Alpha Investments UK Affordable Home-Use Energy Storage System

powered by

GREEN SOLUTIONS INC.

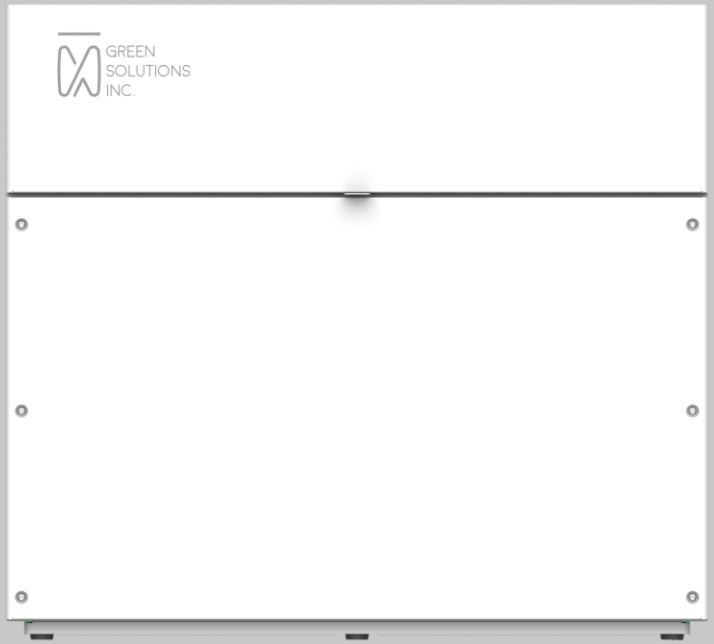
Empowering our GREEN future.

Home E10 Product Introduction

Feb, 2022

Project: PJ12
Document: External

Key Specifications



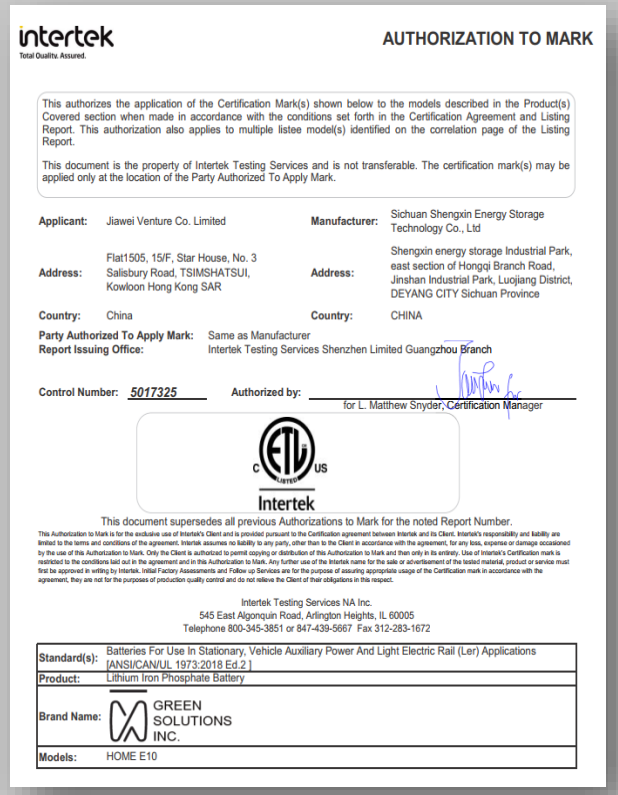
Mech.	Item	Measurement
1	Length	794 mm/31 in
2	Width	273 mm/11 in
3	Height	718 mm/28 in
4	Weight	120 kg/264 lb

General

No.	Item	Specifications
1	Nominal voltage	51.2V
2	Voltage range	40-58.2V
3	Nominal capacity	200.0Ah
4	Nominal energy capacity	10.2kWh
5	Usable energy capacity	9.7kWh
6	Nominal power	5kW
7	Max. continuous charge/discharge power	10kW
8	Peak power	12kW(3S)
9	Peak current	240A(3S)
10	Max. continuous charge/discharge current	100A
11	Battery short circuit current	400A
12	Depth of discharge	90%
13	Charge/discharge efficiency	≥98% (25°C/77°F at 60A)
14	Design lifetime	10 years
15	Ingress rating	IP65
16	Communication protocol	CAN 2.0

Certifications

UL1973



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Applicant:	Jiawei Venture Co. Limited	**Manufacturer:**	Sichuan Shengxin Energy Storage Technology Co., Ltd
Address:	Flat1505, 15/F, Star House, No. 3 Salisbury Road, TSIMSHATSUI, Kowloon Hong Kong SAR	**Address:**	Shengxin energy storage Industrial Park, east section of Hongqi Branch Road, Jinshan Industrial Park, Luojiang District, DEYANG CITY Sichuan Province
Country:	China	**Country:**	CHINA

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services Shenzhen Limited Guangzhou Branch

Control Number: 5017325 **Authorized by:** for L. Matthew Snyder, Certification Manager

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Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

Standard(s):	Batteries For Use In Stationary, Vehicle Auxiliary Power And Light Electric Rail (Ler) Applications [ANSI/CAN/UL 1973:2018 Ed.2]
Product:	Lithium Iron Phosphate Battery
Brand Name:	GREEN SOLUTIONS INC.
Models:	HOME E10

UN38.3

联鼎检测 GUANGDONG UTL CO LTD

报告编号./ Report No.：PNS220119252 01001

ilac-MRA CNAS 中国认可 国际互认 检测 TESTING CNA S L6998

UN38.3 测试报告
UN38.3 Test Report

产 品 名 称: **Name of Products:**	锂电池储能电池模组 Lithium battery energy storage battery module
委 托 单 位: **Applicant:**	衡电科技（武汉）有限公司 Fair Electric (Wuhan) Co., Ltd.
生 产 单 位: **Factory:**	四川安迅储能科技有限公司 Sichuan Anxun Energy Storage Technology Co., Ltd.

检验人 Tester	刘秀丽	审核人 Reviewer	吴顺翊	批准人 Approver	李焰
项目工程师 / Project Engineer		主管工程师 / Chief Engineer		主管工程师 / Chief Engineer	

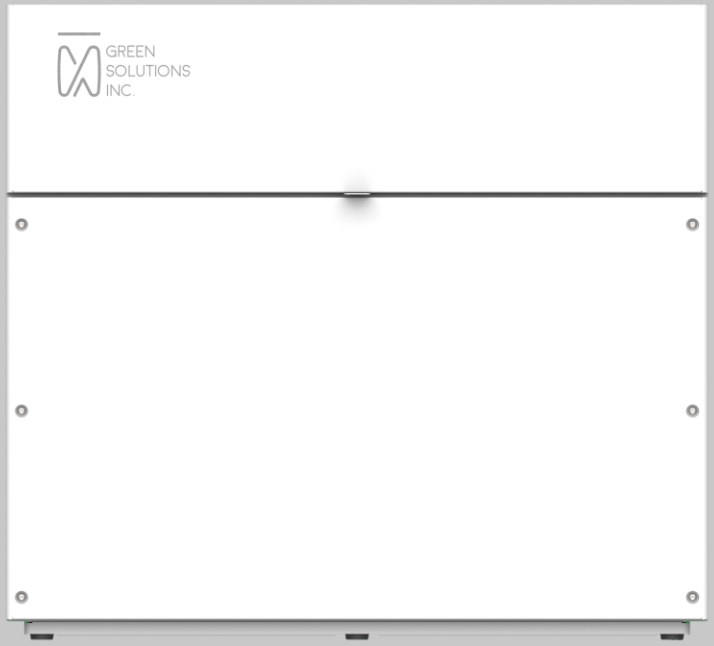
广东联鼎检测科技有限公司
GUANGDONG UTL CO., LTD.

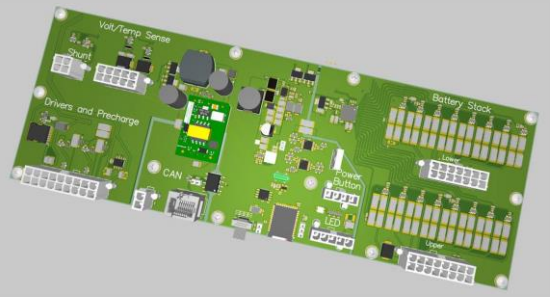
Address: Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China.
Tel: 86-769-3893 3228 Email: utl@gdutl.com http://www.gdutl.com

IEC62619

In progress.
Estimated completion by May 2022.

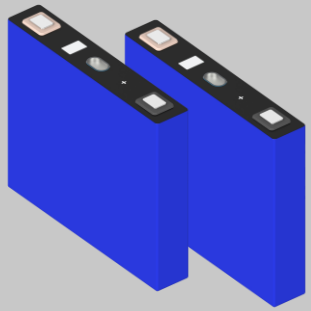
Performance





Advanced BMS

- Proprietary ECM algorithm
- State of charge estimation accuracy <3%
- High sensor measurement accuracies (voltage 3 mV, current 100 mA)
- Optimized circuit design

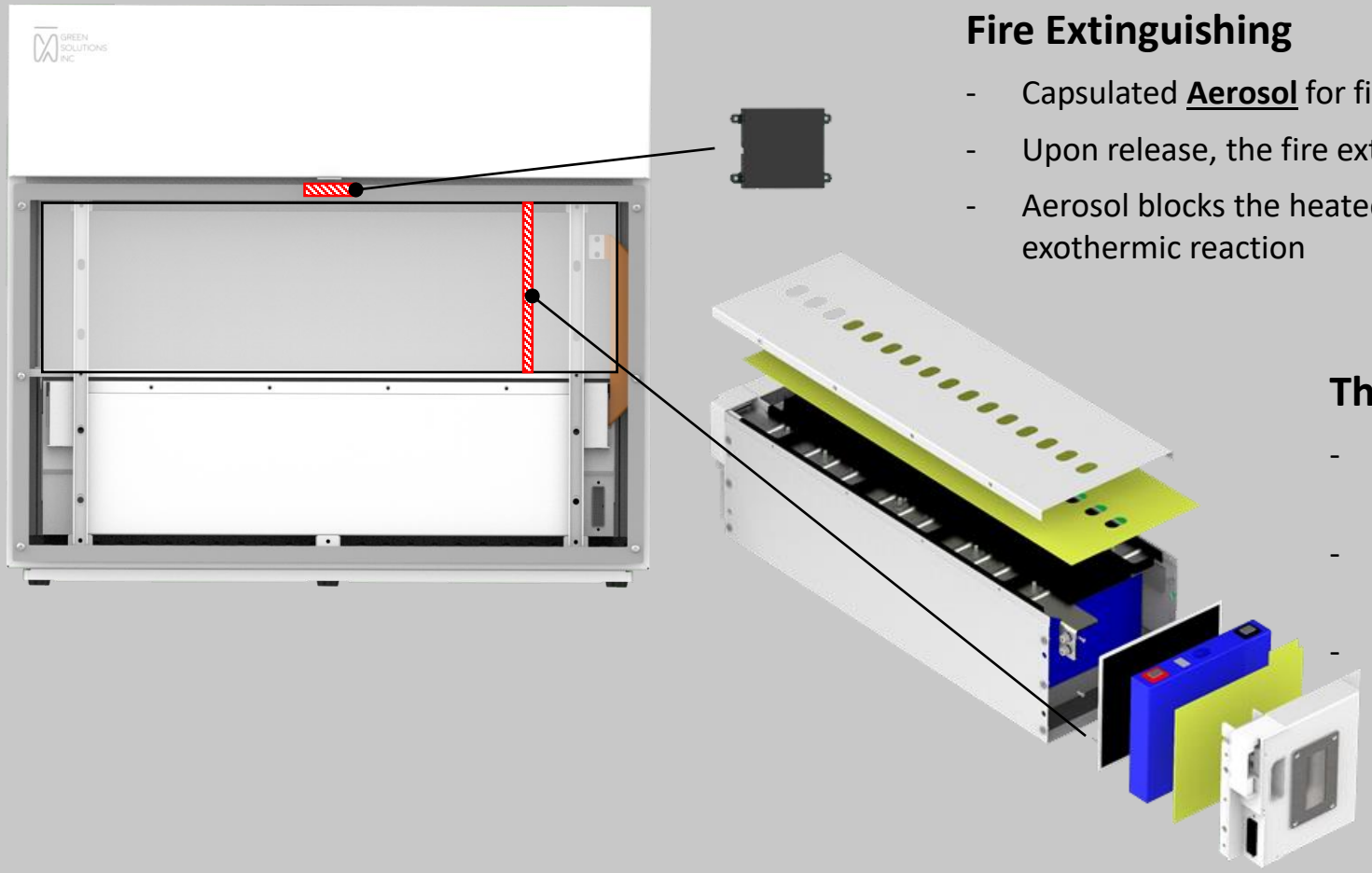


CATL Flagship Cells

- Lithium Iron Phosphate cathode for better safety and longevity
- 6000 cycles longevity*
- Guaranteed performance from CATL

* 1C/1C, 100% depth-of-discharge, 80% capacity retention

Protections



Fire Extinguishing

- Capsulated **Aerosol** for fire extinguishing
- Upon release, the fire extinguisher fulfils the enclosure space within 3 sec
- Aerosol blocks the heated surface from contacting O_2 for further exothermic reaction

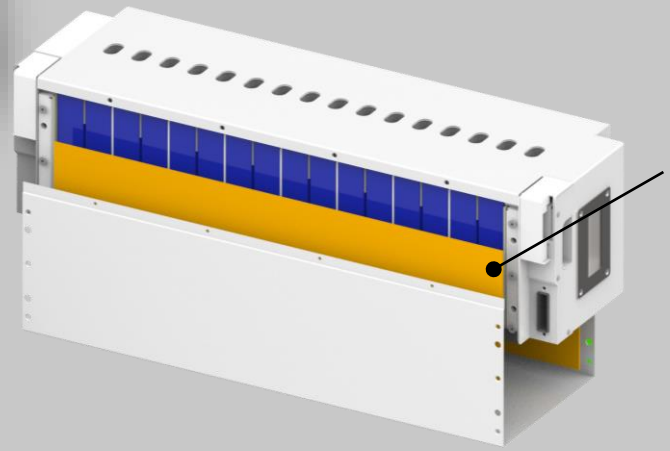
Thermal Isolation

- **Aerogel** insulation pad for breaking thermal links between battery cells
- Extremely low thermal conductivity at 0.018 W/m-K, more insulating than standing air
- Low density at 375 kg/m^3 lowers the product weight

Climate Adaptive

Radiation Cooling Technology

- Proprietary nano-material coating technology
- Enables the enclosure surface to exchange heat not only with the surrounding but with the outer space (-270 ^{o}C)
- Under direct sunlight exposure, the coating enables -10 ^{o}C temperature drop
- Max cooling power of 100 W/m^2



Silicone Heating

- Silicone heating sheet is applied for outdoor installation in cold climate
- Smart control by BMS to preheat the battery to its optimum operating temperature before use

Hybrid Inverter

RHI-4.6K-48ES-5G-DC

Mech.	Item	Measurement
1	Length	250 mm/9.5 in
2	Width	340 mm/13.4 in
3	Height	510 mm/20 in
4	Weight	18.3 kg/40.3 lb

No.		Item	Specifications
1	AC output	Max. AC output power	6kW
2		Max. output current	26.1A
3		AC output voltage	1/N/PE, 220V/230V at 50/60Hz
4		Harmonics Distortion	THDI≤2%
5		Power factor	0.8leading..0.8lagging
6	AC output (Off-grid)	Max. AC output power	5kW
7		AC Output voltage	1/N/PE, 220V/230V at 50/60Hz
8		Backup switch time	<20ms
9	PV input	Max. PV power	8kW
10		Start voltage	120V
11		MPP voltage range	90~520V
12		No. of MPP trackers	2
13	Battery input	Voltage range	42~58V
14		Max. DC current	100A
15		Max. power	5kW
16	Mechanical	Ingress Rating	IP65

Solar Modules

Model DBG550

550Wdc

Half Cell Mono-Crystalline PERC

Solar Modules

- Half Cell Mono-Crystalline PERC module
- 144 cells from 530W to 550W, 21% module efficiency
- Glass-glass type, with additional 5-25% PV generation on backside
- Certified with IEC61215 and 61730

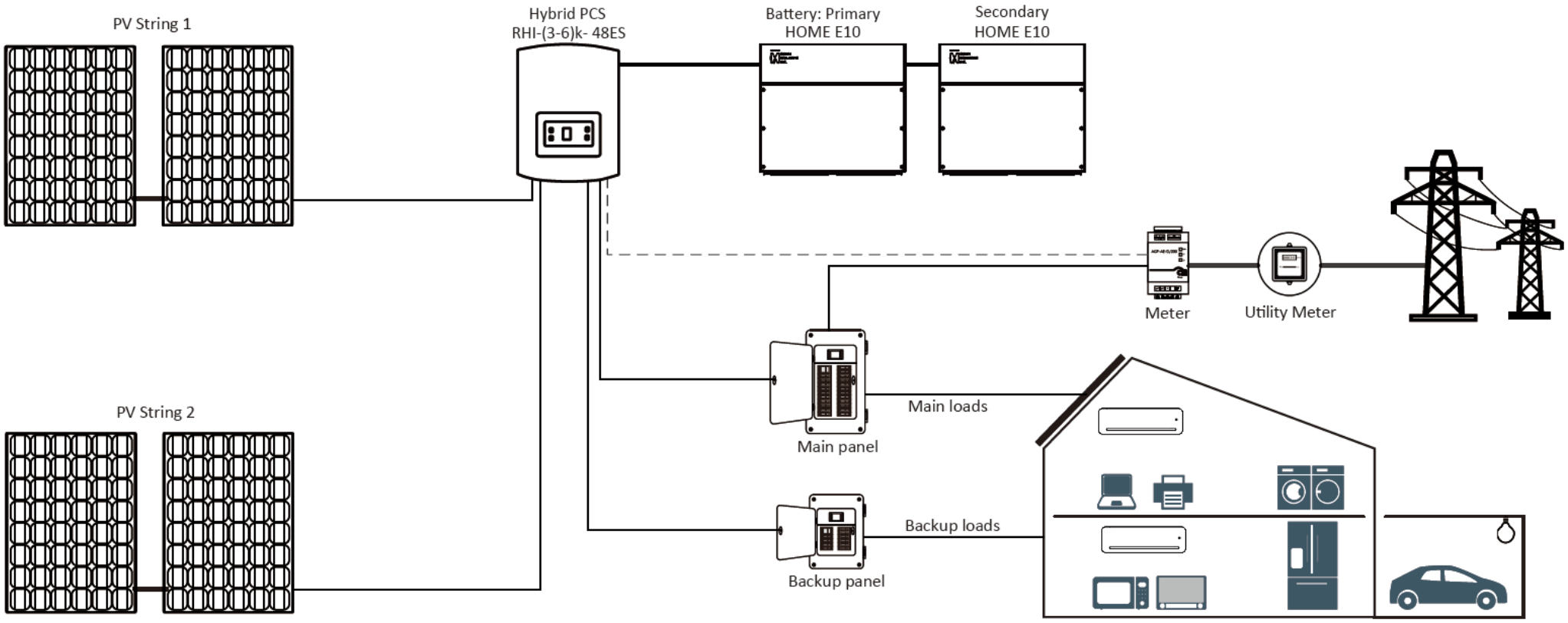
Half Cell Mono-Crystalline PERC Technology

- Half-cut cell structures reduces cell current into half, which reduces loses and increases power output
- Improved performance under partial shading condition, which is problematic for conventional solar modules
- More durable than traditional cells. Because of the reduced cell dimensions, it is less prone to cracking

System Diagram

Home ESS solution

- E10 (max of 4 connection to give 4kWh energy)
- Hybrid inverter
- High efficiency PV panels with variety of choices



Package Solution

Residential Clean Energy Solution

E10 LFP battery

Hybrid inverter

High performance solar module

Typical needs for single family household:

10 kWh battery + **5 kWd.c. solar panels** + **5 kWa.c. inverter**