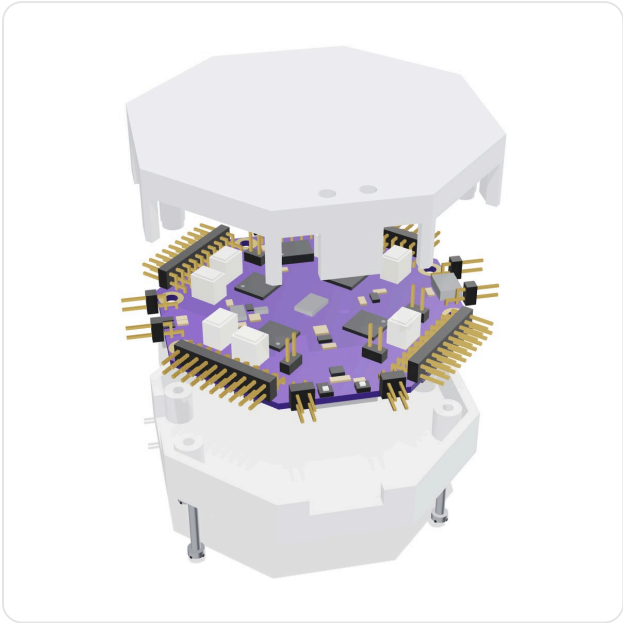
MECHANICAL DRAWING & ASSEMBLY GUIDE

IronBCI-32 Enclosure

Two-part PLA case for the IronBCI-32 32-channel EEG board



Parts List

#	PART	QTY	MATERIAL	SIZE (MM) / STD.
A	Bottom tray	1	PLA	76.4 × 76.4 × 12.2
B	Lid	1	PLA	76.4 × 76.4 × 16.6
C	Pan-head screw M2.5 × 16	4	Steel	ISO 7045 / DIN 7985

Fastening

Use **4 × M2.5 × 16 mm pan-head (or cheese-head) Phillips screws**, ISO 7045 / DIN 7985. 16 mm leaves about 6 mm of thread in the lid; 18 mm also fits. **Do not use 20 mm**: it reaches the bottom of the pilot hole. Do not use countersunk heads, because the recess under the tray has a flat bottom. Two spare holes accept extra screws if wanted.

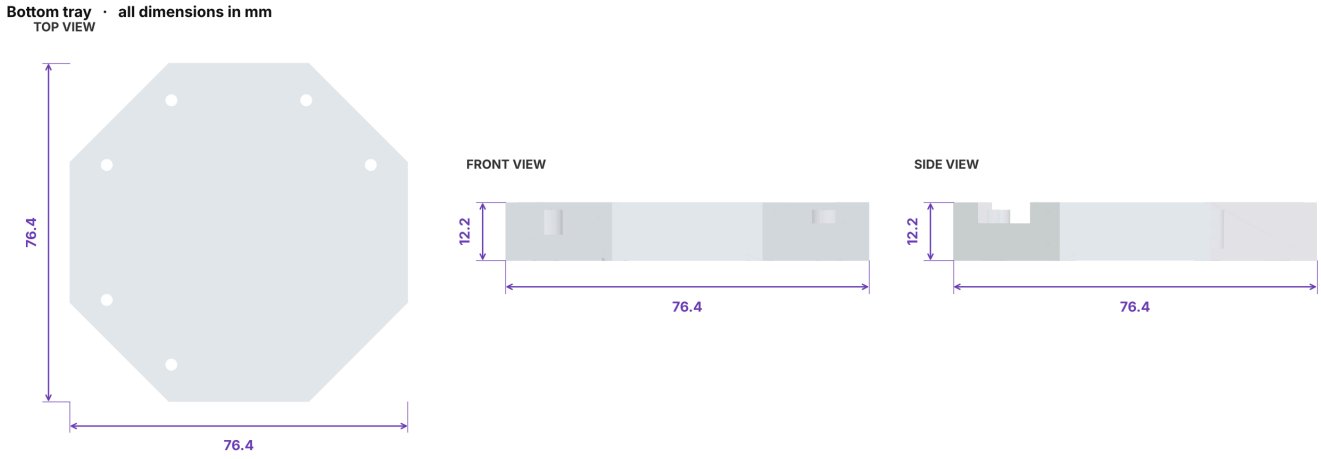
Tightening: Hand-tight only (about 0.2 N·m). Over-tightening strips the thread in PLA or bends the board.

Hole & Fixing Details (measured from STL)

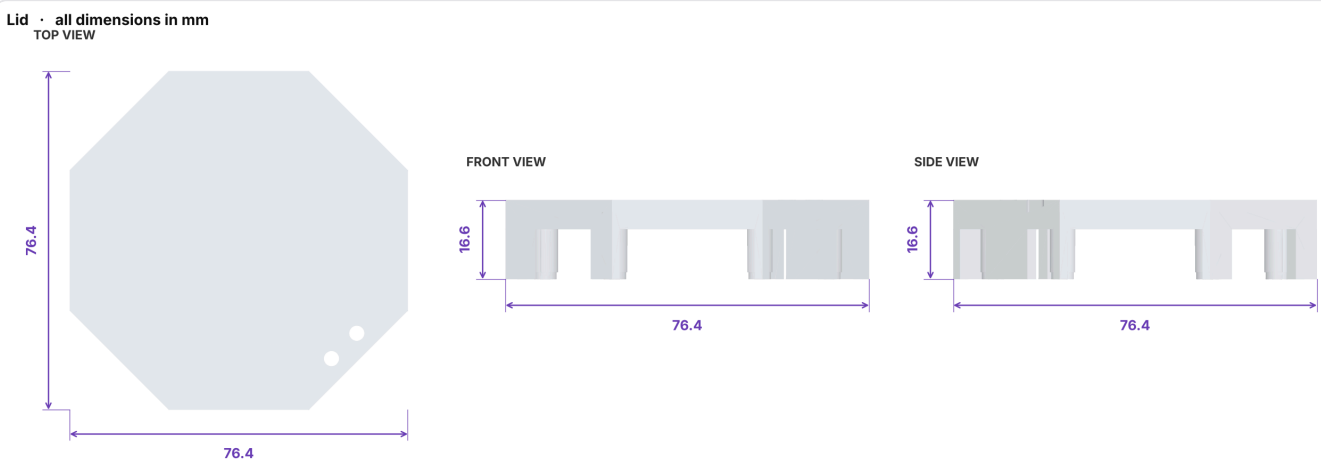
FEATURE	SIZE	PURPOSE
Tray, head recess	Ø 5.2 mm × ≈ 2 mm deep	Flat bottom: pan or cheese head
Tray post, clearance	Ø 2.8 mm (post Ø 7.0 mm)	Clearance for M2.5
Board stack	10.6 mm post + 1.6 mm PCB	
Lid boss, pilot hole	Ø 2.1 mm × ≈ 10 mm deep	Screw forms its own thread in PLA
Lid button holes	2 × Ø 3.5 mm	Over the board's push-buttons

Dimensional Drawings

Orthographic views generated from the released STL files. Overall dimensions in millimetres; tolerance ± 0.3 mm (FDM print).

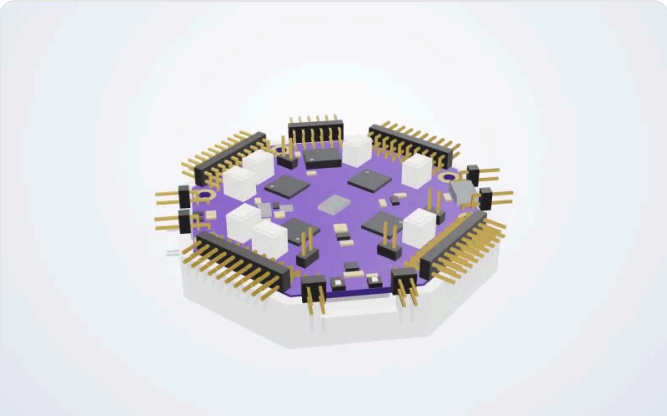


Part A — Bottom tray

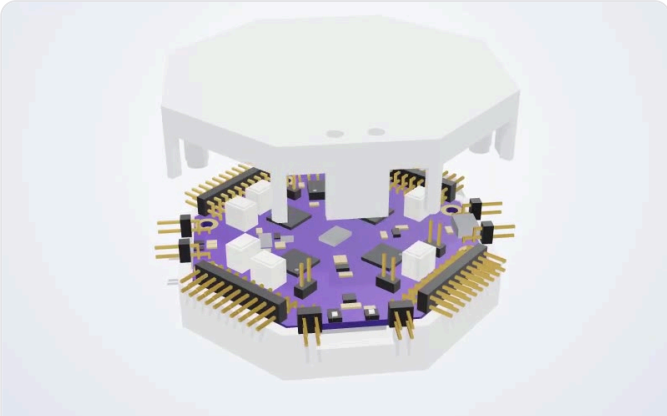


Part B — Lid

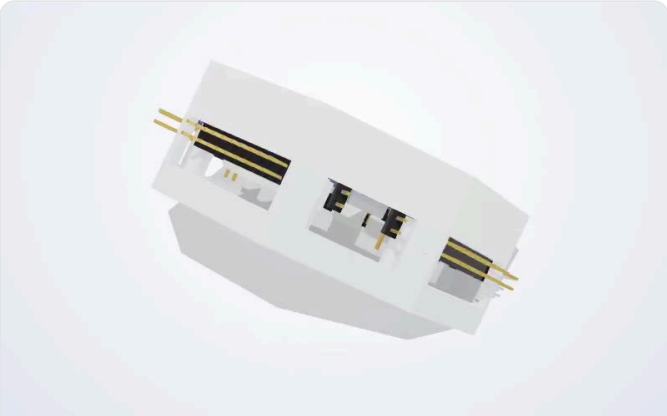
Assembly



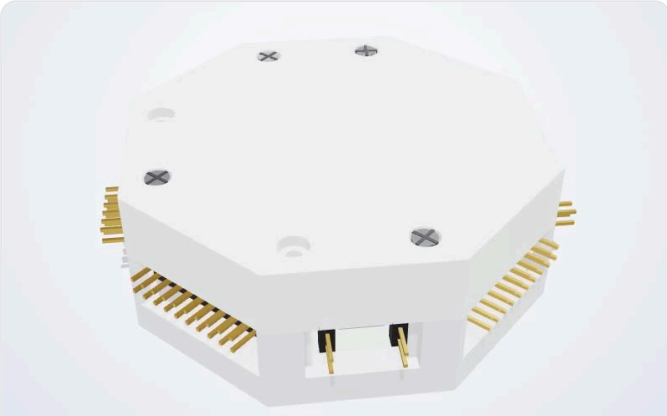
1 Place the board on the six posts in the bottom tray, chips facing up. The board's top ends level with the tray rim.



2 Put the lid on. Its two small holes sit over the board's push-buttons.



3 Hold the parts together and turn the case over.



4 Insert and tighten 4 screws. Each passes up through a post and the board into the lid.

Before you start. Assemble with no cables connected. With the case closed, the electrode headers and both Micro-USB ports are reachable from the sides.

3D Printing (DIY)

The STL files are open source. Typical starting settings:

Layer height	0.2 mm
Infill	15–20 %
Walls	3 perimeters
Supports	None
Orientation	Tray bottom-side down; lid flat top-side down
Material	PLA, 1.75 mm

Material & Care

PLA is stiff, non-conductive and fine at room and body temperature. It softens at around 55–60 °C, so don't leave the case in a hot car, on a heater or in direct summer sun. Clean with a dry or slightly damp cloth; avoid acetone and strong solvents.

Troubleshooting & FAQ

Do I need to open the case to connect electrodes or USB?	No. Headers and both Micro-USB ports are reachable with the lid on.
Why do the screws go in from underneath?	Each screw passes up through a post and the board into the lid, so one screw holds all three parts.
Board rocks on the posts	Check for stringing on the post tops and that all six holes line up; trim with a knife if needed.

Safety note. IronBCI-32 is an open-source research and education device, not a medical device, and has no isolation circuitry. The case is a mechanical cover only. Power the board from a 5 V USB battery and run the laptop on its own battery while electrodes are on a person.

Related Documents

- **IRB32-ENC-DS-001** — Product Datasheet
- IronBCI-32 datasheet, pinout and quick-start guide (pieeg.com/docs)

Revision History

REV.	DATE	CHANGE
A	November 2026	First release