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**AMES350-NZ**



Enclosed

The AMES350-NZ is Aimtec's highest power 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 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of 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.

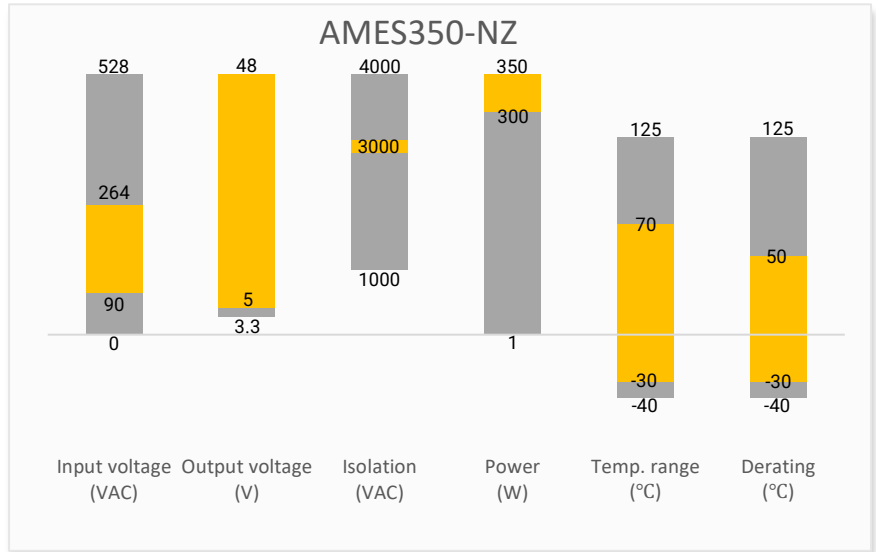
The AMES350-NZ is perfect for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

**Features**

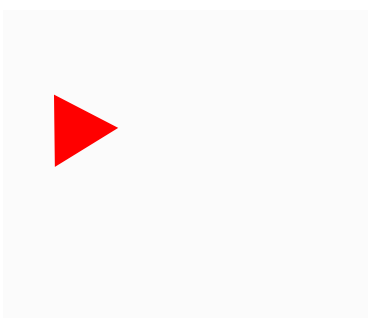


- Universal Input: 90 - 264VAC/240 - 373VDC
- Operating Temp: -30 °C to +70 °C
- High isolation voltage: Up to 3000VAC
- Low ripple & noise, 200mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over-temperature protection
- Regulated Output
- Optional conformal coating
- Surge immunity: 300VAC for 5s

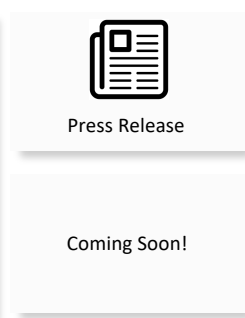
**Summary**



**Training**



Product Training Video  
(click to open)



Application Notes

**Applications**



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

| Single Output |                             |                       |                        |                    |                                     |                    |                              |                        |
|---------------|-----------------------------|-----------------------|------------------------|--------------------|-------------------------------------|--------------------|------------------------------|------------------------|
| Model         | Input Voltage (VAC/VAC/Hz)* | Input Voltage (VDC)** | Max Output Wattage (W) | Output Voltage (V) | Output Voltage Adjustable Range (V) | Output Current (A) | Maximum capacitive load (μF) | Efficiency @230VAC (%) |
| AMES350-5SNZ  | 90-132/ 180-264/ 47-63      | 240-373               | 300                    | 5                  | 4.5-5.5                             | 60                 | 10000                        | 83.5                   |
| AMES350-12SNZ | 90-132/ 180-264/ 47-63      | 240-373               | 348                    | 12                 | 10.2-13.8                           | 29                 | 4000                         | 85                     |
| AMES350-15SNZ | 90-132/ 180-264/ 47-63      | 240-373               | 348                    | 15                 | 13.5 -18                            | 23.2               | 3300                         | 86                     |
| AMES350-24SNZ | 90-132/ 180-264/ 47-63      | 240-373               | 350.4                  | 24                 | 21.6 - 28.8                         | 14.6               | 1500                         | 87                     |
| AMES350-36SNZ | 90-132/ 180-264/ 47-63      | 240-373               | 349.2                  | 36                 | 32.4 - 39.6                         | 9.7                | 1500                         | 88                     |
| AMES350-48SNZ | 90-132/ 180-264 /47-63      | 240-373               | 350.4                  | 48                 | 43.2 -52.8                          | 7.3                | 470                          | 88.5                   |

\* Switch the voltage level switch to 115 for 90-132VAC input voltage and 230 for 180-264VAC input voltage.  
 \*\* Switch the voltage level switch to 230 for 240-373VDC input voltage.  
 Add suffix "-P" for optional terminal protective cover (ex. AMES350-5SNZ-P is terminal with protective cover version) or suffix "-Q" for optional conformal coating (ex. AMES350-5SNZ-Q is conformal coating version).

| Input Specifications |                    |         |         |       |
|----------------------|--------------------|---------|---------|-------|
| Parameters           | Conditions         | Typical | Maximum | Units |
| Input current        | 115VAC             | 6.8     | 8       | A     |
|                      | 230VAC             | 3.4     | 4       | A     |
| Inrush current       | 115VAC, Cold start | 60      |         | A     |
|                      | 230VAC, Cold start | 60      |         | A     |
| Leakage              | 240VAC             |         | 0.75    | mA    |

| Output Specifications |                                     |         |         |        |
|-----------------------|-------------------------------------|---------|---------|--------|
| Parameters            | Conditions                          | Typical | Maximum | Units  |
| Voltage accuracy      | Full load, 5V output                | ±3      |         | %      |
|                       | Full load, 12V output               | ±1.5    |         | %      |
|                       | Full load, 12V,24V,36V,48V output   | ±1      |         | %      |
| Line regulation       | Full load                           | ±0.5    |         | %      |
| Load regulation       | 0-100% load, 5V output              | ±2      |         | %      |
|                       | 0-100% load, 12V output             | ±1      |         | %      |
|                       | 0-100% load, 12V,24V,36V,48V output | ±0.5    |         | %      |
| Ripple & Noise*       | 5V,12V,15V,24V, output              | 150     |         | mV p-p |
|                       | 36V,48V output                      | 200     |         | mV p-p |
| Hold up time          | 115VAC                              | 12      |         | ms     |
|                       | 230VAC                              | 16      |         | ms     |

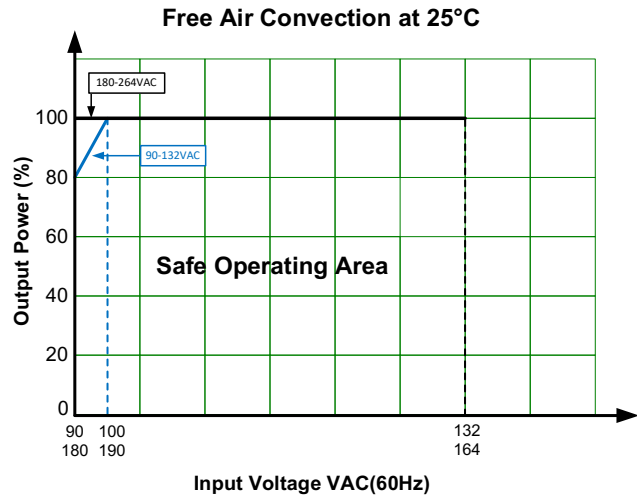
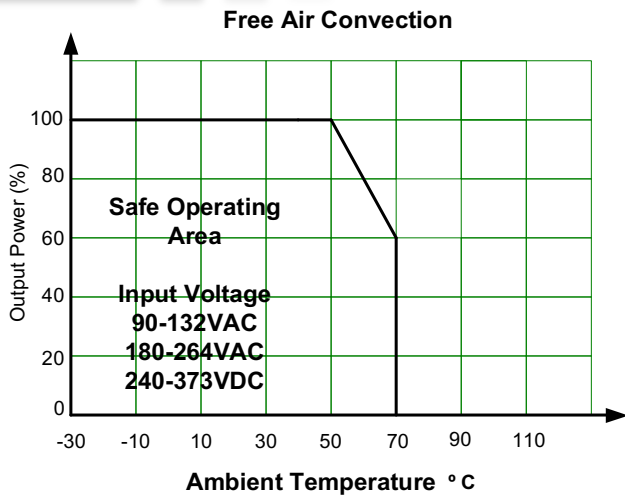
\* Ripple and Noise are measured at 20MHz bandwidth with a 47μF electrolytic capacitor and a 0.1μF ceramic capacitor. Please refer to the application note for specific details.

| Isolation Specifications     |                               |         |       |       |
|------------------------------|-------------------------------|---------|-------|-------|
| Parameters                   | Conditions                    | Typical | Rated | Units |
| Tested I/O voltage           | 60 sec, leakage current < 5mA |         | 3000  | VAC   |
| Tested Input to GND voltage  | 60 sec, leakage current < 3mA |         | 2000  | VAC   |
| Tested Output to GND voltage | 60 sec, leakage current < 3mA |         | 500   | VAC   |
| Resistance (I/O, I/O to GND) | 500VDC                        |         | 100   | MΩ    |

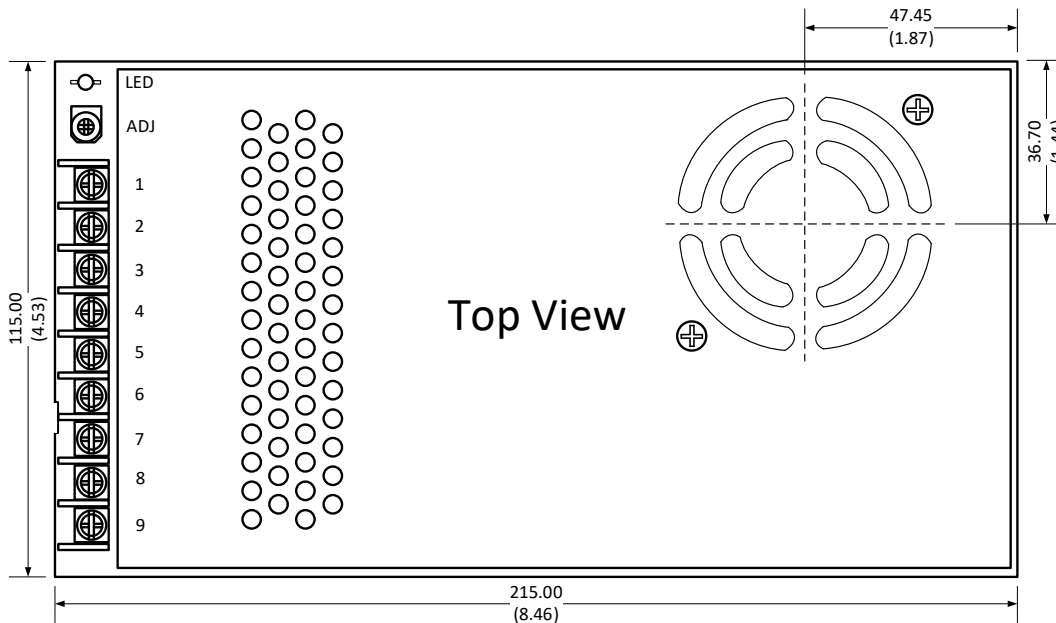
| General Specifications  |   |            |         |                       |
|---|---|------------|---------|-----------------------|
| Parameters  | Conditions  | Typical    | Maximum | Units                 |
| Safety class  | Class I   |            |         |                       |
| Switching Frequency   |   | 65         |         | KHz                   |
| Over Current protection   | Auto recovery   | ≥ 110      | 180     | % of I <sub>out</sub> |
| Over voltage protection   | Output voltage turn off, Auto recovery, 5V output       | ≥ 5.75     | 6.75    | VDC                   |
|   | Output voltage turn off, Auto recovery, 12V output      | ≥ 13.8     | 16.2    | VDC                   |
|   | Output voltage turn off, Auto recovery, 15V output      | ≥ 18       | 21      | VDC                   |
|   | Output voltage turn off, Auto recovery, 24V output      | ≥ 28.8     | 33.6    | VDC                   |
|   | Output voltage turn off, Auto recovery, 36V output      | ≥ 41.4     | 46.8    | VDC                   |
|   | Output voltage turn off, Auto recovery, 48V output      | ≥ 55.2     | 69.5    | VDC                   |
| Over temperature protection   | Hiccup, Auto recovery                                   |            |         |                       |
| Short circuit protection  | Hiccup, Continuous, Auto recovery, Recover time < 8 sec |            |         |                       |
| Operating temperature   | See derating graph                                      | -30 to +70 |         | °C                    |
| Storage temperature   |   | -40 to +85 |         | °C                    |
| Fan on/off temperature  | On, Rth3  | ≥ 50       |         | °C                    |
|   | Off, Rth3   |            | 40      | °C                    |
| No-load power consumption   | 230VAC  |            | 0.75    | W                     |
| Power derating  | 50 °C to 70 °C  | 2          |         | % / °C                |
|   | 90VAC ~ 100VAC  | 2          |         | % / VAC               |
| Ambient temperature derating  | Operating altitude > 2000m                              | 5          |         | °C / 1000m            |
| Temperature coefficient   |   | ±0.03      |         | % / °C                |
| Cooling   | Forced air cooling                                      |            |         |                       |
| Humidity  | Non-condensing, Storage                                 | ≥ 10       | 95      | % RH                  |
|   | Non-condensing, Operating                               | ≥ 20       | 90      | % RH                  |
| Case material   | Metal (1100 Aluminum, SGCC)                             |            |         |                       |
| Weight  |   | 700        |         | g                     |
| Dimensions (L x W x H)  | 8.46 x 4.53 x 1.18inch (215.0 x 115.0 x 30.0mm)         |            |         |                       |
| MTBF  | > 300 000 hrs (MIL-HDBK -217F, t <sub>a</sub> =+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. |   |            |         |                       |

| Safety Specifications   |  |   |
|---|--|---|
| Parameters  |  |   |
| Agency approvals  | UL 62368-1                                 |   |
| Standards   | Information technology Equipment           | Design to meet IEC/EN 62368-1, EN60335, GB4943    |
|   | EMC - Conducted and radiated emission      | CISPR32 / EN55032, class A                        |
|   | Electrostatic Discharge Immunity           | IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria A |
|   | RF, Electromagnetic Field Immunity         | IEC 61000-4-3 10V/m, Criteria A                   |
|   | Electrical Fast Transient/Burst Immunity   | IEC 61000-4-4 ±2KV, 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                |
| Note: One magnetic bead (nickel-zinc ferrite) should be coupled with the output load line during CE/RE testing. |  |   |

**Derating**

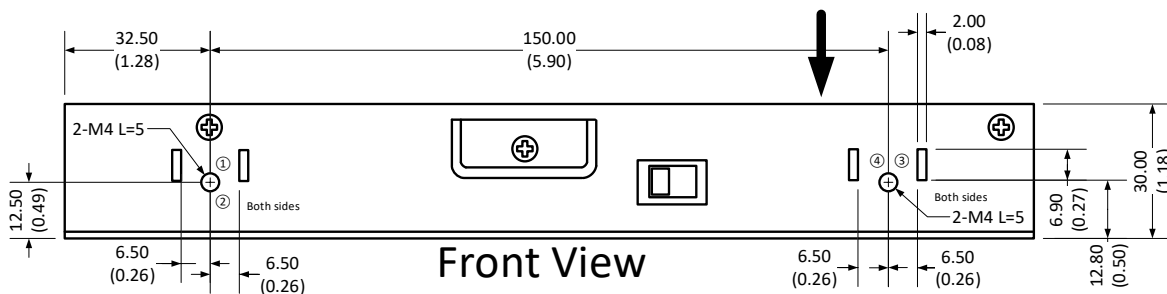


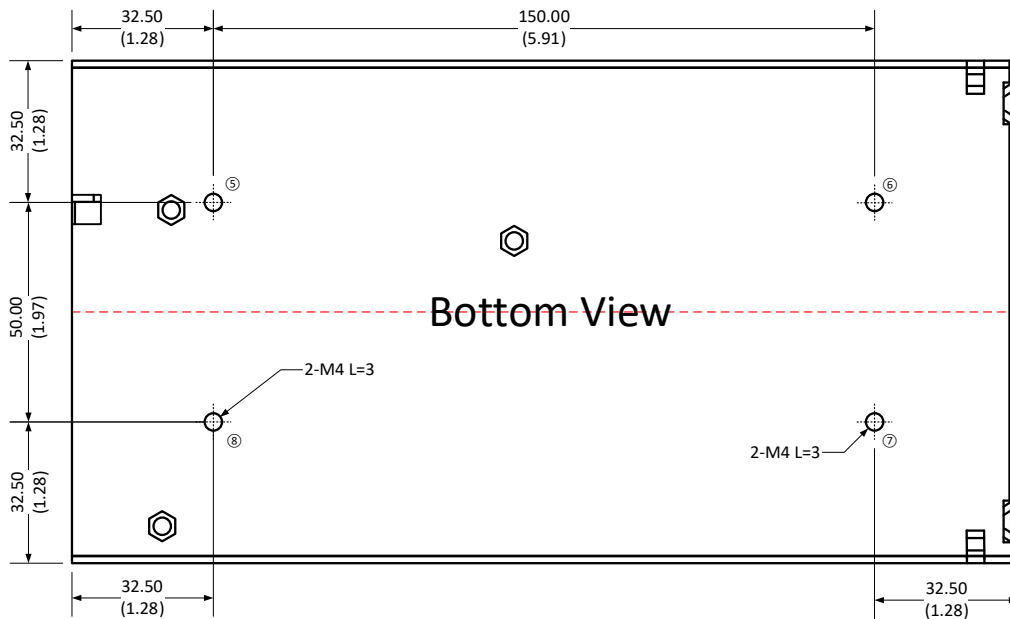
**Dimensions**



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

**Airflow**





**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:  $\pm 1.0(\pm 0.04)$

At least one of the ① - ⑧ location must be connected to PE

**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).