



LITHIUM BATTERY BACKUP SOLUTIONS

TELECOM AND DATA CENTER

Improving Performance, Reducing Cost,
and Optimizing Efficiency of Stationary Power



GUARDIAN

TEN-YEAR COST COMPARISON

Total Cost of ownership over the lifetime of a power system is 50% when compared to an equivalent VRLA installation. Lithium lasts 10-15 years when installed, and requires no maintenance over the life of the installation. Below is a typical 10 year cost breakdown.

	Purchases Over 10 Years	Battery Cost	Maintenance	Electricity Waste	Installation	Shipping
GUARDIAN	Purchase		N/A	N/A		
LEAD ACID	Purchase					
	Purchase					
	Purchase					

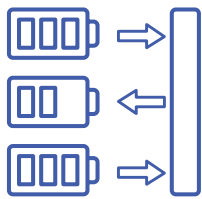
NOT ALL LITHIUM BATTERIES ARE CREATED EQUAL.

For over 30 years, Green Cubes Technology has helped enterprise customers and OEMs safely convert from lead acid systems to the optimal lithium technologies for their operations. Among the many providers of lithium solutions, we stand apart with our compatibility with existing chargers Rectifiers, and IT Infrastructure, product quality, and post-sales technical support.

REVOLUTIONARY TECHNOLOGY FOR YOUR INFRASTRUCTURE

Guardian is a comprehensive, self-managed battery solution designed to meet the cost, performance, efficiency and durability requirements of the UPS, Telecom, and Data Center environment. They include application-specific cell chemistry, charge/discharge management, and advanced safety features such as thermal, short circuit, overvoltage and undervoltage protection. All can be remotely controlled and managed through leading site controller hardware and software.

Guardian Battery Units (GBU) power your critical loads longer, for less total cost



ENERGY BALANCE TECHNOLOGY

Green Cubes patent pending Energy Balance Technology (EBT) is an embedded power controller paired with

intelligent software that can control the flow of current in and out of the battery. This technology allows for current sharing, pack to pack State Of Charge balancing, easy battery replacement, and optimized pack level charging.

LITHIUM CHEMISTRIES

NMC - Nickel Manganese Cobalt
Higher energy density. Great for applications with space and weight constraints. This chemistry is widely used in portable electronics and electric vehicles.



LFP - Lithium Iron Phosphate
High cycle life and high discharge rate capabilities. Excellent for high cycle applications such as solar, peak shaving, or load shifting.

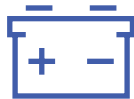


Safe and Environmentally Friendly - Every Guardian Battery Unit (GBU) has a built in Battery Management System (BMS) that monitors parameters including temperature, voltage, current, State of Charge, State of Health, and historical usage. Each battery can protect against dangerous conditions and ensure safe operation 24/7. Lithium batteries outlast Lead Acid batteries by 3x, reducing waste, and can be recycled at the end of their life.



Smaller Footprint

Lithium Batteries are more energy dense than VRLA and can reduce battery footprint by up to 75%.



Lighter Weight

Lithium batteries are up to 50% lighter than VRLA for the same or more run time.



Longer Operational Life

With cycle capabilities in the 1000's, lithium batteries can be used in daily cycling applications and last for well over 10 years.



Zero Maintenance

Guardian Batteries are electronically monitored and balanced by the integrated BMS and do not require periodic onsite maintenance. All battery parameters can be remotely monitored.

Designed to Work Everywhere

Guardian Batteries can be used stand alone, or placed in parallel for additional capacity. Batteries can be configured locally, or via remote access.

Remote Control

Control all batteries from one location using Modbus over RS-485 or SNMP over Ethernet.



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