LiiON Power On Demand

Stored Energy System (S.E.S.)

Ideal for mission-critical, standby power applications, LiiON's Stored Energy System (S.E.S.) offers safe, reliable, long life, power on demand with zero maintenance. The S.E.S integrates safe lithium ion phosphate chemistry with LiiON's Power Server Platform, providing a reliable, safe and high-energy solution that assures 24/7 system uptime, while delivering significant cost-of-ownership savings.

Capable of delivering mega-watts of power in a small footprint, the S.E.S. integrated battery solution is comprised of lightweight, single battery strings designed to seamlessly connect to an OEM UPS. The lithium UPS solution provides exceptional flexibility and is half the weight of lead acid solutions.

Benefits At A Glance

- Capable of 1 minute runtime or more traditional 5- to 15-minute runtimes
- Exceptional reliability delivered from lithium iron phosphate battery
- More power facilitated through high energy discharges
- Superior abuse tolerance makes solution safer than other chemistries
- Provides exceptional flexibility with string voltages up to 768V
- Less than half the weight of lead acid solutions
- Gain monitoring capabilities with integrated LiiON Management and Monitoring System (LMMS™)

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UPS EQUIPMENT ACCESSORY

S.E.S. Constant Current Discharge

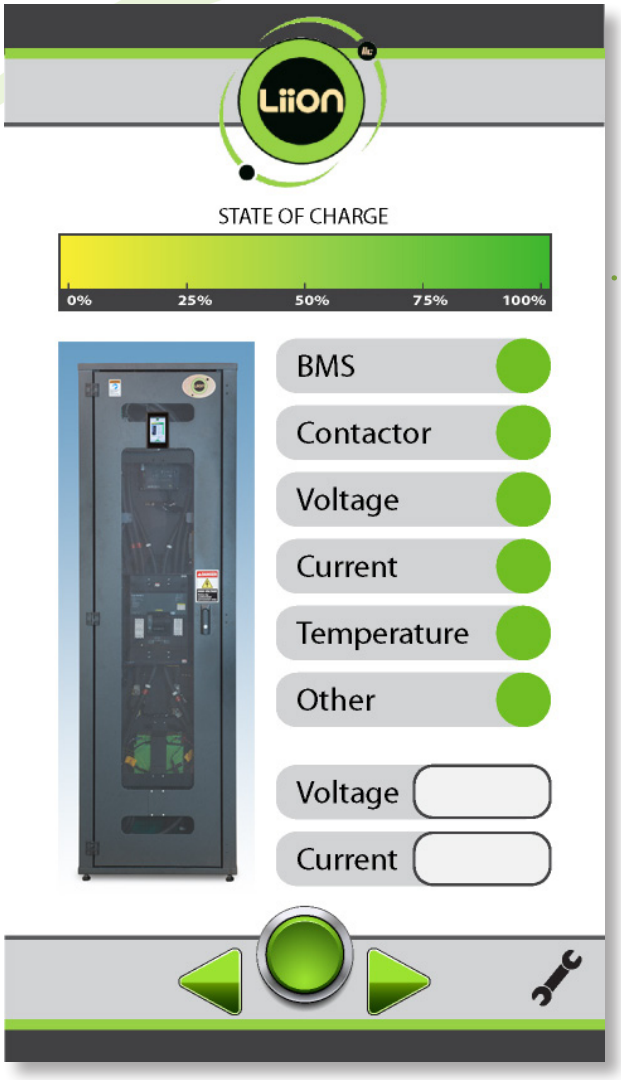
(In Minutes)

Strings	50kW	100kW	150kW	180kW	250kW	500kW	750kW	1000kW
1	17.5	9.0	5.5	4.5	1.5	-	-	-
2	35.0	17.5	12.0	9.5	7.0	1.5	-	-
3	60.0	28.0	17.5	14.0	10.5	5.0	1.5	-
4	80.0	35.0	24.0	20.0	14.5	7.0	4.0	1.5
5	100.0	47.0	30.0	23.5	17.5	9.0	5.5	1.5

Assumptions

UPS is 480V nominal and has Power Factor 0.9, Efficiency 94%
Equivalent to Lead Acid end voltage of 1.70vpc
Ambient temperature of 25 °C

HCMI Touchscreen



LiiON Management and Monitoring System (LMMS™)

The Power Server platform integrates the powerful LiiON Management and Monitoring System (LMMS), providing:

Safety Protection – The LMMS processes critical parameters such as voltage levels, temperature, and current at the module and solution levels. Abnormal conditions (warnings and alarms) are quickly detected and if necessary, the LMMS will protect the system from damage.

Performance Optimization – The LMMS incorporates cell and module balancing controls. This Power Server function optimizes the voltages of each module to maximize performance and increase service life.

Real-time Process Control – Information from the LMMS can be integrated into facility management systems via Modbus TC/PIP or other protocols. This information allows users to monitor the process real-time and provides visibility to system warnings and alarms.

Technical Specifications

Specifications	
Nominal Voltage	512V
Maximum Voltage	584V
Minimum Voltage	368V
Float Voltage	552V
Capacity	40Ahr
Continuous Charge Current	40A
Maximum Charge Current*	160A
Max. Continuous Discharge Current*	370A
Max. Discharge Current (10S)*	700A
Internal Resistance	300mΩ
Charge/Discharge Temp Range	-10^{0}C to 60^{0}C
Storage Temperature	-40^{0}C to 50^{0}C
Self Discharge	<2% per month
Cycle Life (to 80% rated capacity)	>2000 cycles at 25^{0}C
Design Life at 25^{0}C	15 years
Safety Certifications	UL 1692, EC, FCC Class B, UL1778, UL1973
Shock/ Vibration/ Seismic	IEC62233, DIN VG96 924, Zone 4
Shipping Certifications	UN3480, Class 9

*Consult LiiON for Duty Cycle Capabilities

About LiiON

LiiON, LLC delivers proprietary, safe lithium stored energy solutions into applications for the data center, UPS, telecom, cable, and solar/wind enterprise markets.

For more than 5 years, LiiON has been dedicated to supplying customers with innovative lithium stored energy solutions. LiiON offers unparalleled safety, quality and value, relying on more than 40 years of industry expertise to constantly improve our stored energy solutions and optimize customer environments.

LiiON designs application-specific solutions with unparalleled attention to safety, reliabiliy and product detail. For every DC application, we ensure:

- Correct chemistry
- Proven controls to protect the system and equipment
- Established communication between BMS and other systems
- Proper interaction between solution and OEM equipment

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