



51.2V300Ah Product Development Technology Agreement

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1、Reference technical documents for battery system design

- GB/T 191 GB/T 191 Packaging, Storage and Transportation Symbols
- GB/T 2408-2008 Determination of Burning Behavior of Plastics by Horizontal and Vertical Methods
- GB/T 2829-2002 Periodic inspection counting sampling procedure and table (applicable to the inspection and check of process stability)
- GB/T 17626.2-2018 Electromagnetic compatibility testing and measurement techniques - Electrostatic discharge immunity test
- GB/T 17626.5-2019 Electromagnetic compatibility testing and measurement techniques - Surge (impact) immunity test
- GB/T 20626.1-2006 Special environmental conditions for high-altitude electrical and electronic products Part 1: General technical requirements GB 50689-2011 Code for design of lightning protection and grounding engineering for communication stations
- YD/T 983 Electromagnetic compatibility limits and measurement methods for communication power equipment
- YD/T 1051-2018 General technical requirements for power supply system of communication bureau (station)
- YD/T 1363.3-2014 Communication Bureau (Station) Power, Air Conditioning, and Environment Centralized Monitoring and Management System Part 3: Front end Intelligent Device Protocol
- YD/T 5040-2010 Design Specification for Installation of Communication Power Equipment Engineering

2、Supply List

	Name	Unit	Quantity	Price
1	51.2V300Ah lithium battery	pcs	1	1450 USD

3、Requirements for the use of battery systems

- External environmental temperature requirements for battery system operation: charging and discharging: $-20\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$;
- External humidity requirements for battery system operation: $10\% \leq \text{humidity} \leq 90\% \text{ RH}$;
- Try to maintain a SOC of at least 20% during the operation of the battery system;
- When the battery system is not in use for a short period of time, it is required to maintain a SOC of over 60% and store it in a dry, clean, and well ventilated warehouse at $5\text{ }^{\circ}\text{C}$ to $45\text{ }^{\circ}\text{C}$.

5. During the process of battery packaging and loading, it is required to handle with care and strictly prevent throwing, rolling, and impact;
6. Do not invert or lie down in storage state; It is strictly prohibited to expose the battery pack to prolonged exposure to sunlight, rain, or water;
7. Ensure that the battery system is kept away from flammable and explosive materials, as well as high-temperature environments, during operation or storage;
8. It is strictly prohibited to forcibly operate the battery system under short-circuit, overcharge, and high temperature alarm conditions;
9. Customers are strictly prohibited from disassembling the battery system without permission;

4 、 Battery paramete

Order	project	index	notes
Battery system parameters			
1	rated voltage	51.2V	16 strings
2	Voltage range of battery pack	40 ~ 58.4V	Single cell 2.5V-3.65V
3	rated capacity	300Ah	
4	Total energy	15.36KWh	
5	SOC range	20%-100%	
6	Charge and discharge capacity efficiency	≥95%	
7	Maximum continuous charging current (A)	100	
8	Overcurrent protection (A)	205	
9	Maximum continuous discharge current (A)	200	
10	total weight	187KG	
11	Ambient relative humidity	10%-90%	
12	Water and dust protection standards	IP55	
13	Temperature of charging and discharging environment for battery system	-20℃ -60℃	
14	battery Size	1020*550*435mm	

5、 Battery pack structure



Schematic diagram of battery pack appearance

6、 Specification parameters of protective board

- 1、 Protection board model: Lithium iron -16 string -200A
- 2、 Electrical parameters (room temperature 25 °C, humidity 55%)

Function name	Effective functionality	Item List	Default value
Individual voltage alarm	Enabled	Overvoltage alarm voltage	3600mV
	Enabled	Under voltage alarm voltage	2500mV
Single unit overvoltage protection	Enabled	Overvoltage protection voltage	3650mV
		Overvoltage protection delay	1S
		Overvoltage protection restores power	3600mV
Individual undervoltage protection	Enabled	Undervoltage protection voltage	2500mV
		Undervoltage protection delay	1S
		Under voltage protection restores power	2900mV
Overall voltage alarm	Enabled	Overvoltage alarm voltage	57.0V
	Enabled	Under voltage alarm voltage	43.2 V
Overall overvoltage protection	Enabled	Overvoltage protection voltage	57.6V
		Overvoltage protection delay	1S
		Overvoltage protection restores voltage	55.6V
Battery undervoltage protection	Enabled	Undervoltage protection voltage	43.2V
		Undervoltage protection delay	1S
		Under voltage protection restores power	51.2V
Cell temperature protection	Enabled	Charging high temperature protection	50°C
		Charging low temperature alarm	5°C
		Discharge high temperature protection	50°C
		Low temperature discharge alarm	0°C
Cell temperature prohibited charging	Enabled	Charging high temperature protection	65°C
		Charging high temperature recovery	50°C
		Low temperature protection for charging	0°C
		Low temperature charging recovery	5°C
Cell temperature prohibition	Enabled	Discharge high temperature protection	65°C
		High temperature discharge recovery	50°C
		Low temperature protection for discharge	-10°C

Environmental temperature alarm	Enabled	Environmental high temperature alarm	50°C
		Environmental low temperature alarm	0°C
MOS high temperature alarm	Enabled	MOS high temperature alarm	100°C
Charging overcurrent alarm	Enabled	Charging alarm current	100A
Charging overcurrent protection	Enabled	Charging protection current	105A
		Charging overcurrent delay	4S
Discharge overcurrent alarm	Enabled	Discharge alarm overcurrent	195A
Discharge overcurrent protection	Enabled	Discharge protection current	205A
		Discharge overcurrent delay	5S
Secondary discharge overcurrent protection	Enabled	Secondary protection current	250A
		Secondary overcurrent delay	500mS
Short Circuit Protection	Enabled	Short circuit protection current	330A
		Short circuit protection delay	500uS
		Short circuit protection released	Charging release, charging current \geq
Automatic recovery of discharge overcurrent	Automatic recovery delay		15mins
Cell balancing function	Enabled	Battery cell charging balance	Opening condition: Status of effective charging current
		Balanced turn-on voltage	3500mV
		Balanced opening pressure difference	20mV
Battery capacity setting	Rated capacity of battery		200Ah
	Enabled	Low battery warning	SOC alarm 1 is 30% (configurable) alarm 2 is 15% (non
Manual button settings	Power on	BMS is in sleep mode, press button 1S to power on	
	Shutdown	BMS is in non charging state, press button 3S to power on	
BMS power management	sleep time	1440Min (no communication, no charging and discharging current)	

7、 Technical support and guarantee service content

1. The second party shall provide corresponding technical guidance for use and installation.
2. After this agreement comes into effect, if Party A plans to make any modifications to the components specified in the agreement, Party A shall promptly notify Party B. If the above modifications involve corresponding changes to the tooling or molds of Party B, Party B shall meet the requirements of Party A within its capabilities based on the rationality of the modification requirements; If Party B plans to make any modifications to the components specified in the agreement (which do not involve Party B's own technical upgrades), Party B shall promptly notify Party A; If the modification of components by both parties involves the content of the technical agreement, a new technical agreement needs to be signed.
3. The first party shall strictly follow the requirements of the "Product User Manual" provided by the second party to use the battery system assembly, ensuring that the working environment of the battery pack meets the requirements of battery operation, For battery pack failures caused by violations of the Product User Manual and technical agreements, Party A shall bear the responsibility for repair and related expenses; If the complete battery system provided by Party B malfunctions due to issues with the battery pack during the warranty period, Party B shall be responsible for repairing or replacing it; This technical agreement specifies the working environment temperature in the battery system parameters. If Party A fails to use the battery system within the specified temperature range, resulting in problems and malfunctions, any losses and impacts caused shall be borne by Party A.
4. In case of any discrepancy between the technical agreement and the Product Manual, the technical agreement shall prevail;