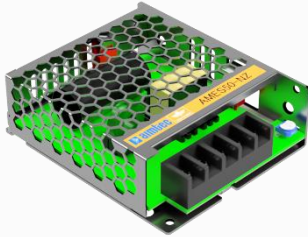


## AMES50-NZ

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Enclosed

The AMES50-NZ 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 90-264VAC and an output voltage range from 5-48V, this series will offer many benefits to your new system design.

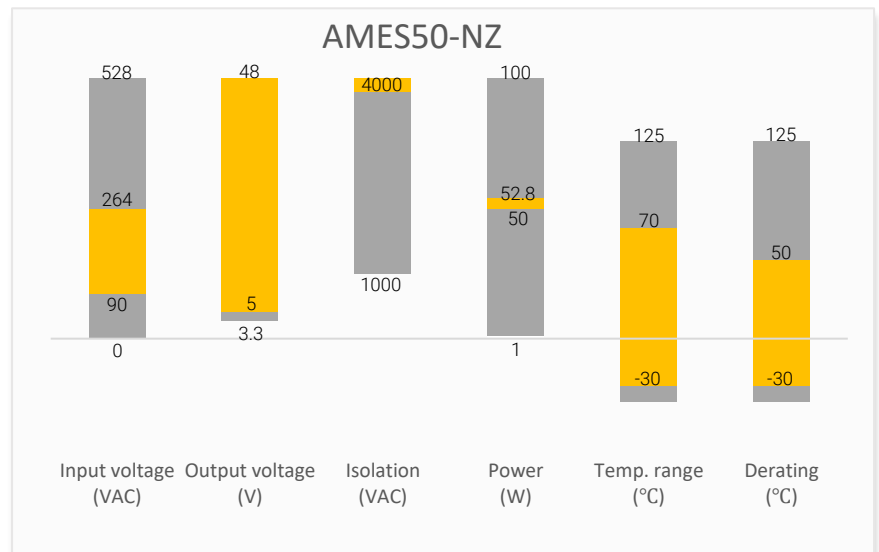
This series offers great operating temperatures, from -30°C to 70°C and also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 600,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMES50-NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

## Features

- Universal Input: 90 - 264VAC/127 - 370VDC
- Operating Temp: -30 °C to +70 °C
- High isolation voltage: Up to 4000VAC
- Output short circuit, over-current, over-voltage protection
- Regulated Output

## 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) | Maximum capacitive load (μF) | Efficiency @230VAC Typ. (%) |
|----------------|------------------------|---------------------|------------------------|--------------------|-------------------------------------|------------------------|------------------------------|-----------------------------|
| AMES50-5SNZ-P  | 90-264/47-63           | 127-370             | 50                     | 5                  | 4.5-5.5                             | 10                     | 8500                         | 83                          |
| AMES50-12SNZ-P | 90-264/47-63           | 127-370             | 50.4                   | 12                 | 10.2-13.8                           | 4.2                    | 2000                         | 86                          |
| AMES50-15SNZ-P | 90-264/47-63           | 127-370             | 51                     | 15                 | 13.5-18                             | 3.4                    | 1500                         | 88                          |
| AMES50-24SNZ-P | 90-264/47-63           | 127-370             | 52.8                   | 24                 | 21.6-28.8                           | 2.2                    | 1000                         | 88                          |
| AMES50-36SNZ-P | 90-264/47-63           | 127-370             | 52.2                   | 36                 | 32.4-39.6                           | 1.45                   | 470                          | 89                          |
| AMES50-48SNZ-P | 90-264/47-63           | 127-370             | 52.8                   | 48                 | 43.2-52.8                           | 1.1                    | 220                          | 90                          |

Note: The "-P" suffix indicates a terminal protective cover (ex. AMES50-5SNZ-P). For optional conformal coating, add "Q" after the "-P" (ex. AMES50-5SNZ-PQ is conformal coated version with terminal protective cover).

### Input Specifications

| Parameters      | Conditions         | Typical | Maximum | Units |
|-----------------|--------------------|---------|---------|-------|
| Input current   | 115VAC             |         | 0.95    | A     |
|                 | 230VAC             |         | 0.56    | A     |
| Inrush current  | cold start, 115VAC | 25      |         | A     |
|                 | cold start, 230VAC | 45      |         | A     |
| Leakage current | 240VAC             |         | 0.75    | mA    |

### Output Specifications

| Parameters       | Conditions             | Typical | Maximum | Units  |
|------------------|------------------------|---------|---------|--------|
| Voltage accuracy | Full load, 5V output   | ±2      |         | %      |
|                  | Full load, Others      | ±1      |         | %      |
| Line regulation  | Full load              | ±0.5    |         | %      |
| Load regulation  | 0-100% load, 5V output | ±1      |         | %      |
|                  | 0-100% load, Others    | ±0.5    |         | %      |
| Ripple & Noise*  | 5V output              | 80      |         | mV p-p |
|                  | 12V, 15V output        | 120     |         | mV p-p |
|                  | 24V output             | 150     |         | mV p-p |
|                  | 36V, 48V output        | 200     |         | mV p-p |
| Hold up time     | 115VAC                 | ≥ 12    |         | ms     |
|                  | 230VAC                 | ≥ 30    |         | ms     |
| Start-up time    | 115VAC                 | 2       |         | S      |
|                  | 230VAC                 | 1       |         | S      |
| Rise time        | 115/230VAC             | 30      |         | 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 note for specific details.

## Isolation Specifications

| Parameters                   | Conditions | Typical | Rated | Units |
|------------------------------|------------|---------|-------|-------|
| Tested I/O voltage           | 60 sec     |         | 4000  | VAC   |
| Tested Input to GND voltage  | 60 sec     |         | 2000  | VAC   |
| Tested Output to GND voltage | 60 sec     |         | 1250  | VAC   |
| Resistance (I/O, I/O to GND) | 500VDC     |         | 100   | MΩ    |

## General Specifications

| Parameters                   | Conditions                                                 | Typical                                       | Maximum | Units      |
|------------------------------|------------------------------------------------------------|-----------------------------------------------|---------|------------|
| Safety class                 | Class I                                                    |                                               |         |            |
| Switching Frequency          |                                                            | 65                                            |         | KHz        |
| Over current protection      | Auto recovery                                              | ≥ 110                                         | 150     | % of Iout  |
| Over voltage protection      | 5V output, shut down, Manual recovery                      |                                               | 6.75    | VDC        |
|                              | 12V output, shut down, Manual recovery                     |                                               | 16.2    | VDC        |
|                              | 15V output, shut down, Manual recovery                     |                                               | 21.75   | VDC        |
|                              | 24V output, shut down, Manual recovery                     |                                               | 33.6    | VDC        |
|                              | 36V output, shut down, Manual recovery                     |                                               | 48.6    | VDC        |
|                              | 48V output, shut down, Manual recovery                     |                                               | 64.8    | VDC        |
| Short circuit protection*    | Hiccup, Continuous, Auto recovery                          |                                               |         |            |
| Operating temperature        | See derating graph                                         | -30 to +70                                    |         | °C         |
| Storage temperature          |                                                            | -40 to +85                                    |         | °C         |
| Power consumption            |                                                            |                                               | 0.3     | W          |
| Power derating               | -30°C to -25°C, 100VAC                                     | 5                                             |         | % / °C     |
|                              | 40 °C to 70 °C, 100VAC, 5V output                          | 1.33                                          |         | % / °C     |
|                              | 50 °C to 70 °C, 230VAC, 5V output                          | 2                                             |         | % / °C     |
|                              | 50 °C to 70 °C, others output                              | 2                                             |         | % / °C     |
| Ambient temperature derating | Operating altitude > 2000m                                 | 5                                             |         | °C / 1000m |
| Temperature coefficient      | 0~50°C                                                     | ±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                       |                                                            | 230                                           |         | g          |
| Dimensions (L x W x H)       |                                                            | 3.90 x 3.23 x 1.18inch (99.0 x 82.0 x 30.0mm) |         |            |
| MTBF                         | > 600 000 hrs (MIL-HDBK -217F, t=+25°C)                    |                                               |         |            |

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.

\*Output 3 cannot be shorted for long period of time.

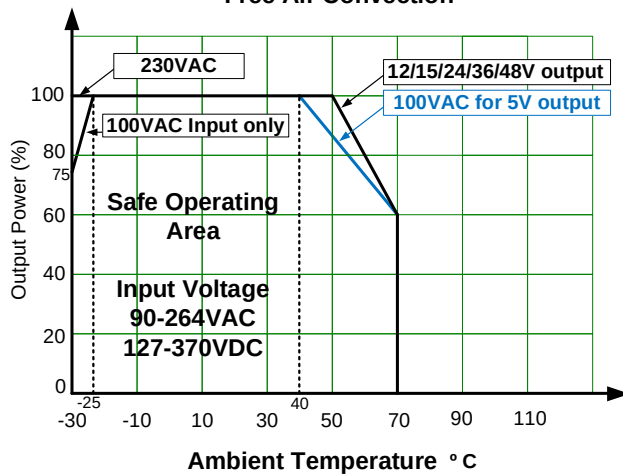
## Safety Specifications

### Parameters

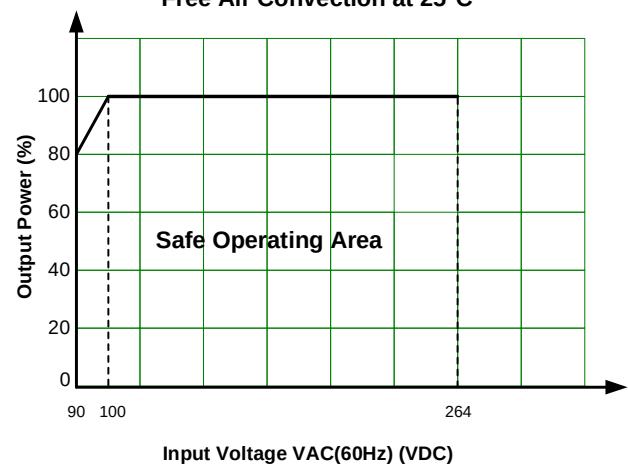
|           |                                                  |                                                                                                  |
|-----------|--------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Standards | Over voltage category                            | Design to meet III; According to BS EN/EN61558, BS EN/EN50178, BS EN/EN60664-1, BS EN/EN62477-1; |
|           | Information technology Equipment                 | Design to meet BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1                                 |
|           | EMC - Conducted and radiated emission            | BS EN/EN55032 (CISPR32) Class B                                                                  |
|           | Harmonic current                                 | IEC 61000-3-2, Class A                                                                           |
|           | Voltage Changes, Voltage Fluctuation and Flicker | IEC 61000-3-3, Class A                                                                           |
|           | Electrostatic Discharge Immunity                 | IEC 61000-4-2, Criteria A                                                                        |
|           | RF, Electromagnetic Field Immunity               | IEC 61000-4-3, Criteria A                                                                        |
|           | Electrical Fast Transient/Burst Immunity         | IEC 61000-4-4, Criteria A                                                                        |
|           | Surge Immunity                                   | IEC 61000-4-5, Criteria A                                                                        |
|           | RF, Conducted Disturbance Immunity               | IEC 61000-4-6, Criteria A                                                                        |
|           | Power-frequency Magnetic Field                   | IEC 61000-4-8, Criteria A                                                                        |
|           | Voltage dips, Short Interruptions Immunity       | IEC 61000-4-11, Criteria A                                                                       |

## Output Derating

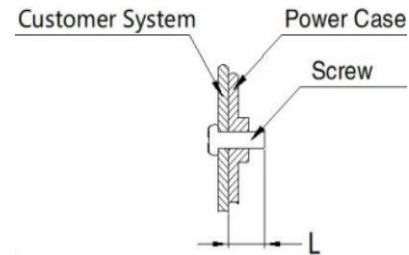
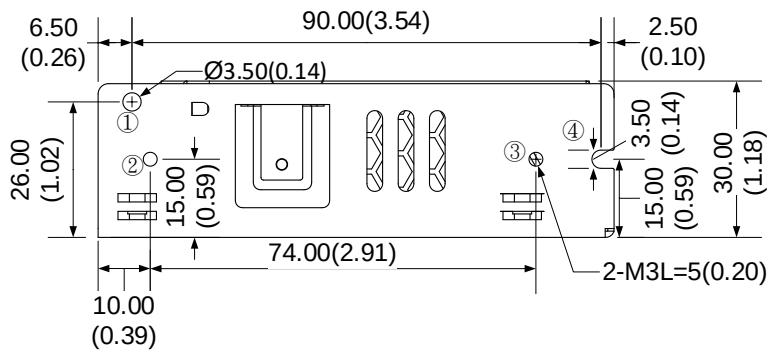
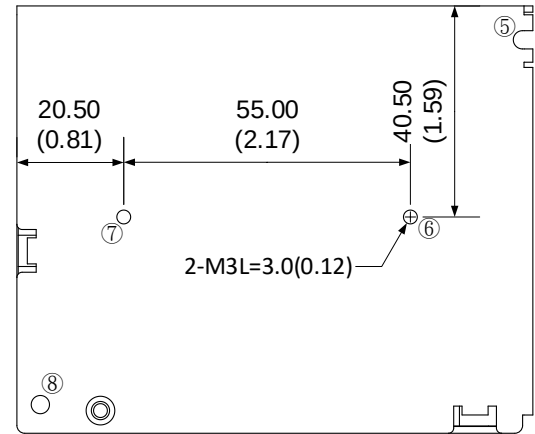
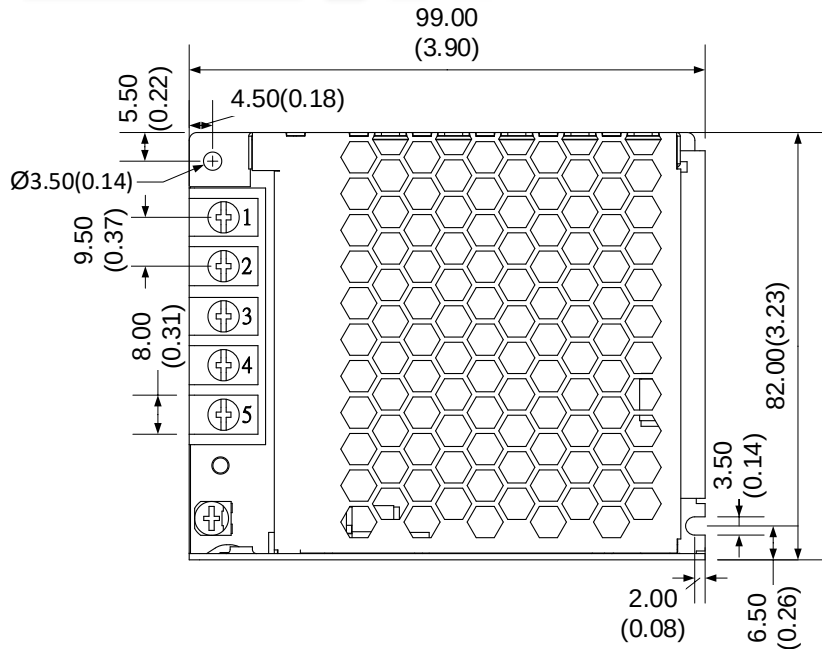
Free Air Convection



Free Air Convection at 25°C



## Dimensions



Note:  
Unit: mm(inch)  
Wire gauge: 22-12AWG  
Connector tightening torque: M3.5, 0.8N-m  
General tolerance:  $\pm 1.0(0.04)$   
At least one of the ① - ⑧ location must be connected to PE

### Single Pin Output Specifications

| Pin | Function  |
|-----|-----------|
| 1   | Input (L) |
| 2   | Input (N) |
| 3   | PE GND    |
| 4   | -V Output |
| 5   | +V Output |

**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](http://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](http://www.aimtec.com).