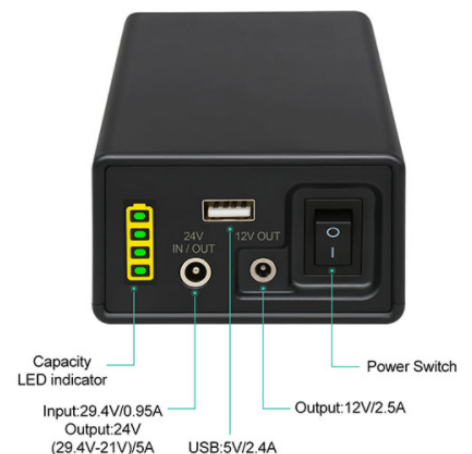


Model TGR-PP-24V-3000-B

24v / 12v / 5v Lithium-ion Rechargeable Battery Pack Specification

Features and notes:

- Provides both a 24v 5A max and 12v 2.5A max. output as well as a 5V 2.4A USB output.. suitable for powering a wide range of LED light bars, Flexible LED strip, Booth lighting & various electronic devices
- Ultra Compact Size (160 x 82 x 47.2mm) and high power density. Long life operation
- Over charge protection, Over discharge protection and short circuit protection
- Includes UK charger and 2 connection cables
 Cable 1: 2.1 x 5.5 to 2.1 x 5.5mm
 Cable 2: 1.7 x 4.0 to 2.1 x 5.5mm
- Please turn switch to 'I' when charging. The built in LED indicator will change from Red to Green once the battery is fully charged
- Suitable for indoor use only



1. 前言 Preface

本产品是一款带 25.2V DC 、5V USB、以及为 12V DC 电压的用电器提供大电流输出的大容量锂离子电池储能、便携式产品。

This product is a large capacity Lithium-ion battery pack of portable product with 24 DC and 5V USB, and high current output for various electronic and lighting appliances.

2. 产品图示: picture:



3. 尺寸:82*47.2*160mm Size:82*47.2*160mm 重量: <750g Weight:<750g

3. 通用电气指标 GENERAL AND ELECTRICAL REQUIREMENTS

Name	Value	Unit	Tolerance	Remarks
Charging Voltage DC 5521 Socket	29.4	Vdc	Typ.	
Charging Current DC 5521 Socket @29.4V/0.95A	0.95	A	Typ.	
Output Voltage DC 5521 Socket @24V OUT DC 4017 Socket @12V OUT USB-A @5V OUT	18.9 25.2 29.4 12 5	Vdc Vdc Vdc Vdc Vdc	Min. Typ Max. Typ Typ	The output voltage is output directly from 7S Li-Ion battery by through the PCM, So the output voltage is not constant. The output voltage is constant
Output Current DC 5521 Socket @24V OUT DC 4017 Socket @12V OUT USB-A @5 OUT	5 2 2.5 2.4	A A A A	Typ. Typ Max. Max.	
Output Power DC 5521 Socket @24V OUT DC 4017 Socket @12V OUT USB-A @5 OUT	126 24 12	W W W	Typ Typ Max	
Quiescent Power Consumption Power on@no load Power off	0.09 3	W mW	Max. Max.	

4. 内置锂电池组及相关参数 Battery Pack Specifications

项目 Items	标准 Standard	备注 Comments
标称电压(V) Nominal voltage(V)	25.2V	7S2P
典型容量(Ah) Typical Capacity(Ah)	6400mAh(161.28Wh)	At 0.2C discharge rate
工作温度范围℃ Operation temperature range °C	Charge:	0℃~+45℃
	Discharge:	-20℃~+75℃
存储温度范围℃ Storage temperature range °C	-10℃~50℃ at half charged state	Recommended long-term storage temperature is 15~25℃
储存环境湿度 Storage environment humidity	RH: 65±20%	
环境湿度 Environment humidity	≤85%RH	

5. 内置保护电路电性能参数 PCM Electrical Characteristics (Ta=25℃)

NO.	测试项目 Item		标准 Standard
1	过充电保护 Over discharge protection	过充电检测电压 Over charge protection voltage	$4.25V \pm 0.05V$
		过充电检测延时时间 Over charge protection delay time	$1.2s \pm 0.5s$
		过充电恢复电压 Over charge release voltage	$4.15V \pm 0.1V$
2	过放电保护 Over discharge protection	过放电检测电压 Over discharge protection voltage	$2.7 \pm 0.1V$
		过放电检测延时时间 Over discharge protection delay	$1.2s \pm 0.5s$
		过放电恢复电压 Over discharge release voltage	$3.0 \pm 0.1V$
		过电流检测电流 Over current protection current	$10A \pm 3A$
		过电流检测延时时间 Over current protection delay	$\leq 1.3s$
		过流恢复 Over current release	充电激活 Charging release
3	短路保护 short circuit protection	检测状态 Condition	外部短路 Outside short circuit
		检测延时时间 Short circuit protection delay time	$\leq 3ms$
		恢复状态 Release condition	充电激活 Charging release
4	最大持续充放电电流 Max continuous charge current/discharge current		5A



8.外观及出货标准 Appearance And Delivery Condition

8.1 外观：外壳表面无划痕、脏污；外壳无漏打螺丝、壳离现象。。

Appearance: No scratches and smudginess on the surface of the shell. No missing screws and separation of the shell.

8.2 功能：所有产品均要经过相关程序所要求的测试；

Functions: All products should be tested as required by concerned processes.

9.标准测试条件 Standard Test Conditions

9.1 Environmental Conditions 环境要求：

除非特殊说明，否则所有测试都在温度 $25\pm 2^{\circ}\text{C}$ ，湿度 $65\pm 20\%$ ，气压 $86\text{kPa}\sim 106\text{kPa}$ 的环境中测试

Unless otherwise specified, all tests stated in this specification are conducted at temperature $25\pm 2^{\circ}\text{C}$ and humidity $65\pm 20\%$, air pressure $86\text{kPa}\sim 106\text{kPa}$.

9.2 Measuring Equipment 测量设备

a) 测量电压用的直流电压表精度不低于 0.5 级，电压表内阻不低于 $1\text{k}\Omega/\text{V}$ ；

Voltage is measured by D.C. voltmeter which precision is higher than 0.5 grade and self resistance is higher than $1\text{k}\Omega/\text{V}$;

b) 测量电流用的直流电表精度不低于 0.5 级；

Current is measured by D.C. meter which precision is higher than 0.5 grade;

c) 测量温度用的温度计应具有适当的量程，其分度值不应大于 0.5°C

Temperature is measured by thermometer which has proper measuring range and division value is lower than 0.5°C ;

d) 测量时间用的计时器应按时、分、秒分度，至少应具有 $\pm 1\%$ 的准确度；

The timer used in measuring should be degressed in hour, minute and second, and should have degree of accuracy no more than $\pm 1\%$.

9.3 测试条件 Test conditions

测试电池必须是本公司出厂时间不超过一个月，且电池未进行过五次以上充放电循环除非另有规定。本规格书中各项试验应在标准大气条件下进行：.温度： $25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ ； 相对湿度： $65\pm 20\%$ 。。

The cells to be tested should be new cells and within one month after shipment from our factory and the cells shall not be cycled over five times before the testing. All the tests in this specification shall be conducted in an ambient temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ under a humidity of $65\pm 20\%$, unless otherwise specified .

10.充放电特性 Characteristics

10.1 标准充电 Standard charge

用直流稳压电源以电压为29.4V，电流0.2C(A)恒流充电至电流降至0.02C（A）。

Charge the battery with DC stabilized power supply 29.4V, constant-current 0.2C(A) current until current reach to 0.02C（A）.

10.2标准放电 standard discharge

以0.2C放电到电压18.9V或电池组截止为止。

Discharge the battery at 0.2C to 18.9V or the protection circuit come to protection, stop.

10.3电池电性能 Battery Electrical Performance

测试项目 Test Items	测试方法 Test Methods	测试标准 Test Standards
10.3.1 0.2C 放电性能 0.2C Discharging Performance	电池按 10.1 规定充电后,在 9.1 规定条件下搁置 0.5~1 小时,而后以 0.2 C(A)放电到终止电压。 After standard charge, store the battery for 0.5 ~ 1hr under 9.1 specified conditions, then discharge at 0.2C(A) to cut-off voltage.	≥100% Nominal capacity
10.3.2 高温性能 High Temperature Performance	电芯按 10.1 规定充电结束后,将电芯放入 55°C±2°C 的高温箱中恒温 2 小时,然后以 0.2 C(A)放电至终止电压,实验结束后,将电芯取出在 8.1 规定条件下搁置 2 小时,然后目测电芯外观。 After standard charge, put the cells into 55°C±2°C high temperature box with constant temperature for 2hrs, then discharging at 0.2C(A) to cut-off voltage. Then take the cell out, stored for 2hrs under 10.1 specified conditions, check the exterior appearance.	≥95% Nominal capacity 电池不爆炸不起火 The battery no explosion, no fire
10.3.3 荷电保持能力 Charge Retention	电芯按 10.1 规定充电结束后,在 8.1 规定条件下搁置 28 天,再以 0.2 C 放电至终止电压。 After standard charge, store the cells for 28 days under 8.1 specified conditions, then discharge at 0.2C to cut-off voltage	荷电保持恢复率≥95% capacity retention rate≥95% of minimum capacity
10.3.4 循环寿命 Cycle Life	电芯按 10.1 规定充电后,搁置 0.5~1hr,然后以 0.2C(A)放电至终止电压,放电结束后,搁置 0.5~1hr,再进行下一个充放电循环,连续循环 300 次。 1) standard charge at 0.2C(A), 2) rest 0.5~1 hr 3) discharge at 0.2C(A) to cut off voltage 4) rest 0.5~1hr repeat the above steps until 300 cycles.	容量保持率≥80% Capacity retention rate≥80%



11. 注意事项 Cautions

11.1 充电电流不得超过本标准书中规定的最大充电电流。使用高于推荐值电流充电将可能引起电芯的充放电性能、机械性能和安全性能的问题，并可能会导致发热或泄漏。Charging current should be less than maximum charge current specified in the Product Specification. Charging with higher current than recommended value may cause damage to cell electrical, mechanical and safety performance and could lead to heat generation or leakage.

11.2 放电电流不得超过本标准书规定的最大放电电流，大电流放电会导致电芯容量剧减并导致过热。The cell shall be discharged at less than the maximum discharge current specified in the Product Specification. High discharging current may reduce the discharging capacity significantly or cause over-heat.

11.3 在电芯长期未使用期间，它可能会因其自放电特性而处于某种过放电状态。为防止过放电的发生，电池应定期充电，将其电压维持在 27.3V 至 28V 之间。过放电会导致电芯性能、电池功能的丧失。It should be noted that the cell would be possible to be at a over-discharged state by its self-discharge characteristics in case the cell is not used for long time. In order to prevent over-discharging, the cell shall be charged periodically to maintain between 27.3V and 28V. Over-discharging may causes loss of cell performance, characteristics, or battery functions.

11.4 电芯储存温度湿度请按照如下方法储存： The storage temperature and humidity of the battery are as below: -10°C~40°C within one month (一个月) 0°C~35°C within 2 months (两个月) 15°C~25°C for 3 months and above 3 months (≥3 个月) Humidity: 65±20%RH (湿度 65±20%RH) .

11.5 严禁拆卸电池 Prohibition of disassembly.

11.6 远离热源、火源； Do not expose the battery to extreme heat or flame.

11.7 禁止反接电池组的正负极，禁止对电池组进行反充电； Do not reverse the polarity of the battery pack for any reason.

11.8 禁止将电池组投入水中或弄湿； Do not immerse the battery pack in water or sea water, or get it wet.

11.9 用专用的充电器充电； Use a constant current, constant voltage (CC/CV) lithium-ion (Li+) battery charge controller.