



# Product Solution

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Customer :

Battery model name: AT204005028-22

Applicable Products:

Doc.No: Spec-Pack-3327

## Customer approval

Comment :

Customer's signature/ Date : \_\_\_\_\_

Approved	Checked	Prepared





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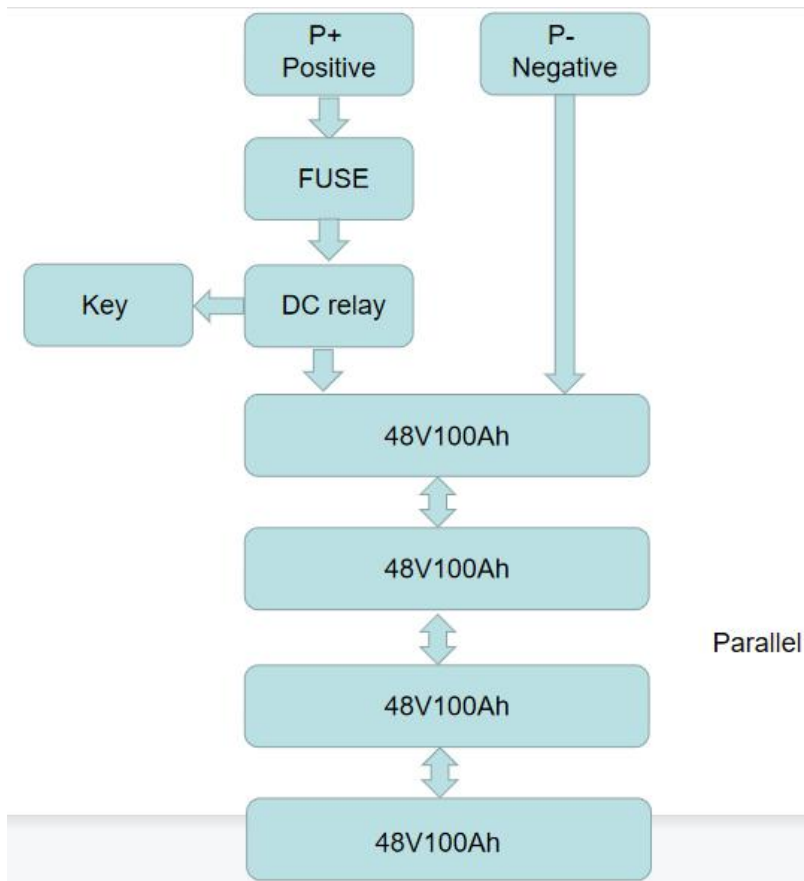
## 1. Scope :

This specification is applicable to rechargeable battery pack products designed and developed by Atlas company.

## 2. Product Circuit Principle:

The U-P48400-2W-3 product management system consists of four separate units connected in parallel.

The control circuit principle is shown in Figure:





### 3. Normal performance:

#### 3.1 The machine parameters

Package	NO.	Item	General Parameter		Remark
	1	Combination method	15S4P		LiFePO4
	2	Rated Capacity	Typical	400Ah	0.2C,@25°C
			Minimum	390Ah	
	3	Nominal Voltage	48V		
	4	Factory SOC	30~60%		
	5	Voltage at end of Discharge	42V		Discharge Cut-off Voltage
	6	Charging mode (CC-CV)	MAX 54.75V		
	7	Rated reserved energy	19.2KWh		
	8	Standard charge current	80A		Charge time : Approx 6h
		Limiting current	80A		Separate module 20A
	9	Standard discharge	80A		
10	Maximum Charge Current	400A			
11	Maximum Discharge Current	400A			
12	Operation Temperature Range	Charge: 0~55°C Discharge: -20~60°C		Bare Cell 60±25%R.H.	



13	Storage Temperature Range	Less than 12 months : -10~35°C less than 3 months: -10~45°C Less than 7 day : -20~65°C	60±25%R.H. at the shipment state
14	Dimensions	/	
15	Weight	160Kg	Total weight of 4pcs module, excluding cabinet
16	Communication mode	RS485/CAN	

### 3.2 48V100AH Battery Module Parameters

Package	NO.	Item	General Parameter		Remark
	1	Combination method	15S1P		LiFePO4
	2	Rated Capacity	Typical	100Ah	0.2C,@25°C
			Minimum	98Ah	
	3	Nominal Voltage	48V		
	4	Voltage at end of Discharge	42V		Discharge Cut-off Voltage
	5	Internal Impedance	≤40mΩ		Internal resistance measured at AC 1KHz after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times
	6	Standard charge current	20A		Charge time : Approx 6h
Limiting current		20A		Software on	



7	Standard discharge	20A	
8	Maximum Charge Current	100A	
9	Maximum Discharge Current	100A	
10	Operation Temperature Range	Charge: 0~55°C Discharge: -20~60°C	Bare Cell 60±25%R.H.
11	Storage Temperature Range	Less than 12 months : -10~35°C (小于12月: -10~35°C) less than 3 months: -10~45°C (小于3个月: -10~45°C) Less than 7 day : -20~65°C (小于7天: -20~65°C)	60±25%R.H. at the shipment state
12	Dimensions	D450*W442*H130	
13	Weight	40Kg	
14	Communication mode	RS485/CAN	



### 3.3 BMS Main Technical Parameters

NO	Indicator item		Windows default	Optional	Remarks
1	Cell overcharge protection	Cell overcharge alarm voltage	3600mV	Optional	
		Cell overcharge protection voltage	3650mV	Optional	
		Cell overcharge protection delay	4S	Optional	
	Removal of Cell over voltage protection	Cell overcharge protection Relief voltage	3380mV	Optional	
		Capacity Relieve	SOC < 96%	Optional	
		Discharge release	Discharge current > 1A		
2	Cell over discharge protection	Cell over discharge alarm voltage	2900mV	Optional	Over discharge protection for 30 seconds After that, it is still unable to recover When it comes back, it will enter Low power mode
		Cell over discharge protection voltage	2800mV	Optional	
		Over discharge protection delayarge protection delay	1S	Optional	
	Release of Cell over discharge protection	Cell over discharge protection Relief voltage	3000mV	Optional	
		Discharge of charge	The access charger may be activated.		
3	Overall overcharge protection	Overall overcharge alarm voltage	54V	Optional	
		Overall overcharge protection voltage	54.75V	Optional	
		Overall over-charge protection delay	4S	Optional	
	Overall over voltage protection lifted	Overall over-charge protection release voltage	50.6V	Optional	
		Capacity Relieve	SOC < 96%	Optional	
		Discharge release	Discharge current > 1A		
4	Overall over discharge protection Protection	Overall over amplifier alarm voltage	43.5V	Optional	
		Overall over discharge protection voltage	42V	Optional	
		Overall overplay protection delay	1S	Optional	
	Over discharge protection is lifted.	Overall over discharge protection Relief voltage	45V	Optional	





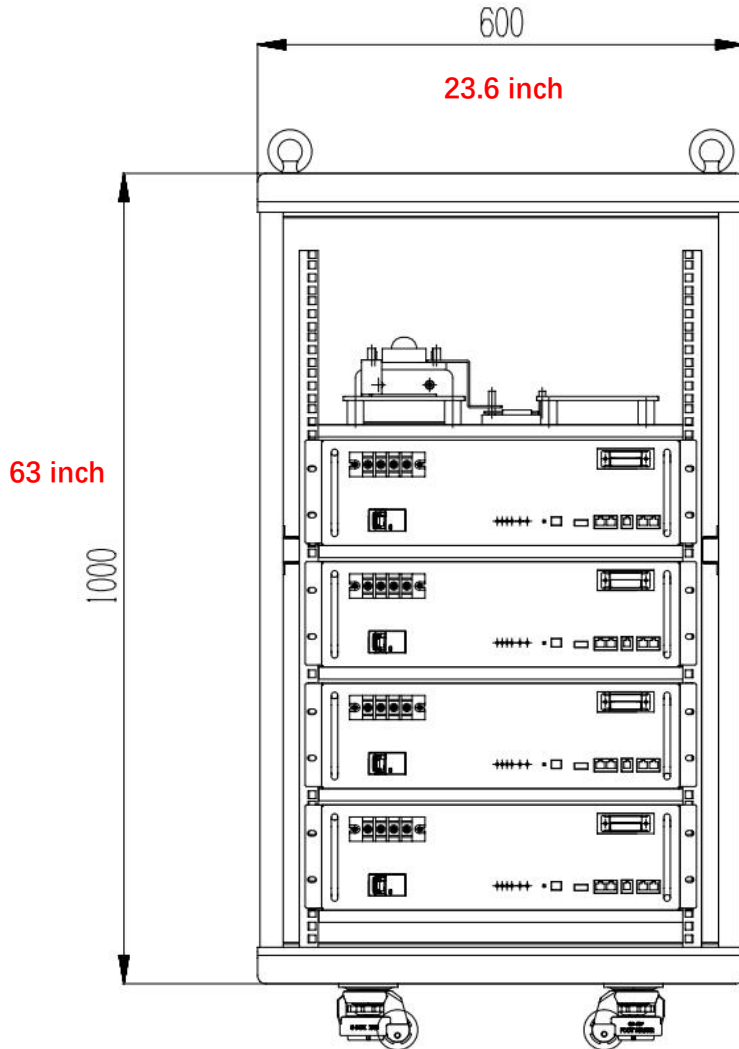
		When there is a charge, it is unloaded.	Access charger can be activated		
5	Charging current limiting function	Charging current limiting current	20A		Current limit opening can be set and maximum opening Current value 100A
6	Charging over current protection	Charging over current alarm current	105A	可设 Optional	If it appears 10 times in a row, the state will be locked and will not be released automatically
		Charging over current protection current	110A	可设 Optional	
		Charging over current protection delay	1S	可设 Optional	
	Discharge of charging over current protection	Automatic release	Automatic release after 1min		
Discharge release		Discharge current > 1A			
7	Discharge over current level 1 protection	Discharge overcurrent level 1 alarm current	105A	Optional	If it appears 10 times in a row, the state will be locked and will not be released automatically
		Discharge over current level 1 protection current	110A	Optional	
		Discharge over current level 1 protection delay	1S	Optional	
	Discharge over current level 1 protection release	Automatic release	Automatic release after 1min		
		Charge release	Charging current > 1A		
8	Discharge over current level 2 protection	Discharge over current level 2 protection current	$\geq 150A$	Optional	If it appears 10 times in a row, the state will be locked and will not be released automatically
		Discharge over current level 2 protection delay	100mS	Optional	
	Discharge over current level 2 protection release	Automatic release	Automatic release after 1min		
		Charge release	Charging current > 1A		
9	Short-circuit protection	Short circuit protection current	$\geq 350A$		
		Short circuit protection delay	$\leq 300\mu S$		
		Short circuit protection released	When there is charging, the short circuit protection is removed		
			When the load is removed, it is automatically unloaded		
10	MOS high temperature protection	MOS over-temperature alarm temperature	90°C	Optional	
		MOS over temperature protection temperature	115°C	Optional	
		MOS protection release temperature	85°C	Optional	
11	Cell temperature protection	Charging low temperature alarm temperature	5°C	Optional	
		Charging low temperature protection temperature	0°C	Optional	



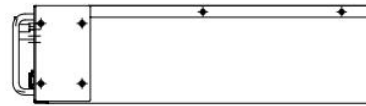
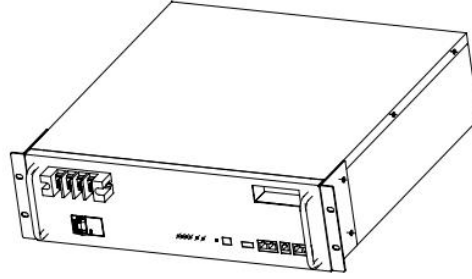
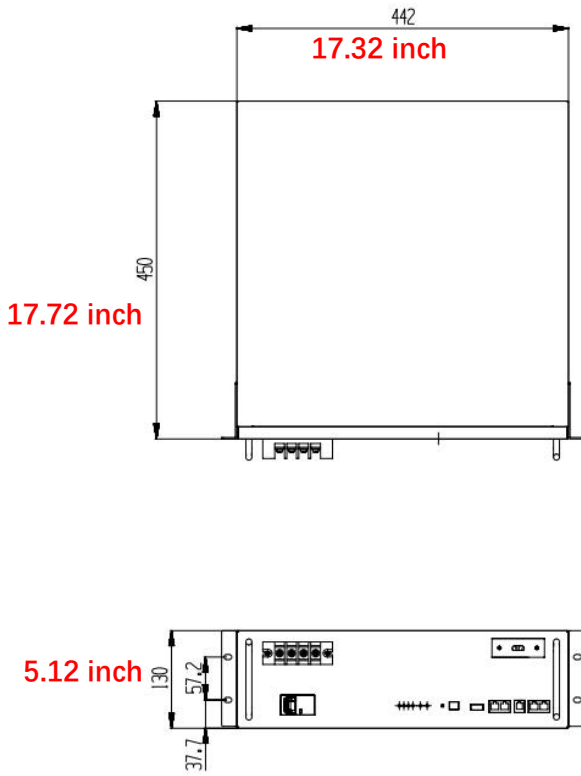
		Charging low temperature protection release temperature	5°C	Optional	
		Charging high temperature alarm temperature	50°C	Optional	
		Charging high temperature protection temperature	55°C	Optional	
		Charging high temperature protection release temperature	45°C	Optional	
		Discharge low temperature alarm temperature	-15°C	Optional	
		Discharge low temperature protection temperature	-20°C	Optional	
		Discharge low temperature protection release temperature	-15°C	Optional	
		Discharge high temperature alarm temperature	55°C	Optional	
		Discharge high temperature protection temperature	60°C	Optional	
		Discharge high temperature protection release temperature	50°C	Optional	
12	Ambient temperature	Ambient low temperature alarm temperature	-15°C	Optional	
		Environmental low temperature protection temperature	-20°C	Optional	
		Environmental low temperature protection release temperature	-15°C	Optional	
		Ambient high temperature alarm temperature	55°C	Optional	
		Environmental high temperature protection temperature	75°C	Optional	
		Environmental high temperature protection release temperature	55°C	Optional	
13	Consumed current	Working self-consumption current	≤45mA (with LCD)		
			≤40mA (without LCD)		
		Low power mode current	≤100μA		
14	Equilibrium function	Balanced opening voltage	3450mV	Optional	
		Open pressure difference	30mV	Optional	
15	Low power alarm	Low power alarm threshold	SOC < 5%	Optional	No alarm during charging
16	Dormancy function	Dormancy voltage	3150mV	Optional	
		Delay time	5min	Optional	
17	Cell failure protection	Unit pressure difference	Low power alarm threshold	NO	Charging and discharging are not allowed
18	Full charge judgment	Full charge voltage	> 52.5V	Optional	At the same time, stop charging and update SOC to 100%
		Cut off current	< 2A	Optional	

#### 4. Product dimension drawing:

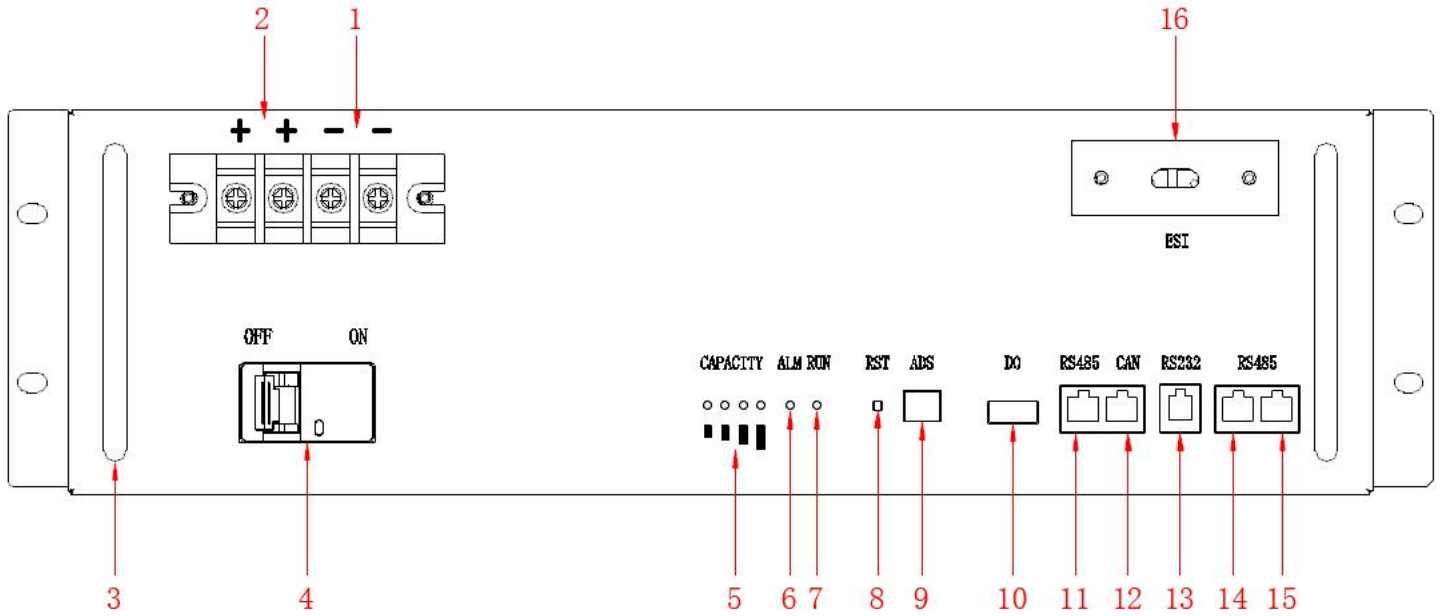
4.1 Overall dimensions (for reference only):



4.2 Model dimensions:



Description of single battery interface





NO.	Description	Function description
1	Battery-	Negative terminal
2	Battery+	Positive terminal
3	Handle	handling
4	MCB	Output ON/OFF
5	Electricity volume indicator	Display the battery's capacity(Four lights)
6	ALM	Alarm and protection
7	RUN	work
8	Reset key	On/OFF button
9	ADS Dialer	Display connection address
10	Dry contact	1/2 Normally open, closed during fault protection 3/4 Normally open, closed when a low battery alarm signal has occurred
11	RS485	RS485 communication interface
12	CAN	CAN communication interface
13	RS232	RS232 communication interface (for battery condition monitoring)
14	RS485	RS485 communication interface (Used in communication parallel,and for battery condition monitoring or manufacturer to debug or service)
15	RS485	RS485 communication interface (Used in communication parallel,and for battery condition monitoring or manufacturer to debug or service)
16	External interface	Expand Bluetooth / WiFi / GSM functions

## 5. Instructions

- 5.1. Please read the product manual and battery surface label carefully before use.
- 5.2. The battery pack shall be stored at room temperature and charged to 40% - 60% of the electricity.  
In order to prevent over discharge, it is recommended to charge every 3 months.
- 5.3. The battery pack shall be used under the specified conditions, and the performance of the battery stored for more than one year is not guaranteed.
- 5.4. During use, keep away from heat source and high voltage, avoid children playing with the battery, and do not beat the battery.

## 6. Disclaimers:

Please read the product specification, operation manual and precautions carefully before use. Understand the use method and application scope of the product; if the product use method is wrong, the circuit connection is wrong or the input power supply is used, and the load function parameters are inconsistent with the performance parameters indicated in the product specification, it is improper use. The product, load and peripheral connectors are damaged due to improper use. The company does not assume any responsibility.

Any matters not mentioned in this specification shall be determined by both parties through negotiation.