



Product Specification

Type: LiFePO4 Rechargeable Battery

Model: DTP-48200

Specification: 51.2V200Ah

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Revise the history

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2. Scope

This specification shall be applied to the batteries from Data Power Technology Limited.

Product Type and Product Model

2.1 **Type:** LiFePO4 Recharged Battery

2.2 **Model:** DTP-48200

3. battery packs Nominal specification

No	Item	Characteristics
3.1	Rated Capacity	200Ah (0.3C Discharge)
3.2	Min. Capacity	199.5Ah(0.3C Discharge)
3.3	Nominal Voltage	51.2V
3.4	Charge Limited Voltage	58.4V
3.5	Discharge Cut-off Voltage	40V
3.6	End-of-charge Current	0.03C
3.7	Standard Charge	Charge with 0.3C up to Limited Voltage , Charge with limited Voltage up to end-of-charge current.
3.8	Standard Discharge	Using 0.3C constant current discharge to the Discharge Cut-off Voltage.
3.9	Maximum Continuous Charge Current	30A
3.10	Maximum Continuous Discharge Current	50A
	Max pulse discharge current	100A
3.11	Operating Temperature Range	Charge 0 ~ 55°C
		Discharge - 20 ~ 60°C
	Storage Temperature Range	-0 ~ 45°C
3.12	Operating And Storage Humidity Range	65±20% RH
3.13	Pack Initial Internal Impedance	≤50mΩ (50% SOC, Measure the AC impedance t 1kHz)
3.15	Communication function	RS485, RS232, CAN communication
3.16	Shell material	Sheet metal chassis
3.17	Display function	LED demonstrated
3.18	battery size	850 (L) *460 (W) *200 (H) mm
3.19	Pack weight	Less than85Kg (battery pack)



4. Appearance

It shall be free from any defects such as remarkable scratches, breaks, cracks, discoloration, leakage, or deformation.

5. Basic Electrical Characteristics

No.	Items	Criteria	Test Method
5.1	Delivery voltage	51.2V~58.0V	Measure with voltmeter.
5.2	battery pack Impedance	≤50mΩ	Measure battery packs using an alternate current impedance meter at 1kHz .
5.3	Rated Capacity (0.3C ₅ A)	≥200Ah	Discharged after the standard charged battery packs rest 10min at 23±2°C , Test can be discontinued when more than Rated capacity. Three cycles are permitted..
5.4	0.3C ₅ A discharge capacity	≥200×90%	Discharged after the standard charged battery packs rest 10min at 23±2°C , Test can be discontinued when more than 90%*rated capacity. Three cycles are permitted.
5.5	Temperature Characteristics	1. Appearance: No deformation、ruptures nor leakage。 2.Discharge Capacity: 55°C:≥85%×initial capacity; -10°C:≥70%×initial capacity	Measured the 0.3C ₅ A capacity at 23±2°C as the initial capacity. Stored the rechargeable batteries for 16-20hrs at -10 ± 2°C; 2h for 55 ± 2°C, and then 0.3C ₅ A discharged at this temperature, Checked the batteries' appearance after rest for 2 hrs at room temperature.
5.6	Storage Characteristics	Retention Capacity: ≥85% ×initial capacity	Measured the0.3C ₅ A capacity at (20±5)°C as the initial capacity. Stored the recharged battery packs for 28 days at 20 ± 5°C and then rest for 2 hrs at room temperature, 0.3C ₅ A discharged after checked the battery packs' appearance.
5.7	Cycle Life (20°C)	Capacity≥initial capacity×80%	0.3C discharged after 0.3C ₅ A full charges at 20± 5°C.Carry out 2000 cycles

Remark 1 Standard charge: 0.3C₅A charge up to charge limited voltage at (20±5)°C. Charge with limited voltage up to end of current. It is the same to the next content.



5. Safety Characteristics

No.	Items	Criteria	Test Method
6.1	Overcharge Characteristics	Appearance: No rupture, fire, smoke, nor leakage.	When the battery is fully charged, go on loading for 8h with a twice rating voltage, 2.0C ₅ A out put current, it starts the over charge protection function.
6.2	Over-discharge Characteristics	Appearance: No rupture, fire, smoke, nor leakage.	The battery is discharged at 0.3C ₅ A in the constant current till it reaches over discharge protection voltage at (20±5) °C, connected with a 30Ω lead and discharged for 24h
6.3	Short-circuit Characteristics	Appearance: No rupture, fire, smoke, nor leakage.	As the battery has completed charging, short circuit the positive and negative contacts with 0.1Ω resistor for 1h for appearance check, then disconnect the resistor between the contacts, the battery shall be charged at 1.0C ₅ A mA in the constant current for 5S.
6.4	Hot Oven Characteristics	Appearance: No explode.No fire.	The battery is to be heated in a gravity convection or circulating air oven after standard charged at 23±2 °C, The temperature of the oven is to be raised at a rate of 5±2 °C/min. The oven is to remain for 30 minutes at 130±2 °C before the test is discontinued.
6.5	Heavy Collision	Appearance: No explode.No fire.	Putting the battery on the platform, using 10KG heavy hammer free drop from 1M height onto the fixed battery.

Remark 2 All safety characteristics are carried out by specialized personnel familiar with Li-ion knowledge or under instruction of our technical personnel after detailed consultation.

7. Reliability Characteristics

No.	Items	Criteria	Test Method
7.1	Static Humidity and Temperature Characteristics	Retention Capacity: ≥60%× initial capacity Appearance: No leakage,damage,smoke.	Measured the 1C ₅ A capacity at 23±2 °C as the initial capacity. Stored the rechargeable batteries for 2 days at 40 ± 2 °C and 90%-95%RH, then rest for 2 hrs at room temperature.0.3C ₅ A discharged after checked the batteries appearance. Measured recoverable 1C ₅ A discharge capacity with 3 cycles..
7.2	Vibration Characteristics	Appearance: No fire, leakage, explode, rupture	After fully charging, fixing the battery onto the vibration platform. with amplitude 0.38mm circularly scanning vibrating in the frequency of 10HZ-55HZ from three directions X、 Y、 Z for 30min respectively in its scanning frequency velocity 10CT/min.



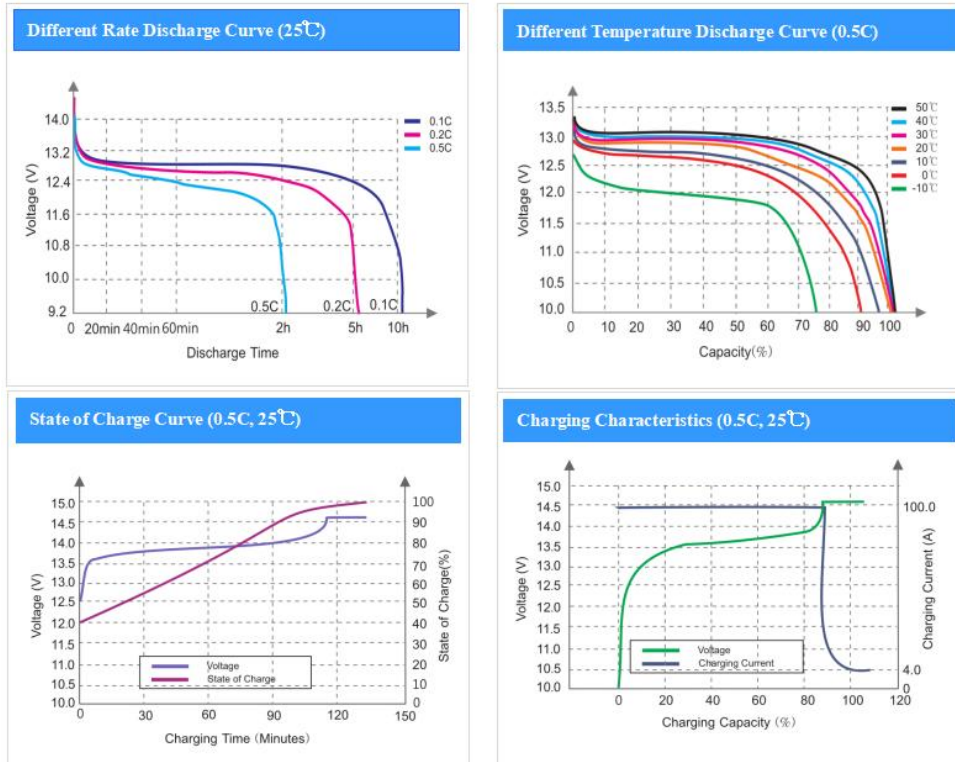
7.3	Bump Characteristics	Appearance: No fire, leakage, explode, rupture	After vibration testing, use a clip or directly fix the battery on to the platform in the direction of X、 Y、 Z vertical complementary axis, then adjust its acceleration and pulse duration as below to have a bump test. Pulse peak acceleration 100m/s ² . Bumps per minute 40-80.Pulse duration 16ms. Bump times 1000±10.
7.4	Free Drop Characteristics	Retention Capacity: ≥85%×nominal capacity. Appearance: No fire, leakage, explode, rupture	After bump testing, the battery shall be immediately dropped from the height of 1000mm (minimum height) onto a 18mm~20mm hard board on the cement floor. Free drop one time respectively from X、 Y、 Z positive and negative axis(six directions). After that, the battery is discharged at 1C ₅ A to its final voltage.

8.Assembling Request

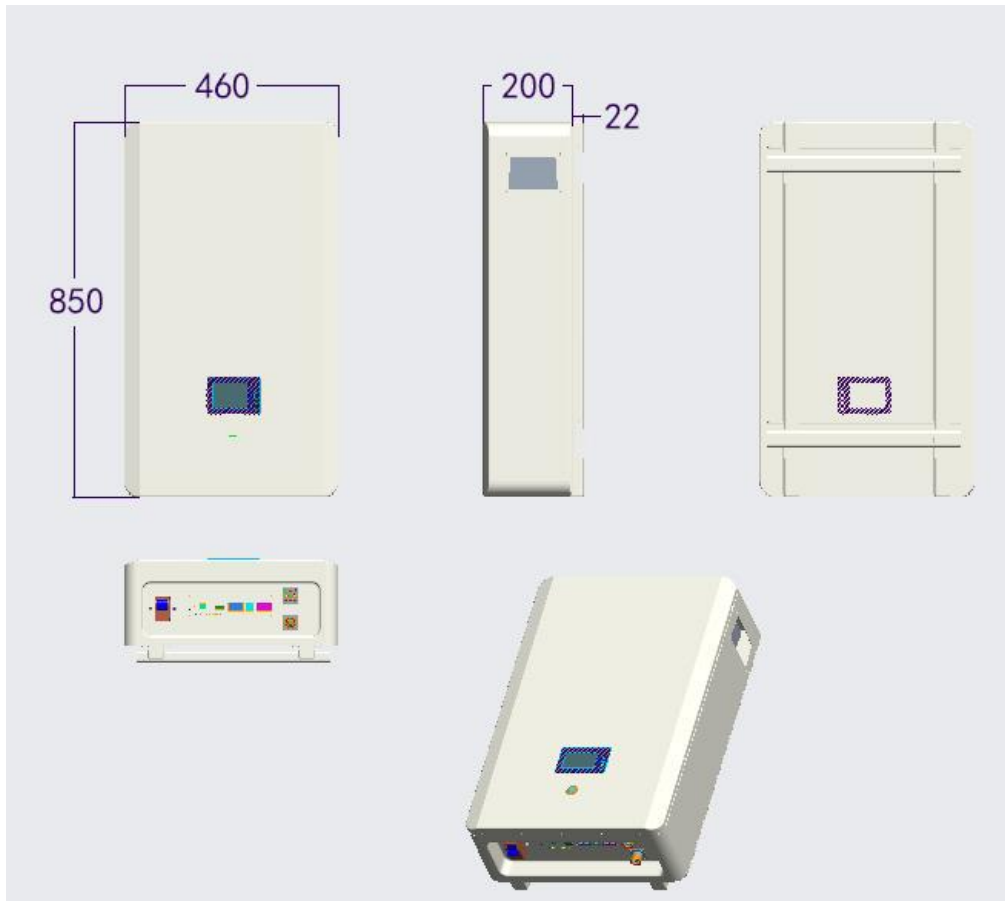
8.1 List of Parameter

Item	Content	Criterion
Voltage	PCM operating voltage range	MAX 80V
	Charger limit voltage	58.4V
	Over charge detection voltage	3.65V±0.025V
	Over charge detection delay time	500ms-2000 ms
	Over charge release voltage	3.55±0.05V
	Over discharge detection voltage	2.4V±0.05V
	Over discharge detection delay time	500ms-2000ms
Short protection	Over discharge release voltage	2.7V±0.1V
	Over discharge current detection	110-130A
	Over discharge protection delay time	80-1500ms
	Continuous charging current	100A
Short Circuit protection	Continuous discharging current	100A
	Short-circuit protection delay time	200-800ms
Equilibrium function	Short circuit protection recovery	Disconnect load
	Equilibrium voltage	3.5-3.575V
Interior resistance	Equilibrium current	30mA
	PCM	≦ 30m Ω
Temperature	Working temperature	-20-60℃
	Storage temperature	-40-65℃

8.2 Battery charge-discharge curve



8.3 External Dimension Drawing





9. Guarantee Period of Quality

The warranty period of this product is 12 months.

10. Matters needing attention

Strictly observes the following needing attention. Data Power will not be responsible for any accident occurred by handling outside of the precautions in this specification.

! Danger

- Strictly prohibits heat or throw battery pack into fire.
- Strictly prohibits throw and wet battery pack in liquid such as water、 gasoline or drink etc.
- Strictly prohibits use leave battery pack close to fire or inside of a car where temperature may be above 60°C. Also do not charge / discharge in such conditions.
- Strictly prohibits put batteries in your pockets or a bag together with metal objects such as necklaces. Hairpins, coins, or screws. Do not store or transportation batteries with such objects.
- Strictly prohibits short circuit the (+) and (-) terminals with other metals.
- Do not place battery pack in a device with the (+) and (-) in the wrong way around.
- Strictly prohibits pierce battery pack with a sharp object such as a needle.
- Strictly prohibits disassemble or modify the battery pack.
- Strictly prohibits welding a battery pack directly.
- Do not use a battery pack with serious scar or deformation.
- Thoroughly read the user's manual before use, inaccurate handling of lithium ion rechargeable battery pack may cause leakage, heat, smoke, an explosion, or fire, capacity decreasing.

! Warning

- Strictly prohibits put battery pack into a micro ware oven, dryer, or high-pressure container.
- Strictly prohibits use battery pack with dry battery packs and other primary batteries, or new and old battery or batteries of a different package, type, or brand.
- Stop charging the battery pack if charging is not completed within the specified time.
- Stop using the battery pack if abnormal heat, odor, discoloration, deformation or abnormal condition is detected during use, charge, or storage.
- Keep away from fire immediately when leakage or foul odor is detected.
- If liquid leaks onto your skin or clothes, wash well with fresh water immediately.
- If liquid leaking from the battery pack gets into your eyes, do not rub your eyes. Wash them well with clean edible oil and go to see a doctor immediately.



! Caution

- Before using the battery pack, be sure to read the user's manual and cautions on handling thoroughly.
- Charging with specific charger according to product specification. Charge with CC/CV method. Strictly prohibits reversed charging. Connect battery pack reverse will not charge the battery pack. At the same time, it will reduce the charge-discharge characteristics and safety characteristics, this will lead to product heat and leakage.
- Store batteries out of reach of children so that they are not accidentally swallowed.
- If younger children use the battery pack, their guardians should explain the proper handling.
- Before using the battery pack, be sure to read the user's manual and cautions on handling thoroughly.
- Batteries have life cycles. If the time that the battery pack powers equipment becomes much shorter than usual, the battery pack life is at an end. Replace the battery pack with a new same one.
- When not using battery pack for an extended period, remove it from the equipment and store in a place with low humidity and low temperature.
- While the battery pack is charged, used and stored, keep it away from objects or materials with static electric charges.
- If the terminals of the battery pack become dirty, wipe with a dry cloth before using the battery pack.

11. Statement

If our specifications material, product process or product control system has changed, the information will be transmitted to consumer by way of written with quality and reliability data.