Mounting Options for Exciter Speakers

With an exciter, mounting is the speaker design. The same exciter can sound full and even or thin and peaky depending on three choices: where it sits on the panel, how it is attached, and how the panel itself is held. A fourth question, how the exciter's own weight is supported, matters for larger units and vertical panels.
This guide covers each of those choices, notes for common panel materials, and a checklist for building a mount that still sounds right after years of heat, humidity and vibration.

Where to place the exciter on the panel

A panel driven by an exciter vibrates in many bending patterns, or modes, at once. A smooth response comes from exciting lots of them roughly equally, and placement decides which ones get driven.

- **Avoid the exact center.** The center of a symmetrical panel sits on a node line for many modes, so those modes aren't driven at all. The result is gaps and peaks in the response.
- **Go off-center, in both directions.** A common starting point is about two-fifths of the way across the panel's width and two-fifths of the way along its height, measured from one corner. Then fine-tune by listening and measuring.
- **Keep away from the edges.** Too close to a clamped or supported edge, the panel can't move much, and output drops.
- **Use an asymmetrical panel if you can.** Panels with unequal sides (for example, not square) spread their modes more evenly than square ones.
- **With two or more exciters, avoid symmetry.** Place them at different distances from the edges so they fill in each other's gaps rather than reinforcing the same peaks. For stereo on one panel, separate the left and right exciters widely; the panel itself blends some sound between them.

Placement interacts with everything else here, so treat these as starting points and confirm on the real panel.

Attaching the exciter to the panel

The joint between exciter and panel must transmit vibration without losses or rattles, for the life of the product. Four methods cover nearly every design.

Method	How it works	Best for	Watch out for
Pressure-sensitive adhesive pad	Pre-applied acrylic foam tape (such as 3M VHB) on the exciter's mounting ring	Most production and DIY work; glass, acrylic, painted metal, sealed wood	Surface prep and cure time; high heat; heavy exciters on vertical panels
Structural adhesive (epoxy)	Exciter or a mounting puck bonded with two-part epoxy	Permanent, high-reliability or high-temperature installs	Not removable; rigid bond can crack brittle panels under thermal stress
Threaded or screw mount	A threaded insert or boss in the panel; the exciter screws on	Thick wood, MDF, molded plastic housings; serviceable designs	Insert must be bonded firmly or it will buzz; adds mass at the drive point

Method	How it works	Best for	Watch out for
Clamp or bracket	A frame-mounted bracket presses the exciter against the panel	Retrofits, removable installs, panels that can't be drilled or glued	Preload must stay constant; slipping or loosening causes rattles

Adhesive pads are the default. They are quick to apply, add a little damping, and spread the load over the full mounting ring. For a reliable bond:

1. Clean both surfaces with isopropyl alcohol and let them dry.
2. Press the exciter on firmly and evenly, without rocking it.
3. Let the adhesive build strength before driving at full power. Acrylic foam tapes typically reach most of their final strength over about 72 hours at room temperature.

Use the adhesive and surface preparation the exciter manufacturer specifies, and check its temperature rating against your product's environment, including sun-loaded windows and car interiors.

Supporting the exciter's weight

An exciter pushes the panel by pushing against its own magnet. How that magnet is held gives two mounting styles.

Panel-hung (inertial) mounting. The exciter hangs from the panel by its mounting ring alone, and the magnet floats on the exciter's internal suspension. The magnet's own inertia provides the reaction force. This is the simplest option and keeps vibration out of the surrounding structure, which is why most small and medium exciters are mounted this way.

Frame-grounded mounting. The exciter's body is fixed to a rigid frame or chassis behind the panel, and its moving part drives the panel. Because the reaction force goes into a solid structure instead of a floating magnet, it delivers more force at low frequencies and suits heavy panels and tactile transducers. The cost is that vibration also goes into the frame, so the frame must be stiff, free of rattles and isolated from parts that shouldn't buzz.

Large exciters on vertical or overhead panels. A heavy magnet hanging from an adhesive joint puts constant shear or peel load on the bond, which can creep over time, especially when warm. Add a secondary support: a strap, bracket or mounting ears that carry the static weight while leaving the motor free to move, or switch to a mechanical attachment. On ceilings, add a safety tether so a failed bond can't drop the exciter.

Mounting the panel itself

How the panel's edges are held changes its bass, its resonances and how much vibration leaks into the rest of the product.

Edge condition	How it's done	Sound	Typical use
Free or lightly suspended	Panel hangs on cords or rests on a few soft points	Most bass and output; strong resonances	Art panels, hanging displays, DIY
Damped edges	Edges sit in foam, rubber or silicone gaskets all around	Smoothest response; slightly less bass	Most product and architectural designs
Rigidly clamped	Edges screwed or bonded hard into a frame	Less bass; higher resonances; vibration enters the frame	Where structure demands it, such as glazing or housings

Damped edges are the usual best compromise. A soft, continuous gasket lets the panel

move while absorbing reflections at the edge that would otherwise create sharp peaks. Closed-cell foam tape or a silicone or EPDM channel works well.
Isolate the panel from the structure. In a product, mount the panel on soft gaskets or grommets rather than screwing it straight to the chassis, so the housing, PCBs and other parts don't become unintended speakers or rattle. In walls and ceilings, the same idea applies: decouple the panel from studs and joists where possible.
Deal with the back wave. The panel radiates from both faces. In an enclosed product, a light absorber behind the panel reduces internal reflections. Avoid placing a hard surface parallel and close behind the panel, which can reflect sound back and color the response.

Notes by panel material

Material	Sound character	Mounting notes
Glass	Bright and clear; can ring	Adhesive pads bond well on clean glass. Use damped edge gaskets. Check thermal expansion on sunlit windows. Never drill tempered glass.
Acrylic and polycarbonate	Balanced, fairly smooth	Bonds well; some plastics need a primer. Allow for thermal expansion in the frame.
Wood, plywood and MDF	Warm; MDF is well damped	Seal porous surfaces before bonding, or use a threaded insert. Thin plywood is livelier than thick MDF.
Drywall and plaster	Full, diffuse; needs a larger exciter	Mount to the back of the board before finishing, following the exciter maker's in-wall guidance. Decouple from studs.
Sheet metal	Loud but resonant	Adhesive bonds well to clean, painted or bare metal. Add damping material to tame ringing.
Displays and touch panels	Depends on the stack; usually stiff	Bond to the designated frame or backplate, never directly to delicate layers, and follow the display maker's limits.
Foam-core and honeycomb panels	Light, efficient, smooth	Bond to the skin, not the core, using a load-spreading puck if the skin is thin.

Lighter, stiffer panels are generally more efficient. Heavier or more heavily damped panels give smoother but quieter results.

Reliability and a mounting checklist

Most exciter failures in the field are mounting failures: a bond that creeps or peels, a bracket that loosens, or a part nearby that starts to rattle. Test the mount as seriously as the sound.

- Choose a placement off-center in both directions, away from the edges
- Pick an attachment method rated for the panel material and the product's temperature

range
- Clean and prepare both surfaces as the adhesive or exciter maker specifies
- Allow full adhesive cure before high-power testing
- Add secondary support for heavy exciters on vertical or overhead panels, plus a safety tether overhead
- Mount the panel on damped edges and isolate it from the chassis or structure
- Secure cables so they can't slap against the panel or housing
- Measure the frequency response on the real panel and set EQ
- Sweep slowly at full rated power and listen for buzzes and rattles
- Run temperature cycling, humidity and vibration tests, then re-check the bond and the sound

If a design sounds wrong, check in this order: loose parts and rattles, the attachment, panel edge mounting, then placement. Fixing the mount usually helps more than changing the exciter.

Drafted with AI assistance and reviewed by Soberton engineering.