



Product Specifications

PowerBase Uranus 40/80/120

High C-Rate LiFePO4 Battery System for UPS

Version	Prepare	Check	Approve	Date
V1.0				2020-04-10
V2.0	CJW			2020-04-10



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1. Introduction

The PowerBase Uranus series product is a high-voltage lithium iron phosphate battery storage system independently developed in-house by GARAYE Energy Technology (Shenzhen) Co., Ltd. The product is in combination with data center application scenarios, the rated voltage of the system is 512Vdc or $\pm 250V$, and the maximum support continuous discharge current is 200A and 400A, which meets the requirements of 50kVA-200kVA power supply. Parallel of multi systems is supported. It's an idea solution for power backup scenarios such as large data centers, IDC equipment rooms, enterprise data centers, disaster recovery backup centers, etc.

2. Features

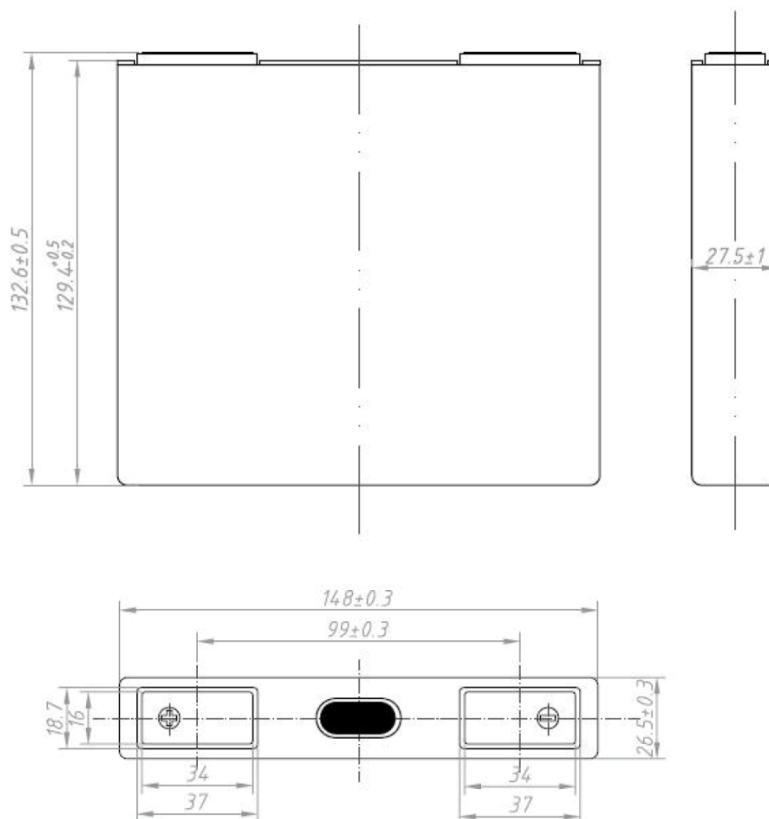
- Adopt high safety, long life, excellent performance LiFePO4 prismatic cells;
- Support up to 6C continuous discharge;
- Over 3500 times of cycle life;
- Intelligent BMS to ensure a safe reliable operation;
- Parallel on cabinet level available;
- Multiple communications including RS485, CAN, SNMP;
- Modular rack design for easier installation and smaller landscape.





3. Specifications

3.1. Cell Parameters



No.	Items	Parameters	
1	Cell Type	LiFePO4 Prismatic	
2	Cell Model	LP27148134	
3	Nominal Capacity	40Ah	
4	Nominal Voltage	3.2V	
5	Maximum Charge Current	Continuous	240A
		Peak for 30s	400A
6	Maximum Discharge Current	Continuous	240A
		Peak for 30s	400A
7	Temperature Range	Charging	0°C ~ 55°C
		Discharging	-20°C~60°C
		Recommended Working	15°C ~ 35°C
10	Weight	1050±30g	



3.2. Battery Module Parameters



No.	Items	Parameters		
1	Model	GR-FE48040-1630R1	GR-FE48080-1630R1	GR-FE48120-1630R1
2	Cell Type	LP27148134		
3	Cell Configuration	16S1P	16S2P	16S3P
4	Nominal Capacity	40Ah	80Ah	120Ah
5	Nominal Energy	2048Wh	4096Wh	6144Wh
6	Weight (Approx.)	27kg	45kg	65kg
7	Dimensions (W*D*H)	440*380*154 mm	440*610*154 mm	440*740*154 mm

3.3. Main Control Module Parameters



+512V application



$\pm 250V$ application



No.	Items		Parameters
1	Model		GR-MIN-R0
2	Operation Voltage Range		400Vdc – 600Vdc
3	Maximum Operation Current		≤400A
4	Communication	COM	CAN communication, Battery Module Parallel, BMS power supply
		CAN1, CAN2	Cabinet Parallel, Monitoring Devices, PCS communications
		NET	SNMP, Internet Access
5	Weight		1050±30g

3.4. System Parameters





3.4.1. General Specifications

No.	Items		Parameters		
1	Model		PowerBase Uranus 40	PowerBase Uranus 80	PowerBase Uranus 120
2	Main Control Module		ZR-MIN-R0		
3	Battery Module Type		GR-FE48040-1630R1	GR-FE48040-1630R1	GR-FE48040-1630R1
4	Module Configuration		10S1P		
5	Nominal Capacity		40Ah	80Ah	120Ah
6	Nominal Energy		20.48kWh	40.96kWh	61.44kWh
7	Chemistry		LiFePO4		
8	Voltage	Nominal	512V&±250V		
		Recommend Charging	568V		
		Max. Charging	584V		
		Discharge Cut-off	480V		
9	Current	Max. Charging	40A	80A	120A
		Max. Discharging	200A	400A	400A
10	Weight (Approx.)		470kg	650kg	850kg
11	Dimensions (W*D*H)		600*870*2000 mm		
12	Communication		RS485, CAN, SNMP		
13	Cycle Life		≥3500 times		
14	Designed Calendar Life		≥10 years		
15	Safety Function		Over-charge, Over-discharge, Over-current, Low/High-temperature, Low-voltage, Short-circuit Protections		
16	Parallel Capability		Maximum 10 units (Recommended 6 units)		
17	Cable Outlet		Top-back		

3.4.2. Environment Specifications

No.	Items	Parameters
1	Charging Temperature Range	0°C ~ 45°C
2	Discharging Temperature Range	-10°C ~ 55°C
3	Best Operating Temperature Range	15°C ~ 35°C
4	Storage Temperature Range	0°C ~ 45°C
5	Transport Temperature	-40°C ~ 45°C
6	Humidity	5%RH ~ 95%RH
7	Altitude	0 ~ 4000m

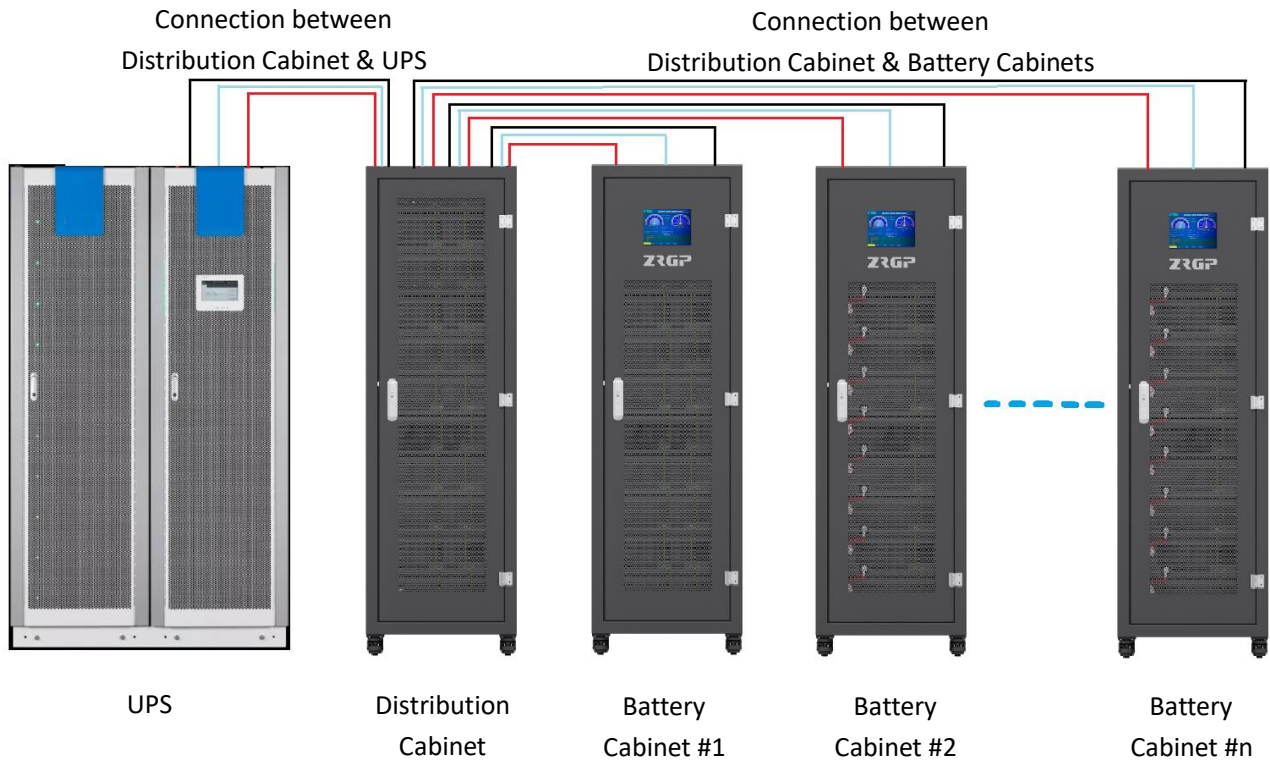
4. Capacity/Power Expansion Applications

Used in combination with UPS, the battery cabinet can be parallel to achieve capacity expansion and power expansion. After parallel connection, the parameter reference is as follows:

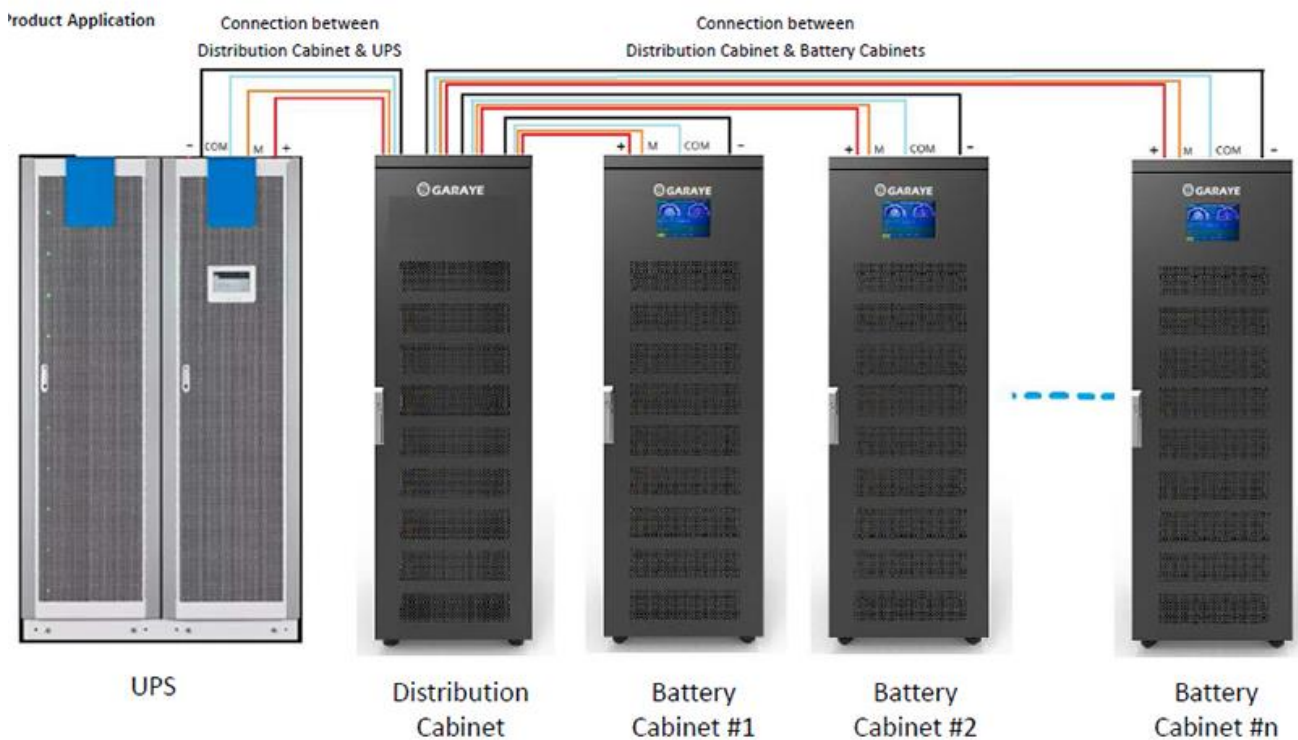
Model	PowerBase Uranus 40		PowerBase Uranus 80		PowerBase Uranus 120	
	Output Power	Capacity	Output Power	Capacity	Output Power	Capacity
Single Cabinet	100kVA	20.48 kWh	200kVA	40.96 kWh	200kVA	61.44 kWh



2 in Parallel	150kVA	40.96 kWh	300kVA	81.92 kWh	300kVA	122.88 kWh
3 in Parallel	225kVA	61.44 kWh	450kVA	122.88 kWh	450kVA	184.32 kWh
4 in Parallel	300kVA	81.92 kWh	600kVA	163.84 kWh	600kVA	245.76 kWh

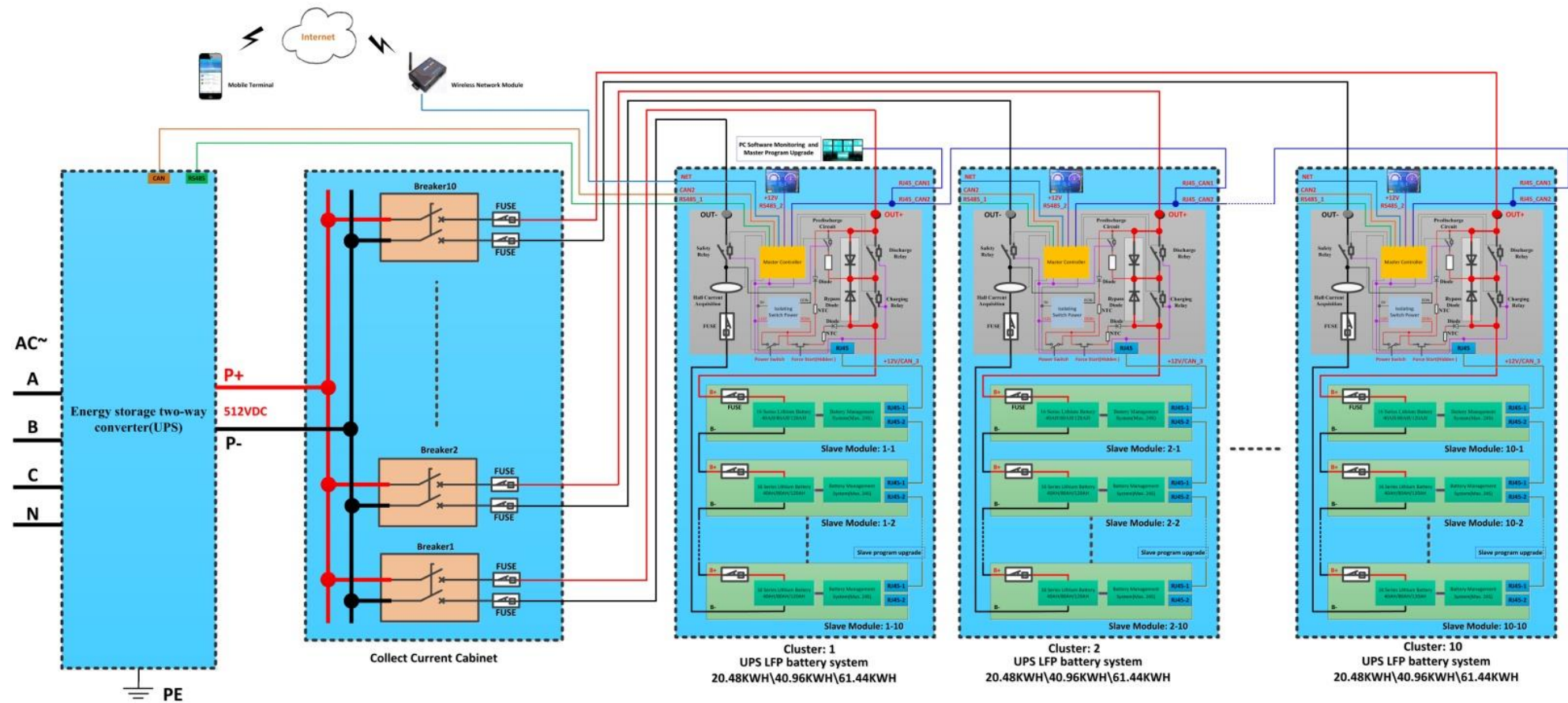


512V 并机拓扑图





5. Electrical Schematic



Schematic Diagram of HVDC UPS Application(Uranus Family)

Battery cluster parameters:
Battery type: lithium iron phosphate battery
Batteries: 3.2V/40AH
Batteries module: 512V/40AH or 512V/80AH or 512V/120AH
Battery cluster: 512V/40AH or 512V/80AH or 512V/120AH
Cluster energy: 20.48KWH or 40.96KWH or 61.44KWH
Single voltage range: 3.0V~3.55V
Cluster voltage range: 480VDC~568VDC
Cluster rated voltage: 512V

System parameters:
Energy storage energy: 204.8KWH or 409.6KWH or 614.4KWH
Discharge power: Maximum support 200KW
Parallel: The total voltage of each cluster must be close to the same to allow parallel connection.

