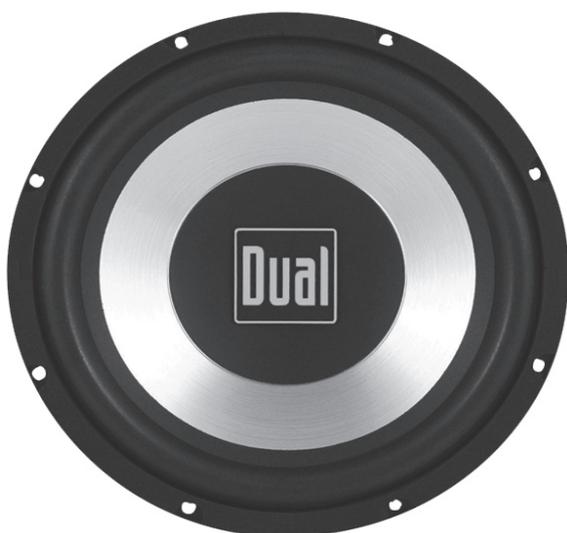


DS10
DS12
XS10



DS - XS SERIES

INSTALLATION/OWNERS MANUAL

Car Audio Subwoofers





Getting Started

Thank you for purchasing a Dual DS or XS series subwoofer. Although Dual has attempted to make sure all of the information contained within this manual is accurate, please be aware that any part of it is subject to change without notice.

Safety

**CAUTION**

This symbol is intended to alert the user to the presence of important instructions. Failure to heed the instructions can result in injury or unit damage.

**CAUTION**

To prevent injury and damage to the unit, please read and follow the instructions in this manual.

**CAUTION**

If you feel unsure about installing this system yourself, have it installed by a qualified audio technician.

**CAUTION**

Before installation, disconnect the battery negative (-) terminal to prevent damage to the unit, fire and/or possible injury.

Installation

**CAUTION**

The following installation instructions are very basic. If you feel unsure about personally installing this speaker system, Dual recommends acquiring the services of a professional car audio installation center.

Before installation, please follow the following rules:

1. Be sure to carefully read and understand the instructions before attempting to install this product.
2. For safety, disconnect the negative terminal from the battery prior to beginning the installation.
3. For easier assembly: If additional wiring is required, we recommend running all wires prior to mounting your speaker in place.
4. Use the highest quality connectors for a reliable installation and to minimize signal or power loss.
5. Use caution before you drill or cut! Be careful not to cut or drill into gas tanks, fuel lines, brake or hydraulic lines, vacuum lines or electrical wiring when working on any vehicle.
6. Never run speaker wires underneath your vehicle. Running speaker wires inside the vehicle provides the best protection from exhaust heat and environmental elements.
7. Avoid running wires over, near, or through sharp edged surfaces. We suggest you also use rubber grommets to protect any wires routed through metal, especially the firewall.



DS - XS SERIES SUBWOOFER INFO

XS Subwoofer Information



XS10

Sensitivity: 87dB

Freq. Response: 30Hz-125Hz

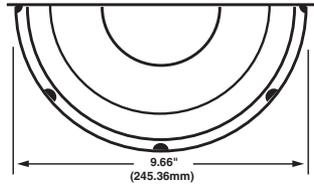
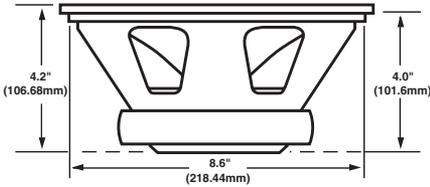
Nominal Impedance: 4 ohms

Peak Power: 400 watts

RMS: 150 watts

Voice Coil Size: 2"

Magnet Size: 24oz.



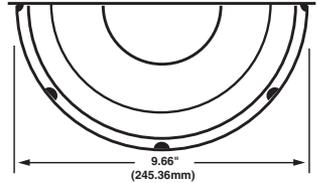
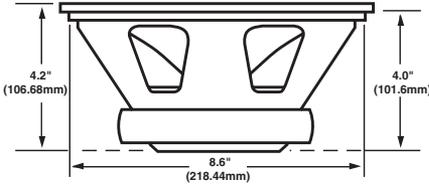


DS Subwoofer Information



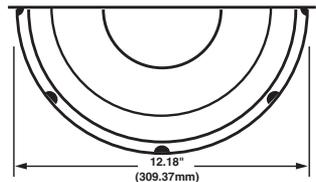
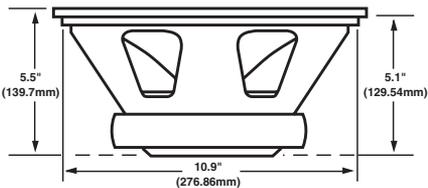
DS10

Sensitivity: 87dB
 Freq. Response: 30Hz-125Hz
 Nominal Impedance: 4 ohms
 Peak Power: 400 watts
 RMS: 150 watts
 Voice Coil Size: 2"
 Magnet Size: 24oz.



DS12

Sensitivity: 88dB
 Freq. Response: 28Hz-125Hz
 Nominal Impedance: 4 ohms
 Peak Power: 500 watts
 RMS: 175 watts
 Voice Coil Size: 2"
 Magnet Size: 38.2oz.





Enclosure Guidelines

To achieve the best possible sound from this subwoofer enclosure, Dual recommends acquiring the services of a professional car audio installation center.

If you feel confident in your ability to install this product without the assistance of a professional, please read this section thoroughly. We have provided a number of placement recommendations and installation tips to assist you. Keep in mind these are provided as a guideline and you may find that other placements specific to your vehicle may provide better results.

- Make sure all moving parts and factory electrical wires are out of the way and will not interfere after installation.
- Ensure the wire is of sufficient length to avoid pulling or stretching. This is even more important if the wires will be run under or through the factory interior.
- Use electrical tape and wire ties to ensure all wires are properly secured.
- Avoid installing speakers or electronics where they can be subject to moisture.
- Ensure the speaker wires are connected using correct polarity. The positive polarity is marked by a (+) sign. Incorrectly connected subwoofers will result in limited bass output.
- Speaker wire should be isolated from the vehicle's electrical system to avoid noise being picked up by the amplifiers.
- We recommend using 14 gauge or larger sized speaker wire to ensure your subwoofer receives the full power output of your amplifier.
- Remember to listen responsibly and respect your ears. Being exposed to sounds over 125dB for even short periods of time can create permanent hearing loss!

Enclosure Guidelines

To work properly, the walls of your enclosure must be free from flexing during high sound pressure generated by your subwoofer(s).

For best performance, always use MDF (Medium Density Fiberboard) or Baltic Birch Plywood to build your enclosure. We highly recommend that your wood be at least 3/4" in thickness. The enclosure should be sealed internally with silicon or glue and secured with screws every 4".

Assemble the box before cutting the subwoofer hole(s). If the box will be mounted in a vehicle, it should be fastened securely using metal "L" shaped brackets.

To build an enclosure, calculations will need to be made using the information found on the following 3 pages.

Remember:

- Use 3/4" MDF or Baltic Birch Plywood
- Use silicon or glue in joints
- Use screws every 4 inches



CAUTION

We at Dual are diligent in checking the dimensions provided. The engineers, staff and installers provide this information to make your installation go as smoothly as possible. Errors do occasionally occur. We highly recommend that you personally measure your subwoofer prior to installation to avoid any damage. Please follow the rule "Measure twice, cut once".



Sealed Enclosure

10" Subwoofer Enclosures

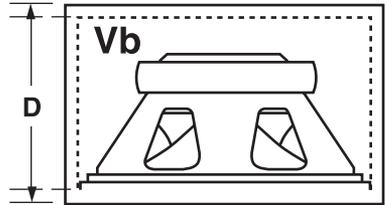
Good Bass Performance

Mini-Enclosure

(Vb) Box Volume=.35 Cu. Ft.

Example

Dimensions: 13.5" W x 13.5" H x 6.625" D



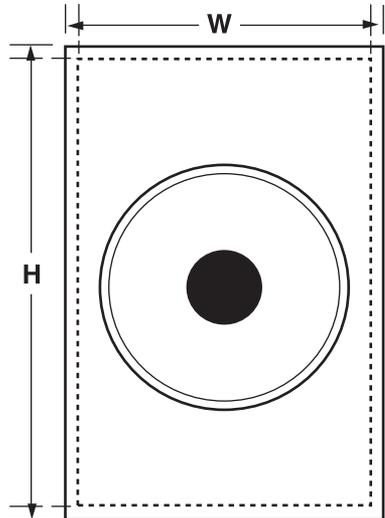
Better Bass Performance

Small Enclosure

(Vb) Box Volume=.55 Cu. Ft.

Example

Dimensions: 14.5" W x 16" H x 7.25" D



Best Bass Performance

Medium Enclosure

(Vb) Box Volume=.75 Cu. Ft.

Example

Dimensions: 14" W x 16" H x 9.625" D

12" Subwoofer Enclosures

Good Bass Performance

Mini-Enclosure

(Vb) Box Volume=.75 Cu. Ft.

Example

Dimensions: 14" W x 14" H x 11.5" D

Better Bass Performance

Small Enclosure

(Vb) Box Volume=1.00 Cu. Ft.

Example

Dimensions: 15" W x 14" H x 13" D

Best Bass Performance

Medium Enclosure

(Vb) Box Volume=1.25 Cu. Ft.

Example

Dimensions: 17" W x 15" H x 13" D

Attention/Notice:

- Dimensions are external

Vented Enclosure

10" Subwoofer Enclosures

Good Bass Performance

Mini-Enclosure

(Vb) Box Volume=.75 Cu. Ft.

Example

Dimensions: 13.25" W x 13.25" H x 13" D

(P) Port=3" ID x 8.62" Long

Better Bass Performance

Small Enclosure

(Vb) Box Volume=1.00 Cu. Ft.

Example

Dimensions: 14.25" W x 15.5" H x 13" D

(P) Port=3" ID x 7.62" Long

Best Bass Performance

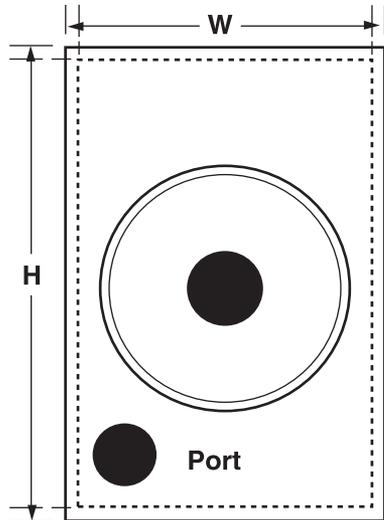
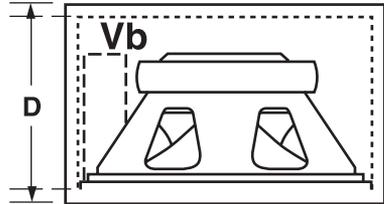
Medium Enclosure

(Vb) Box Volume=1.25 Cu. Ft.

Example

Dimensions: 14" W x 19" H x 13" D

(P) Port=3" ID x 6.875" Long



12" Subwoofer Enclosures

Good Bass Performance

Mini-Enclosure

(Vb) Box Volume=1 Cu. Ft.

Example

Dimensions: 14.25" W x 17" H x 12" D

(P) Port=3" ID x 9.7" Long

Better Bass Performance

Small Enclosure

(Vb) Box Volume=1.25 Cu. Ft.

Example

Dimensions: 14.50" W x 17" H x 14" D

(P) Port=3" ID x 10.25" Long

Best Bass Performance

Medium Enclosure

(Vb) Box Volume=1.5 Cu. Ft.

Example

Dimensions: 14" W x 20.25" H x 14" D

(P) Port=3" ID x 11.75" Long

Attention/Notice:

- Dimensions are external



Bandpass Enclosure

10" Subwoofer Enclosures

Good Bass Performance/Mini-Enclosure

- (Vf) Box Volume .38 Cu. Ft.
- (Vr) Box Volume .31 Cu. Ft.
- (P) Port 4" ID x 5.125" Long
- (Sb) Speaker baffle location/outside front: 5.75"
- Example Dimensions: 14" W x 11.75" H x 14" D

Better Bass Performance/Small Enclosure

- (Vf) Box Volume .54 Cu. Ft.
- (Vr) Box Volume .46 Cu. Ft.
- (P) Port 4" ID x 4.812" Long
- (Sb) Speaker baffle location/outside front: 7.5"
- Example Dimensions: 14" W x 15.2" H x 14" D

Best Bass Performance/Medium Enclosure

- (Vf) Box Volume .60 Cu. Ft.
- (Vr) Box Volume .82 Cu. Ft.
- (P) Port 4" ID x 7.125" Long
- (Sb) Speaker baffle location/outside front: 7.375"
- Example Dimensions: 14" W x 19.75" H x 14" D

12" Subwoofer Enclosures

Good Bass Performance/Mini-Enclosure

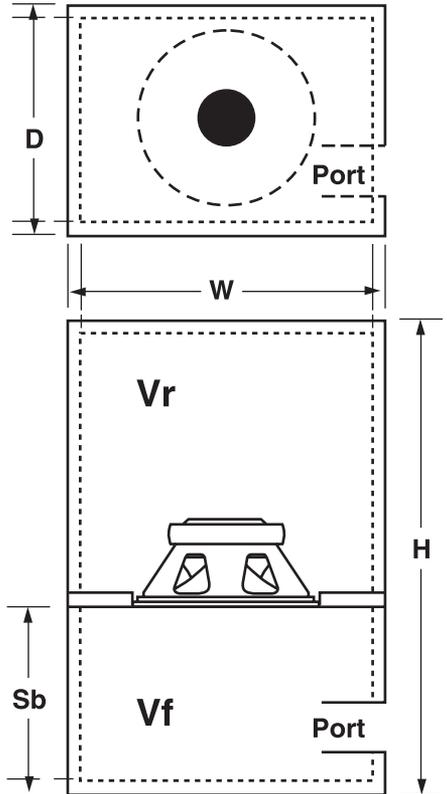
- (Vf) Box Volume .84 Cu. Ft.
- (Vr) Box Volume .47 Cu. Ft.
- (P) Port 4" ID x 1.0" Long
- (Sb) Speaker baffle location/outside front: 9.25"
- Example Dimensions: 15" W x 16.5" H x 15" D

Better Bass Performance/Small Enclosure

- (Vf) Box Volume .84 Cu. Ft.
- (Vr) Box Volume .69 Cu. Ft.
- (P) Port 4" ID x 2.625" Long
- (Sb) Speaker baffle location/outside front: 9.25"
- Example Dimensions: 15" W x 18.5" H x 15" D

Best Bass Performance/Medium Enclosure

- (Vf) Box Volume .84 Cu. Ft.
- (Vr) Box Volume .91 Cu. Ft.
- (P) Port 4" ID x 4.25" Long
- (Sb) Speaker baffle location/outside front: 9.25"
- Example Dimensions: 15" W x 20.75" H x 15" D



Attention/Notice:

- Dimensions are external



Limited One-Year Warranty

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

Dual Electronics Corp. warrants this product to the original purchaser to be free from defects in material and workmanship for a period of one year from the date of the original purchase.

Dual Electronics Corp. agrees, at our option, during the warranty period, to repair any defect in material or workmanship or to furnish an equal new, renewed or comparable product (whichever is deemed necessary) in exchange without charges, subject to verification of the defect or malfunction and proof of the date of purchase. Subsequent replacement products are warranted for the balance of the original warranty period.

Who is covered? This warranty is extended to the original retail purchaser for products purchased and used in the U.S.A.

What is covered? This warranty covers all defects in material and workmanship in this product. The following are not covered: installation/removal costs, damage resulting from accident, misuse, abuse, neglect, product modification, improper installation, incorrect line voltage, unauthorized repair or failure to follow instructions supplied with the product, or damage occurring during return shipment of the product.

What to do?

1. Before you call for service, check the troubleshooting guide in your owner's manual. A slight adjustment of any custom controls or connections discussed in your instruction booklet may save you a service call.
2. If you require service during the warranty period, you must carefully pack the product (preferably in the original package) and ship it by prepaid transportation with a copy of the original receipt from the retailer to an authorized service center.
3. Please describe your problem in writing and include your name, a return UPS shipping address (P.O. Box not acceptable), and a daytime phone number with your shipment.
4. For more information and for the location of the nearest authorized service center please contact us by one of the following methods:

Call us toll-free at 1-866-382-5476
E-mail us at cs@dualav.com

Exclusion of Certain Damages: This warranty is exclusive and in lieu of any and all other warranties, expressed or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose and any obligation, liability, right, claim or remedy in contract or tort, whether or not arising from the company's negligence, actual or imputed. No person or representative is authorized to assume for the company any other liability in connection with the sale of this product. In no event shall the company be liable for indirect, incidental or consequential damages.



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