

01 / AN INSTRUMENT WITH A NEW FORM

Watch the rise. Choose the moment.

An external camera tracks visible starter growth through a clear, straight-sided jar. A local phone app turns images into a rise curve and evaluates the baker's chosen threshold.

FORM, NOT ONLY FINISH

A broad rounded shoulder, inset face panel and low charcoal plinth replace the previous enclosure's silhouette. The optical assembly becomes a compact, smooth bezel; an amber status bar sits below the optics, with one orange button on top.

02 / THE PROPOSED FORM LANGUAGE

Rounded shoulder / grounded base

The ivory shell steps above a wider charcoal plinth and a narrow shadow seam. Large upper shoulder radii and smaller plan radii give the enclosure a deliberate front and side profile.

Inset face / compact optical bezel

The face panel is a physical ivory recess with a charcoal reveal, not a display. A smooth circular optical bezel, thin orange ring and glass replace the former projecting ribbed lens stack.

Legible controls / honest interfaces

An orange top button, amber status bar and five side vents remain distinct from the optics. The right-side 5V input shows the symmetric USB-C capsule and recessed central tongue.

03 / GEOMETRY AND REVISION CONTROL

A coherent assembly to prototype.

New proposed dimensions: shell 84 x 60 mm, z11..131; plinth 86 x 62 x 8 mm. Shell wall target is 2.4 mm minimum, including the face recess. All new geometry is P: proposed and unvalidated.

The form addendum follows the revised native assembly. Earlier mechanical sheets and DXF describe the previous enclosure revision; they are historical reference, not dimensions for this form. Electrical sheets retain their candidate architecture and source notes.

04 / POWER, SENSING AND INFERENCE

USB-C is a 5V sink power input. CC1/CC2 terminations and source-capability detection must constrain the input and charge settings. No USB-PD voltage request is proposed. The BQ24074 power-path charger, protected one-cell pack and TPS63070 3.3V conversion remain candidates; values, load, heat and protection require validation.

ESP32-S3 JPEG capture and ambient air temperature/RH travel over local Wi-Fi to phone inference. The first prototype uses no cloud. Image height is a calibrated proxy for visible rise; ambient RH does not measure dough hydration. Phone background execution and alert delivery require state-specific tests.

05 / ACCEPTANCE BEFORE FABRICATION

Choose the exact camera, USB-C receptacle and battery pack, then validate footprints, optical axis, field of view, connector seating, cable overmold clearance, vents and fastener access. Check shell/recess minimum wall, plinth engagement, inserts, wiring, RF keepouts and thermal paths in the coordinated assembly.

Demonstrate eight hours unplugged with capture, Wi-Fi and a battery trace; measure runtime headroom and forecast the low-runtime warning from observed load and discharge data. Deliver an alert within five minutes of a manually verified doubling event in a recorded phone state. Log gaps, reconnects, missed alerts and uncertainty.

Sources: prior electrical sheets 04-05 and electrical-sources.md; new geometry manifest.

USB-C form reference: GCT USB4105 horizontal Type-C receptacle (candidate only).