

产品特点：

- ✓ 高可靠性
- ✓ 轨道式不间断电源系统的电池控制器
- ✓ 24V 系统可达到 40A
- ✓ 使用 TS-35/7.5 或 TS-35/15 安装，便于生产维护
- ✓ 电池极性保护
- ✓ 内置电池状态诊断，易于维护
- ✓ 电池充电电流手动可调，能够适应多种型号电池，达到最优充电模式
- ✓ 继电器触点信号输出，LED 指示直流总线运行、电池故障、电池放电、电池电量显示
- ✓ 自然风冷
- ✓ 符合环保要求 RoHs6.

应用领域：

- ✓ 工业控制
- ✓ 清洁能源
- ✓ 轨道交通
- ✓ 生产制造
- ✓ 对尺寸大小、环境要求十分严酷的场所
- ✓ 对寿命、可靠性要求很高的供电系统

Features:

- ✓ High reliability
- ✓ Battery controller for DIN rail UPS system
- ✓ Suitable for 24V system up to 40A
- ✓ Use TS-35/7.5 or TS-35/15 for easy production and maintenance
- ✓ Battery polarity protection
- ✓ Built-in battery status diagnosis, easy maintenance
- ✓ Adjustable charging current, suitable for various types of batteries, to achieve the optimal charging mode
- ✓ Relay contact signal output and LED indicator for DC BUS OK, Battery Fail, Battery Discharge, and Battery Display
- ✓ Cooling by free air convection
- ✓ Comply with RoHs6

Application:

- ✓ Industrial control
- ✓ Clean energy
- ✓ Track and traffic
- ✓ Production and Manufacturing
- ✓ It is very harsh on the size and use environment
- ✓ System with high requirements for life and reliability

EDU-24V-40A

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.



基本参数 Basic Parameter.....1

输入特性 Input Characteristics.....1

电池输入/输出特性 Input Characteristics.....1

环境特性 Environment Characteristics.....1

保护功能 Protection Function.....2

特殊功能 Signals Function.....2

电气安全 Electrical Safety.....3

电磁兼容 Electromagnetic Compatibility.....3

可靠性数据 Reliability.....4

结构与安装 Mechanical Installation.....4

附件（装配示意图、降额曲线、应用框图、导轨安装方法）.....5

Appendix(Product assembly/Derating curve/Application/Din track mounting).....5

基本参数 Basic Parameter

项目 Item	单位 UNIT	规格 Specification	备注 Notes
输出电压 Output Voltage	Vdc	24	
输出电压范围 Output voltage range	V	21~29	
额定输出电流 Rated output current	A	0~40	
峰值电流 Peak Current	A	40	

输入特性 Input Characteristics

项目 Item	单位 UNIT	最小值 MIN	额定值 Rated	最大值 Max	备注 Notes
输入电压 Input Voltage	Vdc	24	/	29	DC Bus Input , O/P: Full load, 25℃
额定电流 Rated Current	A	/	/	40	I/P: 24Vdc, O/P: Full load, 25℃

电池输入/输出特性 Input Characteristics

项目 Item	单位 UNIT	最小值 MIN	额定值 Rated	最大值 Max	备注 Notes
电池电压范围 Battery Voltage Range	Vdc	21	/	29	O/P: Battery, 25℃
电流范围 Current Range	A	0	/	40	I/P: 24Vdc, O/P: Battery, 25℃
充电电流 Charge Current	A	/	/	2	I/P: 24.5Vdc, O/P: Battery, 25℃
外接电池 External Battery	AH	/	12	/	推荐电池规格12AH, 具体使用规格根据客户需求, 需额外采购/Recommend the battery specification of 12AH,and the specifications should be purchased according to customer requirements.
	V	/	24	/	
输入保险丝 Battery Input Fuse	2×T25A/32Vdc				

环境特性 Environment Characteristics

项目 ITEM	单位 UNIT	最小值 MIN	典型值 Rated	最大值MAX	备注 Notes
温度 Temperature	℃	-20	25	70	工作温度Operation Temperature.
		-40	25	85	贮藏温度Storage Temperature

相对湿度 Humidity	℃	20%	RH	90%	工作湿度Operation Humidity
		10%	RH	95%	贮藏湿度Storage Humidity
振动 Vibration	/	IEC 60068-2-6, 正弦10-500Hz, 2G, 位移0.35mm, X、Y、Z轴各60分钟; Sine Wave:10-500Hz, 2G, displacement of 0.35mm; 60 min per axis for all X, Y, Z directions			
冲击 Impact	/	IEC60068-2-27,半正弦波: 15G, 持续11ms, 每个方向3次, 共6次 Half Sine Wave: 30G for a duration of 18ms, 3 times per direction, 6 times in total			
海拔高度 Altitude	m	≤2000, 2000m以上降额使用, 15%load/Km 2000m derated above, 15%load/Km			
冷却方式 Cooling Mode	空气自然冷却 Air Cooling				
防护等级 IP level	IP20				

保护功能 Protection Function

项目 Item	技术要求 Requirement	注释 Notes
电池防反接保护 Battery anti-reverse Protection	电池接反, 电源不损坏/The battery is connected backwards and the power is not damaged	电池接反, 显示电池故障状态, 电源不损坏/The battery is connected in reverse, showing the battery failure status and the power is not damaged
电池过压/欠压保护 Battery overvoltage / under voltage protection	>29V或<21V保护 >29V or <21V protection	电池电压大于29V或低于21V时, 切断电池回路, 并显示电池故障状态/ Cut off the battery loop and display the battery failure status when the battery voltage is greater than 29V or the battery voltage is lower than 21V
电池过放电保护 Battery Over Discharge Protection	>40A保护 >40A protection	放电电流大于40A时, 切断电池回路, 并显示电池故障状态// Cut off the battery loop and display the battery failure status when the discharge current is greater than 40A
过温保护 Over Temperature Protection	85℃±5℃, 充电速度减慢 85℃±5℃,charging speed slows	温度下降后恢复至原充电速度 Return to original charging speed after temperature drop

特殊功能 Signals Function

项目 Item	技术要求 Requirement
面板显示 Panel display	当DC BUS 电压在21V~29V之间时, 绿色指示灯常亮, DC OK继电器 吸合; 当电池放电且放电电流大于1A时, 黄色指示灯亮, BAT DIS继电器 吸合; ;当电池未连接、接反、过放电、过压、欠压或故障时, 红色指示灯亮, BAT FAIL继电器 吸合。/When DC BUS Voltage is between 21V and 29V, the green indicator light is always on and DC OK relay contact short ; When the battery discharges and the discharge current is greater than 1A, the yellow indicator light is always on and BAT DIS relay contact short; When the battery is not connected , connected in reverse, overdischarge , overvoltage , undervoltage or malfunction, the red indicator light is always on and BAT FAIL relay contact short.
电池电量显示 Battery power display	当电池电压小于23V时, 电池显示一格; 当电池电压在 (23~25) V时, 电池显示两格; 当电池电压大于25V时, 电池显满格。/When the battery voltage is less than 23V,the battery power is displayed in one grid; When the battery voltage is between 23V and 25V,the battery power shows two grids; When the battery voltage is greater than 25V,the battery is full.
拨码开关 Dip switch	通过手动调节拨码开关1位和2位的ON/OFF状态, 改变电池充电电流的大小, 可调四个档位: 1 OFF, 2 OFF: 电池充电电流0.5A; 1 ON, 2 OFF: 电池充电电流1.0A; 1 OFF, 2 ON: 电池充电电流1.5A; 1 ON, 2 ON: 电池充电电流2.0A。/Battery charging current can be changed to four shifts by manually adjusting the ON/OFF status of 1-bit and 2-bit dial switch:1 OFF, 2 OFF: Battery charging current is 0.5A; 1 ON, 2 OFF: Battery charging current is 1.0A; 1 OFF, 2 ON: Battery charging current is 1.5A; 1 ON, 2 ON: Battery charging current is 2.0A。
远程信号 Remote signal	与输出隔离, 常开触点; 当输出指标正常时, DC OK、BATTERY DISCHARGE、BATTERY FAIL 分别为低阻抗 ≤50mΩ, 最大耐受直流30 V / 1 A。 / Normally open contact, isolated output,; When the output index is normal, DC OK,BATTERY DISCHARGE and BATTERY FAIL are of low impedance ≤50mΩ, respectively , Max DC 30 V / 1 A.

电气安全 Electrical Safety

项目 Item	测试方法 Test Method	测试条件 Test Conditions
绝缘电压 Withstand voltage	输入-输出 I/P-O/P	/
	输入-大地 I/P-FG	500Vac, 60S, ≤10mA
	输出-大地 O/P-FG	500Vac, 60S, ≤10mA
绝缘阻抗 Withstand Resistance	输入-输出 I/P-O/P	/
	输入-大地 I/P-FG	500VDC, ≥100MΩ, 25℃, 70%RH
	输出-大地 O/P-FG	500VDC, ≥100MΩ, 25℃, 70%RH
泄露电流 Leakage Current	输入/输出-外壳 I/O -Case	3.5mA Max
接地阻抗 PE Resistance	PE-外壳/PE-Case	< 0.1Ohm
设计标准 Design standards	UL508 工业控制类	/
	EN60950-1 资讯类	/
	UL1310 Class2 类电源	/
	EN60335-1 家电类	/
	EN61347-1 灯具类	/
	IEC60601-1 医疗类	/

1) ”/”：不符合项Non-conformance

电磁兼容 Electromagnetic Compatibility

项目 Item	测试方法 Test Method	测试条件 Test Conditions	
静电ESD Electrostatic Discharge	IEC 61000-4-2 GB17626-2	/	
射频辐射RS Radiated Field	IEC 61000-4-3 GB17626-3	/	
脉冲杂讯EFT Electrical Fast Transient / Burst	IEC 61000-4-4 GB17626-4	Criteria B; V+/V-): 0.5kV	
雷击 Surge	IEC 61000-4-5 GB17626-5	Criteria B; V+/V-): 0.5kV V+, V-/PE): 0.5kV	
射频传导 Conducted	IEC 61000-4-6 GB17626-6	/	
电源磁场 Power Frequency Magnetic Fields	IEC 61000-4-8 GB17626-8	/	
脉冲磁场抗扰度试验 Impulse magnetic field immunity test	IEC 61000-4-9 GB17626-9	/	
阻尼振荡磁场抗扰度试验 Damped oscillatory magnetic field immunity test	IEC 61000-4-10 GB17626-10	/	
电压瞬断 Voltage Dips and Interruptions	IEC 61000-4-11 GB17626-11	/	/
		/	/
		/	/
低能量脉冲 Low Energy Pulse Test (Ring Wave)	IEC 61000-4-12 GB17626-12	/	
谐波 Harmonic Current Emission	IEC/EN 61000-3-2 GB17625-1	/	
电磁耐受标准 Immunity Generic Standards	/5)	EN 55024, GB17618 资讯类	
	/5)	EN55014-2 家电类	
	/5)	EN60601-1-2 医疗类	
	/5)	EN61547 灯具类	
	/5)	EN61000-6-1, EN50082-1, GB/T17799-1 轻工业环境	
传导和辐射通用标准	/5)	EN 61000-6-2, EN55082-2, GB/T17799-2 工业环境	
		GB9254, CISPR 32, EN 55032 : Class B 资讯类	



CE&RE	/5)	GB4824, CISPR 11, EN 55011 : Class B 医疗类
	/5)	GB17743, EN55015, CISPR15: Class B 灯具类
	/5)	GB4343-1, CISPR14, EN55014-1: Class B 家电类
		EN 61000-6-3, FCC Title 47, EN55011: Class B 工控类
电压波动和闪烁 Voltage Fluctuation and Flicker	IEC/EN 61000-3-3, GB17625.2	
通用电源测试标准 Component Power Supply for General	EN 61204-3	

- 1)标准A: 规格界限内正常性能Criteria A: Normal performance within the specification limits
- 2) 标准B: 可自行恢复的临时性退化或功能丧失Criteria B: Temporary degradation or loss of function which is self-recoverable
- 3) 不对称: 共模(线对地) Asymmetrical: Common mode (Line to earth)
- 4)对称: 差模(线对线) Symmetrical: Differential mode (Line to line)
- 5) ”/ ”: 不符合项Non-conformance
- 6) 电源应视为系统内元件的一部分, 需结合终端设备进行EMC确认Power should be considered part of the element within the system, to be combined with the terminal device EMC acknowledgment;

可靠性数据 Reliability

项目 Item	数据 Data	测试条件 Test Conditions
产品老化 Burn-in	100%	I/P:24Vdc, O/P:100% load, 40℃±5℃, 4 Hours
平均无故障时间 MTBF	200000H Min	I/P:24Vdc, O/P:100% load, 25℃, MIL HDBK 217F
	/	I/P:24Vdc, O/P:100% load, 40℃, MIL HDBK 217F
质保 Warranty period	3年	I/P:24Vdc, O/P:80% load, 40℃, 24 Hours working

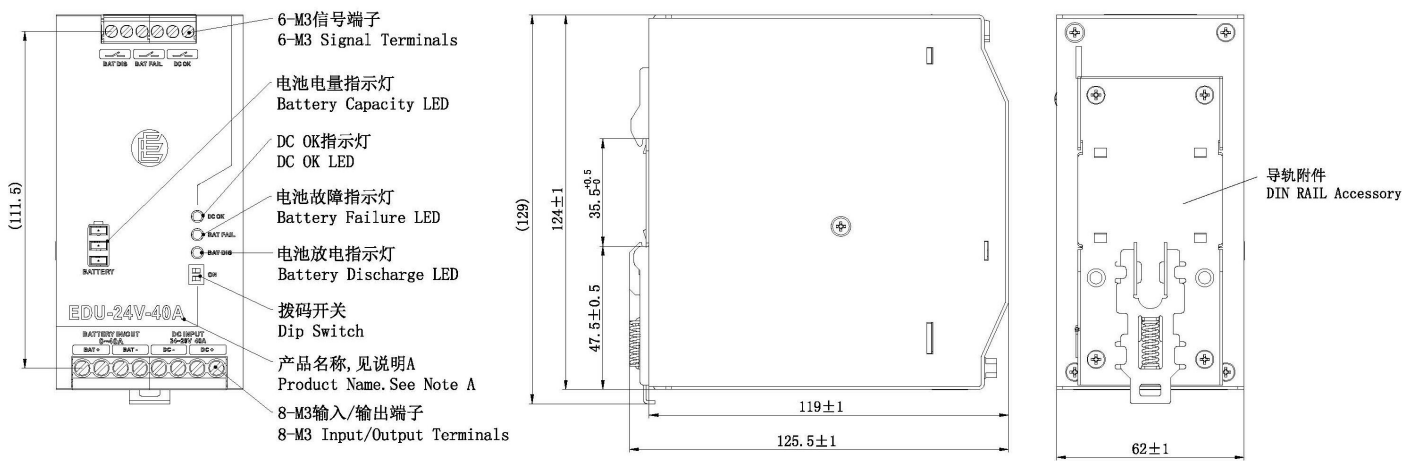
结构与安装 Mechanical Installation

项目 Item	数据 Data	备注 Note
尺寸mm (长宽高) Size	124 * 119* 62	
重量Kg Weight	0.6	
安装方式 Installation	导轨式安装 mounted on 35mm DIN rails	TS-35/7.5或TS-35/15 EN 60715
输入端子 Input Terminal	脚距6.35mm, 8位 Pitch=6.35mm, 8pin	最大扭矩0.4N.M, 直插式连接, 硬导线横截面0.5 mm² ... 4 mm² 柔性导线横截面0.5 mm² ... 2.5 mm² 横截面 AWG 26 ... 10 剥线长度7 mm
	1 PIN --- BAT+	
	2 PIN --- BAT+	
	3 PIN --- BAT-	
	4 PIN --- BAT-	
	5 PIN --- DC-	
	6 PIN --- DC-	
	7 PIN --- DC+	
输出端子 Output Terminal	脚距5.08mm, 6位/Pitch=5.08mm, 6pin	最大扭矩0.4N.M, 直插式连接, 硬导线横截面0.5 mm² ... 4 mm² 柔性导线横截面0.5 mm² ... 2.5 mm² 横截面 AWG 26 ... 12 剥线长度7 mm
	1 PIN --- BAT DIS	
	2 PIN --- BAT DIS	
	3 PIN --- BAT FAIL	
	4 PIN --- BAT FAIL	
	5 PIN --- DC OK	
	6 PIN --- DC OK	

附件（装配示意图、降额曲线、应用框图、导轨安装方法）

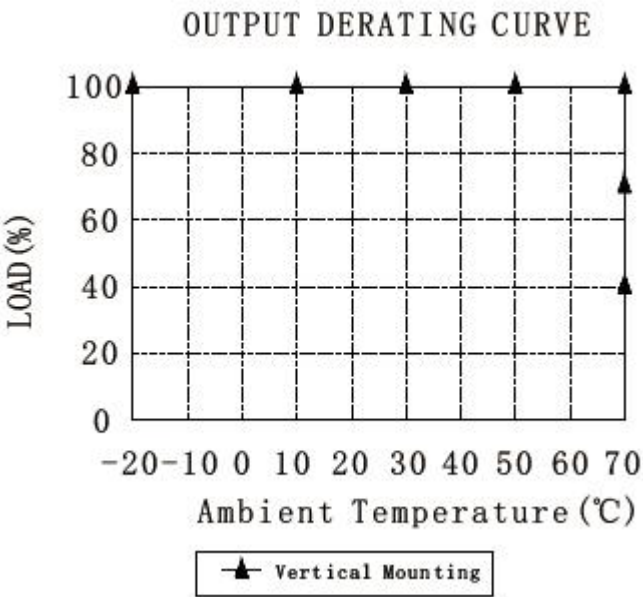
Appendix(Product assembly/Derating curve/Application/Din track mounting)

1. 产品装配示意图 Product assembly

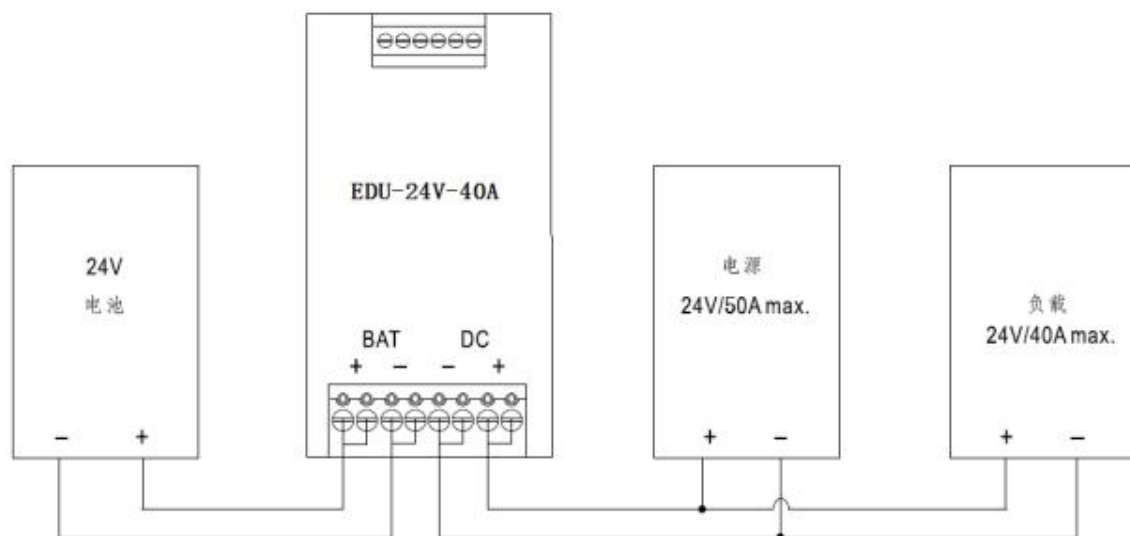


说明:
Note:
A: 产品名称特性示意, 具体参数依照规格书。
A: Refer to product specifications.
B: 建议扭矩:M3.0螺钉<0.4 N·m; M4.0螺钉<0.6 N·m。
B:Suggested tightening torque:M3.0 screw < 0.4 N·m;M4.0 screw < 0.6 N·m.

2. 降额曲线 Derating curve:



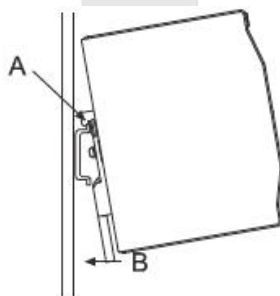
3. 应用框图 Application:



4. 导轨安装方法 Din track mounting:

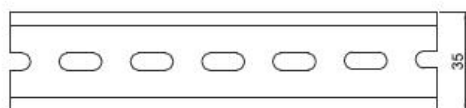
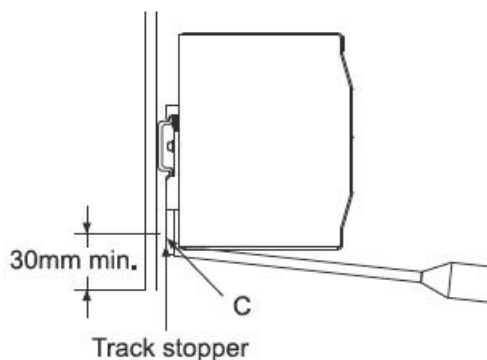
- (1) To mount the Block on a DI track, hook portion (A) of the Block onto the track and press the Block in direction (B).

安装: 将(A)部分挂入导轨, 朝(B)方向按压卡入导轨



- (2) To dismount the Block, pull down portion (C) with a flat-blade screw-driver and pull out the Block.

拆卸: 用平口螺丝刀下拉(C)部分拆卸电源



Install rail / 安装轨道: TS35/7.5 or TS35/15