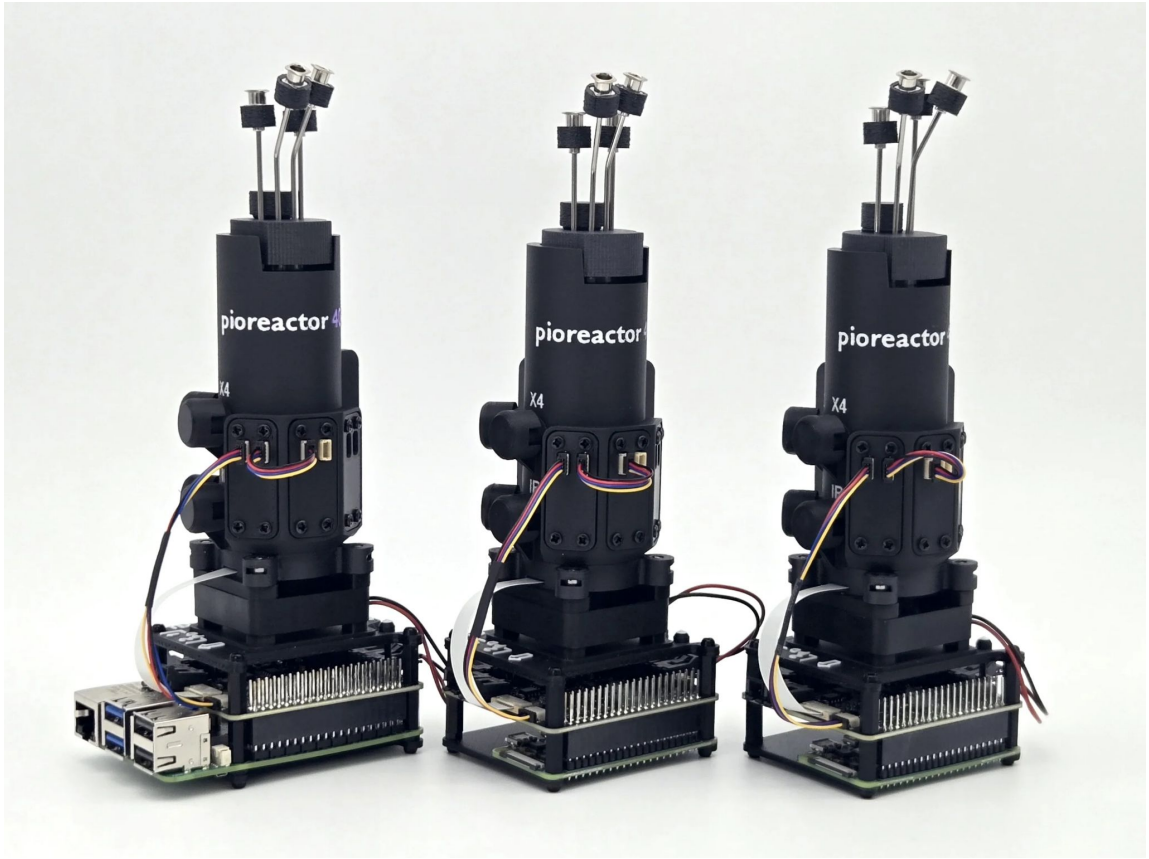
hello hardware


pioreactor
X4
pioreactor
X4
pioreactor
X4

Problem with many DIY solutions (and science products overall)

- They make me feel scared
- They make me feel stupid

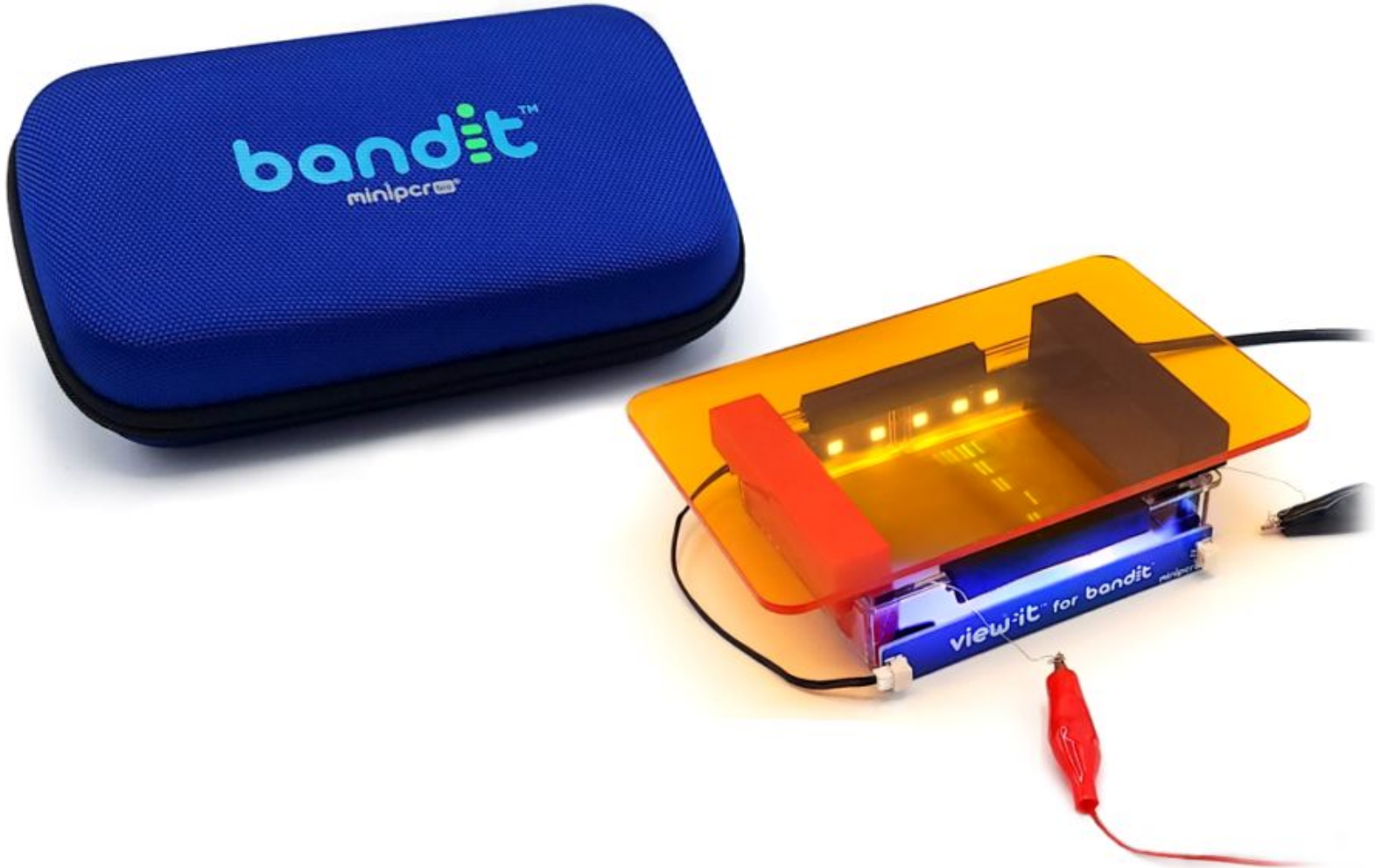

0.00mL/min
-5psi
STOP
FLOW
PRIME

Friend shaped

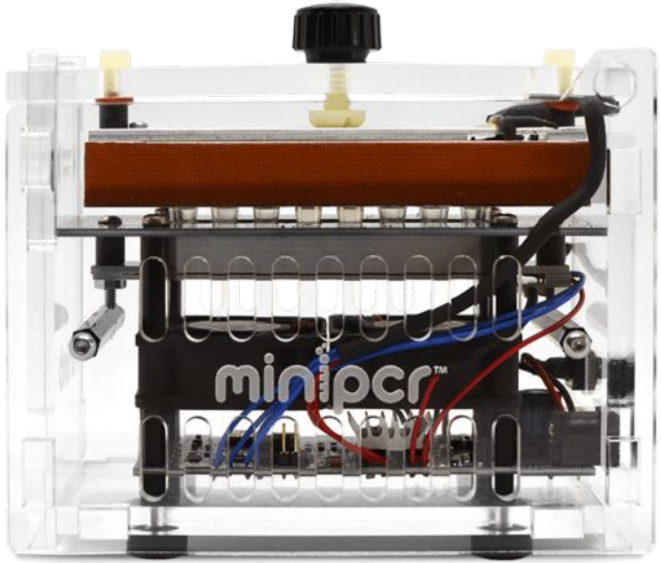


MAKE WITH BIOLOGY

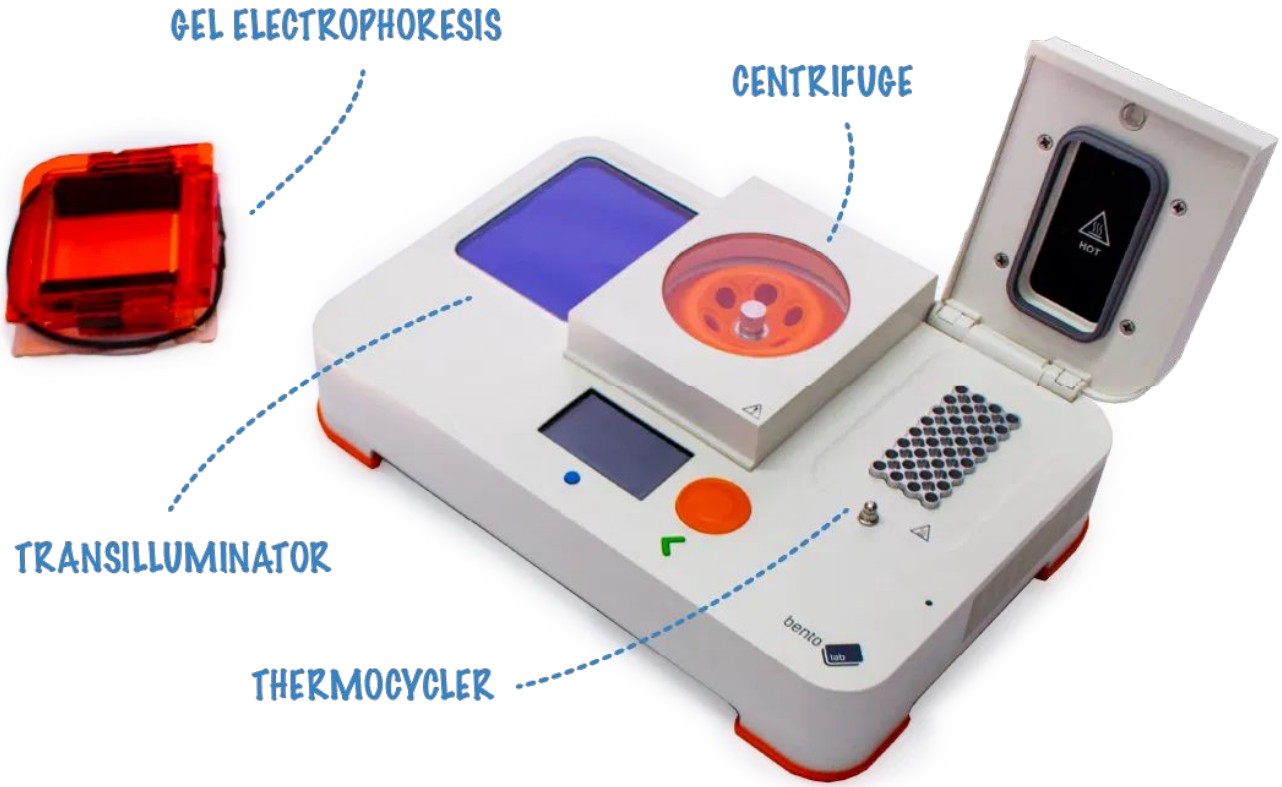
DNA Playground

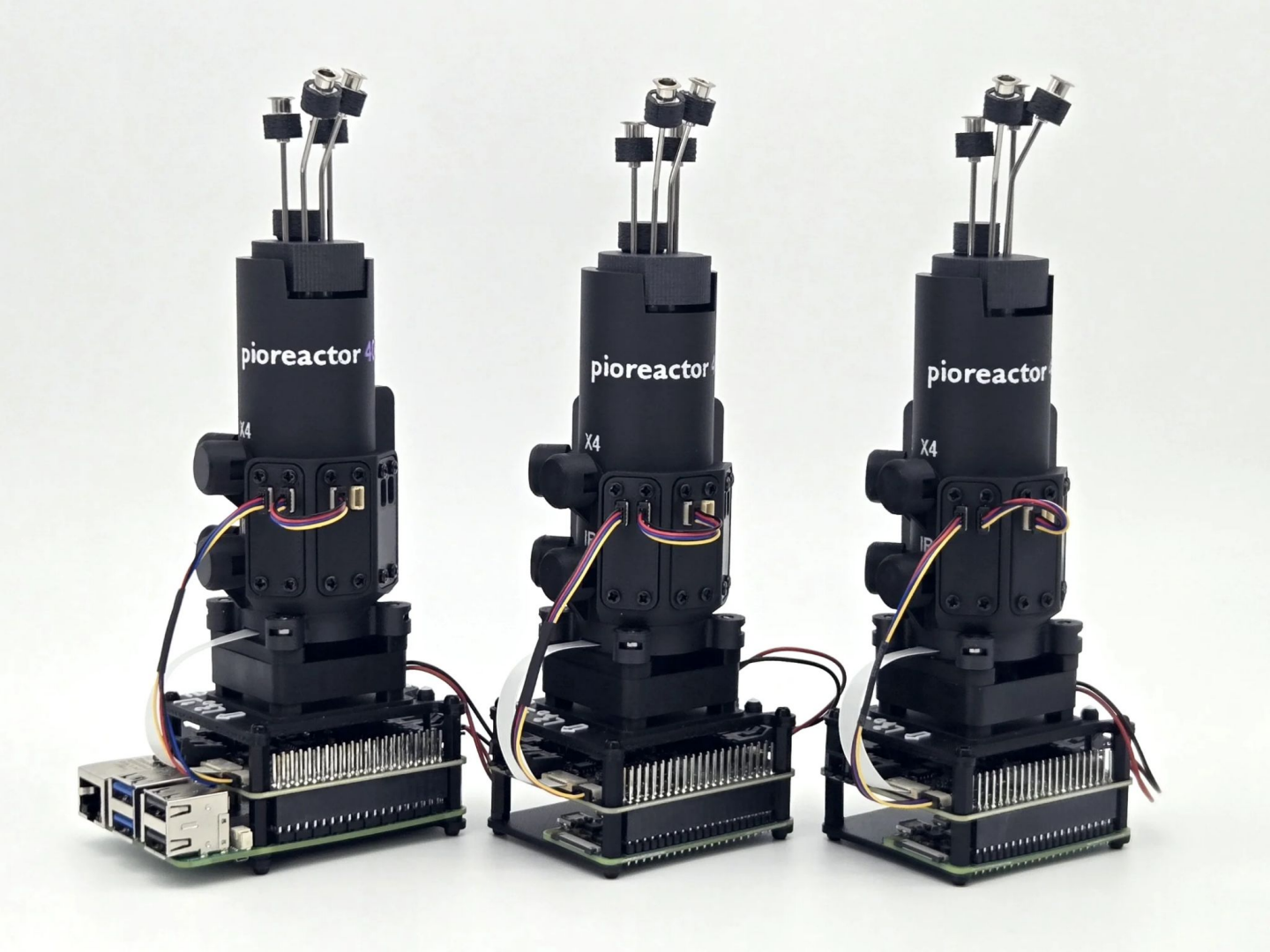

bandit™
minipcr bio
view:it™ for bandit
minipcr bio


minipcr bio


minipcr™

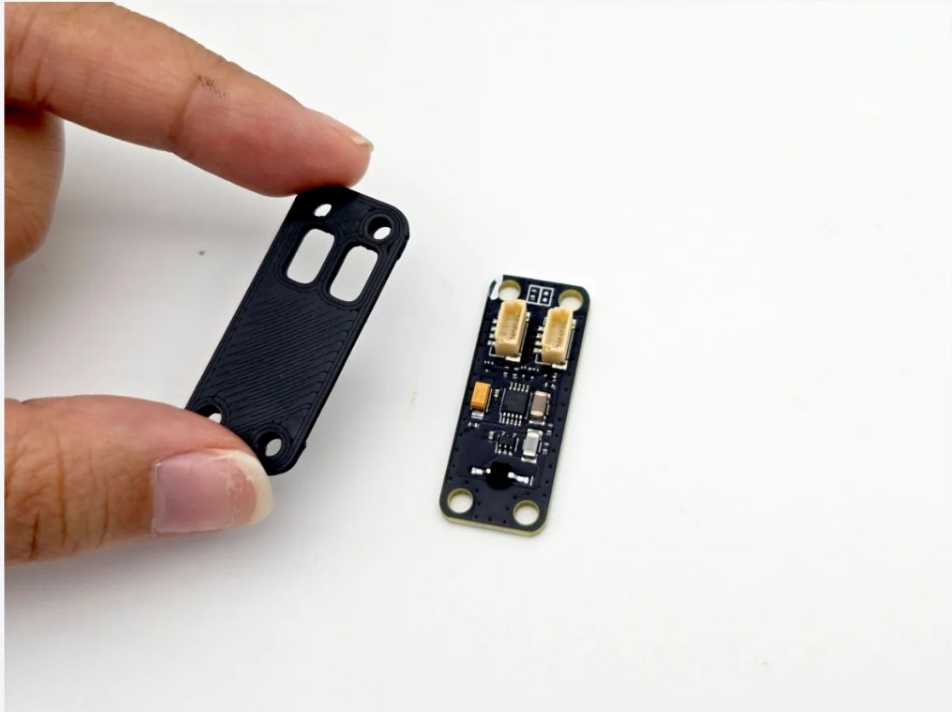

opentrons


GEL ELECTROPHORESIS
CENTRIFUGE
TRANSILLUMINATOR
THERMOCYCLER
HOT
bento lab


pioreactor
X4
pioreactor
X4
pioreactor
X4

- Real-time optical density using IR light
- Mixing and agitation
- Web-based interface for controlling bioreactors
- Attach and power external loads
- Built-in LED references
- Real-time growth rates
- Liquid handling (peristaltic pump attachments)
- Control up to four individual LEDs
- Heating and thermoregulation
- Data exports to CSV
- Programmable bioreactors/clusters
- Community plugins
- Backup data between Pioreactors
- Add your own sensors
- Easy hardware assembly
- Calculate growth rates during continuous culturing
- Small footprint
- Compatible with your existing Raspberry Pi
- Easy calibrations
- Extensive logging

Step 2: Install the eye-spys











1. Place an eye-spy cover over the REF eye-spy.

> **TIP**
>
> Each eye-spy is unique. The one used for REF has a white mark in the upper-left corner.

2. With the tan connectors towards the top, place the eye-spy into the REF socket on the vial holder. Secure it with 4x 8mm screws.
3. Place an eye-spy cover over the other eye-spy.

> **NOTE**
>
> The measuring eye-spy can be placed in either the 90 or 135 degree pocket. For most applications, 90 degrees is the standard.

4. Place the eye-spy into the desired pocket (90 or 135). Secure with 4x 8mm screws.
5. Cover the remaining pocket with the last eye-spy cover. Secure with the remaining 8mm screws.

- **Real-time optical density using IR light**
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