

Rixos-L Speaker
Installation and Operation Manual
V1
July 22, 2020

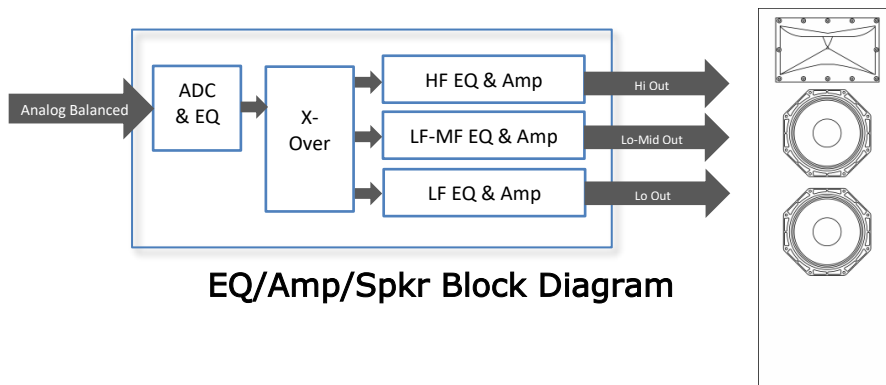


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Rixos-L Speaker Installation Manual

1. Introduction

The Grimani Systems Rixos-L speaker is a high-performance 2.5-way active system with wide dispersion waveguide-coupled tweeter for optimal sound power response. The amplification package is usually a four-channel dedicated rack-mounted external unit that comes pre-programmed for the optimal cross-over and speaker EQ of the Rixos-L. The amplifier incorporates high-resolution DSP equalization for room correction, which is to be adjusted after installation through a process of measurement, tuning, and listening. This manual outlines how to install, connect and set up the speaker. Instructions on optimal placement, acoustical interface and control, level and delay setting, etc. are all beyond the scope of this document, and are part of an engineering service from Grimani Systems.



EQ/Amp/Spkr Block Diagram

2. Unpack the speaker

- a. Place shipping box flat, with model and serial number label at the top.
- b. Cut packing tape, open the carton, and remove the accessories that are packed into the foam protection layers. These include the mounting brackets, and a pack of screws.
- c. Carefully remove the layers of protection foam.
- d. Carefully remove the speaker from the carton.
- e. Keep the box and packing material in case you need to ship it back for returns, maintenance or upgrades.

3. Prewire. Power, Signal, and Network should be prewired to each Rixos-L speaker

- a. Power: The Rixos-L is an active speaker with rack-mounted signal processing and amplification. It requires about 600 Watts of available AC power in the range from 100V to 250V. We recommend prewiring one 120V-20A circuit, or a 220 / 240V – 15A for each group of eight Rixos-L speakers, with a quad box near the rack-mount DSP amplifiers.
- b. Audio Signal Input: The Rixos-L DSP amplifier input takes analog balanced audio signal over twisted pair with shield cable. For applications where one 4-channel DSP amplifier drives three speakers, only use inputs 1. Internal matrixing will feed the proper tri-amplified speaker signals to the woofers and tweeter of each speaker. "RCA" unbalanced signals can also be fed to the Rixos-L amplifier, ideally through a balancing transformer as close to the source as possible.

Jensen Transformer makes very good balance adapter transformer units. Note that even for unbalanced analog audio sources it is best to use a twisted pair with shield cable. See the connection section below for termination recommendations. There may be residual noise interference in environments with a lot of radio frequency noise. It is also possible to use Cat5 or Cat 6 cabling to feed a balanced signal to the Rixos-L amplifier, terminating the signal pairs at the Phoenix input connector. A few manufacturers, including MuxLab (model 500028) and Audio Control (BLD-10) make unbalanced to Cat5 converters which can be used for unbalanced feeds (see Appendix 2). Contact Grimani Systems Technical Support for further details. See more information below for input connection diagrams.

- c. **Speaker Wire Interface:** The Rixos-L is fed with tri-amplification from a single 4 channel DSP amplifier channel. The wiring is typically a “14-6” cable with external jacketing that meets all appropriate low-voltage electrical installation codes. We would recommend CL3 rating, and high-strand count for easier termination. The 6-conductor wire should be pre-wired in the installation at the same time as all other A/V/Control wiring is installed. Leave sufficient slack on both sides to reach the connections, usually 3 extra feet on the rack side, and 12 inches on the speaker side. On the amplifier end, the three wire pairs are connected to the speaker output detachable Phoenix connector. Carefully note the color coding of the four conductors. Most 14-6 wire has wire colors that are Red/Black/Yellow/Green/Brown/Blue. We recommend this order for easier mnemonic:

Red: High frequency +

Black: High frequency –

Yellow: Mid frequency +

Green: Mid frequency -

Brown: Low frequency +

Blue: Low frequency -

The idea is to remember that the wires with color are the +, while the wires without color are the – terminals.

The speakers that come pre-set for “On-Wall-Concealed” or “In-Wall” trim kits use a terminal block connector type.

The connection order is:

1- Red: High frequency +

2- Black: High frequency –

3- Yellow: Mid frequency +

4- Green: Mid frequency -

5- Brown: Low frequency +

6- Blue: Low frequency -

The speakers that are ordered as OnWall/Visible are connected through binding posts, with the top pair for the tweeter and the bottom pair for the mid woofer. A third pair of binding post are for the low woofer

See more information below for output connection diagrams.


- d. Network signal: The Rixos-L amplifier is controlled and monitored through IP networking. You can prewire with either Cat5, Cat5e, Cat6, Cat6a standards. In all cases prewire using “Keystone” punchdown connectors at wall plates or rackmount locations near the source and the equipment rack, using EIA T568B standard. Test the connection using a certification meter to assure quality of connection and bandwidth. The last interface should be accomplished with factory terminated and certified patch cables, such as the ones supplied with the speakers. See more information below for network connection diagrams.

4. Mounting Hardware.

- a. The Rixos-L is supplied with one of three optional mounting hardware kits:

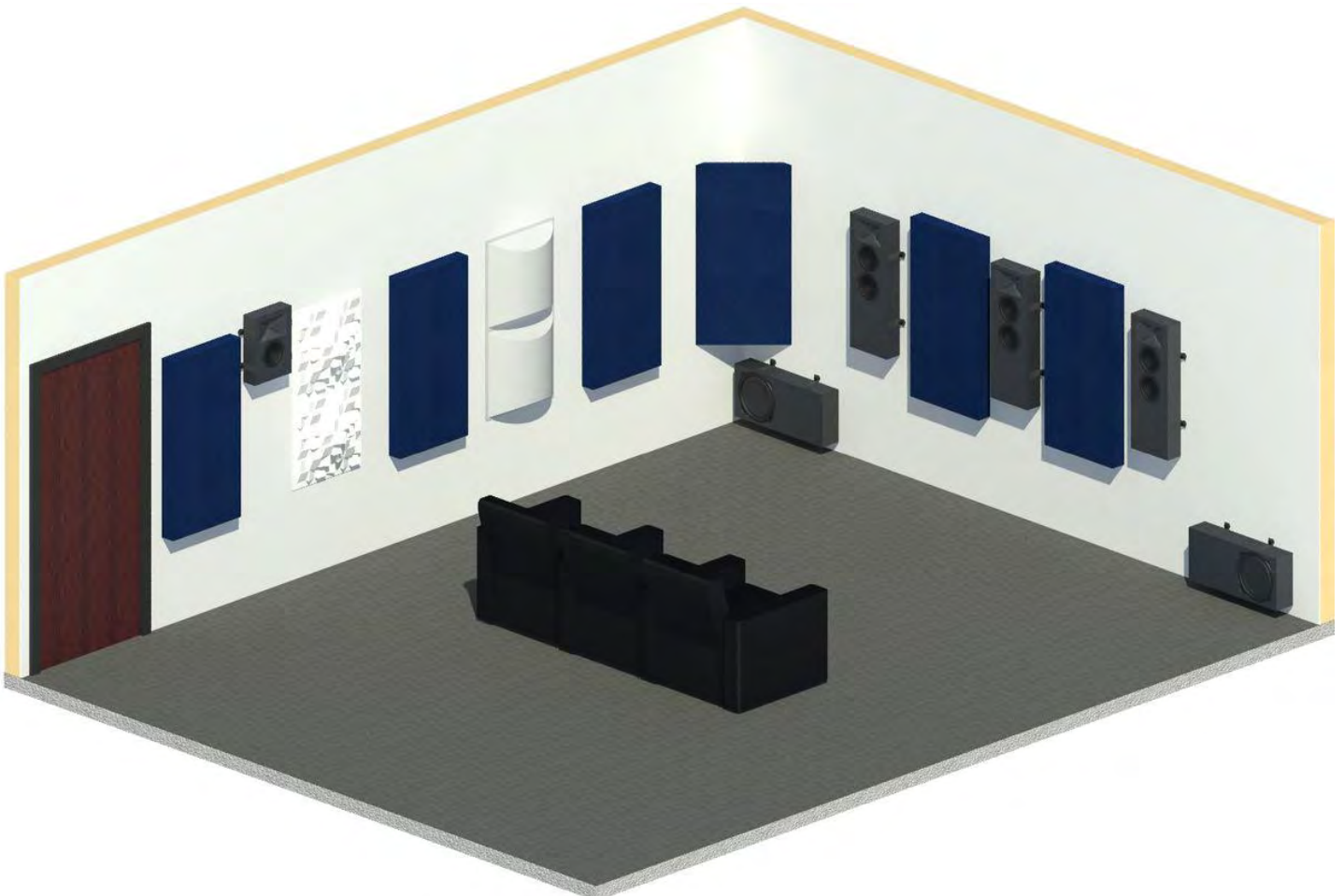
- On-Wall-Concealed behind screen or fabric.
- On-Wall-Visible
- In-Wall, with finishing grille

Please see the section below and diagrams in Appendix 3 for details on the mounting hardware and instructions.

- b. On-Wall, concealed behind screen or fabric: For this installation format, the Rixos-L is installed on a wall using the four supplied resilient shock-mount brackets as shown in Appendix 3 below. The speaker comes with pilot holes for the three brackets, but you can install them at other locations if you need. Each bracket has one fastener, and you will need to select the right type for your wall structure. The Rixos-L weighs **24 lbs (12kg)**, and each fastener will need to be rated for **10 pounds (5kg)** each, to account for vibration. For sheetrock walls, we suggest using “E-Z Anchors” and their associated screws. For Concrete walls, we suggest using good quality wall anchors and screws. For plywood surfaces, wood screws in a size 8 (5mm) and above will work well. Install the 4 brackets on the speaker, then mark the four mounting bracket hole locations, using the brackets as a template. Make sure that the speaker is straight and plumb by using a bubble level. The speaker can be aimed up or down by adding a shim behind the top or bottom brackets. The speaker level wiring is to be pre-wired to a Terminal Block connector, as outlined in Section 3c, and in Appendix 3. Ensure at least ½” clearance between the face of the speakers and the stretched fabric. For placement behind acoustically transparent screens, ensure at least 2” clearance between face of the speaker and the screen, paint the brackets flat black before installation in order to control light reflections.
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- c. On-Wall, visible. For this installation format, the Rixos-L is installed on a wall using the two supplied cleat bars as shown in Appendix 3 below. Each cleat bar has three fasteners holes, and you will need to select the right type for your wall structure. The Rixos-L weighs 24 lbs (12kg), and each fastener will need to be rated for 10 pounds (5kg) each, to account for vibration. For sheetrock walls, we suggest using “E-Z Anchors” and their associated screws. For Concrete walls, we suggest using good quality wall anchors and screws. For plywood surfaces, wood screws in a size 8 (5mm) and above will work well. Make sure that the speaker is straight and plumb by using a bubble level. The speaker level wiring is to be pre-wired to “pigtailed” that will be connected to a terminal cup, as outlined in Section 3c, and in Appendix 3.

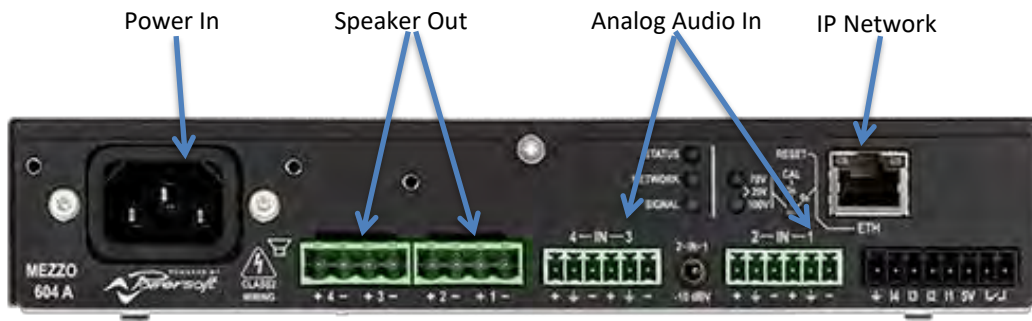
- d. In-Wall, with finishing grille. For this installation format, the Rixos-L is installed in a wall cutout using the supplied installation brackets as shown in Appendix 3 below. For fastening the installation brackets to sheetrock use the supplied 1/4" x 1 1/2" backer plates that are adhered with thin double-side tape to the back side of the drywall. Fasten the plate with 1" sheetrock screws. The speaker is to be pre-wired to a Terminal Block connector, as outlined in Section 3c, and in Appendix 3. For placement behind acoustically transparent screens, ensure at least 2" clearance between face of the speaker and the screen. A grille with magnetic catches will conceal the speaker unit.
- e. Locate the speakers correctly in the room. Set the speaker position on the wall based on several factors: Position spread relative to the listener; position relative the screen edge or center; boundary reflection conditions. Set the height such that the middle of the waveguide is 6 inches above seated ear height, or at the middle of the screen. The target listening axis is between 5 and 30 degrees below the waveguide aperture. Instructions on optimal placement and acoustical interface are all beyond the scope of this document, and are part of an engineering service from Grimani Systems. Grimani Systems Technical Support can assist with determining the best position upon request.

The diagram below is a layout for a Cinema Four ensemble, including acoustical tuning modules, and is for use as an example only.



5. Connections

Back panel view – 4 Channel amplifier

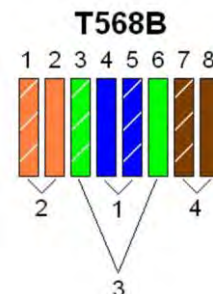


- a. **Power:** The Rixos-L DSP Rack Amplifier ships with a detachable power cable. The receptacle is on the back panel. Plug the cable there, then to the mains outlet. The amplifier will auto-detect the input voltage. After powering up the amplifier, it will go through a few seconds of start-up sequence. There is no standby switch.
- b. **Audio signal.** Plug in the audio feed into input channels 1 and 3 only for 2-channel applications:
 - For Analog balanced over twisted pair cable with shield, terminate the cable to the bottom INPUT Phoenix multipin connector, paying close attention to the order of the +/Gnd/- pins. Signals from XLR plugs should use Pin 2 for +, Pin3 for -, and Pin 1 for ground/shield (See Appendix 1).
 - For Analog unbalanced sources, it is still best to pre-wire with twisted pair with shield. On the source side, connect the + signal to the + wire (usually Red) of the pair, and connect the source ground to the – wire (usually Black) of the pair. On the amplifier side, terminate the cable into the Phoenix multipin connector paying close attention to the order of the +/Gnd/- pins (See Appendix 1). If you used regular coaxial wire, from the source, terminate the wire to the Phoenix multipin connector the center conductor to the + pin, and the shield to the – and Gnd pins. If there is a hum loop, try disconnecting the Gnd pin.

You can also use Cat5 cable with a balancing converter unit such as the MuxLabs 500028, as shown in Appendix 2, or the Audio Control BLD-10.

c. **Network signal:**

Assuming that you prewired to a wall-mounted or rack-mounted keystone punch-down RJ45 receptacle, connect a premade factory-terminated and certified patch cable, into the network ports. If you didn't prewire to a punch down receptacle, carefully terminate the network cable with a male RJ45, using EIA T568B standard, and ensure proper connection and strain relief. Test the connection with a certification tester to ensure proper connectivity.



6. Settings

- a. AC Voltage is automatically set for a range from 100V AC to 250V AC. There is nothing to set.
- b. DSP programming. The Rixos-L amplifier includes a DSP engine with more than 40 bands of response tailoring, plus several other signal processing functions. These are programmed through a computer application, and require advanced control by a factor trained professional. Contact Grimani Systems for DSP programming and system calibration services.

7. Remote Monitoring

The Rixos-L speaker can be programmed for automated self-diagnostics and remote warnings. Typical auto-test and reporting functions include Power Status, Signal voltage limits, Temperature, and many more. Any failure, or performance that falls outside of specified limits, will result in emails sent to several programmed addresses, indicating the nature of the failure. The speaker can also be tested and verified from a remote location. For both of these functions you will need to dedicate a small Windows computer to be left enabled on the same network as the speaker. It will need to run the Grimani Systems Armonia control application as well as a remote desktop application. Both of these can be set up by a Grimani Systems factory technician.

8. Limited Warranty

The Rixos-L is warrantied to be free of manufacturing defects for a period of two years from the date of purchase. This limited warranty does not apply to failures due to misuse, excessive sound pressure, damage from handling and carriage, or any other defects that are outside the control of Grimani Systems, LLC. Any warranty claim will need to be made directly with Grimani Systems, or through one of its authorized dealers. An RMA number will need to be issued before any return is authorized.

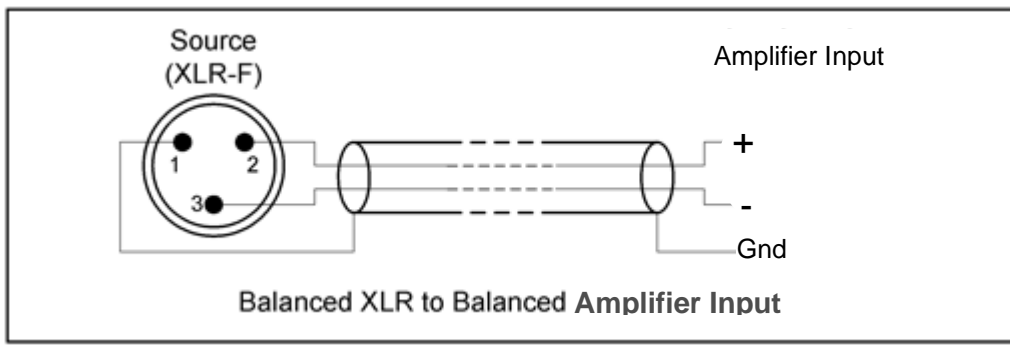
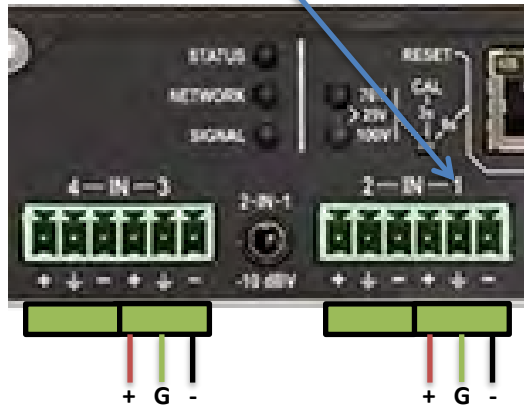
Appendix 1

Balanced Wire connection

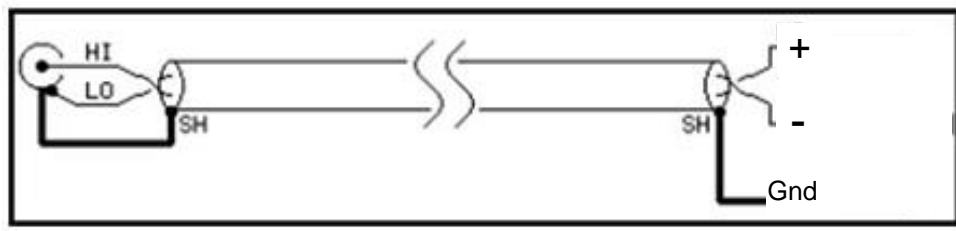
2 channel input connectors are placed on the back of the amplifier. Use input 1.

Do NOT connect inputs 2, 3 and 4

Use Input 1



Unbalanced to Balanced Analog Wire connection

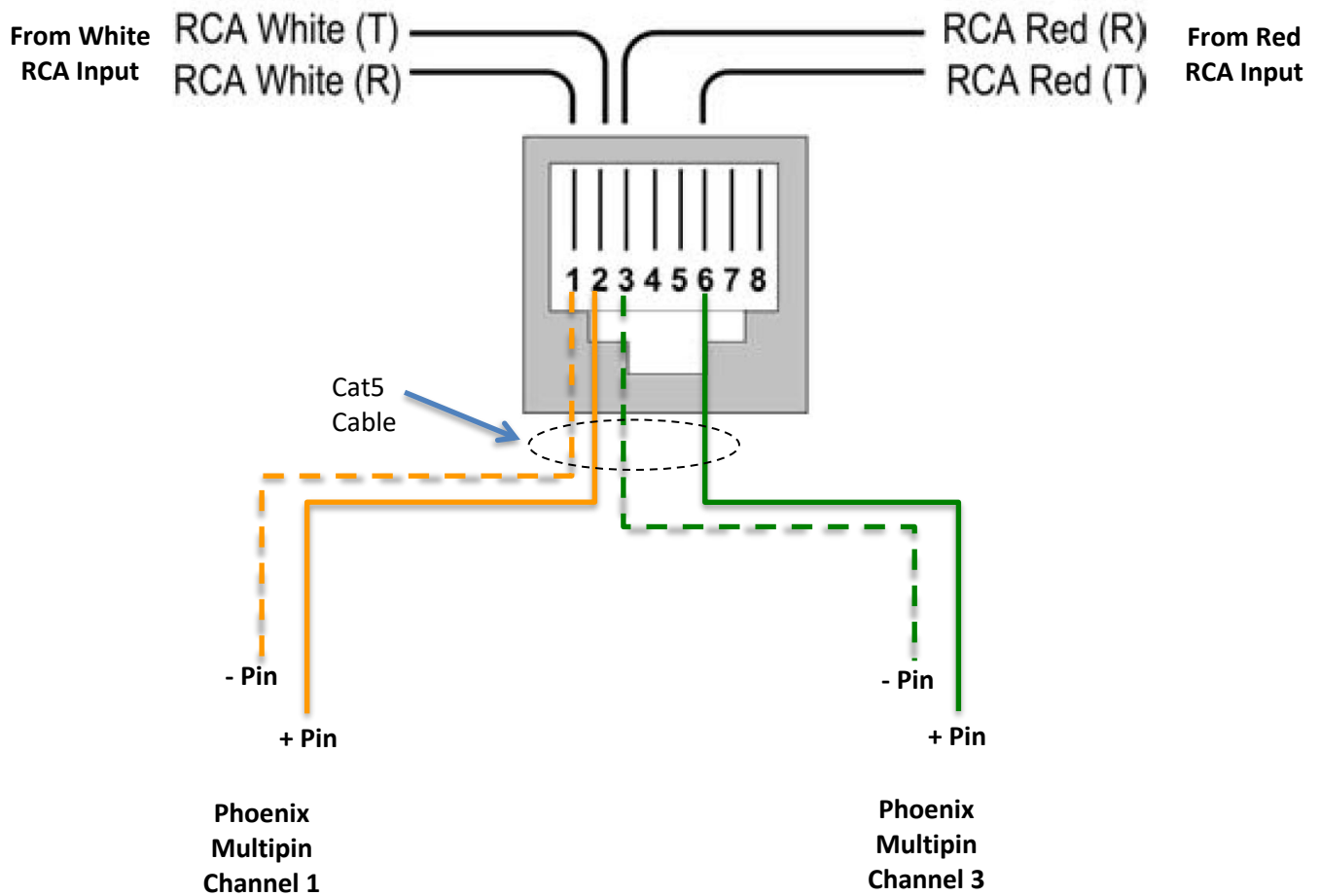


Appendix 2

MuxLab 500028 Wiring Diagram

For use in driving unbalanced signals to Phoenix inputs of DSP amplifiers

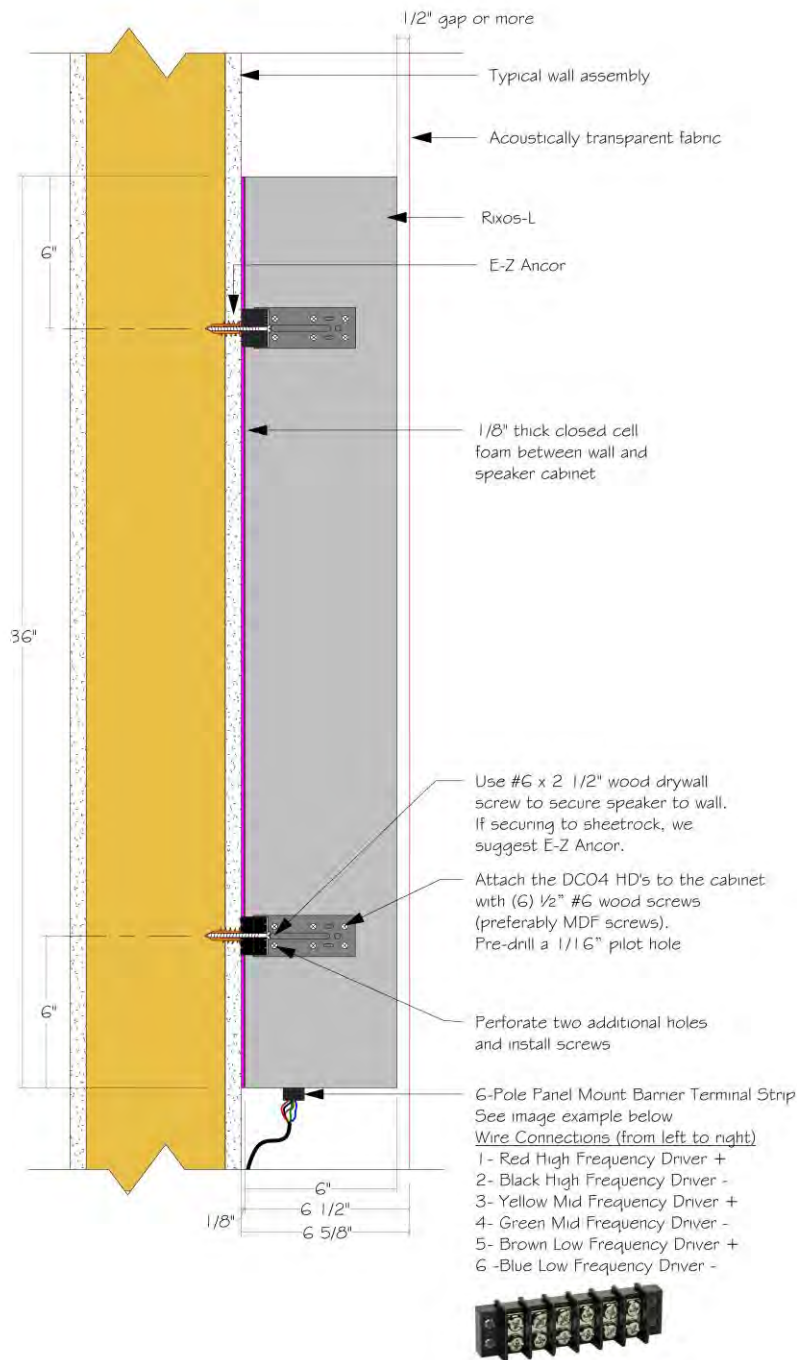
One Balun can be used to drive two channels



Appendix 3
Rixos-L Installation Dimension Details

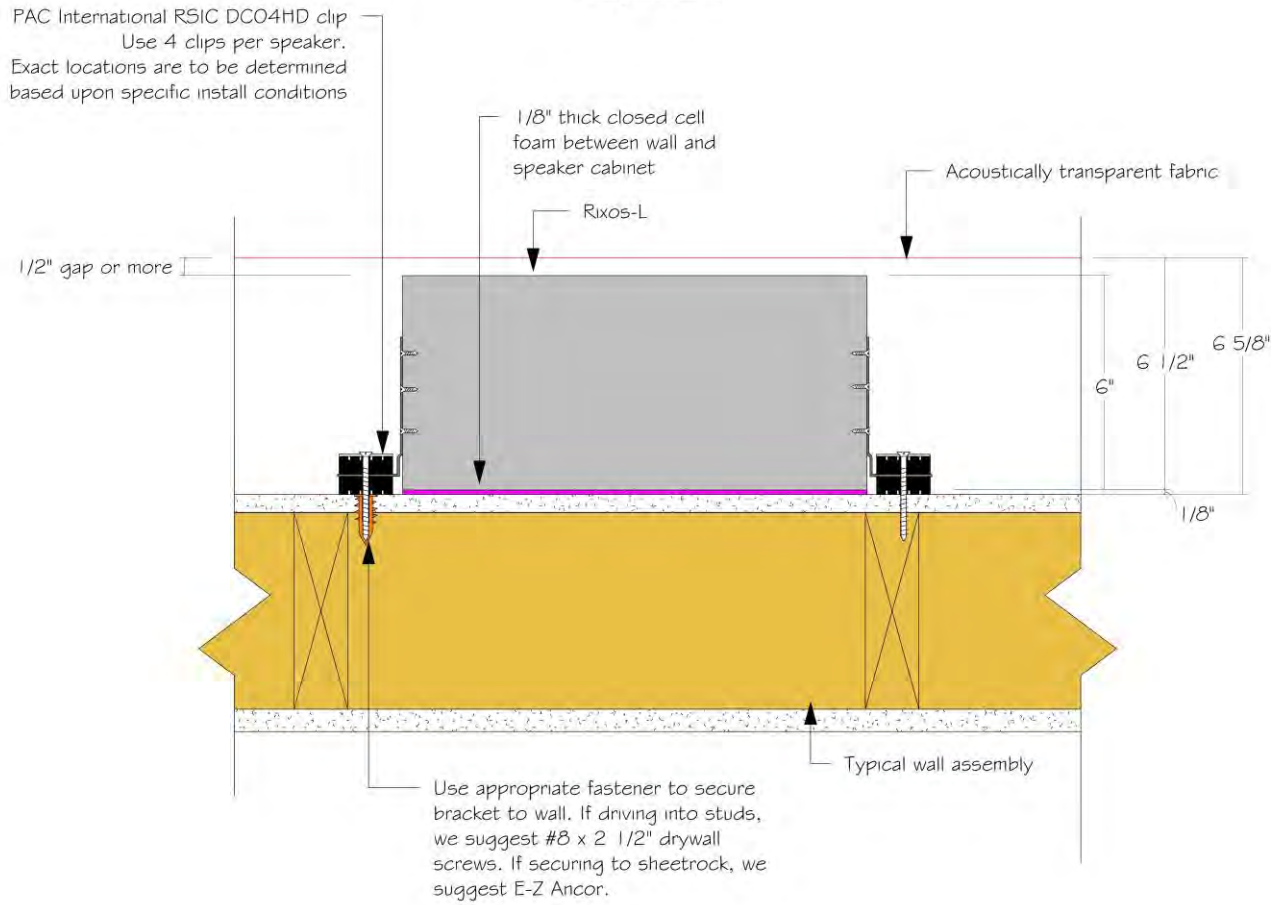
On-Wall / Concealed

Side View



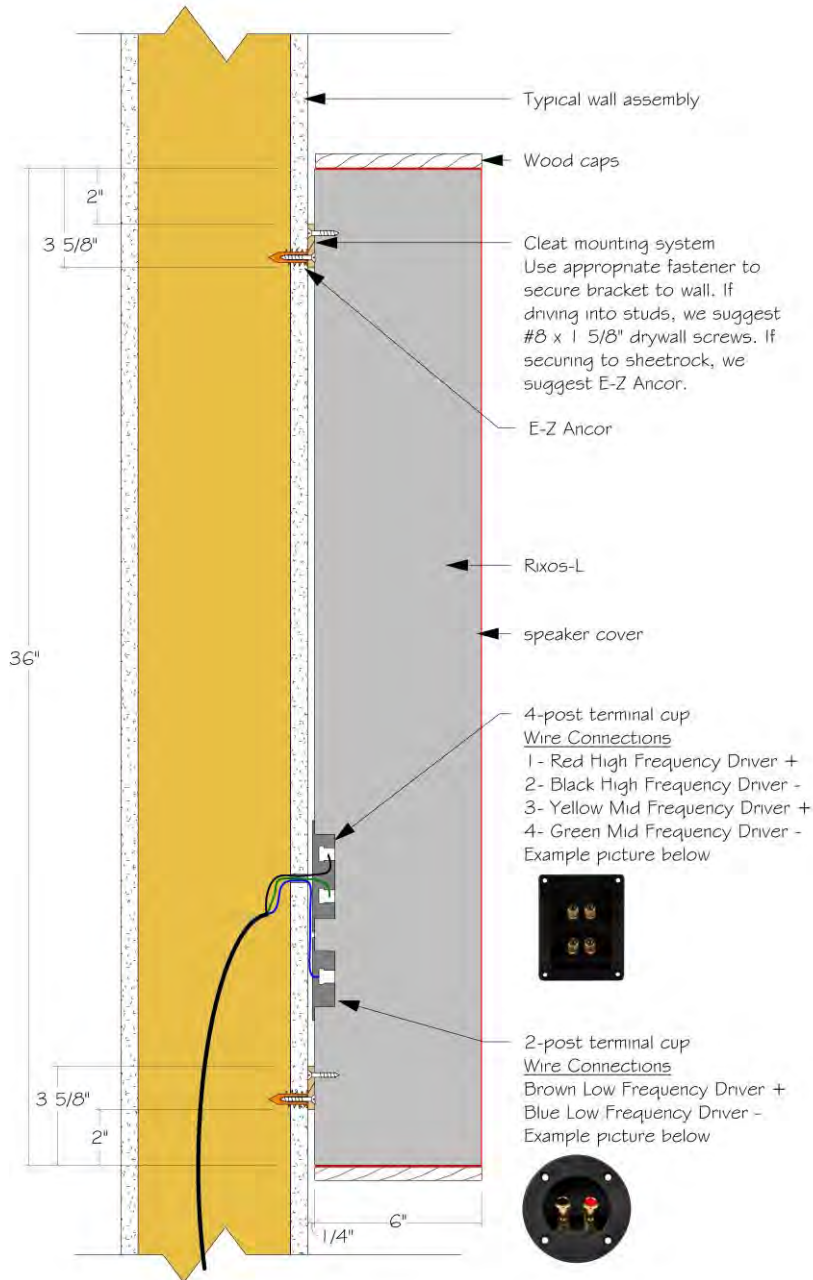
On-Wall / Concealed

Top View



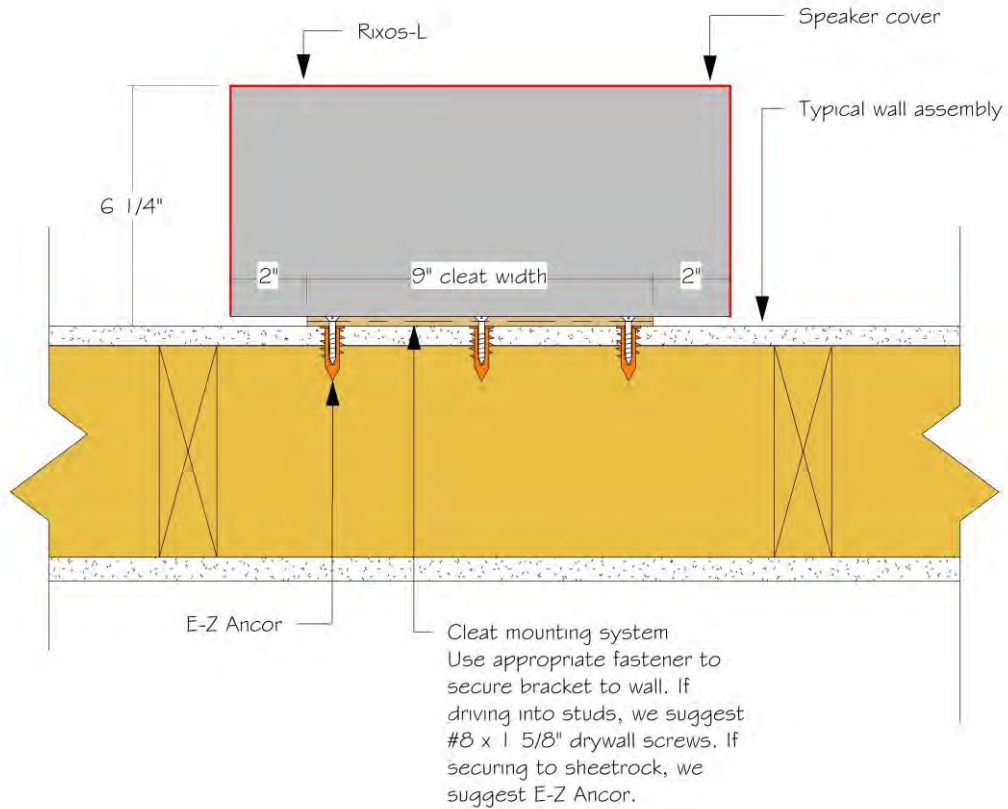
On-Wall / Visible

Side View



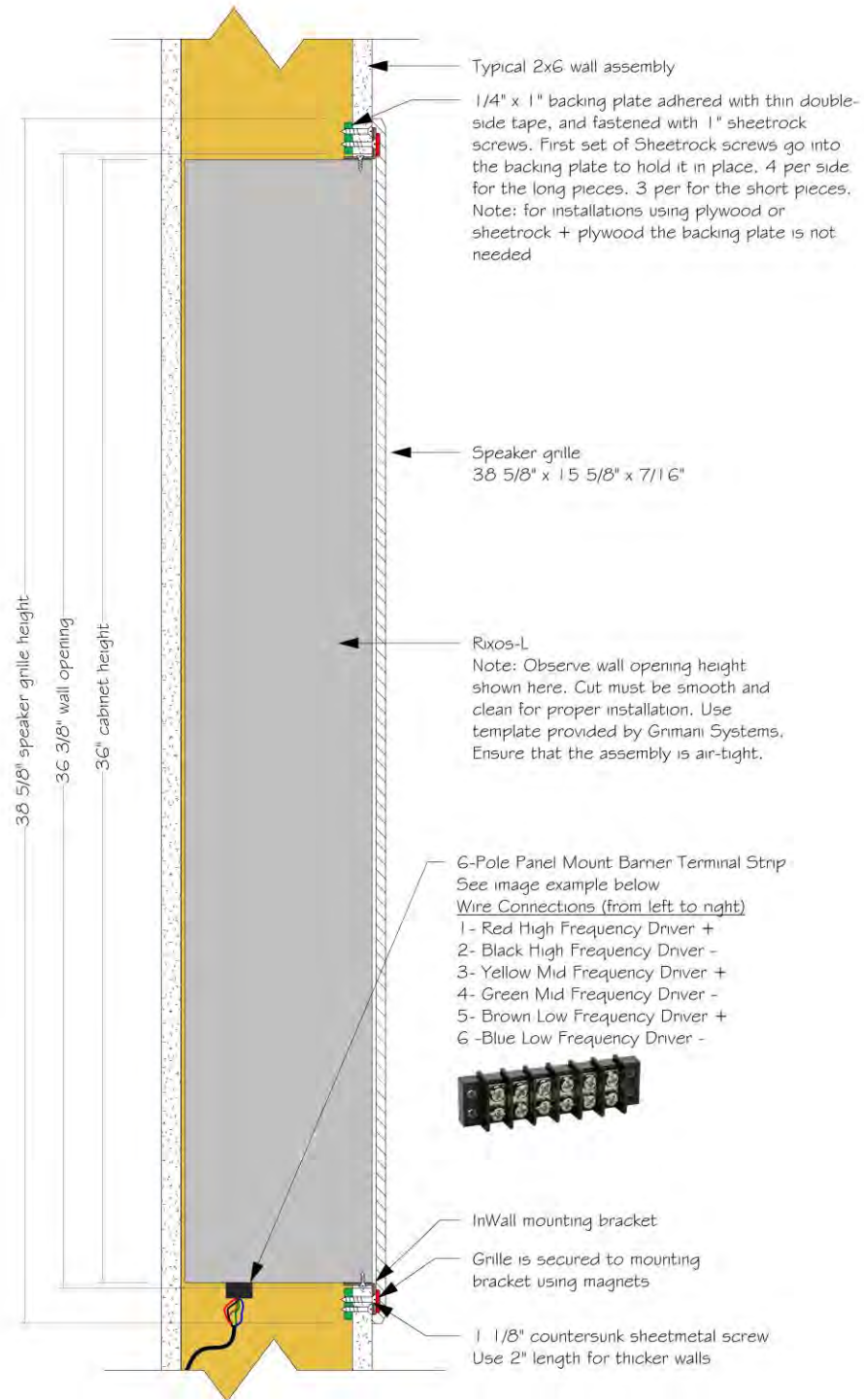
On-Wall / Visible

Top View



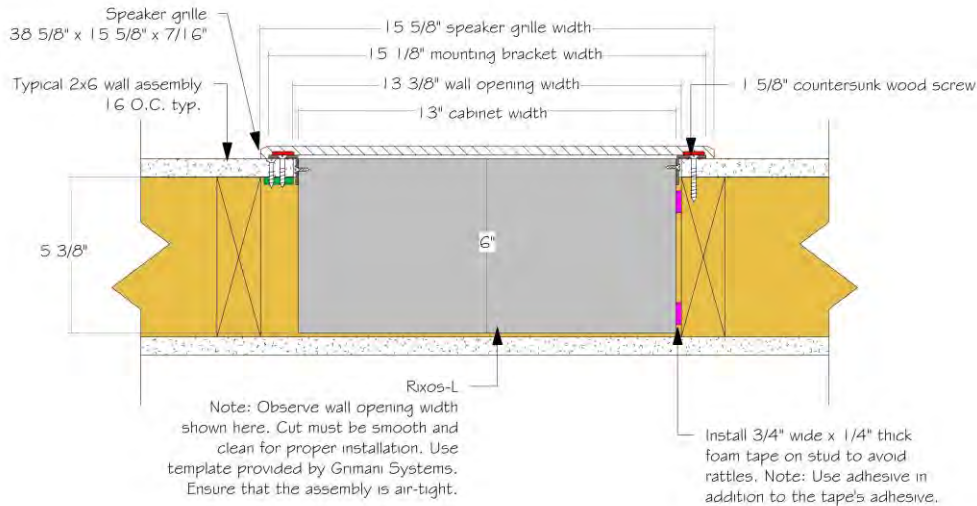
In-Wall

Side View

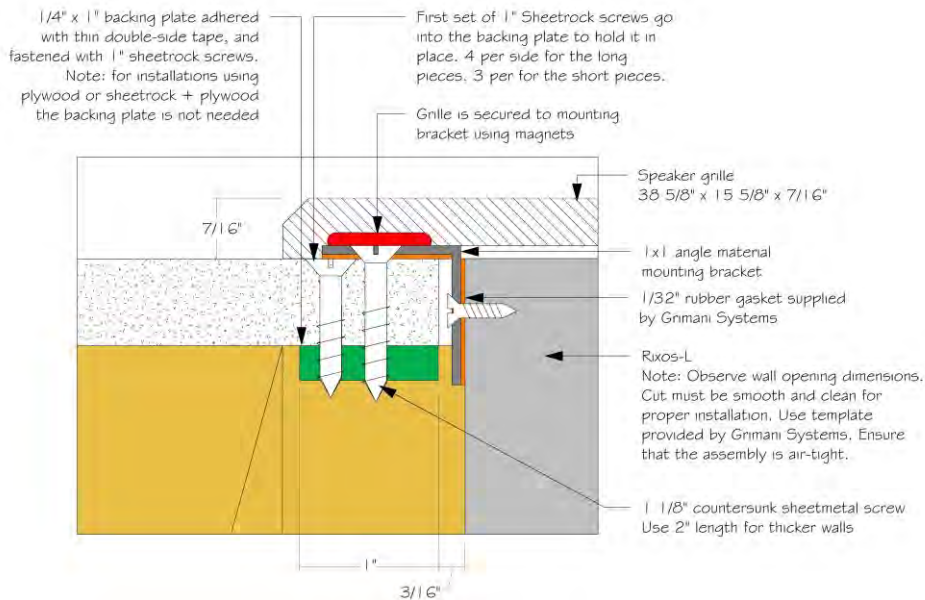


In-Wall

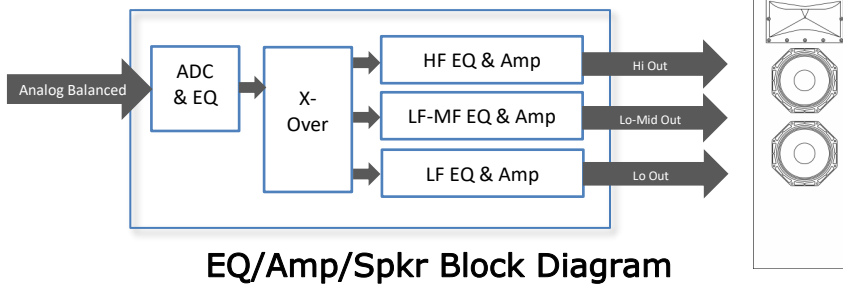
Top View



In-Wall – Fastening and grille detail

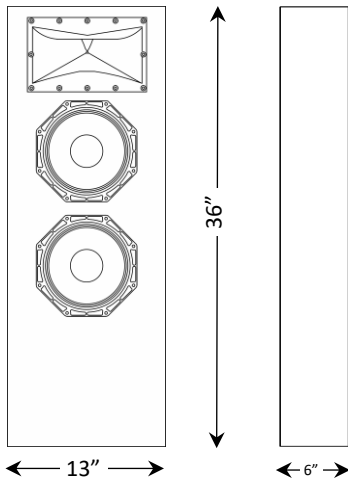


Appendix 5 – Misc Specifications



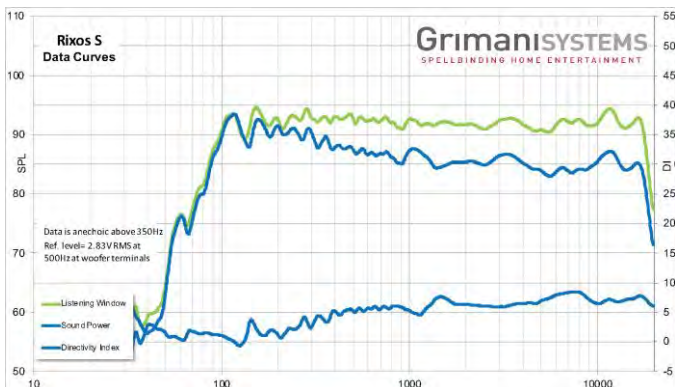
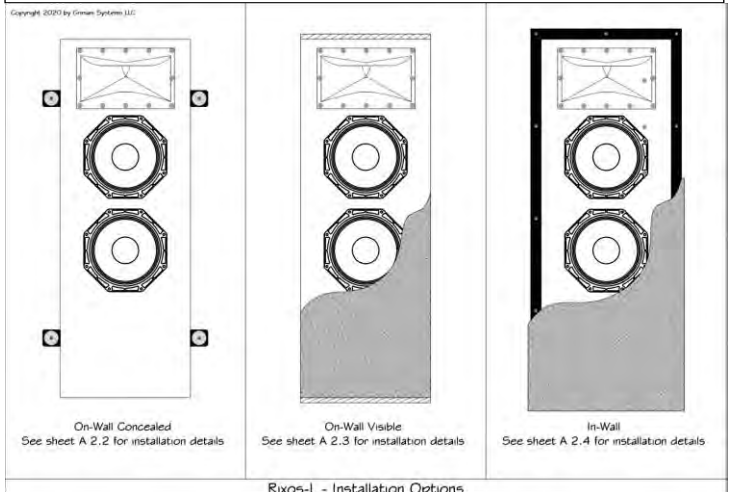
4 Channel DSP Power Amp
3 channels per speaker

Rixos-L



Mounting Kit Options:

- On-wall – Concealed by screen or stretched fabric: Three shock-mount L Brackets
- On-wall – Visible: Fabric shroud with painted end caps & mounting cleats.
- In-wall - Visible: Perimeter bracket & fabric-covered grille frame.



Responses:
Listening Window and Sound Power