# EG4 24V LiFePOWER4 V2 Server Rack Product Launch White Paper



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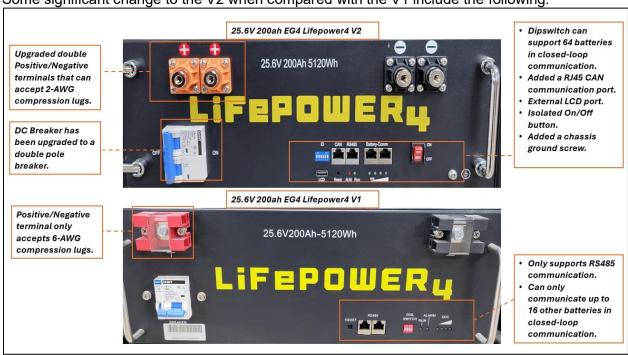
## 1. INTRODUCTION

EG4 Electronics is excited to introduce the latest edition to our LiFePOWER4 series- The 24V LiFePOWER4 Battery Version 2 (V2). We've taken the reliable architecture of our original 24V LiFePOWER4 (V1) and enhanced it with cutting-edge upgrades. The result is a simple, durable, and adaptable battery that meets the needs of today's evolving energy demands. The 24V LiFePOWER4 V2 Lithium Iron Phosphate battery features a 200AH internal BMS and is composed of (16) UL recognized 3.2V prismatic cells in series/parallel (8s2p) which have been tested at 6,000 deep discharge cycles to 80% Depth of Discharge (DoD). The cell composition, UL recognition, and DoD remain consistent with the original 24V LiFePOWER4 V1. Each V2 battery module operates at 25.6V (24V), 200AH, and provides 5.12kWh energy storage ca-

pacity. Additionally, each 24V LiFePOWER4 V2 comes with a 10-year Limited Warranty as well

Some significant change to the V2 when compared with the V1 include the following:

as integrated BMS communication and monitoring.



Lifepower4 25.6V 200ah V2	Specifications	Lifepower4 25.6V 200ah V1
Yes	Fire suppression	Yes
Yes	CANBUS Communication	No
Yes	RS485 Communication	Yes
64	Supported number of	16
	batteries in closed-loop	
	communication	
2-AWG	Positive/Negative Terminal	6-AWG
	conductor size	
	BMS Parameters	
25.6V	Voltage	25.6V
200ah	Capacity	200ah
200A	Charging Current (Max.	100A
	continuous)	
200A	Discharging Current (Max.	100A
	continuous)	
>220A for 10s	Charging over current 1.	>100A for 20s
	protection	
≥250A for 3s	Charging over current 2.	≥120 for 2s
	protection	
>220A for 30s	Discharge over current 1.	>100A for 10S
	protection	
>300A for 5s	Discharge over current 2.	≥150A for 3s
	protection	
>250A for <0.1s	Short Circuit Protection	>250A for 1s
3.8V	Cell Over-Voltage	3.65V
	Protection	
2.3V	Cell Under-Voltage	2.5V
	Protection	
120mA	Cell Passive Balancing	120mA
30V	Total Over-Voltage	29.2V
	Protection	
22.4V	Total Under-Voltage	20.0V
	Protection	

## 2. TECHNICAL BREAKDOWN OF 24V LIFEPOWER4 V2

## 2.1 BMS CYCLING

The addition of a dedicated BMS on/off switch and separate double pole breaker for battery power introduces a higher level of control over power management. Users can now independently troubleshoot BMS issues, should the need arise. Power the battery off using the double pole breaker, but still have access to interact with the BMS.

#### • 24V LiFePOWER4 V1

o Battery and BMS can only be turned on and off using a 125A breaker.

#### • 24V LiFePOWER4 V2

 Equipped with a BMS Communication on/off switch on the face of the battery as well as a double pole breaker for battery power on/off.

## 2.2 TERMINALS

The addition of extra positive and negative terminals enhances flexibility during installation, reducing the risks associated with double landing scenarios. Double landing, where multiple connections are made to a single terminal, increases resistance and the likelihood of electrical faults. By providing separate terminals, the V2 allows for a cleaner, safer installation, especially when paralleling batteries or adding peripherals such as surge protection devices (SPDs), EMP shields, or battery chargers.

#### 24V LiFePOWER4 V1

One positive and one negative terminal connection only.

#### • 24V LiFePOWER4 V2

Two positive and two negative terminal connections allow dedicated point of connection for peripheral devices (such as chargers). This also helps reduce double landing scenarios, creating a safer and more efficient connection when paralleling batteries.

## 2.3 ADJUSTING SETTINGS & READOUTS

Designed with future expandability in mind, the 24V LiFePOWER4 V2 features an integrated USB port that supports future upgrades (coming soon), which will enable enhanced user interface and functionality. Stay tuned for updates!

#### 24V LiFePOWER4 V1

Limited monitoring functionality.

#### • 24V LiFePOWER4 V2

 LCD port reserved for future use (coming soon). A simple USB connection will upgrade monitoring and functionality.

## 2.4 BMS COMMUNICATION

Battery comms now have two dedicated ports, in addition to standalone ports for RS485 and CAN connections respectively. This allows users to parallel batteries without impeding connections to an inverter or outside monitoring device, such as a laptop. Additionally, the dedicated CAN port allows for streamlined communication with Victron 24V inverters, making it simple to get your system up and running.

#### 24V LiFePOWER4 V1

 RS485 communication interface only, limiting the devices that can communicate with the battery.

#### • 24V LiFePOWER4 V2

 In addition to the RS385 (for upgrading and BMS tools) and battery comm ports for parallel communication, the added CAN port allows for easy communication with Victron inverters through autodetection.

## 2.5 E-STOP FUNCTIONALITY

The introduction of Emergency Stop (E-Stop) functionality is a major safety improvement in the V2 battery. E-Stop provides Rapid Shut Down (RSD) capability for the entire energy storage system, de-energizing the battery bank, inverter, and PV array within seconds. In addition to helping to secure the safety of your system and/or property, E-Stop offers peace of mind for first responders, allowing for quick, system-wide shut down in emergency situations.

#### • 24V LiFePOWER4 V1

No RSD Capabilities.

#### 24V LiFePOWER4 V2

E-Stop RSD functionality ensures fail safe operation in high-risk environments.
 With an optional disconnect switch, batteries and inverters (if compatible and connected) can be shut down with the push of a button.

## 2.6 CLOSED LOOP BATTERY TO BATTERY COMMUNICATION

Thanks to the expanded dipswitch configuration, the 24V LiFePOWER4 V2 now supports closed loop communication between up to 64 batteries in parallel, compared to the 16 supported by the original V1. This enhancement allows for the creation of much larger battery banks, enabling up to 327.7 kWh of energy storage in a single system.

### • 24V LiFePOWER4 V1

 Utilized 4 dipswitches. Can only communicate with up to 16 batteries in closedloop communication.

#### 24V LiFePOWER4 V2

 Utilizes 6 dipswitches. This upgrade allows for the support of up to 64 batteries in closed-loop communication.

## 3. SOME USE CASES FOR THE 24V LIFEPOWER4 V2

## 3.1 MOBILE APPLICATION AND OFF-GRID VEHICLES

The 24V LiFePOWER4 V2 is an ideal choice for mobile applications, such as RVs, vans, buses, and boats. Due to its 24V architecture, it easily integrates with smaller-scale off-grid power setups that prioritize mobility. When combined with the right inverter, this battery can power essential appliances like refrigerators, water pumps, lighting systems, and even small air conditioning units without the need for frequent shore power connections. The compact form factor and reliable CAN communication with Victron inverters also make it perfect for adventure enthusiasts seeking dependable energy on the road.

## 3.2 OPTIMIZED FOR VICTRON INVERTER COMMUNICATION

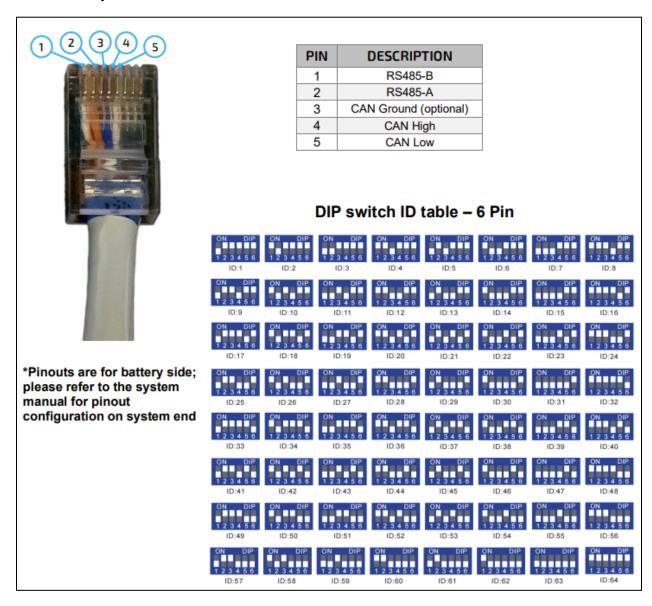
Via the dedicated CAN port, the 24V LiFePOWER4 V2 is perfectly tailored for compatibility with Victron inverters, which are known for their superior performance in off-grid and mobile systems. This makes it a go-to option for customers who rely on Victron equipment. The closed-loop communication between the battery and the inverter ensures that energy usage is optimized, providing superior monitoring and protection capabilities in real time. This leads to more efficient system operation, longer battery life, and greater reliability in critical applications.

## 3.3 REPLACE LEAD ACID IN CONTROLLED MARINE APPLICATIONS

The 24V LiFePOWER4 V2 is well-suited for specific marine applications, particularly in controlled environments where the battery is securely housed to prevent exposure to moisture, salt, and other corrosive elements. While 24V systems are standard in many maritime setups, our battery is best utilized in locations such as cabins or other interior spaces that offer protection from the harsh marine environment. Following these recommendations, the 24V LiFePOWER4 V2 makes an excellent replacement for antiquated lead acid battery banks.

## 3.4 SIX DIPSWITCHES EQUALS GREATER POTENTIAL

With the expanded dipswitch configuration, the 24V LiFePOWER4 V2 offers greater scalability for users looking to build larger battery banks over time. The potential for 327.7kWh of storage capacity in a single system underscores EG4's commitment to delivering powerful, modular solutions for any size installation.



## 4. CONCLUSION

The 24V LiFePOWER4 V2 represents the next step in EG4's commitment to innovation, safety, and performance. Designed to meet the needs of our users—particularly users with Victron inverters and/or mobile systems—the V2's enhanced features offer unmatched safety and reliability.

Want to learn more about the 24V LiFePOWER4 V2? Get in touch today to learn how the 24V LiFePOWER4 V2 can be the cornerstone of your energy storage solution, whether you are upgrading an existing system or building from scratch. Power your future with EG4 and the 24V LiFePOWER4 V2 battery!