System Power Amplifier (SPA)

Installation Guide

SPA2-60 Amplifier
SPA2-200 Amplifier
SPA4-60 Amplifier
SPA4-100 Amplifier

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.

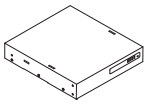
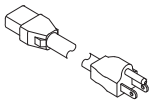
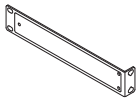
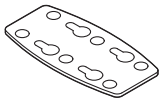
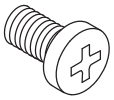
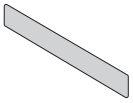
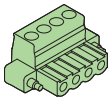
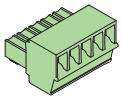
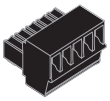
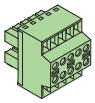
The term "**IMPORTANT!**" indicates instructions or information that are vital to the successful completion of the procedure.

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.

What's in the Box

(1x) SPA2-60 SPA2-200 SPA4-60 SPA4-100 	(1x) AC Power Cord, US 	(2x) Rack Ear QSC P/N CH-001344-00 	(2x) Joining Plate QSC P/N CH-001345-00 
(2x) Rack-Ear Spacer QSC P/N CH-001386-00	(6x) Phillips Pan Head M4 x 7 mm 	(6x) Phillips Flathead M3 x 6 mm	(4x) Foam Spacer QSC P/N PL-001023-00
(1x) Rack-Ear Cover Label QSC P/N LB-001138-00 	SPA 2-channel (1x) SPA 4-channel (2x) Euro Plug 3.5 mm, 4 pos, grn QSC P/N CO-000649-00 	SPA 2-channel (1x) Euro Plug 3.5 mm, 5 pos, grn QSC P/N CO-000644-00 	SPA 2-channel (1x) Euro Plug 3.5 mm, 4 pos, blk QSC P/N CO-000645-00 
SPA 4-channel (1x) Plug 3.5 mm, 10 pos, grn QSC P/N CO-000681-00 	SPA 4-channel (1x) Plug 3.5 mm, 10 pos, grn QSC P/N CO-000683-00	(1x) Warranty TD-000453	(1x) Safety Information TD-000337

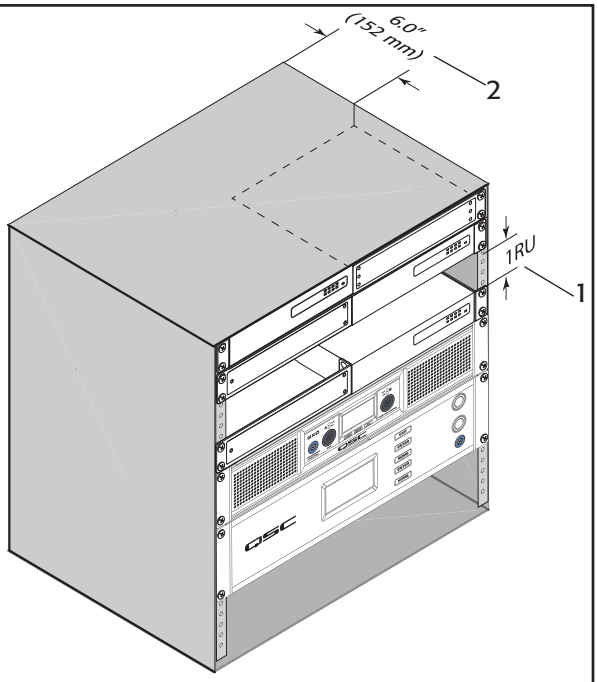
TD-000500-00-F

Installation

Ventilation

- Recommend 1RU (1.75 in / 44.45 mm) space above the amplifier.
- Minimum open space of 6 inches measured from back of amplifier.

NOTE: QSC System Power Amplifiers contain advanced protection circuitry which allows them to reduce output power in order to maintain safe operating temperatures. Insufficient ventilation may result in the amplifier reducing output power during normal operation (indicated by Limiter/Protect LEDs illuminating red). To reduce the possibility of thermal limiting, and allow proper heat dissipation, we recommend that you keep the space directly above and to the rear of these amplifiers free of obstacles.



– Figure 1 –

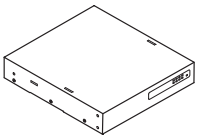
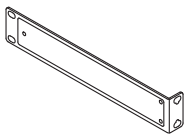
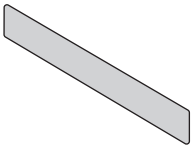
Select the Amplifier Installation Configuration

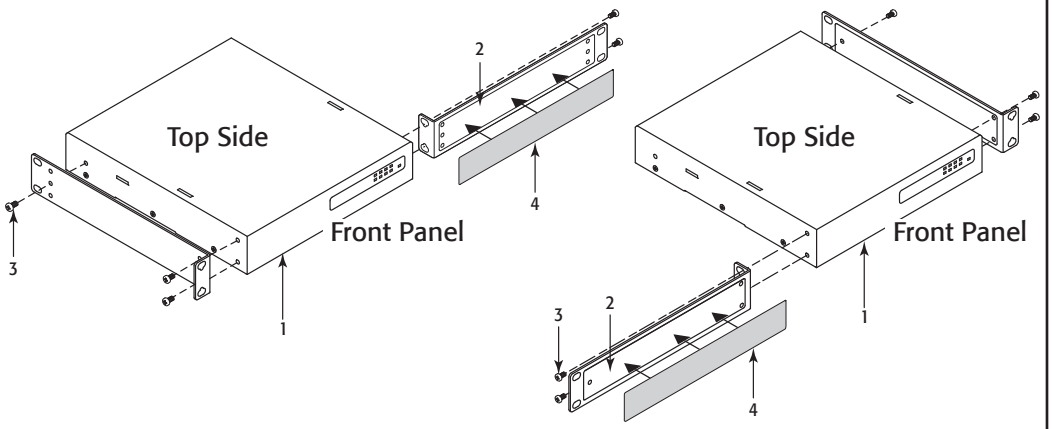
Choose one of the following configuration options:

A. One Amplifier 19-inch Rack (Left or Right Mount) on page 3
B. Two Amplifiers 19-inch Rack (Front or Rear Facing Out) on page 3
C. One Amplifier Half Rack (Front or Rear Facing Out) on page 4
D. Under Table or on Wall on page 4
E. Free-Standing on Desk/Table on page 5
F. Plenum Installation on page 5

A. One Amplifier 19-inch Rack (Left or Right Mount)

Figure 2

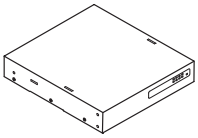
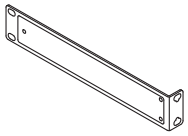
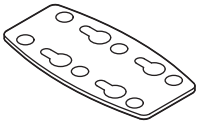
1. (1) 
2. (2) 
3. (5)
4. (1) 

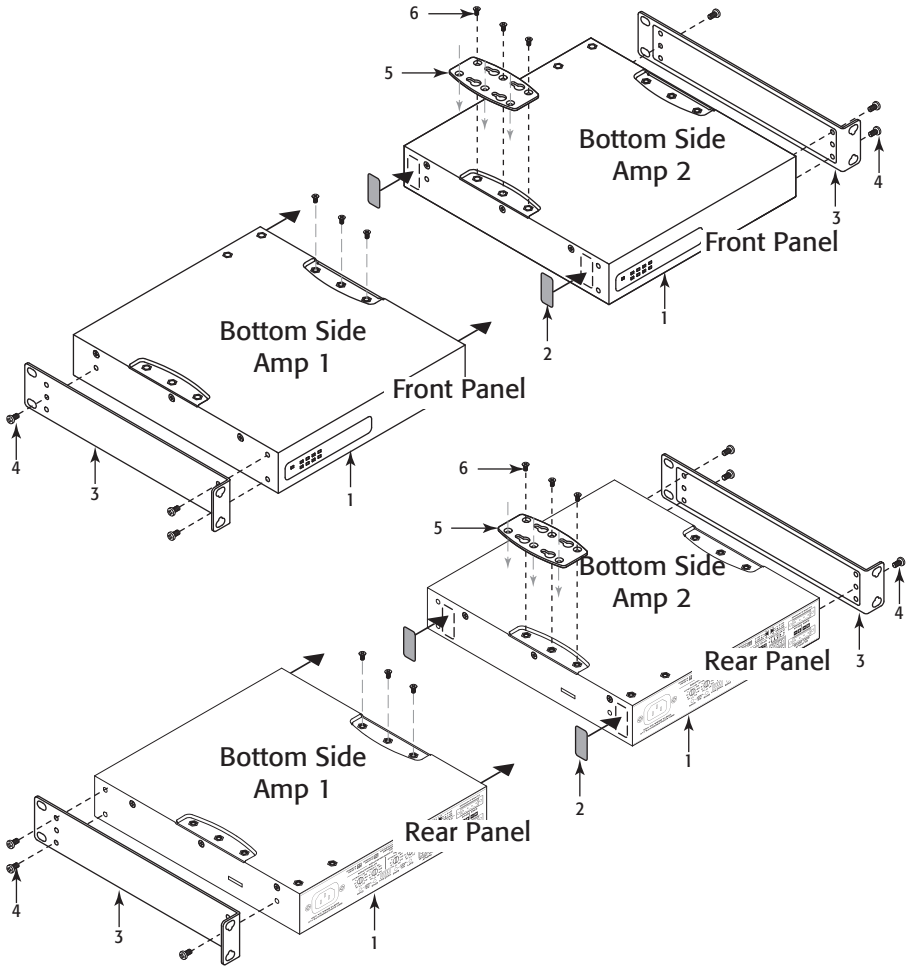


– Figure 2 –

B. Two Amplifiers 19-inch Rack (Front or Rear Facing Out)

Figure 3

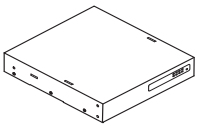
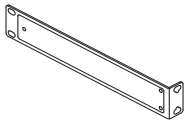
1. (2) 
2. (2)
3. (2) 
4. (6)
5. (1) 
6. (6)

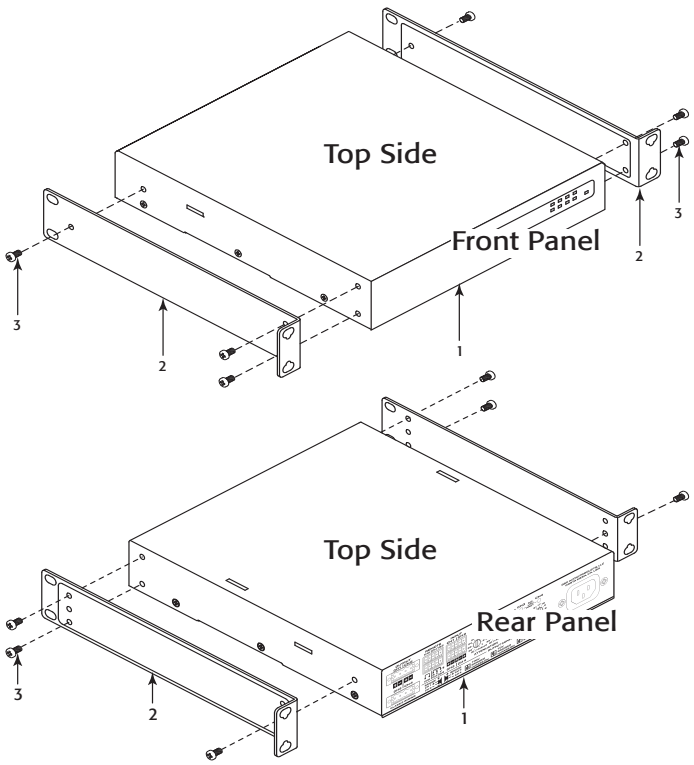


– Figure 3 –

C. One Amplifier Half Rack (Front or Rear Facing Out)

Figure 4

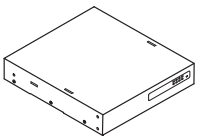
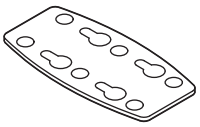
1. (1) 
2. (2) 
3. (6)

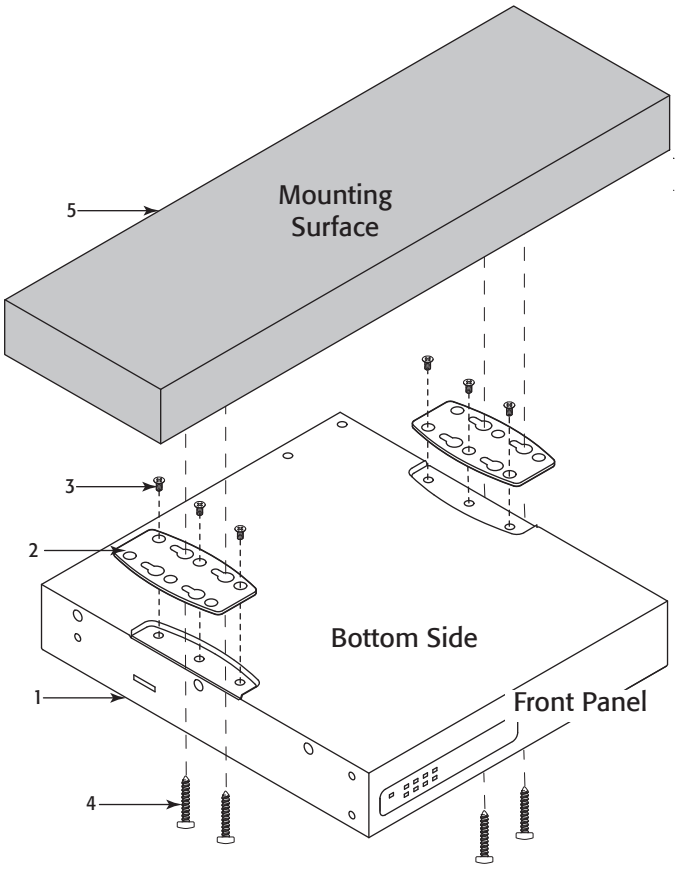


– Figure 4 –

D. Under Table or on Wall

Figure 5.

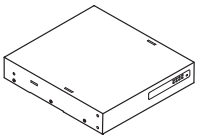
1. (1) 
2. (2) 
3. (6)
4. (4) Not supplied – use appropriate screws for mounting surface.
5. Mounting Surface



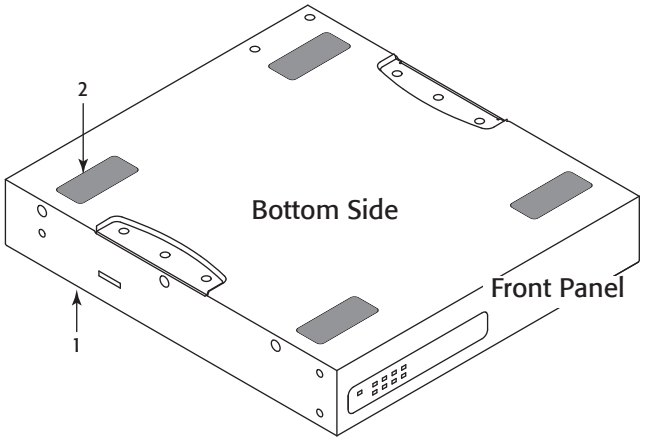
– Figure 5 –

E. Free-Standing on Desk/Table

Figure 6

1. (1) 

2. (4)

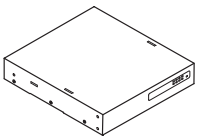


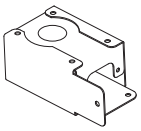
– Figure 6 –

F. Plenum Installation

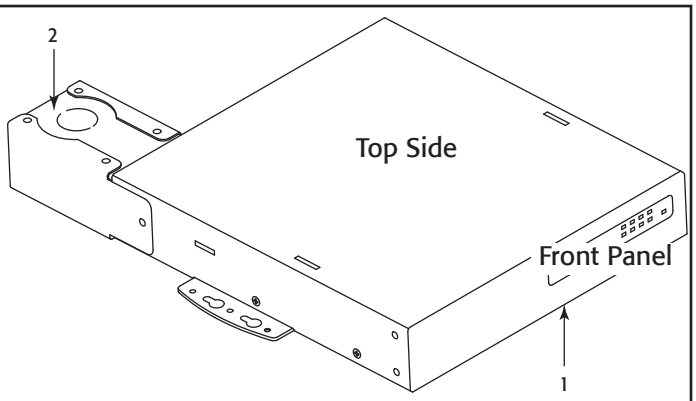
Configure amplifier per option D Under Table or on Wall.

Figure 7

1. (1) 

2. (1) 

Plenum Kit - Suitable for Air Handling Spaces only when used with optional Plenum Kit (FG-000995-00) sold separately.



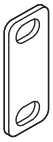
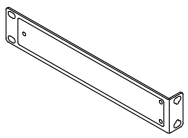
– Figure 7 –

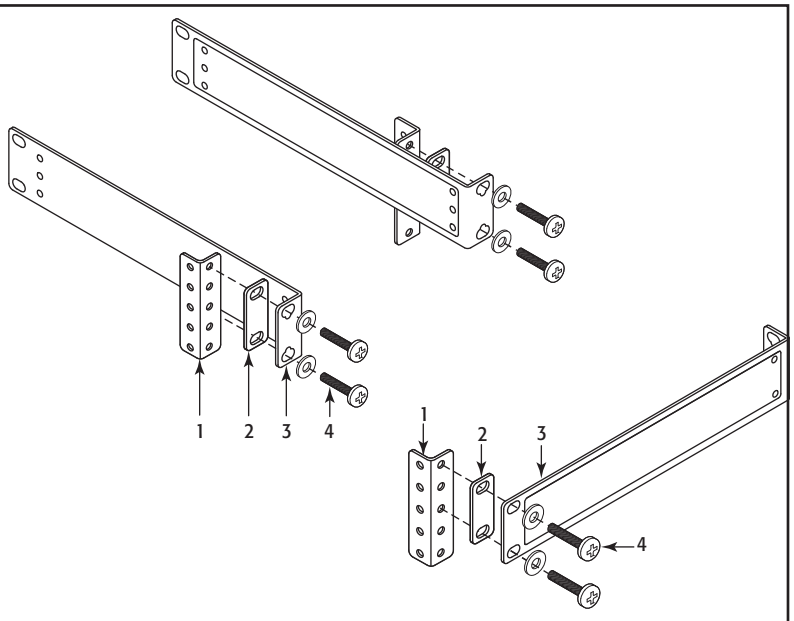
Rack-Mounting Options

All Configurations

Figure 8

Using the examples shown, you can mount any of the amplifier configurations. The example at the lower right of Figure 8 can be flipped to accommodate a single amplifier on the left side.

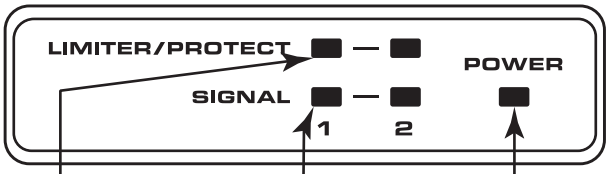
1. Equipment Rack (not supplied)
2. (2)  Optional – to bring flush with Q-Sys Core 110
3. (2) 
4. (4) Rack-Mounting Screws and Washers (not supplied)



– Figure 8 –

Front Panel

2 CHANNEL AMPLIFIER
SPA2

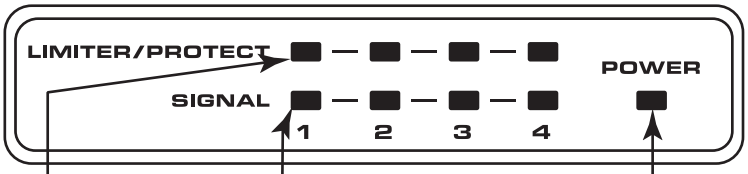


Limiter / Protect
Red – Protect / Mute
Orange – Limiter on

Input Signal
Blue – Present

Power
Blue – On
Orange – Standby

4 CHANNEL AMPLIFIER
SPA4



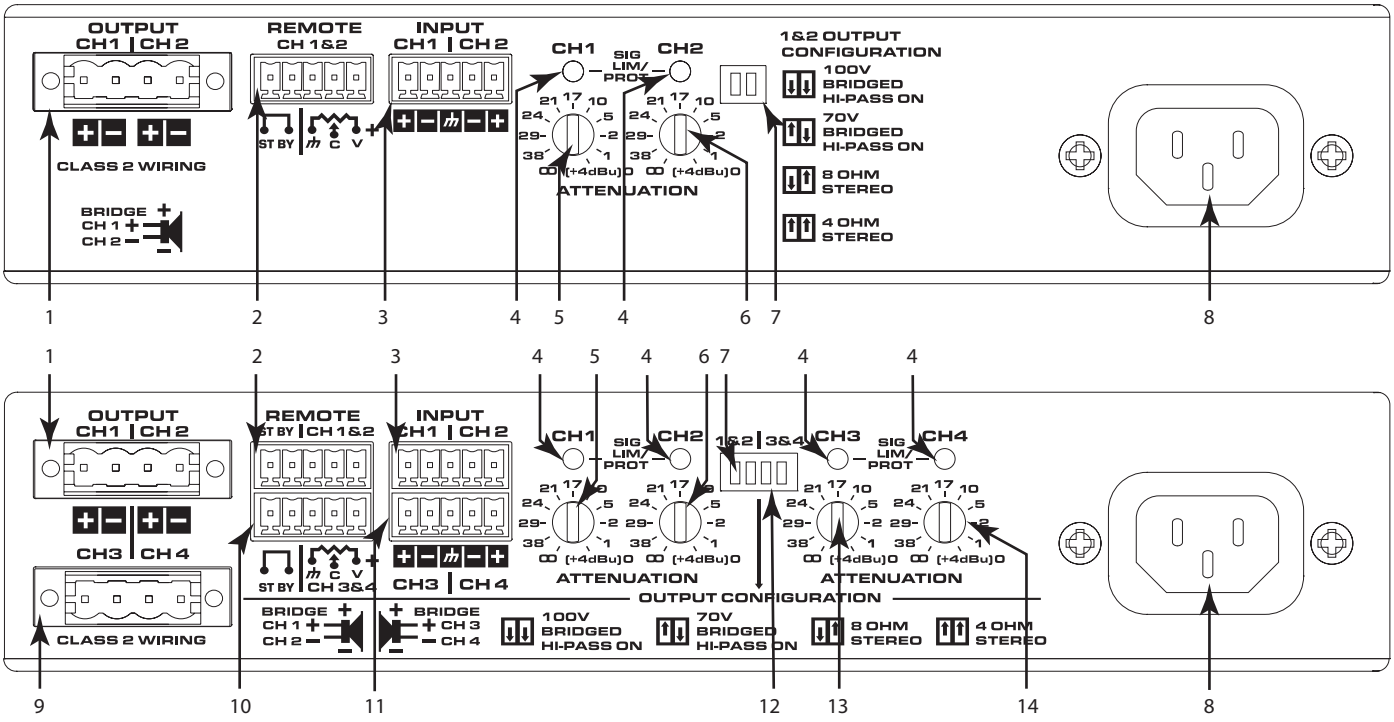
Limiter / Protect
Red – Protect / Mute
Orange – Limiter on

Input Signal
Blue – Present

Power
Blue – On
Orange – Standby

– Figure 9 –

Rear Panel



– Figure 10 –

1. Output Channels 1 & 2
2. Remote Control Channels 1 & 2
3. Input Channels 1 & 2
4. Channel 1 thru Channel 4 Status LEDs
   a. Green – Normal Signal Level
   b. Amber – Input or Output Overload/ Clipping or Thermal Limiting
   c. Red – Limit or Protect Mode
   d. Red – Thermal Limit or Protect Mode
   e. Red – Mute [1]
5. Channel 1 Attenuator Control
6. Channel 2 Attenuator Control
7. Mode Configuration Switches Channel 1& 2
8. AC Power Connection
9. Output Channels 3 & 4
10. Remote Control Channel 3 & 4
11. Input Channels 3 & 4
12. Mode Configuration Switches Channel 3 & 4
13. Channel 3 Attenuator Control
14. Channel 4 Attenuator Control

1 No signal for 10 minutes, amplifier outputs are muted (LEDs are red). No signal for 25 minutes, amplifier is put in Standby Mode (Rear LEDs are off).

Connections

Wire

IMPORTANT: Class 2 Wiring

Strip Length = 5mm

DO NOT TIN!

– Figure 11 –

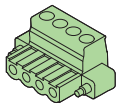
Output Connectors

IMPORTANT: Class 2 Wiring

Figure 12 – Figure 13

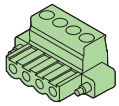
SPA 2-channel

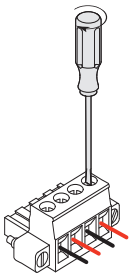
(1)



SPA 4-channel

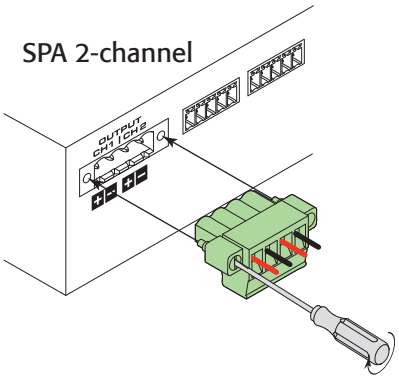
(2)



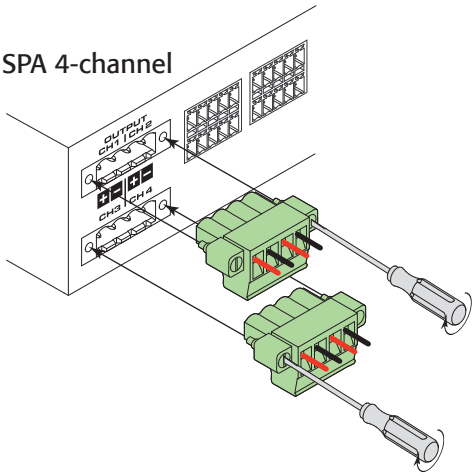


– Figure 12 –

SPA 2-channel



SPA 4-channel



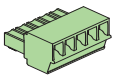
– Figure 13 –

Input Connectors

SPA 2-channel Connector

Figure 14 – Figure 15

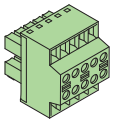
(1)

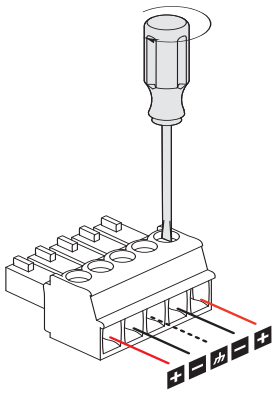


SPA 4-channel Connector

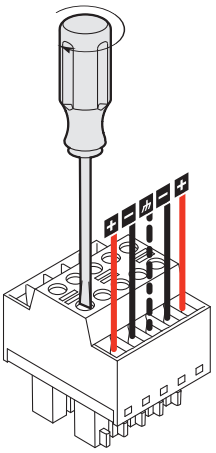
Figure 16 – Figure 17

(1)

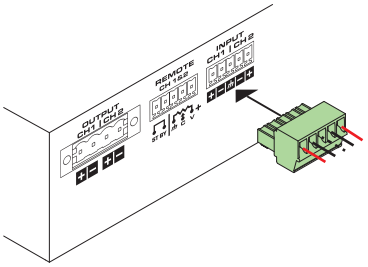




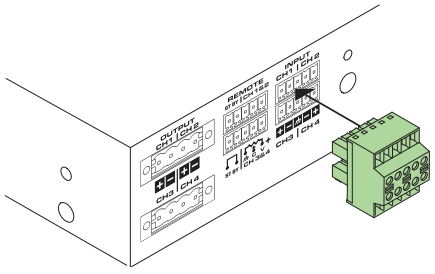
– Figure 14 –



– Figure 16 –



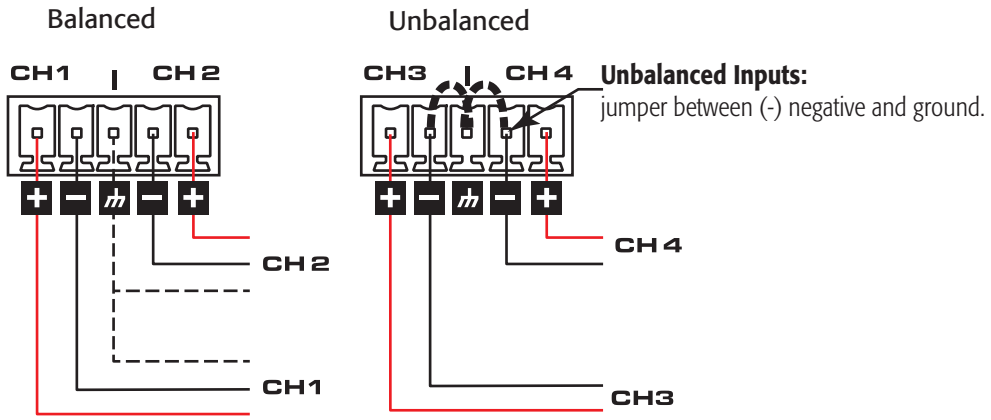
– Figure 15 –



– Figure 17 –

Balanced and Unbalanced Inputs

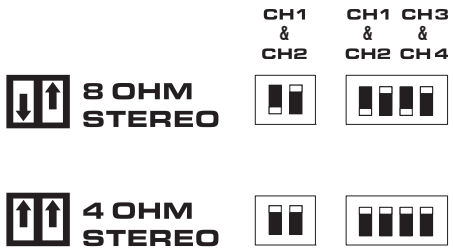
Figure 18



– Figure 18 –

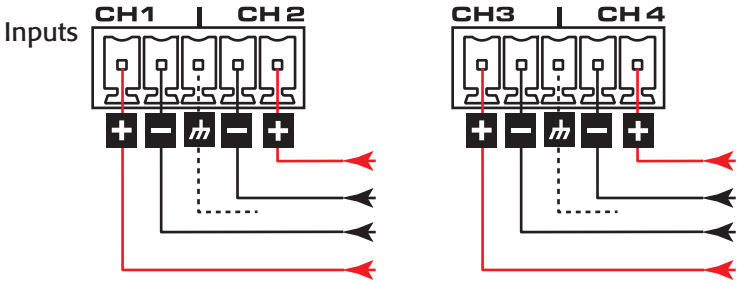
Stereo Mode

Figure 19 – Figure 21

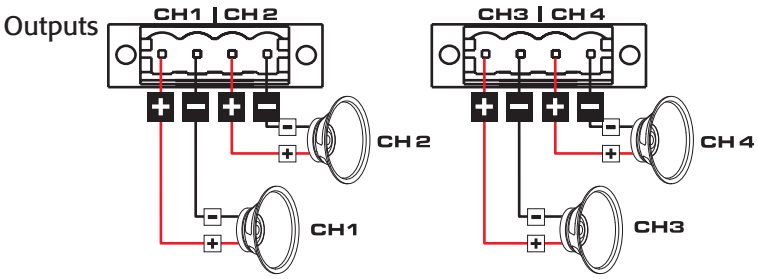


– Figure 19 –

CAUTION!: Do not connect any output to ground.



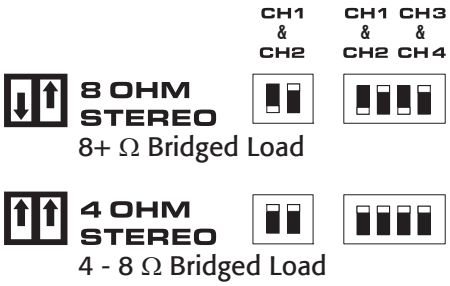
– Figure 20 –



– Figure 21 –

4 or 8-ohm Bridged Mode

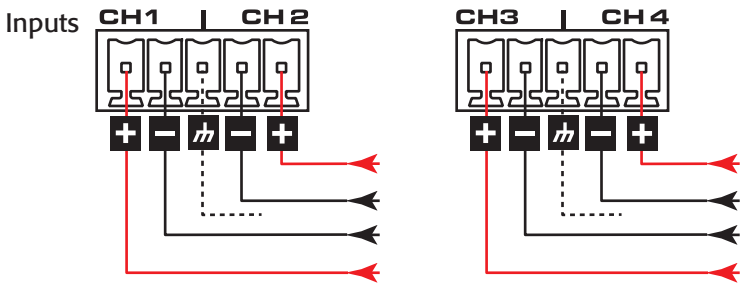
Figure 22 – Figure 25



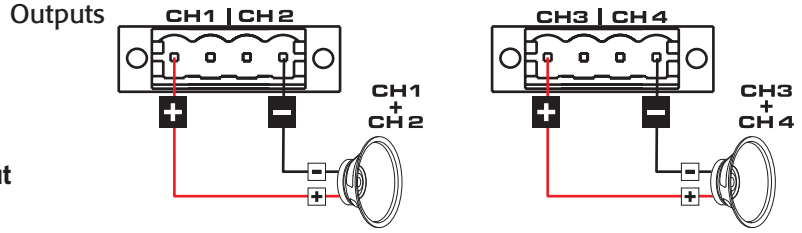
– Figure 22 –

CAUTION!: Do not connect any output to ground.

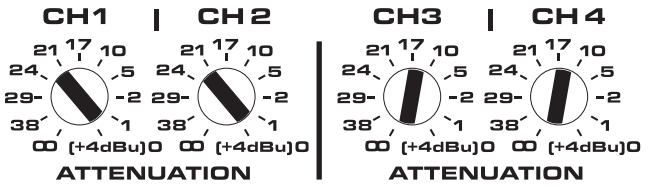
IMPORTANT: When using 4 or 8-ohm Bridged Mode, use both signal inputs of a channel pair (for example parallel CH1&2 inputs and parallel CH3&4 inputs), and set the attenuation for each channel pair to the same level.



– Figure 23 –



– Figure 24 –

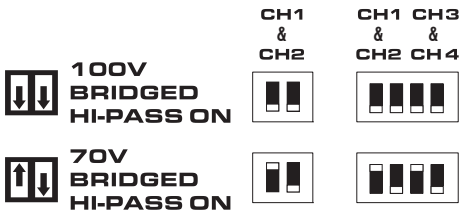


– Figure 25 –

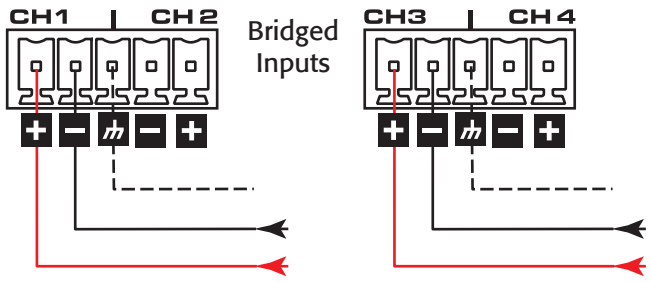
70V / 100V Bridge Mode

NOTE: 80 Hz (high-pass filter) is auto-engaged in bridged 70 V and 100 V modes

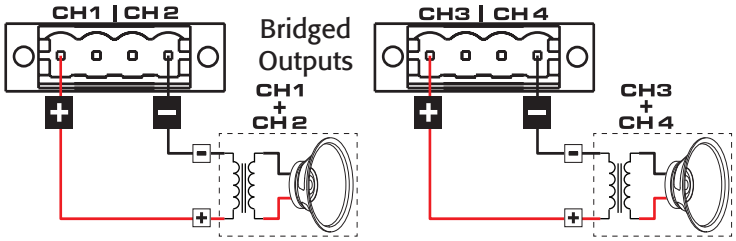
Figure 26 – Figure 29



– Figure 26 –



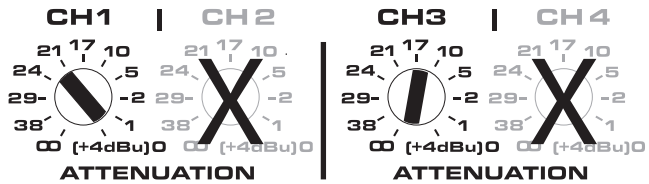
– Figure 27 –



– Figure 28 –

Minimum Load Impedance:

- 70V Bridged = 16 Ω
- 100V Bridged = 26 Ω

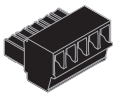


– Figure 29 –

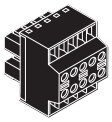
Remote

Figure 30 – Figure 32

SPA 2-channel

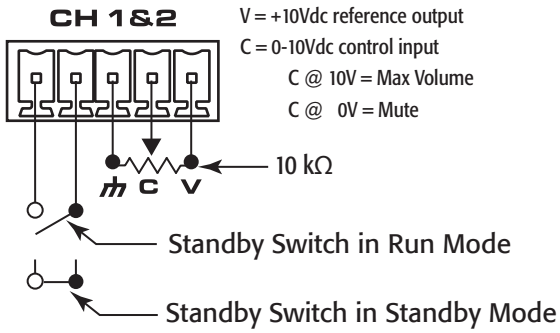
(1)  3.5mm, 5-pin

SPA 4-channel

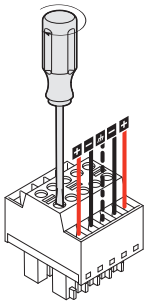
(1)  3.5mm, 10-pin

When the potentiometer is at the minimum position, the amplifier goes into Mute mode. On the SPA 4-channel amplifier, the remote level controls for channel 1 & 2 are independent from channels 3 & 4 remote level control.

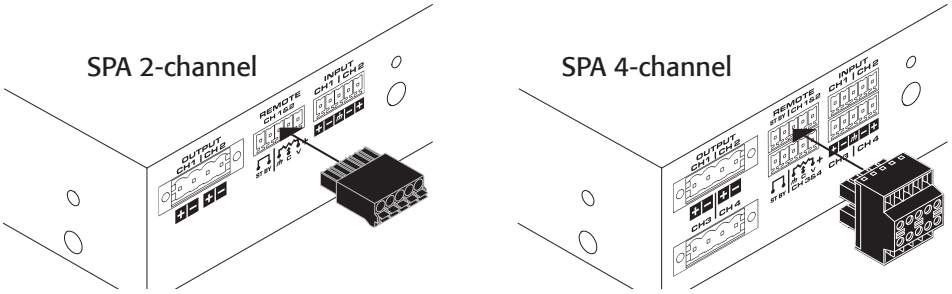
On the SPA 4-channel model, closing the "Standby Switch" between the first two pins of either Ch1-Ch2 or Ch3-Ch4 causes all four channels to go into Standby.



– Figure 30 –



– Figure 31 –



– Figure 32 –

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