My battery drains too fast

Step 1: Measure actual power draw

Use a USB inline power meter to measure real current draw. This immediately shows whether you have a software config problem or a hardware issue.

Expected draw by hardware

The figures below are approximate field measurements and vary with firmware, settings, and transmit duty cycle - measure your own device for an accurate number.

Hardware	Typical active draw (approximate)
ESP32 (T-Beam, Heltec), no display, no BT	~40-55 mA
ESP32 with OLED display on	+10-20 mA
nRF52840 (RAK4631, T-Echo, T114)	~8-15 mA

Power drain checklist

- Screen on all the time? Set a short screen timeout (e.g. 10-30 seconds) so the display sleeps. Note: a timeout of 0 usually means never sleep - avoid it on battery.
- Bluetooth enabled? Disable if not needed.
- GPS polling? Disable or set a long interval.
- WiFi enabled (ESP32)? Disable.
- Position broadcast interval too short? Set to 30+ minutes on battery.

Battery sizing

Battery (mAh) divided by draw (mA) = hours of runtime. 1000 mAh at 40 mA = 25 hours; at 10 mA = 100 hours. Switching from ESP32 to nRF52840 hardware typically gives roughly 4x longer life on the same battery (approximate; the exact ratio depends on your settings and usage).

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