Dayton Audio DAEX-13-4SM

Dayton Audio DAEX-13-4SM Haptic Feedback Transducer User Manual

Model: DAEX-13-4SM

1. Introduction and Overview

The Dayton Audio DAEX-13-4SM is an ultra-small haptic feedback transducer, also known as an exciter. This device is designed to add audio or tactile feedback to various projects and products, particularly those with limited space. Its compact dimensions allow for integration into small enclosures, art projects, models, and virtual reality systems requiring haptic feedback.
This manual provides essential information for the proper setup, operation, and maintenance of your DAEX-13-4SM transducer.

2. Product Features

- **Compact Design:** Extremely small dimensions (0.74" W x 1.51" L x 0.31" H) allow for integration into confined spaces.
- **Haptic Feedback Capability:** Ideal for creating tactile feedback systems in various applications.
- **High Excursion:** Unique suspension design enables powerful response despite its small size.
- **Easy Installation:** Features pre-applied 3M™ VHB™ adhesive for quick and durable mounting.
- **Efficient Motor:** Utilizes a rare-earth neodymium motor and a proprietary 13 mm voice coil for increased sensitivity and reduced power requirements.
- **Low Impedance:** 4-ohm impedance is suitable for use with small, Class D amplifiers.

3. Setup and Installation

Proper installation is crucial for optimal performance of the DAEX-13-4SM transducer. Follow these steps:

1. **Surface Selection:** The performance of the exciter is highly dependent on the surface it is attached to.
    - Thinner, smaller materials generally produce louder sound and a mid/tweeter frequency response.
    - Thicker, larger materials (especially with multiple exciters) tend to result in a more full-range sound,

though potentially quieter.

2. **Surface Preparation:** Ensure the chosen surface is clean, dry, and free of dust or grease for maximum adhesive bond.
3. **Adhesive Application:** The transducer comes with pre-applied 3M™ VHB™ (Very High Bond) adhesive. Peel off the protective backing and firmly press the transducer onto the desired surface. Apply even pressure for a few seconds to ensure a strong bond.



Image 1: Front view of the Dayton Audio DAEX-13-4SM Haptic Feedback Transducer, showing the label with model number and specifications. This view highlights the compact size and the central exciter element.

4. **Wiring:** Connect the transducer to a compatible amplifier using the two PCB solder points. These points are designed for compact wiring. Ensure correct polarity if specified by your amplifier or application. The transducer has a 4-ohm impedance and is designed for use with small, Class D amplifiers.

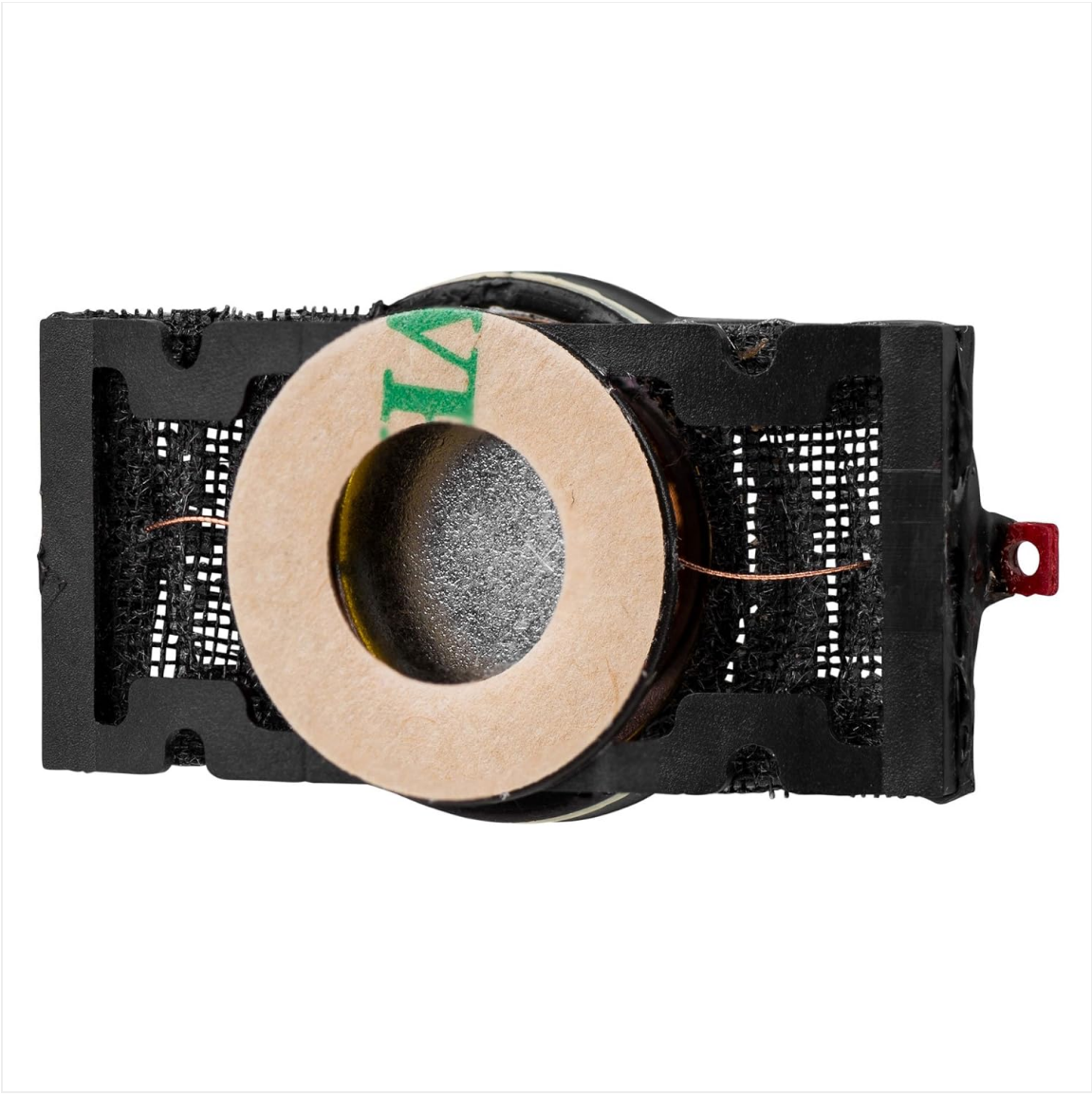


Image 2: Rear view of the Dayton Audio DAEX-13-4SM Haptic Feedback Transducer, revealing the voice coil and internal structure. This perspective illustrates the compact design and the components responsible for generating vibrations.

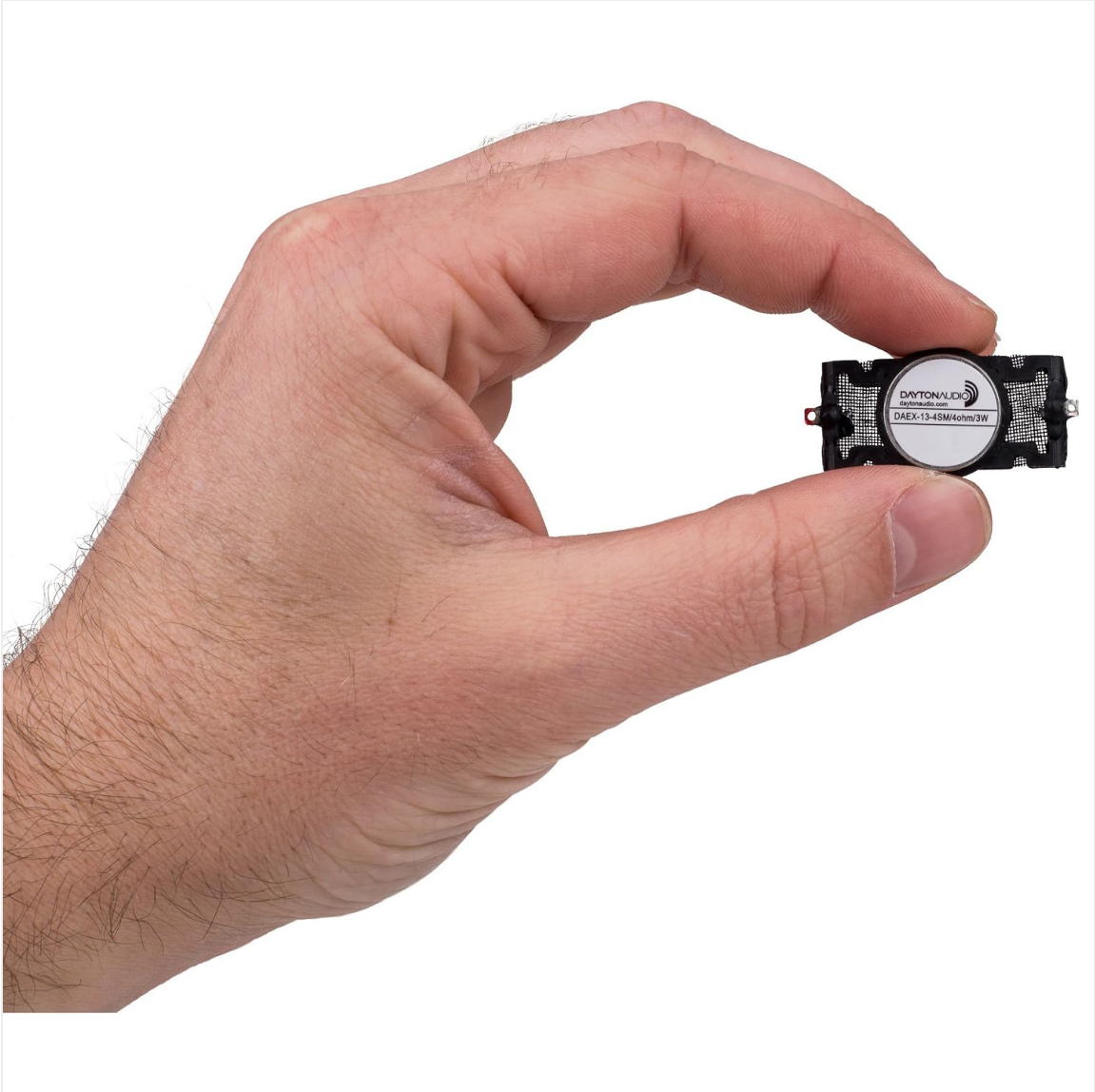


Image 3: The Dayton Audio DAEX-13-4SM Haptic Feedback Transducer held between a thumb and forefinger, providing a clear sense of its extremely small scale. This image emphasizes the product's suitability for applications with limited space.

4. Operating Instructions

Once installed, the DAEX-13-4SM operates by converting electrical audio signals into mechanical vibrations. Connect the transducer to a suitable audio source via a compatible amplifier (e.g., a small Class D amplifier). The intensity and frequency of the haptic feedback or audio output will correspond to the input signal.
Important Note: The perceived sound or haptic effect is heavily influenced by the material and size of the surface to which the exciter is attached. Experimentation with different surfaces may be necessary to achieve desired results.

5. Maintenance

The Dayton Audio DAEX-13-4SM Haptic Feedback Transducer is designed for maintenance-free operation. No routine cleaning or servicing is required. Ensure the adhesive bond remains secure and the wiring connections are stable.

6. Troubleshooting

- **No Output/Weak Output:**

- Verify all wiring connections are secure and correctly polarized.
- Ensure the amplifier is powered on and receiving an audio signal.
- Check the amplifier's output level.
- Confirm the transducer is firmly attached to the surface. A loose connection can significantly reduce output.
- Consider the properties of the mounting surface; very thick or damped materials may reduce perceived output.

- **Overheating/Damage:**
  - The DAEX-13-4SM is rated for 3 watts RMS. Exceeding this power rating can lead to overheating and permanent damage.
  - **Caution:** Continuous high-power usage, especially in applications like arcade gaming or virtual pinball machines, may cause the unit to overheat, smoke, and melt. This product is not recommended for such continuous high-stress applications without adequate power management and thermal consideration.
  - Ensure the amplifier's output matches the transducer's power handling capabilities.

7. Specifications

Model Number	DAEX-13-4SM
Dimensions (W x L x H)	0.74" (18.5 mm) x 1.51" (38.5 mm) x 0.31" (8 mm)
Adhesive Dimensions	0.65" (16.5 mm) outside diameter
Weight	6.7 grams (0.32 ounces)
Power Handling (RMS)	3 watts
Impedance	4 ohms
DC Resistance (Re)	3.7 ohms
Voice Coil Inductance (Le)	0.022 mH
Resonant Frequency (Fs)	950 Hz
Voice Coil Diameter	13 mm
Manufacturer	Dayton Audio

8. Warranty and Support

This Dayton Audio product comes with the following warranty:

- **Parts Warranty:** 5 Years
- **Labor Warranty:** 5 Years

For technical support or warranty claims, please contact Dayton Audio customer service.