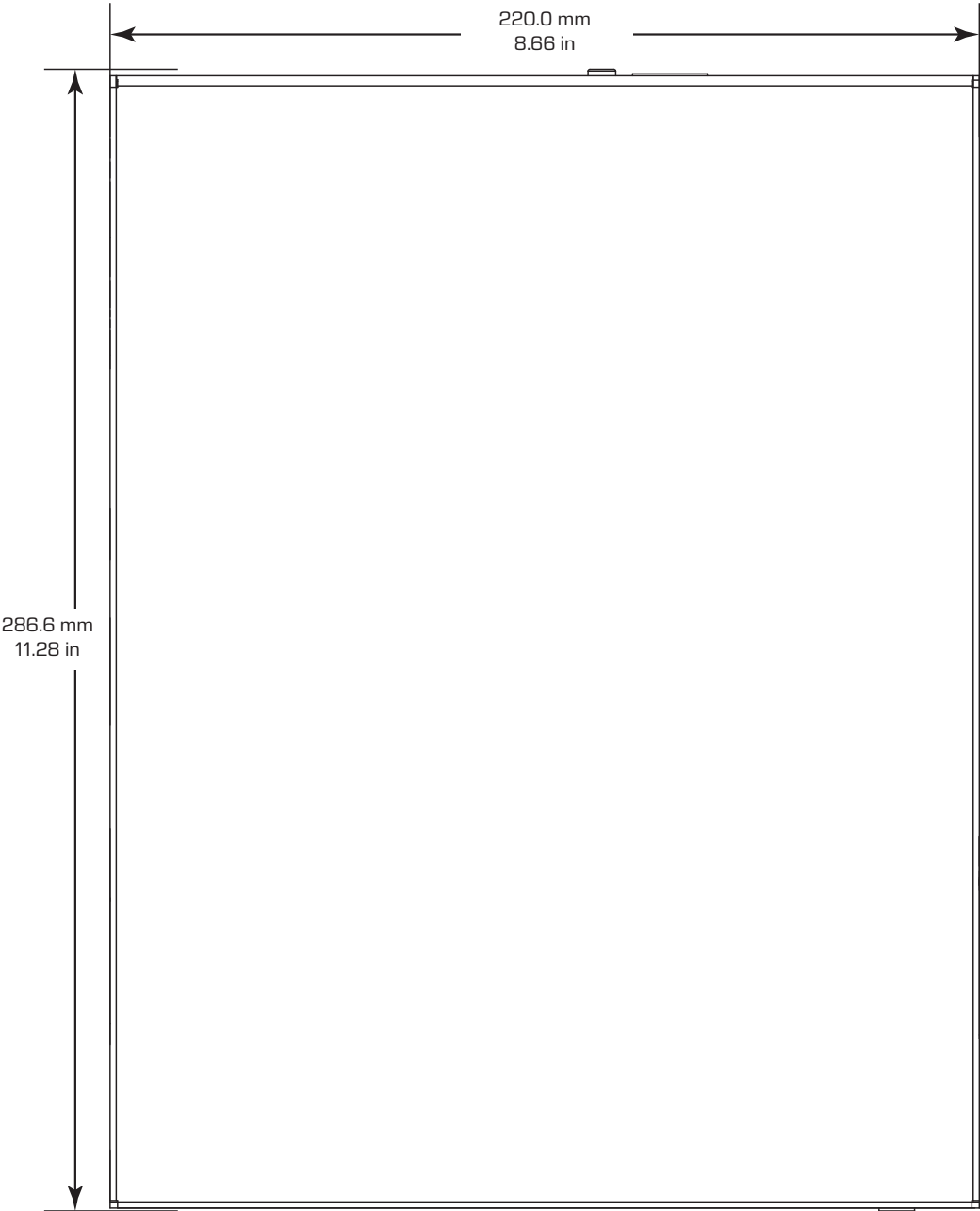
Rear Panel



— Figure 2 —

1. **External Power Input 48 VDC 1.5 A** – Auxiliary power, 48 VDC, 1.5A, 2-pin Euro connector
2. **LAN A/ PoE ++** – connection for Q-LAN network, 802.3bt Type 4 power, RJ-45 connector
3. **LAN B** – RJ-45 connector, not active in peripheral mode. In Core Mode, LAN B supports redundancy, VOIP, Control etc.
4. **USB Type A** – USB type A host connectors (blue connector is for USB 3.0 connection). 1.0 A, total, is available for all four Type-A USBs.
5. **GPIO Out**
 - **12 VDC Output** – 12 V, 0.2 A output used for GPIO signals.
 - **GPIO Outputs** – 3 outputs, open collector (24 V, 0.2 A maximum) with pull up to +3.3 V, pins 1-3 equal pins 1-3 in the Q-SYS Designer GPIO Output component.
 - **Ground** – Use this ground reference for 12 VDC and GPIO outputs.
6. **GPIO Inputs / RS-232**
 - **GPIO Inputs** – 2 inputs, 0-24 V analog input, or contact closure, pins 1-2 equal pins 1-2 in the Q-SYS Designer GPIO Input component.
 - **RS-232** – Transmit and Receive
 - **Ground** – Use this ground reference for GPIO inputs and RS-232.
7. **Analog Audio Output** – 3.5 mm connector unbalanced stereo line output
8. **Analog Audio Input** – 3.5 mm connector unbalanced stereo mic/line input
9. **USB B** – USB Type B Device connector for web conference integration
10. **HDMI Inputs** – HDMI 2.0 Input with support for HDCP 2.2 and HDCP 1.4
11. **HDMI Outputs** – HDMI 2.0 Output with support for HDCP 2.2 and HDCP 1.4
12. **Factory Reset** – Use a paper clip, or similar tool, to press and hold the reset button for 10 seconds to reset the NV-32-H to factory values.

Dimensions



Specifications

Channel Capacity (Core Mode Only)	
Q-LAN / AES67	32 x 32
Dante channels	Licensable up to 32 x 32 (none included)
AEC processors	8 @ 200 ms
WAN / media stream channels	8 x 8
VoIP instances	1
Audio recording /playback	4 ch recording / 16 ch playback
Q-SYS peripheral limit*	32
Video I/O	
HDMI 2.0 inputs	Three HDMI inputs capable of receiving source input video formats up to 4K60 4:4:4
HDMI 2.0 outputs	Two HDMI outputs 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 than can accommodate the most challenging resolution and frame rate conversions. Three aspect ratio modes supported: 1:1 pixel mapping, stretch to fit and maintain aspect ratio.
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 +0.2% / -0.5%
Other Connectors	
External power supply	48 VDC Nominal, 1.5 A on 2-pin Euro connector
GPIO	Euro connector for extension of Q-SYS Control to third-party devices, user configurable
LAN A	Gigabit LAN connection for interface with Q-LAN; PoE++
PoE++ (Power over Ethernet) specification/wattage	Conforms to IEEE 802.3bt Type 4 specification, PD class 8 (71W at PD, 90W at PSE)
LAN B	Core Mode: redundant LAN connection Peripheral Mode: not implemented/supported
RS-232	Three-pin Euro connector for extension of Q-SYS Control to third-party devices, user configurable
USB Type A	USB type A host connectors (blue connector is for USB 3.0 connection). 1.0 A total is available for all four Type-A USBs.
USB Type B	USB 3.0 device port for web conference integration.
General	
Dimensions	8.66 in x 11.28 in x 1.72 in 220 mm x 286.6 mm x 43.6 mm
Weight	4.0 lb (1.81 kg)
Mounting options	Rack- (1 RU half-rack width), surface-, table-, or wall-mountable. All mounting hardware is included with the exception of surface-specific screws and washers.
Regulatory compliance	CE, FCC Part 15 Class B, RoHS
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	40W power, 136 BTU/HR
Maximum predicted @ 25°C ambient	57W power, 195 BTU/HR

*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".

Specifications are subject to change without notice.



Self Help Portal

Read knowledge base articles and discussions, download software and firmware, view product documents and training videos, and create support cases.

<https://qscprod.force.com/selfhelpportal/s/>

Customer Support

Refer to the Contact Us page on the Q-SYS website for Technical Support and Customer Care, including their phone numbers and hours of operation.

<https://www.qsys.com/contact-us/>