

First Power-On Checklist■Solar Logger + AA Charger

Step 1. Verify Panel & Fuse

- Measure panel Voc \approx 21–22 V in sun.
- Check continuity of 10 A fuse.

Step 2. Check Shunt Wiring

- PV+ flows fuse \rightarrow shunt \rightarrow buck.
- Tighten shunt lugs.
- INA226 VIN+ = fused side, VIN– = buck side.

Step 3. Buck Converter Output

- Buck output \approx 5.0 V.
- Trim potentiometer if needed.
- Test with USB device before charger.

Step 4. AA Charger & Load

- Plug TN480U into buck USB.
- Insert NiMH cells; LCD on.
- Panel V \sim 18–20 V, current 0.5–1.5 A.

Step 5. ESP32 Logger

- Power ESP32 via USB.
- Serial Monitor: INA226 + SD init.
- Logs show volts, amps, watts, Wh.

Step 6. Wi-Fi & Web UI

- ESP32 connects to Wi-Fi or AP.
- Open http://<ESP32_IP>/ in browser.
- Page shows table, charts, Aim Mode.

Step 7. Data Logging

- Check SD card after 1 min.
- CSV file has header + values.

Final Safety Checks

- All positives fused.
- Shunt lugs insulated.
- Common ground solid.
- Electronics enclosed.