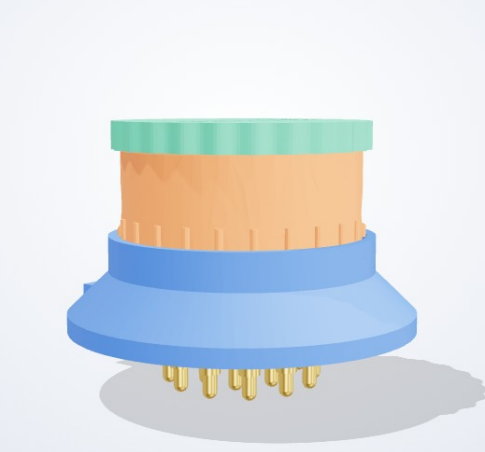
PRODUCT DATASHEET · SKU PIA40213P

Twist-Lock 3D-Printed Case for Octopus 16

A three-part PLA case that holds the Octopus 16 board and its XIAO ESP32-S3. The board drops into the threaded box with its 18 pogo pins through the floor, the lid screws on top, and the box screws into the base ring. No screws, no tools, and it comes apart in seconds to flash the XIAO.



Assembled enclosure with Octopus 16 inside (render)

3	PLA	50 × 54 × 30	18	0
Printed parts	Non-conductive	mm, assembled	Pogo-pin holes	Screws or tools

01 OVERVIEW

Key features

- **Made for the pogo pins:** 18 holes Ø 4.7 mm in the box floor line up with the board's 18 pogo pins.
- **Twist-lock:** lid into box, box into base. No screws or tools.
- **Power with the case closed:** the XIAO's USB-C port sits behind a side opening.
- **Cable opening:** opposite side, over the 6-pin stacking connector.
- **Mounting tab and 12 small holes:** on the base ring for fixing to a strap or cap.

In the box

- 1 × base ring (PLA)
- 1 × threaded box (PLA)
- 1 × screw-on lid (PLA)

Not included

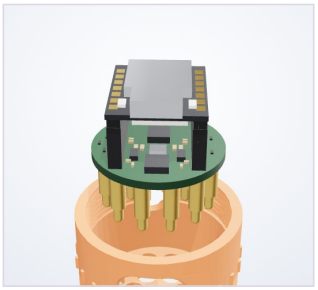
- Octopus 16 board with XIAO ESP32-S3
- 5 V power bank (up to 2 A)
- USB-C data cable
- Elastic strap or headband

02 TECHNICAL SPECIFICATIONS

MECHANICAL	
Printed parts	3: base ring, threaded box, screw-on lid
Base ring	50 × 54 × 13.5 mm including the mounting tab; Ø 50 flange; Ø 34.5 internal thread
Box	Ø 35.5 × 24.7 mm; 2.2 mm floor with 18 × Ø 4.7 mm holes on R 5.5 and R 10.5 mm rings
Lid	Ø 37 × 11 mm, knurled grip, Ø 30 thread, short centre post above the XIAO
Assembled	≈ 50 × 54 × 30 mm; pogo pins stick out ≈ 8 mm below the base ring
Closing	Threaded: lid into box, box into base. No screws.
Openings	USB-C side opening ≈ 12 × 7 mm; cable opening ≈ 6 × 6 mm
MATERIAL & COMPATIBILITY	
Material / weight	PLA (non-conductive), FDM 3D printed · ≈ 15–20 g (depends on infill)
Compatible board	Octopus 16 with Seeed XIAO ESP32-S3 (Ø 26 mm round board, 18 pogo pins)

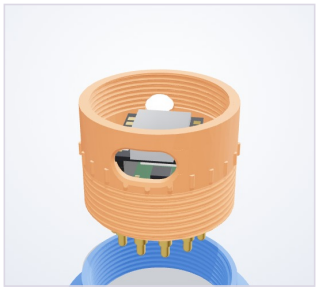
For research and education only. Not a medical device. Specifications subject to change.

03 ASSEMBLY



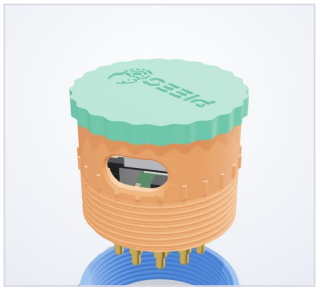
1 Plug in the XIAO

Line up the 5V, GND and 3V3 labels on both boards.



2 Board into the box

Pogo pins down through the 18 floor holes; USB-C toward the wide opening.



3 Screw on the lid

Hand-tight is enough.



4 Box into the base

Screw the box into the base ring.

With the case closed, plug the power bank into the XIAO's USB-C through the side opening. Take the case apart the same way, in reverse, to flash firmware with the device off the head.

04 PRINTING YOUR OWN (OPEN SOURCE)

Files	STL for base ring, box and lid on Thingiverse (thing:7386761)
Material	PLA
Layer height	0.2 mm (a finer layer helps the threads)
Infill	15–20 %
Orientation	Base flange-down, box floor-down, lid knurled face down; little or no support

05 SAFETY & CARE

- **Power from a 5 V power bank only while worn:** never from a computer or wall charger. The case is a mechanical cover and adds no electrical isolation.
- **Not a medical device:** for research and education only; do not use for diagnosis or treatment.
- **Heat:** PLA softens at around 55–60 °C. Do not leave the case in a hot car or in direct summer sun.
- **Cleaning:** wipe with a dry or slightly damp cloth; avoid strong solvents.
- **Implants and skin:** not on a person with a pacemaker or other implant without a physician's approval; clean, intact skin only.

06 ORDERING & DOCUMENTS

Buy	Elecrow · SKU PIA40213P · USD 38.00 at the time of writing
Store page	pieeg.com/store/octopus-16-enclosure
Related	OC16ENC-MD-002 Mechanical & Dimensional Drawing · Octopus 16 documentation set
Contact	pieeg@pieeg.com · institutional quotes and purchase orders for 5+ units

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