



PRODUCT SPECIFICATION
产品规格书

DOCNO: PS-GB-519110001013 -01

REV. : V1.4

SHEET : 1 of 18

ECN NO:

Product Specification Confirmation Sheet

of

Dongguan POWERAMP Technology Limited

(“POWERAMP”)

产品规格书

东莞新能安科技有限公司 (“POWERAMP”)

POWERAMP Product Part Number/POWERAMP产品代码:

519110001013

PACK Configuration/PACK 结构: 2 Parallel 16 Series (2P16S)

Prepared by PD	Approved by TPM	Approved by PD	Approved by QA
CL/GH	Gladys	LC	ZXX

Customer Confirmation	Authorized Signatory		Date
	Signature <i>Brian Kuhn</i>	Print Name Brian Kuhn	6/8/2021
	Company Name Of Customer: Sunpower		
	Company Stamp Of Customer:		

Confidential : () Level 3 Private confidential () Level 2 High confidential (V) Level 1 Low confidential



PRODUCT SPECIFICATION 产品规格书

DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 3 of 18

目录

1 Applicable Scope/适用范围	4
2 Model Name/型号: SPWR-M0012	4
3 Standard Environmental Test Conditions/标准环境测试条件:	4
4 Product Appearance/产品外观.....	4
4.1 Ports and Terminals/端子/端口	5
4.2 Terminal Definition/端口定义	6
5 Detailed Specifications/详细规格.....	6
6. Battery bias consumption at different mode/电池包不同模式下待机时长.....	9
7 Warranty period/保质期	9
8 Labelling/PACK	10
9. LED Indication/LED 亮灯策略	10
10. Package, transportation and storage/包装、运输和存储	12
10.1 Package/包装	12
10.2 Transportation/运输.....	13
10.3 Storage/存储.....	14
11 Appendix Handling Precautions and Guidelines for PACK/附录: PACK 操作指示及注意 事项.....	15
12. Disclaimer/免责声明	17
13. Miscellaneous/其他.....	18

1 Applicable Scope/适用范围

The purpose of this product specification (“Document”) is to specify the specifications of the ESS PACK with POWERAMP Part Number: 519110001013 (“Product” or “PACK”) to be supplied by POWERAMP to Customer based on customer requirements. The PACK is compatible with Schneider Conext™ XW Pro/本规格书 (下称 “本文件”或 “本规格书”) 描述了POWERAMP依据客户需求定制的能量储存系统的产品技术指标，POWERAMP产品代码号：519110001013 (“产品” 或 “电池”)，该电池PACK 可以与Schneider Conext™ XW Pro逆变器相匹配。

2 Model Name/型号：SPWR-M0012

3 Standard Environmental Test Conditions/标准环境测试条件：

Unless otherwise specified, all tests stated in this Document are conducted at below conditions/除非特别指定，本规格书的测试遵循如下条件：

Temperature/温度: $25 \pm 3^{\circ}\text{C}$ (“Temperature Condition”/温度条件)

Humidity/湿度: 5%-95%RH (“Humidity Condition”/湿度条件)

Throughout this Document, numeric criteria annotated by “*” means such criteria are only applicable to fresh unused Product within 30 days from manufacture by POWERAMP. Products either have been used or stored for a period longer than 30 days by Customer and/or its customer may exhibit an inferior numeric parameter than such criteria. Customer agrees that such occurrence does not constitute nonconformance of specification/本规格书中，所有标有“*”的项目是指仅适用于“未使用的且从POWERAMP制造日起30天内的产品”。如果产品已被客户使用或存储时间超过30天，可能表现出低于标准规格，客户同意并接受产品不构成不符合规格。

4 Product Appearance/产品外观

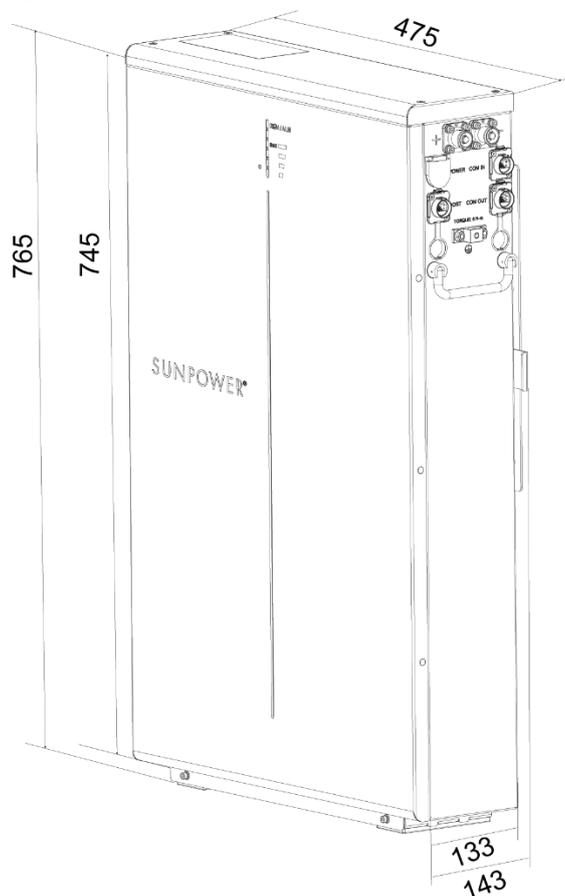
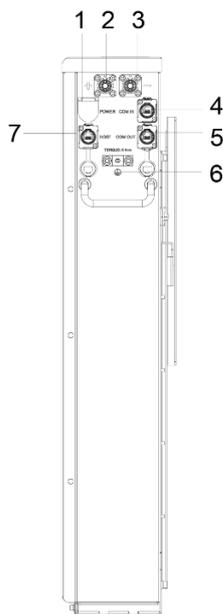
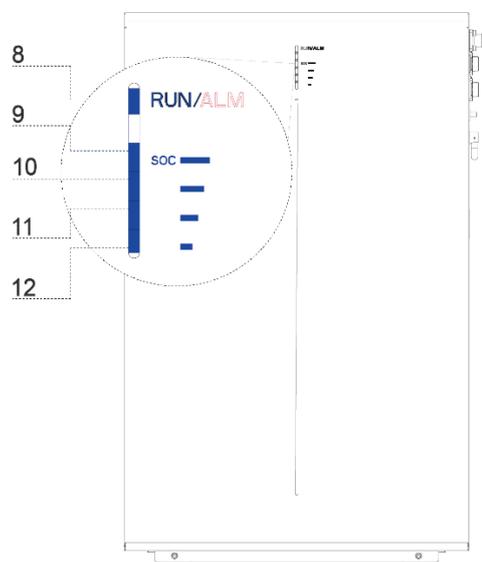


Figure 1: Dimension (unit: mm)/图 1 尺寸图 (单位：毫米)

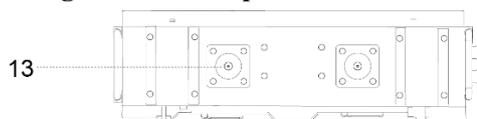
4.1 Ports and Terminals/端子/端口

Figure 2/图 2: Side View/侧视图


No. 序号	Terminal 端口	Description 功能描述
1	POWER button/电源开关	A button to turn on/off the Battery/ 启动或关闭电池
2	Positive wiring terminal/ 正极端子	The terminal stands for the Battery cathode output. Type: Amphenol, C10- 752799-010 /电池总正输出端口
3	Negative wiring terminal/负极端子	The terminal stands for the Battery anode output. Type: Amphenol, C10- 752799-110 /电池总负输出端口
4	COM-IN Network Port	Network port 1/通信口 1
5	COM-OUT Network Port	Network port 2/通信口 2
6	GND wiring lug/ 接地端子	A terminal to connect with the ground./ 电池外壳接地点
7	HOST Network Port/HOST 通信口	Network port 3/通信口 3

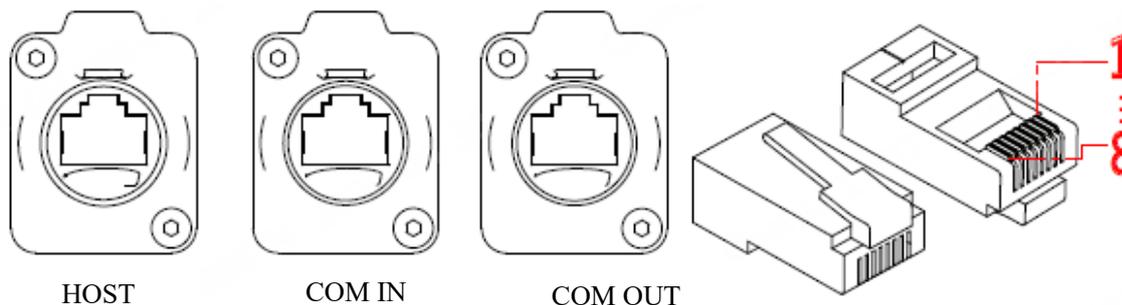
Figure 3/图 3: Front View (White Color) /正视图


No./ 序号	Name/ 端口	Color/ 颜色	Description/功能描述
8	RUN	Blue/蓝色	Blue RUN light indicates a normal operation/指示正常运行状态
	ALM	Red/ 红色	Red ALM light indicates a failure or protection status/指示故障或保护状态
9	LED4	Blue/蓝色	75.1%-100% SOC indication/ SOC 状态指示 75.1%-100%
10	LED3	Blue/蓝色	50.1%-75% SOC indication/ SOC 状态指示 50.1%-75%
11	LED2	Blue/蓝色	25.1%-50% SOC indication/ SOC 状态指示 25.1%-50%
12	LED1	Blue/蓝色	0%-25% SOC indication/ SOC 状态指示 0%-25%

Figure 4/图 4: Upward View/仰视图


No. 序号	Terminal 端口	Description 功能描述
13	Safety vent/防爆阀	Pressures inside is released via the vent./ 泄放 PACK 内部过大压力

4.2 Terminal Definition/端口定义



Pin No.	Host	COM IN	COM OUT
1	PCS-RS485-B	Pack-CANH	Pack-CANH
2	PCS-RS485-A	Pack-CANL	Pack-CANL
3	NC/GND-ISO	Encode-IN+	Encode-OUT+
4	PCS-CANH	GND-ISO	GND-ISO
5	PCS-CANL	Master-Select	Slave-Last
6	NC/GND-ISO	GND-ISO	GND-ISO
7	PCS-WAKE-	NC/GND-ISO	GND-ISO
8	PCS-WAKE+	COM-WKP-OUT	COM-WKP-OUT

5 Detailed Specifications/详细规格

The specifications listed in this Section 4 shall be the detailed specifications for the Product/列在第 4 部分的规格作为产品的详细规格。

No./序号	Items/项目	Specifications/参数
1	*Battery Nominal Capacity/ 电池标称容量	128Ah
2	*Battery Nominal Energy/ 电池标称能量	6.5kWh
3	*Rated/Usable Capacity/ 额定/可用容量	118Ah Measuring method /容量标准测量方法: 1. Rest for 5min/静置 5 分钟 2. 0.2C CC charge until Vmax of cell reaches 3.48V/ CC=0.2C 充电至 Vcell-max=3.48V, 跳转; 3. 10A CC charge until Vmax of cell reaches 3.5V/ CC=0.1C 充电至 Vcell-max=3.5V, 跳转; 4. 2A CC charge until Vmax of cell reaches 3.5 V and stops charging/ CC=2A 充电至 Vcell-max=3.5V, 停止充电; 4. Rest for 60min /静置 60min; 5. 0.2C discharge until V.min of cell falls to 3.0V and stops discharging/ CC=0.2C 放电至 Vcell-min=3.0V, 停止放电
4	*Rated/Usable Energy 额定/可用能量	6.0kWh

5	Nominal Voltage / 标称电压	51.2V
6	Operating Voltage/ 工作电压	48V~57.6V
7	Max. Charging Current/ 最大充电电流 (temperature refer to the cell surface temperature)	-10°C ≤ T < 0°C: 21.3A 0°C ≤ T < 5°C: 32A 5°C ≤ T < 15°C: 64A 15°C ≤ T < 45°C: 90A 45°C ≤ T < 50°C: 64A 50°C ≤ T < 55°C: 32A
8	Max. Discharging current/ 最大放电电流 (temperature refer to the cell surface temperature)	-10°C ≤ T < 0°C: 21.3A 0°C ≤ T < 45°C: 90A 45°C ≤ T < 50°C: 85.3A 50°C ≤ T < 55°C: 32A
9	Peak Charging Current/ 峰值充电电流	108A/3s
10	Peak Discharging Current/ 峰值放电电流	108A/3s
11	Max. Charging power/ 最大充电功率	4.97kW ¹
12	Max. Discharging power/ 最大放电功率	4.97kW
14	Peak Discharging power/ 峰值放电功率	5.96kW/3s
15	Operating temperature range/ 工作温度范围	-10°C~50°C
16	Recommended operating temperature/ 建议工作温度	0°C~30°C
17	Storage conditions/ 存储条件	-30°C~-20°C & 55°C~60°C exposure to 7 cumulative days. -10°C~-20°C & 45°C~55°C exposure to 30 cumulative days -10°C~45°C exposure to 180 cumulative days. Humidity: 5%-95%RH/湿度: 5%-95%RH Within 12 month after each charge/每次充电后 12 个月内
19	RTE	>95%, Measuring method /RTE 标准测量方法: 1. 0.2C discharge until V.min of cell falls to 3.0V and stops discharging/ CC=0.2C 放电至 Vcell-min=3.0V, 停止放电 2. Rest for 60min/静置 60 分钟 3. 0.2C CC charge until Vmax of cell reaches 3.48V/ CC=0.2C 充电至 Vcell-max=3.48V, 跳转; 4. 10A CC charge until Vmax of cell reaches 3.5V/ CC=0.1C 充电至 Vcell-max=3.5V, 跳转; 5. 2A CC charge until Vmax of cell reaches 3.5 V and stops charging/

¹ Be able to charge up to 8.5 kW for 10 seconds for 2 or more parallel-connected packs at backup mode only and up to 3 times per day/ once per hour. When this happens, the pack should be at 20% – 90%SOC and 15°C < T < 45°C.



PRODUCT SPECIFICATION

产品规格书

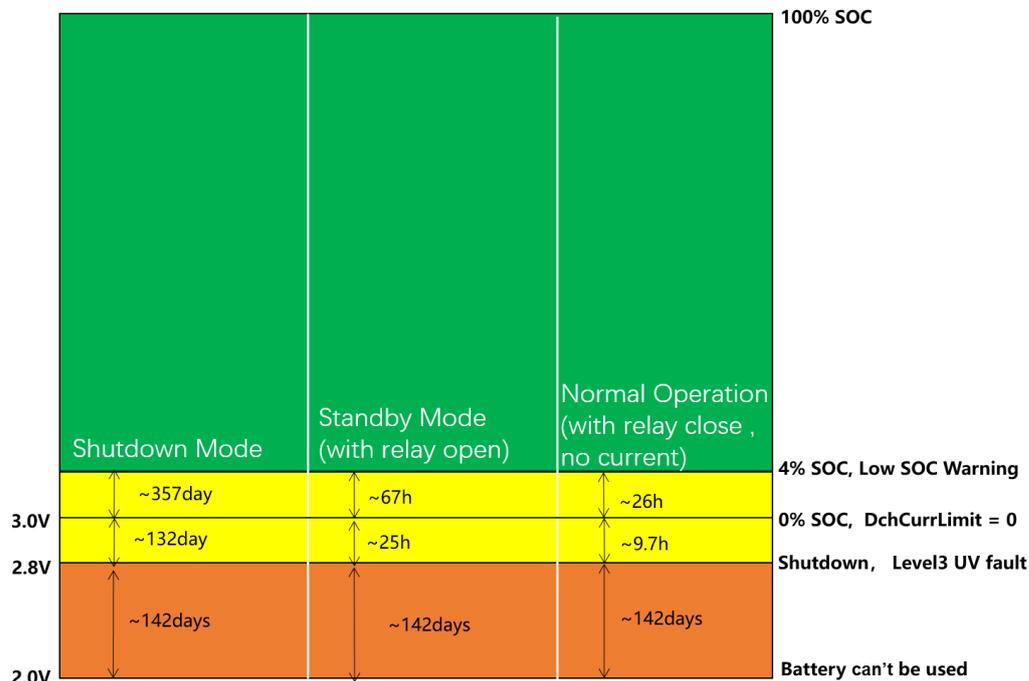
DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 8 of 18

		CC=2A 充电至 Vcell-max=3.5V, 停止充电; 6. Rest for 60min /静置 60min; 7. 0.2C discharge until V.min of cell falls to 3.0V and stops discharging/ CC=0.2C 放电至 Vcell-min=3.0V, 停止放电 Repeat step 2-5 for 5times to get the largest RTE.
20	DOD	94.50%
21	EOL(End of life)	50% SOH or 15 years from the manufacture date whichever comes first , 50% 或者 15 年
21	Cooling/散热方式	Natural cooling/自然冷却
22	Dimension/尺寸	W475*D133*H745 mm
23	Weight/重量	56kg±1kg
24	Installation/ 安装方式	Wall-mounted installation/floor standing installation inside Sunpower enclosure on Battery bracket/壁挂安装/立式安装
25	Ingress protection/ 防护等级	IP55
26	Max. operation altitude 最大运行海拔	≤3000m
27	Cell safety certification/ 电芯安规认证	IEC62619/UL1973
28	PACK safety certification/ Pack 安规认证	FCC/UL1973
29	UN transportation test standard/ UN 运输测试标准	UN38.3+PI965 (Sea/海运)
30	Communication/ 通信方式	CAN; RS485
31	Parallel connection/ 允许并联数量	Max. 16 batteries /最大 16 台电池并联

6. Battery bias consumption at different mode/电池包不同模式下待机时长



Note:

1. This is for fresh pack.
2. The standby time varies based on the initial states of 4% SOC.
3. The inverter consumption is excluded.

7 Warranty period/保质期

The warranty period provided by POWERAMP as well as the conditions and exceptions to the limited warranty shall be prescribed in a separate limited warranty document mutually agreed and signed by the Parties and such limited warranty document shall take precedence over this Document with regard to the subject matter. In the event that no such limited warranty document is entered between the Parties, the warranty period for the [Products/PACK] shall be the Shelf Life plus the Calendar life, defined as follows (1) Shelf Life is for the period of 6 months from the time the battery is shipped from POWERAMP factory or, from the time the battery is shipped from POWERAMP factory until the installation and commissioning, whichever occurs first, (2) Calendar Life occurs when the battery reaches 60% of the rated capacity after 10 years or has achieved 27 MWh Energy Throughput from installation, whichever occurs first. / POWERAMP 提供的产品质保期、质保条件以及排除质保的情形，应依照双方所另行签订的质保协议书所约定内容执行，该质保协议书有关质保内容并应优先适用于本文件。如双方并未签署该项质保协议书的，则 POWERAMP 提供的产品质保期应包含货架期和日历寿命两部分，分别定义如下：1)货架期为自产品出货之日起 6 个月或自产品出货之日起到产品安装服役止，哪一个条件先达到以哪一个条件为准；2)产品的日历寿命为自货架期满之日起的 10 年时间或产品吞吐量达到 27 MWh 时，以两者中先实现者为产品日历寿命保证期。乙方向甲方提供的产品，在质保期间内的产品容量需要在可用容量的 60%以上。



PRODUCT SPECIFICATION

产品规格书

DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 11 of 18

		★	★	★	/	●	Slave 14
		/	/	/	/	●	Slave 15
Application Mode checking	Parallel or single application mode checking success 并联或单机运行成功	SOC Display				★	Blink 5 times
	Waiting for parallel connection of PACK to power circuit/等待功率回路动态并入 PACK	SOC Display				★	1Hz
charge	0%-25.0% SOC	■				●	Flash LED (Water light) 1HZ
	25.1%-50.0% SOC	■	■			●	
	50.1%-75.0% SOC	■	■	■		●	
	75.1%-99.9% SOC	■	■	■	■	●	
	100% SOC	●	●	●	●	●	
Discharge & Standby	100%-75.1%	●	●	●	●	●	
	75.0%-50.1%	●	●	●		●	
	50.0%-25.1%	●	●			●	
	25.0%-0%	●				●	
Fault	Three -Level Cell Over Voltage	/	/	/	●	●	
	Three -Level Cell Under Voltage	/	/	●	/	●	
	Three -Level Over Temperature	/	/	●	●	●	
	Three -Level Under Temperature	/	●	/	/	●	
	Three -Level Over Current (charge or discharge)	/	●	/	●	●	
	Three -Level Under SOH	/	●	●	/	●	
	Internal communication	/	●	●	●	●	
	External communication	●	/	/	/	●	
	Parallel ID coding failure/ 并联 ID 编址失效	●	/	/	●	●	
	FUSE fault/FUSE 故障	●	/	●	/	●	

Reserved/预留	●	/	●	●	●	●	
Reserved/预留	●	●	/	/		●	
Reserved/预留	●	●	/	●		●	
Reserved/预留	●	●	●	/		●	
BMS fault (继电器粘连等内部故障归类)	●	●	●	●		●	

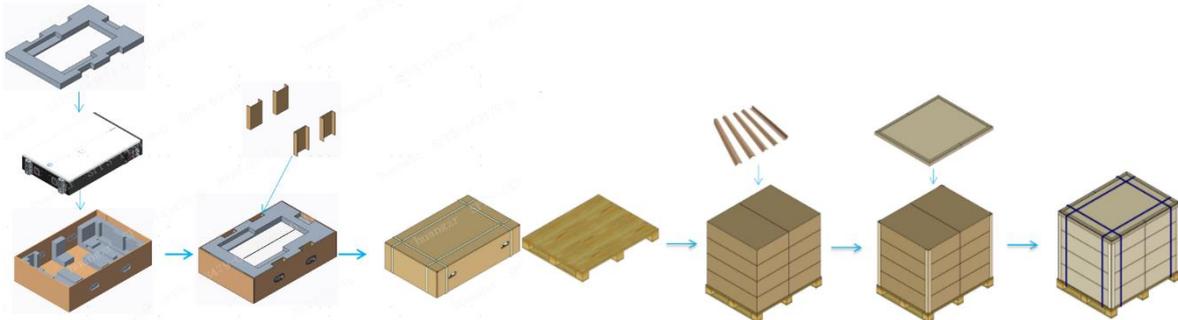
- ★ : LED Blink
- : LED On
- : LED flash display

10. Package, transportation and storage/包装、运输和存储

Customer shall ensure that the Products are handled, and maintained by professionals qualified for such Products and that such professionals shall handle the Products in accordance with the Residential Energy Storage User Manual (“User Manual”) provided by POWERAMP as well as in accordance with local laws and regulations. Customer shall alert its customers, contract manufacturers, agents, distributors, service providers and end users of the risks of the products given and are provided with adequate instructions as per such User Manual; Customer shall also ensure that Customer’s obligations as specified in the Document as well as the User Manual are, through a printed label on host device, or through Customer’s user manual, or a help file or Customer’s Internet website, contractually imposed on Customer’s own customers and distributors, and by them further down to the end users so that the entire chain is committed to the above obligations and so that the products are properly handled, operated, transported, used and maintained./客户应确保本产品由专业人员进行处理、维护并按照 POWERAMP 提供的家用储能用户使用手册(“用户手册”) 及当地法规执行安装、使用、存储、运输、操作产品等事项。客户并有责任通过主机标签、用户手册、帮助文档、客户网站等适当的途径和手段将本条义务告知并以合同方式施加于其客户、外包商、供货商、代理商及终端用户等，使其知晓用户手册的相关使用操作规范，并确保所有经手本产品之主体于各商业环节均对产品进行适当的处理、操作、运输、使用和维护。

10.1 Package/包装

- One carton with 928mm(L)*615mm(W)*245mm(H) box dimension and “Sunpower” logo is designed to contain only one PACK. 1250mm(L)*960mm(W)*1130mm(H) pallet can contain eight cartons. The package process is shown as follows:/ 每包装箱可装 1 pcs PACK，每卡板装 8 pcs 包装箱，包装箱尺寸为 928mm(L)*615mm(W)*245mm(H)，整卡板单元尺寸为 1250mm(L)*960mm(W)*1130mm(H)，一体化打包。包装方式流程如下图所示：



- Paper box should be equipped with corner protection and wrapped with films/原始堆垛包装即纸箱侧边角有护板、护板捆扎带，外缠薄膜；

- If packaging boxes cannot fill up a stack, the openings should be filled with solid paper boxes. Add air bags between stacks to prevent moving against carriage. As for inter-province carriage up to a distance of over 800 km, it is recommended to add air bags between stacks and van in order to prevent relative movement/维持原来的货物堆垛包装强度。不够一个堆垛的空虚部分填充结实的空箱子。超过 800 公里的跨省运输，应增加气袋固定堆垛间靠紧车厢不移动。
- Single battery boxes insufficient to fill up a palletized bundle should be packed in wood boxes and carried by van-type vehicle for long distance transportation. Tricycle can be used for short distance transportation/不够一个卡板的几箱货物用木箱包装运输或快递，都用厢式车辆进行运输。

10.2 Transportation/运输

Product has cleared UN38.3 (Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria) and SN/T 0370.2-2009 (Part 2: Performance Test of the Rules for the Inspection of packaging for Exporting Dangerous Goods). The Product is classified as class 9 dangerous goods, and shall be transported in accordance with the following rules: /PACK 已通过 UN38.3(《危险货物运输建议:试验和标准手册》第六修订版 38.3 节)和 SN/T 0370.2-2009《出口危险货物包装检验规程-第 2 部分-性能检验》的认证(此产品属于第九类危险品)，并应依照以下方式运输：

- Use van-type vehicle including container and metallic van-type vehicle. Platform vehicle and convertible are prohibited/必须厢式车辆运输，包括集装箱或者金属厢式车辆，禁止平板车、敞篷车运输。
- In order to protect PACK from moving, fall or crash, bandages and bubble bags shall be adopted during transportation. Specifically, bandages apply to both long and short distance transports, and at least the last 1-2 rows at vehicle rear shall be bandaged. Short distance transport does not need bubble bags. But both bubble bags and bandages (at least the vehicle rear) should be used for long distance transport. If there isn't enough space for bubble bags, bandage application inside the whole car is an option.为防止运输过程中 PACK 发生倾倒，移位，或碰撞，需采用捆绑带（飞机带）和气泡填充袋。其中，无论长途还是短途运输，均需要绑飞机带，且至少保证尾部（最后 1~2 排卡板）绑好。短途运输不需要填充气泡袋，长途需在车辆中间加气泡袋，并在尾部绑飞机带。如果车厢内缝隙不方便或不足以填充气泡袋时，可选择整车绑飞机带；
- Vehicle amid unloading should berth near dock. Vehicles waiting to be unloaded should keep a safe distance of 6m from warehouse. The vehicle prohibits debris stacking and should stay away from other vehicles/正在卸货要靠近装卸码头，非卸货等待的运输车辆停放区域距离仓库有 6m 安全距离，无杂物堆放，尽量远离其他车辆。
- Prohibit mixing up with explosive, flammable or toxic objects/不得和易燃易爆物品，有毒物品等混装运输。
- Prohibit piling up with other objects/禁止堆垛上再堆叠货物。
- Maintain original packaging and keep labels complete and recognizable/维持原包装状态，保持原来标识完整。
- Prevent from direct sun exposure, rain, condensation and mechanical damages/禁止直接暴晒、淋雨、温差冷凝水、装卸机械损伤。
- Maintain temperature between -20°C to 45°C, and the relative humidity between 5%-95% during the storage/运输过程中需将温度控制在-20°C 至 45°C，并将湿度控制在 5%-95%RH 间。
- Do not stack more than four PACKs/堆叠不得超过四箱 PACK。
- The shipment battery SOC is less than 30% and the battery need be charged after 12 months during storage /出货 SOC 为不高于 30%，超过十二个月需要对 PACK 进行补电。
- Extinguisher applicable to lithium battery such as Type water-based fire extinguishers and dry powder extinguisher shall be installed in carriers/运输工具必须配置锂电池专用灭火器，并连同消防水、消防沙一并使用。



PRODUCT SPECIFICATION

产品规格书

DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 14 of 18

- What's more, a damaged box or rattles during transport may indicate rough handling. Make a descriptive notation on the delivery receipt before signing. If obvious damage such as package hole or serious impact is found, please feedback to POWERAMP/包装盒在运输过程中可能出现损坏。请签收前在交付单上对损坏情况做描述性的标注。如发现包装破洞或严重的撞击等明显损坏请反馈给 POWERAMP。

10.3 Storage/存储

- **Warehouse Management 仓库管理。**

- ① Seven meters heighted warehouse is not recommended to store Products. In case of the warehouse, Products should be placed not higher than two meters from floor/不推荐使用立体式仓库（高度在 7 米以上为立体仓库）储存 PACK；万一用立体仓库则放置在地面 2 米高度以下的货位。
- ② Batteries with safety deficiency and normal batteries should be separately stored with wall in-between or in different fire protection zones/安全缺陷 PACK 和正常 PACK 放开区域存储，单独隔墙或者不同防火分区。
- ③ Prevent electrical fire sources. Electrical tube, switch box and socket should be undamaged. 0.5 meters from floor standing air conditioner and dehumidifier should be free from flammable materials. Use cold light source in warehouse. If spotlight is used, at least one meter therefrom should free from other flammable materials/管理电气火源，电气穿管不破损，开关箱、插座不破损；落地的空调、除湿机周围 0.5 米范围内无可燃物；仓库室内使用冷光源照明，如果用射灯在其周边至少 1 米无其他可燃物质。
- ④ Warehouse is labelled with smoking ban and confirmed free from cigarette butts. Smoking points should be reasonably designed with a fire-retardant wall separating warehouse. Wind at exist cannot blow cigarette butt to near warehouse/仓库有禁烟标识，并确认仓库区域无烟头。吸烟点设计合理，和仓库有阻燃墙壁隔开，出口不会有风吹出烟头靠近仓库地面。
- ⑤ Warehouse should have mice protective measures, like plugging up holes and caves, timer-connected mouse expeller, floor baffler against mouse, sealing door slot with less than 10mm gap/仓库有防鼠措施，如堵住孔洞、设置有定时器联动的噪声驱鼠器，或门口设有挡鼠板或门缝有可以加密封后间隙不超过 10mm。
- ⑥ Warehouse canopy must use fire retardant materials, prohibit flammable materials like plastic or canvas/ 仓库雨棚只能用阻燃材料，禁止用可燃材料如塑料雨棚、帆布雨棚。
- ⑦ Warehouse should be equipped with fire detector, watch-keeper, and surveillance video kept for at least one month/仓库有火灾探测器，联动值班室，仓库整体头视频监控，视频保存至少 1 个月。
- ⑧ Keep a dry clean storage place with proper ventilation. Humidity: 5%~95%。 Specifically, please refer to the following table for storage condition. /保持存储环境干燥、通风、清洁，环境湿度: 5%~95%。 储存条件请参考如下表格。

Ambient Temperature	Period of Time
More than 60°C	Any exposure during the Warranty Period is not allowed
More than 55°C but equal to or less than 60°C	Cumulative exposure of more than 7 days (10,080 minutes)during the Warranty Period is not allowed
More than 45°C but equal to or less than 55°C	Cumulative exposure of more than 30 days (43,200 minutes) during the Warranty Period is not allowed
Less than -10°C but equal to or more than -20°C	Cumulative exposure of more than 30 days (43,200 minutes) during the Warranty Period is not allowed
Less than -20°C but equal to or more than -30°C	Cumulative exposure of more than 7 days (10,080 minutes) during the Warranty Period is not allowed
Less than -30°C	Any exposure during the Warranty Period is not allowed

	PRODUCT SPECIFICATION 产品规格书	DOC NO. PS-GB- 519110001013 -01
		REV.: <u> V1.4 </u>
		SHEET: <u> 15 </u> of <u> 18 </u>

⑨ Place 6.5kWh Energy Storage System according to signs on the packing case during storage. Do not put PACK upside down or sidelong./应按照包装箱标识正确放置，不要倒放、侧放。

• **Fire extinguish device/配备灭火装置，**

① Battery sites must be recommended to be equipped with multiple varieties of battery fire extinguishers, including fire sand, blanket and powder extinguisher/现场配置多种多样的锂电池灭火装置，包括：消防沙、防火毯、干粉灭火器等。

② Micro fire station is recommended to be deployed with firefighter uniform, helmet, fire protection mask, safety gloves, and at least one set of first aid kit including medical devices and drugs/建议在现场布置微型消防站，多套消防战斗服，头盔，防火面罩；高温手套，至少一套医疗急救箱，外用药品和器械，

• **Smoke discharge/排烟。**

① Equip 24 hours fan with failure alert. Fan should coordinate with smoke detector or gas concentration detector/房间宜配置独立风机 24 小时运作有故障报警，或房间有独立风机且风机和烟雾报警器/或浓度报警器联动。

② The ventilation capability should be not less than 12 times per hour and fan speed should exceed 0.5 meter per second/建议配备通风能力不低于 12 次/小时的换气能力或风机作用区域的风速不低于 0.5 米/秒。

③ Fan portfolio includes axial flow fan on wall (effective distance less than 5 meters), fan with fixed air hose, and mobile fan with flexible aluminum foil. Wall fan combined with mobile fan is recommended/建议灵活组合使用风机。包括：墙壁轴流风机（作用距离不超过 5 米），或固定风管的风机，或带伸缩铝箔管道的移动风机，鼓励见墙壁风机和移动风机组合排烟。

• **Fire retardant buildings/建筑耐火：**

Warehouse and plant should use level two fire retardant buildings, like rock wool colour steel plate, plasterboard and iron rain-shed. Flammable materials like foam and plastics are prohibited/PACK 的仓库和车间使用二级耐火建筑；不得使用易燃建筑材料如泡沫彩钢板、塑料雨棚，可使用阻燃的岩棉彩钢板、石膏板、铁皮雨棚。

• **Separate storage/单独存放。**

① Lithium batteries should not be stored with flammable or toxic objects/PACK 不得和易燃或有毒等危险品一起存放，

② Design various fire protection zones. Normal batteries and batteries with safety deficiencies should be stored separately /要在不同防火分区，正常的 PACK 和安全缺陷电池不要混放。

• **Recharge: Charge battery after storage for over 12 months. Set “CV=55V, CC=64A” and charge battery until LED2 flickers. /补电：当 PACK 存储超过十二个月时，需要进行补电，补电时设置电源系统“CV=55V, CC=64A”，并补至 LED2 闪烁。**

11 Appendix Handling Precautions and Guidelines for PACK/附录：PACK 操作指示及注意事项

These Handling Precautions and Guidelines for PACK (“Handling Precautions and Guidelines”) shall only apply to the Products manufactured by POWERAMP. Customer shall strictly follow these Handling Precautions and Guidelines, and shall alert its customers, contract manufacturers, agents, distributors, service providers and end users of the risks of the Products and shall ensure that Customer’s obligations as specified in the Document as well as the Handling Precautions and Guidelines are, through a printed label on host device, or through Customer’s user manual, or a help file or Customer’s Internet website, contractually imposed on Customer’s own customers and distributors, and by them further down to the end users so that the entire chain is committed to the above obligations and so that the products are properly handled, operated, transported, used and maintained./本《PACK 操作指示及注意事项》



PRODUCT SPECIFICATION 产品规格书

DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 16 of 18

仅适用于新能安科技有限公司生产的 PACK。客户应严格遵守本操作指示及注意事项，並有责任通过主机标签、用户手册、帮助文档、客户网站等适当的途径和手段，将本文件及本操作指示及注意事项等义务告知并以合同方式施加于其客户、外包商、供货商、代理商及终端用户等，使其知晓相关使用操作规范，并确保所有经手本产品之主体于各商业环节均对产品进行适当的处理、操作、运输、使用和维护。

Statement(1):

Customer is requested to contact POWERAMP in advance, if and when the customer needs other applications or operating conditions than those described in this Document. Additional experimentation may be required to verify performance and safety under such conditions

/声明 (1): 客户若需要将 PACK 用于超出本文件或使用手册规定以外的设备，或在文件规定以外的使用条件下使用 PACK，应事先联系“新能安”，因为需要进行特定的实验测试以核实电芯在该使用条件下的性能及安全性。

Statement (2):

POWERAMP will take no responsibility for any accident or liabilities in the event the Product is used for applications or under conditions other than those described in this Document.

声明 (2): 对于在超出文件规定以外的条件下使用 PACK 而造成的任何意外事故，POWERAMP 概不负责。

- Use specified charge/discharge conditions/使用指定的充放电条件。
- Do not heat/禁止加热。
- Do not attempt to crush or drop/禁止尝试挤压或跌落。
- Do not attempt to have any modification/禁止任何修改。
- Leave in cool places/存放在阴凉处。
- Stop using PACK with any colour change or mechanical damage detected during installing, electrical connection, normal operation, commissioning and troubleshooting/在安装、电气连接、操作、调试、维护和故障处理中，如有变色或机械损伤，请不要继续使用。
- In case of leakage or smells, track the problem to thermal source, remove therefrom and clean with water/万一有漏液或气味，要从热源移除，并且用清水清洗干净。
- Keep leaked electrolyte away from contact with eyes or skin. In case of leakage, immediately clean with water and seek help from a doctor. Serious damages can be caused due to delayed treatment/漏出的电解液远离眼睛和皮肤，万一发生立即清洗干净或就医，假如不能立即处理，可能引起严重伤害。
- Do not put the PACK into a fire. Do not use it or leave it in a place near fire, heaters, or high temperature sources. The heat can melt PACK insulator, damage safety vent, cause over temperature, explosion or fire/不要将 PACK 丢入火中。不要在离火源，热源或高温源近的地方使用或放置。在这种情况下，PACK 中的绝缘保护可能融化，安全阀等结构可能会被毁坏，这样可能会过热，爆炸或起火。
- Do not submerge the PACK in water, or wet the Product. Abnormal charging current and voltage from damaged protective devices may cause a chemical reaction within the PACK, which may result in heat generation, explosion and even fire/禁止浸泡或弄湿 PACK，如果 PACK 保护装置被损坏，可能会被异常电流和电压充电从而引起电池内化学变化，导致过热，爆炸或起火。
- Do not connect the PACK reversely connect positive (+) and negative (-) terminal.禁止反接 PACK 正负极，在这种情况下，PACK 被异常充电可能会导致过热，爆炸或起火。
- Do not short circuit. Do not let the PACK terminals (+ and -) contact a wire or any metal (like a metal necklace or a hairpin). In such a case, the PACK is short circuited and generate excessive current, which may result in heat generation, explosion, or fire/禁止短接，禁止直接用导线或任何金属（比如金属项链或发卡）连接 PACK 正负极。这种情况下，PACK 外短路引起过电流，有可能导致过热，爆炸或起火。

- Do not throw or drop the PACK. Strong impact may damage the protecting device, which may cause an abnormal chemical reaction and result in heat generation, explosion, or fire of the PACK/禁止抛扔或跌落 PACK, 强的重力冲击可能破坏保护机构, 可能引起异常化学反应导致发热, 爆炸或起火.
- Do not drive a nail in, hit with a hammer, or stamp on the PACK. In such a case, the PACK may be deformed and short circuited, which may cause heat generation, explosion, or fire of the PACK/禁止针刺, 砸锤或邮戳 PACK, 这种情况下, PACK 可能变形和短路, 从而导致过热, 爆炸, 起火.
- Do not solder the PACK directly. Heat applied during soldering may damage the insulator of the safety vent and mechanism, which may result in heat generation, explosion, or fire of the PACK/禁止锡焊 PACK, 可能破坏安全阀, 以及机构的绝缘保护措施, 导致过热, 爆炸, 起火.
- Do not disassemble or alter the PACK. The PACK employs a safety mechanism and a protecting device in order to avoid any danger. If they are damaged, heat, explosion or fire may be caused/禁止拆解或修改 PACK, PACK 安置了安全机构和保护机构避免安全隐患, 假如损坏, 可能导致过热, 爆炸或起火.
- Do not put the PACK in a microwave oven or a pressure cooker. Sudden heat may damage the seal of the PACK and may cause heat generation, explosion, or fire of the PACK/禁止将 PACK 放在微波炉或压力锅内, 极速的热可能导致过热, 爆炸或起火.
- Do not use the PACK beyond specified conditions; otherwise, the PACK might cause heat generation, damage, or deterioration of its performance/禁止在超出规定条件下使用 PACK, 否则可能导致过热, 损坏, 恶化 PACK 电性能.
- Read the instructions regarding the PACK installation and operation so as to avoid damages/阅读 PACK 关于安装和操作手册, 避免误操作导致损坏.
- The PACK may have insufficient capacity after long storage/PACK 长期存储不用可能导致电量不足.
- Battery falling down could result in electrolyte leak. In case of fall, please turn off and stop using the battery. 电池跌落可能导致电解液泄漏, 如不慎发生跌落, 请立刻关闭电池并停止使用.

12. Disclaimer/免责声明

12.1 Customer Responsibility/客户责任

12.1.1 The Customer hereby agrees that it has carefully read and understand any and all terms and conditions, safety precautions and measures set forth in this Document, furthermore, the Customer waives claiming any liability against ATL and agrees to bear full responsibilities of the risks for any accidents, injury to persons, or property damage that may occur due to non-compliance with any of the above /客户在此确认并同意, 其已认真阅读并理解本产品规格书中所阐明的条款、所有安全规范及措施, 并且对其违反上述条款、规范及措施等因此可能产生的任何意外事故、人身伤害及财产损失等风险, 将完全地承担责任而不会向 POWERAMP 主张任何责任。

12.1.2 Regarding a particular Product with the properties, the Customer is obligated to verify the fitness for a particular purpose of such Product described in this Document under certain application. The parameters provided in this Document may vary in different applications and performance may vary from time to time. All operating parameters, including typical parameters, must be validated for each customer application by the Customer's technical experts. /客户有责任验证具有本产品规格书中描述的特性的特定产品在特定应用情况下的适用性。本产品规格书中提供的参数在不同的应用中可能会有所不同, 并且性能可能随时间而变化。客户的技术专家必须就每次应用对所有操作参数 (包括典型参数) 进行验证。

12.1.3 Customer takes full responsibility to verify all requirements (whether voluntary or mandatory) necessary to enter into a certain market or territory, including but not limited to technical, environmental, safety certification or other requirements. Unless expressly provided herein, POWERAMP shall in no event be liable for any failure of the Product to fit for a certain application or to meet any requirement necessary to enter into a



PRODUCT SPECIFICATION 产品规格书

DOC NO. PS-GB- 519110001013 -01

REV.: V1.4

SHEET: 18 of 18

specific market or territory. The parties agree that the certification items and certification institutions are designated or agreed by Customer. POWERAMP will assist the designated certification institutions to conduct testing and issue certificates for the Products by providing all necessary documentations for certification, including specification, product label, application form and samples. The Parties further agree that all expenses and liabilities in connection with or arising from the certification shall be borne by Customer, and POWERAMP shall in no event be liable for any costs or expenses in connection with or resulting from any failure to pass the certification or the non-compliance with any voluntary or mandatory certification requirement in any specific territory. /客户有责任对市场准入的各项要求（不论自愿或强制）进行确认，包括但不限于技术、环保、安全认证等要求。除本产品规格书明定外，POWERAMP 对本产品是否符合特定应用和市场准入要求不负任何责任。本产品之认证项目及认证机构经客户选定或同意，POWERAMP 配合客户向其指定或同意的认证机构提出安全规格认证所需资料，包含规格书、产品标识、申请表及样品等，由认证机构进行测试和发证。双方同意，与本产品认证相关的所有风险及责任（包含未通过认证或未取得销售区域自愿或强制认证所产生之风险及责任），由客户承担，POWERAMP 不负任何责任。

12.1.4 The Product is produced and supplied to the Customer for Business to Business nature, and is not for direct consumer use. Customer hereby acknowledges the nature of the Product and agrees to be responsible to handle after sales service and take liability for claims raised by end users and consumers. POWERAMP is only responsible in accordance with POWERAMP's limited warranty to the Customer for quality liability within warranty period, and not to end users and/or consumers. POWERAMP takes no liability for any claim beyond warranty period. /本产品是基于企业对企业(B2B)的交易模式所提供及制造，非供终端客户之直接使用。客户在此确认本产品的交易模式，并同意自行负责产品售后服务，并针对任何终端消费者或使用者的请求及主张自行承担相关责任。POWERAMP 仅在产品质保期内根据其有限质保政策对客户（而非终端消费者或使用人）负有限责任。POWERAMP 就超过产品质保期外的任何索赔不承担责任。

12.1.5 Customer agrees to take full responsibility for recycling the Product in accordance with the local laws and regulations in the respective Permitted Territory and shall bear the costs arising therefrom. /客户应当按当地法律法规之规定，再循环本产品并自负由此产生的费用和 risk。

12.2 Products can only be used and installed within the territories in which the Products have passed and acquired necessary safety certifications ("Permitted Territory"). The Product warranty is null and void in the event Products are resold, used or installed outside of the Permitted Territory. /本产品仅供使用及安装于本产品所通过认证的适用区域（“适用区域”）。若本产品被转售、使用或安装于适用区域以外的地区，则本产品的相关质保规定将全部取消并失效。

12.3 EXCEPT AS EXPRESSLY SET FORTH IN THIS DOCUMENT, POWERAMP MAKES NO REPRESENTATIONS AND GRANTS NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF QUALITY, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR USE OR PURPOSE, AND NON-INFRINGEMENT. /除本规格书明定外，POWERAMP 不因本协议对提供客户之产品内容（包括品质性能、适销性、特定用途的使用目的、兼容性、不侵权等）提供任何不论明示或默示的其他保证或承担任何 risk。

13. Miscellaneous/其他

In the event of any conflict, ambiguity or discrepancy between the Chinese version and English version of this Document, both parties agree that the English version of this Document shall prevail. /本产品规格书之中文文本与英文文本如有任何矛盾，歧义或者不一致之处，双方同意应以英文文本优先适用。