PowerTech - PowerBrick Pro 48V 32Ah - LiFePO4 Battery

Reference : POW-48V-32AH-PRO

Brand : POWERTECH

Options :

No variants

3D Model : Available

EAN-13 : 3569874312055

The **PowerTech PowerBrick Pro 48V 32Ah** is a **LiFePO4 (LFP)** battery pack designed for **48V** architectures that require a compact, robust, "ready-to-integrate" solution on a **DC bus**: light traction, AGVs/robotics, marine, auxiliaries and energy storage/UPS. Its **51.2V** nominal voltage, **IP65** enclosure and integrated **BMS** make it a solid base for industrial integration—provided charging, wiring and protections are properly sized.

Overview

The PowerBrick Pro targets B2B "drop-in" integration as a replacement for 48V lead-acid packs, with a wide operating window and built-in protection functions via the BMS.

- **LiFePO4 (LFP) chemistry**: well-suited to mobile and industrial use.
- **Energy**: 1638 Wh (≈ **1.64 kWh**).
- **Integrated BMS**: monitoring and protections (over/undervoltage, overcurrent).
- **IP65 ABS enclosure**: dust/splash protection (avoid immersion).
- **Compact format**: 260 × 168 × 212 mm; **M8 terminals**.
- **Scalable**: up to **16 packs in parallel** (symmetric wiring and proper protection required).

System integration

The pack integrates as a DC source on a 48V bus. The BMS protects the battery, but it does not replace system-level architecture: short-circuit protection, a disconnect device, and a precharge strategy if downstream equipment has a large input capacitance (drive/inverter).

- **Upstream protection**: DC fuse/breaker sized for the target continuous current.
- **Disconnect**: contactor rated for the current and duty cycle.
- **Precharge** recommended with drives/inverters to limit capacitor inrush.
- **Multi-pack**: equal cable lengths/cross-sections ("symmetric wiring"), protections consistent with total current.
- **Charging**: standard **CC/CV** strategy; remain consistent with BMS high/low thresholds.

Technical specifications

Chemistry	LiFePO4 (LFP)
Nominal voltage	51.2 V
Nominal capacity	32 Ah
Energy	1638 Wh (≈ 1.64 kWh)
Internal resistance	≤ 50 mΩ
Charge (profile)	CC/CV
Charge voltage	57.6 V ± 0.8 V
Charge current	16 A standard; 32 A max continuous
BMS thresholds	High: 59.2 V ± 0.4 V; Low: 40 V
Discharge	65 A continuous; 100 A (< 30 s); 270 A peak (100 ms)
Temperatures	Charge 0 to +60ºC; Discharge −20 to +60ºC; Storage 0 to +50ºC
Ingress protection	IP65
Dimensions (L×W×H)	260 × 168 × 212 mm
Weight	13.2 kg
Terminals	M8 bolts
Compliance	CE, RoHS, UN38.3

Applications

- Light traction: utility platforms, small electric vehicles.
- AGVs/robotics: DC bus supply with controlled short peaks.
- Marine: auxiliary propulsion and onboard services (architecture dependent).
- Energy storage & backup: UPS, telecom, security, medical.
- Industrial auxiliaries: compact 48V systems.

Real-world performance

In integration, a battery is not just "Ah": what matters is voltage under load, peak behavior, temperature impact and margin to BMS cut-off. The figures below are **orders of magnitude** based on nominal voltage (actual voltage depends on SOC, temperature and internal sag).

- **Available power (P ≈ V × I)**: 65 A continuous ≈ **3.33 kW**; 100 A (<30 s) ≈ **5.12 kW**; 270 A (100 ms) ≈ **13.8 kW** (very short peak).
- **C-rate**: 1C = 32 A; 65 A ≈ **2.0C**; 100 A ≈ **3.1C**; 270 A ≈ **8.4C** (for 0.1 s).
- **Temperature**: cold increases voltage sag and reduces usable energy; validate via testing if exposed (cold/hot).
- **Energy density (approx.)**: ≈ **124 Wh/kg** (1638 Wh / 13.2 kg); gross volume ≈ 9.26 L → ≈ **177 Wh/L**.
- **Peaks & protection**: peaks must remain consistent with BMS limits and downstream equipment (cables, contactor, protection, precharge).

Installation & commissioning

Precharge is recommended when a drive/inverter is used: direct connection can generate a current spike into input capacitors and trigger protection.

Risk case: DC motor controlled "ON/OFF" via contactor

If the battery is connected directly to a DC motor switched only by a relay/contactor (without a controller), watch for **startup inrush current**. Even if steady-state current looks acceptable, inrush can trigger a **BMS protection shutdown**. A DC controller/drive (even a simple one) helps limit inrush, soften acceleration and stabilize operation.

M8 connections: use proper lugs, controlled torque, anti-vibration measures, and periodic inspection of hot spots (losses often concentrate at connections).

Parallel operation: match cable lengths/cross-sections and size protections/cables to avoid current imbalance.

Wiring, protection & robustness

For reliable integration in mobile/industrial environments: minimize current loops, control hot spots (connections), and mechanically secure the harness (strain relief, bend radius, routing). At higher current, the architecture (protection, precharge, contactor) drives reliability as much as the battery itself.

- Size cables and protection for the **target continuous current**, then verify heating during tests.
- Manage **peaks** (startup, inrush) in line with BMS limits and downstream equipment.
- Provide measurement points (Vbus / I / temperatures) for diagnostics and maintenance.