

DD Audio VO-XN306-S4

DD Audio VO-XN306-S4 6.5-inch 2-Way Coaxial Speakers User Manual

Model: VO-XN306-S4

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your DD Audio VO-XN306-S4 6.5-inch 2-Way Coaxial Speakers. Please read this manual thoroughly before installation and use to ensure proper function and longevity of your speakers.

The DD Audio VO-XN306-S4 speakers are designed for high-fidelity audio reproduction in automotive environments, featuring robust construction and advanced acoustic engineering to deliver clear, powerful sound.

2. PRODUCT FEATURES

The VO-XN306-S4 coaxial speakers incorporate several advanced features for superior performance:

- **Enhanced Neodymium Motor:** Features a larger Neodymium motor and a 1.8-inch voice coil, increasing total area by 25% for improved power handling and output.
- **4th Gen B1 Compression Driver:** Utilizes a smaller, all-aluminum body compression driver for precise high-frequency reproduction.
- **Wide Frequency Response:** Capable of reproducing frequencies from 85Hz up to 20kHz, simplifying system design.
- **Durable Construction:** Includes sealed voice coil gaps and water-resistant, synthetic resin cones for rigidity and light moving mass, designed to withstand harsh environmental conditions.
- **Bi-Ampable Design:** Allows for separate amplification of the woofer and tweeter sections for advanced system tuning.
- **Removable Rear Heatsink:** Provides increased mounting flexibility.



Figure 2.1: Front view of the DD Audio VO-XN306-S4 coaxial speakers, highlighting the woofer and tweeter components.

3. INSTALLATION GUIDE

Proper installation is crucial for optimal performance and safety. If you are unsure about any steps, consult a professional car audio installer.

3.1. Tools and Materials Required

- Wire strippers/crimpers
- Screwdriver set
- Drill (if custom mounting is required)
- Speaker wire (appropriate gauge for power handling)
- Mounting hardware (screws, clips - typically included)
- Multimeter (for checking polarity and impedance)

3.2. Mounting Considerations

The VO-XN306-S4 speakers are designed for flush mounting. Ensure the mounting location has sufficient depth and diameter.

- **Mounting Diameter:** 5.75 inches (146 mm)
- **Mounting Depth:** 2.75 inches (70 mm)

The rear heatsink is removable to accommodate shallower mounting depths if necessary. Refer to Figure 3.1 for a view of the speaker's rear.



Figure 3.1: Rear view of the DD Audio VO-XN306-S4 speakers, illustrating the magnet assembly and wiring terminals.

3.3. Wiring Instructions

1. **Disconnect Power:** Before starting any wiring, disconnect the vehicle's battery to prevent electrical shorts.
2. **Identify Polarity:** Ensure correct polarity when connecting speaker wires. Incorrect polarity can lead to poor sound quality and reduced bass response. Typically, positive terminals are marked with a '+' or red, and negative with a '-' or black.
3. **Connect Speaker Wires:** Connect the positive (+) terminal of the speaker to the positive (+) output of your amplifier/head unit, and the negative (-) terminal of the speaker to the negative (-) output.
4. **Bi-Amping (Optional):** If utilizing the bi-ampable feature, connect separate amplifier channels to the woofer and tweeter terminals. Consult your amplifier's manual for bi-amping setup.
5. **Secure Connections:** Ensure all wire connections are secure and insulated to prevent short circuits.

3.4. Grille Installation

Once the speakers are mounted and wired, you can install the protective grilles.



Figure 3.2: Protective grilles for the DD Audio VO-XN306-S4 speakers.

Align the grille with the speaker frame and gently press or screw it into place, depending on the design. The grilles protect the speaker cones from physical damage.

4. OPERATING INSTRUCTIONS

After successful installation, follow these guidelines for optimal operation:

- **Initial Power-Up:** Reconnect the vehicle's battery. Turn on your head unit/amplifier at a low volume setting.
- **Break-In Period:** Allow a break-in period of approximately 10-20 hours of normal listening at moderate volumes. This allows the speaker's suspension components to loosen and achieve optimal performance.
- **Amplifier Matching:** Ensure your amplifier's power output matches the speaker's RMS power handling (250 Watts RMS). Overpowering or underpowering can damage the speakers.
- **Crossover Settings:** Utilize appropriate high-pass filters (HPF) on your amplifier or head unit to

protect the speakers from excessively low frequencies that can cause damage. A common starting point for a 6.5-inch speaker is 80-100 Hz with a 12dB/octave slope.

- **Gain Setting:** Set your amplifier's gain correctly to avoid clipping, which can cause distortion and speaker damage. Consult your amplifier's manual for proper gain setting procedures.

5. MAINTENANCE

Regular maintenance ensures the longevity and performance of your speakers:

- **Cleaning:** Use a soft, dry cloth to wipe down the speaker grilles and surrounds. Avoid using harsh chemicals or abrasive cleaners.
- **Inspection:** Periodically inspect the speaker cones and surrounds for any signs of damage, tears, or deterioration. Check wiring connections for looseness or corrosion.
- **Environmental Protection:** While designed to be moisture-resistant, avoid direct exposure to excessive water or extreme temperatures.

6. TROUBLESHOOTING

If you encounter issues with your speakers, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No Sound from Speaker	<ul style="list-style-type: none">• Loose or disconnected wiring• Incorrect amplifier settings• Blown fuse in amplifier or head unit• Damaged speaker	<ul style="list-style-type: none">• Check all wiring connections for security and correct polarity.• Verify amplifier is powered on and gain/crossover settings are correct.• Check and replace any blown fuses.• Test speaker with a known good audio source or another amplifier.
Distorted Sound	<ul style="list-style-type: none">• Amplifier clipping (gain too high)• Speaker overpowering or underpowering• Incorrect crossover settings• Damaged speaker cone or voice coil	<ul style="list-style-type: none">• Reduce amplifier gain until distortion disappears.• Ensure amplifier power matches speaker RMS rating.• Adjust crossover settings to protect speakers from low frequencies.• Inspect speaker for physical damage.
Weak or No Bass	<ul style="list-style-type: none">• Incorrect wiring polarity• High-pass filter set too high• Speaker not properly sealed in enclosure/mounting location	<ul style="list-style-type: none">• Verify correct wiring polarity for all speakers.• Lower the high-pass filter frequency.• Ensure speaker is securely mounted and sealed to prevent air leaks.

7. SPECIFICATIONS

Detailed technical specifications for the DD Audio VO-XN306-S4 speakers:

Speaker Type	2-Way Coaxial
Speaker Size	6.5 Inches
Tweeter Size	1 Inch
RMS Power Handling	250 Watts
Peak Power Handling	500 Watts
Nominal Impedance	4 Ohm (S4)
Voice Coil Diameter (VCD)	1.8 Inches
Frequency Response	85 Hz - 20 kHz
Sensitivity (dBSPL)	95 dB
Tweeter Sensitivity (dBSPL)	104 dB
Mounting Diameter	5.75 Inches (146 mm)
Mounting Depth	2.75 Inches (70 mm)
Item Weight	7 Pounds
Enclosure Material	Aluminum (Heatsinks)
Connectivity Technology	Coaxial
Control Method	Voice

Note: Specifications are subject to change without notice.

8. WARRANTY AND SUPPORT

8.1. Warranty Information

DD Audio provides a **1 Year Limited Warranty** for the VO-XN306-S4 speakers from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by improper installation, abuse, accident, neglect, or unauthorized modification. Please retain your proof of purchase for warranty claims.

8.2. Customer Support

For technical assistance, warranty claims, or further inquiries, please contact DD Audio customer support. Refer to the official DD Audio website for the most current contact information.

Manufacturer: DD Audio

