

NEUROBIONICS

IO Fiber

Multifunctional Neural Probe

DEVICE LENGTH GUIDE

For research use only. Not for use in diagnostic or therapeutic procedures.

Choosing Your Device Length

A quick guide to ordering the right length for your experiment

The IO Fiber is trimmed to the length you specify, so a good measurement up front makes for a clean, low-profile implant. In almost every case the length follows one simple rule.

THE RULE

Device length = target implantation depth + 1.5 mm

How far the fiber must reach from the skull to your brain target, plus a fixed standoff at the top.

Target implantation depth is the distance from the skull surface at your entry point down to the center of your target region. The **1.5 mm** is a standoff at the top of the implant — the gap between the point where the fiber enters the craniotomy and the bottom of the connector hub. It keeps the connector slightly off the bone, which leaves room for the dental-cement headcap and makes sure the connector never bottoms out on the skull before the fiber tip reaches your target.

GETTING YOUR IMPLANTED LENGTH RIGHT

Measure it one of two ways:

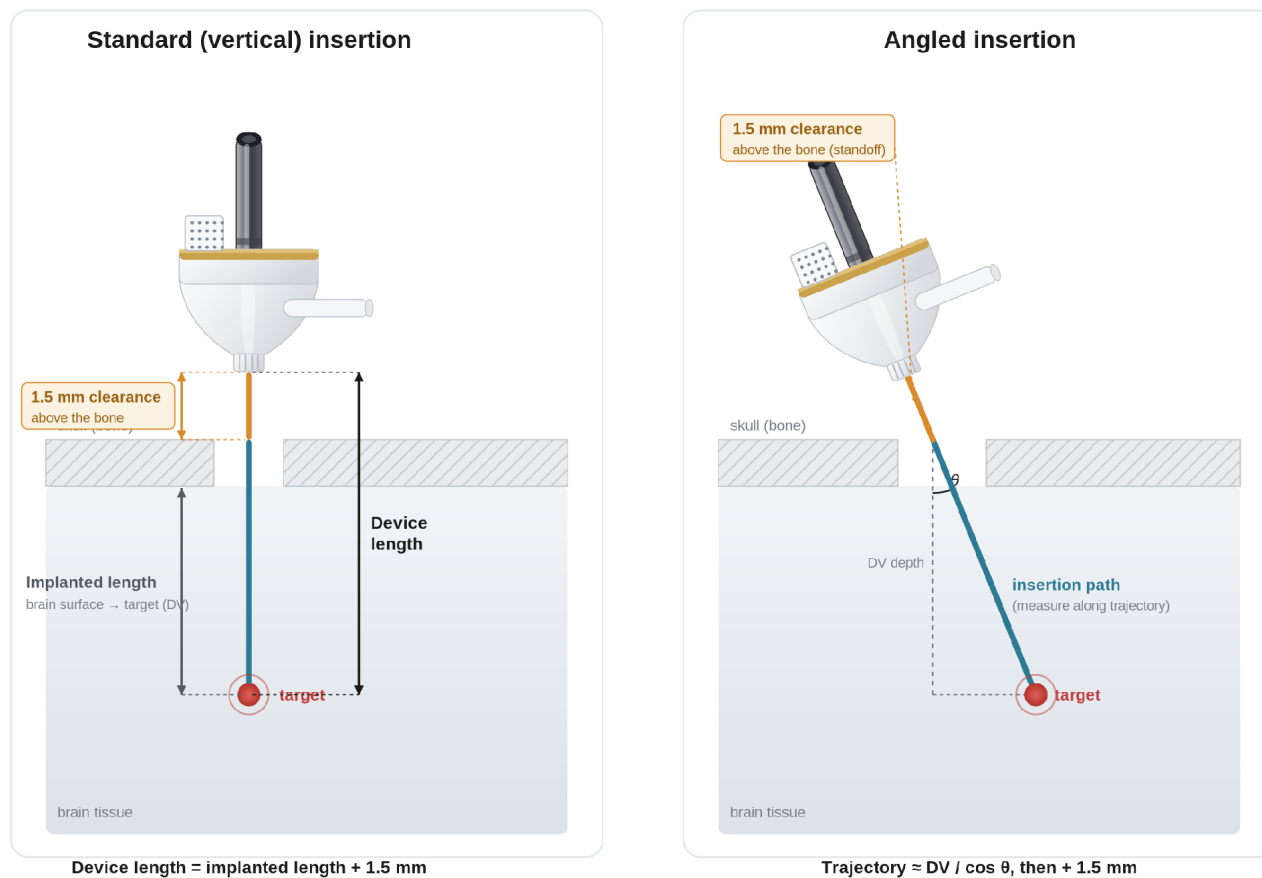
- **From the atlas:** read the dorsoventral (DV) coordinate of your target from the Paxinos & Franklin Mouse Brain Atlas. For a straight vertical implant, that DV depth is your implanted length.
- **By measurement:** measure the straight-line distance from your target to the point where the fiber enters the skull, along your planned trajectory. This is the general method — use it whenever your entry point or angle differs from a simple vertical drop.

ANGLED INSERTIONS

If you implant at an angle rather than straight down, the path the fiber travels is longer than the vertical DV depth. Always measure along the trajectory to the entry point on the bone — not straight down — then add the same 1.5 mm. Geometrically, the trajectory length $\approx DV / \cos\theta$, where θ is the tilt from vertical.

HOW THE MEASUREMENT WORKS

The 1.5 mm refers to clearance above the bone — a standoff below the connector hub. It is not extra depth past your target.



WORKED EXAMPLE (VERTICAL VS. TILT)

Target 4.5 mm below the bone at your entry point, vertical implant: **device length = $4.5 + 1.5 = 6.0 \text{ mm}$.**

Same target at a 20° tilt: trajectory $\approx 4.5 / \cos 20^\circ \approx 4.8 \text{ mm}$, so **device length $\approx 4.8 + 1.5 = 6.3 \text{ mm}$.**

WHY THE RIGHT LENGTH MATTERS

Too short, and the probe tip won't reach your target. Too long, and the connector rides higher off the skull, adding height and weight to the headcap. Measuring carefully keeps the implant stable on the skull and avoids a re-trim.

NOT SURE? TALK TO OUR TEAM

For an unusual trajectory, a novel target, or any time you're unsure how to translate coordinates into a device length, send us your setup and we'll recommend a length. Reach us at sales@neurobionics.io.