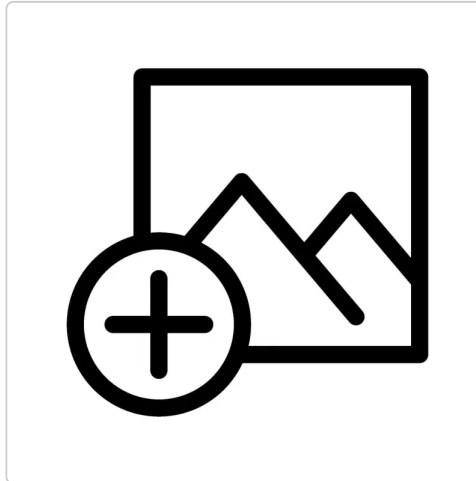
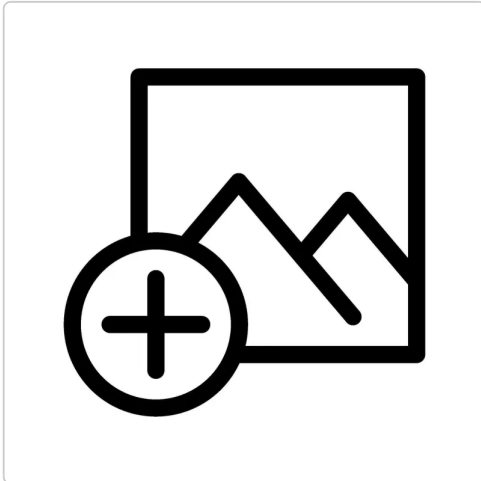


## INNOVATION TECH - LFP 48V 420Ah - Traction battery



**Reference** : INN-LFP48V420AH-51V-420AH

**Brand** : INNOVATION TECH

**Options** :

No variants

**3D Model** : Available

**EAN-13** : 3762552427151

The INNOVATION TECH 48V 420Ah LiFePO<sub>4</sub> battery, reference INN-LFP48V420AH-51V-420AH, is a lithium traction battery designed for onboard architectures that require both autonomy, fine control and operational safety. With around 21.5 kWh of energy, a real nominal voltage of 51.2 V, an isolated CANopen BMS, integrated precharge and a stated service life of 3,000 to 4,000 cycles, it is intended for special electric vehicles, onboard industrial machines and electric conversion systems where the battery must not be treated as simple energy storage but as an active part of the architecture.

This 48V lithium traction battery has been developed to work with ZIVAN RE chargers, Delta-Q chargers and ZAPI motor controllers. Its CANopen BMS is not limited to generic communication: it transmits the information needed to manage charging, traction and regenerative braking, in particular IMD and IMR values, meaning the maximum discharge current and maximum recharge current allowed by the battery at a given moment according to its state of charge and operating conditions.

### CANopen control

#### ZIVAN RE charger, Delta-Q and ZAPI controller

The role of the isolated CANopen BMS is a key differentiator. It is not just a supervision bus, but a communication layer that directly supports real equipment control. In an architecture using ZIVAN RE chargers, Delta-Q chargers and ZAPI motor controllers, CANopen transmits battery states, faults, SOC, cell-by-cell measurements and above all the dynamic current limits that downstream devices are allowed to use. This prevents the charger and controller from operating on fixed assumptions while the battery continuously knows its own instantaneous limits.

#### IMD and IMR for traction and regeneration

IMD and IMR information must be understood in this context. IMD is the maximum discharge current allowed by the battery; this value is used by the motor controller to determine how much traction current can be requested without

exceeding the acceptable operating zone of the pack. IMR is the maximum recharge current allowed; this value is used by the controller during regenerative braking and by the charger during battery charging. In practice, the closer the state of charge gets to a high level, the more IMR can be reduced to limit cell voltage rise. Conversely, when the state of charge becomes very low, IMD can drop sharply until traction is limited and eventually stopped.

This dynamic control logic is especially valuable on professional applications. It allows the motor controller to modulate traction and regeneration more accurately according to what the battery truly accepts, and it allows the charger to adapt charging current to the pack's actual availability. The result is a more coherent architecture between battery, charger, controller and automation, with fewer erratic behaviours at the end of discharge, at the end of charge or during energy recovery phases. For a design office, this also makes system validation cleaner, because the limits are not only defined on paper: they are actually transmitted to the equipment that depends on them.

## **Currents and precharge**

### **210 A continuous, 400 A peak, 600 A boost**

On the power side, the battery is sized for demanding duty cycles. It supports 210 A continuous discharge, 400 A peak for up to 2 minutes and 600 A boost for 30 seconds. In charging mode, it accepts up to 200 A, and up to 200 A in regeneration up to 90% SOC. These current levels nevertheless require careful attention to cable sizing, protection selectivity, thermal dissipation in the installation environment and consistency between the current requested by the system and the current actually allowed by the pack. The battery can therefore support intensive use, provided the rest of the architecture is designed to the same standard.

### **48V battery with precharge for DC/DC**

The integrated precharge function also plays a very practical role. It is particularly useful with DC/DC converters, capacitive input stages and certain chargers in order to limit transient inrush currents during connection and secure the DC bus energisation sequence. The wake-up, precharge, contactor closing and downstream enable sequence must therefore not be treated as a secondary operating detail. On a 48V architecture integrating a DC/DC converter, charger and motor controller, this precharge logic directly contributes to start-up stability, reduction of transient faults and protection of components connected to the bus.

## 48V 420Ah markers

Parameter	Value
Brand	INNOVATION TECH
Reference	INN-LFP48V420AH-51V-420AH
Model	INN-LFP-48V-420AH
Type	48V / 51.2V LiFePO4 traction and industrial battery
Chemistry	LiFePO4
Nominal voltage	51.2 V
Voltage range	44 V to 57.6 V
Capacity	420 Ah
Nominal energy	Approx. 21.5 kWh
Service life	3,000 to 4,000 cycles
Continuous discharge	210 A
Max discharge	400 A up to 2 min
Boost discharge	600 A up to 30 s
Max charge	200 A
Max regeneration	200 A up to 90% SOC
Communication	CANopen
CAN bus	Isolated
CANopen bitrate	125 kbps
Transmitted information	States, faults, SOC, cell measurements, IMD / IMR
IMD	Maximum allowed discharge current
IMR	Maximum allowed recharge current
Active balancing	Up to 1 A
Monitoring	Cell-by-cell voltage and temperature
Integrated precharge	Yes
Insulation monitoring	Yes
Operating temperature	-20 °C to +45 °C
Protection rating	IP43
Weight	170 kg
Dimensions	801 × 625 × 294 mm
Connector identification	Charge, discharge, signal
Quoted working compatibility	ZIVAN RE chargers, Delta-Q chargers, ZAPI controllers
Series connection	Up to 2 packs in CAN master/slave
Parallel connection	Not supported

## Traction uses

### 48V traction battery for onboard machinery

This 48V 420Ah LiFePO<sub>4</sub> battery provides an energy level suited to applications where useful autonomy, service stability and control consistency matter as much as peak power. With around 21.5 kWh on board, it meets the needs of 48V electric traction on industrial machinery, special vehicles, rolling platforms, mobile robots or onboard systems requiring long operating times between charges. The 420 Ah capacity increases system endurance while maintaining an integration logic compatible with 48V powertrains already familiar to integrators.

- 48V electric traction on onboard industrial machinery
- special electric vehicle requiring high autonomy
- rolling platform or mobile robot powered by a 48V DC bus
- agricultural machine or dedicated equipment requiring high onboard energy
- electric conversion on a reinforced low-voltage architecture with CANopen supervision
- projects integrating ZIVAN RE chargers, Delta-Q chargers, ZAPI controllers and onboard automation

Its real integration advantages are as follows: high 420 Ah capacity to increase machine endurance without changing 48V system logic, isolated CANopen BMS to report states, faults, cell measurements, SOC and dynamic current limits, transmission of IMD and IMR values to better manage traction, regeneration and charging, proven working compatibility with ZIVAN RE chargers, Delta-Q chargers and ZAPI controllers, integrated precharge to better manage DC/DC converters, capacitive loads and DC bus energisation, compatibility with high traction current demands, long 3,000 to 4,000 cycle service life for intensive professional use, and the possibility to connect up to two packs in CAN master/slave series operation.

## Durable integration

### 801 × 625 × 294 mm and 170 kg

The mechanical integration confirms the industrial positioning of the product. With overall dimensions of 801 × 625 × 294 mm and a weight of 170 kg, this 48V 420Ah battery is not installed like a standard replacement battery. Its installation must take into account mass distribution, handling, mechanical support, clearance areas and accessibility of the front face where the charge, discharge and signal connections are grouped. For a special vehicle, mobile machine or onboard industrial equipment, it is therefore recommended to reserve not only the pack envelope volume but also the functional volume required for cabling, bending radius and maintenance operations.

### 3,000 to 4,000 cycles in intensive use

Its LiFePO<sub>4</sub> chemistry and the stated 3,000 to 4,000 cycle life are another major advantage for intensive-duty projects. At one full charge-discharge cycle per day, this represents more than 10 years of potential use under proper operating, charging and integration conditions. For an integrator or operator, this endurance strengthens the economic value of the pack on applications where service continuity, long-term stability and controlled maintenance matter as much as nominal capacity.

The IP43 protection rating makes it suitable for protected environments or installations under a hood, inside a technical compartment or in an area protected from the harshest splashes. The battery can be connected in series up to two packs in a CAN master/slave logic, which opens possibilities for certain architectures, while parallel connection is not supported. This point must be taken into account from the design stage: any system evolution must follow the

communication and control rules provided by the pack and not rely on free parallel assembly of batteries.

From a system compatibility point of view, this battery is relevant when a project includes structured interaction between the battery, charger, motor controller, DC/DC converter and automation controller. It is especially suitable for integrations where SOC reading, fault management, BMS data reporting, IMD / IMR consideration and READY sequence handling are part of the expected machine behaviour. Conversely, it will require more discipline than a generic battery if the architecture is designed without precharge, without dynamic current logic or without a clear DC bus control strategy.

## Field questions

### **Is this 48V 420Ah LiFePO4 battery suitable for traction?**

Yes. It is designed for traction and industrial integration uses with 210 A continuous current, 400 A peak for up to 2 minutes and 600 A boost for 30 seconds.

### **What is CANopen actually used for on this battery?**

CANopen is used to transmit battery states, faults, SOC, cell-by-cell measurements and the current limits actually allowed by the battery at a given time to chargers, controllers and supervision systems.

### **What do IMD and IMR mean?**

IMD is the maximum discharge current allowed by the battery. IMR is the maximum recharge current allowed. These two values are used to manage the motor controller in traction and regenerative braking, as well as the charger during charging.

### **Can this battery work with ZIVAN RE chargers, Delta-Q chargers or ZAPI controllers?**

Yes. This is precisely one of its integration strengths: the battery has been developed to work with ZIVAN RE chargers, Delta-Q chargers and ZAPI controllers for coherent use of BMS information, especially IMD / IMR values.

### **Why is precharge important on this battery?**

Precharge limits stress during DC bus energisation, especially with DC/DC converters, capacitive inputs and certain chargers. It contributes to start-up stability and to protection of components connected to the bus.

### **Can the battery be connected in parallel?**

No. Parallel connection is not supported. However, series connection of up to two packs is provided in a CAN master/slave logic.

### **What service life can be expected?**

The battery is rated for around 3,000 to 4,000 cycles. With one charge-discharge cycle per day, this represents more than 10 years of potential operation under proper use and integration conditions.

## System vision

This 48V lithium traction battery stands out through its high 420 Ah capacity, its CANopen communication designed for real integration, its ability to transmit dynamic current limits to chargers and motor controllers, its working compatibility with ZIVAN RE chargers, Delta-Q chargers and ZAPI controllers, and its integrated precharge. It is intended for integrators and design offices looking for a 48V 420Ah LiFePO4 battery able to fit into a controlled onboard architecture that remains durable and coherent in the field, with a level of requirement suited to industrial traction, dedicated machinery and special electric vehicles. As with any pack in this category, final performance, functional safety and overall compliance depend on the quality of the complete system integration at mechanical, electrical and software level.

**Searches frequently associated with this product:** 51.2V 420Ah LiFePO4 battery, 48V industrial battery, high-capacity 48V battery, lithium traction battery. [See the corresponding category](#)

Product sheet written by **Mathieu S.** and reviewed by the EVEA Distribution technical team — Last update on 03/04/2026.

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