



Eco - E S S

LiFePO4 Battery Specification

Model: EESS-512

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1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack **EESS-512** manufactured for Eco Energy Storage Systems Ltd by SHENZHEN TOPBAND BATTERY CO.,LTD, it describes the type, performance, technical characteristics, warning and caution of the battery pack.

2. Battery Pack Specification (@ 25±2°C)

No.	Items	Parameters	
2.1	Nominal voltage	51.2 V	
2.2	Nominal energy@0.2C	5.12 KWh	
2.3	Nominal capacity@0.2C	100Ah, DoD 90%	
2.4	Internal resistance@1kHz AC	≤30 mohm	
2.5	Charge voltage	56.0V	
2.6	Float voltage range	54.6V	
2.7	MAX charge current	70A	
2.8	Recommended charge current	≤50A	
2.9	Allowed MAX discharge current	100A	
2.10	Recommended discharge current	≤50A	
2.11	Peak/Surge current limit	<149A@15s	
2.12	Short circuit protection	Yes	
2.13	End Discharge	Re-charge voltage	50.0V
		Inverter/Load cut off	48.0V
		Re-connect voltage	51.2V
2.14	Communication	Bluetooth/WiFi	/
		Port	CAN/RS485
2.15	Parallel and Series connection	Support Max. 16 in parallel	
2.16	Terminal and torque	Plug &Play	
2.17	IP rating	IP20	
2.18	Dimension	W 150.0±2 mm	
		H 428.0±2 mm	
		D 670±2 mm	
2.19	Weight (without accessories)	~47kg	
2.20	Operation temperature ¹	-10~50°C (with communication)	

2.21	Operation altitude		<3000m
2.22	Self-discharge rate ²	Residual capacity	≤3%/month ≤15%/year
		Recover capacity	≤1.5%/Month ≤8%/ year
2.23	Storage environment ³	≤6 months	0°C<T<30°C
		≤3 months	-10°C<T<45°C
		Recommend environment	15~35°C 5~75%RH
2.24	Compatible inverter list		SMA/Victron/Studer/Goodwe/Sunsynk/Sol-Ark/Growatt/Voltronic/ALPHA-OUTBACK/Deye/Sofar/Solis SAJ/LUXPOWER/MEGAREVO/Schneider/TBB/Mpp (pending)
2.25	Installation types		Wall mounted (with included kits) Floor mounted (with additional kits)
Note	<p>¹Battery pack will stop work to protect itself when the temperature is out of the operation range. The optimum operating temperature range is from 15°C to 35°C, Frequent exposure to the harsh temperatures may worsen the performance of the battery pack and cycle life.</p> <p>²These conditions is based on battery pack is in sleep or power off mode.</p> <p>³For long time storage, we recommend charge the battery over 50% SOC and if the battery does not have a sleep or power off mode, please consult TOPBAND first.</p>		

3. Electrical Specification

Test conditions: Ambient Temperature: 25±2°C, Humidity:5%~90%.

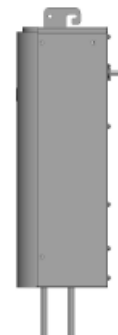
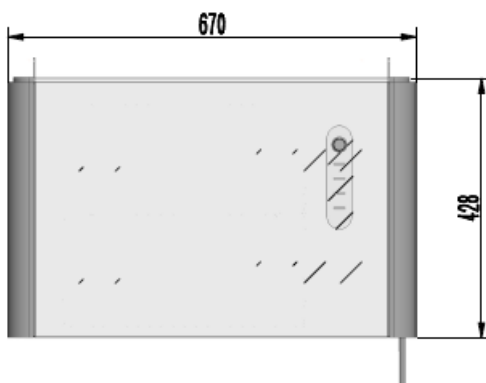
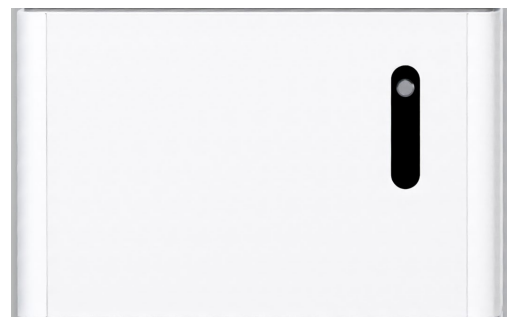
Normal charge: Charge battery under CC (0.2C)/CV (56.0V)mode until over charge protection or the charge current reduce to 0.02C, and then rest for 1h.

No.	Items	Criterion	Test Condition
3.1	Rated Capacity	100Ah	After Normal charge, discharge @0.2C current to the end of discharge voltage.
	Min. capacity	99Ah	
3.2	Internal Impedance	≤30mΩ	@50% SOC @1kHz AC internal resistance test instrument.
3.3	Short circuit protection	Auto cutoff load when short circuit	Connect the positive and negative of this battery pack through a lead with 0.1Ω resistance.
3.4	Cycle life	≥6000 cycles	6000 Cycles @25°C @90% DOD @70EOL @0.2C charge & 0.5C discharge

3.5	Discharge temperature characteristic@ 0.2C	-20°C (6h)	≥60%	Capacity @specified temperature Capacity @ 25°C	the percentage in accordance with criterion
		0°C (6h)	≥80%		
		25°C (4h)	≥100%		
		55°C (4h)	≥95%		
3.6	Capacity retention rate	Remain capacity ≥96%		After normal charge, store the battery @25±2°C for 28days, then discharge capacity @0.2C to the end of discharge voltage, the retention capacity accord with criterion.	

4. Battery quick guide

4.1 Dimensions



4.2 Transport & Storage

- Do not violently shake, hit or squeeze, and prevent from direct sun and rain during the transportation.
- Handle the batteries with due care and strictly prevent them from falling, rolling, and heavy pressure during loading and unloading.
- The battery should be placed in a dry, clean, dark, and well-ventilated indoor environment for

long-term storage, and the recommend storage temperature range is 15~35°C.

- No harmful gases, flammable and explosive products and corrosive chemical substances in the storage location.
- The batteries should be stored and transported in close to 50% SOC.
- If do not use for a long time, the battery needs to be charged every 6 months according to the specs.
- No fall down, no pile up over 6 layers, and keep face up.

4.3 Warning & Tips.

Please read battery specification or manual carefully before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. Eco Energy Storage Systems Ltd will not be responsible for any accidents caused by the usage without following our handling instructions.

Warning

- Battery must be far away from heat source, high voltage, and direct exposed to sunshine.
- Never throw the battery into water or fire.
- Never reverse two terminals when using the battery.
- Never connect the positive and negative of battery with conductor.
- Never knock, throw or trample the battery.
- Never disassemble the battery without manufacturer's permission and guidance.
- Never mixed battery with different capacity and brand;

Tips

- It is suggested to fully charged the battery per month to correct the battery SOC.
- Please charge your battery timely (≤ 2 day) when battery runs out of power.
- Please use the dedicated lithium battery charger to charge the battery.
- Stop using when battery emit peculiar smell, heating, distortion or appear any abnormality
- Please keep the battery far away from children or pets.
- If the battery pack leaks electrolyte, avoid contacting with the liquid or gas leakage if the electrolyte of battery pack leaks, please take these steps immediately:

Gas Inhalation: Evacuate the people in the contaminated area and seek medical aid as soon as possible.

Eye Contact: Flush your eye with clean and flowing water for 15 min, and seek medical aid as soon as possible.

Skin Contact: Thoroughly rinse the exposed area with soap and water to be sure no chemical or soap is left on them, and seek medical aid as soon as possible.

Swallowing: Try to induce vomiting, seeks medical aid as soon as possible immediately.

Fire: Please use carbon dioxide fire extinguisher rather than liquid to put out fires.