

handheld-term

A pocket companion for supervising Claude Code

Pick it up and you are already inside Claude Code's live session on the Pi. A strip across the top says, in large type, whether Claude is idle, working or waiting on you, and the pad or a thumb on the glass answers a prompt, interrupts a turn, or scrolls back through what it did — without ever asking you to type just to stay connected. Behind Home, seven more tiles add a resource monitor, voice notes to an assistant called Hermes, a file browser, a spirit level, a torch and Settings.

Display	2" IPS, 320×240 landscape, capacitive touch
Terminal	53 × 25 characters, full VT100 with 2000-line scrollbar
Controls	An 8-key pad in a 4×2 grid, a 6-button touch bar, touch gestures, an on-screen keyboard
Link	Wi-Fi → Tailscale → SSH → tmux, set up on screen, reconnects on its own
Apps	Eight tiles in the pad's own 4×2 layout: each key opens its tile
Power	LiPo battery, motion-aware sleep, USB-C charge
Updates	Staged from your own machine, installed over the air, rolled back on its own if one fails to start
Sound	No speaker; feedback is a haptic buzz and a status LED, where fitted

First run

The first time it starts, setup runs before the launcher does, and ends on TODAY. Anything skipped can be done later in Settings; with no Pi set, the terminal asks for one when it is opened.

Step	What happens
Welcome	An introduction. “Get started” moves on.
Wi-Fi	Joins a network, or lets you skip for now. Shows “Connected to ...” once it is up.
Your Pi	Type the host, user and port, then “Test the connection”. It shows this handheld’s key as a QR code, to add to ~/.ssh/authorized_keys on the Pi from your phone.
Keys	Learns the eight keys — see below. Switching the handheld off later needs at least one learned key.
All set	A checklist — Touch, Wi-Fi, Pi, Keys — each ticked once it is done. “Start using it” finishes. Anything left undone is still in Settings.

Touch calibration

Runs on its own the first time, and again any time you hold a finger on the screen through the first half-second after power-on. Five crosshairs, set in from the corners; tap and lift cleanly on each, without sliding. A “Try it” screen then asks you to draw with a finger — press Keep if the cross tracks it, or Redo to go again.

The five points sit inset on purpose: this digitiser does not quite reach the corners, and calibrating there would bake that gap into every reading.

Learning the keys

Settings > Keys & Touch > Learn the keys... (also offered during setup, and wherever the launcher or the recovery screen suggests it). Let go of everything, then press and hold each key as it lights up on the pad drawn on the screen, with the live reading shown throughout. Cancel sits at the bottom right.

All eight keys share one wire, each at its own voltage. A key that reads too close to another is switched off while the rest keep working, and the last screen says which; if fewer than three can be told apart at all, the whole pad is left off rather than firing the wrong action.

The keys

Laid out below exactly as they sit on the device — four across, two down. Two of the eight are the same on every screen: hold the top-left key and it goes Home; hold the top-right and it shows this pad as a legend for whatever is on screen right now. In the terminal, the rest do this:

Esc wire 1 hold: Home	Up wire 4 hold: page up	Page up wire 5 hold: find next	Reply wire 8 hold: Keys
Tab wire 2 hold: Ctrl+C	Down wire 3 hold: page down	Page down wire 6 hold: newest	Enter wire 7 hold: keyboard

Nothing happens while a key is down. Let go before about 0.6 s for the short action; between 0.6 and 1.5 s for the long one, which the screen names the moment you cross into it, so you always know what releasing will do. Hold past 1.5 s and it says CANCELLED — let go then, and nothing happens at all.

Why they are arranged this way

Column	Job
1 — Esc / Tab	Escape and interrupt, on the outer column where a thumb finds them fastest. Esc always backs out of whatever is open; a held Tab sends Ctrl+C.
2 — Up / Down	The arrow keys, for moving inside whatever Claude or the shell is showing. Held, each jumps a whole page instead of a line.
3 — Page up / Page down	Reads back through output a page at a time. Held, Page up repeats your last search and Page down jumps straight to the newest line.
4 — Reply / Enter	The two you reach for most. Enter accepts Claude's highlighted option, which answers most prompts by itself; Reply opens a grid of everything else you might send. Held, Reply shows this legend and Enter opens the on-screen keyboard.

Enter's hold used to send the word "continue" — sharing one key between two different messages with nothing but timing between them meant a hold held a shade too long typed a word into the agent instead of confirming. "continue" now lives in the reply sheet and the menu, and Enter's hold opens the keyboard instead.

Touch

Gestures, in the terminal

Gesture	Does
Double tap	Opens the reply sheet — the fastest route to answering a prompt.
Long press	Shows the key legend for the terminal.
Drag up / down	Scrolls. In the plain shell this pans your own scrollback; inside tmux, vim or anything else using the alternate screen, it is forwarded as scrolling to the program instead.
Single tap	On the terminal's text, jumps back to the newest output. On the touch bar, presses whichever button you are on.

The double tap and long press are the touch controller's own gesture recognition, not timed in firmware, so they stay reliable when the panel is busy; everything else is measured from raw samples.

The touch bar

Six targets along the bottom of the terminal: MENU, ESC, TAB, UP, DN, ENTER — the ones worth reaching one-handed, without a finger leaving the glass.

This panel's digitiser stops a few pixels short of the very bottom edge, so the bar is drawn tall and its labels sit near the *top* of the band. Aim at the text, not the bottom edge itself.

Everywhere: Home and the Control sheet

Gesture	Opens
Swipe up from the very bottom edge	Home — from any screen, except mid-flash, mid-setup, or already there.
Pull down from the very top edge	The Control sheet: brightness, the Wi-Fi network and whether the Pi is reachable, the torch, Low Power Mode, the key legend, Restart and Power Off — plus, over the terminal, Git status and Sessions.

A press that only wakes a dark or dimmed screen never also acts on whatever sat under your finger. The Control sheet's brightness slider never goes fully to black, and its Up/Down keys nudge brightness in fifteens while it is open.

The terminal

A strip along the top says, in large type, whether Claude is **IDLE**, **WORKING**, waiting on you (**NEEDS YOU**) or unreachable (**OFFLINE**) — read from what is actually on screen (Claude Code's own bell and spinner, or output that has simply stopped moving) rather than guessed from a timer — with your session name and the link and battery in smaller type beside it.

The reply sheet

Press the top-right key, or double-tap the terminal. Eight tiles across the top of the screen: **1 2 3 y n cont MORE X**. The newest lines of the session keep running underneath, live, so the prompt you are answering is still on screen while you answer it. MORE opens the full menu; X, Esc, or the same key again puts it away. Its tiles are tapped — the pad does not steer this one.

The full menu

Entry	What it does
Quick replies	1, 2, 3, y, n, continue, stop, /compact, /clear — sent with a newline. The last slot becomes your own custom reply once you set one in Settings > Terminal.
Sessions	Lists the Pi's tmux sessions and what each is doing. Open one to see its windows, or hold it to switch straight to it. Runs over its own connection, so the session you are looking at is never disturbed.
Keyboard	The on-screen qwerty, with the session still live above. Type a line, correct it, then SEND.
Find	Searches the scrollback and jumps to the newest match. Once you have searched, holding the Page-up key repeats it further back.
Git	git status and git diff --stat for whatever repository the pane you are attached to is sitting in, colour-coded by file state. Refresh re-reads it.
Keys	This legend, drawn over the terminal.

Reached from the touch bar's MENU button, or MORE on the reply sheet. It covers nearly the whole screen — a still picture of the terminal, dimmed behind it, not a live one. Up and Down move the highlight and Enter chooses it, if you would rather steer it from the pad; Esc or the top-right key puts it away, as does dragging it down or tapping the sliver of terminal still showing above it.

Home and the apps

Power-up lands on the launcher in a few seconds. Eight tiles sit in the same four-by-two shape as the pad, so **each key opens the tile in its position** — you can launch anything without looking. Holding a key runs that tile's own shortcut where it has one (only VOICE does: it starts recording at once). A tile drawn as an outline cannot run right now and says why underneath. A strip above the tiles appears when something needs attention — a keypad problem, or no Wi-Fi — and tapping it goes straight to the fix.

Leave any app for Home by swiping up from the very bottom edge, or by holding the top-left key. Esc, the top-left key, or the Back label in the corner step back one screen at a time instead.

Terminal

Claude Code on the Pi, in tmux. Leaving it drops the SSH link to save battery — tmux keeps the session running — and coming back reconnects in about fifteen seconds, on the session you were last using.

Monitor

The Pi's vital signs, drawn natively rather than in htop: CPU over the last minute and per core, temperature, memory, disk, network and the four busiest processes, refreshed live over its own connection. htop itself is one tap (or the top-right key) away, opened in its own tmux session called *graph* so it never disturbs the one you work in. Stays lit while the Pi is on charge, dims normally otherwise.

Files

Browses the Pi's handheld folder (recordings, notes and captures), your whole home folder on the Pi, or the handheld's own card. Every folder scrolls; a file opens in whatever suits it — text and PDFs scroll, pictures arrive shrunk to fit, a recording draws its waveform, anything else shows what it is. Hold a file for rename, copy between the Pi and the card, or delete to the trash.

Level and Torch

Level is a bubble level on the motion sensor. Flat, it is a round vial with rings at 1°, 2° and 5°; stood on its long edge it becomes a tube vial, reading the slope in millimetres per metre. Tap, or press Enter, to freeze a reading; the on-screen Calibrate corrects for the sensor's own offset. It only appears if a motion sensor is fitted.

Torch lights the screen white, warm or red, at a brightness you set by dragging up or down. Swipe sideways, or the pad's Up/Down keys, change the colour. It turns itself off after ten minutes untouched, with ten seconds' warning first.

Settings

A grouped, scrolling list rather than a wall of tiles. Wi-Fi, Tailnet and Raspberry Pi under Connections; Display, Keys & Touch, Terminal and Notifications under This handheld; Battery and Low Power Mode under Power; Card and Date & Time under Storage; Software Update, About, Restart and Power Off under System. Each row opens a page of its own with what it needs and why.

Today

The dashboard setup ends on, and the last tile: the clock and battery, then three cards — whether Claude needs you and in which session, the Pi's CPU, temperature, disk and uptime, and Hermes' last answer or what is waiting in the inbox. Tap a card to jump straight to it. Holding the bottom-left key starts a voice note from here without opening VOICE first.

Voice

Records a thought and lets you decide what happens to it — see “Voice notes and Hermes”, overleaf.

Voice notes and Hermes

Hermes is the assistant on the Pi that VOICE can ask. Recording, sending and asking all happen in the background, so leaving the app, or starting another take, cancels nothing already under way.

Step	What happens
Record	Tap the red button, press Enter, or hold the VOICE key on Home (or the bottom-left key on TODAY). A waveform and a running timer show while it records; length is limited only by free memory, with a countdown once you are close.
Stop	Tap again, or Enter. You are asked: Ask Hermes , Save audio , or Discard (which confirms first — it cannot be undone).
Sending	Goes to the Pi at once if it is reachable; otherwise it queues on the card and moves across once the Pi is back. Settings > Card also offers “Send them to the Pi now”.
The answer	Arrives as a banner from wherever you are, and lands in History — listed by day — with a status such as Transcribing, Asking, Answered or Failed.
History	Hold a take for a shortcut sheet: open it, ask Hermes (again), or delete it, which moves it to the Pi’s trash for 30 days rather than removing it outright.

There is no speaker on the device, so an answer is always read, never played aloud. Recording a follow-up from an answer’s screen continues the same conversation on the Pi.

Notifications

A session needing you, a Hermes answer, or a new inbox item all raise a banner and light a dark screen. Settings > Notifications can turn either source’s banner and wake off; muted items still turn up on TODAY.

Wi-Fi

If it cannot get online at startup, the picker opens on its own. Reach the same screen any time from Settings > Wi-Fi, or the Wi-Fi tile on the Control sheet.

Step	What you do
Pick	Networks are listed strongest first, with a lock icon and a signal-quality word (Excellent/Good/Fair/Weak) on each. "Other network..." joins one by name if it does not broadcast.
Type	The on-screen keyboard asks for the password (left empty for an open network). Back returns to the list without joining.
Done	The network is remembered, so the next start goes straight through. Only one is stored: joining a new one replaces it.

The radio is 2.4 GHz only, so 5 GHz-only networks will not appear.

When the Pi won't let you in

After three refused connections in a row, this screen replaces the endless retry. It shows this handheld's key so you can add it to `~/.ssh/authorized_keys` on the Pi without plugging anything in — and if the Pi's own host key has actually changed, it shows both fingerprints side by side to compare before you trust the new one.

Action	When to use it
Handheld's key	A QR code of the public key, for pasting into <code>authorized_keys</code> .
Trust the new key	Only offered when the host key has actually changed — normally because the Pi was reinstalled. Compare the fingerprints shown above it first: it is also what an impostor looks like.
Host / User / Port	Point the device at a different account or machine. Typed on screen and remembered.
Learn the keys / Recalibrate touch	If the input itself might be what is wrong.
Try again	Reconnect with whatever you just changed.

Settings > Raspberry Pi also has a "Forget the Pi's host key" row for the same job when nothing is currently refusing you. There is deliberately no single "reset everything": the device's own identity key is the one piece nothing on the other end can recreate.

Battery, dimming and sleep

Situation	Behaviour
In your hand	Moving it holds the screen at full brightness past the dimming time; hold it still for a couple of seconds and the timers below apply as usual.
Put down	Dims to the standby face after the “Standby face after” time (Settings > Display; 45 s by default, 15–45–120 s to choose from) — the state word, your session, Hermes’ last line, and battery and link underneath.
Left alone	With a session attached it never goes fully dark, only fades the standby face further; with nothing attached it switches off after “Screen off after” (150 s by default, 1–30 minutes to choose from).
Face down	Turns off at once — a deliberate “I am done” — if that Display setting is on (it is, by default).
Claude needs you	Lights the screen and pulses it on its own, even if it had gone dark — though it goes straight back off if the device is lying face down.

The first press on a sleeping screen only wakes it; it never also triggers whatever sat under your finger. Brightness lives in Settings > Display, the Control sheet, or Ctrl+Alt+F11/F12 on an attached USB keyboard (Settings > Terminal > USB keyboard has to be on first, which also removes the serial console).

Battery warnings

A sheet at 20% offers Low Power Mode; a firmer one at 10% warns it switches off at 3%. At 3% — or the cell sagging under 3.4 V for three readings running — a ten-second on-screen countdown starts, saving everything first; plugging in during it cancels the shutdown.

Low Power Mode checks the Pi less often, not at all while the screen is dark, caps brightness at half, and switches itself off again once charging reaches 80%.

Updating the firmware

Two steps: stage the build from your own machine, then install it from the device.

1. Stage it

```
tools/ota_stage.sh
```

Builds the firmware, refuses if the tree has uncommitted changes or the build warns, and copies the image to the Pi over scp along with what changed since the last one.

2. Install it

Settings > Software Update shows what is staged against what is running, and lists what is new in it. “Install update...” streams it over its own connection, verifies it, and restarts, with a progress bar. It is blocked below 30% battery unless you are charging.

If it goes wrong

The running firmware is never overwritten outright: the new image only takes over once it has proved itself by opening a session on the Pi. If it cannot, the device falls back to the version it had, by itself, on the next restart.

If something looks wrong

Symptom	What to do
Taps land on the wrong thing	Settings > Keys & Touch > Recalibrate touch..., or hold a finger on the screen while it powers on.
A key does nothing, or two feel the same	Settings > Keys & Touch > Learn the keys..., watching the live reading as you press. Keys that are too close together are disabled automatically rather than firing the wrong thing; if fewer than three can be told apart, the whole pad stays off.
The launcher shows a warning strip	Tap it — it is either the keypad (a wiring fault, or levels worth relearning) or Wi-Fi, and tapping it goes straight to the fix.
Screen dark and will not wake	Check it is not face down. A single press only wakes it; a second one acts.
Battery counting down on its own	The critical-battery shutdown. Plug in to cancel it.
Can't sign in to the Pi	See “When the Pi won't let you in”.
Stuck on a boot screen	Attach USB and watch the serial log — unless the USB keyboard setting is on, which takes the console with it.

Your SSH identity, touch calibration and key levels all live in flash and survive both firmware updates and USB reflashing.