

Discover[®] ADVANCED ENERGY

Lithium-Ion Battery Systems



SAFETY IS JOB ONE.

DISCOVER AES IS CLEANER + SAFER WITH STRINGENT UL1973 AND UN38.3 STANDARDS.

Discover AES LiFePO₄ batteries with SENTRY are cleaner and safer than lead acid batteries. Stable and high-performing LiFePO₄ cells managed by your proprietary, 3rd generation BMS design have been tested and certified to stringent UL1973 and UN38.3 standards for safety and transport..

Off-grid solar installers have been using lead acid batteries a long time and regardless of the benefits Lithium batteries offer, there is familiarity and comfort in those traditional lead batteries. To be successful replacing lead acid for residential energy storage applications we knew we would need to convince those installers that Discover AES LiFePO₄ batteries not only outperformed lead, but that they are safer too.

The first and most important consideration in designing a safe Lithium Ion battery is the selection of cell chemistry. When Discover decided to develop an advanced battery for residential solar applications we considered each lithium chemistry before finally committing to LiFePO₄.

Lithium Cobalt (LCO) is one of these advanced battery types and is commonly used in consumer electronics because of its high, power density. For residential solar applications however, LCO has a relatively short lifespan, limited load

capabilities (specific power) and low thermal stability which make it susceptible to thermal runaway.

With application knowledge gained from years of observing Discover's own lead acid batteries in the field, we chose to use Lithium Iron Phosphate (or LFP or LiFePO₄) cells as they are ideally suited to the demands of off-grid homes.

LiFePO₄ works for stationary / solar applications because it:

- is very thermally stable with no risk of thermal runaway;
- offers the longest cycle life;
- can be recharged at 1C rate;
- and can handle heavy loading and rapid discharge rates.

The second critical component in the design of safe, high-performance, Lithium batteries is the Battery Management System (BMS). Unlike lead acid batteries, Discover AES LiFePO₄ batteries are managed by a sophisticated BMS which continuously monitors and controls all electrical inputs, outputs and cell status.

Highly engineered power electronics controlled by proprietary firmware and device drivers protect the cells and assembly, and ensure our batteries provide the performance and safety your customers demand. Compared to lead acid batteries, there is no risk of arcing from shorted terminals because the BMS simply disengages a relay and interrupts power. There is no exposure to corrosive electrolyte and no off-gassing from overcharging. Even the highest quality, sealed batteries can't make that claim.