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**AMESP320-NZ**



Enclosed

The AMESP320-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 85-264VAC 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.

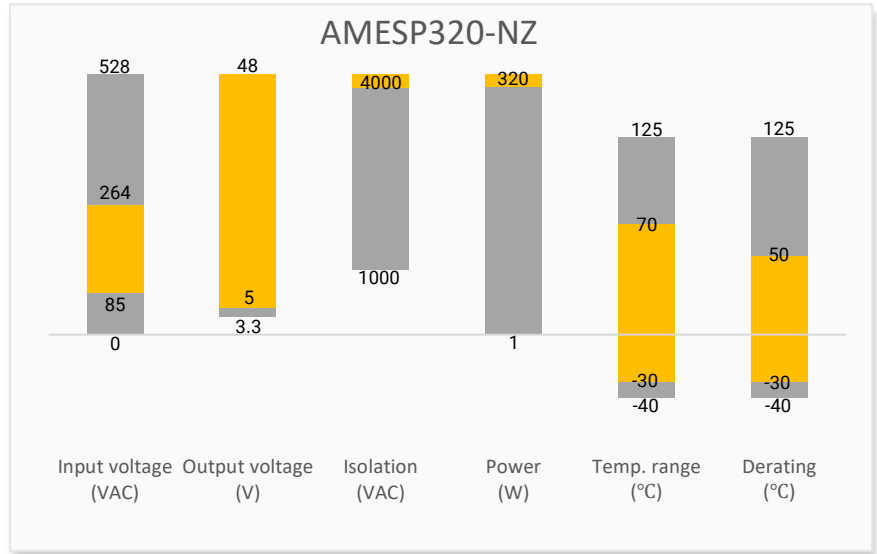
The AMESP320-NZ is perfect for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

**Features**

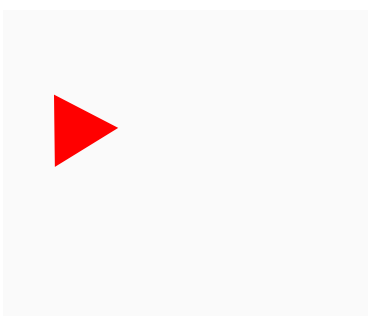
- Universal Input: 85 - 264VAC/120 - 373VDC
- Operating Temp: -30 °C to +70 °C
- PFC>0.95
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 200mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Optional conformal coating
- Active power factor correction
- Surge immunity: 300VAC for 5s



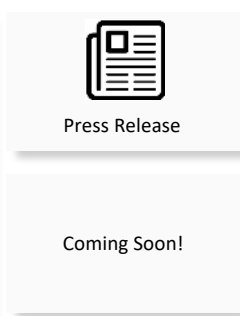
**Summary**



**Training**



Product Training Video  
(click to open)



Application Notes

**Applications**



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

### Single Output

Model	Input Voltage (VAC/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 (%)
AMESP320-5SNZ	85-264/47-63	120-373	300	5	4.5-5.5	60	5000	81
AMESP320-12SNZ	85-264/47-63	120-373	320.4	12	10.0-13.2	26.7	5000	84
AMESP320-15SNZ	85-264/47-63	120-373	321	15	13.5-18.0	21.4	5000	85
AMESP320-24SNZ	85-264/47-63	120-373	321.6	24	20.0-26.4	13.4	5000	86
AMESP320-48SNZ	85-264/47-63	120-373	321.6	48	41.0-56.0	6.7	5000	86.5

Add suffix "-P" for optional terminal protective cover (ex. AMESP320-5SNZ-P is terminal with protective cover version) or suffix "-Q" for optional conformal coating (ex. AMESP320-5SNZ-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	±2		%
	Full load, Others	±1		%
Line regulation	Full load, 5V output	±0.5		%
	Full load, 12V, 15V output	±0.3		%
	Full load, 24V, 48V output	±0.2		%
Load regulation	0-100% load, 5V output	±1		%
	0-100% load, Others	±0.5		%
Ripple & Noise*	48V output	200		mV p-p
	Others	150		mV p-p
Hold up time	115&230VAC	12		ms

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

### Isolation Specifications

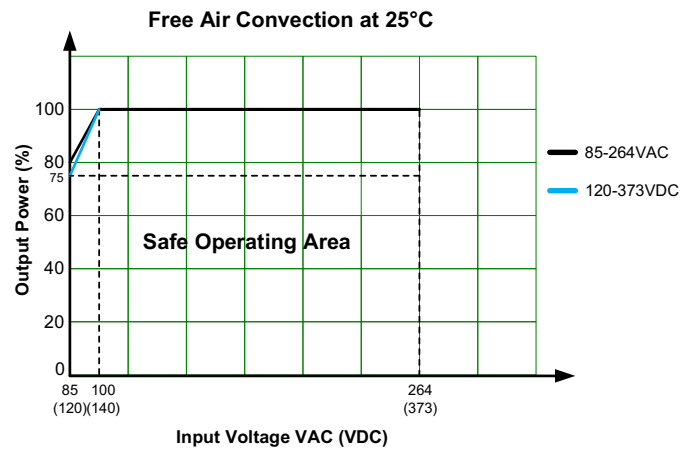
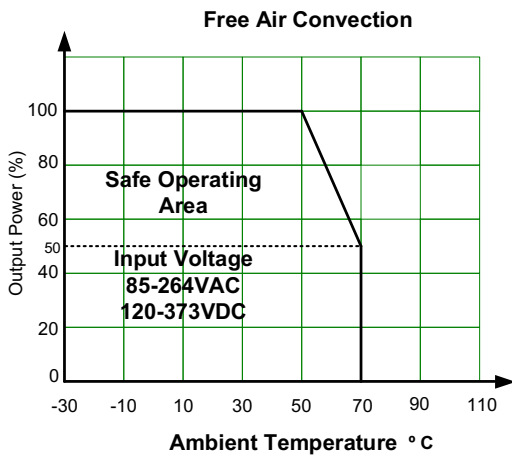
Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 10mA		4000	VAC
Tested Input to GND voltage	60 sec, leakage current < 10mA		2000	VAC
Tested Output to GND voltage	60 sec, leakage current < 5mA		500	VAC
Resistance (I/O, I/O to GND) *	500VDC		100	MΩ

\* Resistance tested under humidity < 95%RH, non-condensing, 25±5°C

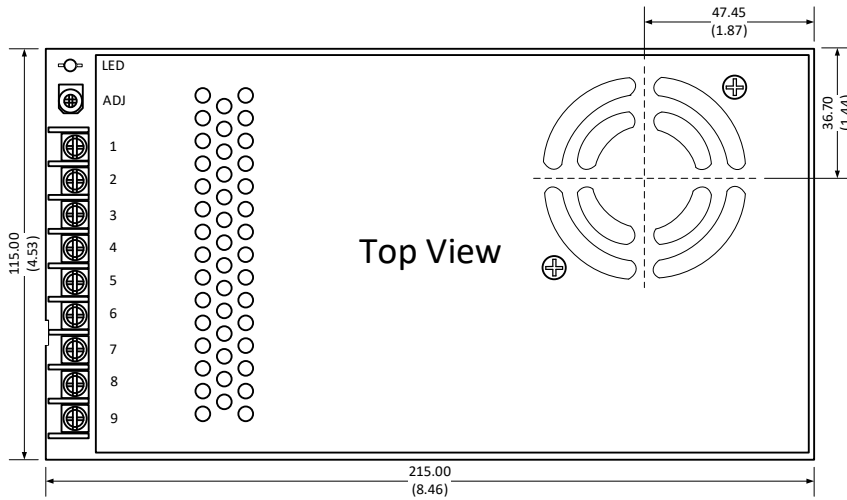
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class I			
Over Current protection	Auto recovery	≥ 105	150	% of I <sub>out</sub>
Over voltage protection	Output voltage turn off, Manual recovery, 5V output		6.75	VDC
	Output voltage turn off, Manual recovery, 12V output		16.2	VDC
	Output voltage turn off, Manual recovery, 15V output		21.8	VDC
	Output voltage turn off, Manual recovery, 24V output		32.4	VDC
	Output voltage turn off, Manual recovery, 48V output		60	VDC
Over temperature protection*	Activation		85	°C
	Deactivation	50		°C
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
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		
Standards	Information technology Equipment	Design to meet IEC/EN/UL 62368, EN60335, 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 metal plate with a size of 450mmx450mmx3mm (L x W x H) as our enclosed power supply is considered as a component of the system in the final applications. The power supply with the final system should be re-evaluated for the EMC compliant.		

Derating

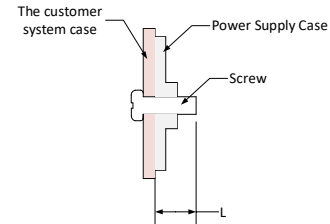
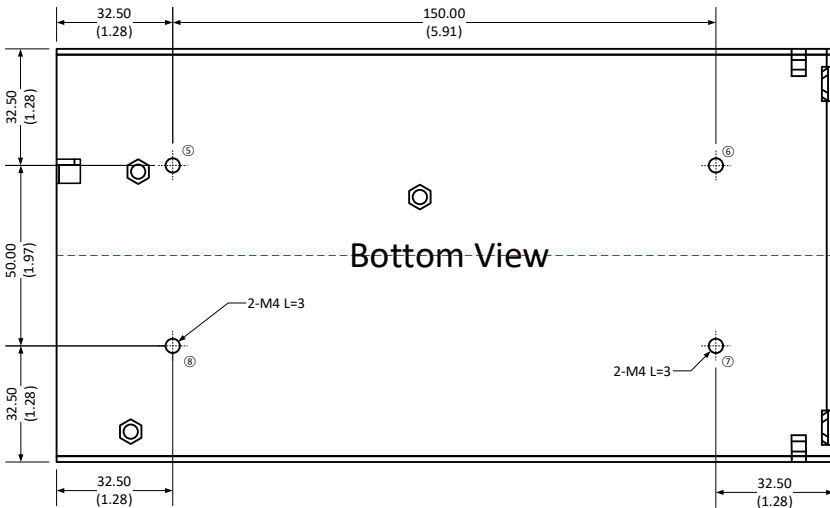
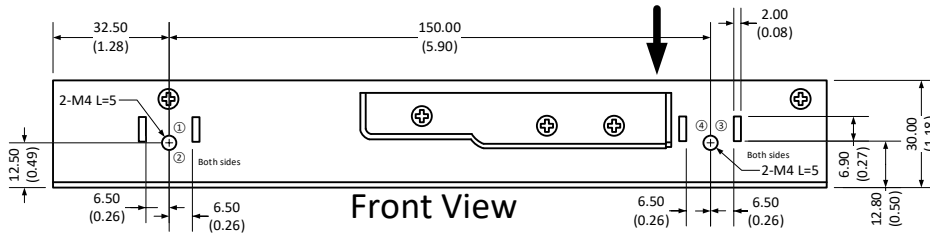


Dimensions



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).