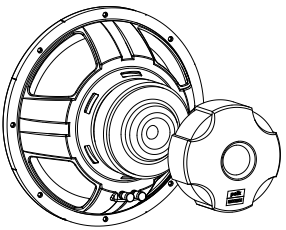
O W N E R ' S M A N U A L

MM2084
MM2104
MM2124
MM2154
MM2084DVC
MM2104DVC
MM2124DVC
MM2154DVC

Polk/MOMO MM Subwoofers

- Four Single Voice Coil (SVC) Subs:
  8" (MM2084), 10" (MM2104), 12" (MM2124) & 15" (MM2154).
- Four Dual Voice Coil (DVC) Component Subs: 8" (MM2084DVC),
  10" (MM2104DVC), 12" (MM2124DVC) & 15" (MM2154DVC).
- Ultra-stiff Metallized ABS Dynamic Balance Cone for massive bass.
- Dish Cone design is supported by a Vented Cone Coupler, increasing axial rigidity.
- State-of-the-art laser-based Klippel measurement technology perfectly centers the subwoofer's voice coil in the magnetic field, improving X-max and BL linearity, and the sub's micro and macro dynamics, for deep, precise, stomach-shaking and spine-wrenching bass.
- Optimized for high performance in small sealed enclosures but versatile enough to pound hard even in bandpass and vented enclosures—Flat, deep bass with great extension as only Polk/MOMO can do it.
- Built tough and backed by the best warranty in the car audio world: Three years parts and labor.
- Durable, airtight Rubber Surround for a long life of extended linear motion, optimized to achieve the longest throw possible for the cone: "Big cone, big throw!"
- Huge, fire-retardant flat NOMEX® Spider allows extended linear motion while providing highly reliable mechanical stability.
- Acoustically inert Stamped Steel Basket with massive, rock-solid non-flexing magnet and motor assembly, Anti-Resonance Trim Gasket and removable Rubber Magnet Boot for more damping and deeper install flexibility.
- Triple vented for maximum airflow, high heat dissipation and high power handling: Vented Coil/Cone Coupler, Vented Spider Platform and Vented Pole Piece all allow cooling air to freely flow over the heat-generating components and better harness all the watts your amp can dish out.
- Professional Grade Nickel Plated Locking Push Terminals for secure connections; big holes accept nice fat wire, big as 12 gauge! Dual connections on DVC models.
- Optional MOMO Design "Quasar II" rim-style Grille available separately at your authorized Polk Audio AutoSound dealer, or at www.shop.polkaudio.com.



Getting Started

Please inspect your loudspeaker(s) carefully. Notify your Polk Audio dealer if you notice any damage or missing items. Keep the carton and packing material; this will do the best job of protecting your speaker(s) if they must be transported.

Safe Limits Of Operation

Your Polk Audio Loudspeakers are constructed of the highest quality materials for years of trouble-free performance. However, damage to loudspeakers can occur when an amplifier, regardless of its wattage, is made to play at higher listening levels than its power can clearly produce. This is usually beyond the "12 or 1 o'clock" position on the volume control. Operation at this level can result in very high levels of audible distortion originating in the amplifier, which can add a harsh, gritty sound to your listening material. If you hear distortion—turn it down! Contrary to popular belief, a speaker is more likely to be damaged by trying to get too much volume from a low-powered amplifier or receiver than from a high-powered one.

Technical Assistance or Service

If, after following the hookup directions, you experience difficulty, please double-check all wire connections. Should you isolate the problem to the speaker, contact the authorized Polk Audio dealer where you made your purchase, or contact Polk Audio Customer Service at 800-377-7655 (M-F, 9-6 EST, US only) or via email polkcs@polkaudio.com. Outside the US, call 410-358-3600.

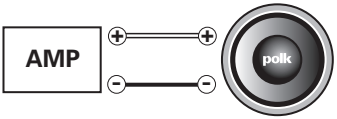
Amplifier Power Requirements For Polk/MOMO Subwoofers

Using one subwoofer, we recommend an amplifier with a power rating of at least 200 watts into 4 Ohms (x1 in bridged mode). If you have a noisy car or intend to play your system at loud listening levels (or, you really wanna pound), more power will be necessary to achieve the best performance. More power is always good.

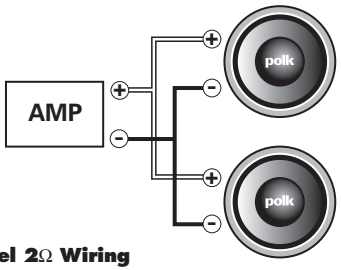
Polk/MOMO's Carbon Series of High Power Amplifiers make great companions for these subwoofers. The Carbon Series is competition quality; three super powerful compact amps built to deliver more watts per dollar no matter what your amplification needs. There's a bridgeable 4-channel model, a bridgeable Stereo model, and a Mono amp for dedicated subwoofer amplification. Each model features the exclusive Polk/MOMO Pre-EQ Switch, which optimizes the crossovers for use with Polk/MOMO Ultra High Performance Speakers and Subwoofers. Match up your components and your speakers, and you can't get better optimized performance.

For more information about Polk/MOMO Carbon Series Amplifiers, visit www.polkaudio.com, or consult your friendly Polk Audio dealer for specific amplifier recommendations.

Basic Wiring Diagrams For MM Series Single Voice Coil Subs



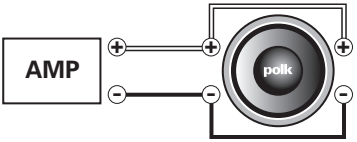
Single 4Ω Wiring



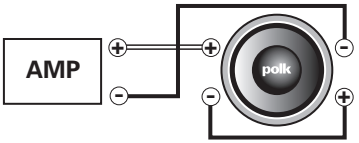
Parallel 2Ω Wiring
Two 4Ω speakers will present a 2Ω load.
Make sure that your amplifier is 2Ω stable when configured in bridge mode.
Consult your amplifier's owner's manual before wiring in this configuration.

Basic Wiring Diagrams for MM Series Dual Voice Coil Subs

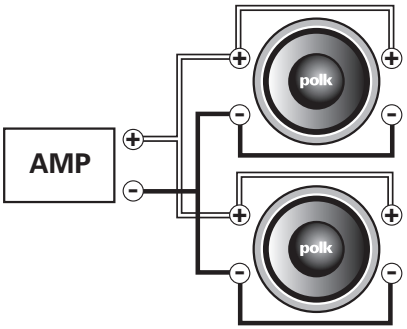
Please make certain that your amplifier is rated to carry the specified load.



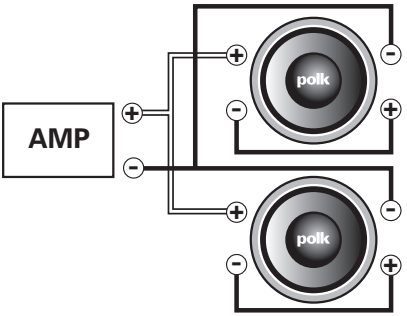
With coils in parallel, a dual 4Ω speaker will present a 2Ω load.



With coils wired in series, a dual 4Ω speaker will present an 8Ω load.

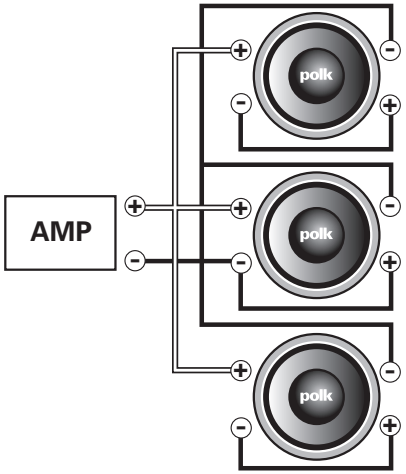


With coils and speakers wired in parallel, 2 dual 4Ω speakers will present a 1Ω load. (Not recommended unless amplifier is rated for 1Ω operation.)



With the coils wired in series and the speakers wired in parallel, 2 dual 4ΩΩ speakers will present a 4Ω load.

Basic Wiring Diagrams For MM Series Dual Voice Coil Subs



With the coils wired in series and the speakers wired in parallel, 3 dual 4Ω speakers will present a 2.7Ω load.

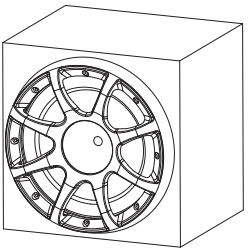
Building an Enclosure for MM Series

Who Is Going To Build Your Subwoofer Enclosure?

Since the subwoofer enclosure is so critical to getting the best performance from your Polk/MOMO subs, you should ask yourself the following questions:

1. Do I really enjoy working with my hands?
2. Do I have good woodworking and mechanical skills?
3. Do I have, or have access to, woodworking and electrical tools?
4. Do I have a solid understanding about musical reproduction in an automobile?

- If you answered NO to any of the above questions, we recommend you choose one of these two possible alternatives: First, there are pre-built subwoofer enclosures on the market from manufacturers like Q-Logic and R/T, or enclosure kits from BassLine and others. The second alternative is to have your authorized Polk Audio dealer design and build a woofer box for you.



- If you answered YES to all of the above, let's review some basics before you begin.

Building Your Own Enclosure

The Polk/MOMO subwoofers have been optimized to give you flat bass response in small sealed enclosures. Some listeners may want response other than "flat," or may want to trade-off depth of response for greater efficiency by using a vented enclosure. There is no way we could provide all the information for all of the options here. This manual will give you enough information to build a great sounding, small sealed enclosure. If you are interested in a greater choice of enclosure designs, your Polk/MOMO dealer has extensive experience designing woofer boxes and will be more than happy to work with you. If you prefer, you can call our Customer Service Department from 9AM to 6PM, Monday through Friday, Eastern Time at 800-377-7655, or visit http://www.polkaudio.com.

Sealed Acoustic Suspension Enclosures

As the Polk/MOMO subwoofers are optimized for acoustic suspension enclosures, we suggest you use this type of design. The acoustic suspension cabinet is a sealed airtight box, and is the easiest box to build. It also is a very predictable enclosure with easily calculated parameters, and it has a smooth natural sound. Properly built acoustic suspension cabinets have a flat frequency response that begins rolling off at 12 dB per octave at the frequencies below its cabinet resonance. This works very well inside a car because of a natural phenomenon called "room gain" that gives you roughly a 12 dB per octave increase in bass frequencies. You can roughly calculate at what frequency this gain begins by using the equation F= 565/L. F is the frequency at which bass gain begins, and L is the longest dimension of your "room." If, for example, you measured the longest dimension of your car as 5.65 ft., the room gain begins at 565/5.65 or 100 Hz. If your goal was perfectly flat frequency response you would design your cabinet for this particular car to have a resonance frequency of 100 Hz. Since most people want more bass than a flat frequency response yields, tuning the cabinet at a lower frequency, say 50 Hz, would give you a gain of 12 dB per octave between 100 and 50 Hz and flat response from 50 Hz down. The larger the cabinet, the lower the resonant frequency, and the lower the efficiency. Two identical systems will sound very different in a Honda vs. a Cadillac. The bigger the car the lower the frequency at which room gain begins.

Tools You Will Need To Build Your Enclosure

If you have decided to build your own enclosure for your Polk/MOMO subwoofers, here is a list of the tools you should have available to you.

- Calculator
- Assorted Drill bits
- Screwdriver bit for drill or manual screwdriver
- Circular saw
- Tape measure
- Drill – electric or cordless
- Jigsaw

Parts You Will Need To Build Your Enclosure

When building a subwoofer enclosure you will find that there are numerous materials recommended for construction.

1. Medium density fiberboard (MDF)
2. Marine grade plywood
3. Particle board (the smaller the particles the better)

These materials range in price as well as availability. Particle board is the most common, least costly, and can be purchased at most hardware stores. MDF and marine grade plywood, although preferable, are usually much harder to find, and much more costly. Whichever you choose, we recommend that its minimum thickness be 3/4". This will provide the rigidity necessary for optimum performance.

If you've never built an enclosure before we are going to try to make this as easy and painless as possible. If you've built enclosures before you can skip this section and go right to the technical sheet to get your parameters.

Complete Parts List:

1. Wood (particle board, MDF, or marine grade plywood) 4' x 8' x 3/4" sheet
2. Wood glue (one 12-16 oz. bottle)
3. 1 1/4"x #8 wood screws (one lb. box)
4. Caulk gun and silicon caulk (two tubes)
5. Terminal cup (one per speaker) available at electronic parts stores
6. Speaker wire (2-4 ft.), up to 12 AWG thickness
7. Carpet (optional)
8. Grills to protect your subwoofers (optional)
9. Solderless speaker connectors (available at electronic parts stores)
10. Fill material (Dacron pillow stuffing)

Designing Your Polk/MOMO Subwoofer Enclosure Step By Step

Recommended sealed enclosure sizes for both SVC & DVC models

MMC2084 .35cu ft.^{3} (9.9L)	MMC2084DVC .35cu ft.^{3} (9.9L)
MMC2104 .66cu ft.^{3} (18.7L)	MMC2104DVC .66cu ft.^{3} (18.7L)
MMC2124 .88cu ft.^{3} (24.9L)	MMC2124DVC .88cu ft.^{3} (24.9L)
MMC2154 1.5cu ft.^{3} (42.5L)	MMC2154DVC 1.5cu ft.^{3} (42.5L)

When designing your subwoofer enclosure, the first thing you need to figure out is, just how large an enclosure will fit in your vehicle. When an enclosure is going in the trunk of a car, you first need to measure your trunk to find the maximum height, width, and depth you can use. Pay attention to trunk hinges and tension bars. If your enclosure is going in an area other than a trunk, make sure you check for similar obstructions. After measuring, subtract 1.5" from each dimension. This compensates for the thickness of the material you use (simply double the thickness, i.e.: if you're using 3/4" material, subtract 1 1/2"; 1" material, subtract 2", etc), and will give you your usable (internal) dimensions.

If you are using a single subwoofer, you can cut your width in half. Since we will be using a pair of MM2124 subwoofers, for our sample enclosure, we now need to determine the center divider displacement. This can be figured out by multiplying the height x depth x thickness of the divider (in our enclosure the thickness of the divider will be the same as the rest of our enclosure, 3/4") and subtracting that number from the total usable cubic inches.

After you have cut all of the wood, it's time to start assembling your enclosure. Before you assemble your enclosure there are a few things we recommend doing. You will need to cut out the hole for your subwoofer and your terminal cup, and pre-drill the holes for your screws. The terminal cup is a connector that allows you to plug and unplug the wires from your amplifier into the enclosure. You may want to have a buddy help you with assembly, since it's hard to hold the pieces together and assemble them at the same time. When building your subwoofer enclosure we suggest that you use wood glue in combination with wood screws for the strongest joint. We also suggest that you use one screw about every three inches along the seams of your enclosure. This will allow you to seal your enclosure more easily, and an air-tight seal is crucial! The best way to insure an air tight seal is to seal the inside of your enclosure with quality silicone caulk. This also includes sealing around your input terminal cup, and if you are using a ported enclosure, around your port.

It is not advised to use silicone around your subwoofer when mounting it to the baffle. Instead, we recommend using the Anti-Resonance Trim Gasket supplied with your Polk/MOMO subwoofer. When mounting your subwoofer to the baffle board, pre-drill your mounting holes. This will make the mounting of your subwoofer easier and will help prevent damage to your subwoofer from a slip of the drill. When securing your subwoofer to the enclosure we recommend using wood screws that are at least 1.25" long. This will insure a good grip into the wood.

One last thing you could do to your enclosure before installing it, is stuff it. The primary reason for stuffing an enclosure is to "trick" the woofer into thinking that the enclosure is larger than it actually is. You would want to do this if you build your box smaller than the recommended size. By stuffing the box you can build the box as much as 10% smaller than recommended, and achieve the same net result as the full size unstuffed box. The easiest way to do this is to use dacron pillow stuffing. It can be bought from craft stores fairly inexpensively. The rule of thumb for "stuffing" your enclosure is 1 pound of dacron per cubic foot. When putting the Dacron into your enclosure, do not pack it in, rather place it evenly around the inside the enclosure. When stuffing a ported or bandpass enclosure, it is important not to obstruct the port or the vent on the back of the sub with Dacron.

Although your new Polk/MOMO subwoofers were designed to work in a wide variety of enclosures and configurations, we have included only the most popular one. For more enclosures and configurations, please contact your local authorized Polk Audio dealer or visit www.polkaudio.com/car/toolbox/subboxplans/. We hope that this manual has helped to take the mystery out of designing an enclosure for your new Polk Audio Polk/MOMO Subwoofers.

What If I Need Help?

If you need assistance or have any questions, call 800-377-7655
between 9AM and 6PM, Monday through Friday Eastern Standard Time
or visit www.polkaudio.com/car/toolbox/subboxplans/.

SKETCH YOUR INSTALL HERE:

Polk/MOMO Subwoofer Specifications

THIELE / SMALL PARAMETERS

	MM2084	MM2104	MM2124	MM2154
Driver Complement	8"	10"	12"	15"
Nominal Impedance	4 Ohms	4 Ohms	4 Ohms	4 Ohms
Frequency response	26 – 200 Hz	24 – 200 Hz	23 – 200 Hz	18 – 150 Hz
Fs (Hz)	43 Hz	35 Hz	31 Hz	24 Hz
Re	3.3 Ohms	3.3 Ohms	3.3 Ohms	3.5 Ohms
Le	1.84 mH	2.56 mH	2.42 mH	3.01 mH
Qms	15.13	13.77	13.66	10.21
Qes	0.68	0.50	0.54	0.49
Qts	0.65	0.48	0.52	0.47
Sd	224 sq. cm / 34.72 sq. in.	353 sq. cm / 54.72 sq. in.	518.7 sq. cm / 80.4 sq. in.	814.3 sq. cm / 126.22 sq. in.
Vas (cubic feet)	0.562 cu. ft.	1.083 cu. ft.	2.249 cu. ft.	6.595 cu.ft.
Vas (liters)	15.90 liters	30.67 liters	63.71 liters	186.75
Power Handling (watts peak)	400 Watts	600 Watts	800 Watts	800 Watts
Sensitivity (SPL at 1 watt / 1 meter)	85 dB	86 dB	88 dB	90 dB
Xmax (mechanical)	.71 in. 18 mm	.71 in. 18 mm	.75 in. 19mm	.79 in. 20mm
Xmax (linear)	.33 in. 8.25 mm	.35 in. 9 mm	.37 in. 9.5 mm	.37 in. 9.5 mm
Voice Coil Diameter	1.5 in. 38.1 mm	2.0 in. 50.8 mm	2.0 in. 50.8 mm	2.0 in. 50.8 mm
Mounting depth top mount with boot	4 1/4" 108.2 mm	5 3/4" 146.3 mm	6 9/16" 166.1mm	7 3/8" 186.7mm
Mounting depth top mount without boot	4" 101.6 mm	5 1/2" 139.7 mm	6 1/4" 158.8mm	7" 177.8mm
Mounting depth bottom mount	4 9/16" 115.9 mm	6 1/4" 158.8 mm	7" 177.8 mm	7 15/16" 201.6 mm
Mounting diameter	7 1/16" 179.4 mm	9 1/16" 230.2 mm	11" 279.4 mm	13 15/16" 3540 mm

Polk Audio's Customer Service Department is available from 9AM to 6PM, EST, Monday through Friday, at 800-377-7655. Please do not hesitate to call us if you have questions about your speaker system.

Polk/MOMO Subwoofer Specifications

THIELE / SMALL PARAMETERS

	MM2084 DVC	MM2104 DVC	MM2124 DVC	MM2154 DVC
Driver Complement	8"	10"	12"	15"
Nominal Impedance	4 Ohms	4 Ohms	4 Ohms	4 Ohms
Frequency response	26 – 200 Hz	24 – 200 Hz	23 – 200 Hz	18 – 150 Hz
Fs (Hz)	43 Hz	38 Hz	31 Hz	24 Hz
Re	3.25 Ohms per Coil	3.25 Ohms per Coil	3.25 Ohms per Coil	3.25 Ohms per Coil
Le	1.94 mH	2.59 mH	2.29 mH	2.20 mH
Qms	6.80	5.93	6.06	6.07
Qes	0.66	0.52	0.61	0.55
Qts	0.6	0.48	0.55	0.51
Sd	224 sq. cm / 34.72 sq. in.	353 sq. cm / 54.72 sq. in.	518.7 sq. cm / 80.4 sq. in.	814.3 sq. cm / 126.22 sq. in.
Vas (cubic feet)	0.624 cu. ft.	0.89 cu. ft.	2.249 cu. ft.	6.595 cu.ft.
Vas (liters)	17.66 liters	25.1 liters	63.71 liters	186.75
Power Handling (watts peak)	400 Watts	600 Watts	800 Watts	800 Watts
Sensitivity (SPL at 1 watt / 1 meter)	85 dB/Series	86 dB/Series	88 dB/Series	90 dB/Series
Xmax (mechanical)	.71 in. 18 mm	.71 in. 18 mm	.75 in. 19mm	.79 in. 20mm
Xmax (linear)	.30 in. 7.5 mm	.37 in. 9.5 mm	.37 in. 9.5 mm	.37 in. 9.5 mm
Voice Coil Diameter	1.5 in. 38.1 mm	2.0 in. 50.8 mm	2.0 in. 50.8 mm	2.0 in. 50.8 mm
Mounting depth top mount with boot	4 1/4" 108.2 mm	5 3/4" 146.3 mm	6 9/16" 166.1mm	7 3/8" 186.7mm
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NOTES:

Polk/MOMO Series Limited Warranty

Polk Audio, Inc., warrants to the original retail purchaser only. This warranty will terminate automatically prior to its stated expiration if the original retail purchaser sells or transfers the Product to any other party.

Polk Audio, Inc., warrants, to the original retail purchaser only, that the LOUDSPEAKER(S), PASSIVE CROSSOVER COMPONENT(S) and ENCLOSURE on this Polk Audio Loudspeaker Product will be free from defects in material and workmanship for a period of three (3) years from the date of original retail purchase from a Polk Audio Authorized Dealer.

Furthermore, Polk Audio, Inc., warrants, to the original retail purchaser only, that any AMPLIFIER OR OTHER ELECTRONIC COMPONENT that may be included in this Polk Audio Loudspeaker Product will be free from defects in material and workmanship for a period of three (3) years from the date of original retail purchase from a Polk Audio Authorized Dealer.

To allow Polk Audio to offer the best possible warranty service, please register your new product online at: www.polkaudio.com/registration or call Polk customer service 800-377-7655 in the USA and Canada (outside the USA: 410-358-3600) within ten (10) days of the date of original purchase. Be sure to keep your original purchase receipt.

Defective Products must be shipped, together with proof of purchase, prepaid insured to the Polk Audio Authorized Dealer from whom you purchased the Product, or to the Factory at 2550 Britannia Boulevard, Suite A, San Diego, California 92154. Products must be shipped in the original shipping container or its equivalent; in any case the risk of loss or damage in transit is to be borne by you. If upon examination at the Factory or Polk Audio Authorized Dealer it is determined that the unit was defective in materials or workmanship at any time during this Warranty period, Polk Audio or the Polk Audio Authorized Dealer will, at its option, repair or replace this Product at no additional charge, except as set forth below. All replaced parts and Products become the property of Polk Audio. Products replaced or repaired under this warranty will be returned to you, within a reasonable time, freight prepaid.

This warranty does not include service or parts to repair damage caused by accident, disaster, misuse, abuse, negligence, inadequate packing or shipping procedures, commercial use, voltage inputs in excess of the rated maximum of the unit, cosmetic appearance of cabinetry not directly attributable to defect in materials or workmanship, or service, repair, or modification of the Product which has not been authorized or approved by Polk Audio. This warranty shall terminate if the Serial number on the Product has been removed, tampered with or defaced.

This warranty is in lieu of all other expressed Warranties. If this Product is defective in materials or workmanship as warranted above, your sole remedy shall be repair or replacement as provided above. In no event will Polk Audio, Inc. be liable to you for any incidental or consequential damages arising out of the use or inability to use the Product, even if Polk Audio, Inc. or a Polk Audio Authorized Dealer has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply to you.

All implied warranties on this Product are limited to the duration of this expressed Warranty. Some states do not allow limitation on how long an implied Warranty lasts, so the above limitations may not apply to you. This Warranty gives you specific legal rights, and you also may have other rights which vary from state to state.

This Warranty applies only to Products purchased in Canada, the United States of America, its possessions, and U.S. and NATO armed forces exchanges and audio clubs.

The Warranty terms and conditions applicable to Products purchased in other countries are available from the Polk Audio Authorized Distributors in such countries.

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Baltimore, Maryland 21215
800-377-7655
www.polkaudio.com
www.polkmomo.com

Contact Polk Audio Customer Service 800-377-7655 (M-F, 9-6 EST, US only) or via email polkcs@polkaudio.com. Outside the US, call 410-358-3600.

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