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# AMESP200-277NZ

Enclosed

The AMESP200-277NZ is an AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 90-305VAC and an output voltage range from 5-48V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures, from -30°C to 45°C with full power and also features an isolation of 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of >1,766,000h, 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 AMESP200-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

## Features

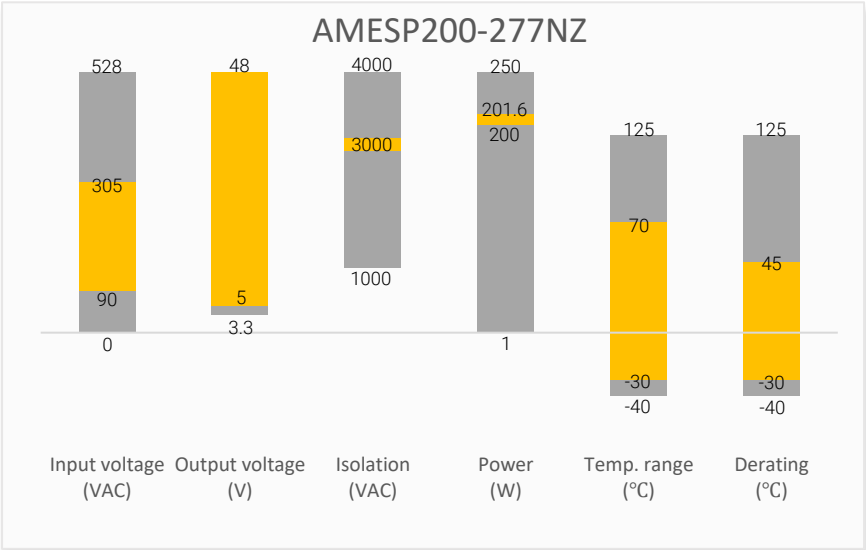
- Universal Input: 90 - 305VAC/127 - 430VDC
- Operating Temp: -30 °C to +70 °C
- PFC > 0.95
- High isolation voltage: Up to 3000VAC
- Low ripple & noise, 240mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Optional conformal coating
- Active power factor correction

RoHS

3yr Warranty

With PFC

## Summary




## Training


Product Training Video (click to open)

Press Release

Coming Soon!

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) | Efficiency @230VAC (%) |
|---|---|---|---|---|---|---|---|
| AMESP200-5S277NZ-P | 90-305/47-63 | 127-430 | 200 | 5 | 4.5-5.5 | 40 | 83 |
| AMESP200-12S277NZ-P | 90-305/47-63 | 127-430 | 200.4 | 12 | 10-13.2 | 16.7 | 84 |
| AMESP200-15S277NZ-P | 90-305/47-63 | 127-430 | 201 | 15 | 13.5-18 | 13.4 | 85 |
| AMESP200-24S277NZ-P | 90-305/47-63 | 127-430 | 201.6 | 24 | 20-26.4 | 8.4 | 87 |
| AMESP200-48S277NZ-P | 90-305/47-63 | 127-430 | 201.6 | 48 | 41-56 | 4.2 | 88 |

Note: The "-P" suffix indicates a terminal protective cover (ex. AMESP200-5S277NZ-P). For optional conformal coating, add "Q" after the "-P" (ex. AMESP200-5S277NZ-PQ is conformal coated version with terminal protective cover).

## Input Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Input current | 115VAC | 2.5 | | A |
| | 230VAC | 1.3 | | A |
| Inrush current | 115VAC, cold start | 20 | | A |
| | 230VAC, cold start | 40 | | A |
| Power factor | 115VAC, Full load | 0.98 | | |
| | 230VAC, Full load | 0.95 | | |
| Leakage current | 240VAC | | 1 | mA |

## Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | Full load | ±2 | | % |
| Line regulation | Full load | ±0.5 | | % |
| Load regulation | 230VAC, 0-100% load, 5V, 12V, 15V output | ±1 | | % |
| | 230VAC, 0-100% load, 24V, 48V output | ±0.5 | | % |
| Ripple & Noise* | 5V, 12V,15V,24V output | 150 | | mV p-p |
| | 48V output | 240 | | mV p-p |
| Hold up time | 115VAC, 230VAC, full load | 8 | | ms |

* Ripple and Noise are measured at 20MHz bandwidth with a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor. Please refer to the application not for specific details.

## Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|---|---|---|---|---|
| Tested I/O voltage | 60 sec | | 3000 | VAC |
| Tested Input to GND voltage | 60 sec | | 2000 | VAC |
| Tested Output to GND voltage | 60 sec | | 500 | VAC |
| Resistance (I/O, I/O to GND)* | 500VDC | | 100 | MΩ |

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

## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Over Current protection | Hiccup, Auto recovery | ≥ 105 | 135 | % of Iout |
| Over voltage protection | 5V output, shut down, Manual recovery | ≥5.75 | 7 | VDC |
| | 12V output, shut down, Manual recovery | ≥13.8 | 16.2 | VDC |
| | 15V output, shut down, Manual recovery | ≥18.8 | 21.8 | VDC |
| | 24V output, shut down, Manual recovery | ≥27.6 | 32.4 | VDC |
| | 48V output, shut down, Manual recovery | ≥58.4 | 68 | VDC |
| Over temperature protection | Shut down, Auto recovery | | | |
| Short circuit protection | Hiccup, Continuous, Auto recovery | | | |
| Operating temperature | See derating graph | -30 to +70 | | °C |
| Storage temperature | | -40 to +85 | | °C |
| Power derating | 45 °C to 70 °C | 2 | | % / °C |
| | 90VAC to 105VAC, 60Hz | 1.66 | | % / VAC |
| Ambient temperature derating | Operating altitude > 2000m | 5 | | °C / 1000m |
| Temperature coefficient | | ±0.03 | | % / °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing, Storage | ≥ 10 | 95 | % RH |
| | Non-condensing, Operating | ≥ 20 | 90 | % RH |
| Vibration | 10~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes | | | |
| Case material | Metal | | | |
| Weight | | 720 | | g |
| Dimensions (L x W x H) | | 8.46 x 4.53 x 1.18inch (215.0 x 115.0 x 30.0mm) | | |
| MTBF | 1 766 khrs min. Telcordia SR-332 (Bellcore) | | | |

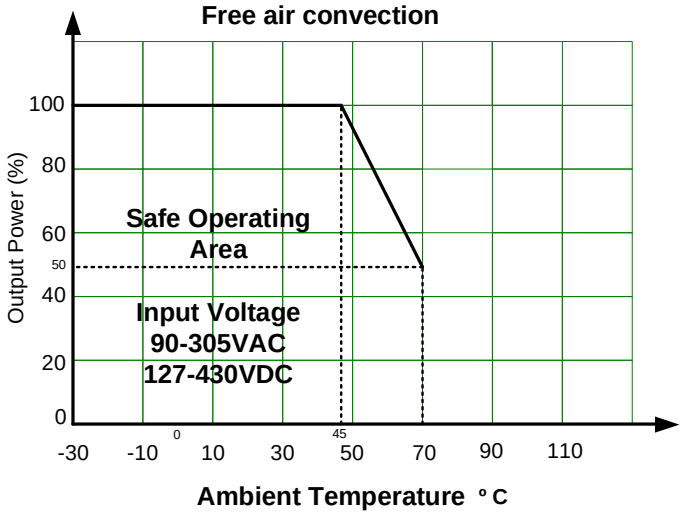
**NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.**

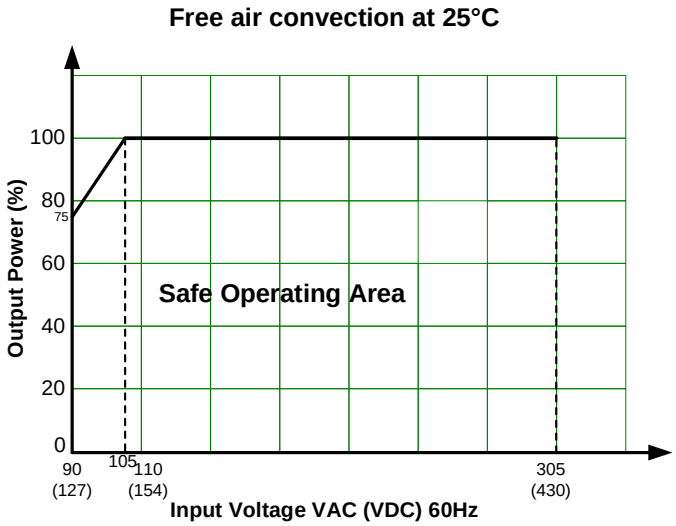
## Safety Specifications

| Parameters | | |
|---|---|---|
| Standards | Information technology Equipment | Design to meet BS EN/EN62368-1 |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B |
| | Harmonic current | IEC 61000-3-2, class A |
| | Voltage Flicker | IEC 61000-3-3 |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 |
| | Surge Immunity | IEC 61000-4-5 |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 |
| | Power-frequency Magnetic Field | IEC 61000-4-8 |
| | Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 |

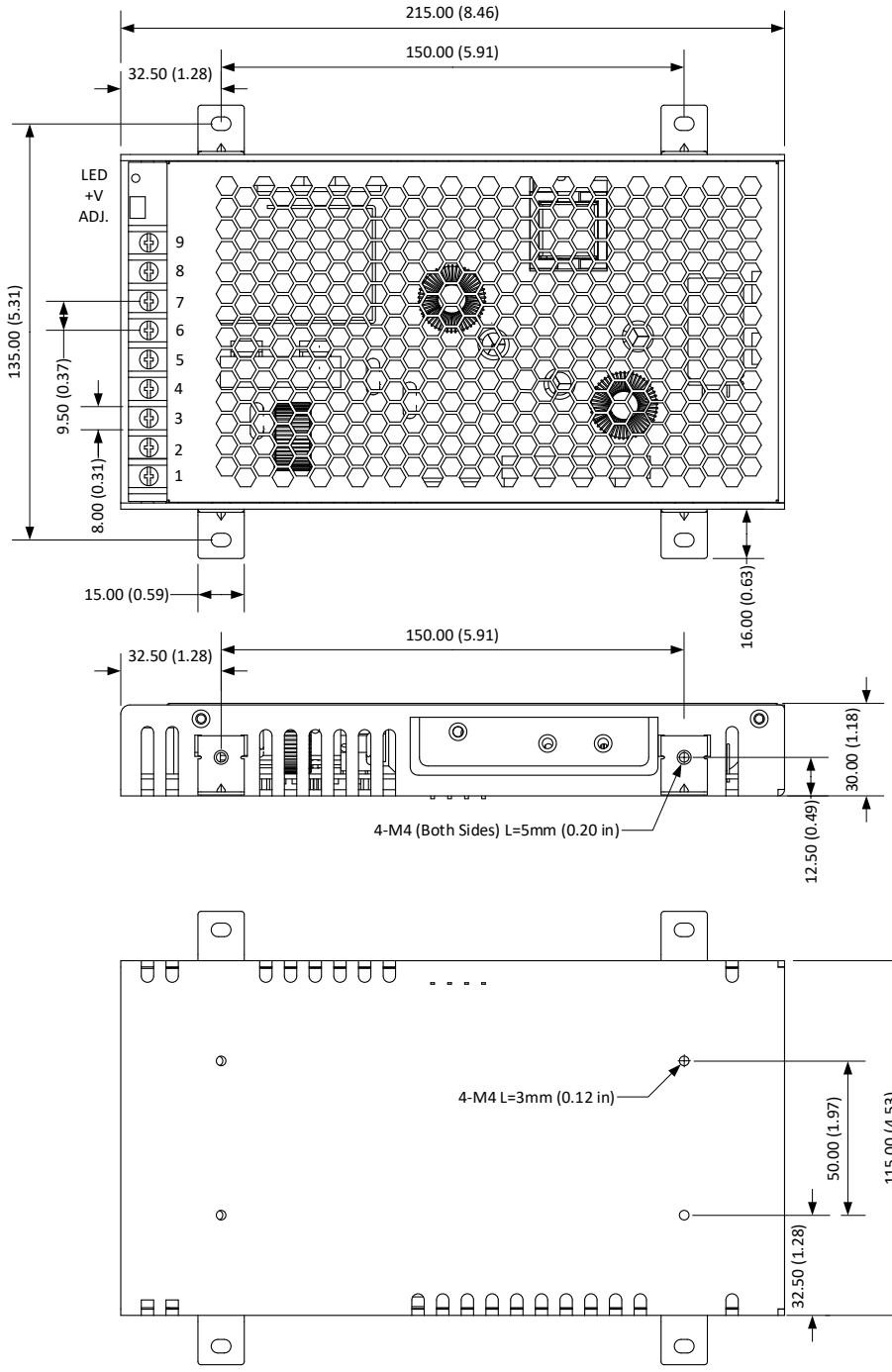
**Note: One magnetic bead (nickel-zinc ferrite) should be coupled with the output load line during CE/RE testing.**
**Note 2: All the EMC items are tested on a 450mm x 450mm x 3mm (L x W x H) metal plate as the enclosed power supply is considered as component. The electromagnetic compatibility of the final system should be re-evaluated.**

## Derating

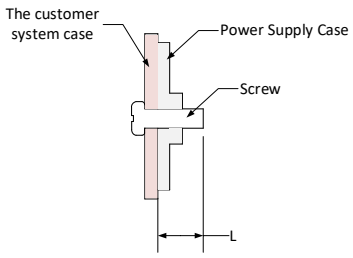

Free air convection
Output Power (%)
100
80
60
50
40
20
0
Safe Operating Area
Input Voltage
90-305VAC
127-430VDC
-30
-10
0
10
30
45
50
70
90
110
Ambient Temperature °C


Free air convection at 25°C
Output Power (%)
100
80
75
60
40
20
0
Safe Operating Area
90
(127)
105
110
(154)
305
(430)
Input Voltage VAC (VDC) 60Hz

# Dimensions




| Pin Output Specifications | |
|---|---|
| Pin | Single |
| 1 | AC Input (L) |
| 2 | AC Input (N) |
| 3 | GND |
| 4 | -V Output |
| 5 | -V Output |
| 6 | -V Output |
| 7 | +V Output |
| 8 | +V Output |
| 9 | +V Output |




Note:
Unit: mm(inch)
Wire gauge: 22-12AWG
Screw terminal tightening torque: M3.5, 0.8N-m
Mounting screw tightening torque: M4, 0.9N-m
General tolerance: ±1.0(±0.04)

**NOTE: 1.** Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.