

O W N E R ' S M A N U A L



PARASOUND

PAL-80, PAL-65, PAL-45
Precision Architectural Loudspeakers

www.parasound.com

Introduction

Congratulations on your purchase of this Precision Architectural Loudspeaker system and thank you for choosing Parasound. The PAL-80, PAL-65, and PAL-45 Precision Architectural Loudspeakers were developed using the finest driver and crossover components available. Countless hours of computer modeling were spent to insure accurate audio reproduction in a variety of installations where placement compromises are sometimes unavoidable. The PAL-80, PAL-65, and PAL-45 are virtually identical in operation and installation, except that the larger woofers provide more extended low frequency response and higher power handling capability. Please take a few minutes to read these instructions thoroughly to make the installation easier and insure the best performance of your new Precision Architectural Loudspeakers.

Unpacking and Inspection

Unpack your loudspeaker and the enclosed accessories:

<u>Quantity</u>	<u>Description</u>
1	Baffle and loudspeaker assembly
1	Metal grille
1	Foam grille insert
1	Paint Shield
1	Cutout Template

Be sure to inspect the speaker for any signs of shipping damage. If you notice any, contact your Parasound Dealer immediately.

Precautions

If you have any doubts about your ability to properly install in-ceiling loudspeakers, you should consider the services of a custom installer. If you plan to install them yourself, always use good quality tools to save time and make the installation go more smoothly. You should determine the final location of both left and right speakers before cutting any holes since changes to one speaker may affect the other either aesthetically or acoustically. Look for pipes, wiring or any other material that might interfere with the installation.

Prewiring

Before you purchase loudspeaker wire, check local building codes to make sure that the wire is rated to comply with applicable safety codes such as UL or CL-2. Use only stranded wire no thinner than AWG 16 (lower AWG numbers equate to thicker wire). For runs longer than 100 feet, we recommend minimum of AWG 14. When pulling wire, take care not to pull the wire too fast. This prevents stretching the wire or scorching the insulation from friction. Leave 2 to 3 feet of excess loudspeaker wire at both ends; it is easier to trim off excess wire than to splice additional wire later. When securing the wire inside the walls, be careful not to pierce the insulation with nails or staples.

For best performance and easier troubleshooting, always “home run” wiring when installing multiple speakers rather than connecting one speaker to the next. When connecting multiple speakers, make sure the power amplifier is capable of adequately driving the combined impedance of the loudspeakers. If it cannot, you may need additional amplifiers or an impedance protection device.

Observing Correct Speaker Wire Polarity

When you connect speakers to your amplifier, you will notice that one side of the two conductor speaker wire will have some sort of mark: either printing, a raised ridge on the insulation, or a different color of conductor to let you know which wire to connect to the positive and which to the negative speaker terminals so you can repeat the connection on the power amplifier's binding posts.

Configuring the PAL-80, PAL-65, and PAL-45 for Stereo or Monaural Operation

Refer to the Drawing on Page 5

Parasound in-ceiling loudspeakers are two speakers in one: with dual tweeters, dual woofer voice coils, dual crossovers, and separate $8\ \Omega$ terminals for both inputs. When using the speaker input assignment switch, you can configure the PAL-80, PAL-65, PAL-45 for three different installation requirements.

Paralleled Stereo Operation, $4\ \Omega$

This is the most typical configuration where each speaker is used to reproduce the left or right channel signal from the amplifier. This usually means that at least two speakers will be used in the room or zone.

1. Connect the output of the appropriate channel of the power amplifier to the speaker terminals on the left side of the crossover PCB.
2. Set the input assignment switch to its “Paralleled Input” position.
3. Repeat steps 1 and 2 for the other speaker which will reproduce another channel.

IMPORTANT NOTE: If you connect the amplifier to the speaker terminals on the right side of the crossover PCB while its switch is in the “Independent Inputs” position, there will be no output.



Monaural Operation, $8\ \Omega$

In this configuration, the left and right amplifier signals are reproduced by the dual speaker elements so you can hear both channels from one speaker. This is useful for a small area such as a bathroom or short hallway where there is no advantage to using two speakers. You can also use this configuration in a large room with multiple speakers where uniform coverage is a higher priority than creating a stereo image.

1. Connect the left channel output of the power amplifier to the speaker terminals on the left side of the crossover PCB.
2. Connect the right channel output of the power amplifier to the speaker terminals on the right side of the crossover PCB.
3. Set the Input assignment switch to the “Independent Inputs” position.

Independent Stereo Operation, $8\ \Omega$

In this configuration, one amplifier channel drives only one woofer voice coil and tweeter. Use this configuration only if you want to reduce the load on the amplifier or if you want to control the high frequency dispersion by selecting the channel corresponding to the direction of only one of the tweeters.

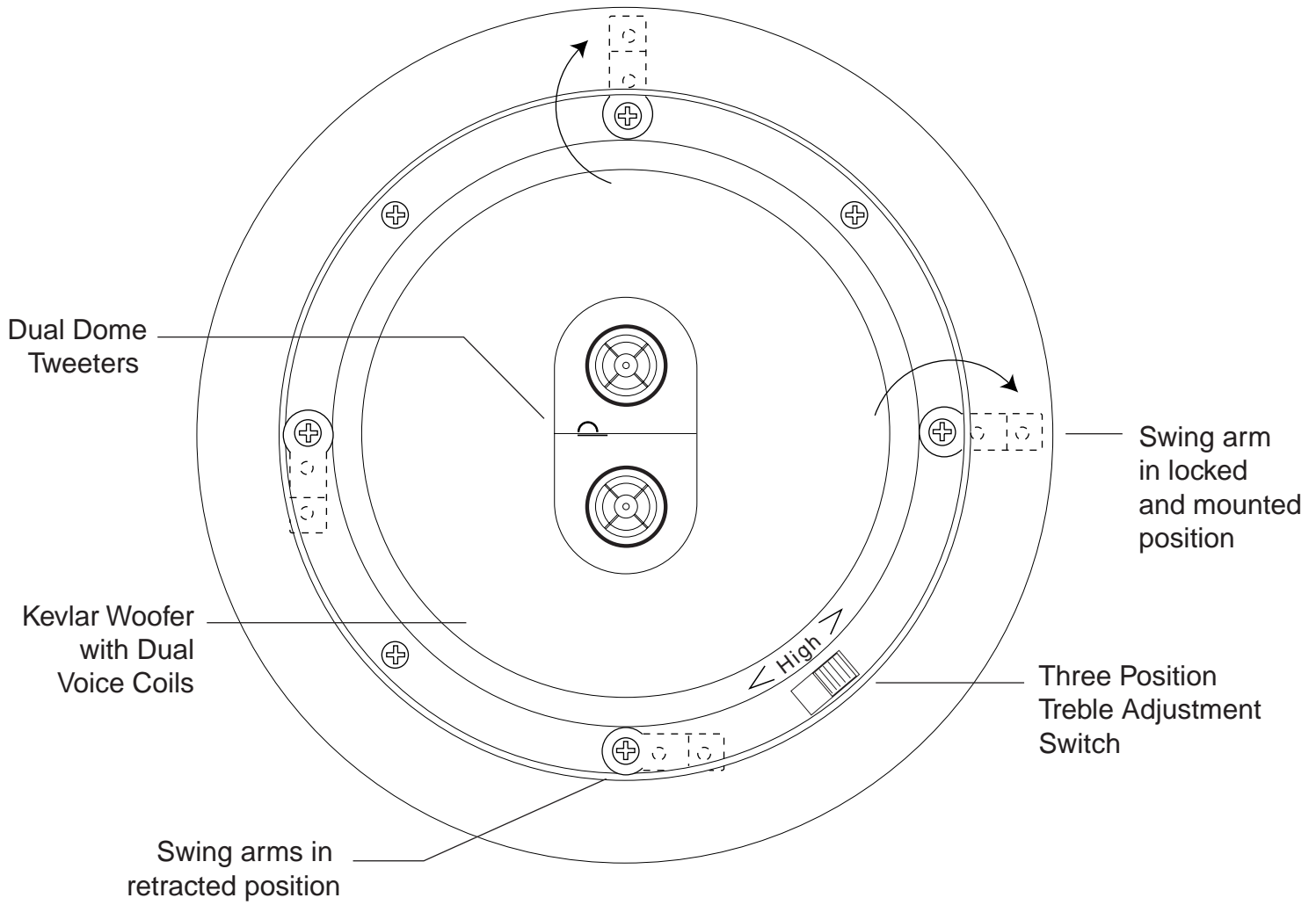
1. Connect the left output of the power amplifier to either pair of speaker terminals.
2. Set the Input assignment switch to the “Independent Input” position.

Three Position Treble Adjustment

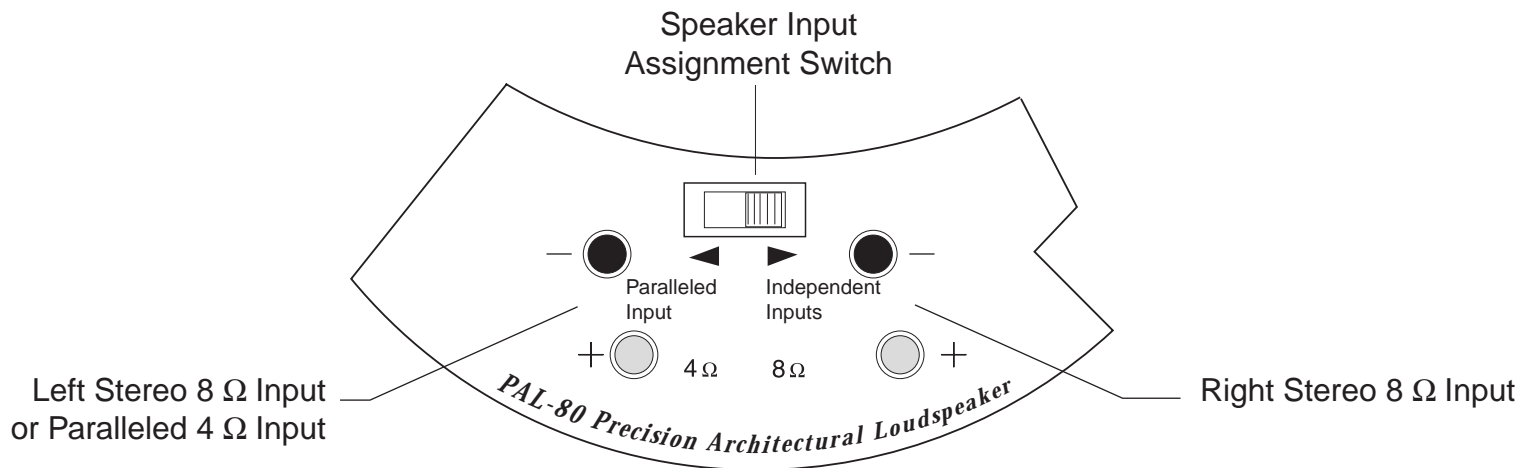
The High adjustment slide switch on the front of the speaker allows you to adjust the tweeter level - 3 dB or +3 dB from its 0 dB middle position. If you are mounting the speaker in a “live” room with many reflective surfaces, you may want to attenuate its treble response. Conversely, if you are mounting the speaker in a “dead” room with many absorbent surfaces, you may want to boost its treble response.

Installing Precision Architectural Loudspeakers

1. Confirm that there is at least 1 1/2" of clearance between each edge of the planned cutout and adjacent studs or joints.
2. Fasten the supplied cardboard template to the wall or ceiling with tape or thumbtacks. Check again for equal distance of both speakers from the wall.
3. Trace around the perimeter of the template.
4. Before making the final cutout, make a small “test cutout” in the center of the penciled outline. Reach inside the test hole to verify that there are no obstructions in the way of your planned cutout.
5. Before cutting the hole, first score the drywall with a razor knife and use a keyhole saw to complete the cut. Remove debris from the edge of the hole.
7. Secure the speaker wire to a stud near the cutout so its weight will not tug on the terminals of the speaker after it is connected. This also keeps the wire from dropping behind the wall before you can connect it.
8. Push down the tab on the speaker terminals and insert the speaker wire into the connector.
9. Insert the speaker into the cutout to make sure it fits easily without forcing.
10. Evenly tighten the mounting screws on the bezel. The mounting “swing-arms” will automatically swing out 90 degrees. After they swing out, the arms then clamp against the drywall from behind the wall. Avoid using excessive force to prevent deforming the drywall or cracking the speaker’s mounting frame.
11. We recommend that you add a “blanket” of sound absorbing material such as ceiling insulation behind the woofer to reduce sound transmission into the adjoining room. Additionally, any sound leakage from behind the molded frame can be blocked with foam weather-stripping directly behind the plastic speaker bezel.



PAL-80, PAL-65, and PAL-45 Bezel Assembly



PAL-80, PAL-65, and PAL-45 Crossover PCB

PAL-80 Precision Architectural Loudspeaker Specifications

Frequency Response	48 Hz-22 kHz +/- 2 dB
Nominal Impedance	8 Ohms
Minimum Impedance	6 Ohms
Sensitivity 1 Watt/1Meter	89 dB
RMS Power Range	10-100 Watts
Woofers Size	8"
Cone Material	Kevlar
Surround Material	Polyurethane
Tweeter Size	Dual 3/4" Dome
Tweeter Diaphragm Material	Aluminum
Crossover Slope	12 dB per octave
Dimensions	
Hole Cut-Out	9 3/8"
Outer Edge of Frame	10 3/4"

PAL-65 Precision Architectural Loudspeaker Specifications

Frequency Response	58 Hz-22 kHz +/- 2 dB
Nominal Impedance	8 Ohms
Minimum Impedance	6 Ohms
Sensitivity 1 Watt/1Meter	89 dB
RMS Power Range	10-80 Watts
Woofers Size	6 1/2"
Cone Material	Kevlar
Surround Material	Polyurethane
Tweeter Size	Dual 3/4" Dome
Tweeter Diaphragm Material	Aluminum
Crossover Slope	12 dB per octave
Dimensions	
Hole Cut-Out	7 3/4"
Outer Edge of Frame	9"

PAL-45 Precision Architectural Loudspeaker Specifications

Frequency Response	80 Hz-22 kHz +/- 2 dB
Nominal Impedance	6 Ohms
Minimum Impedance	4 Ohms
Sensitivity 1 Watt/1Meter	89 dB
RMS Power Range	10-80 Watts
Woofers Size	4 1/2"
Cone Material	Kevlar
Surround Material	Polyurethane
Tweeter Size	Dual 3/4" Dome
Tweeter Diaphragm Material	Aluminum
Crossover Slope	12 dB per octave
Dimensions	
Hole Cut-Out	6"
Outer Edge of Frame	7"



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