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## AMES75-277NZ



Enclosed

The AMES75-277NZ is an enclosed 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 wide input voltage range of 85-305VAC and an output voltage range from 5-48V, this series will offer many benefits to your new system design.

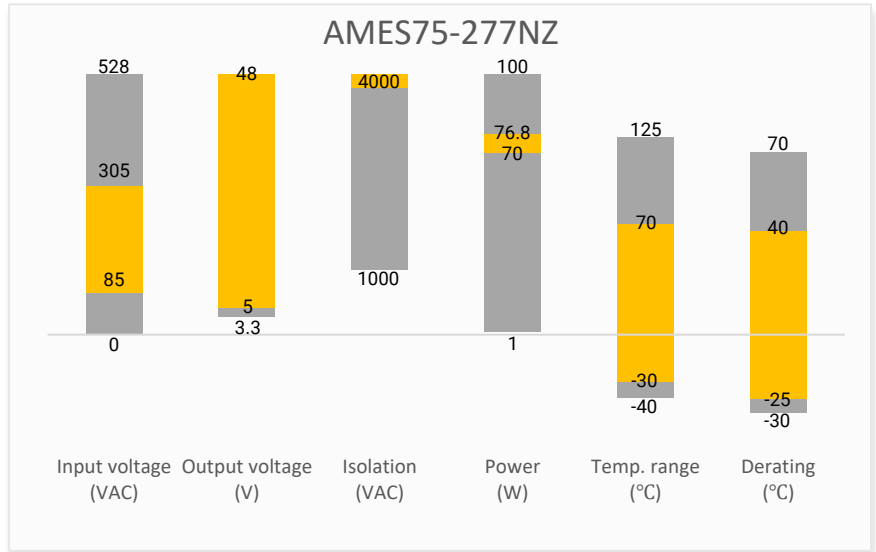
This series offers great operating temperatures, from -30°C to 70°C and also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMES75-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication and civil applications.

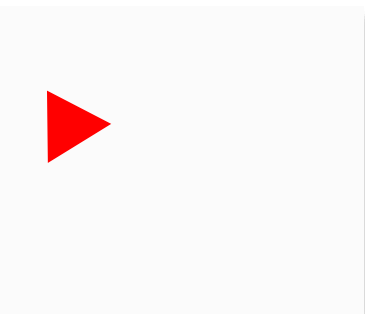
## Features

- Universal Input: 85 - 305VAC/120 - 430VDC
- Operating Temp: -30 °C to +70 °C
- High isolation voltage: Up to 4000VAC
- Low ripple & noise: Up to 100mV(p-p) typ.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

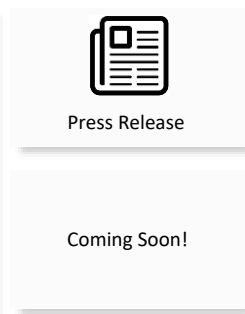
## Summary



## 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 ( $\mu$ F) | Efficiency @230VAC Typ. (%) |
| AMES75-5S277NZ  | 85-305/47-63           | 120-430             | 70                     | 5                  | 4.5-5.5                             | 14                     | 10000                              | 85                          |
| AMES75-12S277NZ | 85-305/47-63           | 120-430             | 72                     | 12                 | 10.2-13.8                           | 6                      | 6000                               | 87                          |
| AMES75-15S277NZ | 85-305/47-63           | 120-430             | 75                     | 15                 | 13.5-18                             | 5                      | 5000                               | 87                          |
| AMES75-24S277NZ | 85-305/47-63           | 120-430             | 76.8                   | 24                 | 21.6-28.8                           | 3.2                    | 1500                               | 89                          |
| AMES75-36S277NZ | 85-305/47-63           | 120-430             | 75.6                   | 36                 | 32.4-39.6                           | 2.1                    | 1000                               | 89                          |
| AMES75-48S277NZ | 85-305/47-63           | 120-430             | 76.8                   | 48                 | 43.2-52.8                           | 1.6                    | 680                                | 90.5                        |

Note: Use suffix "-P" for terminal with protective cover (ex. AMES75-5S277NZ-P is terminal with protective cover version) and suffix "-Q" for conformal coating (ex. AMES75-5S277NZ-Q is conformal coating version).

### Input Specifications

| Parameters      | Conditions         | Typical | Maximum | Units |
|-----------------|--------------------|---------|---------|-------|
| Input current   | 115VAC             |         | 2       | A     |
|                 | 230VAC             |         | 1       | A     |
| Inrush current  | cold start, 115VAC | 40      |         | A     |
|                 | cold start, 230VAC | 75      |         | A     |
| Leakage current | 277VAC             |         | 0.75    | mA    |

### Output Specifications

| Parameters       | Conditions                 | Typical   | Maximum | Units  |
|------------------|----------------------------|-----------|---------|--------|
| Voltage accuracy | Full load range, 5V output | $\pm 2$   |         | %      |
|                  | Full load range, Others    | $\pm 1$   |         | %      |
| Line regulation  | Rated load                 | $\pm 0.5$ |         | %      |
| Load regulation  | 0-100% load, 5V output     | $\pm 1$   |         | %      |
|                  | 0-100% load, Others        | $\pm 0.5$ |         | %      |
| Ripple & Noise*  | 5V output                  | 100       |         | 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                     | 8         |         | ms     |
|                  | 230VAC                     | 55        |         | ms     |

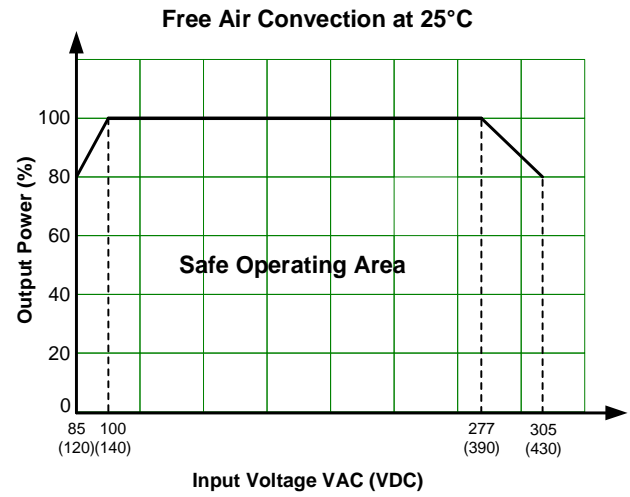
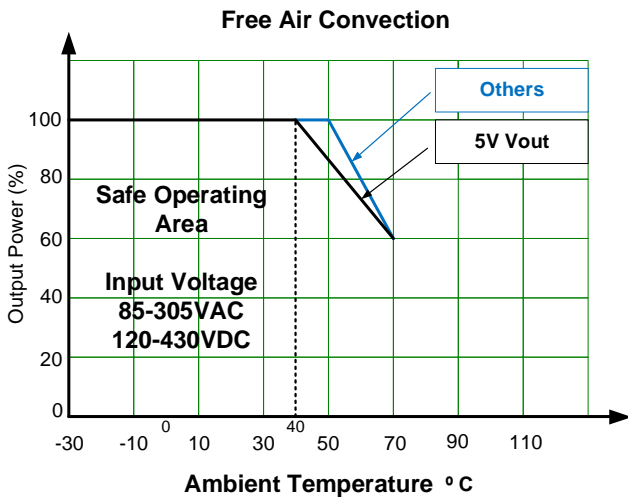
\* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details. Measured with 47 $\mu$ F electrolytic capacitor and 0.1 $\mu$ F ceramic capacitor.

### Isolation Specifications

| Parameters                   | Conditions                     | Typical | Rated | Units      |
|------------------------------|--------------------------------|---------|-------|------------|
| Tested I/O voltage           | 60 sec, leakage current < 10mA |         | 4000  | VAC        |
| Tested Input to GND voltage  | 60 sec, leakage current < 10mA |         | 2000  | VAC        |
| Tested Output to GND voltage | 60 sec, leakage current < 10mA |         | 1250  | VAC        |
| Resistance (I/O, I/O to GND) | 500VDC                         |         | 100   | M $\Omega$ |

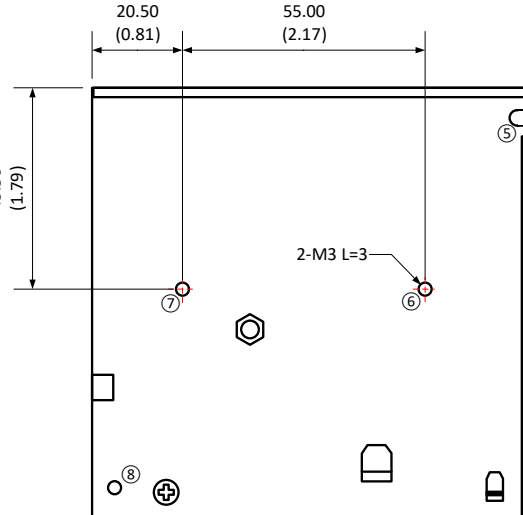
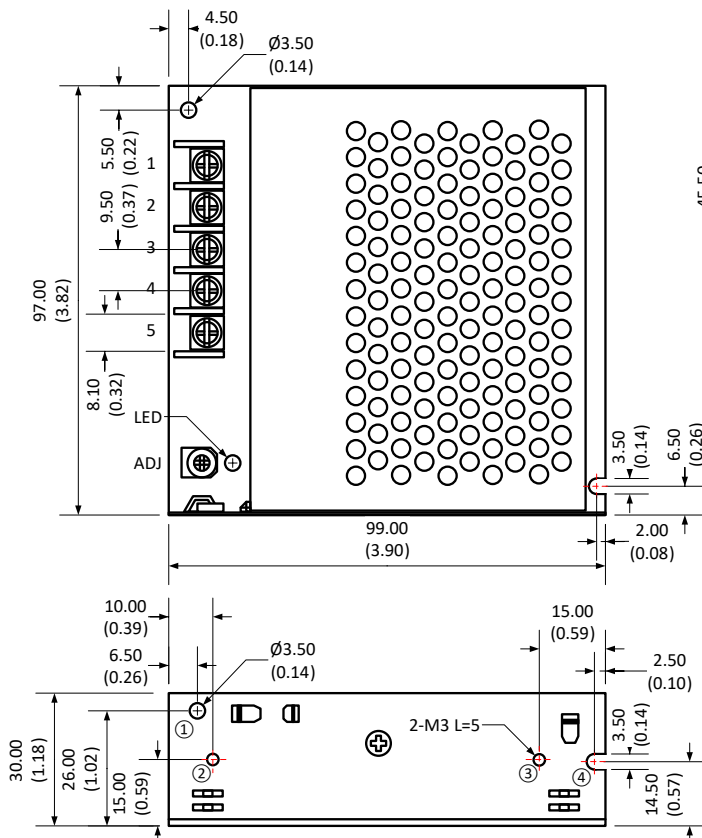
| General Specifications  |   |            |         |           |
|---|---|------------|---------|-----------|
| Parameters  | Conditions  | Typical    | Maximum | Units     |
| Safety class  | Class I   |            |         |           |
| Switching Frequency   |   | 65         |         | KHz       |
| Over Current protection   | 230VAC, Rated load, Normal or high temperature, Auto recovery | ≥ 110      | 200     | % of Iout |
|   | 230VAC, Rated load, Low temperature, Auto recovery            | ≥ 110      |         | % of Iout |
| Over voltage protection   | 5V output, Hiccup, Auto recovery                              |            | 6.3     | VDC       |
|   | 12V output, Hiccup, Auto recovery                             |            | 16.2    | VDC       |
|   | 15V output, Hiccup, Auto recovery                             |            | 21.75   | VDC       |
|   | 24V output, Hiccup, Auto recovery                             |            | 33.6    | VDC       |
|   | 36V output, Hiccup, Auto recovery                             |            | 50      | VDC       |
|   | 48V output, Hiccup, Auto recovery                             |            | 60      | VDC       |
| Short circuit protection  | Hiccup, Continuous, Auto recovery, Recovery time < 5 sec      |            |         |           |
| Operating temperature   | See derating graph  | -30 to +70 |         | °C        |
| Storage temperature   |   | -40 to +85 |         | °C        |
| Power consumption   |   |            | 0.5     | W         |
| Power derating  | 40 °C to 70 °C, 5V output                                     | 1.3        |         | % / °C    |
|   | 50 °C to 70 °C, Others output                                 | 2          |         | % / °C    |
|   | 85VAC ~ 100VAC  | 1.33       |         | % / VAC   |
|   | 277VAC ~ 305VAC   | 0.71       |         | % / VAC   |
| Temperature coefficient   | 0 °C to 50 °C, 230VAC   | ±0.03      |         | % / °C    |
| Cooling   | Free air convection   |            |         |           |
| Humidity  | Operating, Non-condensing                                     | > 20       | 90      | % RH      |
|   | Storage, Non-condensing                                       |            | 95      | % RH      |
| Case material   | Metal (1100 Aluminum, SGCC)                                   |            |         |           |
| Weight  |   | 220        |         | g         |
| Dimensions (L x W x H)  | 3.90 x 3.82 x 1.18inch (99.0 x 97.0 x 30.0mm)                 |            |         |           |
| MTBF  | > 300 000 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. |   |            |         |           |

| Safety Specifications |  |   |
|-----------------------|--|---|
| Parameters            |  |   |
| Agency approvals      | EN/UL 62368-1                              |   |
| Standards             | Information technology Equipment           | Design to meet IEC62368, EN60335, EN61558, GB4943 |
|                       | EMC - Conducted and radiated emission      | CISPR32 / EN55032, class B                        |
|                       | Harmonic current                           | IEC 61000-3-2 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                |



## Dimensions

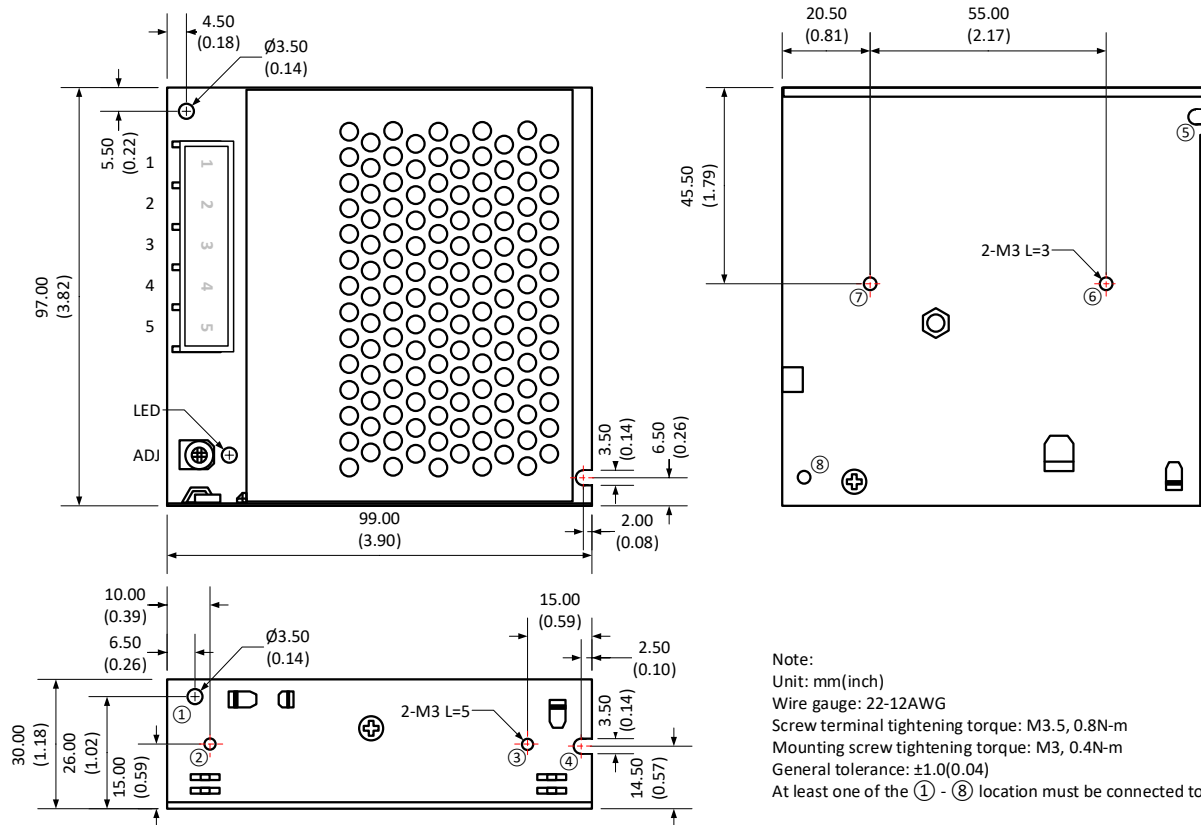
### AMES75-xx277NZ and AMES75-xx277NZ-Q series



Note:  
Unit: mm(inch)  
Wire gauge: 22-12AWG  
Screw terminal tightening torque: M3.5, 0.8N-m  
Mounting screw tightening torque: M3, 0.4N-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                                | +V Input (L)     |
| 2                                | -V Input (N)     |
| 3                                | PE GND           |
| 4                                | -V Output        |
| 5                                | +V Output        |
| ADJ                              | Voltage adj knob |

## AMES75-xx277NZ-P series



| Single Pin Output Specifications |                  |
|----------------------------------|------------------|
| Pin                              | Function         |
| 1                                | +V Input (L)     |
| 2                                | -V Input (N)     |
| 3                                | PE GND           |
| 4                                | -V Output        |
| 5                                | +V Output        |
| ADJ                              | Voltage adj knob |

**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 than 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).