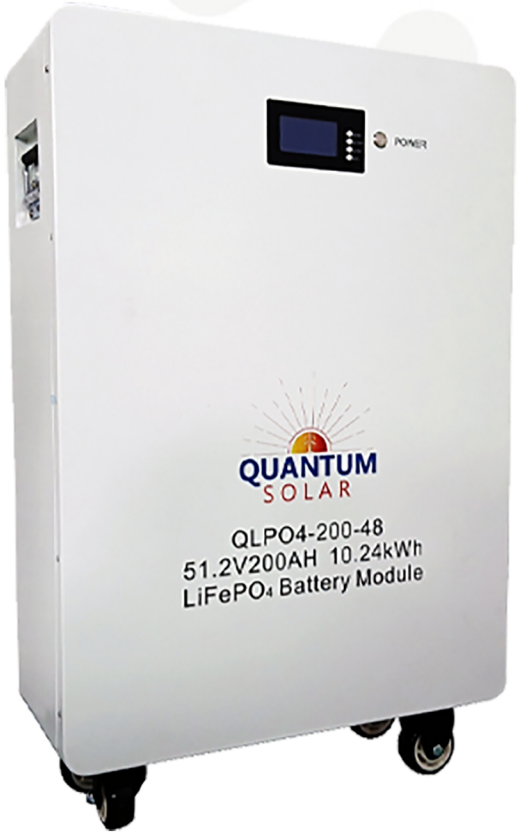
QUANTUM SOLAR

QLPO4-200-48®
200AH - 51.2V

HIGH TECHNICAL PREFORMANCE

HIGH EFFICIENCY

6000 CYCLE



BELONGS TO NATURE

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1- Normal Parameters

No.	Item for Battery System		General Parameter	Remark
1	Model No#		PW-200-48	
2	Nominal Voltage		51.2 V	
3	Standard capacity for battery system		200.0 Ah	
4	Energy		10,240.0 Wh	
5	Cycle Life		≥4,000 cycles @100% DOD	RSOC 80%
6	Designed lifespan		⩾6,000 cycles	RSOC 10%
7	Period of Warranty		5 years	
8	Short Circuit Protection		Yes	
9	Size	Length	915 mm	
		Width	542 mm	
		Height	162 mm	
10	Limited Charge Voltage		58.4 ±0.1V	
11	Floating Charge Voltage		55.2 ±0.1V	
12	Standard Charging Method		Constant current 0.1C, Constant voltage 58.4V, 0.01C cut-off	CC/CV
13	Max. Charge Current		50.0 A	
14	Cut-off Voltage		41.6 V	
15	Max Continuous Discharge Current		100.0 A	
16	Operating Temperature	Charge	0～55℃, 45~85%RH	
		Discharge	-20～55℃, 45~85%RH	
17	Weight		Approx. 91.5 Kg	
18	Full voltage difference of battery pack (10 minutes of static test with full charge)		≤20mV	Standard charging
19	IP grate		IP 55	

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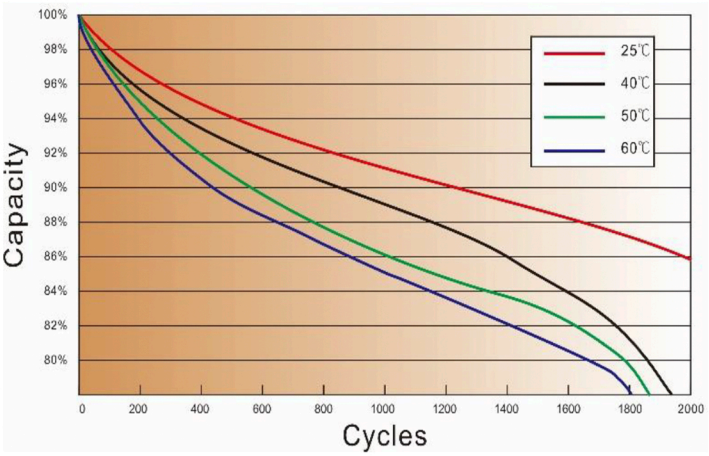
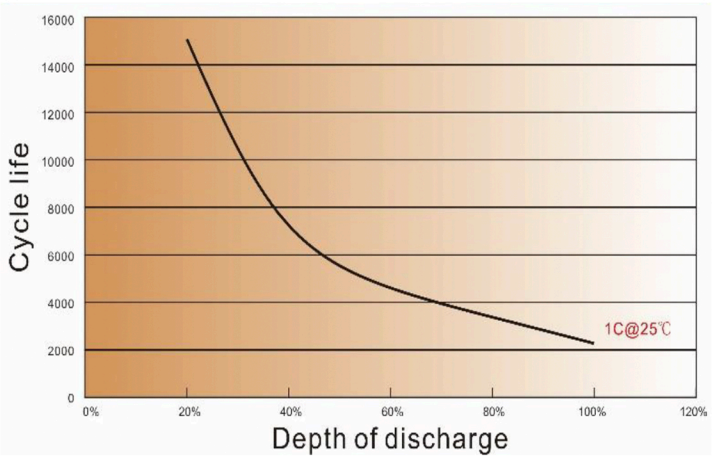
2. Battery Standard Performance Summary Chart

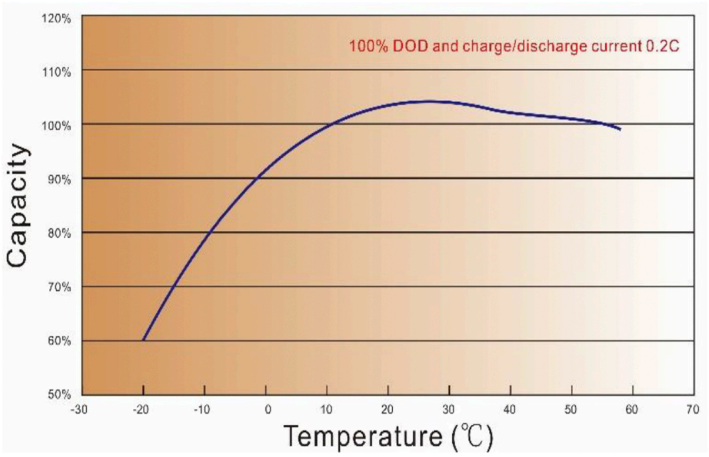
100% DOD Cycle Curves at Different Temperature



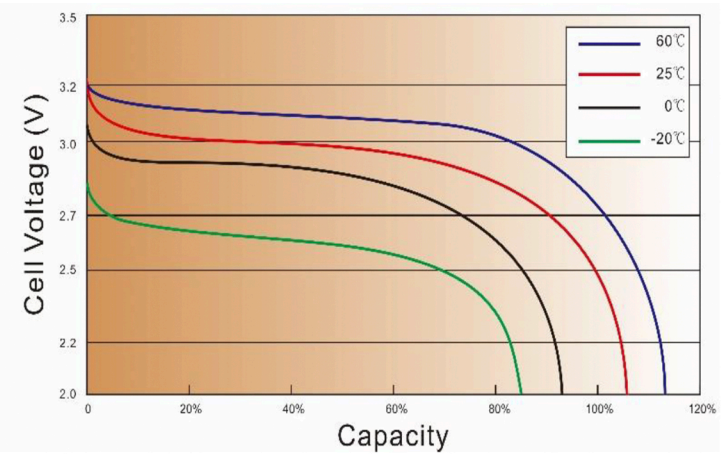
Depth Of Discharge In Relation To Cycle Life



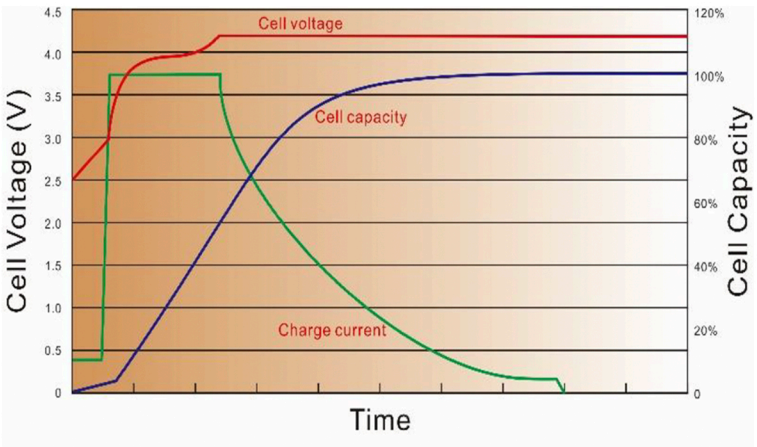
Temperature Effect In Relation To Battery Capacity



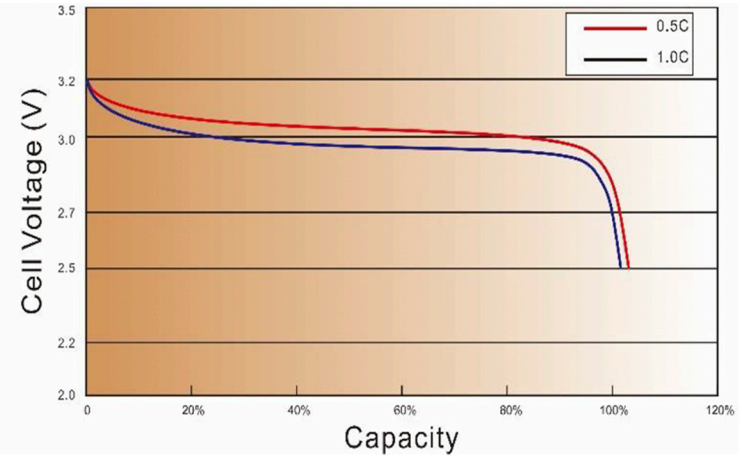
Discharge Curve At Different Temperature (1C)



Charging Curve



Discharge Capacity In Relation To Discharge Voltage



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3- Cell Electrochemistry Characteristics Test

3- 1.Electrochemistry Characteristics

No.	Item	Feature	Measurement
1	Discharge performance under normal temperature	Discharge capacity /standard capacity×100% (A)0.2C ⩾100% (B)0.5C ⩾90%	(A) After standard charging, laying the battery 0.5~1.0h, then discharging at 0.2C to ending voltage, recording the discharging time. (B) After standard charging, rest 5 minutes, then 0.5C discharge to ending voltage.
2	Storage charge under room temperature	Resting capacity ≥ Standard capacity *80%	After standard charged, on-hold for 28 days, discharged with 0.2C to ending voltage, then measure the residual capacity of battery, and examine the recover capacity with 0.2C/0.2C.
3	Testing for cycle life	Capacity≥ Standard capacity *80%	After charged with 0.1C current, then discharged with 0.2C to ending voltage. On-hold for 10mins, hence as above testing features are to cycle for 1000 times.
4	Storage performance	On-hold for 1 month. Capacity⩾92%	After standard charged, under 25°C±5°C, on-hold for 1 month, then discharged with 0.2C to ending voltage, and measure residual capacity of battery.

3-2. Environmental Characteristics

No.	Item	Feature	Measurement
1	Discharge at high temperature	≥100min	After standard charging, laying the battery 2h at 55±2°C, then discharging at 0.2C to ending voltage, recording the discharging time.
2	Discharge at low temperature	≥180min	After standard charging, laying the battery 16h at -10±2°C, then discharging at 0.2C to ending voltage, recording the discharging time.

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3-3. Safe performance

No.	Item	Feature	Measurement
1	Over-charge performance	No fire, No exploding, No smoking obtained	After standard charge, the battery shall be charged at 0.1C, 58.4V for 8.0hour.
2	Over-discharge performance	No fire, No exploding, No smoking obtained	After discharged to the cut-off voltage, the battery shall be subjected to a short-circuit condition with a load of resistance less than 30Ω for 24 hour.
3	Short-circuit performance under room temperature	No fire, No exploding, No smoking obtained	After standard charged, put the cell/battery into the explosion-proof with glass cover to short the positive and the negative for the battery (the total impedance is less than 100mΩ) for1 hour

4. Protection Circuit

4.1 Electrical Characteristics

No.	Parameter	Specifications	Criterion
1	Over Charge Protection	Protect voltage	3.75V±25mV /cell
		renew voltage	3.65V±25mV /cell
2	Over Discharge Protection	Protect voltage	2.2V±50mV /cell
		Renew voltage	2.5V±0.1V /cell
		Protect last time	600mS±100mS(Max)
3	Over Current Protection	Protect current	MIN: 100A,MAX: 125A
		Protect last time	130mS
		Max continuous discharge current	100.0 A
		Protect release voltage	Switch short circuit
4	Short Circuit Protection	Protect condition	Exterior short circuit
		Protect last time	200-400μS（MAX）
		Protect relieve condition	Switch off short circuit
5	Supply Current	Inner circuit consumption	≤80μA
6	Internal Resistance in normal Operation	Main loop electrify resistance	B-P- RDS≤40mΩ

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5. Storage:

Item		Criteria
Storage Temperature	Short period less than 1 month	-10~45℃
	Long period less than 3 month	-10~35℃
	Long period more than 3 month	0~30℃
Relative Humidity		≤75%RH
Charged		About 40%~60% charged state

The batteries should be stored at room temperature, charged to about 30%~50% of capacity. We recommend that batteries be charged about once per 1 month to prevent over discharge.

6. Warning!!!

1. Never throw the battery into water, keep it under dry, shady and cool circumstance when not use.
2. Never keep the battery beside high temperature source examples: fire, heating machine and etc.
3. Never throw the battery into fire or heating machine.
4. Never connect the positive and negative of battery with metal.
5. Never ship or store the battery together with metal
6. Never knock, throw or trample the battery.

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