

#### 产品特点:

- ✓ 主、备电源无缝切换
- ✓ 主电长期过流保护, 自恢复
- ✓ 精确的充放电管理
- ✓ 备电反接保护
- ✓ 备电接地保护
- ✓ 输出短路保护
- ✓ RS485 通讯方式

#### 应用领域:

- ✓ 火灾报警控制器
- ✓ 电气火灾监控系统
- ✓ 消防联动控制系统
- ✓ 可燃气体报警控制器
- ✓ 防火门监控系统
- ✓ 安防监控系统
- ✓ 消防设备电源监控系统
- ✓ 气体灭火系统

#### Features:

- ✓ Seamless switching over between main power and backup power.
- ✓ Long-term overcurrent protection and overcurrent self-recovery of main power.
- ✓ Precise charge and discharge management.
- ✓ Reverse connection protection of backup power.
- ✓ Grounding protection of backup power.
- ✓ Output short circuit protection.
- ✓ RS485 communication mode

#### Application:

- ✓ Fire alarm controller
- ✓ Electrical fire monitoring system
- ✓ Fire linkage control system
- ✓ Combustible gas alarm controller
- ✓ Fire door monitor
- ✓ Security monitoring system
- ✓ Fire fighting equipment power supply monitoring system
- ✓ Gas fire extinguishing system

# EST-100T-27

## 产品规格书

## PRODUCT SPECIFICATION

制造安全产品 驱动绿色世界 Power a Safe and Green world

Excellent 卓越 Creative 创造 United 协作



合肥华耀电子工业有限公司  
ECU ELECTRONICS INDUSTRIAL CO.,LTD.



电话 TEL 4006659997/0551-62731110  
传真 FAX+86-551-65324417 转 0

安徽省合肥市蜀山区淠河路 88 号  
No.88 Pihe road P.O BOX  
9023-20,Hefei China

<http://www.ecu.com.cn>  
<http://www.ecupowersupply.com>  
[sales@ecu.com.cn](mailto:sales@ecu.com.cn)

订购信息:

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## 版本更改记录 Revisions

[illegible]

设计 *Designed*  
王东楼

审核 *Checked*  
陈虎

批准 *Approved*  
张伟东

基本参数 Basic Parameters

输出参数  
Power output parameters

| 输出         | 输出电压<br>(VDC)      | 输出电流<br>(A) | 通讯方式              | 备注  |
|------------|--------------------|-------------|-------------------|-----|
| 输出V1       | 27.5V±0.8V         | 2.0         | RS485通讯           | 见附件 |
| 输出V2       | 27.5V±0.8V         | 1.0         |                   |     |
| 输出纹波       | 输出纹波/噪音<br>(mVp-p) |             | 备注                |     |
| 最大值<br>MAX | 120mV              |             | 测试条件：参考下面纹波噪音测试条件 |     |

电池充电参数  
Battery charging parameters

| 项目<br>Item                                          | 单位<br>Unit | 最小值<br>Min | 典型值<br>Type | 最大值<br>Max | 备注<br>Notes |
|-----------------------------------------------------|------------|------------|-------------|------------|-------------|
| 均充电流<br>Equalized charging current                  | A          | 0.3        | 0.35        | 0.45       |             |
| 浮充电压<br>Floating charge voltage                     | Vdc        | 26.4       | 27.2        | 28         |             |
| 备电极限放电电压<br>Limit discharge voltage of backup power | Vdc        | 20         | 21          | 22         |             |

注：输出纹波噪声测试条件  
Note: DC output ripple & noise test conditions

1) 使用 12 英寸（300mm）的双绞线将电源连接至负载，同时在负载端并联 0.1uF 和 47uF 电容。  
Connect the power supply to the load through 12''(300mm)twisted-pair cable and connect a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor in parallel at the load end.

2) 示波器需设置在 20M 赫兹带宽，在负载端进行测试。  
The oscilloscope bandwidth should be set at 20MHz and ripple & noise should be tested at the load end.

输入特性 Input Characteristics

| 项目<br>Item                                   | 单位<br>Unit | 最小值<br>Min | 额定值<br>Rated | 最大值<br>Max | 备注<br>Notes |
|----------------------------------------------|------------|------------|--------------|------------|-------------|
| 输入额定电压<br>Input rated Voltage                | Vac        | 187        | 230          | 264        |             |
| 输入频率<br>Input Frequency                      | Hz         | 47         | 50           | 63         |             |
| 备电接入电压<br>Accessible voltage of backup power | Vdc        | 20         | 24           | 28         |             |

输出特性 Output Characteristics

| 项目<br>Item                 | 单位<br>Unit | 最小值<br>Min | 典型值<br>Type | 最大值<br>Max | 备注<br>Notes                                                                               |
|----------------------------|------------|------------|-------------|------------|-------------------------------------------------------------------------------------------|
| 效率<br>Efficiency           | %          |            | 84          |            | 输入230Vac，备电不接下测<br>@230Vac,Test at Battery is disconnected.                               |
| 负载调整率<br>Load Regulation   | %          | /          | /           | +/-2       | 230Vac@20%~100%负载，输出端子根部测试<br>230Vac@20%~100% Load. Test the root of the output terminal. |
| 输入电压调整率<br>Line Regulation | %          | /          | /           | +/-1.5     | 187~264Vac输入@100% 负载<br>187~264Vac Input @100% Load                                       |
| 开机延迟时间<br>Setup Time       | s          | /          | 3           | /          | 230Vac输入@100% 负载<br>230Vac Input@100% Load                                                |

|                                                  |    |   |   |      |                      |
|--------------------------------------------------|----|---|---|------|----------------------|
| 过冲响应<br>Overshoot Response                       | %  | / | / | +/-5 | 开关机时<br>Power on/off |
| 主备电转换延时<br>Delay of Main/Backup Power Conversion | ms |   | 0 |      |                      |

环境特性 Environmental Characteristics

| 项目<br>Item                   | 单位<br>Unit          | 最小值<br>Min | 典型值<br>Type | 最大值<br>Max | 备注<br>Notes                                                                                                                                       |
|------------------------------|---------------------|------------|-------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 温度<br>Temperature            | ℃                   | -10        | 25          | 55         | 工作温度<br>Operating Temperature                                                                                                                     |
|                              |                     | -40        | 25          | 70         | 贮藏温度<br>Storage Temperature                                                                                                                       |
| 相对湿度<br>Humidity             | ℃                   | /          | /           | 95%        | 工作湿度<br>Operating Humidity                                                                                                                        |
|                              |                     | /          | /           | 65%        | 贮藏湿度<br>Storage Humidity                                                                                                                          |
| 海拔高度<br>Altitude             | m                   | /          | /           | 3000       | 工作海拔高度（超过3000m以上，海拔高度每升高300m工作温度降低1℃）<br>Operating Altitude (The operating temperature decreases by 1℃ every 300m if the altitude exceeds 3000m.) |
|                              |                     | /          | /           | 3000       | 贮存海拔高度（超过3000m以上，海拔高度每升高300m贮存温度降低1℃）<br>Storage Altitude (The Storage temperature decreases by 1℃ every 300m if the altitude exceeds 3000m.)     |
| 大气压力<br>Atmospheric Pressure | kPa                 | 86         | /           | 106        |                                                                                                                                                   |
| 冷却方式<br>Cooling Mode         | 自然冷却Natural Cooling |            |             |            |                                                                                                                                                   |
| 防潮湿<br>Moisture Proof        | 24℃~45℃，95%RH，48h   |            |             |            | GB/T 2423.3-2006 恒定湿热试验<br>GB/T 2423.3-2006 Steady-state damp heat test                                                                           |

环境试验 Environmental Tests

| 项目<br>Item                                          | 测试标准<br>Test Standard | 测试参数<br>Test Parameters | 测试条件<br>Test Conditions | 工作状态<br>Operative Mode                |
|-----------------------------------------------------|-----------------------|-------------------------|-------------------------|---------------------------------------|
| 低温（运行）<br>Low Temperature (Operation)               | GB/T2423.1-2008       | 温度/℃<br>Temperature /℃  | 0±3                     | 正常监视状态<br>Normal monitoring condition |
|                                                     |                       | 持续时间/h<br>Duration /h   | 16                      |                                       |
| 高温（运行）<br>High Temperature (Operation)              | GB/T2423.2-2008       | 温度/℃<br>Temperature /℃  | 50±3                    | 正常监视状态<br>Normal monitoring condition |
|                                                     |                       | 持续时间/h<br>Duration /h   | 16                      |                                       |
| 恒定湿热（运行）<br>Steady-state Damp Heat Test (Operation) | GB/T2423.3-2006       | 温度/℃<br>Temperature /℃  | 40±2                    | 正常监视状态<br>Normal monitoring condition |
|                                                     |                       | 相对湿度<br>Humidity        | (93±3) %                |                                       |
|                                                     |                       | 持续时间/d<br>Duration /d   | 4                       |                                       |
| 恒定湿热（耐久）<br>Steady-state Damp Heat Test (Endurance) | GB/T2423.3-2006       | 温度/℃<br>Temperature /℃  | 40±2                    | 不通电状态<br>Unpowered condition          |
|                                                     |                       | 相对湿度<br>Humidity        | (93±3) %                |                                       |
|                                                     |                       | 持续时间/d<br>Duration /d   | 21                      |                                       |

保护功能 Protection Functions

| 项目<br>Item | 单位<br>Unit | 最小值<br>Min       | 额定值<br>Rated | 最大值<br>Max | 备注<br>Notes |
|------------|------------|------------------|--------------|------------|-------------|
| 输出过压保护     | Vdc        | 115%~150% @ Vout |              |            | 自动恢复，或重启恢复  |

|                                                                  |                                                                                                                                                                                                                                   |           |                                                                                                                                                      |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output                                                           | Overvoltage Protection                                                                                                                                                                                                            |           | Recover automatically,or Reset recover                                                                                                               |
| 过载保护<br>Over load Protection                                     |                                                                                                                                                                                                                                   | 2.2A~4.2A | 输入AC220V，输出2满载，24V电池接入充电情况下测试，电源进入打嗝状态时，故障移出后,电源自动恢复。<br>Recovers automatically after fault condition is removed                                     |
|                                                                  |                                                                                                                                                                                                                                   | 2A~4.7A   | 单独主电情况下，输出1满载情况下测试，当过流发生后，电压慢慢降低，输出2也会降低，进入打嗝状态时，故障移出后，电源自动恢复。<br>Recovers automatically after fault condition is removed                            |
| 过温保护<br>Over temperature Protection                              |                                                                                                                                                                                                                                   | /         | 内部关键元器件温度达到一定范围关断输出，自动恢复。<br>Shut off output voltage when the temperature of internal key components reaches a certain extent. Recover automatically |
| 交流保险丝<br>AC Fuse                                                 | PCB 焊接不外露，250Vac，3.15A<br>No expose of PCB welding, 250Vac,3.15A                                                                                                                                                                  |           |                                                                                                                                                      |
| 备电保险丝<br>Backup Power Fuse                                       | 可在外部更换，ATC-5A<br>Externally replaceable,ATC-5A                                                                                                                                                                                    |           |                                                                                                                                                      |
| 短路保护<br>Short Circuit Protection                                 | 输出1短路发生后，不影响输出2，故障移出后,电源自动恢复；<br>单独主电情况下，输出2短路发生后，输出1无输出，故障移除后，电源自动恢复；主备电同时在或单独备电时，输出2短路后，备电保险丝熔断，更换备电保险丝后正常<br>If the output side is short-circuit e, the power supply can be automatically restored after the fault is removed. |           |                                                                                                                                                      |
| 备电防反接保护<br>Anti-reverse Connection<br>Protection of Backup Power | 若发生备电极性接反现象，对备电、电源均无影响，正确接线后，电源正常工作。<br>Backup power and the power supply will not be affected if the polarity of backup power is reversed, and the power supply can operate normally after correct wiring.                       |           |                                                                                                                                                      |
| 备电接地保护<br>Grounding protection of backup power                   | 当备电正、负端子任意一端接电源机壳或大地时，不损坏备电和电源<br>Backup power and the power supply will not be damaged when either of the positive or negative terminals of backup power is connected to the power case or ground.                               |           |                                                                                                                                                      |

电气安全 Electrical Safety

| 项目<br>Item                    | 测试参数<br>Test Parameter                                                            | 测试条件<br>Test Conditions                   | 工作状态<br>Operative Mode                |
|-------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------|
| 绝缘电压<br>InsulationVoltage     | 升压速率 V/s<br>Rate of voltage rise V/s                                              | 100~500                                   | 不通电状态<br>Unpowered condition          |
|                               | 电源线与外壳间施加电压（有效值）/V<br>AC to PE Applied voltage(Virtual value) /V                  | 1500                                      |                                       |
|                               | 功率输出端子与外壳间施加电压（有效值）/V<br>Output to PE Applied voltage(Virtual value) /V           | 500                                       |                                       |
|                               | 施加频率 /Hz<br>Applied frequency /Hz                                                 | 50                                        |                                       |
|                               | 持续时间 /s<br>Time of duration /s                                                    | 60±5                                      |                                       |
|                               | 漏电流/mA<br>Leakage current /mA                                                     | ≤10                                       |                                       |
| 绝缘阻抗<br>Insulation Resistance | 直流电压/V<br>DC voltage /V                                                           | 500±50                                    | 不通电状态<br>Unpowered condition          |
|                               | 持续时间 /s<br>Time of duration/s                                                     | 60±5                                      |                                       |
|                               | 功率输出端子与机壳间绝缘电阻值/MΩ<br>Insulation resistance between output terminal and case /MΩ  | ≥100                                      |                                       |
|                               | AC 输入与机壳间绝缘电阻值/MΩ<br>Insulation resistance between AC input terminal and case /MΩ | ≥100                                      |                                       |
| 泄露电流<br>Leakage Current       | 泄露电流 /mA<br>Leakage Current /mA                                                   | ≤3.5                                      | 正常监视状态<br>Normal monitoring condition |
|                               | 电压/V<br>Voltage /V                                                                | 1.06 倍额定电压<br>1.06 times of rated voltage |                                       |

机械试验 Mechanical Tests

| 项目<br>Item                                 | 测试标准<br>Test Standard | 测试参数<br>Test Parameters                           | 测试条件<br>Test Conditions | 工作状态<br>Operative Mode                |
|--------------------------------------------|-----------------------|---------------------------------------------------|-------------------------|---------------------------------------|
| 振动(正弦/ 运行)<br>Vibration (Sine / Operation) | GB5170.14-85          | 频率范围/Hz<br>Frequency range /Hz                    | 10~150                  | 正常监视状态<br>Normal monitoring condition |
|                                            |                       | 加速度(m/s²)<br>Accelerated velocity (m/s²)          | 0.981                   |                                       |
|                                            |                       | 扫频速率 (oct/min)<br>Sweep frequency speed (oct/min) | 1                       |                                       |
|                                            |                       | 轴线数                                               | 3                       |                                       |

|                                            |              |                                                                                        |          |                                       |
|--------------------------------------------|--------------|----------------------------------------------------------------------------------------|----------|---------------------------------------|
| 振动(正弦/ 耐久)<br>Vibration (Sine / Endurance) | GB5170.14-85 | Number of axes<br>每个功能状态/轴线上扫频循环次数<br>Frequency sweep cycles per functional state/axes | 1        | 不通电状态<br>Unpowered condition          |
|                                            |              | 频率范围/Hz<br>Frequency range /Hz                                                         | 10~150   |                                       |
|                                            |              | 加速度 m/s²<br>Accelerated velocity (m/s²)                                                | 4.905    |                                       |
|                                            |              | 扫频速率 (oct/min)<br>Sweep frequency speed (oct/min)                                      | 1        |                                       |
|                                            |              | 轴线数<br>Number of axes                                                                  | 3        |                                       |
|                                            |              | 每个功能状态/轴线上扫频循环次数<br>Frequency sweep cycles per functional state/axes                   | 20       |                                       |
| 碰撞<br>Collision                            | GB5170.14-85 | 碰撞能量 /J<br>Collision energy /J                                                         | 0.5±0.04 | 正常监视状态<br>Normal monitoring condition |
|                                            |              | 碰撞次数<br>Collision times                                                                | 3        |                                       |

电磁兼容 Electromagnetic Compatibility

| 项目<br>Item                                                      | 测试标准<br>Test Standard | 测试参数<br>Test Parameters                              | 测试条件<br>Test Conditions                                                                                                                                                          | 工作状态<br>Operative Mode                |
|-----------------------------------------------------------------|-----------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 脉冲杂讯EFT<br>Electrical Fast Transient / Burst                    | GB/T17626.4-1998      | 瞬变脉冲电压/kV<br>Transient pulse voltage /kV             | AC电源线: ±2×(1±0.1)<br>其它连接线: ±1×(1±0.1)<br>AC power cord: ±2×(1±0.1)<br>Other connecting lines: ±1×(1±0.1).                                                                       | 正常监视状态<br>Normal monitoring condition |
|                                                                 |                       | 重复频率/kHz<br>Repetition frequency /kHz                | AC电源线 : 2.5×(1±0.1)<br>其它连接线: 5×(1±0.1)<br>AC power cord: 2.5×(1±0.1);<br>Other connecting lines: 5×(1±0.1).                                                                     |                                       |
|                                                                 |                       | 测试时间 /s<br>Test time                                 | 60                                                                                                                                                                               |                                       |
| 浪涌/冲击抗扰度<br>Surge/Impact Immunity                               | GB/T17626.5-1999      | 浪涌/冲击电压/kV<br>Surge/Impact voltage /kV               | AC 电源线: 线-线 ±1×(1±0.1);<br>线-地±2×(1±0.1)<br>其他连接线: 线-地 ±1×(1±0.1)<br>AC power cord: Line-Line: ±1×(1±0.1);<br>Line-PE: ±2×(1±0.1)<br>Other connecting lines: Line-PE: ±1×(1±0.1) | 正常监视状态<br>Normal monitoring condition |
|                                                                 |                       | 测试次数<br>Test times                                   | 5                                                                                                                                                                                |                                       |
|                                                                 |                       | 测试间隔/s<br>Test interval /s                           | 60                                                                                                                                                                               |                                       |
| 射频辐射抗扰度<br>Radiated Susceptibility                              | GB/T17626.3-1998      | 场强 (V/m)<br>Field density (V/m)                      | 10                                                                                                                                                                               | 正常监视状态<br>Normal monitoring condition |
|                                                                 |                       | 频率范围/MHz<br>Frequency range /MHz                     | 80~1000                                                                                                                                                                          |                                       |
|                                                                 |                       | 扫频速率 (10 oct/s)<br>Sweep frequency speed (10 oct/s)  | ≤1.5×10 <sup>-3</sup>                                                                                                                                                            |                                       |
|                                                                 |                       | 调制幅度 (1kHz / 正弦)<br>Amplitude modulation (1kHz/Sine) | 80%                                                                                                                                                                              |                                       |
| 射频传导骚扰抗扰度<br>Conducted Susceptibility                           | GB/T 17626.6-1998     | 频率范围/MHz<br>Frequency range /MHz                     | 0.15~100                                                                                                                                                                         | 正常监视状态<br>Normal monitoring condition |
|                                                                 |                       | 电压/μV<br>Voltage /μV                                 | 140                                                                                                                                                                              |                                       |
|                                                                 |                       | 调制幅度 (1kHz / 正弦)<br>Amplitude modulation (1kHz/Sine) | 80%                                                                                                                                                                              |                                       |
| 电源瞬变<br>Transient Test                                          | GB 16838-2005         | 电源瞬变方式<br>Power transient mode                       | 通电9s, 断电1s<br>Power on for 9s and power off for 1s                                                                                                                               | 正常监视状态<br>Normal monitoring condition |
|                                                                 |                       | 测试次数<br>Test times                                   | 500                                                                                                                                                                              |                                       |
| 电压暂降/短时中断/<br>电压变化抗扰度<br>Voltage sag/Short interruption/Voltage | GB 16838-2005         | 测试时间 /ms<br>Test time /ms                            | 20-交流电压下滑至 40%<br>20-AC voltage drops to 40% of rated value.<br>10-交流电压下滑至 0<br>10-AC voltage drops to zero.                                                                     | 正常监视状态<br>Normal monitoring condition |

|                                    |                   |                                     |                                                                                                                      |                                       |
|------------------------------------|-------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| change Immunity                    |                   | 测试次数<br>Test times                  | 10                                                                                                                   |                                       |
| 静电放电抗扰度<br>Electrostatic Discharge | GB/T 17626.2-1998 | 放电电压/kV<br>Discharge voltage /kV    | ±8-空气放电（外壳为绝缘体试样）<br>±8-Air discharge (Insulated case)<br>±6-接触放电（外壳为导体试样）<br>±6-Contact discharge (Conductive case) | 正常监视状态<br>Normal monitoring condition |
|                                    |                   | 放电间隔/s<br>Discharge interval        | ≥1                                                                                                                   |                                       |
|                                    |                   | 每点放电次数<br>Discharge times per point | 10                                                                                                                   |                                       |

可靠性数据 Reliability

| 项目<br>Item            | 数据<br>Data                 | 测试条件<br>Test Conditions                                               |
|-----------------------|----------------------------|-----------------------------------------------------------------------|
| 产品老化<br>Burn-in       | 100%                       | 230Vac（50Hz），满载，40℃，4小时<br>230Vac（50Hz），Full load, 40℃, 4 Hours       |
| 平均无故障时间<br>MTBF       | 200,000小时<br>200,000 Hours | 230Vac，满载，25℃，MIL HDBK 217F<br>230Vac, Full load, 25℃, MIL HDBK 217F  |
| 质保<br>Warranty period | 18个月<br>18 Months          | 40℃，230Vac，100% 负载，24小时工作<br>40℃, 230Vac, 80% Load, 24 Hours working. |

结构与安装 Mechanical Installation

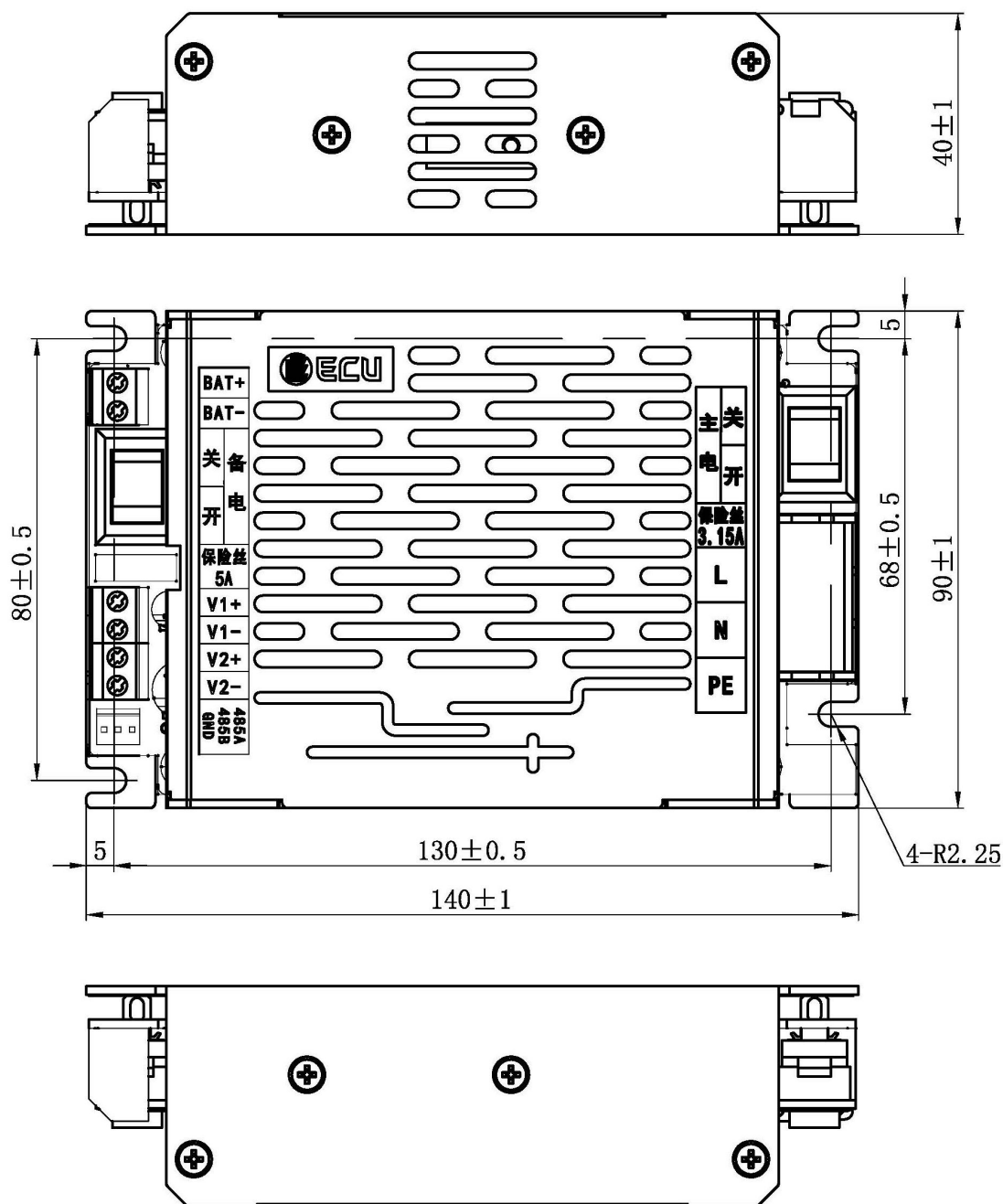
| 项目<br>Item                     | 数据<br>Data                                                 | 备注<br>Notes                                                                                                 |
|--------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 尺寸（长宽高）/mm<br>Size /mm         | 140*90*40                                                  |                                                                                                             |
| 重量 /kg<br>Weight /kg           | ≤0.5kg                                                     |                                                                                                             |
| 安装方式<br>Installation           | 见产品安装示意图<br>See Product assembly                           |                                                                                                             |
| 输入端子<br>Input Terminal         | 型号：HB-950M-9.5-3P-1K<br>脚距9.5mm，3位<br>Pitch=9.5mm, 3pin    | 最大扭矩 (Maximum torque): 1.2N.M<br>温度范围 (Temperature range): -40℃~+105℃<br>横截面 (Cross section): AWG 22 ... 12 |
|                                | 1 PIN---AC(L)                                              |                                                                                                             |
|                                | 2 PIN---AC(N)                                              |                                                                                                             |
|                                | 3 PIN---FG                                                 |                                                                                                             |
| 输出端子<br>Output Terminal        | 型号：KF129VC-5.08-4P-1G<br>脚距5.05mm，4位<br>Pitch=5.08mm, 4pin | 最大扭矩 (Maximum torque): 0.8N.M<br>温度范围 (Temperature range): -40℃~+105℃<br>横截面 (Cross section): AWG 24 ... 12 |
|                                | 1PIN---输出+(V1+)                                            |                                                                                                             |
|                                | 2PIN---输出+(V1-)                                            |                                                                                                             |
|                                | 3PIN---输出-(V2+)                                            |                                                                                                             |
| 通讯端子<br>Communication Terminal | 485A<br>485B<br>GND                                        | 型号：HX25410-Y脚距2.5mm，3位                                                                                      |
|                                |                                                            |                                                                                                             |
|                                |                                                            |                                                                                                             |
| 备电端子<br>Battery Terminal       | 型号：KF129VC-5.08-2P-1G<br>脚距5.05mm，2位<br>Pitch=5.08mm, 2pin | 最大扭矩 (Maximum torque): 0.8N.M<br>温度范围 (Temperature range): -40℃~+105℃<br>横截面 (Cross section): AWG 24 ... 12 |
|                                | BAT+ 电池正端                                                  |                                                                                                             |
|                                | BAT- 电池负端                                                  |                                                                                                             |



## 附件（产品安装示意图、标签示意图）

## Appendix(Product assembly/ Label diagram)

## 1. 产品安装示意图 Product assembly



说明:

Introductions:

A: 建议扭矩:M3.0螺钉&lt;0.4 N·m; M4.0螺钉&lt;0.6 N·m。

A:Suggested tightening torque:M3.0 screw &lt; 0.4 N·m;M4.0 screw &lt; 0.6 N·m.



## 2. 标签示意图 Label diagram

见安装示意图

## 3. 降额曲线 Derating curve:

