



SPAR POWER TECHNOLOGIES INC.

www.sparpwr.com

Altus[®]-500

Energy Storage system

Super Capacitor Technology with +25 years life
Environmentally Friendly





Altus®-500 Energy Storage System utilises state the art super-capacitor technology to provide you with +35 years of energy storage 1,000,000 charging cycles that will last though out the life of the product. It is user friendly with following benefits it offers over the NiCad energy storage system (ESS).

Spar power is pleased to offer a cost effective and environmentally friendly super-capacitor-based energy storage system (SCESS). This system benefits from super-capacitor's inheritance property of strong energy like a battery, additionally it offers environmentally friendly features which batteries do not offer; hence it is very useful to replace batteries in the energy storage systems (BESS) with super capacitors. Being a capacitor, it is charged much faster than the battery and survives through 1,000,000 operations without compromising efficacy and capacity over its entire life. The following table shows the comparative benefits of Super capacitor-based energy storage system (SCESS) and battery-based energy storage system (BESS).

Item	Feature	Super Capacitor Technology	Batteries (NiCad/Lithium Ion/Acid)
1	Life	Up to 30+ Years (500,000 cycles)	3 to 8 years (500 to 5,000 cycles)
2	Efficiency	99% (Efficiency remains same over lifetime)	70% to 95% (Efficiency degrades over life time)
3	Useable capacity	100% Capacity Remains over lifetime	50% to 80% capacity degrades over life time
4	Charging rate	From 1C to 6C Very fast	Normally .1C to 1 C
4	Temperature range	-40 to 65 deg. C	-10 to 30 deg. C
5	Thermal runaway	No Risk	Medium to high
6	Storage Limitation	No maintenance	Periodic charging is Required
7	Short Circuit Protection	Intrinsically safe	Information not available
8	Disposal costs	None	Significant
9	Environmental impact of disposal	None	Significant



10	Routine maintenance	None	Significant
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