



PBX1-8D2  
PBX1-8D4  
PBX1-10D2  
PBX1-10D4  
PBX1-12D2  
PBX1-12D4

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## PBX1 Subwoofer Series

# Application Guide



### Thank you and Congratulations

Congratulations on your decision to purchase PowerBass Xtreme "PBX1" Series subwoofers. These top-of-the-line speakers are the result of years of extensive engineering and testing, resulting in the finest car audio subwoofers you can purchase today.



At PowerBass USA, Inc. we are confident you will have many years of outstanding enjoyment from your investment. For maximum performance we recommend that you have your new PowerBass Xtreme product installed by an Authorized PowerBass Xtreme Dealer. Doing so will also automatically extend your warranty to a full THREE-YEAR Period.

To learn more about PowerBass Xtreme, please visit us on the World Wide Web at  
<http://www.powerbassusa.com>

#### Δ Warning Δ

Continuous exposure to sound pressure levels in excess of 100 dB can cause permanent hearing loss. PowerBass Xtreme Speakers are capable of producing sound pressure levels well over 170 dB. Please observe all local sound ordinances while listening to your PowerBass Xtreme system. PowerBass USA, Inc. accepts no liability for hearing loss, bodily injury, or property damage due to the result of use or misuse of this product.

## POWERBASS XTREME PBX1 WOOFER FEATURES

**Parabolic Santoprene Surround** EPDM Rubber mixed with Polypropylene ensures cone linearity and control while maintaining durable form.

**Poly/Mica Cone** for strong and distortion free bass reproduction while still reproducing all the musical nuances.

**Hybrid Progressive Spiders** providing precise control of the piston at high volumes and still maintains the sonic details at lower volumes.

**BASV Voice Coil Former** extracts and dissipates harmful heat from the voice coil for better power handling.

**Textured Non Resonate Basket** textured and treated to ensure diffusion of resonate waves across the surface of the basket

**Multi Enclosure Design** maximizes your listening preferences without giving up any sound quality whether you want a sealed or ported enclosure.

***Santoprene® is a registered trademark of ExxonMobil Chemical Co.***

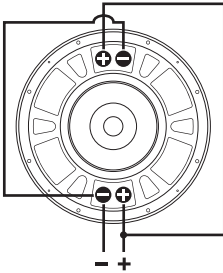
## WIRING GUIDELINES

**It is highly recommended that you seek an authorized PowerBass dealer to properly setup, wire and install your woofers for maximum performance.**

There are multiple ways to wire your woofers depending on your amplifier and system configuration. The use of multiple voice coils offers you more versatility in system configuration. It is important to know the limits of your amplifier to optimize its performance. It is always better to use your subwoofer in a mono / bridged mode if your amplifier has the capabilities. There are basically four different types of wiring configurations: Series, Parallel, Series-Parallel or Parallel-Parallel. It is possible to change the impedance or load by how the speakers are to be wired and by the quantity of woofers used.

### DUAL VOICE COIL WIRING

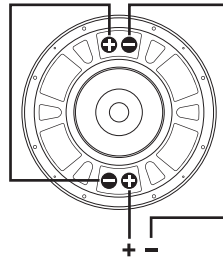
#### PARALLEL



AMPLIFIER

Parallel wiring a dual 4 ohm sub = 2 ohm

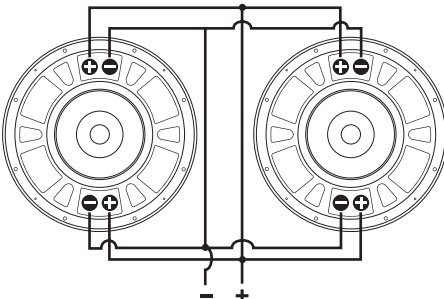
#### SERIES



AMPLIFIER

Series wiring a dual 4 ohm sub = 8 ohm

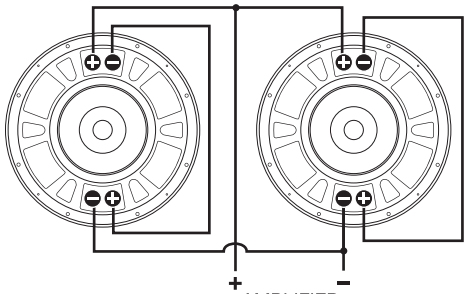
#### PARALLEL-PARALLEL



AMPLIFIER

Parallel-Parallel wiring two dual 4 ohm subs = 1 ohm

#### SERIES PARALLEL



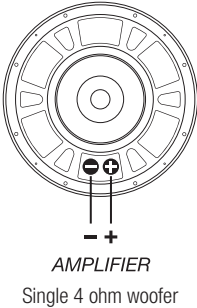
AMPLIFIER

Series-Parallel wiring two dual 4 ohm subs = 4 ohm

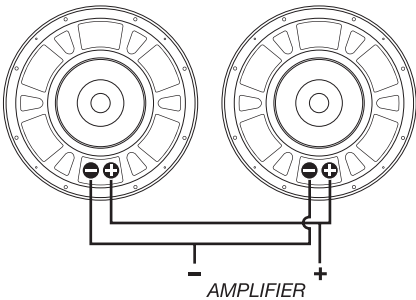
**NOTE: Never connect only one coil of a Dual Voice Coil (DVC) speaker. BOTH voice coils must be connected to the amplifier**

# SINGLE VOICE COIL WIRING

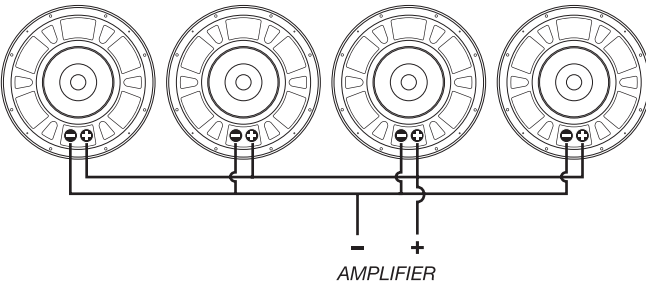
## STANDARD



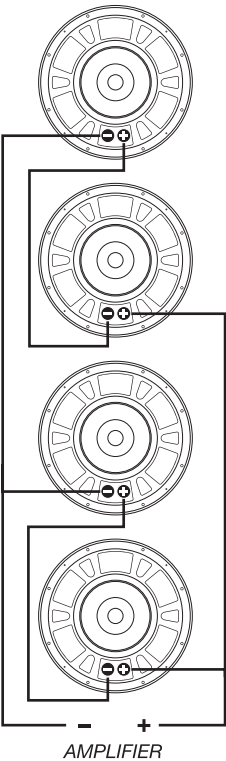
## PARALLEL



## PARALLEL-PARALLEL



## SERIES PARALLEL



## TIPS TO GET THE MOST OUT OF YOUR PBX1 WOOFER

Your PowerBass Xtreme subwoofer has been meticulous engineered and designed to handle high power musical reproduction. Despite their rugged construction, it is possible to damage your speaker if they are improperly used. In general, you will hear distortion as a so-called warning before any damage occurs. If you hear distortion in your system, immediately reduce the musical level to the point where the sound retains its clarity.

1. All PowerBass Xtreme subwoofers require an initial break-in period before it will reach optimum performance. Like any new precision machinery, allow a minimum of several days to one week with normal daily usage to ensure that the suspension has properly been broken-in.
2. Be sure you supply the speakers with enough unclipped amplifier power to drive them properly. (More damage can be done to a speaker by under-powering and clipping your amplifier than any other way!)
3. Where possible, run your Speakers in mono instead of stereo. Most bass is reproduced in mono so there is less chance of any cancellation if played in mono.
4. Where possible, wire your Speakers in parallel instead of series. Bass is reproduced either way but again there is less chance of cancellation in parallel. NOTE: Be sure the amplifier you are using is stable to the resulting impedance of the speaker load!
5. Where possible, a separate amplifier just for your subwoofers should be used with an electronic crossover to set the frequency range.
6. Do not block the front of your speakers or ports. You want as much direct air coupling as possible. Also be sure to round off the inside edges of the port to reduce any port noise.
7. For ported enclosures, keep in mind that you must leave at least twice the port diameter size between the subwoofer and the port itself. Leave at least one time the port diameter between the port and any walls of the enclosure.

***Note: Please use the enclosed paper template if you are pre-drilling speaker mounting pilot holes - do not use the woofer as a template.***

**BOX CONSTRUCTION (SEALED OR VENTED):** The material used for enclosure walls should be solid, dense and free of voids or warps. Your enclosure should be made ¾" or 19mm material, Finland or Baltic birch type plywood is recommended where the enclosure will be transported frequently. High-density fiberboard - MDF (not chip board) can be used on permanently installed systems.

Minimum of 1" (25mm) or double ¾" (1-1/2") baffle is recommended on high-powered SPL applications. Corners must be strong and air tight and should not have any air leaks or openings. Joints should be properly filled with glue that will not crack under high stress or impact. If the integrity of the glue seal can't be determined, hot glue or RTV caulking should be used to seal all seams.

Fiber reinforced resin may also be used to form any difficult shapes. However avoid making large panels with resin to eliminate any chances of box flexing, cracking or ratting under high pressure. Bracing made of 2 x 2" or 2 x 4" should be liberally applied either inside or outside the cabinet, depending on whether the cabinet is to be permanently installed or portable. This principle applies to any walls of the enclosure spanning more than 18" long.

Any braces should also be liberally glued or screwed down on edge. Edge-wise drilled, and countersunk holes through the braces can be used for #10-2 Flathead wood screws to avoid the use of more expensive lag bolts. The majority of strength from an enclosure comes from the glue. When using screws be sure to pre-drill holes to avoid splitting the wood.

***Note: Do not mount the woofer in the enclosure within 24 hours of sealing the internal joints. The gasses given off as the sealer cures can affect the surround of the speaker resulting in permanent damage that will void the warranty.***

***WARNING! The use of silicone rubber to seal in a speaker will void the Warranty! If any sealing is needed in addition to the speaker's gasket, use caulking cord or vinyl weather strip.***

## **BREAK IN PERIOD**

To get the most from your woofer we recommend a "break-in" period of at **least 40 hours** at no more than 1/3 of maximum volume.

During this time the cone and spider assembly will gradually break in resulting in greater performance and more listening enjoyment.

## **SUBWOOFER Crossover SETTING**

Your PowerBass subwoofers will perform best if they are used in conjunction with a subwoofer crossover of some kind. Using a crossover will remove unwanted high frequencies and allow them to concentrate only on bass. The two most common types of crossovers are "passive" or "active" (electronic crossovers are active). Many amplifiers have a built in Low Pass (LPF) electronic crossover circuit. For optimum subwoofer performance we recommend an initial electronic crossover setting between 40-100Hz and then tuning the bass to your liking.

**PARAMETERS FOR POWERBASS  
PBX1 SERIES WOOFERS**

(Due to Constant Improvements, Specifications and Parameters are subject to change without notice)

	PBX1-8D2	PBX1-8D4	PBX1-10D2	PBX1-10D4
<b>VC Impedance (ohms)</b>	2Ω + 2Ω	4Ω + 4Ω	2Ω + 2Ω	4Ω + 4Ω
<b>Test Impedance (ohms)</b>	1.08	1.90	1.58	2.30
<b>Driver Displacement</b>	0.059	0.059	0.094	0.094
<b>Fs (Hz)</b>	40.9	44.8	33.1	34.6
<b>SD (sqCM)</b>	213.82	213.82	380.13	380.13
<b>Vas (Ltr)</b>	9.2778	8.4254	24.856	28.706
<b>CMS (MM/N)</b>	0.143	0.130	0.122	0.140
<b>Mms (g)</b>	105.349	96.852	189.970	150.925
<b>BL™</b>	6.600	8.263	6.943	9.912
<b>Qms</b>	5.906	5.533	6.279	5.865
<b>Qes</b>	0.670	0.758	1.164	1.072
<b>Qts</b>	0.602	0.667	0.982	0.906
<b>No (%)</b>	0.091	0.096	0.084	0.076
<b>Spl (dB)</b>	82	82	81	83
<b>Xmax (mm)</b>	9 mm	9 mm	14.9 mm	14.9 mm
<b>Voice Coil Size (inches)</b>	1.5"	1.5"	2.0"	2.0"
<b>Frequency Response (Hz)</b>	40-400 Hz	45-400Hz	28-350 Hz	29-350Hz
<b>Mounting Depth</b>	5.25"	5.25"	5.5"	5.5"
<b>Power (RMS/Peak)</b>	300/600 watts	300/600 watts	450/900 watts	450/900 watts

\* Please note specifications are tested with coils in parallel configuration





**PARAMETERS FOR POWERBASS  
PBX1 SERIES WOOFERS**

(Due to Constant Improvements, Specifications and Parameters are subject to change without notice)

	PBX1-12D2	PBX1-12D4
VC Impedance (ohms)	2Ω + 2Ω	4Ω + 4Ω
Test Impedance (ohms)	1.04	1.93
Driver Displacement	0.144	0.144
Fs (Hz)	29.9	31.3
SD (sqCM)	183.195	170.032
Vas (Ltr)	97.8444	56.2752
CMS (MM/N)	0.245	0.141
Mms (g)	197.019	183.856
BL™	6.618	8.615
Qms	5.868	5.393
Qes	0.671	0.939
Qts	0.603	0.800
No (%)	0.168	0.176
Spl (dB)	85	85
Xmax (mm)	14.5 mm	14.5 mm
Voice Coil Size (inches)	2.0"	2.0"
Frequency Response (Hz)	30-400 Hz	30-400 Hz
Mounting Depth	6.0"	6.0"
Power (RMS/Peak)	500/1000 watts	500/1000 watts

\* Please note specifications are tested with coils in parallel configuration



# RECOMMENDED ENCLOSURES

Please note that these enclosure volume recommendations are for the internal airspace inside the enclosure and include the displacement of the subwoofer and ports. When choosing your enclosure type, please pay close attention to your specific woofer, failing to use the correct enclosure may result in lower power handling and poor sound quality. ***To calculate the internal airspace required, take the internal dimensions of the box. First multiple these number by themselves and then divide this sum by 1728. (W x H x D) / 1728.*** Please contact your authorized PowerBass Xtreme dealer for other designs and specifications. ***(Even though these subwoofers can be used in a ported enclosure, PowerBass recommends a sealed enclosure for optimum performance and sound quality.)***

## PBX1-8D2 / PBX1-8D4 Sealed Enclosures

SEALED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	0.34 cuft	0.59 cuft	0.76 cuft
F3 (-3dB Cutoff)	52 Hz	51 Hz	50 Hz
Pe (Watts-RMS)	100-300W	100-300W	100-300W

## PBX1-10D2 / PBX1-10D4 Sealed Enclosures

SEALED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	0.59 cuft	0.84 cuft	1.1 cuft
F3 (-3dB Cutoff)	39 Hz	36 Hz	34 Hz
Pe (Watts-RMS)	100-450W	100-450W	100-450W

## PBX1-12D2 / PBX1-12D4 Sealed Enclosures

SEALED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	1.15 cuft	1.39 cuft	1.65
F3 (-3dB Cutoff)	39 Hz	37 Hz	35 Hz
Pe (Watts-RMS)	100-500W	100-500W	100-500W

**PBX1-8D2 / PBX1-8D4 Ported Enclosures**


PORTED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	0.62 cuft	0.85 cuft	1.20 cuft
Port Frequency	52 Hz	48 Hz	42 Hz
F3 (-3dB Cutoff)	41 Hz	37 Hz	33 Hz
Port Dimensions	3" x 12" round port	3" x 9" round port	4" x 17" round port
Pe (Watts-RMS)	100-300W	100-300W	100-300W

**PBX1-10D2 / PBX1-10D4 Ported Enclosures**

PORTED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	0.99 cuft	1.21 cuft	1.46 cuft
Port Frequency	48 Hz	45 Hz	40 Hz
F3 (-3dB Cutoff)	36 Hz	33 Hz	30 Hz
Port Dimensions	4" x 17" round port	4" x 14" round port	4" x 15" round port
Pe (Watts-RMS)	100-450W	100-450W	100-450W

**PBX1-12D2 / PBX1-12D4 Ported Enclosures**

PORTED ENCLOSURE TYPE	Compact	Universal	Audiophile
Gross Vb Internal	1.47 cuft	1.71 cuft	2.21 cuft
Port Frequency	48 Hz	45 Hz	40 Hz
F3 (-3dB Cutoff)	39 Hz	36 Hz	31 Hz
Port Dimensions	4" x 9" round port	4" x 8" round port	4" x 7.5" round port
Pe (Watts-RMS)	100-500W	100-500W	100-500W



**Tech Support**  
8:30am-5:30pm Pacific Time  
(909) 923-3868  
[www.powerbassusa.com](http://www.powerbassusa.com)

## POWERBASS XTREME LIMITED WARRANTY POLICY

PowerBass USA, Inc. offers limited warranty on PowerBass products under normal use on the following terms:

**PowerBass Xtreme Speakers are to be free of defects in material and workmanship for a period of one (1) year. The warranty is extended to three (3) years for parts and labor, if an Authorized PowerBass Xtreme Dealer completes the installation.**

This warranty applies only to PowerBass products sold to consumers by Authorized PowerBass Dealers in the United States of America. Products purchased by consumers from a PowerBass dealer in another country are covered only by that country's Distributor and not by PowerBass USA.

This warranty covers only the original purchaser of PowerBass product. In order to receive service, the purchaser must provide PowerBass with a valid purchase receipt from an authorized reseller stating the consumer name, dealer, product and date of purchase.

Products found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at PowerBass's discretion and will not be liable for incidental or consequential damages. PowerBass will not warranty this product under the following situations:

- **Speakers received with bent frames or water damage**
- **Abuse such as holes in the cone, surround or ripped spider**
- **Voice coil damage due to amplifier clipping or distortion**
- **Product that has not been installed according to this owners manual**

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for PowerBass any other liability in connection with the sale of this product.

**Please call (909) 923-3868 for PowerBass Customer Service.** You must obtain an RA# (Return Authorization Number) to return any product to PowerBass. **The RA number must be prominently marked on the outside of the shipping carton or the delivery will be refused.** Please pack your return carefully; we are not responsible for items damaged in shipping. Return the defective product along with a copy of the original dated retail sales receipt, plus \$12.00 for handling and diagnostic evaluation to:

**PowerBass USA, Inc.,  
Attn: Returns (RA# \_\_\_\_\_)  
2133 S. Green Privado, Ontario, CA 91761**

Residents of HI, AK and US territories will be charged for return shipping. All inquiries regarding service and warranty should be sent to the above address.

**Removed or altered serial numbers will void this warranty**









PowerBass Xtreme (PBX) – A division of PowerBass USA, Inc.

2133 S. Green Privado – Ontario, CA 91761

Tel. (909) 923-3868 – Fax (909) 923-8048

[www.powerbassusa.com](http://www.powerbassusa.com)