

Inn. Tech - AlCase - 48V 210Ah LFP Battery



Reference : INN-ALCASE-48V-210AH

Brand : INNOVATION TECH

Options :

No variants

3D Model : Available

EAN-13 : 8612765452301

The INNOVATION TECH INN-LFP-48V-210AH battery is a 210 Ah LiFePO₄ traction battery pack designed for special electric vehicles, electrified industrial machines and onboard utility equipment. It provides approximately 10.75 kWh to power these applications. Its 48 V designation refers to its voltage class: its nominal voltage is 51.2 V, with an operating range of 44 to 57.6 V to be taken into account when sizing connected equipment.

For traction, it delivers 210 A continuously and supports temporary loads of 400 A for up to 2 minutes or 600 A for up to 30 seconds. These currents remain subject to temperature and state of charge. CCCV charging is limited to 200 A, with automatic reduction at low temperatures. During regenerative braking, the maximum allowable current is 200 A up to 90% SOC, then decreases as the battery approaches full charge.

The integrated BMS monitors cell voltages and temperatures individually and provides active balancing up to 1 A. Its isolated CANopen interface transmits status, fault information and dynamic current limits, allowing the charger and inverter to adapt their operation to the pack's actual conditions. The event log facilitates diagnostics and maintenance.

The integrated precharge function limits inrush current when the DC bus is powered up. Downstream equipment, including DC/DC converters, must wait until precharge is complete and the pack is in the READY state before drawing current. The insulation monitoring function requires the DC bus to remain isolated from the chassis, including through connected peripherals.

The IP43 aluminium enclosure must be mounted flat on its base and protected from direct water jets and severe splashing; rubber mounts are recommended in high-vibration environments. An architecture with two packs in series is possible with CAN master/slave coordination and factory configuration. Parallel connection is not supported.

Technical specifications

Group	Characteristic	Value
Identification	Brand	INNOVATION TECH
	Commercial reference	INN-LFP48V210AH-51V-210AH
	Manufacturer reference	INN-LFP-48V-210AH
	EAN-13	3762552427144
	Product type	Lithium traction battery pack for industrial integration
General	Chemistry	Lithium iron phosphate (LiFePO4, LFP)
	Applications	Special electric vehicles, electrified industrial machines, onboard utility equipment and electric conversions
Voltage	Commercial voltage class	48 V
	Nominal voltage	51.2 V
	Operating range	44 to 57.6 V
Capacity	Nominal capacity	210 Ah
	Nominal energy	Approximately 10.75 kWh
	Continuous current	210 A, subject to temperature- and state-of-charge-related limits
Discharge	Maximum temporary current	400 A for up to 2 minutes, subject to temperature- and state-of-charge-related limits
	Boost current	600 A for up to 30 seconds, subject to temperature- and state-of-charge-related limits
	Charging profile	CC-CV: constant current, then constant voltage
Charging	Maximum current	200 A, with automatic limitation at low temperatures
	Charger requirements	CC-CV profile suitable for LiFePO4 chemistry; set voltage appropriate for the pack; configured current not exceeding 200 A or the dynamically allowable limit; compliance with required communication exchanges
	Maximum current up to 90% SOC	200 A for a state of charge of 90% or less
Regeneration	Limitation above 90% SOC	Allowable current decreases as SOC approaches 100%
	Pack management	Integrated BMS
BMS	Voltage monitoring	Cell-by-cell voltage measurement
	Temperature monitoring	Cell-by-cell temperature measurement
	Balancing type	Active
	Balancing current	Up to 1 A

Group	Characteristic	Value
Balancing operation	Continuous	
Diagnostics	Status information, SOC, faults and event log	
Communication	Protocol	CANopen
	Interface isolation	Isolated CAN interface
	Default bit rate	125 kbit/s
	Data transmitted	Pack status, SOC, faults and dynamic IMD/IMR current limits
	Standalone operation	Possible without CANopen communication
	Precharge	Integrated
	Power-up sequence	Wake the pack, precharge the DC bus, close the contactor, then enable downstream loads
Electrical integration	Downstream load enable	No current draw before precharge is complete and the pack is in the READY state
	Insulation monitoring	Integrated insulation monitoring
	DC bus isolation	DC bus must remain isolated from the chassis, with no direct or indirect connection through downstream equipment
	Inverter requirements	Input voltage range covering 44 to 57.6 V; current drawn from the battery must comply with discharge limits, durations and conditions; regeneration must comply with the pack's dynamic limits; compliance with the start-up sequence and required communication exchanges
	ZIVAN chargers	RE, NG3, NG5, NG7, NG9, SG3 and CT 3.3 ranges
Compatibility	Delta-Q chargers	ICL range
	MicroPower chargers	SC8, SX32, Lion 30 and Robuste ranges, in versions with integrated CAN
	Inverters	ZAPI and Curtis
	Peripheral configuration	Compliance with LiFePO4 chemistry, set voltages, allowable currents and communication exchanges required by the pack
Configuration	Individual use	Single pack
	Maximum number of packs in series	2
	Series coordination	CAN master/slave configuration with factory setup
	Parallel connection	Not supported
Construction	Enclosure material	Aluminium
	Dimensions	685 × 480 × 290 mm

Group	Characteristic	Value
Weight	85 kg	
	Protection rating	IP43
Environment	Operating temperature	-20 °C to +45 °C; discharge currents limited according to temperature and SOC, charging automatically limited at low temperatures
	Mounting position	Flat, on the base of the enclosure
Mounting	Water protection	Protect the pack from severe splashing and direct water jets
	High-vibration environments	Mounting on rubber mounts recommended
	Power port configuration	Separate charge and discharge ports
Connections	Discharge connector	Powerlock 300; Amphenol reference PL-082X-301
	Charge connector	Powerlock 60; Amphenol reference PL-082X-60
	Signal connector	TE Connectivity AMPSEAL, 23-way

Compatible chargers and inverters

For an electric conversion project, the INNOVATION TECH INN-LFP-48V-210AH battery has established compatibility with charging and traction equipment. It can be paired with ZAPI and Curtis inverters, as well as ZIVAN NG3, NG5, NG7, NG9, SG3 and CT 3.3 chargers, Delta-Q ICL chargers, and MicroPower SC8, SX32, Lion 30 and Robuste chargers in versions with integrated CAN. These documented combinations make it possible to assess the battery, charger and inverter together during project preparation, rather than selecting each component independently. They provide teams electrifying a machine with a practical basis for defining the traction system and its charging equipment.

Frequently asked questions

What is the difference between CAN and CANopen for this battery?

CAN defines the bus over which messages are transmitted; CANopen organizes the exchanges so that system components can interpret the data. Two components with a CAN interface are therefore not automatically able to work together.

On this 48 V LiFePO4 battery, the BMS communicates via CANopen at a default bit rate of 125 kbit/s. The charger and inverter must understand the transmitted status, permissions and dynamic limits, then respond as required, including in the event of a communication loss. Displaying a current limit is not enough: the relevant device must actually adjust its demand.

How can I check whether this battery is suitable for my project or motor drive?

Energy requirements for the duty cycle and power demands should be assessed separately. The nominal 10.75 kWh is not a fully usable reserve: range estimates must account for auxiliary loads, temperature, ageing and an operating reserve. The inverter and DC/DC converters must also cover the full 44 to 57.6 V range, not just the 48 V designation.

Then compare the current profile with the allowable operating levels: 210 A continuous, 400 A for up to 2 minutes and 600 A for up to 30 seconds, subject to SOC and temperature. At constant power, current increases as voltage decreases. Closely spaced peaks can also create sustained thermal loading and should not be treated as independent events.

Why must regenerative braking be reduced when the battery is nearly full?

Regeneration returns energy from the motor drive to the cells. Near full charge, their capacity to absorb energy decreases, and one cell may reach its upper voltage limit before the others. This pack accepts up to 200 A of regenerative current at an SOC of 90% or less, after which its limit decreases as SOC approaches 100%.

The inverter must follow this variable limit rather than maintain a fixed level of energy recovery. The machine control system must provide for slowing down and stopping when the battery can no longer absorb enough energy, using the braking mechanisms provided by its design. Regeneration alone therefore cannot guarantee continuous braking.

Why must downstream loads wait until precharge is complete?

Capacitors at the battery inputs of the inverter and DC/DC converters can cause a high inrush current when connected. The integrated precharge function gradually raises their voltage before the contactor closes, limiting stress on the contacts and components.

If a DC/DC converter or another load starts drawing current during this voltage ramp-up, it may prevent precharge from completing and cause start-up to be refused. The machine control system must therefore follow the sequence: wake, precharge, close the contactor, then enable loads when the READY state is reached. The mere presence of voltage on the bus does not authorize current draw.

How does insulation monitoring affect the electrical system architecture?

With this pack, neither pole of the DC bus, positive or negative, must be connected to the chassis. A connection introduced by the inverter, charger or DC/DC converter may be detected as an insulation fault and prevent start-up, even if the battery's direct wiring maintains this separation.

An auxiliary network may have a chassis-referenced ground if its architecture requires it, but it must not create an electrical bridge to the traction bus. This requirement must be checked across the entire machine. The isolated CAN interface protects a separate communication link; it does not guarantee isolation of the power circuit.

Can multiple packs be connected to increase voltage or range?

Up to two packs can be connected in series, with CAN master/slave coordination and factory setup. Two batteries with a nominal voltage of 51.2 V each provide a total nominal voltage of 102.4 V: the inverter, charger and converters must be sized for this architecture, not for a 48 V system.

Series connection adds the voltages and nominal energy, but the capacity remains 210 Ah; it does not double the allowable current. Parallel connection is not supported on this model and therefore cannot be used to increase Ah at the same voltage. Series connection is a coordinated system configuration, not a simple connection of two packs.

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