



LITHIUM IRON PHOSPHATE BATTERY

USER MANUAL



AP20LFP-12V AP50LFP-12V AP100LFP-12V AP150LFP-12V AP200LFP-12V

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION AND MAINTENANCE,
FOLLOW ALL PROVIDED WARNING & CAUTION, AND KEEP IT FOR FUTURE REFERENCE.

ABOUT US

ATEM POWER, born in June 2017, as a synonym for exciting outdoor experience, is an Australian company with dedication and passion for the R&D of high quality products in the field of renewable energy products, batteries and related accessories.

Since the company was founded, we have committed to innovation that aims to make your life infinitely more convenient. And the belief in our conviction for quality and commitment allows us to innovate in developing products that are optimally tailored to the needs of our amazing customers.

We engineer and supply solar products for homes, 4x4s, recreational vehicles and virtually any application you can think of. And we also develop reliable, high performing deep-cycled batteries and lithium batteries for standby or daily power needs. Accessories include battery chargers and inverters that are ideal for RV's, commercial vehicles, boats, yachts and many more applications!

At ATEM POWER, we stay true to our DNA by prioritizing technological innovation designed to improve our products and striving to provide excellent customer care. Because we are motivated to explore the limits of solar power!

WARNING & CAUTION

- Work on the lithium iron phosphate battery should be carried out by qualified personnel. And you are required to read thoroughly the warnings, cautions and the warranty prior to installation or use.
- Please wear protective eyeglasses, insulating gloves and clothing for necessary protection. **DO NOT** wear any metallic items such as watches, bracelets, etc.
- Make sure that the installation location meets the following conditions: the floor is flat and level; there are **NO** flammable or explosive materials; there is minimal dust and dirt in the area.
- **DO NOT** touch the exposed electrolyte, and **DO NOT** open or dismantle the lithium iron phosphate battery if the battery casing is damaged. If your skin or eyes contact with it, flush with plenty of clean water and seek medical assistance.
- **DO NOT** place items or tools on the lithium iron phosphate battery, since its terminals are **ALWAYS** alive.
- **DO NOT** short-circuit the terminals with wires or other metal objects.
- **DO NOT** open or disassemble the battery.
- **DO NOT** put the battery into the water or wet it.
- **DO NOT** operate or store your battery near heat sources or expose it to flammable or harsh chemicals or vapors.
- Use a type D, foam or CO₂ fire extinguisher in case of fire.
- **NEVER** strike or throw your battery, please handle wire care since it is sensitive to mechanical shocks.
- The parameters of the charger should meet the requirements of the technical specifications of this battery. If charged after the ATEM POWER lithium iron phosphate battery was discharged below the discharge cut-off voltage, or when it is damaged, this LiFePO₄ battery can release a harmful mixture of gasses such as phosphate.
- Ensure the battery is **COMPLETELY** dry before reactivation or reconnecting to the charging source and load, or else it will adversely affect its performance and present a safety hazard.
- Regularly check the battery cables and connections and replace the damaged cables and tighten any loose connections.
- It is important to use the battery under the same brand with equal voltage and it is not recommended to mix batteries of a different age. Fully charge it before it is going to be connected in series or parallel, and combination of series and parallel connections is **NOT** allowed, since this battery is designed to either allow for up to 2 batteries in parallel or 2 batteries in series.
- **NEVER** pierce the battery case with sharp objects, and hammering or pedaling the battery and direct soldering of battery terminals are **PROHIBITED**.

GET TO KNOW YOUR BATTERY

The red one is positive(+), the black one is negative(-). Never connect the red cable to the negative battery terminal.

CELL SAFETY FEATURES AND DESIGN

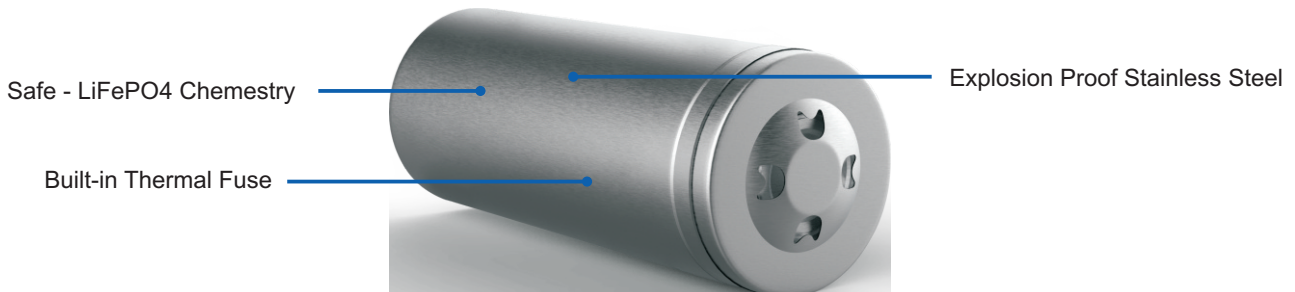
BATTERY SORTING

In addition to selecting of batteries with same voltage and internal resistance, the ATEM POWER's selection criteria includes but not limited to, self discharge, voltage, internal resistance, wattage, lifespan, application and current magnification, etc .



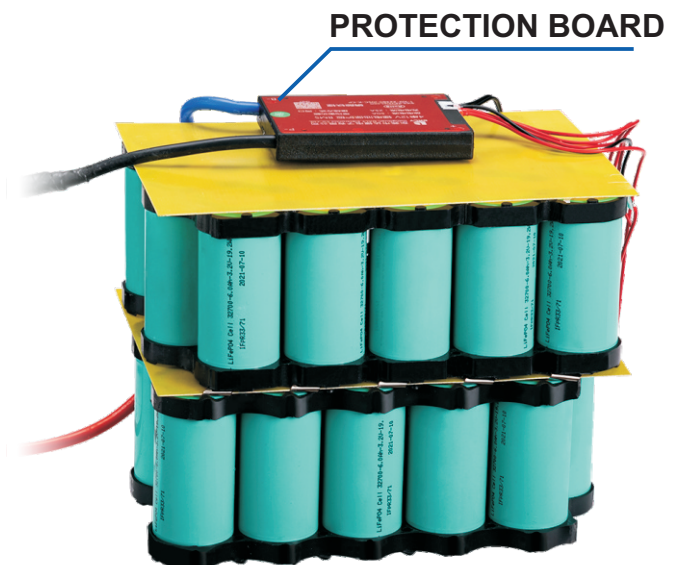
THERMAL FUSE

Overheating is a major issue with all lithium batteries as a result of over-charging. ATEM POWER LiFePO4 battery has an internal safety thermal fuse between the anode and cathode that will shut down the cell before overheating occurs to secure your safety.



PROTECTION BOARD

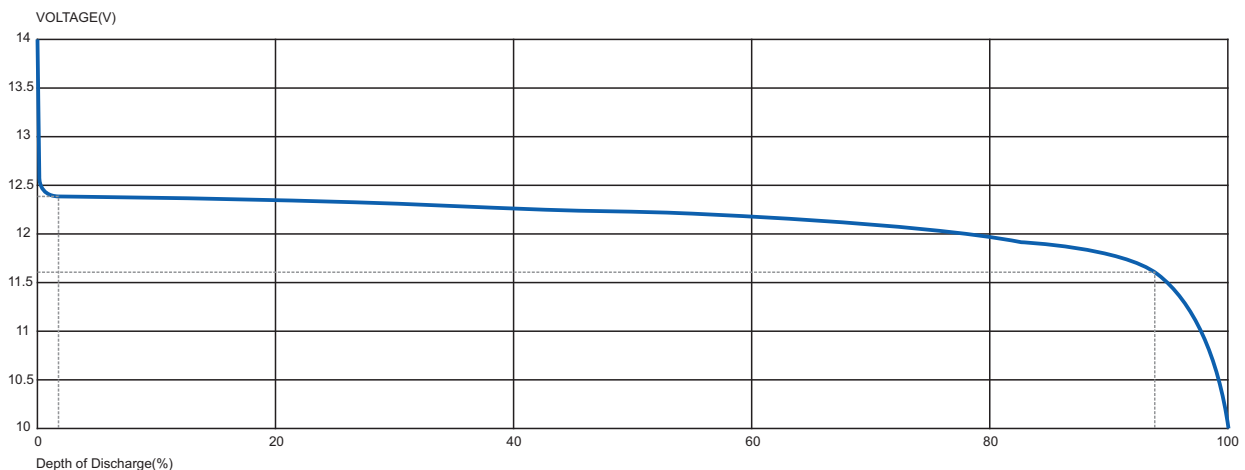
The ATEM POWER 200Ah LiFePO4 battery is paired with 200A protection board, 150Ah and 100Ah LiFePO4 batteries with 100A protection board, and 50Ah LiFePO4 battery with 50A protection board and 20Ah LiFePO4 battery with 20A protection board, with functions of voltage monitoring, temperature monitoring and smart balancing to add rigid strength to each cell.



PARAMETERS

MODEL NO.	AP20LFP-12V	AP50LFP-12V	AP100LFP-12V	AP150LFP-12V	AP200LFP-12V
Battery Cells	32700 Cylindrical LiFePo4 Battery Cell				
Capacity	20Ah	50Ah	100Ah	150Ah	200Ah
Cycle Life	2,000 Cycles				
Internal Impedance	$\leq 10\text{m}\Omega$				
Self-discharge Rate(per month)	2%				
Nominal Voltage	12.8V				
Charge/Discharge Voltage Range	10V-14.6V				
Charge Cut-off Voltage	14.6V				
Discharge Cut-off Voltage	10V				
Maximum Charge Current	10A	25A	50A	50A	100A
Maximum Continuous Discharge Current	20A	50A	100A	100A	200A
Maximum Pulse Discharge Current ($\leq 7\text{S}$)	40A	100A	200A	200A	400A
Max. Modules in Series/Parallel	2S/2P				
Standard Operation Temperature	$-20\sim 70^{\circ}\text{C}$				
Storage Temperature	$-20\sim 45^{\circ}\text{C}$				
Relative Humidity	$\leq 95\%$				
Certification	IEC, UL, RoHS, UN38.3, CE				

DISCHARGE CURVE



PARTS LIST

MODEL NO.	AP20LFP-12V	AP50LFP-12V	AP100LFP-12V	AP150LFP-12V	AP200LFP-12V
Parts (Screws)	M5*8 x2	M6*14 x2	M8*14 x2	M8*14 x2	M8*14 x2
BCI Group Size	151R	22NF	31	4D	6D

TROUBLESHOOTING

If any problems occur during battery operation, please refer to the following instructions or contact us for professional help.

PROBLEM	SUGGESTED SOLUTION
Overcharge	Disconnect your battery from charging, and allow it to recover.
Over-current /short circuit protection	Disconnect your battery, if it recovers abnormally, please use LiFePO4 battery charger to activate it.
Over-discharge	Built-in BMS will automatically cut off its output, and in this circumstance, you are recommended to use LiFePO4 battery charger to activate your battery.
Temperature beyond normal ranges	Built-in BMS will automatically disconnect the battery from the load, and allow it to cool down or warm up to room temperatures. If your battery recovers abnormally, please use LiFePO4 battery charger to activate it.

Note: It is highly likely that your battery is damaged if it cannot be activated by the charger.

BATTERY MAINTENANCE & STORAGE

- Regularly inspections are essential. The battery, particularly its terminals, should be clean, dry and free of corrosion.
- Disconnect your battery from charging load or source before cleaning the top of your battery, terminals, and connections with a damp cloth or non-metallic brush. Please ensure that your battery is COMPLETELY dry before reactivating.
- Store your battery in an open, well ventilated and dry area in temperatures between -20°C ~45°C.
- Avoid sharp impacts or extreme pressure.
- Give your battery a full charge prior to use when it is taken out of storage.
- Charge your battery at least once every 3 months to prevent over-discharge.
- DO NOT forget to disconnect your battery from equipment to eliminate any potential parasitic loads that may discharge it.



WARRANTY



ATEM POWER (“Manufacturer”) warrants, to the original purchaser, (“User”) that its lithium iron phosphate (“Battery(ies)”), if purchased from Manufacturer or an authorized distributor or dealer, and used in a deep-cycle application, will be free of defects in material and/or workmanship from the date sold and for the duration (the “Warranty Period”) of 3 YEARS. Within the Warranty Period, subject to the exclusions listed below, the Manufacturer will replace or repair, if serviceable, the battery and/or parts of the battery, if the components in question are determined to be defective in material or workmanship. If the Manufacturer deems the battery and/or components to be not repairable, a new, similar battery will be offered. This Limited Warranty is to the original purchaser of the battery and is not transferable to any other person or entity.

EXCLUSIONS:

This warranty does not cover defects that are caused by normal wear and tear, inadequate maintenance, insufficient ventilation, transportation, storage or faulty repair, misuse, neglect, accident or abuse, modification to the battery, failure to observe operating instructions and parameters or improper installation. The user must follow recommendations for series and parallel installations, and it is recommended that the installation of the batteries must be performed by suitably qualified technicians or the warranty will be voided. For further clarity, this warranty is also void if the battery:

- is used as a primary or backup power source for life support systems or other medical equipment, or any use where product failure could lead to injury to persons or loss of life or catastrophic property damage,
- operates (charge or discharge) below or above its authorized temperature range,
- is used for applications other than which it was designed and intended for,
- is not maintained in accordance with the parameters as set forth in the user manual,
- is not paired with a suitable charger,
- is subjected to excess vibration as might be caused by out of balance or improperly operated pads in floor burnishing machines,
- manufacturing date codes, safety certification numbers or serial and tracking numbers are destroyed or altered,
- is disassembled, altered, or repaired by someone other than an authorized Manufacturer's agent, has been subject to misuse, abuse or physical damage, or has been modified, altered or operated with other components not approved by ATEM POWER,
- has been damaged by force majeure (e.g. flash of lightning, overvoltage, storm, fire),
- selected by the user is not of the correct size, design, and capacity for the intended application,
- is damaged due to improper installation; loose connections, under-sized cabling, incorrect connections (series and parallel) for desired voltage and AH requirements, or reverse polarity connections, inappropriate storage conditions as defined by the Manufacturer; exposure to extreme hot or cold temperatures, fire or freezing, or water damage including submersion,
- is damaged by external influences while in the user's possession, including unusual physical or electrical stress such as power surges, uncontrolled voltages and currents, lightning, flood, fire, exposure to excessive hot or cold temperatures, or accidents.

CLAIMS:

Request return authorization. No returns will be credited without an authorization. In the case of returned products, the batteries must be packed with enough padding and in the appropriate cartons to eliminate the risk of damage in transit. Manufacturer's exclusive liability for breach of any warranty on the battery shall be to replace the battery within the warranty period in accordance with the terms of this limited warranty. In no event shall Manufacturer be liable for any loss or damages of any other kind, whether direct, incidental, consequential including lost profits, exemplary, special or otherwise, including any lost profits or removal, shipping, or installation expenses.

For more information, please visit: www.atempower.com