01 / PRODUCT SPECIFICATION

A roomy, serviceable enclosure.

Proposed single-base Wi-Fi weighing module for Jo-Weigh. This is a design and installation review guide, not a certified finished-product specification.

RECOMMENDED SHELL

Hammond 1554H2GY

180 x 120 x 60.5 mm | 7.09 x 4.72 x 2.38 in

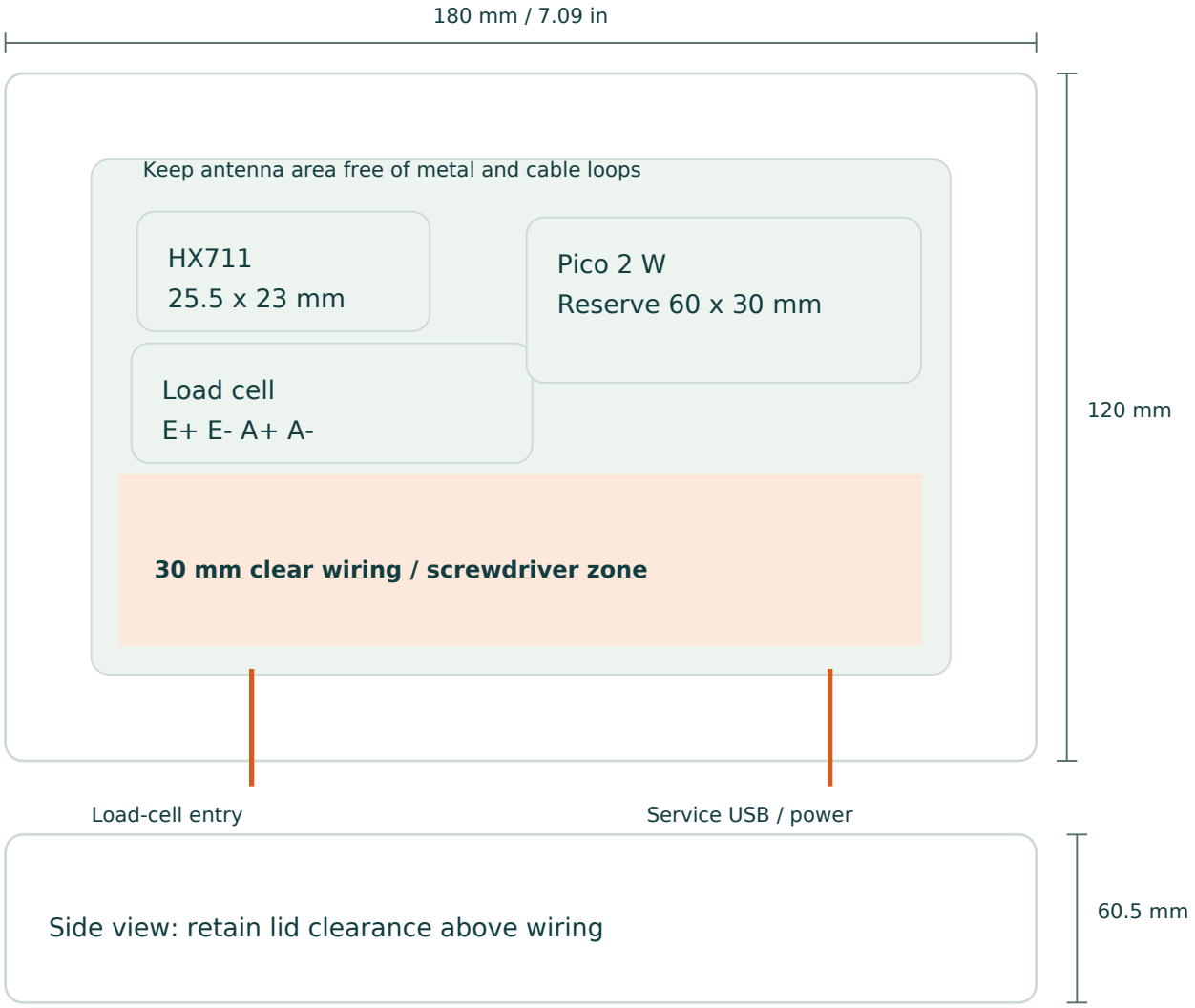
Design purpose	Read one supported analog load-cell base into Jo-Weigh over USB or local Wi-Fi. Not a universal RS232-to-Wi-Fi converter.
Electronics proposal	Raspberry Pi Pico 2 W + Adafruit HX711 (5974), channel A. Current firmware uses DATA on GP2 and SCK on GP3; gain 128.
Connections	Planned labeled 4-position removable load-cell terminal, strain-relieved cable entry, and service USB/power access. Connector parts and cutouts require fit approval.
Power / network	Proposed SC0623 regulated 5.1 V / 2.5 A Micro USB supply; verify assembled load. Local password-protected 2.4 GHz Wi-Fi with base IP address and access key.
Computer	Jo-Weigh Windows v0.5.0; 64-bit Intel/AMD PC. Live weighing needs an active license. No change to the software scale-entry limits.
Included / separate	Plan: assembled enclosure, electronics, firmware, power supply and guide. Separate: base/load cell, PC, software and on-site commissioning.
Unverified performance	Capacity, usable divisions, accuracy, repeatability, RF range, environmental limits and final enclosure ingress rating depend on the finished build and testing.

The shell dimensions follow Hammond drawing 1554H, revision 28.02.2020. Some product summaries round height to 61 mm. Modified assemblies do not automatically inherit the empty enclosure's ratings.

02 / MEASUREMENTS & SPACE

Room for fingers and wiring.

Proposed layout within a real catalog enclosure. All diagrams are illustrative and are not drill templates. Confirm the chosen parts together before cutting the shell.



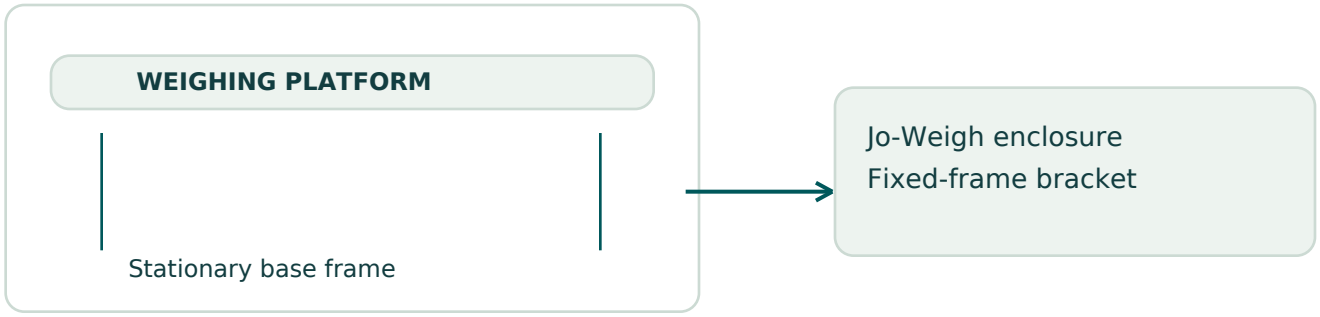
Fit allowance: plan a 150 x 90 mm nonmetallic carrier area and a 30 mm terminal approach zone. Hammond lists a roughly 167 x 107 mm PCB envelope and 54.5 mm inside height; bosses and fittings reduce usable space. Keep the mounted component stack at or below a proposed 25 mm until fit-checked.

Assembly details: use internal standoffs and external mounting feet. Select gland sizes from the actual cable diameter. Keep room for a relaxed service loop and unplugging the terminal; no sharp bends or lid pressure. Final hole locations come from the selected fittings and supplier drawings.

03 / SCALE BASE INSTALLATION

Mount beside the weighing path.

For a qualified installer working on a compatible analog load-cell base. Disconnect all power before opening, wiring or moving the assembly.



Keep load-cell cable slack; do not bridge moving and fixed parts with a tight cable.

1 Identify the base and protect the mechanism.

Record model, serial number, rated capacity, load-cell resistance and wiring diagram. Remove loads. Confirm that the base and bridge excitation are suitable for the HX711 design; stop if the load-cell data is unknown.

2 Select a stationary mounting location.

Use an existing fixed-frame bracket or nearby post. Allow lid removal and terminal access. Keep away from platform travel, overload stops, washdown, pinch points and electrical noise. Do not drill the load cell or load-bearing structure.

3 Route the load-cell cable.

Fit the correctly sized gland and strain relief. Leave a relaxed service loop without touching moving parts. Keep the Pico antenna away from metal; test the chosen location with the lid closed.

4 Check mechanical freedom before wiring.

Move the unloaded platform through its normal free travel and confirm the enclosure and cables cannot rub, pull or constrain it. Use the enclosure mounting drawing and selected bracket for fastener positions.

04 / LOAD-CELL CONNECTION

Connect by function, not color.

Power off. The following mapping applies to the proposed four-wire bridge input. Wire colors vary by load-cell manufacturer.

LOAD-CELL DATASHEET		LABELED ENCLOSURE INPUT
Excitation +	→	E+
Excitation -	→	E-
Signal +	→	A+
Signal -	→	A-

5 Verify and terminate the four conductors.

Match the base manufacturer's excitation and signal labels to E+, E-, A+ and A-. Use the selected terminal's wire gauge, strip length and torque specifications. Keep exposed copper inside the terminal; tug-check each conductor.

6 Handle shield and sense leads deliberately.

Do not guess a shield/drain connection or bond it to signal negative. Six-wire cells and multi-cell junction boxes need a separately verified wiring and excitation design. Do not connect the same bridge to an existing powered indicator in parallel.

7 Inspect, then apply the approved low-voltage supply.

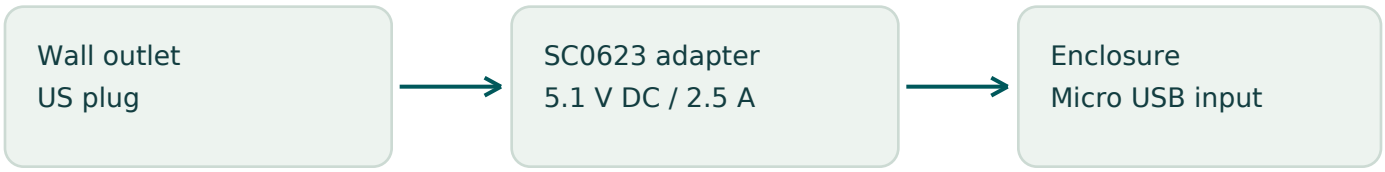
Check polarity, shorts, cable retention and lid clearance before powering. Use the intended USB input; do not bring mains into the enclosure or apply RS232 / 12 V / 24 V signals to the HX711 or Pico pins.

Builder reference: current firmware expects HX711 DATA -> Pico GP2 and SCK -> GP3, channel A/gain 128. Internal wiring, logic supply, board revision and terminal labeling must be bench-verified before releasing an assembled product. Customers should not need to wire internal boards.

05 / POWER ADAPTER

Power for wireless operation.

Proposed included adapter: Raspberry Pi SC0623, US plug. Verify the completed enclosure before approving this supply for production.



Adapter specification	Raspberry Pi 12.5W Micro USB Power Supply, SC0623 (US). 100-240 V AC rated input; 5.1 V DC / 2.5 A output; 1.5 m captive cable. Short-circuit and overcurrent protection.
Design decision	One external low-voltage supply is planned in the enclosure kit. The mains adapter stays outside. The final service inlet must accept Micro USB and be fit-tested with the assembled product.
USB commissioning	For computer setup, use a separate data-capable USB cable from PC to enclosure. The captive wall-adapter cable does not carry data to the PC.
Wi-Fi operation	Disconnect the PC USB cable, then connect the wall adapter to the same single input. Restore power and reconnect to the base in Jo-Weigh. Do not join wall and PC power with a splitter.
Before release	Measure supply voltage at the assembled board under load, peak current, noise and temperature. Verify power cycling and closed-lid Wi-Fi operation. Do not assume the adapter rating proves weighing accuracy.

Do not substitute a 12 V or 24 V supply, a barrel-plug supply, or a USB-C adapter with a different connector. The product is being designed around the selected Micro USB power path. Keep the adapter in a dry, accessible location suitable for its ratings.

Supplier reference: raspberrypi.com/products/micro-usb-power-supply/

06 / WINDOWS & USB

Make the first connection by USB.

These steps follow the current Jo-Weigh v0.5.0 interface. Illustrations show the sequence, not screenshots of a completed hardware test.

1 EXTRACT
Customer Windows ZIP

→

2 SELECT
Scales / correct entry

→

3 CONNECT
Pico USB / COM port

8 Install the customer program.

Download the customer Windows ZIP from your Jo-Weigh account, extract the complete folder to a writable location on the PC, then follow its START-HERE instructions. Preserve existing Data and make a full backup before upgrading. Never install the owner bundle on a customer PC.

9 Create or select the scale entry.

Open Jo-Weigh, choose Scales and select the intended entry. Give it a useful name. One physical base belongs to one active entry; do not reuse its COM port or IP address for another entry.

10 Connect the data-capable USB cable.

Connect enclosure service USB to the Windows PC. Open Connect scale, choose Pico USB, refresh the port list and select the matching COM port. Press Connect. Check that the source is USB, data is fresh and the correct base is selected.

11 Confirm live access before commissioning.

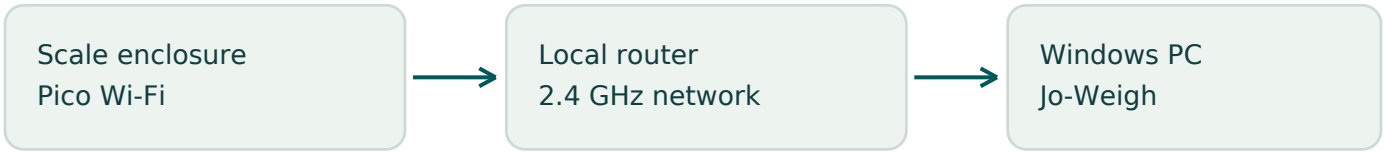
Enter the issued license details using the program's License screen. Demo Mode does not verify hardware. Until the hosted license service is released, use only an owner-authorized bench-test license; do not treat simulated readings as a commissioning pass.

Preloaded units: skip firmware flashing when the unit already works. First-time Pico setup is a technician task for a new or deliberately reconfigured base. The next page explains that workflow and its overwrite behavior.

07 / LOCAL WI-FI

Set up once. Then connect locally.

Use a password-protected 2.4 GHz network that permits communication between the base and computer. The base still needs USB power when used wirelessly.



12 Provision the prototype only when needed.

In First-time Pico setup, load MicroPython only onto the intended new Pico 2 W: hold BOOTSEL while reconnecting USB, select its drive, then Load firmware. This replaces firmware. For an assembled/preloaded unit, do not reflash unless instructed.

13 Install the base program and network settings.

After the BOOTSEL drive disappears, refresh and select the Pico COM port. Enter the Wi-Fi network name and password. Copy and securely retain the generated Base access key, then choose Install base program. This replaces main.py and network settings.

14 Read the IP address over USB.

Reconnect using Pico USB and read Wi-Fi address in Base Status. Confirm it has joined the intended network. Reserve its address in the router if the site administrator supports that. Keep the access key private.

15 Switch the entry to Wi-Fi and verify recovery.

Choose Connect scale > Wi-Fi. Enter the Pico IP address and Base access key, then Connect. Keep the base powered. Check fresh readings, then test power and network interruption/recovery. Do not expose the base's local HTTP service to the internet.

A guest network with client isolation can block the connection. Failure to connect is not a reason to remove network security; ask the site administrator to permit the required local path.

08 / CALIBRATION & ACCEPTANCE

Verify the entire weighing chain.

Use suitable known test weights and the base manufacturer's procedure. Software settings cannot increase the physical base capacity or establish legal-for-trade approval.

EMPTY	KNOWN WEIGHT	VERIFY
Capture empty scale	Capture span weight	Repeat / corners / return

16 Set capacity, units and divisions.

Open Settings with the administrator credential. Set Configuration capacity and Scale Format units/divisions to match the actual base. Save changes before calibration. Verify that you are editing the correct connected base.

17 Capture zero and a known span.

Under Calibration, empty the platform, let it settle and select Capture empty scale. Place a suitable known test weight, enter its exact value in the displayed unit, wait for stability and select Capture span weight. A new zero calibration requires a new span.

18 Run repeatability and connection checks.

Check unloaded return to zero, several loads across the intended range and corner loading. Repeat after USB/Wi-Fi reconnection and restart. Confirm moving/stale or disconnected data cannot be accepted as a valid weighment.

19 Verify records, tickets and backups.

Save test records, export CSV/Excel and compare values/units. Test the actual printer and restart persistence. Use Scales > Back up every scale before handoff.

Acceptance record: Base model _____ Serial _____ Firmware _____
Test weights / IDs _____ Measured results _____ Technician / date _____
Release requires documented physical tests, not just this guide.

09 / SUPPORT & RELEASE CHECK

Finish the build before releasing it.

Contact: ciampiglobal@gmail.com | joweigh.com/products

No USB port	Try a known data-capable USB cable, refresh ports and verify power. Confirm you selected the Pico, not another connected device.
No Wi-Fi address	Verify 2.4 GHz SSID/password and network reachability. Reconnect by USB for diagnostics before changing configuration.
Stale / unstable data	Check load-cell wiring, mechanical binding, supply quality and noise. Stop capture until the underlying cause is resolved.
Wrong weight or units	Confirm the selected base, physical rating, unit setting and known calibration weight. Repeat zero/span checks; do not conceal the error with display formatting.
Release evidence needed	Physical fit with all connectors; strain relief; supply current; closed-lid Wi-Fi; accuracy/repeatability; reconnect/restart; durable records; manufacturing wiring and inspection record.

PROPOSED SPECIFICATION BOUNDARIES

This design selects a real enclosure with sufficient planning space; it has not been assembled or mechanically validated here. Final removable terminal, cable glands, USB bulkhead, fasteners, label placement and cutouts remain to be selected and fit-checked. Do not drill from the illustrations. No completed-product IP/NEMA, environmental, radio or legal-for-trade certification is claimed.

SOURCE REFERENCES / CHECKED 07 NOV 2026

Hammond shell drawing (dimensional authority): https://www.hammfg.com/files/parts/pdf/1554HGY.pdf

Hammond 1554H2GY catalog entry: https://www.hammfg.com/part/1554H2GY

Adafruit HX711 dimensions and terminals: https://www.adafruit.com/product/5974

Adafruit HX711 pinout reference: https://learn.adafruit.com/adafruit-hx711-24-bit-adc/pinouts

Raspberry Pi wireless hardware / antenna guidance: https://www.raspberrypi.com/documentation/microcontrollers/pico-series.html

Software basis: current customer v0.5.0 Source/guide.go, web/index.html, web/app.js and firmware/main.py (0.1.1-bench). No private signing material or credentials are included. Hardware source files were inspected; no native Windows or physical-device test was run for this document.