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**AMESP320-277NZ**



Enclosed

The AMESP320-277NZ 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 85-305VAC 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 50°C with full power and also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 250,000h, 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.

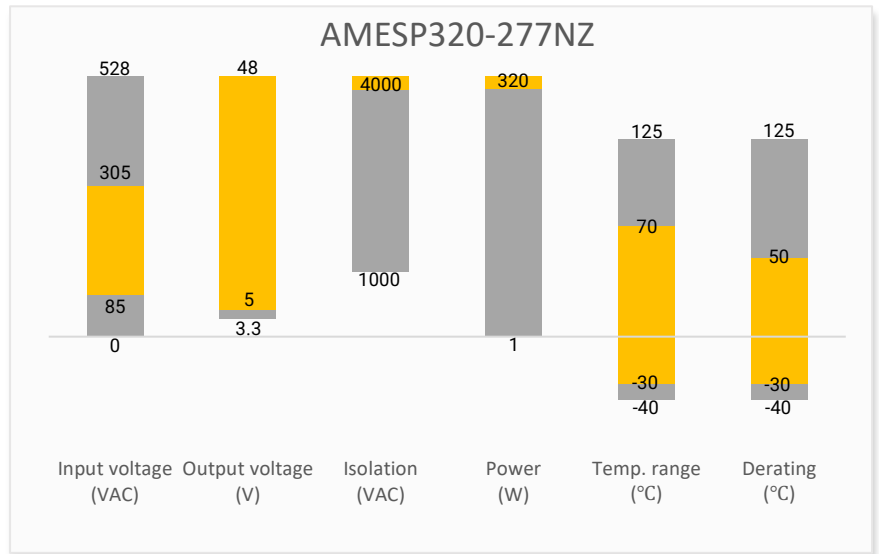
The AMESP320-277NZ is perfect for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

**Features**



- Universal Input: 85 - 305VAC/120 - 430VDC
- Operating Temp: -30 °C to +70 °C
- PFC>0.95
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 200mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Optional conformal coating
- Active power factor correction

**Summary**



**Training**

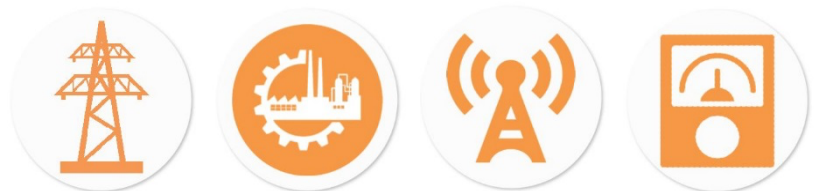


Product Training Video  
(click to open)



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 (%)
AMESP320-5S277NZ	85-305/47-63	120-430	300	5	4.5-5.5	60	5000	84
AMESP320-12S277NZ	85-305/47-63	120-430	320.4	12	10.0-13.2	26.7	5000	86.5
AMESP320-15S277NZ	85-305/47-63	120-430	321	15	13.5-18.0	21.4	5000	89
AMESP320-24S277NZ	85-305/47-63	120-430	321.6	24	20.0-26.4	13.4	5000	88.5
AMESP320-48S277NZ	85-305/47-63	120-430	321.6	48	41.0-56.0	6.7	5000	89

Add suffix "-P" for optional terminal protective cover (ex. AMESP320-5S277NZ-P is terminal with protective cover version) or suffix "-Q" for optional conformal coating (ex. AMESP320-5S277NZ-Q is conformal coating version).

### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	4	4.2	A
	230VAC	2	2.1	A
Inrush current	115VAC, cold start	35		A
	230VAC, cold start	65		A
Power factor	115VAC, Full load	0.98		
	230VAC, Full load	0.95		

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	Full load, 5V output	$\pm 2$		%
	Full load, Others	$\pm 1$		%
Line regulation	Full load, 5V output	$\pm 0.5$		%
	Full load, 12V, 15V output	$\pm 0.3$		%
	Full load, 24V, 48V output	$\pm 0.2$		%
Load regulation	0-100% load, 5V output	$\pm 1$		%
	0-100% load, Others	$\pm 0.5$		%
Ripple & Noise*	48V output	60	200	mV p-p
	Others	60	150	mV p-p
Hold up time	115&230VAC	12		ms
Minimum load	-30°C to 50 °C	0		%
	50°C to 70 °C	5		%

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

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 5mA		4000	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	M $\Omega$

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

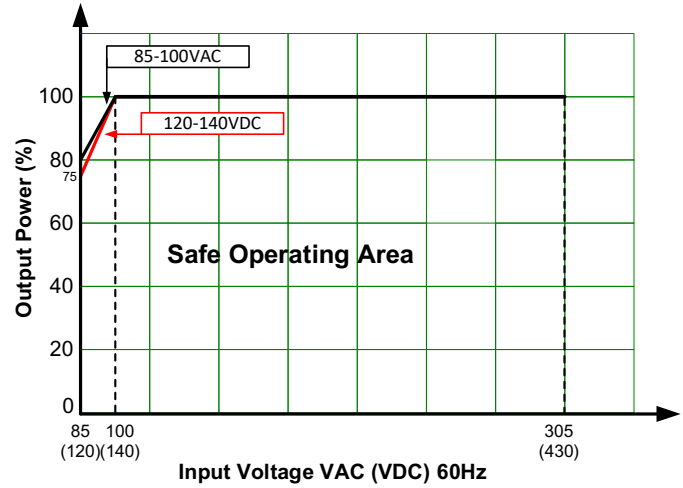
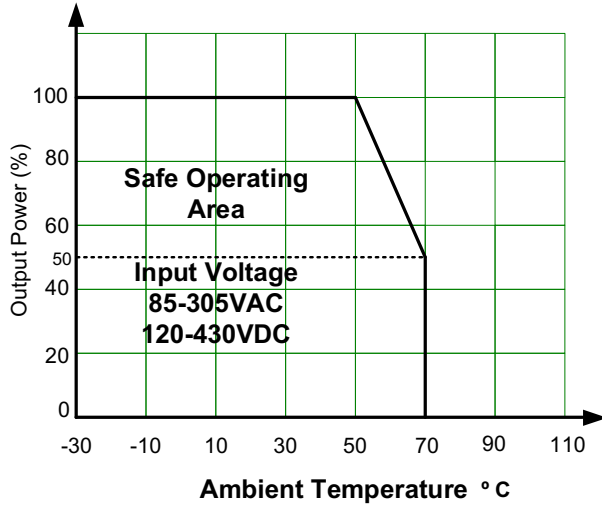
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class I			
Over Current protection	Auto recovery	≥ 105	150	% of Iout
Over voltage protection	Hiccup, Auto recovery, 5V output		7	VDC
	Hiccup, Auto recovery, 12V output		16.2	VDC
	Hiccup, Auto recovery, 15V output		21.8	VDC
	Hiccup, Auto recovery, 24V output		32.4	VDC
	Hiccup, Auto recovery, 48V output		60	VDC
Over temperature protection*	Hiccup, Auto recovery			
Short circuit protection	Hiccup, Continuous, Auto recovery, Recover time < 5 sec			
Operating temperature	See derating graph	-30 to +70		°C
Storage temperature		-40 to +85		°C
Power derating	50 °C to 70 °C	2.5		% / °C
	85VAC ~ 100VAC@50Hz	2.0		% / VAC
	85VAC ~ 100VAC@60Hz	1.33		% / VAC
	120VDC - 140VDC	1.25		% / VDC
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		750		g
Dimensions (L x W x H)	8.46 x 4.53 x 1.18inch (215.0 x 115.0 x 30.0mm)			
MTBF	> 250 000 hrs (MIL-HDBK -217F, t=+25°C)			
*Tested under full-load condition. 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	cULus UL 62368-1	
Standards	Information technology Equipment	Design to meet IEC/EN 62368, GB4943
	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 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 ±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
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

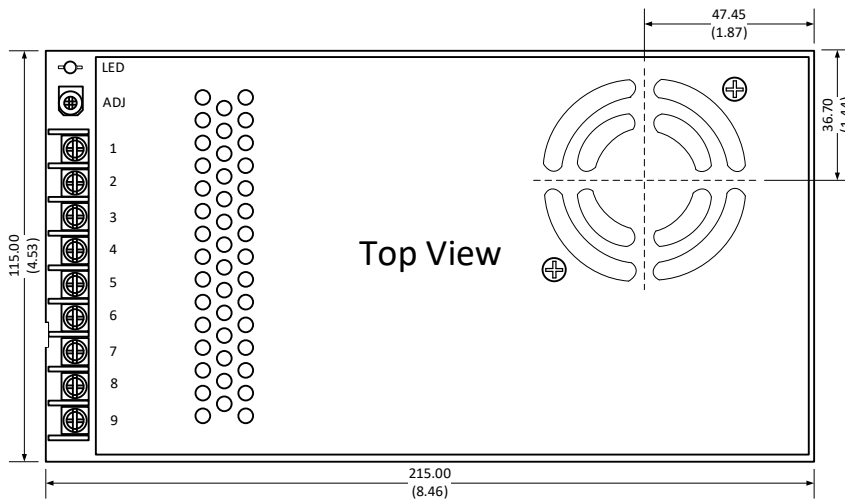


Free Air Convection

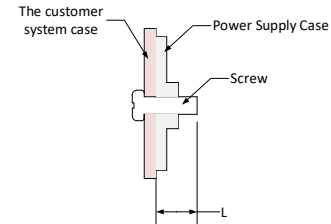
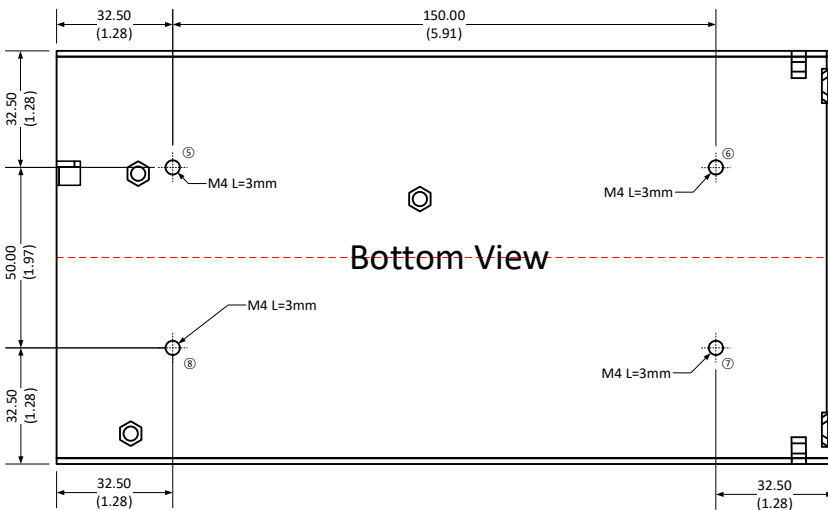
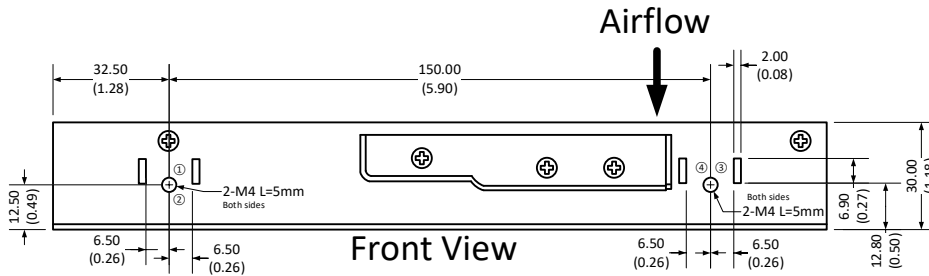


Note: In addition to the temperature derating, input voltage derating must be applied when the input voltage is between 85-100VAC and 120-140VDC.

## 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)



**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

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