

# 充电器规格书

## Specification of Battery Charger

型号: **ES-F**

**58.8V/15A 锂电池充电器**

**Aluminum case (全铝外壳)**

**58.8V / 15A Li-ion/Li-Polymer BATTERY CHARGER**



### 1. 概述

#### General

此型号 **ES-F 230×135×70mm** 的铝质外壳充电器能在输出 **58.8Vdc/15A** 的情况下工作，具有反接保护功能。

Battery Charger **ES-F 230×135×70mm** can work normally under **58.8Vdc/15A** and with reverse polarity protection.

### 2. 主要参数

### Main product specification

最大输出功率 Max.output power	输入电压 Input voltage	最高输出电压 Output voltage	误差范围 Combined regulation	输出电流 Output current	误差范围 Combined regulation
900W	220Vac	58.8V+/-0.2Vdc	+/-0.2V	15A	+/-0.2A

### 3. 环境条件

#### Environmental condition

序号 No.	项目 Item	技术参数 Technical specification	备注 Remark
1	湿度 Humidity	5~95%	带包装 With package
2	海拔 Altitude	≤3000m	正常工作 Work normally

### 4. 技术特征

#### Electrical characteristics

#### 4.1 输入特征:

##### Input characteristic

序号 No.	项目 Item	技术参数 Technical specification	备注 Remark
1	额定输入电压 Rated input voltage	220Vac	220Vac
2	电压输入范围 Input voltage range	220~ 240Vac	
3	频率 AC input voltage frequency	50~60 Hz	

#### 4.2 输出特征和充电模式:

##### Output characteristic or charge stages

序号 No.	项目 Item	技术参数 Technical specification	备注 Remark
1	恒流 CC(constant current)	≤58.8Vdc, 15A	
2	恒压 CV(constant voltage)	58.8Vdc, 15A ↓	
3	浮充 Float stage		5%CC
4	效率 Power efficiency	≥80%	输入电压=220Vac, 额定负载 Vin=220Vac, rated load

#### 4.3 保护特征:

##### Protection characteristics

序号	项目	技术参数	备注
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No.	Item	Technical specification	Remark
1	过压保护 Over voltage protection	是 Yes	
2	限压保护 Software over voltage protection	充电器设置的最大输出电压不会超过电池的最大充电电压。 The charger software limits the maximum output voltage to a level suitable for the connected battery system.	
3	过热保护 Thermal protection	否 No	
4	限流保护 Current limiting protection	是 Yes	恒流 At CC mode
5	短路保护 Short circuit protection	当输出短路时充电器不能正常工作, 输出恢复正常, 充电器可自行恢复。 Short circuit protection should be automatically recovery after remove the condition.	
6	反接保护 Reverse polarity protection	当输出线接反后充电器不会工作, 直到使用者接正确后方可启动。 When output wires are reversely connected to the battery the charger will not operate and will work normally when DC wires are correctly connected.	

#### 4.4 充电指示

##### Charging indicator

序号 No.	项目 Item	状态 Status	备注 Remark
1	电源 Power on	LED1: 红灯 Red	
2	充电 Charging	LED2: 红灯 Red	
3	充满 Fully charged	LED2: 绿灯 Green	
4	输出电压显示 Charging Voltage Display	否 No	
5	输出电流显示 Charging Current Display	否 No	

## 5. 安全性

### Safety & EMC

序号 No.	项目 Item	标准 (或测试条件) Standard (or test condition)	备注 Remark
1	耐压测试 Electric strength test	输入-输出 Input-output	1500Vac/10mA/1min 无故障 No breakdown
2	绝缘电阻 Isolation resistance	输入-接地 Input-ground	$\geq 10\text{Mohm}@500\text{Vdc}$
		输出-接地 Output-ground	$\geq 10\text{Mohm}@500\text{Vdc}$

3	泄漏电流 Leakage current	<3.5mA	Vin=264Vac
4	低电压测试 LVD	EN60335-1:2002+EN60335-2-29:2002	

备注：辨识 A：在技术要求范围内，充电器功能正常；

Remark: Discrimination A- Function OK under technical requirement range;

辨识 R：只有由外部干扰信号引起的保护装置（保险丝）损坏，整个设备在更换保护装置和重设运行参数后才能正常工作，因机械性损坏和设备故障的设备却不能。

Discrimination R- Physical damage or failure of equipment are not allowed, but damage of protection device (fuse) caused by interference signal of outside is allowed, and the whole equipment can work normally after replacement of protection device and reset of running parameter

## 6. 环境测试要求

### Environmental testing requirements

序号 No.	项目 Item	技术参数 Technical specification	备注 Remark
1	最高工作温度 High temperature ambient operating	+40°C	性能正常 Features OK
2	最低工作温度 Low temperature ambient operating	-10°C	性能正常 Features OK
3	最高存储温度 High temperature storage	+70°C	在恢复正常温度 2 小时后，充电器能正常工作。 Work normally after recovery under normal temperature for 2 hours
4	最低存储温度 Low temperature storage	-40°C	在恢复正常温度 2 小时后，充电器能正常工作。 Work normally after recovery under normal temperature for 2 hours
5	随机振动 Random vibration	20Hz to 2000Hz 3Grms 20hours per axis	
6	重复震动 Repetitive shock	40g peak 3 orthogonal axes, 3+ and 3- in each axis, 11ms pulse width	
7	热冲击 Thermal shock	-35°C to 75°C, <3min transition, 2.5hours dwell, 200cycle	
8	跌落测试 Drop test	BS EN60068-2-32:1993 TEST ED: free fall appendix B	

## 7. 机械特征

Mechanical characteristic:

外壳材质：铝

Shell material: Aluminum

外壳尺寸：长\*宽\*高=230×135×70 毫米

Outline dimension: L\*W\*H=230×135×70mm

输入接口: 通过 IEC 标准  
Input socket: meets IEC standard  
电源线: 1.5 米长  
AC wires: 1.5m length  
输出线: 1.5 米长  
DC wire: 1.5m length  
净重:3.0 千克  
Net Weight:3.0Kg

## 8. 包装, 运输方式和存储方式 Package, transportation & storage

### 8.1 包装 Package:

包装盒内有产品名称, 型号, 生产厂家名称, 安全标准, 序号, 使用说明书以及装箱单。

There is product name, model, name of manufacturer, safety approval, serial number, User Manual and packing list in the package box.

### 8.2 运输方式 Transportation:

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适用于货车装运, 产品需放在阴处, 装卸时请小心。

Suit for transportation by truck, the products should be shielded by tent from sunshine, and loaded and unloaded carefully.

### 8.3 存储方式 Storage:

当产品不使用时, 应放在包装盒内。仓库温度应在-40~70℃, 相对湿度为 5~95%, 并且仓库内不能有有害气体, 易燃品, 爆炸品, 腐蚀性等化学物品及强有力的机械震动、冲击和磁场影响。包装盒需放在距离地面至少 20cm 高, 距离墙, 热源, 和通风口 50cm 远。充电器在此种存储条件下可以放两年, 超过两年须重新检测。充电器必须每三个月通电一次, 通电时间应不少于 0.5 小时。

Products should be stored in package box when it is not used. And warehouse temperature should be -40~70℃, and relative humidity is 5~95%. In the warehouse, there should not be harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field affection. The package box should be above ground at least 20cm height, and 50cm away from wall, thermal source, and vent. Under this requirement, product has 2 years of storage period, and should be rechecked when over 2 years.

## 9. 可靠度需求 Reliability requirements

MTBF (标准, 环境温度, 负载要求)  $\geq 10K$  小时;

MTBF (standard, environmental temperature, load requirement)  $\geq 10K$  hours;

测试条件: 25℃, 满载, 测试通过值。

testing condition: 25℃, full load, testing proved value.

## 10. 充电曲线

Charging Curve

