ENOV (HUIZHOU) NEW ENERGY TECHNOLOGY CO., LTD

MODEL
EN12-ST600H6

CAR START-STOP
LITHIUM BATTERY

PRODUCT DATA SHEET

MODEL：EN12-ST600H6

INTRODUCE

The car start-stop lithium battery is designed to provide excellent performance for high-demand start-stop vehicles. Compared with the traditional lead-acid battery system, the energy efficiency is increased by 210%, the cycle life is extended by 8-10 times, the monthly self-discharge rate is controlled within 3%, and the stable output in the whole climate range from -30 ° C to 65 ° C is achieved. More than 90% of the effective capacity is still released under extremely cold conditions (-30℃), and the capacity retention rate in high temperature environments (65℃) is as high as 90%..

SPECIFICATIONS

MODEL	EN12-ST600H6
VOLTAGE（V）	12.8
CAPACITY(Ah)	60
DIMENSIONS SIZE (L*W*H)mm	275*174*189
WEIGHT（Kg）	8.3
CCA(-18℃ 3S)	1200
RC(min)	144
CAN REPLACE LEAD ACID BATTERY	BCI G48、EN H6 6-QTPE-69、6-QTPE-70

——OEM or ODM is available

PRODUCT CHARACTERISTICS

- Low temperature heating technology
- 100C ultra-high rate discharge performance
- Wide temperature range adaptive system (-30℃ to 65℃)
- Light weight structure design
- Multi-scenario adaptability
- Long-term circulation and low self-discharge characteristics

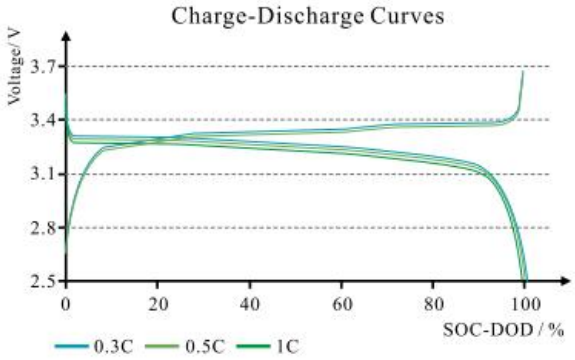
APPLICATION SCENARIO

		
RV	**MOTORCYCLE**	**ENGINEERING TRANSPORT VEHICLES**
		
PASSENGER CARS	**COMMERCIAL VEHICLES**	**MARINE POWER SYSTEMS**

BATTERY CELL PERFORMANCE TEST(LFP)

◆ BASIC CHARGE AND DISCHARGE PERFORMANCE

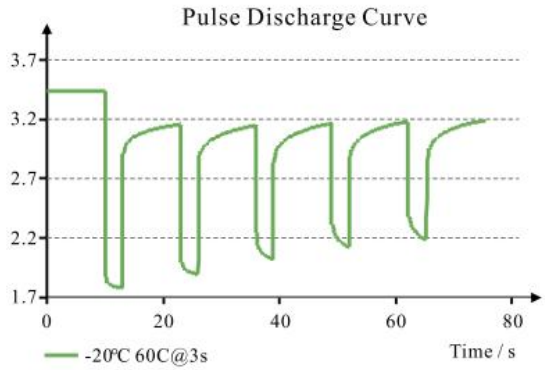
Test method: at room temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; The electric discharge was constant at 0.3C, 0.5C and 1C to 2.5V, respectively.



Note: Due to the ultra-high rate battery, there is almost no difference between 0.3C and 1C capacity.

◆ LOW TEMPERATURE PULSE DISCHARGE -20℃

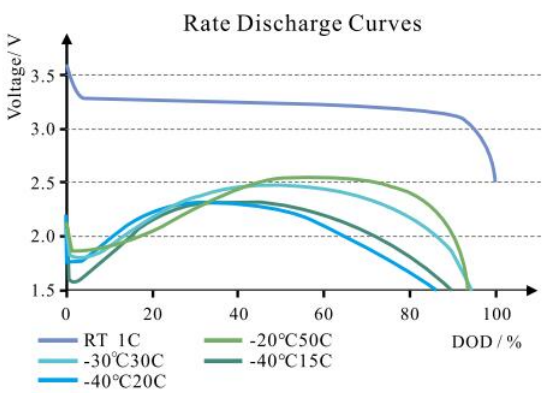
Test method: at room temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; It was shelved at -20 ° C for 4 to 8h and discharged at 60C pulse for 3s.



Pulse magnification @ time	Inflection point voltage/V
60C@3S	1.786

◆ LOW TEMPERATURE PERFORMANCE

Test method: Under normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; Set aside at the test temperature for 4~8h, and discharge to 1.5V at the corresponding magnification respectively.

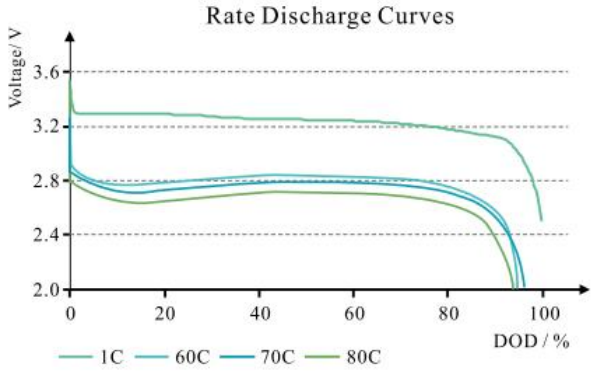


Temperature / ℃	Magnification	Median voltage /V	The inflection point /V	Capacity retention rate /%
RT	1C	3.255	_	100.0
-20℃	50C	2.519	1.844	93.9
-30℃	30C	2.482	1.789	94.2
-40℃	15C	2.287	1.725	86.5
-40℃	20C	2.320	1.574	89.8

BATTERY CELL PERFORMANCE TEST (LFP)

ROOM TEMPERATURE RATE PERFORMANCE

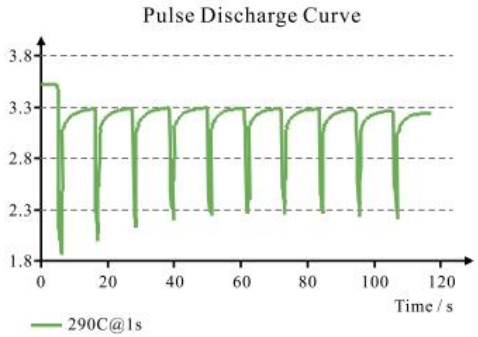
Test method: Under normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; Constant discharge to 2.0V at 1C(up to 2.5V), 60C, 70C and 80C respectively.

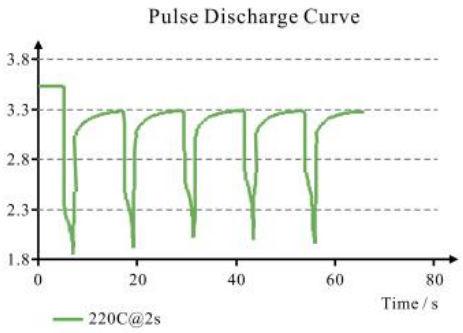


Magnification	Median Voltage /V	Capacity Retention Rate /%
1C	3.248	100.0
60C	2.840	94.6
70C	2.793	96.0
80C	2.715	93.6

PULSE DISCHARGE PERFORMANCE AT ROOM TEMPERATURE

Test method: Under normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; Discharge at 290C pulse for 1s and 220C pulse for 2s.

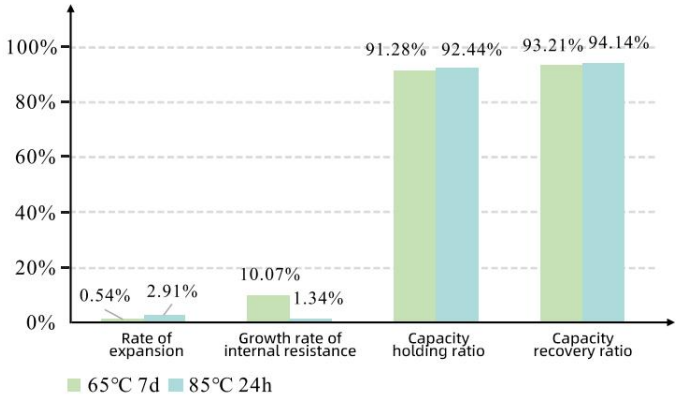




Pulse magnification @ time	Low head voltage /V
290C@1S	1.875
220C@2S	1.861

HIGH TEMPERATURE STORAGE

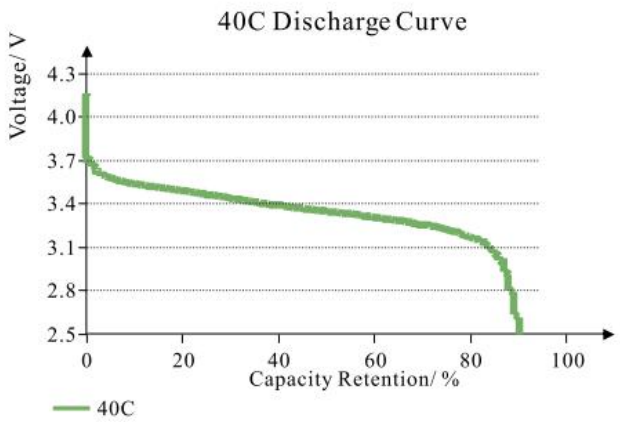
Test method: at room temperature, charge to 3.68V with 0.5C constant current and constant voltage, cut-off current 0.05C; After storing at 65 ° C for 7 days and 85 ° C for 24 hours, the voltage was discharged to 2.5V at 1C. Then charge and discharge at 0.5C and 1C, cycle 3 times, and record the internal resistance, thickness and capacity of the battery core before and after storage.

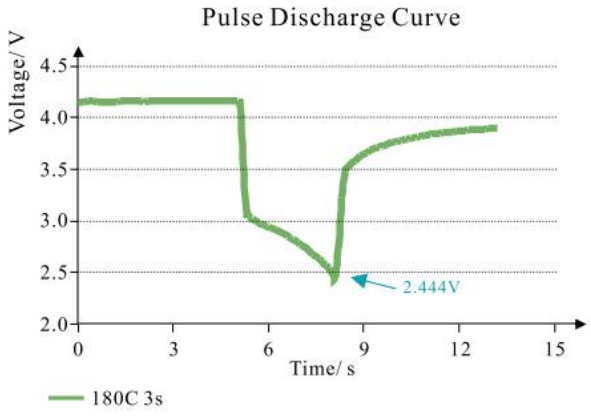


BATTERY CELL PERFORMANCE TEST (NCM)

◆ RATE DISCHARGE & PULSE DISCHARGE RT

Test method a: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Then 40C constant current to 2.5V;
Test method b: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Then discharge 3s at 180C pulse.



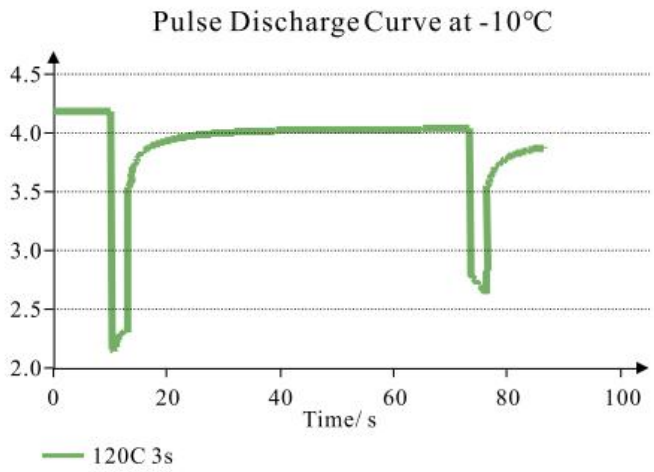


Item	Median voltage /V	Capacity retention rate /%
40C	3.370	90.09

Item	Low head voltage /V
180C 3S	2.444

◆ LOW TEMPERATURE PULSE DISCHARGE -10°C

Test method: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C:-10℃ for 4h, and then 120C pulse discharge 3s.

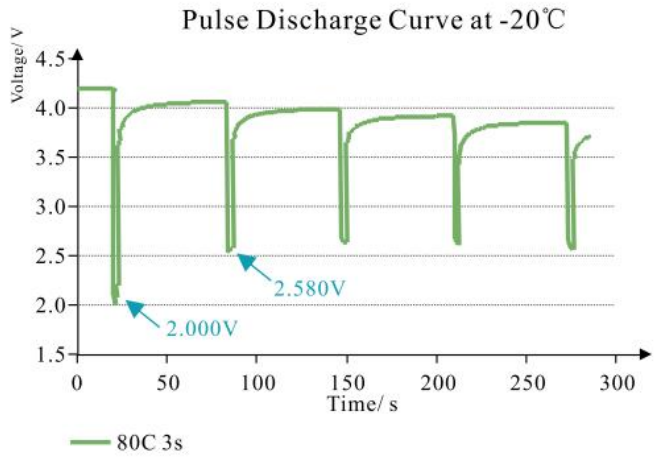


Item	Low head voltage /V(first)	Low head voltage /V(second)
120C 3S	2.155	2.639

BATTERY CELL PERFORMANCE TEST (NCM)

◆ LOW TEMPERATURE PULSE DISCHARGE -20°C

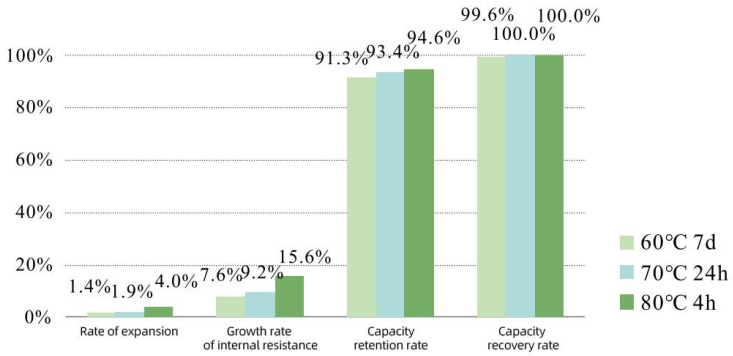
Test method: at room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; It was shelved at -20 ° C for 4h, and then discharged at 80C pulse for 3s.



Item	80C 3S
Low head voltage/V(First)	2.000
Low head voltage/V(Second)	2.580
Low head voltage/V(Third)	2.638
Low head voltage/V(Quater)	2.613
Low head voltage/V(Fifth)	2.557

◆ HIGH TEMPERATURE STORAGE

Test method: at room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Then, they were stored at 60 ° C for 7 days, at 70 ° C for 24 hours, and at 80 ° C for 4 hours, respectively. The thickness was measured by heat, and the capacity retention rate and recovery rate were tested after cold cutting at room temperature for 12 hours.



Item	prestorage		
	Cell thickness /mm	ACR/ mΩ	Capacity /mAh
60℃ 7d	5.17	1.31	2055
70℃24h	5.29	1.30	2046
80℃ 4h	5.20	1.28	2032

Item	After high-temperature storage				Rate of change			
	Cell thickness /mm	ACR/ mΩ	First release capacity /mAh	Cyclic capacity three times/mAh	Expansion rate	Growth rate of internal resistance	Capacity retention rate	Capacity recovery rate
60℃ 7d	5.24	1.41	1877	2046	1.35%	7.63%	91.34%	99.56%
70℃ 24h	5.39	1.42	1910	2046	1.89%	9.23%	93.35%	100.00%
80℃ 4h	5.41	1.48	1922	2031	4.04%	15.63%	94.59%	99.95%

WARRANTY PERIOD OF CELL

Enov provides a one-year warranty on the battery (starting from the date of manufacture). During the warranty period, if there is a performance failure or complete failure of the battery caused by non-human, it is confirmed by our technical department that it is a quality problem such as raw material defects and production process defects, and there is no abnormal use such as private disassembly, improper storage (ambient temperature over 60℃ or below -20℃), physical impact, liquid immersion, etc. Customers can apply for free replacement of new battery units of the same model through the official customer service channels with valid purchase vouchers and complete product serial number labels.

STORAGE AND SHIPMENT REQUIREMENT

Item	Requirement	Remark
Storage temperature	≤1 month:-20℃~45℃ ≤3 month:-20℃~30℃ ≤1 year:23±2℃	The best temperature in shipment is 23±5℃
Humidity	≤75%RH	/
Charged Capacity	50%-100%	Voltage13.2-14.6V

1.The storage temperature should be controlled at -20℃~40℃, away from open flame, corrosive substances and humid environment.

2.Do not charge in a sealed, high temperature (> 40℃) or low temperature (< -5℃) environment to avoid abnormal reaction of the electrolyte.

3.Do not reverse connect the positive and negative terminals; otherwise, short circuit or device damage may occur.

4.If the volume of the lithium battery is smaller than that of the original battery, secure the battery using the provided base or foam to ensure stable installation.

5.When storing, it is important to avoid external vibrations and colisions as much as possible toavoid short circuits inside the battery or damage to the metal casing.

USE WARNINGS AND CAUTIONS

WARNINGS!

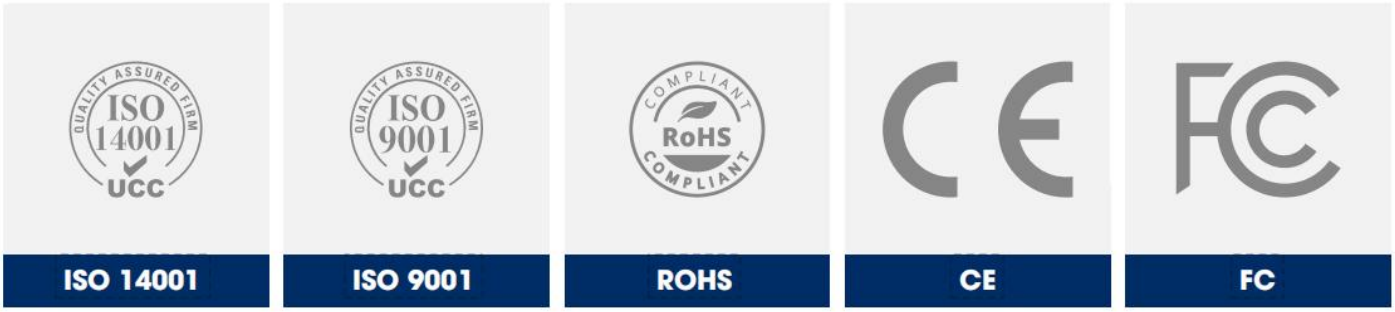
The cell will fire, explode or leak if not strictly observing this item described below.

- Do not immerse the cell in water or seawater, and keep the cell in a cool dry environment during stands by period.
- Do not mix using the cell with one-off cell (such as dry cell) or different performance together.
- Keep all batteries out of the reach of little children. Consult a doctor immediately if a cell is swallowed.
- Do not use or leave the cell near a heat source such as fire or heater
- When re-charging , use the cell charger specifically for that purpose.
- Do not reverse the positive (+) and negative (-) terminals.
- Do not connect the cell to an electrical outlet.
- Do not dispose the cell in fire or heat.
- Do not short-circuit the cell by directly connecting the positive (+) and negative (-) terminals with metal objects such as wire.
- Do not transport or store the cell together with metal obiects such as necklaces, hairpins etc.
- Do not strike or throw the cell against hard surface.
- Do not directly solder the cell .
- Dot not pierce the cell with a nail or other sharp object.
- Never disassembling the cell in any way.

CAUTIONS!

- Do not use or leave the cell at very high temperature (for example, at strong direct sunlight or in a vehicle in extremely hot weather). Otherwise, it can overheat or fire or its performance will be degenerate and its service life will be shortened.
- Do not use it in a location where static electricity is rich, otherwise, the safety devices may be damaged, causing a harmful situation.
- In case the electrolyte getting into the eyes due to the leakage of cell, do not rub the eyes! Rinse the eyes with clean running water, and seek medical attention immediately. Otherwise, it may injure eyes or cause a loss of sight.
- If the cell gives off an odor, generates heat, becomes discolored or deformed, or in anyway appear abnormal during use, recharging or storage, immediately remove it from the device or cell charger and place it in a contained vessel such as a metal box.
- In case the cell terminals are contaminated, clean the terminals with a dry cloth beforeuse. Otherwise power failure or charge failure may occur due to the poor connection between the cell and the electronic circuitry of the instrument.
- Be aware discarded batteries may cause fire, 100%discharged the cell and tape the cell terminals to insulate them before disposal.

CERTIFICATION



CONTACT US

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