

Lead Acid Charger Specifications V1.0

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|----------------|---|
| Client: | |
| Model: | AP-PF450-12 ΑΥΤΟΜΑΤΟΣ ΦΟΡΤΙΣΤΗΣ ΜΠΑΤΑΡΙΩΝ 450W 12V |
| Format: | 14.4V 30A |
| P/N: | |
| Date: | 2023/09/25 |

Catalog

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1. Overview

The model AP-PF450-12 charger is a fan cooling charger. The input voltage range is 100~240Vac, the single-channel voltage is up to 14.4V, and the maximum current is 30A. The power supply has reverse polarity protection. 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 |
|--------------|---------------------|----------------|----------------|-------------------------|
| 432W | 100~240Vac | 14.4Vdc | 30A | ±0.2V |

3. Environmental conditions

| NO. | Project | Technical index | Unit | Remark |
|-----|-----------------------|--------------------------------|------|----------------|
| 1 | Operating temperature | -10~+45, Typical value 25 - | ℃ | Full load |
| 2 | Storage temperature | -40~70, Typical value 25 | ℃ | |
| 3 | Relative humidity | 5%—95% | | Non-condensing |

| | | | | |
|---|----------------|--------------------------------|---|------------------|
| 4 | Altitude | ≤ 2000 | m | Normal operation |
| 5 | Cooling method | 40*40*20mm Bearing fan cooling | | |

4. Electrical characteristics

| | | | | |
|------------|---------------------|------------------------|-------------|---------------|
| 1 | Input | | | |
| NO. | Project | Technical index | Unit | Remark |
| 1.1 | Rated input voltage | 100~240 | Vac | |
| 1.2 | Input voltage range | 90~264 | Vac | |
| 1.3 | Input current Max | 8 | A | |

| | | | | |
|-----|----------------------------|-------------|----|-----------------------------|
| | | | | Vin=100Vac 满载 |
| 1.4 | AC input voltage frequency | 47—63 | Hz | |
| 1.5 | Power factor correction | ≥ 0.95 | | Input 100~240Vac@ Full load |

| | | | | |
|------------|-------------------------|------------------------|-------------|------------------------|
| 2 | Output | | | |
| NO. | Project | Technical index | Unit | Remark |
| 2.1 | Output voltage | 14.4 ± 0.2 | V | Maximum output voltage |
| 2.2 | Output constant current | $30 \pm 5\%$ | A | Maximum output current |

| | | | | |
|-----|-----------------------|------------|-------|---|
| 2.3 | Turn the lamp current | 1500-3000 | mA | |
| 2.4 | Efficiency | ≥ 89 | % | Input 230Vac@ Full load |
| 2.5 | Ripple & Noise | ≤ 500 | mVp-p | Tested by a oscilloscope using 20MHz bandwidth and the output is paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor |

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|------------|---------------------------------|--|--------------|
| 3 | Protection | | |
| NO. | Project | Technical index | Notes |
| 3.1 | Reverse polarity protection | When the battery's positive and negative terminals are reversely connected to the charger output, the charger will automatically shut down | Close |
| 3.2 | Output short circuit protection | The charger will automatically shut down when a short circuit occurs on the charger output. | Close |
| 3.3 | Output overvoltage protection | When the DC output voltage $\geq 1.05V_{out}$, the charger turns off the output | Close |
| 3.4 | Output overcurrent protection | When the charger output current $\geq 1.1 I_{out}$, the charger turns off the output | Close |

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| 4 | Charging indication status and charging curve | |
| NO. | Project | Technical index |
| 4.1 | Power on state | The green light flashed |
| 4.2 | Charging state | The blue light is always on |
| 4.3 | Battery charging full state | The green light is always on |
| 4.4 | Abnormal state | The red light flashed |
| 4.5 | Charge curve | <p>铅酸免维护电池充电曲线 Sealed lead-acid battery charging curve</p> |

5. Safety regulations and EMC

| NO. | Project | Standard (or test conditions) | Remark |
|-----|--|-------------------------------------|----------------------------|
| 5.1 | Anti- Electricity Strong Degree | input - output 1500Vac/10mA/1min | No flash arc, no breakdown |
| | | input – ground 1500Vac/10mA/1min | |
| | | output - ground 500Vdc/10mA/1min | |

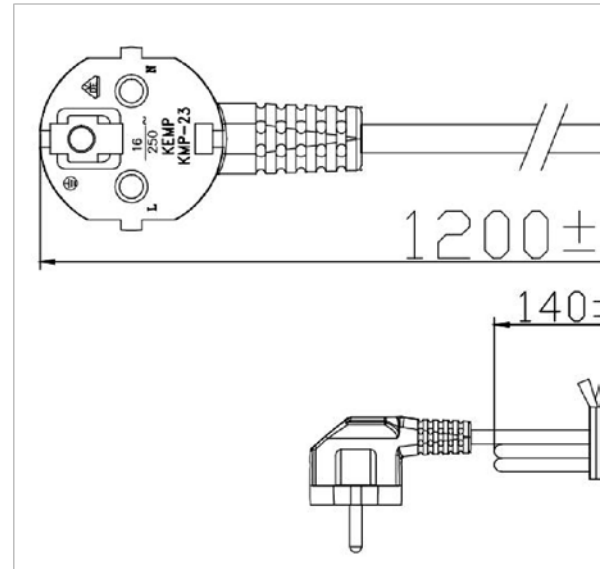
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|-----|--|----------------------------------|--|---|
| 5.2 | Absolutely edge Electricity Hinder | input - output | $\geq 10M\Omega @ 500Vdc$ | Under normal atmospheric pressure, relative humidity is 90%, when the test DC voltage is 500V |
| | | input – ground | $\geq 10M\Omega @ 500Vdc$ | |
| | | output - ground | $\geq 10M\Omega @ 500Vdc$ | |
| 5.3 | Safety certification | | FCC, CE certification | |
| 5.4 | Leakage current | | <3.5mA | |
| 5.5 | EMC requirements EMC | Conducted emission | CLASS B | EN55014 |
| | | Radiation emission | CLASS B | EN55014 FCC CLASS B |
| | | Air discharge | $\pm 8KV$ | IEC61000-4-2 (B) |
| | | Contact discharge | $\pm 6KV$ | |
| | | Radiated susceptibility | 30 – 1000MHz 10V/m 80%AM (1KHz) | EN61000-4-3 (A) ETSI EN300 386 V1.3.1(2001) |
| | | Conducted susceptibility | 0.15 – 30MHz 3V 80% AM (1KHz) Source impedance 150 Ohm | IEC61000-4-6 (A) |
| | | Electricity 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 |
|-----|----------------------------|-----------------|--|
| 6.1 | High temperature operation | 45 °C | Minimum input voltage, full load, working for 24 hours, normal performance |
| 6.2 | Low temperature operation | -10 °C | Minimum input voltage, full load, working for 24 hours, normal performance |
| 6.3 | High temperature storage | 70 °C | 48 hours, two hours at room temperature, normal work |
| 6.4 | Low temperature storage | -40 °C | 48 hours, two hours at room temperature, normal work |



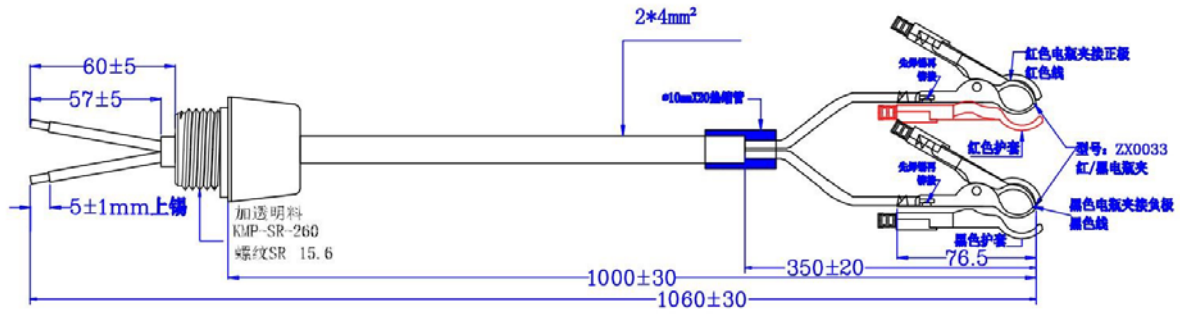
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|-----|-----------|---|--|
| 6.5 | Vibration | 5-9Hz, amplitude 3.5 mm; 9-200Hz, acceleration 10 m / s ² ; 3 axis directions, sweep vibration 5 times in each direction (about 3 × 50 minutes); | (1) Components (2) appearance (3) Various indicators |
| 6.6 | Shock | Pulse contact time 6mS; Acceleration 250 m / s ² ; Six faces with 500 collisions in each direction; | (1) Components (2) appearance (3) Various indicators |

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

7.1 Outline dimension (Unit: mm) length × width × height=215×100×54

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

- (1) Input plug
- (2) Output plug



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

9.1 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.

9.2 Transportation

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

9.3 Storage

When the product is not in use, it should be stored in a packing box. The ambient temperature of the warehouse is -40°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

10.1、MTBF \geq 50Khour (25°C , full load)

10.2、Life time \geq 2 years