

Sirius Capacitor Energy Module



Key Attributes

1. Actively balanced and stable operation at all commercial voltages.
2. Flat discharge curve (Module discharge rate is determined by the load).
3. 2% Per month self-discharge when idle or in sleep mode.
4. Cell level density of 70-80 Who/Kg.
5. Supercap cell cycle life and capacity unaffected by high rate of charge and discharge.
6. Supercaps cell projected calendar life of 45 years and cycle life of 1 000 000 cycles.
7. High charge/discharge capability.
8. Wide operating temperature range of Supercap cells.
9. No degeneration of capacity and or efficiency over cycle life.
10. Works with standard inverters/rectifiers/regulators used with Lead Acid or Li Ion batteries.
11. Non- Toxic with no risk of thermal runaway.
12. Form Factor similar to chemical batteries.

Sirius advantage over chemical batteries

Feature	Sirius	Chemical Batteries
Supercap Cell Cycle Life	1000000 Cycles	200 to 10,000 Cycles
DC to DC Efficiency @25°C	99% (Constant over life)	70% to 95% (Degrades over time)
Usable Capacity	100% (Constant over life)	50% to 80% (Degrades over time)
Built in BMS (Battery Management System)	Yes	No
Temperature Range	-30°C to 80°C	-20°C to 65°C
Max Rate Charge	1.7C (120C)	0.1C to 0.5C
Max Rate of Discharge	1.7C (120C)	0.1C to 0.5C
Thermal Runaway	No Risk	Medium to High Risk
Energy Density (Wh/kg)	70 to 80	70 to 100
Disposal Costs	Deferred	Significant
Environmental Impact of disposal	None	Significant
Short/Medium/Long Duration	Single Module	Different batteries for different deployment
Warehousing	No Maintenance	Periodic Charging