## DESCRIPTIONS

450W, AC-DC Converter



RoHS

3 Years Warranty

c UL us Report CE Report UKCA Report

UL62368-1 EN62368-1 BS EN62368-1

## FEATURES

- Universal 90 - 132VAC/180 - 264VAC or 255 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +70℃
- Low standby power consumption, high efficiency, low ripple & noise
- High I/O isolation test voltage up to 4000VAC
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- Meets pollution degree 3
- Safety according to IEC62368, EN/IEC60335, EN62477

## APPLICATIONS

- Industrial
- LED
- Street light control
- Electricity
- Security
- Telecommunications
- Smart home

## Selection Guide

| Certification | Part No | Cooling method | Output Power (W) | Nominal Output Voltage and Current (Vo/Io) | Output adj. Range (V) | Efficiency at 230VAC (%) Typ. | Capacitive Load (uF) Max. |
|---|---|---|---|---|---|---|---|
| EN/BS EN | AE450-2B-12 | Forced air cooling | 450 | 12V/37.5A | 11.4-13.2 | 90 | 20000 |
| EN/BS EN | AE450-2B-15 | | 450 | 15V/30A | 14.25-16.5 | 90 | 10000 |
| UL/EN/BS EN | AE450-2B-24 | | 451.2 | 24V/18.8A | 22.8-26.4 | 91 | 8000 |
| EN/BS EN | AE450-2B-27 | | 450.9 | 27V/16.7A | 25.65-29.7 | 91 | 8000 |
| EN/BS EN | AE450-2B-36 | | 450 | 36V/12.5A | 34.2-39.6 | 92 | 6000 |
| EN/BS EN | AE450-2B-42 | | 449.4 | 42/10.7A | 39.9-46.2 | 92 | 5000 |
| EN/BS EN | AE450-2B-48 | | 451.2 | 48V/9.4A | 45.6-52.8 | 92 | 4000 |

Note:1. *All models on the selection table have derivative models. The product with terminal protective cover series: AE450-2B-xx-C; the product with three-proof paint series: AE450-2B-xx-Q, AE450-2B-xx-QQ; the product with terminal protective cover and three-proof paint series: AE450-2B-xx-CQ, AE450-2B-xx-CQQ.

2. Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current;

3. The product picture is for reference only. For details, please refer to the actual product.

## Specifications

| Product Specifications | Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Input Specifications | Input Voltage Range | Rated input (Certified voltage) | | 100 | -- | 120 | VAC |
| | | | | 200 | -- | 240 | |
| | | AC input | Low voltage (switch in position of 115) | 90 | -- | 132 | |
| | | | High voltage (switch in position of 230) | 180 | -- | 264 | |
| | | DC input | Switch in position of 230 | 255 | -- | 370 | VDC |
| | Input Voltage Frequency | AC input | | 47 | -- | 63 | Hz |
| | Input Current | 115VAC | | -- | 10 | -- | A |
| | | 230VAC | | -- | 6 | -- | |
| | Inrush Current | 115VAC | Cold start | -- | 35 | -- | |
| | | 230VAC | | -- | 60 | -- | |
| | Start-up Delay Time | 115VAC/230VAC, rated load | | -- | 1500 | -- | ms |
| | Input Fuse | Built-in fuse | | -- | 16 | -- | A |
| | Hot Plug | | | Unavailable | | | |
| Output Specifications | Output Voltage Accuracy | Full load range | 12V | -- | ±1.5 | -- | % |
| | | | 15V/24V/27V/36V/42V/48V | -- | ±1.0 | -- | |
| | Line Regulation | Rated load | | -- | ±0.5 | -- | |
| | Load Regulation | 0% - 100% load | 12V | -- | ±1.0 | -- | |
| | | | 15V/24V/27V/36V/42V/48V | -- | ±0.5 | -- | |
| | Minimum Load | | | -- | 0 | -- | |
| | Stand-by Power Consumption | 230VAC input at normal temperature | | -- | 5 | -- | W |
| | Ripple & Noise* | 20MHz bandwidth (peak-peak value) | 12V/15V | -- | -- | 200 | mV |
| | | | 24V | -- | -- | 240 | |
| | | | 27V | -- | -- | 270 | |
| | | | 36V/42V/48V | -- | -- | 360 | |
| | Temperature Coefficient | | | -- | ±0.03 | -- | %/℃ |
| | Hold-up Time | 115VAC, rated load | | -- | 12 | -- | ms |
| | | 230VAC, rated load | | -- | 16 | -- | |
| | Short Circuit Protection | Recovery time <10s after the short circuit disappear. | | Hiccup or turn off, continuous, self-recover | | | |
| | Over-current Protection | 230VAC | | 105% - 200%Io, constant current mode, shut down after 1S, self-recover, Io is the load point without derating | | | |
| | Over-voltage Protection | 12V | | 13.8-18V(Hiccup, self-recover) | | | |
| | | 15V | | 18-21V(Hiccup, self-recover) | | | |
| | | 24V | | 27.6-32.4V(Hiccup, self-recover) | | | |
| | | 27V | | 31-36.5V(Hiccup, self-recover) | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | 36V | | 41.4-48.6V(Hiccup, self-recover) | | |
| | Over-voltage Protection | | 42V | | 52-60V(Hiccup, self-recover) | | |
| | | | 48V | | 55.2-64.8V(Hiccup, self-recover) | | |
| | Over-temperature Protection | | | | Hiccup, self-recover | | |
| General Specifications | Isolation Test | Input - ⏚ | Electric strength test for 1min., leakage current <5mA | | 2000 | -- | -- | VAC |
| | | Input - output | | | 4000 | -- | -- | |
| | | Output - ⏚ | | | 500 | -- | -- | |
| | Insulation Resistance | Input - ⏚ | Ambient temperature: 25 ± 5℃ Relative humidity: < 95%RH, no condensation Test voltage: 500VDC | | 50 | -- | -- | MΩ |
| | | Input - output | | | 50 | -- | -- | |
| | | Output - ⏚ | | | 50 | -- | -- | |
| | Operating Temperature | | | | -40 | -- | +70 | ℃ |
| | Storage Temperature | | | | -40 | -- | +85 | |
| | Operating Humidity | | Non-condensing | | 10 | -- | 95 | %RH |
| | Storage Humidity | | | | 20 | -- | 90 | |
| | Power Derating | | Operating temperature derating | -40℃ to -20℃ | 3 | -- | -- | %/℃ |
| | | | | +50℃ to +70℃ | 2 | -- | -- | |
| | | | Input voltage derating | 90VAC-100VAC | 2 | -- | -- | %/VAC |
| | | | | 180VAC-200VAC | 1 | -- | -- | |
| | Leakage Current | | 240VAC, 60Hz | Touch current | < 0.75mA | | | |
| | Safety Class | | | | CLASS I | | | |
| | MTBF | | MIL-HDBK-217F@25℃ | | ≥300,000 h | | | |
| | Warranty | | Ambient temperature: <70℃ | | 3 years | | | |
| Mechanical Specifications | Case Material | | Metal (AL5052, SGCC) | | | | | |
| | Dimensions | | 225.00mm × 124.00mm × 35.00mm | | | | | |
| | Weight | | 850g (Typ.) | | | | | |
| | Cooling Method | | Forced air cooling | | | | | |

Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor,
2.*Cooling method and power derating refer to typical characteristic curves.

## Electromagnetic Compatibility (EMC)

| | | | | |
|---|---|---|---|---|
| Electromagnetic Compatibility (EMC) | Emissions (EMI) | CE (Input port)* | CISPR32 EN55032 150K - 30MHz | CLASS A |
| | | RE | CISPR32 EN55032 30MHz - 1GHz | CLASS A |
| | Immunity (EMS) | ESD | IEC/EN61000-4-2 Contact ±6KV/Air ±8KV | perf. Criteria A |
| | | RS | IEC/EN61000-4-3 10V/m | |
| | | EFT (Input port) | IEC/EN61000-4-4 ±4KV | |
| | | EFT (Output port) | IEC/EN61000-4-4 ±2KV | |
| | | Surge (Input port)* | IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV | |
| | | Surge (Output port) | IEC/EN61000-4-5 line to line ±0.5KV/line to ground ±1KV | |
| | | MS | IEC/EN61000-4-8 30A/m | |
| | | CS | IEC/EN61000-4-6 0.15 - 80MHz 10Vr.m.s | |
| | | Voltage dips | IEC/EN61000-4-11 0%, 70% | perf. Criteria B |

Note: 1. *The power supply does not meet the requirements of harmonic current stipulated in EN61000-3-2; This power supply is not suitable for the following situations.

1) The terminal equipment is used in the European Union.

2) The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage that mandatory to meet the requirements of EN61000-3-2.

3) The power supply is installed in terminal equipment with average or continuous input power greater than 75W.

4) The power supply belong to a part of lighting system.

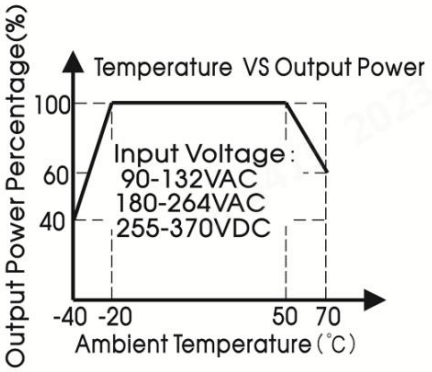
In addition, the power supply can be used in the following terminals which do not need to meet EN61000-3-2;

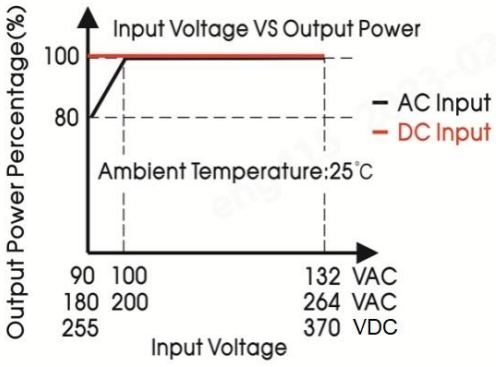
(1) Professional equipment with total fixed input power greater than 1000W;

(2) symmetrical controlled heating element with rated power less than or equal to 200W.

2. *If no harmonic current is required or customers can solve harmonic current problems by themselves, this product can be used.

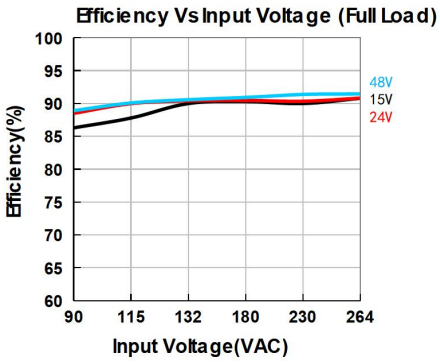
## Characteristic Curve

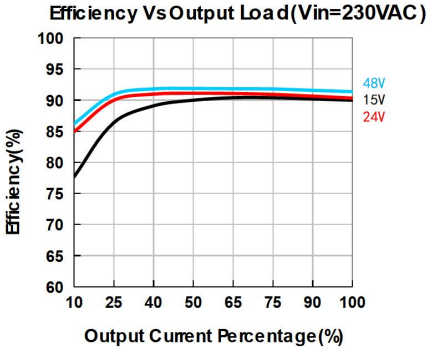


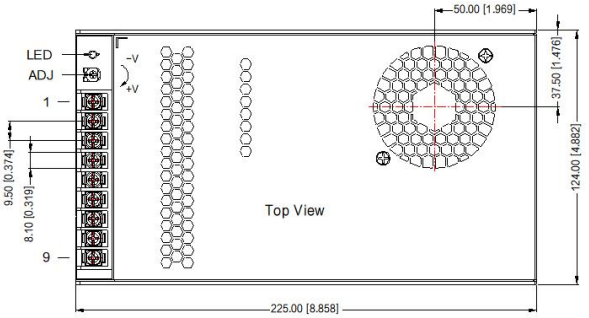

Note: 1. With an AC input voltage between 90 - 100VAC/180 - 200VAC must be derated as per the temperature derating curves;

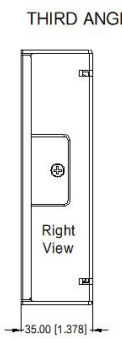
2. This product is suitable for applications using forced air cooling.



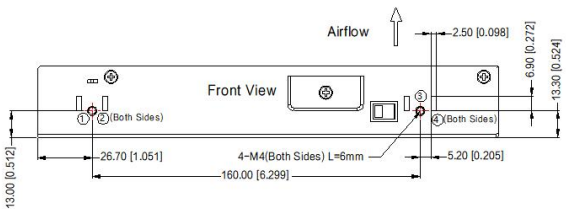

## Dimensions and Recommended




THIRD ANGLE PROJECTION

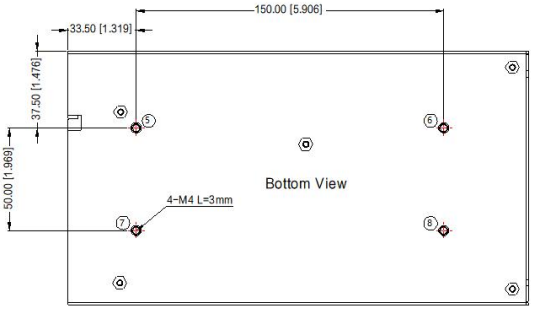
| Pin-Out | |
|---|---|
| Pin | Mark |
| 1 | +Vo |
| 2 | +Vo |
| 3 | +Vo |
| 4 | -Vo |
| 5 | -Vo |
| 6 | -Vo |
| 7 | ⏚ |
| 8 | AC(N) |
| 9 | AC(L) |

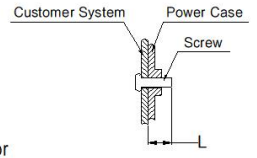



At least one of positions ① to ⑧ must be connected to the earth( ⏚ )

| Switch | AC Input | DC Input |
|---|---|---|
| 115V | 90-132VAC | — — — |
| 230V | 180-264VAC | 255-370VDC |

| Position | Screw Spec. | Length of locking screw L(max) | Recommended Torque |
|---|---|---|---|
| ①-④ | M4 | 6mm | 0.9 ± 0.09N · m |
| ⑤-⑧ | M4 | 3mm | 0.9 ± 0.09N · m |




Note:
Unit: mm[inch]
ADJ: Output adjustable resistor
Wire range: Input: 16-10AWG
Output: 12V, 15V: 14-10AWG(3PCS)
24V, 27V, 36V, 42V: 16-10AWG(≥2PCS)
48V: 14-10AWG
Connector tightening torque: M3.5, 0.8 ± 0.08N · m.
General tolerances: ± 1.00[ ± 0.039]

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load;
2. The room temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
7. The output voltage can be adjusted by the ADJ, clockwise to increase;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment.
10. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.