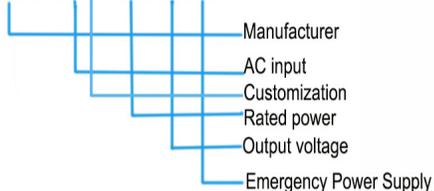


深圳市明仕达智能光电有限公司
SHENZHEN BRIGHT STAR INTELLIGENT LIGHTING CO. LTD

UPS+PS Switching power supply with Battery Charger(UPS Function)



MSD-AC50036E



Storage and working condition

Model	MSD-AC50036E
Working tem.	-20℃~55℃
Storage tem.	-40℃~+85℃
RH	10%-90%
Working Altitude	<5000m
Working Atmospheric pressure	70-106Kpa
Cooling mode	cooling by fan

- Features**
- High efficiency:** On-line single-conversion from power supply the terminal equipment, Energy saving more than 12% compared with traditional UPS system.
 - Low cost:** The PUS has the UPS inside, and do not need to purchase extra battery devices. One integrated UPS to drive the terminal equipment. Save at least 40% cost.
 - High reliability:** From Ac mains to the Terminal Equipment implemented by one conversion and reduced failure rate. Battery discharge directly to the terminal equipment without second boost conversion. Battery more stable by reducing the series connection of the battery quantity.
 - When working with AC mains,** the energy is directly transferred to the load by reducing voltage conversion. Meanwhile the battery is under standby mode, this will save extra cost. The battery will start to work when the AC mains' voltage below 187VC smoothly(online design).
 - Small volume**
Battery inside the power supply, compact size design.
 - Smaller volume of the battery**
High efficiency: Working at the same time, more than 12% efficiency compared with traditional UPS solution. Battery capacity: cut down 20% compared with UPS conditional battery solution. Battery categories: Lead acid, lithium iron phosphate and nickel hydrogen battery
 - Battery with high reliability**
Traditional UPS solution is 48V or 36V. Brightstar's battery do not have the boost and connect in series with 24V or 12V (based on the output power). The less connection of the battery quantity, the higher stability of the battery.

AC Input	Input rated voltage	220VAC
	Input voltage range	180V~240VAC
	Frequency	47Hz~63Hz
	Input current	6A-4A
	Leakage current	≅ 0.75mA, 220Vac
	Standby power consumption	≅ 10W
battery input	Input rated voltage	DC24V
	Input voltage range	18V~28V
	Input current	40Amax
Output	Rated power	500W
	Efficiency	AC≥90%; DC≥92% (@50%load)
	Output voltage	+36V
	Output current	13.9A
	voltage tolerance	+36V: 34.2~37.8V
	voltage tolerance	≤±5%
	Ripple	≤200mV
	Power factor	≥0.9@50% load
capacitive load(Max)	≤ 20000uF	

Characteristic of battery charging	charging voltage	27.5-28V
	charging voltage current	0~3A

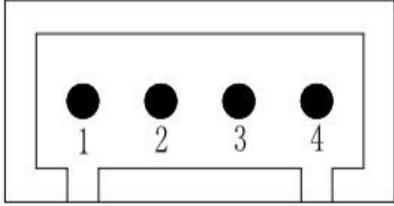
- The characteristic of the battery operation when the AC mains voltage is low**
- Maximum discharge current of battery 40A
 - Battery stop discharge**
Standard battery design: the battery stop discharge at 21±0.5V (can be customized) and turn off; When under Emergency, it can set up and stop discharge at 18.5±0.5V.
 - When AC mains' voltage below 187V, the system' signal indicates that the AC Mains Output is low voltage (The AC mains' voltage return to normal when the voltage up to 192VAc); AC mains source and battery do not work at the same time which can save energy; The PSU with discharge protection which can prolong the lifetime of the battery.

Protection	Output protection	OPP	120%~160% (hiccup mode and recover automatically after troubleshooting). Power supply working condition ≤120% rated power.
		SCP	The power supply will come into the hiccup mode when short circuit the positive and negative of the output. Recover to work after troubleshooting.
	Battery group protection	Battery low voltage protection	The battery will shut down when the discharge voltage below 21±0.5V. Leakage current <0.1mA.
		Battery output SCP	When the battery working, it's fuse will fuse and cut off power supply circuit if the power supply failure lead to the shortcircuit problem of the battery.

Insulation	1、Insulation voltage (AC input to DC output) : 2000Vac/5mA/60s
	2、Insulation voltage (L-N-G) : 1500Vac/5mA/60s
	3、insulation impedance : AC input to DC output/AC input to Battery input >50MΩ

- Startup conditions and work process**
- Ac mains operation condition: 180V~240VAC
 - A. Without AC mains source, the battery can start up by itself (21-28V);
B. Usually, the AC mains source and the Battery exist at the same, the ac mains source is prior and charging the battery. The power supply convert to the battery working mode when the AC mains' voltage drop down to 60-85% of its rated voltage (Original setting 70%). The working mode converter to the ac mains working source when its voltage increase to 75% of the rated voltage. The converter voltage point is below 85% of the rated voltage.

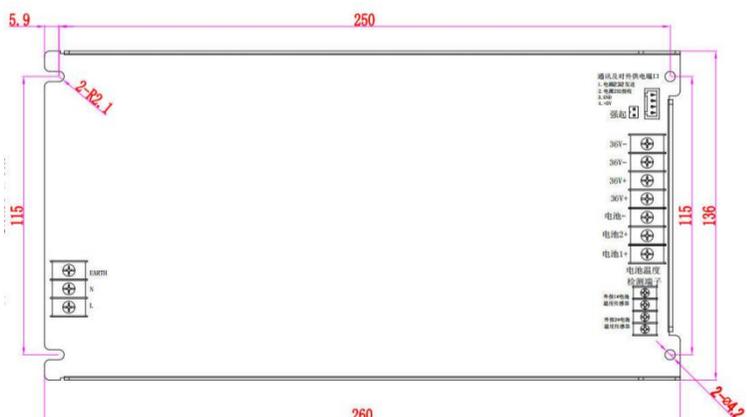
Communication Interface



- Definition of RS232 interface**
- RXD 232 Signal delivery
 - TXD power supply (232 signal reception)
 - GND
 - +5V output

Monitoring terminal diagram 监控端子图

- Connecting to the Pin 1-3 if do not need extra +5V supply. If it need display external, connecting pin 4 (pin 4 output current ≤500mA, current tolerance ±5% and the output is non-isolated).
 - The output signals of RS232 interface: the voltage of AC mains source, the working conditions of AC mains source and batteries, low voltage of battery, open-circuit of battery, SC of battery, the breakdown of AC mains source, low voltage of AC mains, battery charging, Charging circuit failure, temperature of the battery.
- RS232.
- The host computer can issue commands to the power supply through the RS232 interface, and perform functions such as forced emergency, monthly inspection, and annual inspection.
 - The forced start function: When AC working and the battery in good condition, short circuit the forced start interface, the working mode change from ac mode to battery mode immediately, and the battery cut off voltage is 18.5±0.5V. Without AC, the battery can drive the terminal equipment by short circuit the forced start interfaced.
 - Battery temperature detection: The power supply detects the battery temperature through an external sensor. When the temperature more than 60±5℃, the power supply will command the battery stop charging or stop discharging & cut off the output.



Dimension: L260*W136*H70mm

Noted: Connection design: terminal blocks

The power supply is design for the ac mains working all year around. It has self protection in case of the ac mains break off or unstable. The working time of the battery based on the volume of the load as well as the volume of the battery.