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**AMES25-277NZ**



Enclosed

The AMES25-277NZ is a 25W AC/DC converter 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 85-305VAC and an output voltage range from 3.3-48V, this series will offer many benefits to your new system design.

This new 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 450,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMES25-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication and civil applications.

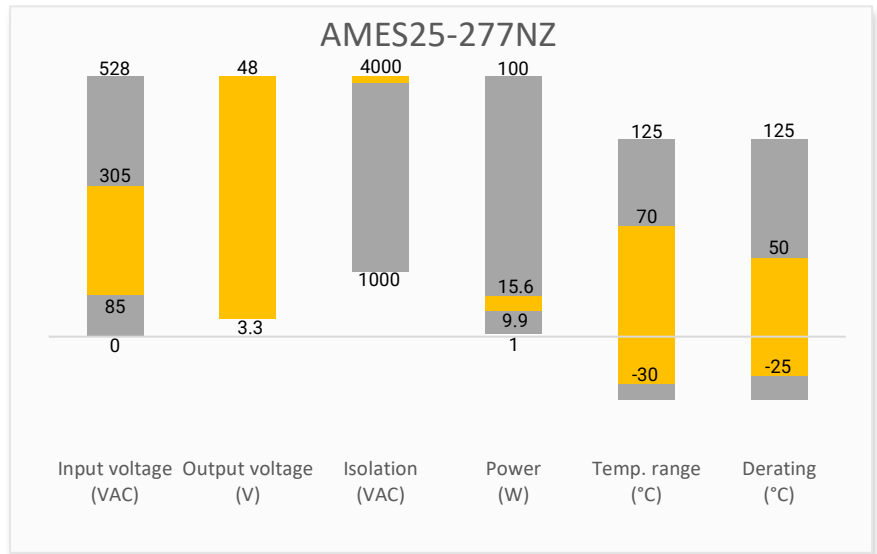
**Features**



**Summary**



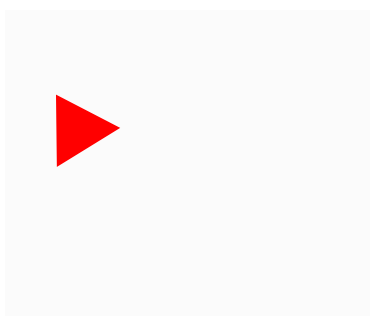
- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -30 °C to +70 °C
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 120mV(p-p) max.
- Output short circuit, over-current, over-voltage protection
- Regulated Output



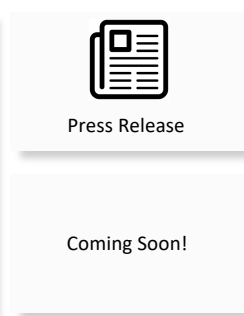
**Training**



**Applications**



Product Training Video  
(click to open)



Application Notes



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. (%)
AMES25-3S277NZ	85-305/47-63	100-430	19.8	3.3	2.85-3.6	6	5000	78
AMES25-5S277NZ	85-305/47-63	100-430	25	5	4.5-5.5	5	4000	81
AMES25-12S277NZ	85-305/47-63	100-430	25.2	12	10.8-13.2	2.1	3000	85
AMES25-15S277NZ	85-305/47-63	100-430	25.5	15	13.5-16.5	1.7	2000	86
AMES25-24S277NZ	85-305/47-63	100-430	26.4	24	22-27.6	1.1	1000	87
AMES25-48S277NZ	85-305/47-63	100-430	27.36	48	42-54	0.57	500	88

Note: Add suffix "-P" for optional terminal protective cover (ex. AMES25-3S277NZ-P is terminal with protective cover version) or suffix "-Q" for conformal coating (ex. AMES25-3S277NZ-Q is conformal coating version).

### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC		0.6	A
	230VAC		0.34	A
Inrush current	Cold start, 115VAC	20		A
	Cold start, 230VAC	40		A
Leakage current	277VAC		0.5	mA

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3V output	$\pm 3$		%
	5V output	$\pm 2$		%
	Others	$\pm 1$		%
Line regulation	3.3, 5V output	$\pm 0.5$	$\pm 1$	%
	Others	$\pm 0.5$		%
Load regulation	0-100% load, 3.3, 5V output	$\pm 1$	$\pm 2$	%
	0-100% load, Others	$\pm 0.5$	$\pm 1$	%
Ripple & Noise*	48V output	120		mV p-p
	Others	100		mV p-p
Start-up delay time		300		ms
Hold up time	115VAC	8		ms
	230VAC	60		ms

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

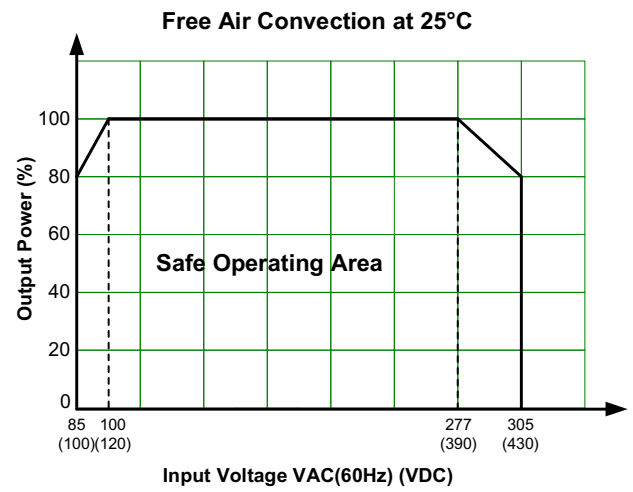
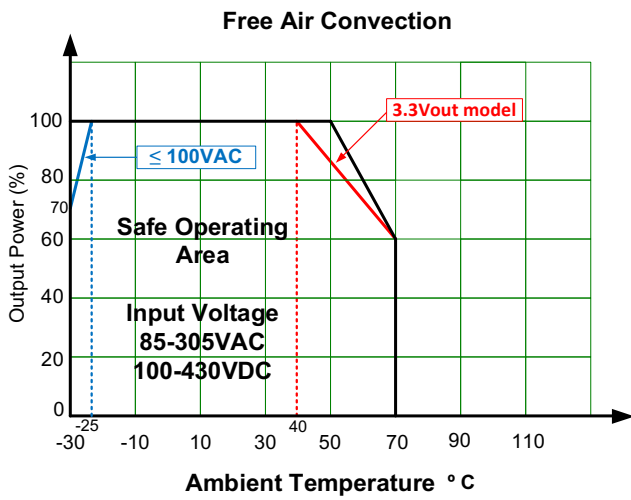
### Isolation Specifications

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 $\Omega$

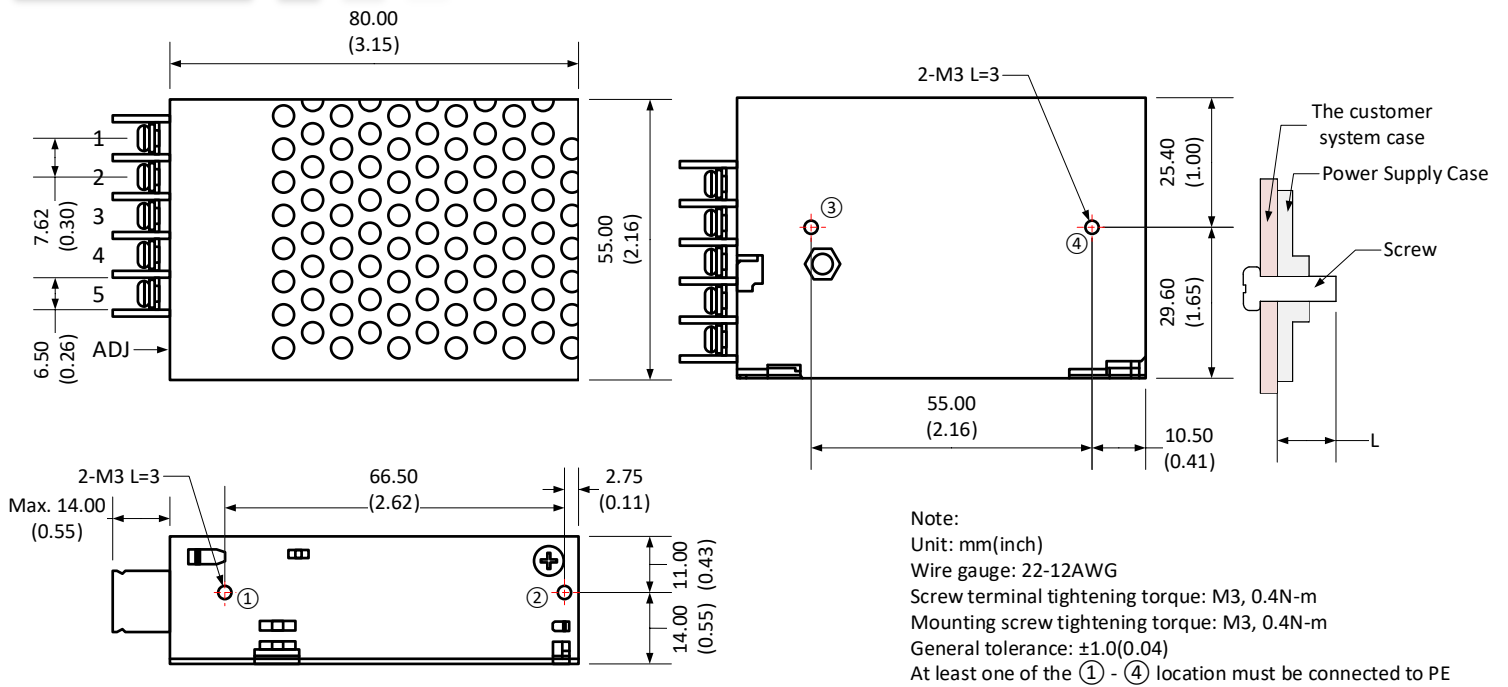
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class I			
Switching Frequency		65		KHz
Over Current protection	Auto recovery	≥ 110	300	% of Iout
Over voltage protection	3.3V output, hiccup or voltage clamp		6.75	VDC
	5V output, hiccup or voltage clamp		7.75	VDC
	12V output, hiccup or voltage clamp		16.2	VDC
	15V output, hiccup or voltage clamp		20.25	VDC
	24V output, hiccup or voltage clamp		32.4	VDC
	48V output, hiccup or voltage clamp		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
No load power consumption	230VAC, 48V output		0.5	W
	230VAC, Others		0.3	W
Power derating	-30°C to -25°C, 85VAC - 100VAC	6		% / °C
	40°C to 70°C, 3V	1.33		% / °C
	50°C to 70°C, 5/12/15/24/48V	2		% / °C
	85VAC - 100VAC	1.33		% / VAC
	277VAC - 305VAC	0.72		% / VAC
Ambient temperature derating	Operating altitude > 2000m	3.5		°C / 1000m
Temperature coefficient		±0.03		% / °C
Cooling	Free air convection			
Humidity	Non-condensing, storage		95	% RH
	Non-condensing, operating	>20	90	% RH
Case material	Metal (5052 Aluminum, SGCC)			
Weight		115		g
Dimensions (L x W x H)	3.15 x 2.16 x 0.98inch (80.0 x 55.0 x 25.0mm)			
MTBF	> 450 000 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	CE EN62368-1; cULus UL 62368-1	
Standards	Design to meet IEC 62368-1, GB4943	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B
	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 ±1KV/L-G ±2KV, 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



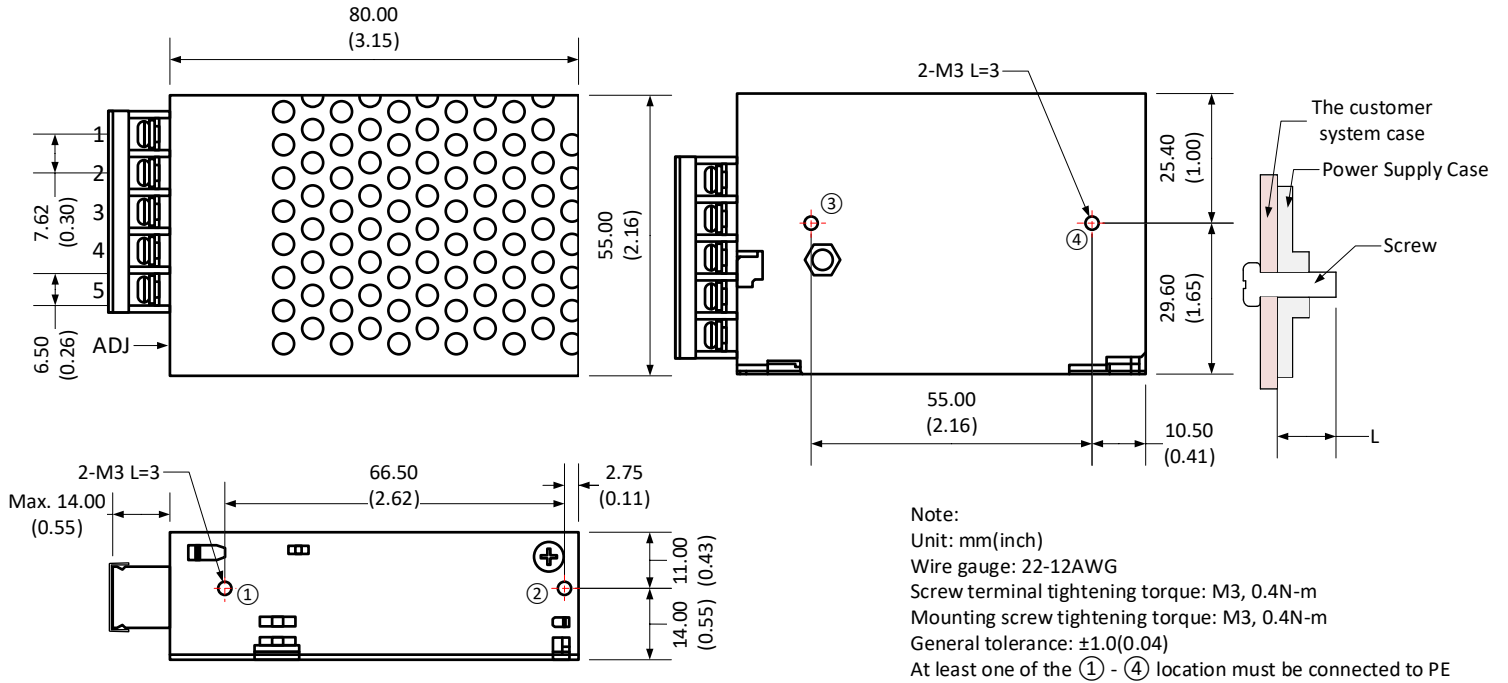
## Dimensions



### 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

**-P terminal with protective cover version**



**Single Pin Output Specifications**

Pin	Function
1	-V Input (L)
2	+V Input (N)
3	PE GND
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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).