

ThunderBank Quick Reference

Operating cheat sheet · not a substitute for the full Operation Manual or EAP

Lightnin 24/7
470-244-3905
678-472-5682
877-433-0313

LIMITATIONS

CAPACITY
270 kWh · 243 kWh usable ·
90% depth of discharge

TOTAL CURRENT
200 A/leg · 600 A Total
continuous

INVERTERS
90 kVA · 72 kW continuous

PER LEG
24 kW · 200 A continuous

BATTERY RANGE
100% → 11% · shutdown 10% ·
inverting resumes at 12%

OUTPUT
208 / 120 V 3φ

LEG BALANCE
Legs don't have to be balanced — each must stay within 24 kW max
continuous

EMERGENCY. If you see / hear / smell smoke, fire, hissing, popping, sweet/chemical odor, or any temperature alert above 150°F: hit the **EMERGENCY STOP** button (exterior, rear-right corner, red/white decal). Then **CALL 911** if there is any fire / injury / smoke, and call Lightnin. **Do not open the personnel door** during a fire — oxygen accelerates combustion. Follow the **Emergency Action Plan** for full procedures.

For Cabling and Operation, Follow Industry Safety Guidelines.

THUNDERBANK 3-POSITION SWITCH (CONTROL PANEL — REAR-RIGHT EXTERIOR POLYCASE)

10 O'CLOCK

OFF

- Main inverters off
- AC output and input dead
- EV off
- **Trickle charger still works**

12 O'CLOCK

CHARGE

- **Pause position** — move switch slowly through here
- **Treat AC output as live**
- If no AC outputs are plugged in, this is the most efficient charging position
- **3-phase and trickle charging live**

2 O'CLOCK

ON

- **AC output live**
- **3-phase and trickle charging live**
- EV charger enabled
- **ThunderBolts can export power**

Air conditioning and trickle charger are always on in any switch position — only the EMERGENCY STOP takes them down.

ORANGE DIAL — External Charge Rate Control

- 3-phase AC input: **30–275 A/leg** · Trickle: **10–50 A**
- Trims AC output voltage for long cable runs
- **After any AC power loss, dial resets to 60 A (3-phase) / 15 A (trickle)**
- Ramp the 3-phase dial up incrementally, **30–50 A per step**

THUNDERBANK — CHARGING

- 1 Connect 3-Phase and/or Trickle Charger camlocks at front-right "Input Only" panel
- 2 3-position switch to **On**
- 3 Verify AC In rising on exterior display
- 4 Ramp the **orange dial** up incrementally, **30–50 A per step**, to Target Rate
- 5 Turn off generator at 95% to avoid wasting fuel. Unplug Grid source so ThunderBolts begin exporting again.

Trickle charger can use one or two hot legs.

3-phase charging only begins below 85% SOC; auto-ignores at 95%.

LOAD SHEDDING — Managing The Fleet When Walking Away

- 1 Leave **ThunderBank On**
- 2 Keep ThunderBolts in **On/Export** — excess power helps ThunderBank run longer
- 3 For units that are needed, load shed nonessentials — especially air conditioners
- 4 Turn off or unplug non-ThunderBolt units not needed

If a ThunderBolt isn't planning to be used, leave it **On/Export** and shed its loads — it can still provide power to the bank or other units.

If solar will be 0 (overnight, indoors, snow-covered panels), ThunderBolts can be turned off too — likely won't be enough power to export.

THUNDERBOLT 3-POSITION SWITCH (BY THUNDERBOLT CHARGE PLUG)

10 O'CLOCK

OFF

- ThunderBolt off
- No export
- **Solar charging still live**

12 O'CLOCK

ON / NO EXPORT

- **Required when cabling Directly to grid or generator**
- ThunderBolt powered on
- Won't export

2 O'CLOCK

ON / EXPORT

- **Default for ThunderBank operation**
- ThunderBolt powered on
- Exports automatically when above Min Battery SOC

ThunderBolts temporarily stop exporting while the ThunderBank has another 3-phase charge source, and will resume automatically.

Safe to disconnect a ThunderBolt while it is exporting — anti-islanding tech drops the output.

THUNDERBANK — TURNING OFF (Moving Locations or Long Term Storage)

- 1 **Unplug or turn off exporting ThunderBolts first**
(Can be Off or On/No Export)
- 2 3-position switch slowly through **Charge** (pause ~3 s) to **Off**

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Troubleshooting, ThunderBolt notes, emergency

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TROUBLESHOOTING (QUICK ACTIONS)

- ▶ **Overcurrent while turning TBank OFF.** Almost always from not unplugging exporting ThunderBolts first. Clear with **Off → On → Off** reset cycle.
- ▶ **Overcurrent / inverter fault at any other time. Don't reset — call Lightnin.** A blind reset can mask a real problem.
- ▶ **Screen glitch on control panel.** Press the small **blue dot in the lower-left** of the display to reset the screen. Inverters and bank are not affected.
- ▶ **Air conditioning struggling, compartment 100–120°F.** Not a fire indicator. Call Lightnin for service. 150°F+ → follow the EAP.
- ▶ **Temp Sensor missing in VRM.** Sensor battery has died. Call Lightnin.
- ▶ **Alternator fault light on.** Switch to OFF and call Lightnin.

Victron's fault logic: disconnect → wait 30 sec → retry 3–5 times → then either disconnect from the fault source for 30 minutes or ignore the AC inputs entirely.

EV CHARGER

- ▶ Level 2 AC charger, up to **80 A**. The EV picks the charge rate, not the ThunderBank.
- ▶ Connected to **Legs 1/2** — often adds 4–9 kW/leg.
- ▶ Extensive EV charging decreases ThunderBank runtime.

CHARGE RATE · FILL TIME (20→100% = 216 KWH) WITH AND WITHOUT LOAD

DIAL (A/LEG)	AC IN (KW)	NO LOAD	+ 10 KW	+ 20 KW	+ 30 KW
75 · 225 A total	27.0	8 hr	12 hr 42 min	30 hr 51 min	<i>discharging</i>
100 · 300 A total	36.0	6 hr	8 hr 18 min	13 hr 30 min	36 hr
125 · 375 A total	45.0	4 hr 48 min	6 hr 10 min	8 hr 38 min	14 hr 24 min
150 · 450 A total	54.0	4 hr	4 hr 55 min	6 hr 21 min	9 hr
168 · 504 A total	60.5	3 hr 34 min	4 hr 17 min	5 hr 20 min	7 hr 5 min
200 · 600 A total	72.0	3 hr 34 min	3 hr 34 min	4 hr 9 min	5 hr 9 min
225 · 675 A total	81.0	3 hr 34 min	3 hr 34 min	3 hr 34 min	4 hr 14 min
250 · 750 A total	90.1	3 hr 34 min	3 hr 34 min	3 hr 34 min	3 hr 36 min
275 · 825 A total	99.0	3 hr 34 min	3 hr 34 min	3 hr 34 min	3 hr 34 min

168 A/leg is max battery charge (60.5 kW DC). Above that, surplus AC stays available for loads.

$$(100 \times \text{kW}) \div 270 = \text{Charge \% per hour}$$

Use the **net charge or discharge at the battery**, not AC In or AC Loads. Negative kW = discharge.

WHERE THINGS LIVE (EXTERIOR)

EMERGENCY STOP Rear-right corner, red/white decal	CONTROL PANEL + DISPLAY Rear-right corner, grey Polycase	AC OUTPUT (WATERFALL) Rear wall, right side	AC INPUT (INPUT ONLY) Front-right, 3φ vertical, 1φ horizontal
EXTERNAL PV BREAKERS Rear-left shielded box, near extinguisher	ABC EXTINGUISHER Bumper, rear-left	LEVEL 2 EV CHARGER Black jockey box, front-right	PERSONNEL DOOR Combo-locked — maintenance/Fire Dept only

THUNDERBOLT BEHAVIOR (KEY REMINDERS)

- ▶ Exporting appears as a **negative AC Input number** in VRM (e.g. -1049 W).
- ▶ Trailer takes a few minutes of automatic safety checks before reaching its normal export rate.
- ▶ ThunderBank shows ThunderBolt power as **PV Inverter** in VRM and **ESS Charging** on Control Screen.
- ▶ **ThunderBolt should be exporting but isn't.** Unplug and plug back in to restart safety checks. If still no export, call Lightnin to diagnose.
- ▶ **ThunderBolt is exporting and shouldn't be.** Move ThunderBolt switch to **On/No Export** or unplug.

AIR CONDITIONING, SOLAR, ALTERNATOR

- ▶ A/C setpoint 80°F or less. Sensors ±5°F. A/C can still use the battery in **OFF** position.
- ▶ **Additional Solar PV breakers** at rear-left (near the ABC extinguisher) — **OFF** before connecting or disconnecting panels.
- ▶ **Alternator switch (cab, left of steering wheel):** leave **ON** by default. If the indicator light comes on, switch **OFF** and call Lightnin.