

## **Lead Acid Charger Specifications V1.0**

<b>Client:</b>	
<b>Model:</b>	<b>AP-PN180-24 ΑΥΤΟΜΑΤΟΣ ΦΟΡΤΙΣΤΗΣ ΜΠΑΤΑΡΙΩΝ 180W 24V</b>
<b>Format:</b>	<b>29.2V6A</b>
<b>P/N:</b>	
<b>Date:</b>	<b>2023/09/23</b>

# Catalog

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## 1. Overview



The model AP-PN180CH02400060 charger by natural air. The input voltage range is 100-240Vac, the single-channel voltage is up to 29.2V, and the maximum current is 6A. The entire power supply is designed in strict accordance with safety regulations.

## 2. Product main specifications

Output Power	Rated input voltage	Output voltage	Output current	Stable voltage accuracy
175.2W	100-240Vac	29.2Vdc	6A	±0.2V

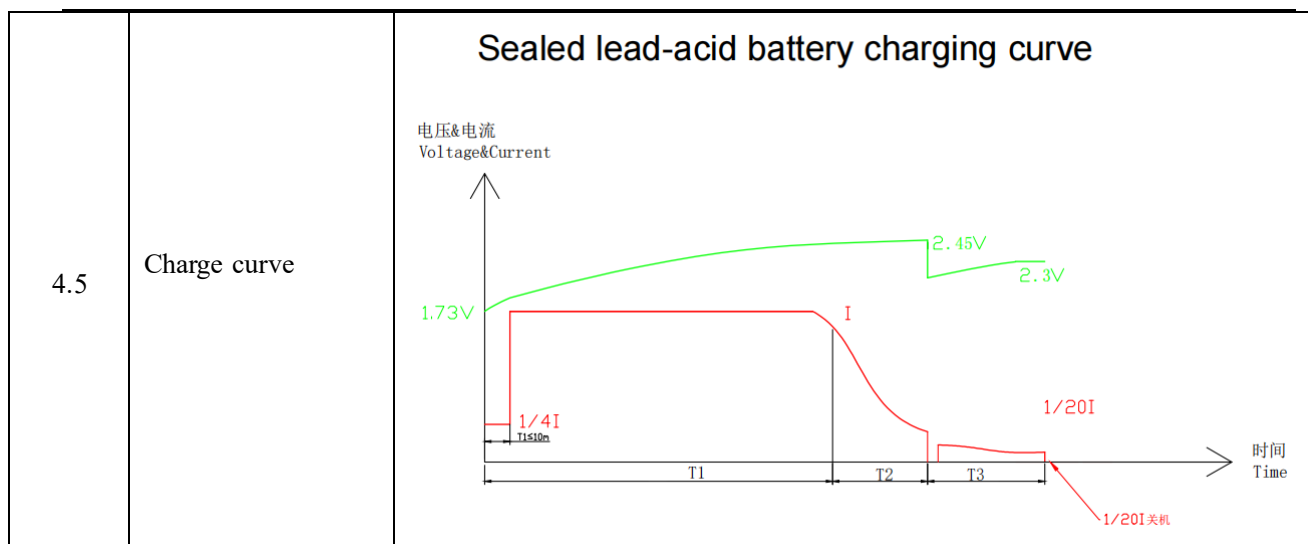
## 3. Environmental conditions

NO.	Project	Technical index	Unit	Remark
1	Operating temperature	-10~+40, Typical value 25	°C	Full load
2	Storage temperature	-40~70, Typical value 25	°C	
3	Relative humidity	10%—90%		Non-condensing
4	Elevation	≤2000	m	Normal operation
5	Cooling method	by natural air		

## 4. Electrical characteristics

<b>(1) Input</b>				
<b>NO.</b>	<b>Project</b>	<b>Technical index</b>	<b>Unit</b>	<b>Remark</b>
1.1	Rated input voltage	100-240	Vac	
1.2	Input voltage range	90—264	Vac	
1.3	Input inrush current	$\leq 100$	A	V <sub>in</sub> =264Vac, Maximum load, 25°C
1.4	Input current Max	2.5	A	V <sub>in</sub> =100Vac Maximum load
1.5	AC input voltage frequency	47—63	Hz	
1.6	Power factor correction	$\geq 0.92$		Input 100~240Vac@ Full load
<b>(2) Output</b>				
<b>NO.</b>	<b>Project</b>	<b>Technical index</b>	<b>Unit</b>	<b>Remark</b>
2.1	Output voltage	$29.2 \pm 0.2$	Vdc	
2.2	Output constant current	$6 \pm 5\%$	A	
2.4	Charge transfer current	300-600	mA	
2.5	Efficiency	$\geq 90\%$		input 220Vac Max load

<b>(3) Protection</b>			
<b>NO.</b>	<b>Project</b>	<b>Technical index</b>	<b>Notes</b>
3.1	Output short circuit protection	The charger will automatically shut down when a short circuit occurs on the charger output.	
3.2	Output overvoltage protection	When the DC output voltage $\geq 1.05V_{out}$ , the charger turns off the output	
3.3	Output overcurrent protection	When the charger output current $\geq 1.1 I_{out}$ , the charger turns off the output	
3.4	Reverse polarity protection	When the battery's positive and negative terminals are reversely connected to the charger output, the charger will automatically shut down	
<b>(4) Charging indication status and charging curve</b>			
<b>NO.</b>	<b>Project</b>	<b>Technical index</b>	
4.1	Power on state	LED is green light	
4.2	Charging state	LED is Red light	
4.3	Battery charging full state	LED is green light	
4.4	Abnormal state	LED is red light (twinkling)	



### 4. Safety regulations and EMC

NO.	Project		Standard (or test conditions)	Remark
1	Anti-Electricity Strong Degree	input - output	3000Vac/10mA/1min	No flash arc, no breakdown
		input – ground	1500Vac/10mA/1min	
		output - ground	500Vdc/10mA/1min	
2	Absolutely edge Electricity Hinder	input - output	$\geq 10M\Omega@500Vdc$	Under normal atmospheric pressure, relative humidity is 90%, when the test DC voltage is 500V
		input – ground	$\geq 10M\Omega@500Vdc$	
		output - ground	$\geq 10M\Omega@500Vdc$	
3	Safety certification		FCC CE certification	
4	Leakage current		$< 3.5mA$	
4	EMC requirements	Conducted interference	CLASS B	EN55014
		Radiation interference	CLASS B	EN55014 FCC CLASS B
		Air discharge	$\pm 8KV$	IEC61000-4-2 (B)

	Contact discharge	±6KV	
	Radiation immunity	30— 1000MHz 10V/m 80%AM (1KHz)	EN61000-4-3 (A) ETSI EN300 386 V1.3.1(2001)
	Conducted immunity	0.15— 30MHz 3V 80% AM (1KHz) Source impedance 150 Ohm	IEC61000-4-6 (A)
	Fast transient burst	1KV 5/50 Tr/Th ns 5kHz Repetition rate	IEC61000-4-4 (B)
	Surge	LEVEL 4	EN61000-4-5 Differential mode 1KV , Common mode 2KV (B)

Note: (A)-normal performance within the range of technical requirements; (B)-allows the performance to be temporarily reduced, not allowed to reset and interrupt; (R)-after the test, the device should not show physical damage or failure (including software Damage) phenomenon, damage to the protective device (fuse) caused by external interference signals is allowed. After replacing the protective device and resetting the operating parameters, the device can operate normally.

## 6. Environmental test requirements

NO.	Project	Technical index	Criteria or criteria
1	High temperature operation	40°C	Minimum input voltage, full load, working for 24 hours, normal performance

2	Low temperature operation	-10 °C	Minimum input voltage, full load, working for 24 hours, normal performance
3	High temperature storage	70 °C	48 hours, two hours at room temperature, normal work
4	Low temperature storage	-40 °C	48 hours, two hours at room temperature, normal work
5	Vibration	5-9Hz, amplitude 3.5 mm; 9-200Hz, acceleration 10 m / s <sup>2</sup> ; 3 axis directions, sweep vibration 5 times in each direction (about 3 × 50 minutes);	(1) Components (2) appearance (3) Various indicators
6	Shock	Pulse contact time 6mS; Acceleration 250 m / s <sup>2</sup> ; Six faces with 500 collisions in each direction;	(1) Components (2) appearance (3) Various indicators

## 7. Mechanical characteristics and connector definition (unit: mm)

**Outline dimension** (Unit: mm) length × width × height=145.8\*64.8\*31



视角

**技术要求:**

1) 表面处理: 黑色

2) 未注尺寸公差为±0.5mm;

3) 材质: PC塑胶

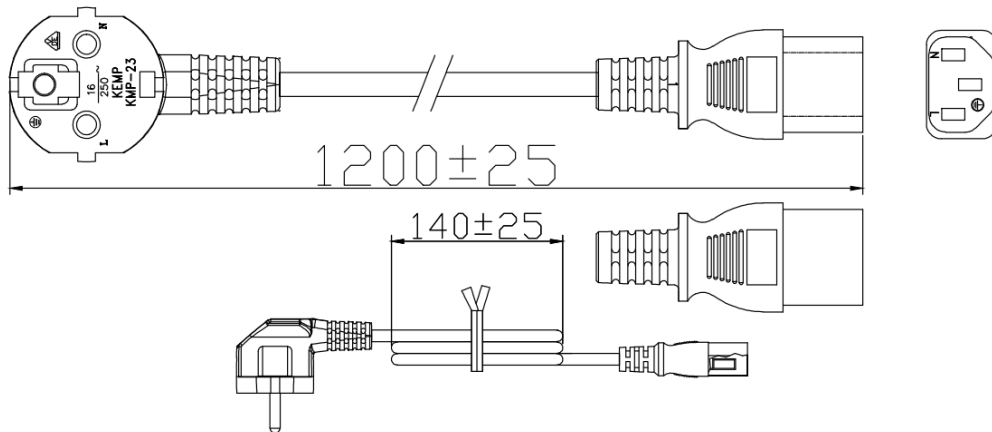
**产品结构示意图**

尺寸: 145.8\*64.8\*31mm

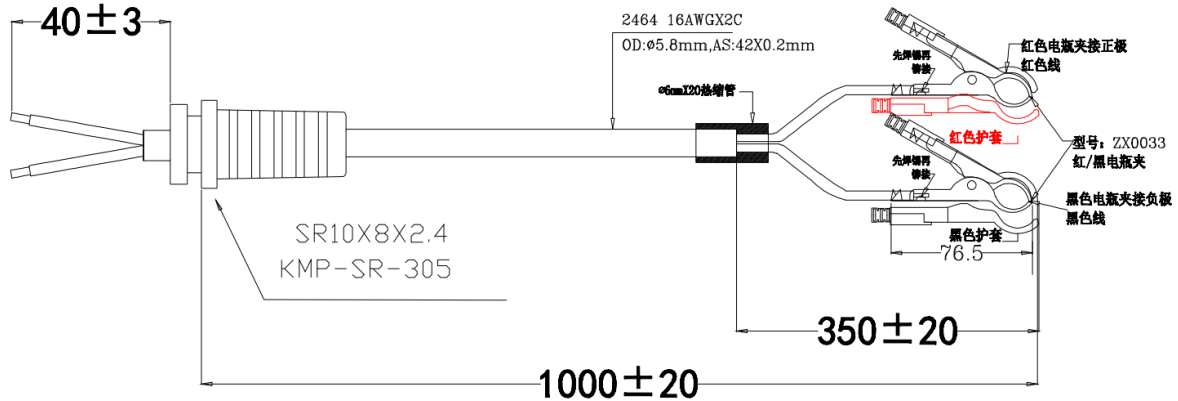
澳莱特新能源（惠州）有限公司		
产品名称: 180W结构图		
制图: 刘良书	材料: PC塑胶材质	版本: 00
审核: 尹朝飞	颜色: 黑色	比例: 1:1
批准: 徐有连	单位: MM	第页: 0f 0

Tolerance of outline dimension is ±0.5mm, others are ±0.2mm in the diagram;

## (1) Input plug



## (2) Output plug



## (3) Net weight 0.5kg, gross weight 0.6kg

## 8. Precautions

- (1) Read the instructions carefully before using the power supply.
- (2) Check if your input socket can withstand the maximum current.

## 9. Packaging, transportation, storage

### (1) Packaging

The packing box contains the product name, model, manufacturer's logo, inspection certificate from the manufacturer's quality department, and the date of manufacture.

### (2) Transportation

It is suitable for the transportation of cars, boats, and airplanes. It should be covered, protected from sun, and handled carefully during transportation.

### (3) Storage

When the product is not in use, it should be stored in a packing box. The ambient temperature of the warehouse is  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  and the relative humidity is 5% to 95%. No hazardous gas, flammable, explosive products and corrosion are allowed in the warehouse. Chemical products without strong mechanical vibration, shock and strong magnetic field. The packaging box should be at least 20cm high from the ground and at least 50cm away from the wall, heat source, window or air inlet. The storage period under these conditions is generally 1 year, the inspection should be repeated after 1 year.

## 10. Reliability

- 1、MTBF $\geq$ 50Khour (25°C, full load)
- 2、Life time $\geq$  2 years