Q-SYS™

QSC

Hardware User Manual

CX-Q Series Network Amplifiers

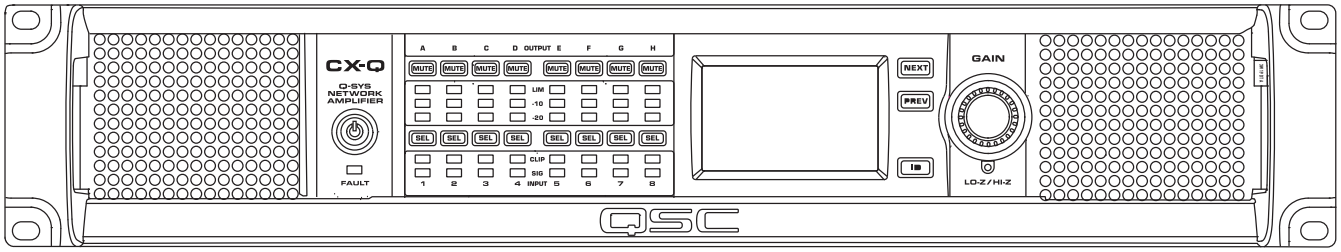
CX-Q 2K4 — 4 Channel, 2000 W Network Amplifier with Mic/Line Inputs

CX-Q 4K4 — 4 Channel, 4000 W Network Amplifier with Mic/Line Inputs

CX-Q 8K4 — 4 Channel, 8000 W Network Amplifier with Mic/Line Inputs

CX-Q 4K8 — 8 Channel, 4000 W Network Amplifier with Mic/Line Inputs

CX-Q 8K8 — 8 Channel, 8000 W Network Amplifier with Mic/Line Inputs



TD-001661-01-C

EXPLANATION OF 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

WARNING! TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. Elevated Operating Ambient – If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than room ambient. Consideration should be given to ensure that the maximum operating temperature is not exceeded – refer to the Environmental section. Reduced Air Flow – Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation opening. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. To reduce the risk of electrical shock, the power cord shall be connected to a mains socket outlet with a protective earthing connection.
10. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The appliance coupler, or the AC Mains plug, is the AC mains disconnect device and shall remain readily operable after installation.
16. Adhere to all applicable, local codes.
17. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.
18. Do not use any aerosol spray, cleaner, disinfectant or fumigant on, near or into the apparatus. Clean only with a dry cloth.
19. Do not unplug the unit by pulling on the cord, use the plug.
20. Do not submerge the apparatus in water or liquids.
21. Keep ventilation opening free of dust or other matter.

Maintenance and Repair

WARNING! Advanced technology, e.g., the use of modern materials and powerful electronics, requires specially adapted maintenance and repair methods. To avoid a danger of subsequent damage to the apparatus, injuries to persons and/or the creation of additional safety hazards, all maintenance or repair work on the apparatus should be performed only by a QSC authorized service station or an authorized QSC International Distributor. QSC is not responsible for any injury, harm or related damages arising from any failure of the customer, owner or user of the apparatus to facilitate those repairs. In the event of malfunction, contact QSC Customer Support for assistance.

FCC Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Environmental

- Life Cycle: 10 years
- Service Life: 10 years
- Storage Conditions: Temperature from -20 ° C to + 70 ° C, humidity 5% - 85% RH.
- Maximum Operating Conditions: -10 ° C to +50 ° C, humidity 5% - 85% RH.

NOTE: Performance may be reduced above 40 ° C.

CAUTION! Environmental Contamination: amplifiers must be installed in an environment where they are provided adequate supply of fresh cooling air that is free from excessive amounts of chemical and/or solid particulate matter contaminants. Excess contamination buildup from environmental factors may cause adverse performance due to high internal voltages experience during operation.

If you wish to discard electronic equipment, please contact your dealer or supplier for further information.

RoHS Statement

The QSC CX-Q Series Amplifiers are in compliance with “China RoHS” directives. The following chart is provided for product use in China and its territories:

	QSC CX-Q Series Amplifiers					
	有毒有害物质或元素 **(Toxic or hazardous Substances and Elements)**					
部件名称 (Part Name)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(vi))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电路板组件 (PCB Assemblies)	X	0	0	0	0	0
机壳装配件 (Chassis Assemblies)	X	0	0	0	0	0

0：表明这些有毒或有害物质在部件使用的同类材料中的含量是在 SJ/T11363_2006 极限的要求之下。

(O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363_2006.)

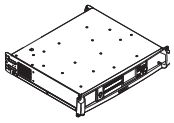
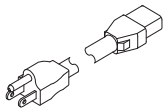
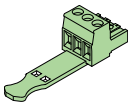
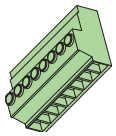
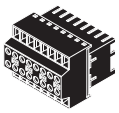
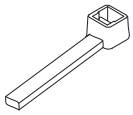
X：表明这些有毒或有害物质在部件使用的同类材料中至少有一种含量是在 SJ/T11363_2006 极限的要求之上。

(X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363_2006.)

海拔和热带条件

	仅适用于海拔2000m 以下地区安全使用	Only suitable for safe use in areas below 2000m above sea level
	仅适用于非热带气候条件下地区安全使用	Only suitable for safe use in non-tropical climates

What's in the Box

 (1x) Amplifier	 (1x) AC Cord	 (8x or 4x) Inputs (3-Pins)	 (2x or 1x) Outputs (8-Pins)	 (1x) GPIO (16-pins)
 (16x or 8x) Cable Tie	(1x) Warranty	(1x) Safety Information	(1x) Quick Start Guide	

Features

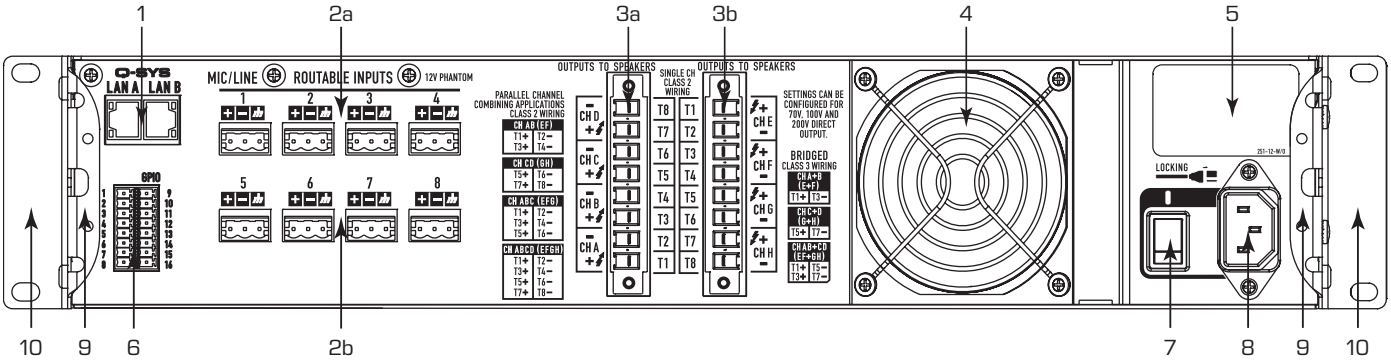
Amplifier Front Panel

Refer to "Amplifier Controls and Indicators" on page 11.

Amplifier Rear Panel

Refer to Figure 1.

WARNING! Dangerous voltage possible on output terminals. Disconnect AC Mains before connecting or disconnecting output wiring.



— Figure 1 — 8-Channel Model Shown

1. RJ-45 – Q-SYS Q-LAN A / B
2. Analog Inputs – Mic or Line level, 12V Phantom power, 3-pin Euro-style Connectors
   a. Inputs 1-4 All CX-Q Models
   b. Inputs 5-8 for 8-Channel Models only
3. Outputs – Loudspeaker Connector, 8-pin Euro-style
   a. Outputs A–D All Models
   b. Outputs E–H 8-Channel Models only
4. Cooling fan inlet (do not block)
5. Product information:
   a. Serial Number with manufacturer date code: Refer to Figure 7
   b. Country of origin, "Product of China".
6. GPIO Euro-style Connector, 16-pin
7. AC Power Switch
8. Locking IEC Power Connection
9. Rear Rack-mount Brackets
10. Front Rack-mount Brackets

Installation

The following steps are written in the recommended installation order.

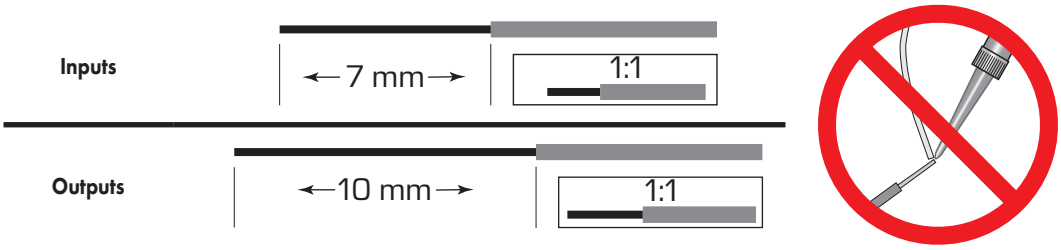
Rack-Mount the Amplifier

The amplifiers are designed only for mounting in a standard rack-mount unit. Abnormal mounting positions (e.g., vertical, face-up, face-down) are not supported. The amplifiers are 2RU high, and 381 mm (15 in) deep.

Secure the amplifier in the rack with eight screws (not supplied), four in front, four in back. For complete instructions, refer to TD-000050 "Rear Rack Ears Installation Guide" which can be found on the QSC Website (www.qsc.com).

CAUTION! **Be sure that nothing is blocking the front or rear ventilation openings, and that each side has a minimum of 2 cm clearance.**

Wire Preparation

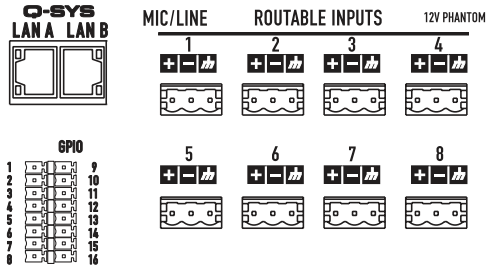


— Figure 2 —

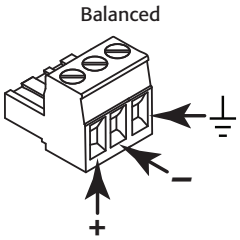
Use an appropriate wire-stripping tool to remove 7 mm of insulation from Input wiring and 10 mm of insulation from the Output wiring. Do not tin the stripped wire ends.

Inputs

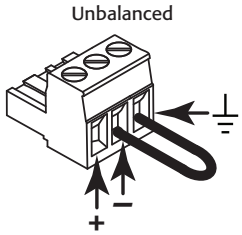
Q-SYS – Connect the amplifier LAN A, and if available, LAN B, to the Q-LAN network (Figure 3). Refer to the Q-SYS Help for network requirements.



— Figure 3 —



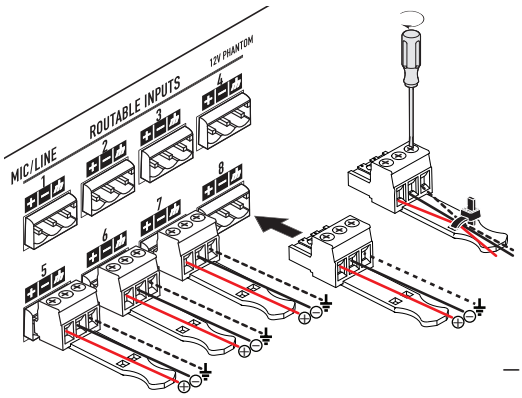
— Figure 4 —



— Figure 5 —

Analog Inputs are converted to digital audio in the amplifiers then routed to the Q-SYS Core over the Q-LAN network. The digital signals show up in Q-SYS Designer at the input component where they can be routed as needed. Refer to the Q-SYS documentation.

1. Make sure your audio source devices are powered off.
2. Wire the audio mic- or line-level source to up to eight (8-Channel amplifiers) or four (4-Channel amplifiers) Euro-style connectors (supplied). You can use either balanced inputs (Figure 4) or unbalanced inputs (Figure 5).
3. Plug the connectors into the appropriate receptacles (Routable Inputs 1, 2, 3, 4, 5, 6, 7, 8) Figure 4 and Figure 6.



— Figure 6 —

GPIO

Refer to "GPIO" on page 17 for details about the GPIO feature.

Outputs and Output Configuration

The amplifiers have one or two sets of four-channel outputs that are configured independently. The configuration of the amplifier is defined in Q-SYS designer software and is "pushed" into the physical amplifier when the Name and Type of amplifier in the design matches the Name and Type of physical amplifier. Flexible Amplifier Summing Technology (FAST) allows users to power a variety of loads through combining amplifier channels in various ways. Amplifier channels can be combined in BTL Bridged mode for higher voltage needs or Parallel Mode for higher current needs. Figure 7 thru Figure 10 are examples of how the 4 channel amplifier blocks can be combined to drive higher power requirements under different loads. Please reference the power output ratings for more information.

NOTE: The output connector is capable of handling up to 8 AWG for stranded wire.

Use the diagrams shown in Figure 7 thru Figure 10 as a reference for planning your loudspeaker configuration. Refer to Figure 11 for how to connect the wiring based on your configuration.

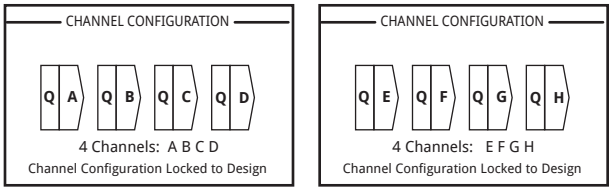
CAUTION! **Before turning the amplifier on, double check your output connections to be sure they are connected properly based on the output configuration specified in Q-SYS Designer.**
If you change the output configuration of the amplifier you must change the loudspeaker connections before applying power to the amplifier!
After a change of the output configuration, the amplifier re-boots and all outputs are muted. You must press the Mute All button in the Q-SYS Amp Output component, Press The Amplifier Mode Button on the front panel of the amplifier.

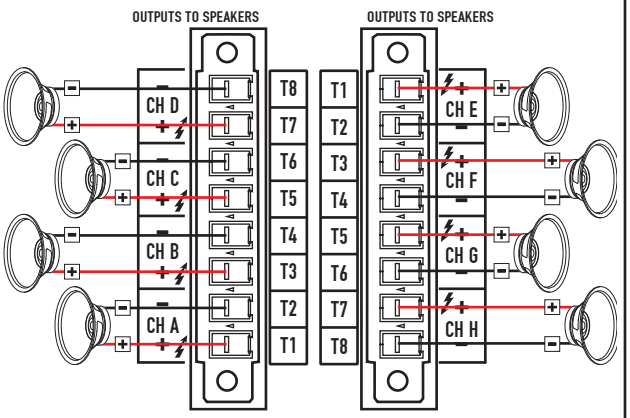
Figure 7 through Figure 10 are examples of the three types of output configurations: Separate, Bridged and Parallel. The tables to the right and left of the loudspeaker connections (rear panel of the amplifier) give all the possible configurations and their connections. The following diagrams show the 8-Channel models. 4-Channel models have outputs A through D only.

A B C D 4 Channel	**E F G H 4 Channel**
Separate Channels (A B C D) and (E F G H)	

For Separate Loudspeakers
Use eight 2-wire cables, connect to:

- T1+/T2- (Loudspeaker A / E)
- T3+/T4- (Loudspeaker B / F)
- T5+/T6- (Loudspeaker C / G)
- T7+/T8- (Loudspeaker D / H)





— Figure 7 —

A+B C D 3 Channel, A B Bridged | E F G H 4 Channel

Bridged (A+B) and Separate (C D) and (E F G H) Channels

For A+B (Bridged) One Loudspeaker

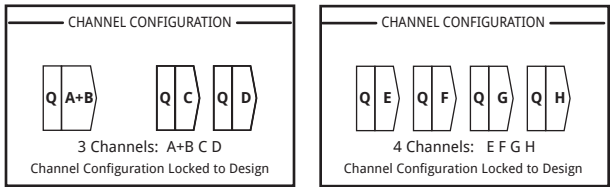
Use one 2-wire cable connect to:

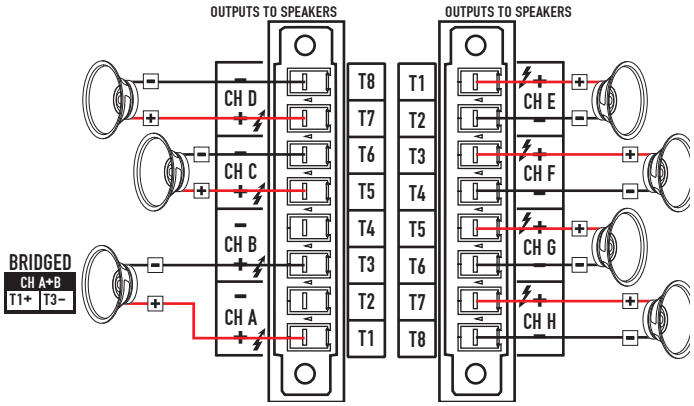
- T1+/T3- (Loudspeaker A+B)

For C D (E F G H) (Separate) Two and Four Loudspeakers

Use six 2-wire cables, connect to:

- T1+/T2- (Loudspeaker E)
- T3+/T4- (Loudspeaker F)
- T5+/T6- (Loudspeaker C / G)
- T7+/T8- (Loudspeaker D / H)





— Figure 8 —

AB CD 2 Channel, AB Parallel CD Parallel | EF + GH 1 Channel, EF Parallel Bridged with GH Parallel

Two Pair of Parallel Channels (AB CD) and two Pair of Parallel Channels Bridged (EF + GH)

AB (Parallel) CD (Parallel) For Two Loudspeakers

Use two 2-wire cables, connect to:

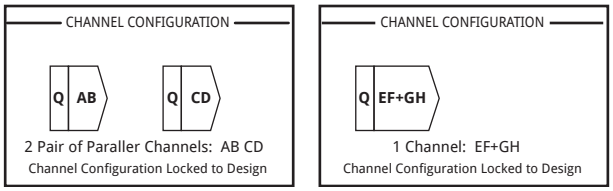
- T1+/T2- (Loudspeaker AB)
- T5+/T6- (Loudspeaker CD)

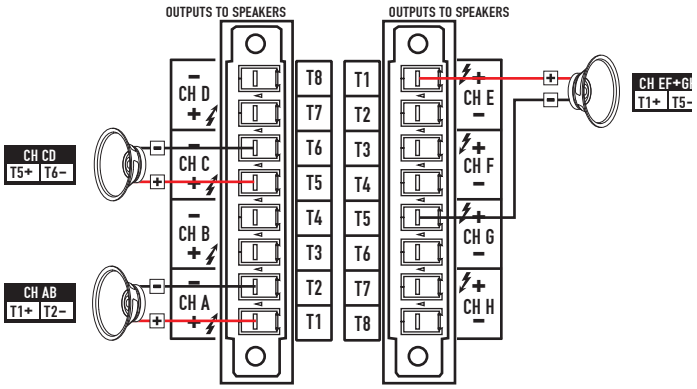
EF (Parallel) Bridged with GH (Parallel) For One Loudspeaker

Full power to one loudspeaker

Use one 2-wire cable, connect to:

- T1+/T5- (Loudspeaker EF+GH)





— Figure 9 —

ABCD 1 Channel, ABCD Parallel	EFGH 1 Channel, EFGH Parallel

Parallel Channels (ABCD) and (EFGH)

For One Loudspeaker

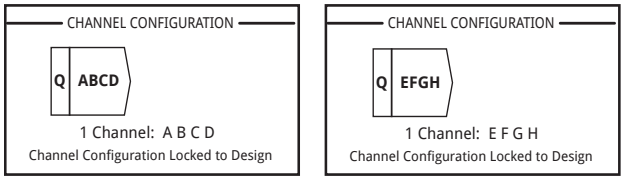
Full power to one loudspeaker; Use one 2-wire cable, connect to:

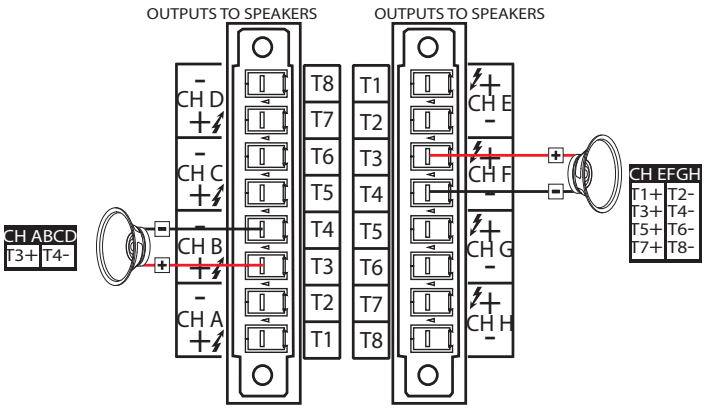
- T3+/T4- (Loudspeaker ABCD)

For Multiple Loudspeakers

For multiple loudspeaker connections, power is available at all output connectors. Connect the loudspeakers as follows:

- T1+/T2- (Loudspeaker E)
- T3+/T4- (Loudspeaker F)
- T5+/T6- (Loudspeaker G)
- T7+/T8- (Loudspeaker H)





In 4-1 Parallel (ABCD or EFGH) only
T1+, T3+, T5+, and T7+ are electrically the same point
T2-, T4-, T6-, and T8- are electrically the same point

— Figure 10 —

Possible Combinations

The table below lists the options available in Q-SYS Designer.

Outputs	Configuration / Channels	Outputs	Configuration / Channels
A B C D	4 Channel	E F G H	4 Channel
A+B C D	3 Channel, A B Bridged	E+F G H	3 Channel, E F Bridged
A+B C+D	2 Channel, A B Bridged C D Bridged	E+F G+H	2 Channel, E F Bridged G H Bridged
AB C D	3 Channel, A B Parallel	EF G H	3 Channel, E F Parallel
AB C+D	2 Channel, A B Parallel C D Bridged	EF G+H	2 Channel, E F Parallel G H Bridged
AB CD	2 Channel, A B Parallel C D Parallel	EF GH	2 Channel E F Parallel G H Parallel
AB+CD	1 Channel, A B Parallel Bridged with C D Parallel	EF+GH	1 Channel, E F Parallel Bridged with G H Parallel
ABC D	2 Channel, A B C Parallel	EFG H	2 Channel E F G Parallel
ABCD	1 Channel A B C D Parallel	EFGH	1 Channel E F G H Parallel

A B = Individual Channels, AB = Parallel Channels, A+B = Bridged Channels

Connect the Loudspeakers

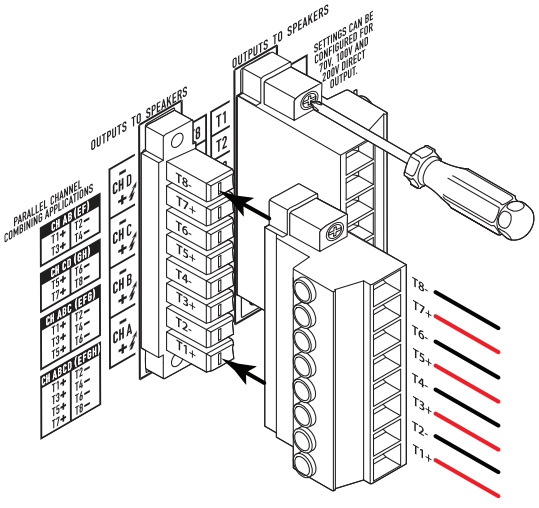
WARNING! **There is a potential of having dangerous voltage at the output terminals on the rear of the amplifier. Use caution not to touch these contacts. Make sure the Power switch is off prior to making any connections.**

NOTE: The output connector is capable of handling up to 8 AWG for stranded wire.

1. Connect the loudspeaker wiring to the 8-pin Euro-style connector as needed for your amplifier's configuration.
2. Install the female 8-pin Euro-style connector onto the male connector on the rear of the amplifier as shown in Figure 11.
3. Use a Phillips screwdriver to secure the connector.

IMPORTANT! The CX-Q series of audio power amplifiers are high power amplifiers designed for installation use in both Lo-Z and Hi-Z applications. Proper wiring class/size is required to ensure safe operation. Based on operating mode, these amplifiers are designed for use with the following speaker wiring:

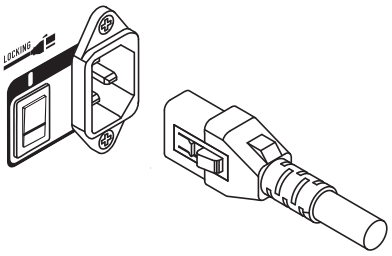
- FAST Channel Configuration Mode: Single Channel & Parallel = Class 2 wiring
- FAST Channel Configuration Mode: BTL (140 V or 200 V modes) = Class 3 wiring



— Figure 11 —

AC Mains

WARNING! When the AC Power is on, there is a potential of having dangerous voltage at the output terminals on the rear of the amplifier. Use caution not to touch these contacts. Turn off the Power switch prior to making any connections.



— Figure 12 —

1. Make sure the Power switch on the rear of the amplifier is off.
2. Connect the IEC power cord to the AC receptacle. (Figure 12)

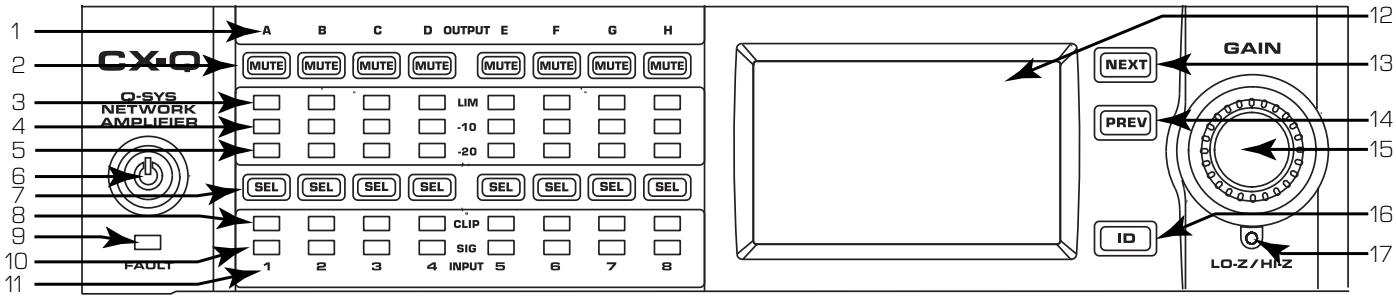
AC Power On

After connecting the outputs to the loudspeakers, you may turn the amplifier on.

1. Make sure the output gain settings for all audio-source devices (CD Players, Mixers, Instruments, etc.) are at the lowest output (max attenuation).
2. Turn on all audio sources.
3. Turn the power switch, on the back of the amplifier, to ON. The amplifier starts in the state it was in when power was removed. If the amplifier is in Standby or Mute All mode (Amplifier Mode button LED solid red or blinking), press the Amplifier Mode button to change the amplifier to Run mode. Refer to "Amplifier Modes" on page 11 for information on Modes.
4. You can now bring up the outputs of your audio sources.

NOTE: When the amplifier is not connected to the Q-SYS Core processor, it is in a Fault mode and not operational unless previously configured for failover or standalone mode as part of a Q-SYS design.

Amplifier Controls and Indicators



— Figure 13 — CX-Q 8-Channel Shown

1. Output Channel labels A to H
2. Output Channel Mute buttons / LEDs (Red)
3. Output Channel Limiter LEDs (Red)
4. Output Channel -10 dB below maximum amplifier output (Blue)
5. Output Channel -20 dB below maximum amplifier output (Blue)
6. Amplifier Mode button (Green/Red)
7. Output Channel Select buttons / LEDs (Blue)
8. Input Channel Clip LEDs (Red)
9. FAULT LED (Amber)
10. Input Channel Signal-Present LEDs (Blue)
11. Input Channel labels 1 to 8
12. LCD Graphic Display
13. NEXT button
14. PREV button
15. GAIN Knob
16. ID button
17. Pinhole Reset

With the exception of the Power Switch, found on the rear panel, all of the following controls are on the front panel. Refer to Figure 13 for location of front-panel controls.

Amplifier Modes

Off Mode

- Rear-panel power switch is off, the amplifier is not operable.
- The Amplifier Mode button (6) is not illuminated.
- Turn the power switch to ON. The amplifier enters the mode in which it was when power was removed – Run, Mute All, or Standby.

Power Switch

Amplifier Mode Button

Run Mode

- From Standby or Mute All mode, press and release the Amplifier Mode button on the front panel. The amplifier is in Run Mode.
- The Amplifier Mode button (6) is illuminated green.
- The amplifier is fully operable; audio can pass.

Standby Mode

- From Mute All or Run mode, press and hold the Amplifier Mode button (6) on the front panel for approximately four seconds.
- The Amplifier Mode button illuminates solid red.
- The amplifier is not operable; audio will not pass.

Mute All Mode

- From the Run Mode, quickly press and release the Amplifier Mode button (6).
- The Amplifier Mode button flashes red, all output Mute buttons (2) are red.
- The amplifier output is disabled, but the front panel is fully operable.

Controls

SEL Buttons (7)

SEL

- Output Channel gain can be adjusted from the Q-SYS Designer software or from the front panel of the amplifier.
- Use the SEL button to select one or more than one channel to change gain settings. All selected channels will change at the same time.
- If two or more outputs are bridged or in parallel, pressing one button in the group selects all channels in that bridged or parallel group.

NEXT (13) and PREV (14) Buttons

NEXT PREV

- Navigates forward and backwards through the screens.

GAIN Knob (15)

- Adjusts the Gain for the selected output channel or channels. At least one channel must be selected.
- When one or more channels are selected, turn the Gain knob to jump to the Output Gains screen. After a few seconds with no activity, it returns to the earlier screen.
- If there is more than one channel selected, and the gains for those channels are different, the difference is maintained unless the gain is raised or lowered to the limits for both channels.

ID Button (16)

ID

- Press this button to display a screen with the amplifier's network name. In addition, the ID buttons on the associated Q-SYS Amplifier component and the associated Q-SYS Configurator item flashes. Press again, or click one of the other ID buttons, to stop the flashing and exit the screen.

Pinhole Reset (17)

LO-Z/HI-Z

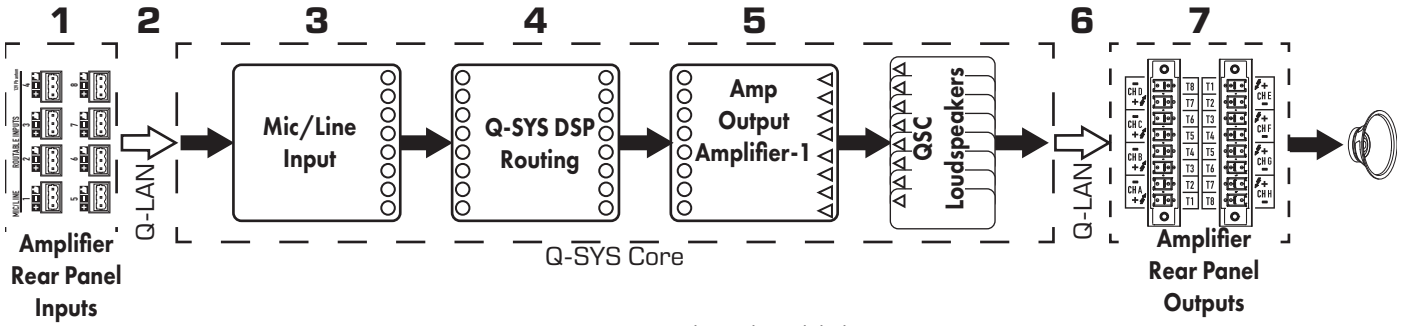
- Resets the amplifier to its factory default settings.

1. Insert a paper clip or similar tool into the pinhole
2. Press and hold for 3 seconds.
3. Press the ID button to confirm and reset the amplifier.
   Items reset include:
   - Network settings set to Auto,
   - Amplifier name set to default,
   - Password deleted, and
   - Log file deleted.

Input and Output Signal Flow

The amplifier's inputs and outputs are not physically (or electrically) connected in the amplifier giving you the flexibility to use any available source in Q-SYS for the amplified outputs, and to route the inputs to any output. The inputs and outputs can be connected in your Q-SYS design as shown in Figure 14.

1. The analog inputs are converted to digital audio in the amplifier
2. The converted audio is then routed to the Q-SYS Core via Q-LAN (LAN A, LAN B).
3. The digital signals are brought into the design via the amplifier's Mic/Line Input component.
4. From the Mic/Line Input component the signals can be sent for processing and can be sent anywhere within the Q-SYS system.
5. In the Q-SYS Core digital audio signals (not necessarily from the amp's inputs) are sent to the Q-SYS Amp Output component.
6. The digital audio is then sent from the Q-SYS Core via Q-LAN to the amplifier.
7. Digital signals are converted to analog, amplified and sent to outputs of the amplifier.



— Figure 14 — 8-Channel Model Shown

The Q-SYS Amp Output component can have one to eight inputs/outputs depending on the amplifier model and its configuration in Q-SYS Designer Software. The desired configuration is selected in the Q-SYS Designer Properties menu for the amplifier. When the amplifier's configuration is changed, all of the outputs are placed in a "mute all" state. You can un-mute all by clicking the Mute All button in Q-SYS Designer's Amp Output component or press and release the Amplifier Mode button on the amplifier's front panel.

Amplifier Sensitivity

Amplifier sensitivity is set to provide full output voltage swing for the rated power (@8 Ohms), with a 0dBFS PEAK input. This means that MAX DAC Out = MAX AMP Out, with a SINE WAVE (0dBFS = -3dBFS RMS for a sine wave).

- 0dBFS pk Input on 8k4 = Amp Output of 141Vpk/100Vrms = 1250Wrms @ 8 Ohms
- 0dBFS pk Input on a 4k4 = Amp Output of 100Vpk/70Vrms = 625Wrms @ 8 Ohms
- 0dBFS pk Input on a 2k4 = Amp Output of 80Vpk/56Vrms = 400Wrms @ 8 Ohms

For 70V/100Vrms systems, there are required gain adjustments for full output that occur in the High-Z Speaker component. This happens when the Amp Output component is wired to a High-Z Speaker component. In addition, there is an HPF that is automatically applied at 50Hz to avoid transformer saturation. The HPF is user adjustable in the Generic Speaker component.

Limiters

There are several limiters within the CX-Q output:

- Speaker Component Limiters – These have controls exposed to the end user. Attack and Release Times in the Peak limiter are hard-coded. All other limiters are set by QSC. Speaker-related limiters are not indicated within the Amp Output block or front panel.
- Amp Protection Limiters – These are not adjustable and are meant only to protect the amplifier from unsafe conditions. Amp protection limiters are slow-moving that adjust over longer periods of time. Indicators for this limiter can be found on the individual amplifier channel or the front of the amplifier.
- DAC Limiters – These limiters engage approximately 1dB before clipping. It is normal to have some level of DAC clipping during operation. There are no controls over this limiter.

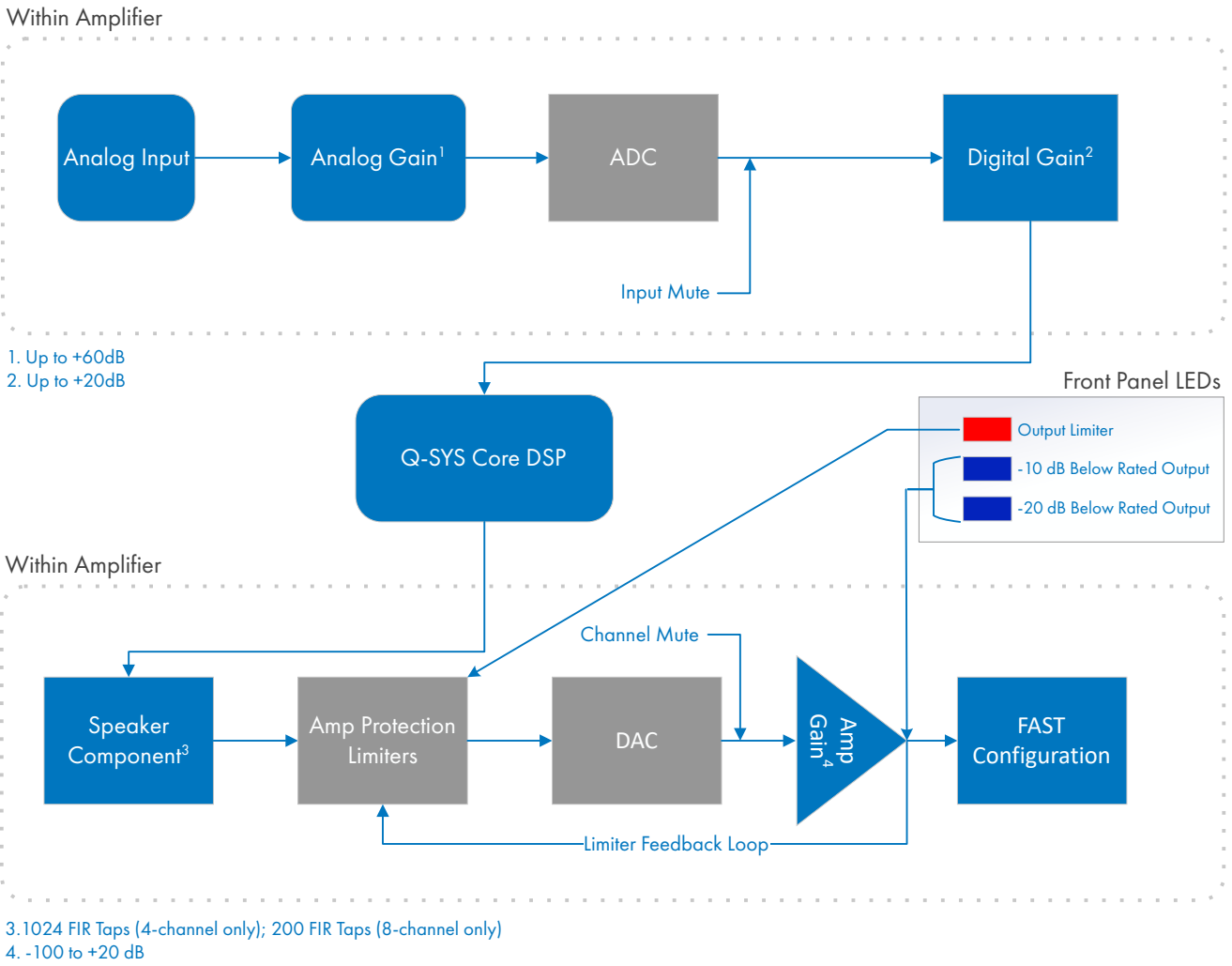
Mutes

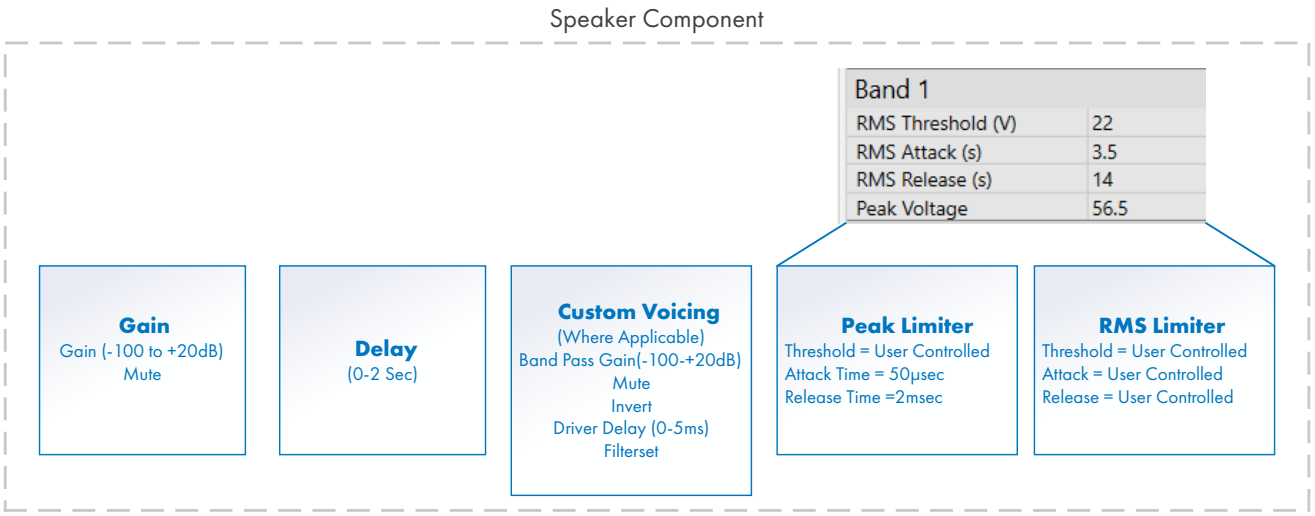
- Channel Output Mutes are located within each channel strip of the amplifier panel. Activating this button will turn off the output signal of the DAC.
- Mute All function, found at the top of the amplifier output panel, will turn off the amplifier switching for all channels.

Gain

There are multiple places within Q-SYS to add gain to your system. Within the amplifier, it is critical to understand that the gain within the Speaker component should typically not be above +10dB. This is due to the dynamic nature of music and the stress that this can put on the output of the amplifier. Speaker component gain above +10dB could trigger the Amp Protection Limiters or DAC Limiters.

Figure 15 shows where gain, muting, and limiting are applied within the signal flow.





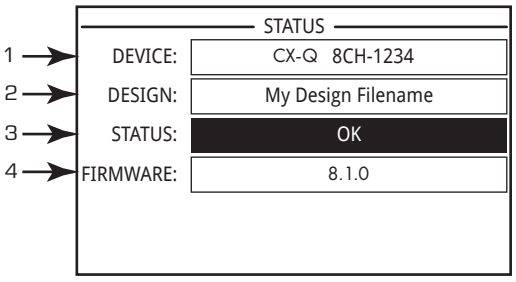
— Figure 15 —

Screens

STATUS Screen

Refer to Figure 16

1. **DEVICE** – the hostname (network name) of the amplifier. A default name is given at the factory, similar to the example. You may change the name in the Q-SYS Configurator.
2. **DESIGN** – the name of the Q-SYS design currently running on the amplifier. The amplifier must be contained in a running design to operate.
3. **STATUS** – displays the current status of the amplifier both in text and color. The following is a list of possible status colors, and some example conditions.
   - **OK** – green – amplifier is operating normally.
   - **Compromised** – orange – audio is passing; however, there may be a non-critical problem. Left unresolved, a compromised state could lead to a fault mode. Examples of Compromised can include issues related to network, output load, AC voltage, etc.
   - **Fault** – red – audio is not passing, or hardware is malfunctioning or mis-configured (amplifier power off, audio streams broken, amplifier fault, loudspeaker short circuit, etc.)
   - **Initializing** – blue – In the process of initialization, and design start. Audio cannot pass.
4. **FIRMWARE** – the Q-SYS Designer firmware version installed on the amplifier.



— Figure 16 —

NOTE: The CX-Q 4- and 8-channel amplifiers require Version 8.1.0 or later of Q-SYS Designer.

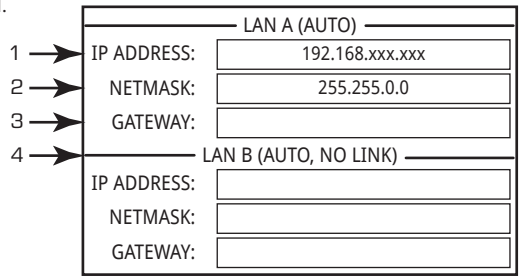
To Update the Amplifier Firmware:

a. Install the version of Q-SYS Designer you want to use on your PC.
b. The amplifier must be connected to Q-LAN and turned on.
c. Open the Q-SYS design containing the amplifier in the Designer version you just installed.
d. Select "Save to Core and Run" from the File menu.
e. The amplifier and any other Q-SYS peripherals in the design are automatically updated.

LAN A / LAN B Screen

Refer to Figure 17

1. **IP ADDRESS** – the default IP address is set to AUTO at the factory. You can change this and the other parameters in Q-SYS Configurator. LAN A is required, and cannot be turned off.
2. **NETMASK** – must be the same as the Core's Netmask.
3. **GATEWAY** – must be the same as the Core's Gateway.
4. **LAN B** is not required. When connected, the same type of information as LAN A is displayed.

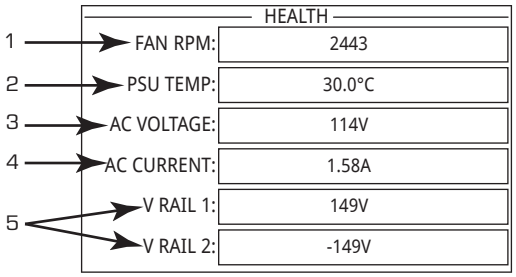


— Figure 17 —

HEALTH Screen

Refer to Figure 18

1. **FAN RPM** – varies depending on the temperature.
2. **PSU TEMP** – varies depending on operating conditions. PSU Temp is monitored and can automatically put the amp into limiting or shutdown if safe operating temperatures are exceeded.
3. **AC VOLTAGE** – AC Mains voltage
4. **AC CURRENT** – AC mains current drawn by the amplifier.
5. Voltage Rails
   - **V RAIL 1** = +147VDC +/- 5V typical
   - **V RAIL 2** = -147VDC +/- 5V typical



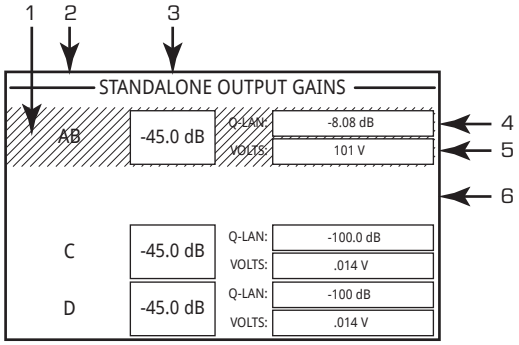
— Figure 18 —

STANDALONE OUTPUT GAINS Screen

Refer to Figure 19

The STANDALONE OUTPUT GAINS screens provide a quick overview of all outputs. In addition, when this screen is displayed, you can make gain adjustments from the amplifier's front panel. There is one screen for channels A–D and one for channels E–H.

Use the NEXT or PREV buttons to access these screens, or press one or more of the SEL buttons to access the screen.



— Figure 19 —

1. The highlighted background indicates that the Channel is selected by the SEL button.
2. **Channel** – the channels display according to the configuration of the amplifier.
3. **Output Gain** – the output gain can be controlled in two places: the GAIN knob on the amplifier front panel and with the Gain control in the amplifier's Output component in the Q-SYS design.
4. **Q-LAN** Input Level – the level of the audio signal applied to the Output component in the Q-SYS design. The CX-Q Output component is the connection to the output section of the amplifier.
5. **VOLTS** – the voltage applied to that output.
6. In the example Output B is combined with Output A – (AB or A+B), the slot for Output B is blank.

To Make Gain Adjustments:

a. Use the SEL button to select one or more output channels. You can select any or all channels.

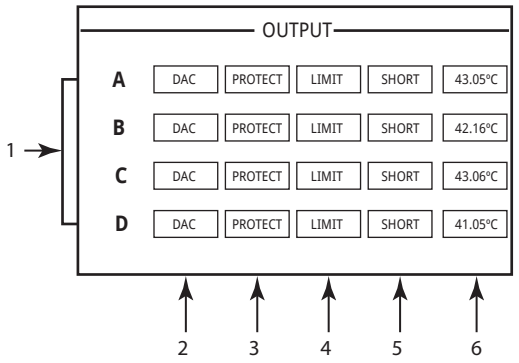
b. Use the GAIN knob to make adjustments to the output gain of the selected channels.

NOTE: If the gains were the same when you select multiple channels the gains remain equal as you adjust them. If the gains are different, they keep their relative separation until one reaches a limit. At this point the other channel(s) continue to change until they reach the limit.

NOTE: If you press one or more of the SEL buttons, and do not make any GAIN adjustments, this screen remains visible for a short time then returns to the previous screen.

OUTPUT Screens

Each block of four outputs has a dedicated screen. Figure 20 is an example of Outputs A – D.



— Figure 20 —

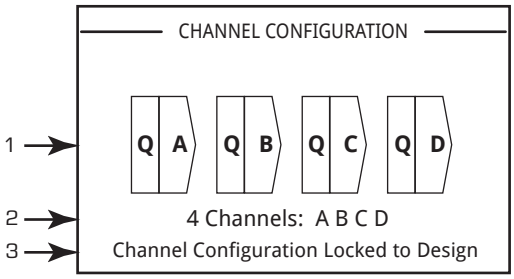
1. Output channel identifiers **A – D and E – H** (not shown).
2. **DAC** – when illuminated, this indicates that the signal to the D to A Converter is larger than can be reproduced and a limiter has been engaged to prevent clipping.
3. **PROTECT** – when illuminated, this indicates that the amplifier is in Protect Mode. Conditions can include over current, excessive long term average power output, impedance too low.
4. **LIMIT** – when illuminated, this indicates the amplifier limiter is active. There are five conditions that could cause the LIMIT condition:
   - Power
   - Current
   - Voltage
   - Temperature
   - Loudspeaker Protection is active.
5. **SHORT** – when illuminated, this indicates the output is shorted.
   - Short circuit detection operates once the desired amplifier output exceeds approximately 30W (varies per mode).
   - If the amplifier detects excessive current versus the target output voltage for sustained periods, a warning is activated.
   - The affected amplifier channel output signal is then muted for a brief period of time.
   - The affected amplifier channel automatically attempts to resume normal operation up to five times in case the short circuit was due to a temporary connection error.
   - If the short circuit remains after five tries, the amplifier mutes that channel until the user manually changes amplifier operational modes (e.g., places the amp into a mute all or standby) or power cycles the amplifier.

     NOTE: Loads that result in a "near short circuit" condition may activate low impedance warnings.

6. Displays the temperature, in Centigrade, of the associated channel.

CHANNEL CONFIGURATION Screens

1. Figure 21 is a graphic representation of the amplifier's output CHANNEL CONFIGURATION. Inputs (Q) are from Q-SYS, outputs A–D (E–H not shown) represent the amplifier output channels and their configuration.
2. Text indicating how many channels, and the output configuration. For possible configurations refer to "Possible Combinations" on page 9 or, the Q-SYS help for the amplifier components.
3. Status of the amplifier and Q-SYS design indicating the design and amp are in sync.

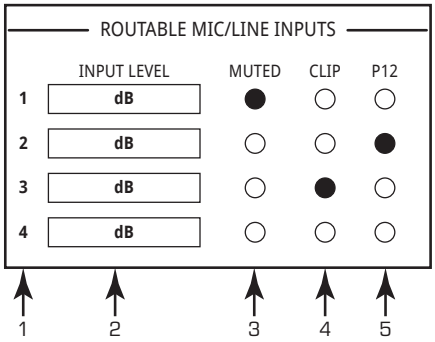


— Figure 21 —

ROUTABLE MIC/LINE INPUTS

Figure 22 shows the Routable MIC/LINE INPUTS screen for channels 1–4, (channels 5–8 not shown) which displays the status of the physical MIC/LINE INPUTS for the Q models.

1. Input channels are identified numerically, 1–4 (and 5–8 not shown)
2. **Input Level** – is the Peak Input Level (dBFS) and is the same as displayed in the Q-SYS Mic/Line Input component.
3. **Muted** – when illuminated indicates that the Input is muted for the associated channel. This is controlled by the Mute button on the Q-SYS Designer Mic/Line Input component. Input channels cannot be muted from the amplifier interface.
4. **Clip** – indicators illuminate when the input to the Mic/Line Input component is too high. Adjust the Preamp Gain on the Mic/Line Input component in Q-SYS Designer.
5. **P12** – phantom power (+12V) is available for microphones (condenser) requiring power. You can turn the phantom power on/off in the Mic/Line Input component in Q-SYS Designer.



— Figure 22 —

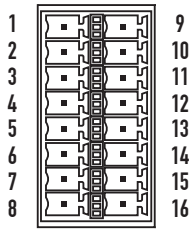
GPIO

There are 16 General Purpose Input Output pins for use in various applications. Figure 23 shows the pin configuration for the connector on the rear of the amplifier. — Table 2 shows the connector pin-out. Figure 24 gives some simple GPIO applications.

— Table 1 —

Connector Pin	GPIO # and Function	Specifications
1	3.3 V	100 mA max (power cycle to reset current limiting)
2	GPIO 1	5mA in/out, 3.3V max, 127Ω resistor in series
3	GPIO 2	5mA in/out, 3.3V max, 127Ω resistor in series
4	GND	Ground
5	GPIO 3	5mA in/out, 3.3V max, 127Ω resistor in series
6	GPIO 4	5mA in/out, 3.3V max, 127Ω resistor in series
7	GND	Ground
8	GPIO 5	18mA in/out max, 3.3V max, 127Ω resistor in series
9	RELAY NO [1]	Relay Normally Open
10	RELAY COM [1]	Relay Common
11	RELAY NC [1]	Relay Normally Closed
12	GND	Ground
13	GPIO 6	18mA in/out max, 3.3V max, 127Ω resistor in series
14	GPIO 7	18mA in/out max, 3.3V max, 127Ω resistor in series
15	GND	Ground
16	GPIO 8	18mA in/out max, 3.3V max, 127Ω resistor in series

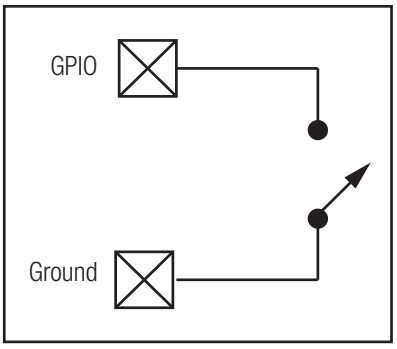
1 Nominal switching capacity is 30 VDC at 2 A for a total of 60 W maximum. The maximum voltage is 220 VDC if the current is limited to observe the maximum power rating (60 W).



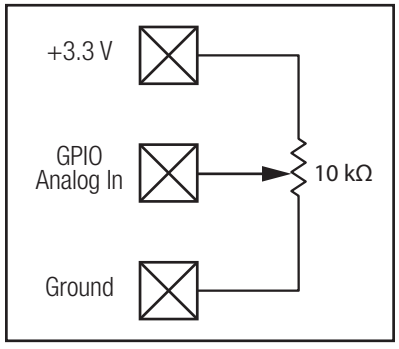
— Figure 23 —

Examples

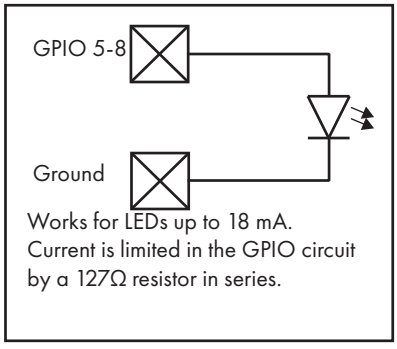
Button or Contact Closure



Potentiometer



Q-SYS-Powered LED



— Figure 24 —

Specifications [1]

Power Specifications – 4-Channel Models

Configuration	Loads	CX-Q 2K4		CX-Q 4K4		CX-Q 8K4	
		Max Power [2]	Continuous Power	Max Power [2]	Continuous Power	Max Power [2]	Continuous Power
Independent Channels (SE) A, B, C, D	100 V	700	350	1000	550	1250	1150
	70 V	700	400	1000	625	1250	1150
	16 Ω	350	200	500	313	625	625
	8 Ω	700	400	1000	625	1250	1250
	4 Ω	800	400	1500	625	2400	1250
	2 Ω	600	300	800	400	2750	1250
2 channels combined in Parallel AB or CD Doubles current Best for high power 70 V & 100 V	100 V	1400	700	2000	1150	2400	2000
	70 V	1400	750	2000	1150	2400	2000
	8 Ω	800	400	1000	625	1250	1250
	4 Ω	1250	750	2000	1250	2400	2250
	2 Ω	1500	650	2500	1250	4000	2100
3 channels combined in Parallel ABC Triples current	8 Ω	800	400	1000	1000	1250	1250
	4 Ω	1250	800	2000	2000	2400	2400
	2 Ω	1500	1100	3000	2500	4500	3000
2 channels combined in BTL Bridged A+B or C+D Doubles voltage Do NOT use for 70 V or 100 V	200 V	1500	700	2000	1250	2400	2000
	140 V	1500	700	2000	1250	2400	2000
	8 Ω	1500	700	3000	1250	4000	2250
	4 Ω	1400	600	1700	1150	5000	2500
	2 Ω	N/R [3]		N/R [3]		3000	2000
4 channels combined in Bridged/Parallel AB+CD, Doubles current & voltage	8 Ω	2500	1500	3500	2500	4200	4200
	4 Ω	3000	1600	4000	2500	7000	4500
	2 Ω	N/R [3]		N/R [3]		8000	4000
4 channels combined in Parallel ABCD Quadruples currenT	8 Ω	800	400	1000	1000	1250	1250
	4 Ω	1250	800	2000	1600	2500	2400
	2 Ω	1700	1600	4000	2500	5000	4500
	1 Ω	2500	1500	4000	2000	7000	4500

1 Specifications are subject to change without notice.

2 Max Power

- Max Power data is based on the most potential any single amplifier channel can deliver. This data is most useful for asymmetrical loading of amplifier channel and maximizing power utilization of the amplifier. When utilizing FlexAmp™ power requirements, be sure to take into consideration the power capabilities of the channel AND the capabilities of the Power Supply.
- Continuous Power indicates amplifier output capabilities with all channels driven with the same load without exceeding the capabilities of the power supply.
- Power Spec is based on 1 kHz, 20 msec

3 N/R = Not Recommended

Power Specifications [1] – 8-Channel Models

		CX-Q 4K8		CX-Q 8K8	
Configuration	**Loads**	**Max Power [2]**	**Continuous Power**	**Max Power [2]**	**Continuous Power**
4 or 8 Independent Channels A, B, C, D, E, F, G, H	**100 V**	1000	300	1250	600
	70 V	1000	300	1250	600
	16 Ω	500	150	625	300
	8 Ω	1000	300	1250	600
	4 Ω	1000	300	1500	600
	2 Ω	800	300	1000	300
Parallel Channels (x2) AB or CD or EF or GH Doubles Current Best for high power 70V & 100V	**100 V**	1500	600	2000	1100
	70 V	1500	600	2000	1200
	8 Ω	1000	600	1250	1100
	4 Ω	1250	600	2400	1200
	2 Ω	1500	600	2500	600
Parallel Channels (x3) ABC, DEF Triples Current	**8 Ω**	1000	900	1250	1100
	4 Ω	1500	900	2000	1800
	2 Ω	1500	900	2500	1800
BTL/Bridged Channels (x2) A+B or C+D or E+F or G+H Doubles Voltage Do NOT use for 70V or 100V	**200 V**	1500	600	2000	1200
	140 V	1500	600	2000	1200
	8 Ω	1500	600	3000	1200
	4 Ω	1400	400	1700	600
	2 Ω	N/R [3]		N/R [3]	
BTL/Bridged & Paralleled Channels (x4) AB+CD, EF+GH Doubles Current and Voltage	**8 Ω**	2500	1200	4000	2400
	4 Ω	3000	1200	5000	2400
	2 Ω	N/R [3]		N/R [3]	
Parallel Channels (x4) ABCD, EFGH Quadruples Current	**8 Ω**	1000	1000	1200	1200
	4 Ω	2000	1200	2400	2200
	2 Ω	2500	1200	4000	2400
	1 Ω	3000	1200	4000	2400

1 Specifications are subject to change without notice.

2 Max Power

- Max Power data is based on the most potential any single amplifier channel can deliver. This data is most useful for asymmetrical loading of amplifier channel and maximizing power utilization of the amplifier. When utilizing FlexAmp™ power requirements, be sure to take into consideration the power capabilities of the channel AND the capabilities of the Power Supply.
- Continuous Power indicates amplifier output capabilities with all channels driven with the same load without exceeding the capabilities of the power supply.
- Power Spec is based on 1 kHz, 20 msec

3 N/R = Not Recommended

Peak Voltage Specifications – 4-Channel Models

Configuration	Loads	CX-Q 2K4		CX-Q 4K4		CX-Q 8K4	
		Max Peak Voltage	Max Peak Current	Max Peak Voltage	Max Peak Current	Max Peak Voltage	Max Peak Current
Independent Channels (SE) A, B, C, D	16 Ω	N/A	N/A	N/A	N/A	N/A	N/A
	8 Ω	106	13.2	126	15.8	141	17.6
	4 Ω	80	20.0	110	27.4	139	34.6
	2 Ω	49	24.0	57	28.3	105	52.4
Parallel Channels (x2) AB or CD Doubles Current **Best for high power 70 V & 100 V**	8 Ω	N/A	N/A	N/A	N/A	N/A	N/A
	4 Ω	N/A	N/A	N/A	N/A	N/A	N/A
	2 Ω	N/A	N/A	N/A	N/A	N/A	N/A
BTL/Bridged Channels (x2) A+B or C+D Doubles Voltage **Do NOT use for 70 V or 100 V**	200 V	N/A	N/A	N/A	N/A	N/A	N/A
	140 V	N/A	N/A	N/A	N/A	N/A	N/A
	8 Ω	155	19.4	179	22.4	253	31.6
	4 Ω	106	26.5	117	29.2	200	50
	2 Ω	N/R		N/R		110	54.8

N/R = Not Recommended
N/A = Not Available
Gray cells = mode or rating n/a

NOTE: *Data indicates the maximum voltage and current potential for any amplifier single amplifier channel. The data in the table above has been measured for these specific conditions. N/A indicates data is not available. NR indicates that this configuration is not recommended.*

Peak Voltage Specifications – 8-Channel Models

Configuration	Loads	CX-Q 4K8		CX-Q 8K8	
		Max Peak Voltage	Max Peak Current	Max Peak Voltage	Max Peak Current
Independent Channels (SE) A, B, C, D	16 Ω	N/A	N/A	N/A	N/A
	8 Ω	126	11.2	141	12.5
	4 Ω	89	15.8	110	19.4
	2 Ω	57	20	63	22.4
Parallel Channels (x2) AB or CD Doubles Current (Best for high power 70 V & 100 V)	8 Ω	126	11.2	141	12.5
	4 Ω	100	17.7	139	24.5
	2 Ω	77	27.4	100	35.4
BTL/Bridged Channels (x2) A+B or C+D Doubles Voltage (Do NOT use for 70 V or 100 V)	200 V	283	7.5	283	10
	140 V	100	10.6	200	14.1
	8 Ω	155	13.7	219	22.4
	4 Ω	106	18.7	117	20.6
	2 Ω	N/R		N/R	

N/R = Not Recommended
N/A = Not Available
Gray cells = mode or rating n/a

NOTE: *Data indicates the maximum voltage and current potential for any amplifier single amplifier channel. The data in the table above has been measured for these specific conditions. N/A indicates data is not available. NR indicates that this configuration is not recommended.*

Operating Specifications

	CX-Q 2K4	CX-Q 4K4	CX-Q 8K4	CX-Q 4K8	CX-Q 8K8
Typical Distortion					
8Ω	0.02 - 0.05%	0.02 - 0.05%	0.02 - 0.05%	0.02 - 0.05%	0.02 - 0.05%
4Ω	0.04 - 0.1%	0.04 - 0.1%	0.04 - 0.1%	0.04 - 0.1%	0.04 - 0.1%
Maximum Distortion					
4 Ω - 8 Ω	1.0%	1.0%	1.0%	1.0%	1.0%
Frequency Response (8 Ω)	20 Hz - 20 kHz +0.2 dB / -0.7 dB	20 Hz - 20 kHz +0.2 dB / -0.7 dB	20 Hz - 20 kHz +0.2 dB / -0.7 dB	20 Hz - 20 kHz +0.2 dB / -0.7 dB	20 Hz - 20 kHz +0.2 dB / -0.7 dB
Noise					
Unweighted output unmuted	>102 dB	>102 dB	>102 dB	>101 dB	>101 dB
Weighted output muted	>106 dB	>106 dB	>106 dB	>104 dB	>104 dB
Gain (1.2 V setting)	33 dB	35 dB	38 dB	35 dB	38 dB
Damping factor	>100	>100	>150	>100	>100
Input impedance	>8k balanced and >4k unbalanced	>8k balanced and >4k unbalanced	>8k balanced and >4k unbalanced	>8k balanced and >4k unbalanced	>8k balanced and >4k unbalanced
Input Sensitivity					
Continuously variable:					
Vrms	1.23 mV to 17.35 V	1.23 mV to 17.35 V	1.23 mV to 17.35 V	1.23 mV to 17.35 V	1.23 mV to 17.35 V
dBu	-56 to 27	-56 to 27	-56 to 27	-56 to 27	-56 to 27
dBv	-58.2 to 24.8	-58.2 to 24.8	-58.2 to 24.8	-58.2 to 24.8	-58.2 to 24.8
Controls and indicators (front)	Power Mode • Channel MUTE buttons • Channel SELECT buttons • Channel Input Signal and CLIP LED Indicators Channel Output and LIMIT LED meters • NEXT, PREV, ID buttons • Control knob • Color Display • Fault Indicator • Pinhole Reset				
Controls and indicators (rear)	AC Power Disconnect (Locking IEC C-14) AC Power Switch				
Input connectors	3-pin Euro (green) and Q-LAN Network connectivity Q-LAN Network connectivity				
Output connectors	8-pin Euro (green)				
GPIO	GPIO 1-8 = configurable digital/analog, input/output Relay max = 30 VDC at 1 A (30W maximum). Max voltage 220 VDC at 136 mA. 3.3 V 100 mA max (power cycle to reset) GPIO 1-4 max = 5 mA in/out, 3.3 V, 127 Ω series resistor GPIO 5-8 max = 18 mA in/out, 3.3V, 127 Ω series resistor				
Cooling					
Type	Forced air cooling, thermally regulated fan speed, side/rear-to-front airflow				
Operating temperature range	Maximum: -10° - 50° C, recommended: 0° - 35° C, performance may be reduced above 40° C				
Amplifier and load protection	Short circuit, open circuit, over current, over voltage, thermal, RF, DC fault shutdown, active inrush limiting, on/off muting				
AC power input	Universal power supply 100 - 240 VAC, 50 - 60 Hz with Active PFC				
AC power input (China Only) **交流电源输入（仅限中国）**	100 - 240 VAC 50 / 60 Hz		220 - 240 VAC 50 / 60 Hz	100 - 240 VAC 50 / 60 Hz	220 - 240 VAC 50 / 60 Hz
Dimensions (HWD)	3.5 in x 19 in x 16 in (89 mm x 483 mm x 406 mm)				
Weight,					
Net	23 lb (10.4 kg)	25 lb (11.3 kg)	26 lb (11.8 kg)	25 lb (11.3 kg)	26 lb (11.8 kg)
Shipping	27 lb (12.2 kg)	29 lb (13.2 kg)	30 lb (13.6 kg)	29 lb (13.2 kg)	30 lb (13.6 kg)
Agency approvals	UL, CE, RoHS/WEEE compliant, FCC Class B (conducted and radiated emissions), IEC 60945 ("DNV Type Approval", qsc.com/resources/compliance/)				
Carton contents	IEC power cord (locking), Quick Start Guide, Euro connectors, amplifier				

Heat Loss and Current-Draw Charts

Heat losses are the thermal emissions from an amplifier while it is operating. It comes from dissipated waste power—i.e., real AC power in minus audio power out. Measurements are provided for various loads at idle, 1/8 of average full power, 1/3 of average full power, and full power, with all channels driven simultaneously. For typical usage, use the idle and 1/8 power figures. This data is measured from representative samples; due to production tolerances, actual heat emissions may vary slightly from one unit to another. Bridged into 8 Ω is equivalent to 4 Ω per channel; into 4 Ω is equivalent to 2 Ω per channel.

Idle

Thermal loss at idle or with very low signal level.

1/8 Power

Thermal loss at 1/8 of full power is measured with a pink noise signal. It approximates operating with music or voice with light clipping and represents the amplifier's typical "clean" maximum level, withou t audible clipping. Use these figures for typical maximum level operation.

1/3 Power

Thermal loss at 1/3 of full power is measured with 1 kHz sine. It approximates operating with music or voice with very heavy clipping and a very compressed dynamic range.

Full Power

Thermal loss at full power is measured with a 1 kHz sine wave. However, it does not represent any real-world operating condition.

Current Draw

The amount of AC current an amplifier demands while it is operating. Measurements are provided for various loads at idle, 1/8 of average full power, 1/3 of average full power, and full power, with all channels driven simultaneously. The data shown in the following tables is listed for 100 VAC, 120 VAC and 230 VAC operation. For typical usage, use the idle and 1/8 power data.

Current Consumption

NOTE: Thermal Dissipation minimally varies between 100 and 240 VAC. This data is based on all operating voltages (100-240 VAC). High power applications will see benefits in efficiency, power output, and reduced power consumption when operated from 208, 230, 240 VAC mains.

CX-Q 2K4

			120 VAC Mains		230 VAC Mains		Thermal Dissipation	
Output Level	**Load**	**100 VAC Current**	**AC Current (Amps)**	**Losses (Watts)**	**AC Current (Amps)**	**Losses (Watts)**	**BTU/h**	**kcal/h**
Standby		0.5	0.5	44	0.4	40	150	38
Mute All		0.8	0.7	31	0.5	35	106	27
Idle		1.1	0.9	101	0.6	98	345	87
1/8 Rated Power (Pink Noise)	**100 V /Channel**	4.1	3.44	181	1.85	182	618	156
	70 V / Channel	4.1	3.41	179	1.81	178	611	154
	8 Ω / Channel	4.1	3.44	180	1.98	170	614	155
	4 Ω / Channel	3.9	3.25	158	1.97	193	539	136
	2 Ω / Channel	4.9	4.09	247	2.27	247	843	212
1/3 Rated Power (1kHz Sine Wave)	**100 V / Channel**	7.5	6.26	200	3.26	180	683	172
	70 V / Channel	7.6	6.36	225	3.31	205	768	194
	8 Ω / Channel	7.9	6.6	252	3.44	233	860	217
	4 Ω / Channel	8.7	7.24	316	3.75	293	1079	272
	2 Ω / Channel	9.6	7.97	405	4.11	379	1382	348

CX-Q 4K4

			120 VAC Mains		230 VAC Mains		Thermal Dissipation	
Output Level	**Load**	**100 VAC Current**	**AC Current (Amps)**	**Losses (Watts)**	**AC Current (Amps)**	**Losses (Watts)**	**BTU/h**	**kcal/hr**
Standby		0.6	0.5	45	0.4	45	154	39
Mute All		0.8	0.7	32	0.5	36	109	28
Idle		1.1	0.9	102	0.6	100	348	88
1/8 Rated Power (Pink Noise)	**100 V /Channel**	5.2	4.4	196	2.3	217	669	169
	70 V / Channel	5.3	4.4	199	2.4	191	679	171
	8 Ω / Channel	5.3	4.4	199	2.4	191	679	171
	4 Ω / Channel	5.6	4.7	231	2.5	220	788	199
	2 Ω / Channel	6.1	5.1	288	2.7	258	983	248
1/3 Rated Power (1kHz Sine Wave)	**100 V / Channel**	10.7	9	256	4.6	216	874	220
	70 V / Channel	11.1	9.3	291	4.8	261	993	250
	8 Ω / Channel	11.1	9.3	291	4.8	261	993	250
	4 Ω / Channel	11.7	9.7	350	5	320	1195	301
	2 Ω / Channel	12.8	10.7	473	5.5	443	1614	407

CX-Q 8K4

			120 VAC Mains		230 VAC Mains		Thermal Dissipation	
Output Level	Load	100 VAC Current	AC Current (Amps)	Losses (Watts)	AC Current (Amps)	Losses (Watts)	BTU/h	kcal/hr
Standby		0.8	0.7	79	0.5	83	270	68
Mute All		0.9	0.8	36	0.6	42	123	31
Idle		1.9	1.6	173	0.9	166	590	149
1/8 Rated Power (Pink Noise)	100 V /Channel	10.4	8.7	370	4.6	340	1263	318
	70 V / Channel	10.6	8.9	382	4.8	360	1304	329
	8 Ω / Channel	10.4	8.7	370	4.6	340	1263	318
	4 Ω / Channel	10.6	8.9	382	4.8	360	1304	329
	2 Ω / Channel	11.6	9.7	472	5.3	452	1611	406
1/3 Rated Power (1kHz Sine Wave)	100 V / Channel	21.6	18	533	9.2	453	1819	458
	70 V / Channel	22.9	19.1	623	9.7	553	2126	536
	8 Ω / Channel	21.6	18.0	533	9.2	453	1819	458
	4 Ω / Channel	22.9	19.1	623	9.7	553	2126	536
	2 Ω / Channel	24.8	20.7	828	10.5	738	2826	712

CX-Q 4K8

			120 VAC Mains		230 VAC Mains		Thermal Dissipation	
Output Level	Load	100 VAC Current	AC Current (Amps)	Losses (Watts)	AC Current (Amps)	Losses (Watts)	BTU/h	kcal/h
Standby		1.0	0.8	44	0.5	42	150	38
Mute All		1.1	0.9	45	0.7	49	153	39
Idle		1.9	1.6	182	0.9	184	621	157
1/8 Rated Power (Pink Noise)	100 V / Channel	4.8	4.0	150	2.1	123	512	129
	70 V / Channel	5.0	4.2	172	2.2	138	587	148
	8 Ω / Channel	5.4	4.5	155	2.2	121	529	133
	4 Ω / Channel	6.2	5.2	236	2.5	195	805	203
	2 Ω / Channel	7.4	6.2	354	3.2	253	1208	304
1/3 Rated Power (1kHz Sine Wave)	100 V / Channel	10.9	9.1	244	4.5	188	833	210
	70 V / Channel	11.6	9.7	316	4.8	247	1079	272
	8 Ω / Channel	11.5	9.6	247	4.5	195	843	212
	4 Ω / Channel	12.6	10.5	423	5.0	259	1444	364
	2 Ω / Channel	15.7	13.1	723	6.0	530	2468	622

CX-Q 8K8

			120 VAC Mains		230 VAC Mains		Thermal Dissipation	
Output Level	**Load**	**100 VAC Current**	**AC Current (Amps)**	**Losses (Watts)**	**AC Current (Amps)**	**Losses (Watts)**	**BTU/h**	**kcal/h**
Standby		1.0	0.9	46	0.6	45	157	40
Mute All		1.1	1.0	49	0.7	54	166	42
Idle		2.1	1.7	197	1.0	194	672	169
1/8 Rated Power (Pink Noise)	**100 V / Channel**	10.3	8.6	347	4.5	317	1184	298
	70 V / Channel	10.6	8.8	378	4.6	327	1290	325
	8 Ω / Channel	10.4	8.6	360	4.5	313	1229	310
	4 Ω / Channel	12.8	10.7	536	5.1	395	1829	461
	2 Ω / Channel	7.4	6.2	346	3.2	254	1181	298
1/3 Rated Power (1kHz Sine Wave)	**100 V / Channel**	21.5	17.9	474	9.2	386	1618	408
	70 V / Channel	21.9	18.2	521	9.2	416	1778	448
	8 Ω / Channel	21.8	18.2	478	9.1	376	1631	411
	4 Ω / Channel	26.9	22.4	858	9.9	498	2928	738
	2 Ω / Channel	16.2	13.5	742	6.5	594	2532	638

QSC 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 QSC website for Technical Support and Customer Care, including their phone numbers and hours of operation.

https://www.qsc.com/contact-us/

Warranty

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

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