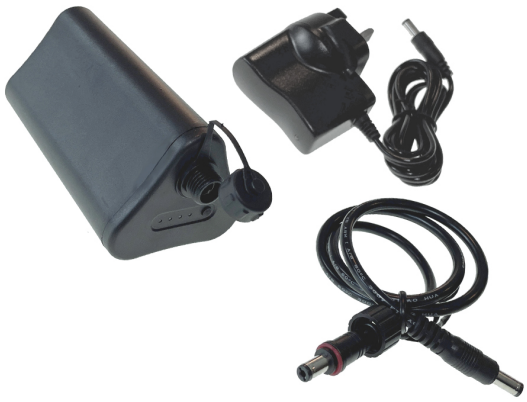
Model TGR-PP-12V-3000-IP67

Waterproof IP67 Lithium-ion Rechargeable Battery Pack Specification

Features and notes:

- Provides a 12v 3A max. output suitable for powering a wide range of LED light bars, Flexible LED strip, Booth lighting & various devices
- Ultra Compact Size (98 x 53.7 x 49.4mm) and high power density. Long life operation
- Over charge protection, Over discharge protection and short circuit protection
- Includes UK charger and connection cable
- 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 outdoor use. (charging should be indoors as the power supply is not waterproof) Ensure waterproof cables are connected before subjecting to moisture.

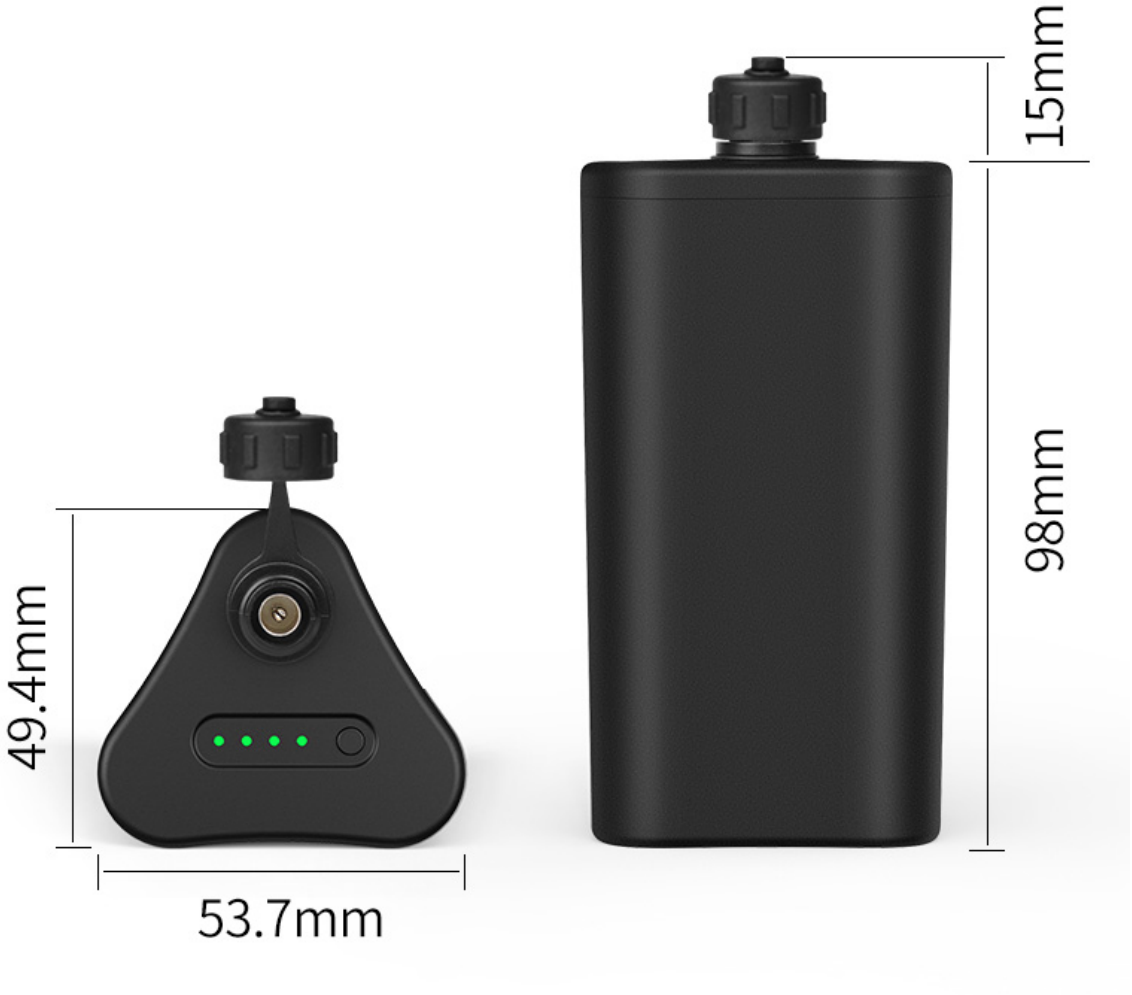


1. 前言 Preface

本标准描述了深圳市卓毅科技有限公司生产的锂离子 11.1V 电池组的外型尺寸、特性、技术要求及注意事项，本标准适用于深圳市卓毅科技有限公司生产的锂离子 11.1V 电池组。

This specification describes the type and size, performance, technical characteristics, warning and caution of the 11.1V Lithium-ion Battery pack.The specification only applies to 11.1V Lithium-ion Battery pack supplied by Tiger Power Supplies

2. 产品应用说明图示:Application picture:



3. 尺寸:49.4*53.7*98mm Size:49.4*53.7*98mm

4.通用电气指标 GENERAL AND ELECTRICAL REQUIREMENTS

Name	Value	Unit	Tolerance	Remarks
Charging Voltage DC 5521 Socket	12.6	Vdc	Typ.	
Charging Current DC 5521 Socket @12.6V/1A	1	A	Typ.	
Output Voltage DC 5521 Socket @11.1V OUT	9 11.1 12.6	Vdc Vdc Vdc	Min. Typ Max.	The output voltage is output directly from 3S Li-Ion battery by through the PCM,So the output voltage is not constant.
Output Current DC 5521 Socket @11.1V OUT	3	A	Max.	
Output Power DC 5521 Socket @11.1V OUT	33	W	Typ	
Quiescent Power Consumption Power on@no load Power off	0.09 3	W mW	Max. Max.	

5.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)	11.1V	
典型容量(Ah) Typical Capacity(Ah)	3000mAh	At 0.2C discharge rate
最小容量(Ah) Minimum Capacity (Ah)	2600mAh	At 0.2C discharge rate
工作温度范围℃ Operation temperature range ℃	Charge:	0℃～+45℃
	Discharge:	-20℃～+75℃
存储温度范围℃ Storage temperature range ℃	-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	

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

No	Item	Condition	Specification
1	输入电压/input Voltage	Mrico 间输入电压/input Voltage B+ to B-	-0.3～+12.7V
2	过充电 Overcharge	保护电压/Detection voltage	4.25±0.05V
3		恢复电压/ Release voltage	4.1±0.05V
4		保护延迟时间/ Detection delay time	0.7～1.3s
5	过放电 Over discharge	保护电压/Detection voltage	2.7±0.08V
6		恢复电压/ Release voltage	2.8±0.1V
7		保护延迟时间/ Detection delay time	0.7～1.3s
8	放电过流 Over discharge current	放电过流保护电流/Over current	8.5A±1A
9		放电过流保护延时/delay time	50～150ms
10	短路保护	短路保护延时/ Short detection delay time	100～500us
11	自耗电 Normal current consumption	工作状态自耗电 Normal current consumption of PCM	Max 35uA
12	OV 充电/OV charger	是否允许 OV 充电/allowed OV change	YES
13	建议工作条件 Suggest working conditions	建议最大持续充/放电电流 max continuous charge/discharge current	3A
14	内阻/IR resistance	PCM 内阻/ IR of PCM	≤45mΩ
15	NTC	NTC 阻值(20~30℃)	\
16	PTC	PTC 阻值(20~30℃)	\
17	PCB 尺寸 The size of final PCM	长度/ The length of final PCM	L=±0.15mm
18		宽度/ The width of final PCM	W=±0.1mm
19		厚度/ The thickness of final PCM	H=1.2±0.1mm

4保密等级□绝密□机密■秘密 □普通

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

7.1 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.
7.2 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.

8.标准测试条件 Standard Test Conditions

8.1 Environmental Conditions 环境要求：

除非特殊说明，否则所有测试都在温度 25±2℃，湿度 65±20%,气压 86kPa～106kPa 的环境中测试
Unless otherwise specified, all tests stated in this specification are conducted at temperature 25±2℃and humidity 65±20%, air pressure 86kPa～106kPa .

8.2 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 1kΩ/V;

Voltage is measured by D.C. voltmeter which precision is higher than 0.5 grade and self resistance is higher than 1kΩ/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℃
Temperature is measured by thermometer which has proper measuring range and division value is lower than 0.5℃;

d）测量时间用的计时器应按时、分、秒分度，至少应具有±1%的准确度；

The timer used in measuring should be degreed in hour, minute and second, and should have degree of accuracy no more than ±1%.

8.3 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℃±2℃； 相对湿度：65±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 25ºC ±2ºC under a humidity of 65±20%, unless otherwise specified .

9.充放电特性 Characteristics

9.1 标准充电 Standard charge

用直流稳压电源以电压为 12.6V，电流 0.2C(A)恒流充电至电流降至 0.02C（A）。
Charge the battery with DC stabilized power supply12.6V, constant-current 0.2C(A) current until current reach to 0.02C（A）.

9.2 标准放电 standard discharge

以 0.2C 放电到电压 7.2V 或电池组截止为止。
Discharge the battery at 0.2C to 7.2V or the protection circuit come to protection, stop.

9.3 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
9.3.1 0.2C 放电性能 0.2C Discharging Performance	电池按 9.1 规定充电后,在 8.1 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 8.1 specified conditions, then discharge at 0.2C(A) to cut-off voltage.	≥100% Nominal capacity
9.3.2 高温性能 High Temperature Performance	电芯按 9.1 规定充电结束后，将电芯放入 55℃±2℃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℃±2℃ 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 8.1 specified conditions, check the exterior appearance.	≥95% Nominal capacity 电池不爆炸不起火 The battery no explosion,no fire
9.3.3 荷电保持能力 Charge Retention	电芯按 9.1 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
9.3.4 循环寿命 Cycle Life	电芯按 9.1 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%

10.注意事项 Cautions

10.1 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.

10.2 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.

10.3 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 11.7V 至 12V 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 11.7V and 12V.Over-discharging may causes loss of cell performance, characteristics, or battery functions.

10.4 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℃~40℃ within one month （一个月）0℃~35℃ within 2 months（两个月）15℃~25℃ for 3 months and above 3 months（≥3 个月）Humidity: 65±20%RH（湿度 65±20%RH）.

10.5 严禁拆卸电池 Prohibition of disassembly.

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

10.7 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.

10.8 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.

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

Operation guidance

1.Power ON and OFF

ON: Push switch to "I" position to make power on

OFF: Push switch to "O" position to make power off

2.Capacity display(Fuel Gauge): There are four power indicators,

Push and hold down the on/off power button which is situated next to the fuel gauge display and the remaining battery capacity will be displayed

Capacity light	1 light on	2 light on	3 light on	4 light on
Capacity	25%	50%	75%	100%

How to charge the power bank Indoor Charging Only - Charger not waterproof

1.Connect AC-DC charger to power socket(100-240V available)

2. The LED on the charger will be Green when no power bank is connected

3. Unscrew the waterproof cap on power bank and push in the charger connector

4.The led indicator of AC-DC charger show RED means charging process going.

The led indicator of AC-DC charger show GREEN means charging process completed.

5.The led indicator of AC-DC charger will change from red to GREEN while the power bank be 95% of full charged.

6.Full charge time(estimated)=Capacity of power bank / output current of charge0r.

How to charge other devices(LED light / panel / strip, CCTV, IP CAMERA, AMPLIFIER, etc.)

1.Connect devices to power bank via lead

2. Make sure the connector is fully pushed into the power banks socket and the cap is screwed to lock into place to ensure waterproof seal.

Charging status

Charge power bank

Red indicator of AC-DC charger on: Charging process

Green indicator of AC-DC charger on: Power bank be full charged.

Accessories

1 power bank

2. Power Cable

3.12.6V 2A Lithium ion battery charger