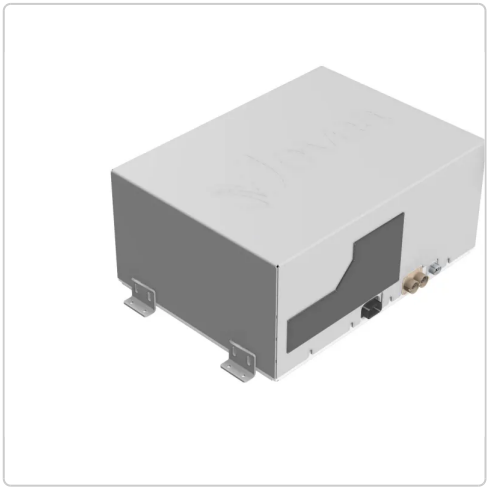
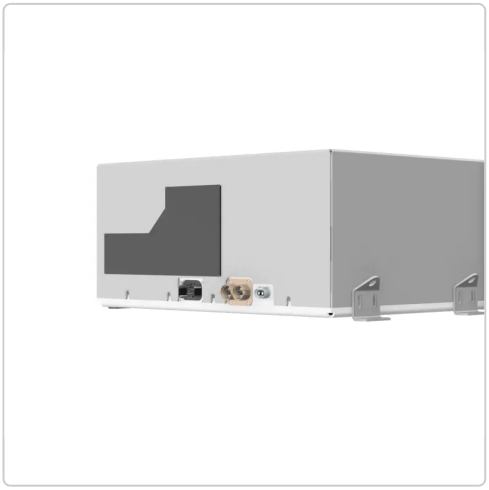
Product datasheet

Version: 18/03/2026

INNOVATION TECH - 48V 210AH Lithium Battery





Reference : INN-LFP48V210AH-51V-210AH

Brand : INNOVATION TECH

Options :

No variants

3D Model : Available

EAN-13 : 3762552427144

The INN-LFP-48V-210AH 48V 210Ah LiFePO4 battery is a lithium battery pack designed for traction and industrial integration in 48 V applications that require both high energy capacity, high current peaks, and advanced system communication. With a nominal voltage of 51.2 V, a capacity of 210 Ah, an energy content of approximately 10.75 kWh, and an isolated CANopen BMS, this model is intended for special electric vehicles, onboard machinery, and traction systems where the battery must be managed as an active part of the overall system.

This 48V 210Ah lithium battery uses LiFePO4 chemistry suited to industrial environments and traction applications. It combines 210 A continuous discharge, 400 A maximum discharge, a 600 A boost for 30 seconds, regeneration up to 200 A, and active balancing up to 1 A. This is not a generic 48V battery: it is a 51.2V 210Ah battery designed for integration with a motor controller, charger, and auxiliary systems via CANopen, with integrated precharge and insulation monitoring.

48V traction battery

48V 210Ah LiFePO4 battery for traction and industrial applications

The INN-LFP-48V-210AH pack belongs to the 48V LiFePO4 battery class, but its actual nominal voltage is 51.2 V, with an operating range between 44 V and 57.6 V. This architecture is fully aligned with modern reinforced low-voltage traction systems, where the goal is to achieve the right balance between usable capacity, chemical safety, advanced electronic management, and instant power delivery. With 210 Ah and approximately 10.75 kWh, this battery covers traction requirements, onboard industrial equipment power supply, and electric conversion projects on special-purpose machines.

Isolated CANopen BMS for charging, traction, and diagnostics

The core feature of this product is its isolated CANopen BMS. The battery does not simply deliver voltage and current: it also publishes status data, SOC, faults, and dynamic IMD/IMR current limits so that the charger and motor controller can

adapt their behavior in real time. This operating logic is especially valuable for engineering teams looking to integrate a 48V traction battery into a fully coherent system architecture, with supervision, charging strategy, regeneration control, and coordinated machine-state management.

Technical data

Reference	INN-LFP-48V-210AH
Type	48V / 51.2V LiFePO4 battery for traction and industrial applications
Chemistry	LiFePO4 (LFP)
Nominal voltage	51.2 V
Voltage class	48 V
Voltage range	44 V to 57.6 V
Capacity	210 Ah
Nominal energy	~10.75 kWh
Continuous discharge	210 A
Maximum discharge	400 A for up to 2 min
Boost discharge	600 A for up to 30 s
Maximum charge current	200 A
Maximum regeneration	200 A up to 90% SOC
Balancing	Active, up to 1 A
Communication	CANopen
CAN bus	Isolated
Default CANopen bitrate	125 kbps
Useful CAN data	SOC, states, faults, IMD/IMR, standby/charge/discharge status
Internal measurements	Voltage and temperature of each cell
Precharge	Integrated
Event log	Yes, internal fault memory
Operating temperature	-20 °C to +45 °C
Charging temperature	0 °C to +45 °C
Cold-charge limitation	Yes, below approximately 10 °C
Storage temperature	-20 °C to +50 °C
Protection rating	IP43
Housing	Aluminum
Weight	85 kg
Dimensions	685 × 480 × 290 mm
Mounting	Flat mounting on its base
Series connection	Up to 2 packs in master/slave configuration via CAN
Parallel connection	Not supported
Discharge power connector	Amphenol PL-082X-301
Charge power connector	Amphenol PL-082X-60
Signal connector	TE Connectivity AMPSEAL 23-way
Charger compatibility	Zivan RE, DeltaQ

Motor controller compatibility	Zapi families
Cycle life	3000 cycles at 100% DoD at 1C; 4500 cycles at 80% DoD at 1C

Current and energy performance

10.75 kWh battery with 210 A continuous output and 600 A boost

Current capability is another major differentiator. The pack can deliver 210 A continuously, 400 A for up to 2 minutes, and 600 A in boost mode for 30 seconds, depending on temperature and state-of-charge conditions. This reserve makes the battery well suited to startup phases, renewed load demand, mechanical load increases, or rapid torque changes. During charging, the profile is CCCV up to 200 A, with automatic cold-temperature limitation. During regeneration, 200 A remain available as long as SOC is below or equal to 90%, after which the limit gradually decreases as the battery approaches 100%.

200 A regeneration and 1 A active balancing

Internal battery management is based on cell-by-cell monitoring of both voltage and temperature, with continuous active balancing up to 1 A. This level of granularity improves long-term pack stability, usable capacity, and diagnostic quality in operation. SOC/SOH estimation is based on current measurement combined with analysis of individual cell voltages, and the system stores a history of internal events that is useful for commissioning, maintenance, and fault analysis. For a 48V industrial lithium battery, this level of supervision significantly changes how the human-machine interface, maintenance strategy, and safety states are designed.

Precharge and insulation

Integrated precharge for a 48V lithium traction battery

The battery also features an integrated precharge function that requires a precise startup sequence: wake, precharge, contactor closing, and then downstream load authorization. This requirement is especially important when the system architecture includes a DC/DC converter, capacitive loads, or equipment that could draw current too early. In a proper integration, downstream loads must remain inhibited during precharge and only be enabled once the pack reaches the ready state. This is a key design point in any electric conversion or onboard traction project.

DC bus isolated from chassis in a CANopen architecture

Finally, insulation monitoring must be treated as a design requirement rather than a simple wiring detail. The DC bus must never be referenced to the chassis. Any direct or indirect connection through downstream equipment can trigger an insulation fault and prevent the pack from starting. This 48V 210Ah LiFePO4 battery is therefore particularly relevant for projects where the electrical architecture is fully controlled from end to end, with clear separation between power, CAN communication, functional grounds, and protective systems.

Applications and system integration

48V battery for special electric vehicles and onboard machinery

This 48V lithium traction battery is suitable for special electric vehicles, electrified industrial machinery, onboard utility applications, electric conversion systems, and assemblies where the battery must communicate with the power electronics. It is designed for architectures integrating a traction motor controller, a controlled charger, an auxiliary DC/DC converter, and machine supervision logic.

CAN charger and traction controller compatibility

The battery is naturally suited to systems using CAN-compatible motor controllers and communicating chargers. It can be connected in series with up to two packs in a master/slave configuration via CAN, according to factory settings. Parallel assembly, however, is not supported on this model. This point must be taken into account very early when sizing onboard energy capacity and defining the future evolution strategy of the system architecture.

The isolated CANopen BMS enables more advanced operation than a standard pack without communication. The battery can transmit its dynamic charge, discharge, and regeneration limits, along with its states and fault information, making coordinated control between energy storage, traction, and charging much easier. For the integrator, this reduces reliance on fixed assumptions and improves the robustness of the control strategy.

The 51.2 V / 210 Ah / 10.75 kWh combination places this product in the high-capacity 48V battery segment, with usable energy density suited to demanding applications. The 600 A boost discharge for 30 s, regeneration up to 200 A, 1 A active balancing, cell-by-cell monitoring, and integrated precharge clearly distinguish this model from a simpler 48V battery intended for generic power supply or non-integrated use.

Installation and field use

685 × 480 × 290 mm footprint and 85 kg weight

Mechanical installation is straightforward, but it must be planned in advance. The aluminum housing is designed for flat mounting, with four lateral mounting brackets. The dimensions of 685 × 480 × 290 mm and the weight of 85 kg must be taken into account from the layout study stage, especially if the machine is sensitive to mass distribution or vibrations.

IP43, vibrations, and connector access in mobile equipment

In environments exposed to high levels of vibration, mounting on silent blocks is recommended. The IP43 rating means the pack must be protected against severe splashing and direct water jets. The power and signal connectors must remain accessible for installation, inspection, and maintenance, especially in mobile, industrial, or retrofit applications where the battery must be diagnosable without major disassembly.

Usage questions

48 V or 51.2 V: which voltage should be used for system integration?

Is this battery a 48 V or a 51.2 V battery?

Both designations are correct. It is a 48 V class battery with an actual nominal voltage of 51.2 V and an operating range from 44 to 57.6 V.

CANopen required, parallel connection prohibited, and READY sequence

Is CANopen mandatory to use it?

Standalone operation remains possible, but optimal performance is achieved with coherent CANopen integration between the battery, charger, and motor controller.

Can the battery be connected in parallel?

No. This model does not support parallel connection. However, series connection of up to two packs is provided in the factory configuration via a master/slave architecture.

Why must the precharge sequence be respected?

Because the battery controls a power-up sequence designed to limit inrush current on the DC bus. If a downstream load draws current before precharge is complete, a fault may be triggered.

Can the DC bus be connected to the chassis?

No. The power bus must never be referenced to the chassis. An insulation fault can prevent the pack from starting.

Choosing the right battery for your project

The INN-LFP-48V-210AH is a 48V 210Ah LiFePO4 battery designed for traction and system integration, making it well suited to projects that require a communicating 51.2V battery capable of handling high current peaks and advanced control through a CANopen BMS. Its value lies not only in its electrical performance, but also in its ability to integrate cleanly into a complete system including charging, traction, regeneration, precharge, and supervision. Final validation of performance, protection functions, and operational behavior must be carried out within the complete system before commissioning.

Frequently associated searches for this product: 48V 200Ah LiFePO4 battery, 48V traction battery, 48V industrial lithium battery, battery with CANopen BMS. View the related category

Product sheet written by **Mathieu S.** and reviewed by the EVEA Distribution technical team — Last updated on 18/03/2026.