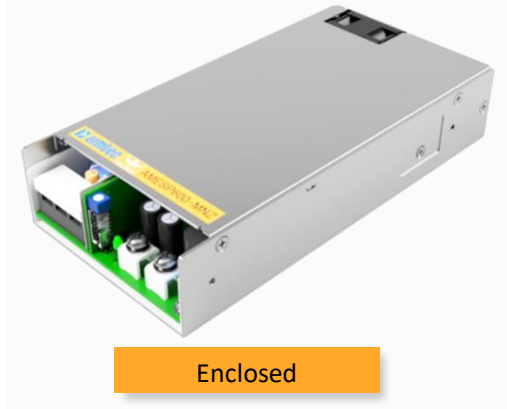


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AMESP600-MNZ



The AMESP600-MNZ is Aimtec's eagle series AC/DC power supply that offers greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 80-277VAC and an output voltage range from 12-48V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures, from -40°C to 50°C with full power and also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of over 300,000h, output short circuit protection (OSCP), output over-current protection (OCP), output over-voltage protection (OVP) and over-temperature protection (OTP) come standard with the series.

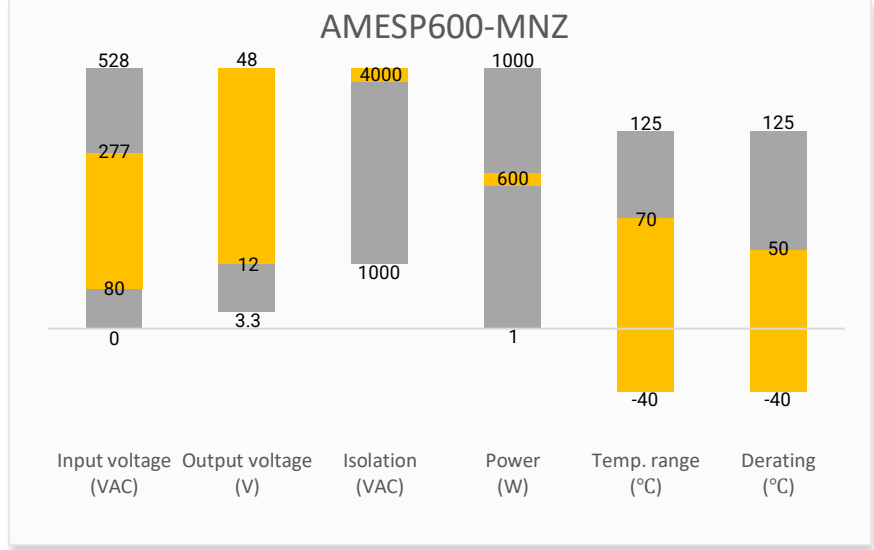
The AMESP600-MNZ is suitable for grid power, ATM machine, instrumentation, industrial controls, telecommunication and medical equipment applications.

Features

- Universal Input: 80 - 277VAC/110 - 390VDC
- Operating Temp: -40 °C to +70 °C
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 150mV(p-p) typ.
- Remote sense compensation, remote ON/OFF function
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Active power factor correction, PFC > 0.95
- Meets 2xMOPP



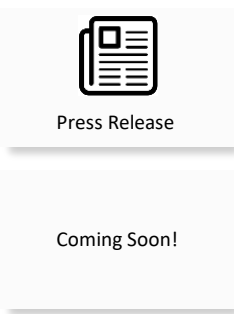
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid Industrial Telecom Instrumentation

Models & Specifications

| Single Output | | | | | | | | |
|-----------------|------------------------|---------------------|------------------------|--------------------|-------------------------------------|------------------------|------------------------------|------------------------|
| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Max Output Wattage (W) | Output Voltage (V) | Output Voltage Adjustable Range (V) | Output Current max (A) | Maximum capacitive load (μF) | Efficiency @230VAC (%) |
| AMESP600-12SMNZ | 80-277/47-63 | 110-390 | 600 | 12 | 11.8-12.6 | 50 | 50000 | 92 |
| AMESP600-15SMNZ | 80-277/47-63 | 110-390 | 600 | 15 | 14.7-15.8 | 40 | 50000 | 92 |
| AMESP600-24SMNZ | 80-277/47-63 | 110-390 | 600 | 24 | 23.5-25.2 | 25 | 50000 | 94 |
| AMESP600-27SMNZ | 80-277/47-63 | 110-390 | 600 | 27 | 26.4-28.4 | 22.3 | 50000 | 94 |
| AMESP600-36SMNZ | 80-277/47-63 | 110-390 | 600 | 36 | 35.3-37.8 | 16.7 | 50000 | 94 |
| AMESP600-48SMNZ | 80-277/47-63 | 110-390 | 600 | 48 | 47.0-50.4 | 12.6 | 50000 | 94 |

| Input Specifications | | | | |
|----------------------|------------------------|---------|---------|-------|
| Parameters | Conditions | Typical | Maximum | Units |
| Input current | 115VAC | | 7.5 | A |
| | 230VAC | | 3.5 | A |
| Inrush current | 115/230VAC, cold start | | 15 | A |
| Power factor | 115VAC, Full load | 0.99 | | -- |
| | 230VAC, Full load | 0.99 | | -- |
| Leakage current | 240VAC | | 0.1 | mA |

| Output Specifications | | | | |
|-------------------------|---------------------------------------|---------|---------|-------------------|
| Parameters | Conditions | Typical | Maximum | Units |
| Voltage accuracy | Full load, main output | ±1 | | % |
| | Full load, 5V auxiliary standby power | ±2 | | % |
| Line regulation | Full load, main output | ±0.3 | | % |
| | Full load, 5V auxiliary standby power | ±0.5 | | % |
| Load regulation | Full load, main output | ±0.5 | | % |
| | Full load, 5V auxiliary standby power | ±2 | | % |
| Ripple & Noise* | 12V/15V output | 150 | | mV _{p-p} |
| | 24V/27V/36V/48V output | 200 | | mV _{p-p} |
| Hold up time | 230VAC | >15 | | ms |
| Minimum load | | 0 | | % |
| Auxiliary standby power | | 5 | | V |
| | | 1 | | A |

* Ripple and Noise are measured at 20MHz bandwidth with a 47μF electrolytic capacitor and a 0.1μF ceramic capacitor. Please refer to the application note for specific details.
 ** Standby power: provide 5V/1A independent output, it is recommended to use with the main circuit.

| Isolation Specifications | | | | |
|--------------------------------|-------------------------------|---------|--------|-------|
| Parameters | Conditions | Typical | Rated | Units |
| Tested I/O voltage | 60 sec, leakage current < 5mA | | 4000 | VAC |
| Tested I/O to GND voltage | 60 sec, leakage current < 5mA | | 1500 | VAC |
| Resistance (I/O, I/O to GND) * | 500VDC | | >50 | MΩ |
| Means of protection I/O | | | 2xMOPP | |
| Means of protection I/PE | | | 1xMOPP | |

* Tested under 25±5°C ambient temperature with relative humidity <95% and no condensation.

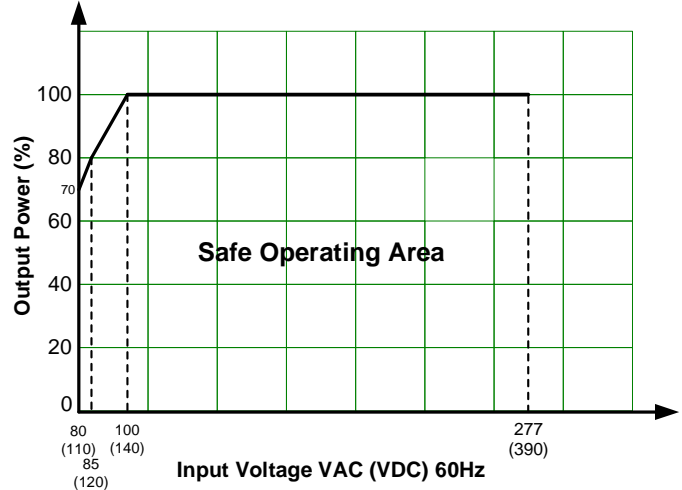
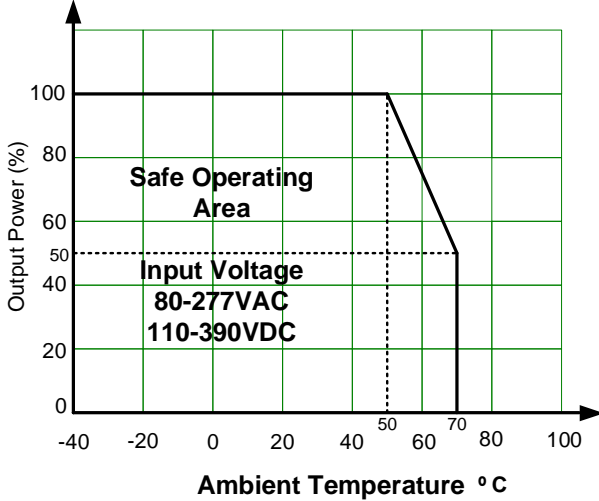
| General Specifications | | | | |
|---|--|------------|---------|-----------------------|
| Parameters | Conditions | Typical | Maximum | Units |
| Over Current protection | Auto recovery | ≥ 110 | 250 | % of I _{out} |
| Over voltage protection | Re-power on for recovery, 12V output | | 16 | VDC |
| | Re-power on for recovery, 15V output | | 20 | VDC |
| | Re-power on for recovery, 24V output | | 32 | VDC |
| | Re-power on for recovery, 27V output | | 35 | VDC |
| | Re-power on for recovery, 36V output | | 47 | VDC |
| | Re-power on for recovery, 48V output | | 60 | VDC |
| Over temperature protection* | Output voltage turn off, Auto recover after temperature drops | | | |
| Short circuit protection | Hiccup, Auto recovery after the short circuit disappear, Recover time < 3s | | | |
| No-load power consumption | 230VAC, ON/OFF add +5V signal | 0.5 | | W |
| Operating temperature | See derating graph | -40 to +70 | | °C |
| Storage temperature | | -40 to +85 | | °C |
| Power derating | 50 °C to 70 °C | 2.5 | | % / °C |
| | 80VAC ~ 85VAC | 2.0 | | % / VAC |
| | 85VAC ~ 100VAC | 1.33 | | % / VAC |
| Cooling | Forced air cooling | | | |
| Humidity | Non-condensing, Storage | ≥ 10 | 95 | % RH |
| | Non-condensing, Operating | ≥ 20 | 90 | % RH |
| Case material | Metal (1100 Aluminum, SGCC) | | | |
| Weight | | 1000 | | g |
| Dimensions (L x W x H) | 4.00 x 8.00 x 1.60 inch (101.6 x 203.1 x 40.6mm) | | | |
| MTBF | > 300 000 hrs (MIL-HDBK -217F, t=+25°C) | | | |
| *Tested under full-load condition. NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. | | | | |

| Safety Specifications | | |
|--|--|---|
| Parameters | | |
| Agency approvals | EN/BS EN 62368-1, EN 60601-1 | |
| Standards | Information technology Equipment | Design to meet IEC/UL 62368-1, EN 61558-2-16, EN 61558-1, EN 60335-1, GB4943.1, IEC 60601-1 |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B |
| | Harmonic current | IEC 61000-3-2, class A and class D |
| | Voltage flicker | IEC 61000-3-3 |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact ±8KV / Air ±15KV, Criteria A |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±4KV, Criteria A |
| | Surge Immunity | IEC 61000-4-5 L-L ±2KV/L-G ±4KV, Criteria A |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s, Criteria A |
| Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, Criteria B | |

Derating

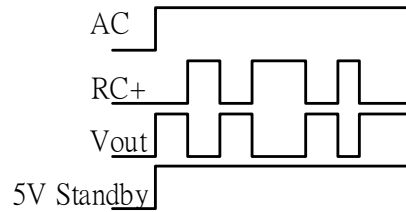
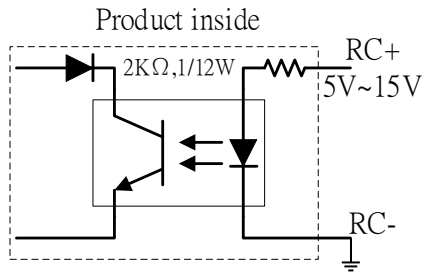


Forced Air Convection



Note: In addition to the temperature derating, input voltage derating must be applied when the input voltage is between 80-100VAC and 110-140VDC.

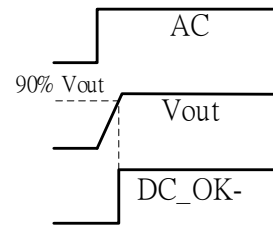
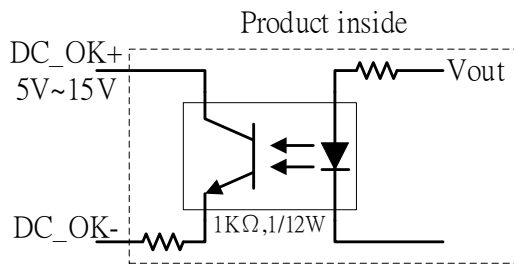
Remote ON/OFF



Note:

1. When the product is working normally, apply voltage (5V~15V) to RC+ and RC- to trigger the remote ON/OFF function, and the output voltage will be off. Withdraw the voltage, the output voltage will be re-established.
2. 5V auxiliary standby power supply is not controlled by remote ON/OFF function.

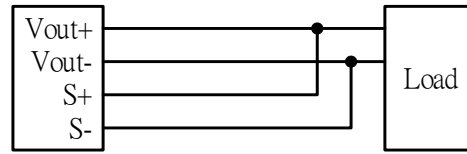
DC-OK



Note:

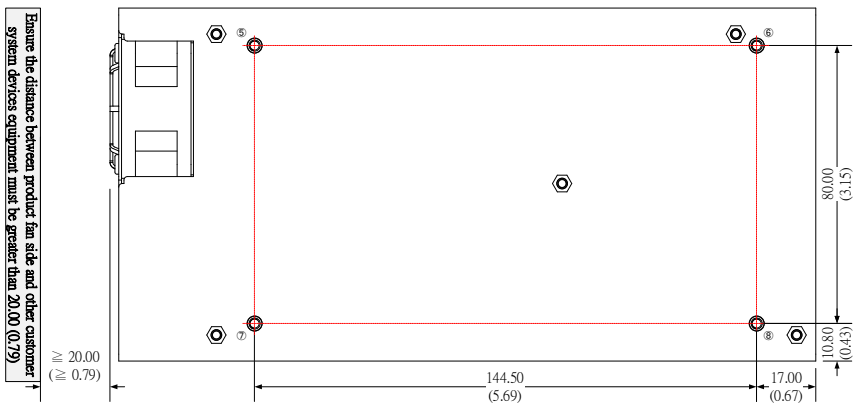
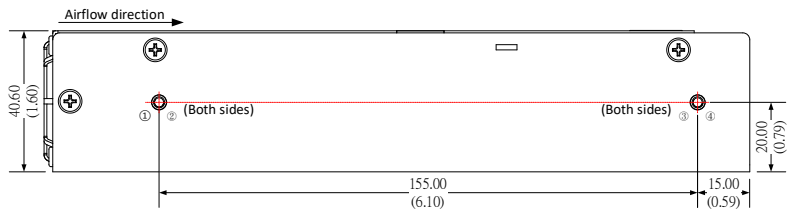
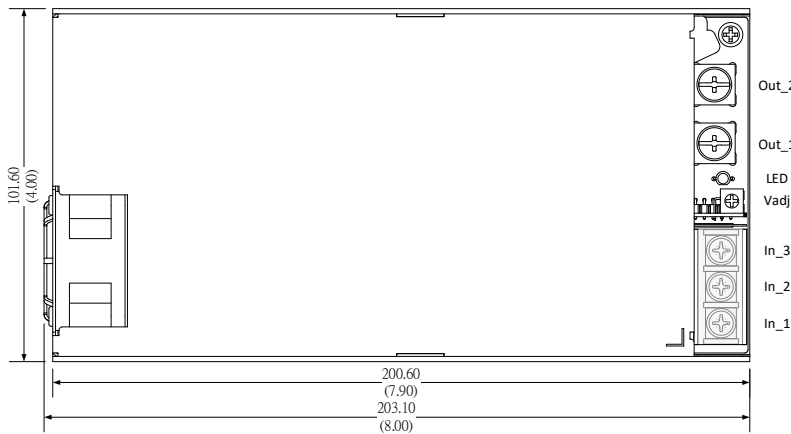
1. When the output voltage (5V~15V) of the product reaches 90% of the rated value, DC_OK+ will be connected to DC_OK-.
2. It is recommended the users apply a certain voltage between DC_OK+ and DC_OK- to detect the signal.

Remote Sense Compensation

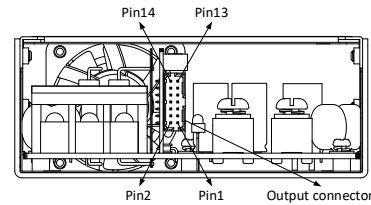
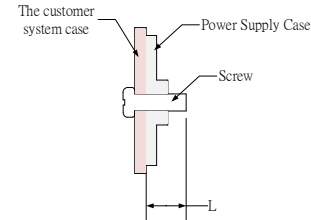


- Note:
1. The left side represents the internal schematic diagram of the product, the right side represents the customer system.
 2. Twisted pair wires are needed for S+/S-.

Dimensions



Ensure the distance between product fan side and other customer system devices equipment must be greater than 20.00 (0.79)



- Note:
- Unit: mm(inch)
 - Input wire gauge: 22-14AWG
 - Input screw terminal tightening torque: M4, 1.2N-m(Max)
 - Output screw terminal tightening torque: M5, 2.4N-m(Max)
 - Mounting screw tightening torque: M3, 4mm(Max), 0.4N-m(Max)
 - General tolerance: $\pm 1.0(\pm 0.04)$
 - At least one of the ① - ⑧ location must be connected to PE

| Pin Output Specifications | |
|---------------------------|--------------|
| Pin | Function |
| In_1 | GND |
| In_2 | AC Input (L) |
| In_3 | AC Input (N) |
| Out_1 | +V Output |
| Out_2 | -V Output |

| Pin Output Specifications | | | | |
|---------------------------|----------------------|-----|----------------------|---|
| Pin | Function | Pin | Function | Recommended connector |
| 1 | S(-) | 8 | 5V _{SB} (-) | MOLEX, 51110-1450(Without locking ramp) or MOLEX, 51110-1451(With locking ramp) or equivalent |
| 2 | S(+) | 9 | RC(+) | |
| 3 | -- | 10 | RC(-) | |
| 4 | -- | 11 | 5V _{SB} (+) | |
| 5 | DC _{OK} (-) | 12 | 5V _{SB} (+) | |
| 6 | DC _{OK} (+) | 13 | 5V _{SB} (-) | |
| 7 | 5V _{SB} (+) | 14 | 5V _{SB} (-) | |

Note:

1. All the measured parameters in this datasheet were under the conditions of Ta=25°C, humidity < 75% RH with nominal input voltage and rated output load.
2. The temperature derate of 5°C/1000m is required while operating altitude greater than 2000m.
3. All the testing methods of the index data that are shown in this datasheet are based on our company's corporate standards.
4. There might have a presence of audible noise due to the trade-off of the efficiency at high-LINE input voltage. However, it doesn't affect the power supply's performance and reliability.
5. The power supply case must be connected to the system's Protective Earth(PE) when the terminal equipment is in operation.
6. The potentiometer ADJ next to the output screw terminal is used to adjust the output voltage. Turning clockwise to increase the voltage and counter-clockwise to decrease the output voltage.

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