

AIMS POWER™

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LiFePO4 Instruction Manual

LFP12V50A | LFP12V100A | LFP12V200A
50Ah | 100Ah | 200Ah

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Lithium LiFePO₄ Battery 12V

50Ah | 100Ah | 200Ah

AIMS Power introduces its new battery product line of LiFePO₄ batteries. The LiFePO₄ batteries maintain a constant output voltage, providing more efficient power. This allows the cell to deliver virtually full power until it is discharged, and it can greatly simplify or even eliminate the need for voltage regulation circuitry. The battery has a much longer cycle life capacity, and is easier to maintain compared to other battery technologies. The LiFePO₄ technology has better thermal and chemical stability, which improves battery safety and packed with power in a small and lightweight footprint. The battery uses the same space as your existing 12V battery and replaces lead acid, AGM or Gel battery applications in RVs, boats, commercial vehicles, off grid back up power and much more. Not intended to replace starting batteries.

FEATURES

- ⊙ Extremely high number of charge/discharge cycles
- ⊙ > 10 Year lifespan with proper maintenance
- ⊙ Wide operating temperature range
- ⊙ Unsurpassed high temperature performance
- ⊙ Green energy without metal contaminant
- ⊙ Low maintenance
- ⊙ High amp capacity
- ⊙ Stable output voltage
- ⊙ Self recovering faults
- ⊙ BMS safety protection
- ⊙ Convenient removable carry handle
- ⊙ Lightweight
- ⊙ 50, 100 & 200 Ah models available

SAFETY CHARACTERISTICS

- ⊙ Short circuit protected
- ⊙ Physical damage to battery case will not cause fire
- ⊙ Excessive thermal exposure will not cause a fire
- ⊙ Able to withstand over-charge/over-discharge without damage to the battery
- ⊙ Sophisticated Battery Management System (BMS)



LFP12V100Ahr deep cycle LiFePO4 battery	
Operating Voltage	12V
Nominal Voltage	12.8V
Charge Voltage	14.8V
Charge Current	20A/100A
Continuous Discharge Current	5/100A
Maximum Discharge current	200A



Removable handle



5/16" / 8mm terminal post

BMS FUNCTION

Circuit Protection: The battery includes a BMS (Battery Management System) to protect the battery from overcharging, over-discharging, over drain, and short circuit, resulting in overall longer battery life. The BMS also protects the battery from exploding and catching fire. Includes thermal safety fusing, cell balancing, CID and fault recovery.



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WARNING!



Lithium-ion cells and battery packs may get hot, explode or ignite and cause serious injury exposed to extreme conditions. Be sure to follow the safety warnings listed below:

- Ⓞ Do not connect the positive terminal and negative terminal of the battery to each other with any metal object (such as wire)
- Ⓞ **Only use battery charger for LiFePO₄ batteries**
- Ⓞ Do not carry or store batteries together with necklaces, rings, bracelets, hairpins or other metal objects
- Ⓞ Do not pierce the battery with nails, strike the battery with a hammer, step on the battery or otherwise subject it to strong impacts or shocks
- Ⓞ Do not expose battery to water or salt water, or allow the battery to get wet
- Ⓞ Do not use LiFePO₄ battery with any other types of batteries
- Ⓞ Do not use as starting battery for vehicle
- Ⓞ Do not connect to an alternator or non-smart charging system
- Ⓞ Do not smoke around or near the battery
- Ⓞ Eliminate all ignition sources
- Ⓞ Be careful not to drop heavy tools on the battery

Keep away from children.

Do not place the battery in or near fire, on stoves or other high temperature locations. Do not place the battery in direct sunlight, or store the battery inside vehicles during hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.

Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any way. Contact AIMS Power.

Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.

Inspect battery for any damage, cracks, terminals or corrosion. DO NOT USE if you find any damage to the battery.

Use good quality and proper size cables for your application.

CHARGING

Only use battery chargers made for LiFePO_4 batteries. See battery specifications. Fire may occur if the correct battery charger is not used.

Ensure the battery cables are tight, secure and have a good connection.

Follow instructions on battery charger.

Use Smart Battery Charger.

MAINTAINING THE BATTERY

Battery should be inspected often.

Ensure cables and terminals are kept clean and free from corrosion, dirt or build-up of any kind. Use dry cloth.

When possible keep batteries at a moderate temperature.

Dispose of batteries properly. Must be recycled.

Store battery at 50% SOC.

Charge and discharge according to battery specifications.

INSTALLATION

Do not reverse the polarity! The battery has safety protections but damage may occur. Voids warranty.

Check battery voltage before use.

Properly size your battery cables for your application.

Battery cables must be crimped (or preferably, soldered and crimped) copper compression lugs unless aluminum mechanical lugs are used. Soldered connections alone are not acceptable. High quality, UL-listed battery cables are available. These cables are color-coded with pressure crimped, sealed ring terminals.

Battery terminal must be clean to reduce the resistance between the DC terminal and cable connection.

Do not connect the positive terminal and negative terminal of the battery to each other with any metal object (such as wire).

Install in an environment with minimal heat. Warranty voided for terminal burnout due to excess heat and improper maintenance.

Install in any orientation.

Battery is safe for indoor operation.

Battery terminal torque – 7.7 – 7.7 Nm

Use proper fusing.

COMPETITIVE INFORMATION

Comparing a 100Ah Battery	GEL	AGM	Lead	LiFePO4
Nominal Voltage	12V	12V	12V	12.8V
Charging Voltage	14	14.6	14.8	14.4-14.6
Life Cycles @ 50% DOD	500-600 cycles	500-600 cycles	500-600 cycles	>4000 cycles- no DOD recommended
Constant Output Voltage	No	No	No	Yes
Operating Temperature	-4° F to 140° F	-4° F to 140° F	-4° F to 122° F	-4° F to 149° F
BMS	No	No	No	Yes
Mounting Orientation	Any	Any	Limited	Any
Peak Power	Varies	900A 5secs	Varies	350Ah 10secs
Capacity	100Ah	100Ah	100Ah	100Ah
Watt Hours	600 @ 50% DOD	600 @ 50% DOD	600 @ 50% DOD	1280 @ 100%DOD
Weight	71	74	69	31
Parallel Wiring	Yes	Yes	Yes	Yes
Series Wiring	Yes	Yes	Yes	Yes
Recommended DOD	50%	50%	50%	Not applicable
Dimensions-approximate	13" x 7" x 9"	13" x 9" x 7"	13" x 7" x 9"	13" x 6.7" x 9"

BATTERY SPECIFICATIONS-Lithium Iron Phosphate

Electrical Specifications	LFP12V50A	LFP12V100A	LFP12V200A
Nominal Voltage	12.8V	12.8V	12.8V
Nominal Capacity (at .5C, 77°F)	50Ah	100Ah	200Ah
Minimum Capacity (at .5C, 77°F)	47.5Ah	95Ah	190Ah
Expected Cycle Life	>4000 cycles w/1C charge and discharge rate, at 77°F, 80% DOD		
Operating Specifications			
Charge Method	Smart charger, constant current, constant voltage		
Charge Voltage Range (Max 14.6V)	14.4 -14.6V		
Continuous Charge Current	50A Max	100A Max	160A Max
Charge Temperature	32° F to 113° F		
Continuous Discharge Current	50A Max	100A Max	160A Max
Peak Instant Discharge Current (10 secs)	100A	200A	350A
Over Voltage Shutdown	15.6 +/- .2V		
Discharge Cut-off Voltage	8V +/- .5V		
Operating/Discharge Temperature	-4° F to 149° F		
Storage Temperature	-4° F to 113° F		
Self Discharge (stored at 50% SOC)	< 3%/month		
Watt Hours	600 Watt hours	1200 Watt hours	2400 Watt hours
Physical Specifications			
Battery Dimensions	7.8"L x 6.5"W x 6.7"H	13"L x 6.7"W x 9"H	20.7"L x 10.6"W x 8.7"H
Weight	17.75 lb	30.2 lb	77 lb
Shipping Weight	19 lb	32 lb	79 lb
Group Size	1250	31	4D
Post to Post Measurement	6.4"	10.43"	5"
Battery Post Size	5/16"	5/16"	5/16"
BMS Operation			
Over Charge Protection	Over charge detection voltage: 3.9 +/- .05V		
	Over charge detection delay time: .96 - 1.4s		
	Over charge release voltage: 3.80 +/- .05V		
	Maximum charge voltage: 3.65 +/- .05V		
Over Discharge Protection	Over discharge detection voltage: 2.0V +/- .05V		
	Over discharge detection delay time: 115-173ms		
	Over discharge release voltage: 2.3V +/- .10V		
Over Current Protection	Over current detection delay time: 9 +/- 2ms		
	Over current release condition: Cut load		
Polarity Reverse Protection	Yes – damage to battery may occur – see warranty		
Short Circuit Protection	Yes		
UPC	840271004570	840271004587	840271004594
Warranty	3 Yr Manufacturer Defect	3 Yr Manufacturer Defect	3 Yr Manufacturer Defect

CELL SPECIFICATIONS

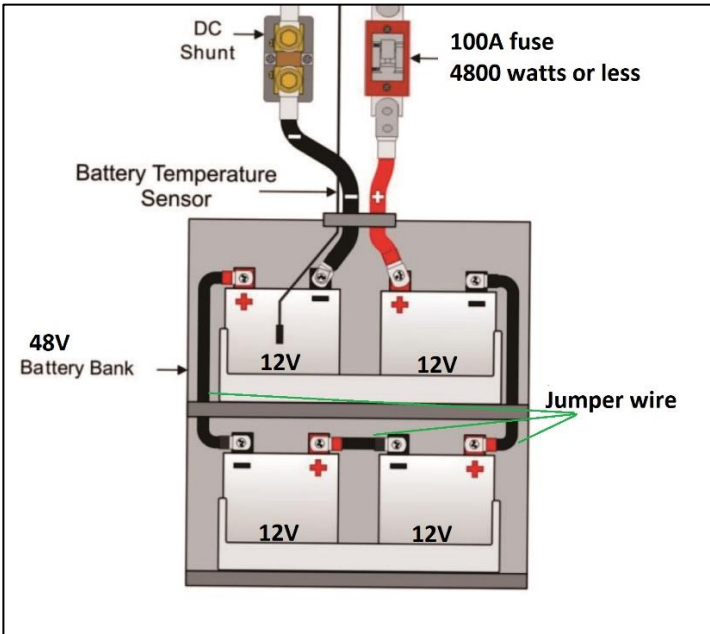
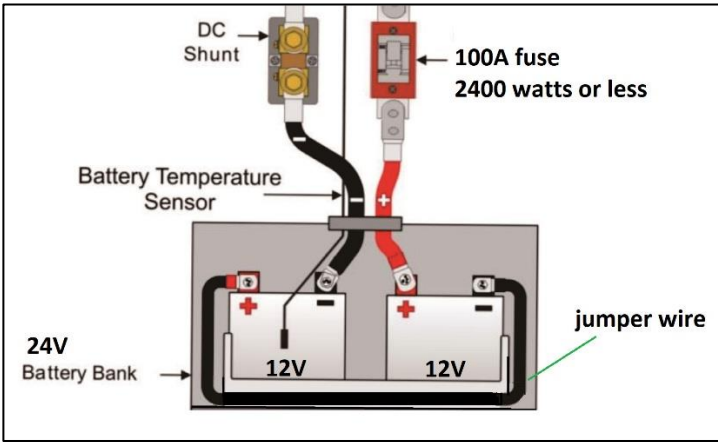
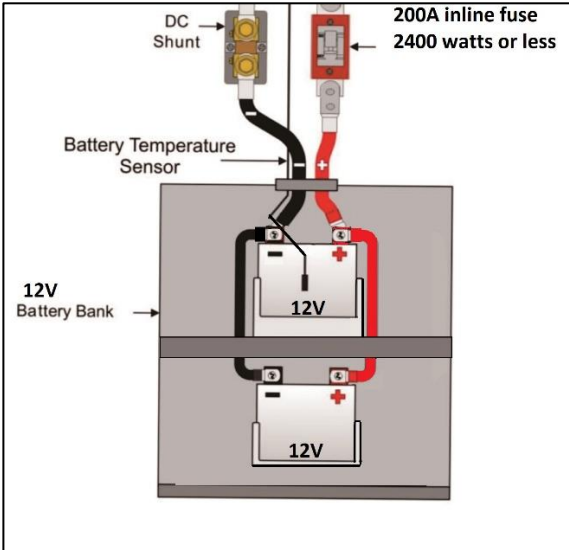
Model	IFR32700
Standard Capacity	5AH
Rated Voltage	3.2V
Max Charge Voltage	3.65V
Discharge Cut-off Voltage	2.5V
Standard Charge Current	5A
Max Continuous Discharge Current	10A
Peak Instant Discharge Current	50A (3 Secs)
Dimension(Customized)	32*70mm
Weight (Approx.)	About 145g
Operating Temperature	-4°F~149°F
Built-in Protection Circuit Module	YES
Cycle Time	4000 times at 1C, 70% DOD
32700 3.2V 5000mAh	Diameter: 32.2mm Height: 70mm



Celsius	Fahrenheit	Usable Capacity
60	140	Usable but not recommended
50	122	≥102%
40	104	≥100%
30	86	≥100%
20	68	≥97%
10	50	≥90%
0	32	≥85%
-10	14	≥80%
-20	-4	≥65% for 50&100AH, ≥67% for 200AH

DC WIRING DIAGRAM

DC Shunt and inline fuse optional



WARRANTY

AIMS Power warrants this battery is free from defects for 3 years. If for some improbable circumstance the battery is defective, AIMS will replace the battery with a pre-authorized return number and return instructions will be provided per the US Department of Transportation regulations for lithium battery shipments. AIMS Power does not warrant batteries that have been poorly maintained, charged incorrectly, reversed polarity, improperly installed, stored and used in excessive heat, physical damage, fire, freeze, water damage, tampered, damage to terminals, and failing to keep the correct charge to the battery. DO NOT RETURN BATTERY WITHOUT RMA. IT WILL BE REFUSED. AIMS Power has a team of technicians to provide technical support when needed. Proof of purchase will be required. Customer is responsible for shipping fees to AIMS Power. If AIMS Power deems the product defective, AIMS Power will cover the replacement shipping fees. We are unable to accept returns because of the strict certifications and handling required to ship and handle lithium batteries.

Contact information for AIMS Power:

Returns Department

9550 Gateway Drive

Reno, NV 89521

775-359-6703

returns@aimscorp.net

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