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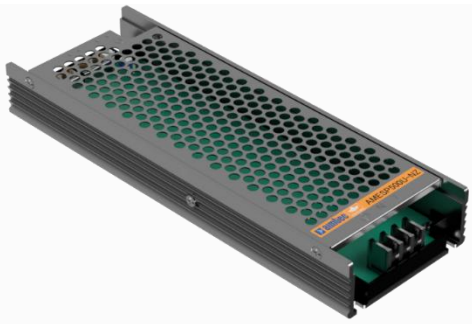
AMESP500U-NZ



Enclosed

The AMESP500U-NZ 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 new series offers great operating temperatures, from -30°C to 50°C with full power and also features an isolation of 3750VAC for improved reliability and system safety. Furthermore, a high MTBF of 167,600h, 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 AMESP500U-NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

Features

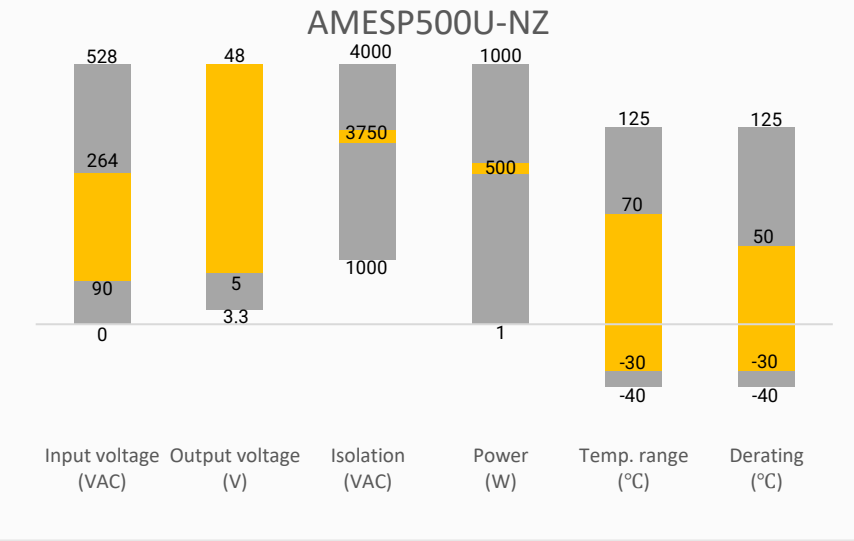
- Universal Input: 90 - 264VAC/127 - 370VDC
- Operating Temp: -30 °C to +70 °C
- PFC>0.95
- High isolation voltage: Up to 3750VAC
- Low ripple & noise, 360mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Optional conformal coating
- Active power factor correction

RoHS

3yr Warranty

With PFC

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

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)	Average Efficiency (%)
AMESP500U-5SNZ-P	90-264/47-63	127-370	400	5	4.5-5.5	80	12000	90
AMESP500U-12SNZ-P	90-264/47-63	127-370	500.4	12	11.4-12.6	41.7	10000	94
AMESP500U-15SNZ-P	90-264/47-63	127-370	501	15	14.3-15.8	33.4	9000	94
AMESP500U-24SNZ-P	90-264/47-63	127-370	501.6	24	22.8-25.2	20.9	8000	94.5
AMESP500U-36SNZ-P	90-264/47-63	127-370	500.4	36	34.2-37.8	13.9	6000	95
AMESP500U-48SNZ-P	90-264/47-63	127-370	501.6	48	45.6-50.4	10.45	4000	95

Note: The "-P" suffix indicates a terminal protective cover (ex. AMESP500U-12SNZ-P). For optional conformal coating, add "Q" after the "-P" (ex. AMESP500U-12SNZ-PQ is conformal coated version with terminal protective cover).

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	4.85		A
	230VAC	2.6		A
Inrush current	115VAC, cold start	30		A
	230VAC, cold start	60		A
Power factor	115VAC, Full load	0.98		
	230VAC, Full load	0.95		
Leakage current	240VAC		0.75	mA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	Full load, 5V output	±2		%
	Full load, others output	±1		%
Line regulation	Full load, 5V output	±0.5		%
	Full load, others output	±0.3		%
Load regulation	0-100% load, 5V output	±1		%
	0-100% load, others output	±0.5		%
Ripple & Noise*	5V, 12V, 15V output		200	mV p-p
	24V output		240	mV p-p
	36V, 48V output		360	mV p-p
Hold up time	115VAC	12		ms
	230VAC	12		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

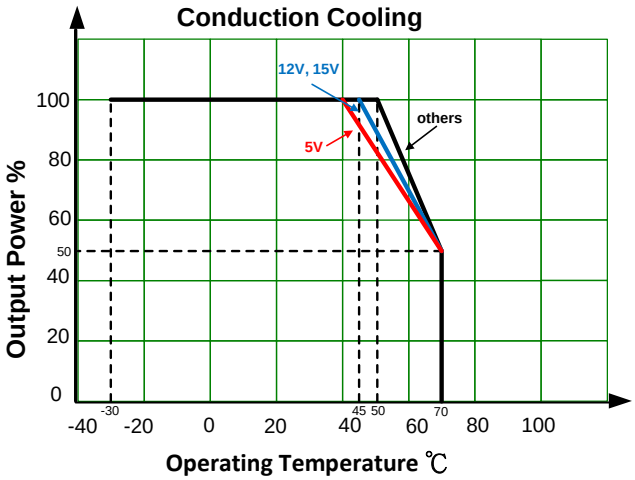
Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		3750	VAC
Tested Input to GND voltage	60 sec		2000	VAC
Tested Output to GND voltage	60 sec		1250	VAC
Resistance (I/O, I/O to GND) *	500VDC		100	MΩ

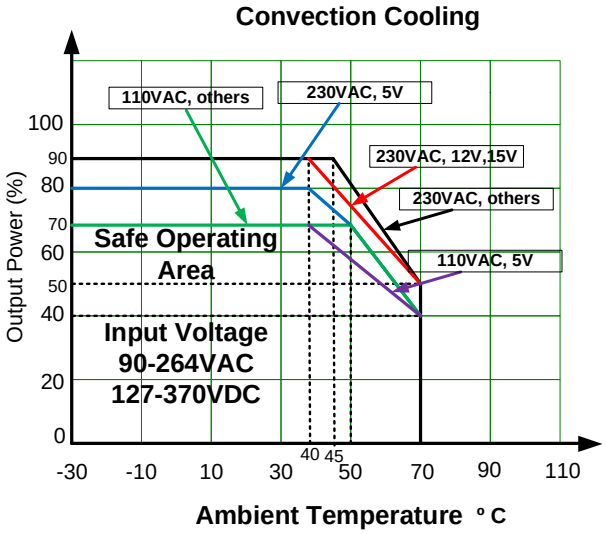
* Tested under 25±5°C ambient temperature with relative humidity <95% and no condensation.

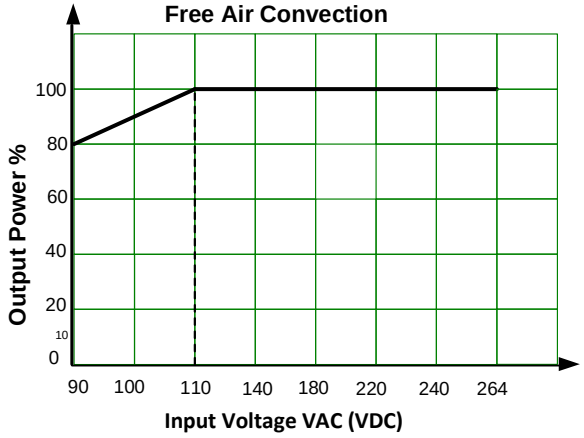
General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Safety class	Class I			
Over voltage category	OVC III, According to EN62368-1			
Over Current protection	Hiccup, Auto recovery	≥ 110	140	% of Iout
Over voltage protection	Shut-down, Manual recovery, 5V output		6.75	VDC
	Shut-down, Manual recovery, 12V output		15.6	VDC
	Shut-down, Manual recovery, 15V output		19.5	VDC
	Shut-down, Manual recovery, 24V output		31.2	VDC
	Shut-down, Manual recovery, 36V output		46.8	VDC
	Shut-down, Manual recovery, 48V output		62.4	VDC
Over temperature protection	Shut-down, Auto recovery			
Short circuit protection	Hiccup, Auto recovery			
Operating temperature	See derating graph	-30 to +70		℃
Storage temperature		-40 to +85		℃
Power derating	5V output at 40 °C to 70 °C	1.67		% / °C
	12V, 15V output at 45 °C to 70 °C	2		% / °C
	Others output at 50 °C to 70 °C	2.5		% / °C
	90VAC ~ 110VAC@60Hz	1		% / VAC
Temperature coefficient	0 ~ 50 °C	±0.03		% / °C
Cooling	Free air convection			
Humidity	Non-condensing, Storage	≥ 10	95	% RH
	Non-condensing, Operating	≥ 20	95	% RH
Case material	Metal			
Weight		900		g
Dimensions (L x W x H)	9.17 x 3.19 x 1.22inch (233 x 81 x 31mm)			
Vibration	10 ~ 500Hz, 5G 10min / 1cycle, 60min. Each along X, Y, Z axes			
MTBF	> 167 600 hrs MIL-HDBK-217(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.				

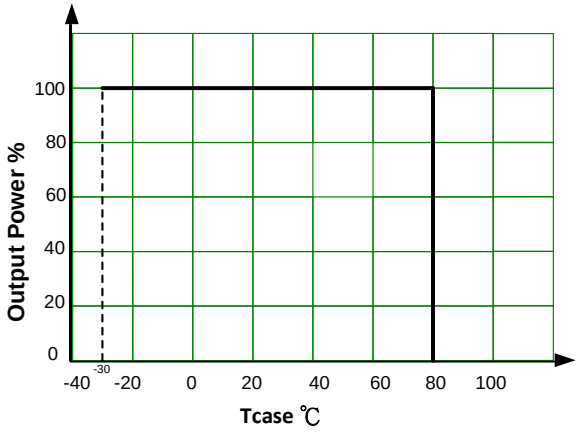
Safety Specifications		
Parameters		
Standards	Over voltage category	Design to meet III; According to EN62368-1
	Information technology Equipment	Design to meet BS EN/EN62368-1, EN/EN61558-1, BS EN/EN61558-2-16
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Harmonic current	IEC 61000-3-2
	Voltage flicker	IEC 61000-3-3
	Electrostatic Discharge Immunity	IEC 61000-4-2
	RF, Electromagnetic Field Immunity	IEC 61000-4-3
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4
	Surge Immunity	IEC 61000-4-5
	RF, Conducted Disturbance Immunity	IEC 61000-4-6
	Power-frequency Magnetic Field	IEC 61000-4-8
	Voltage dips, Short Interruptions Immunity	IEC 61000-4-11

Derating

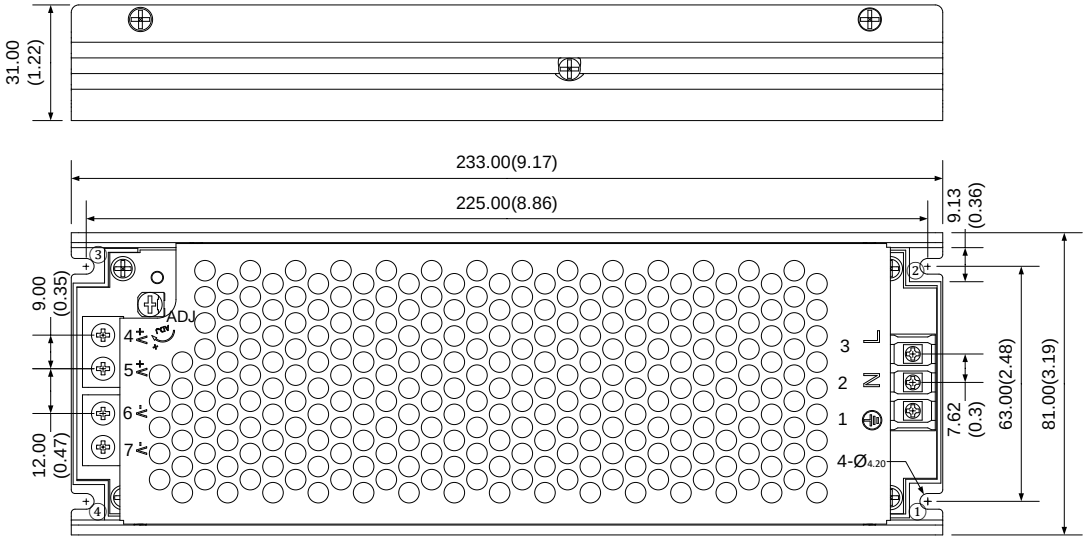

Conduction Cooling
Output Power %
Operating Temperature ℃
12V, 15V
5V
others
100
80
60
50
40
20
0
-40
-20
0
20
40
60
80
100
-30
45
50
70


Convection Cooling
Output Power (%)
Ambient Temperature °C
110VAC, others
230VAC, 5V
230VAC, 12V,15V
230VAC, others
110VAC, 5V
Safe Operating Area
Input Voltage
90-264VAC
127-370VDC
100
90
80
70
60
50
40
20
0
-30
-10
10
30
50
70
90
110
40
45


Free Air Convection
Output Power %
Input Voltage VAC (VDC)
100
80
60
40
20
10
0
90
100
110
140
180
220
240
264


Output Power %
Tcase ℃
100
80
60
40
20
0
-40
-20
0
20
40
60
80
100
-30

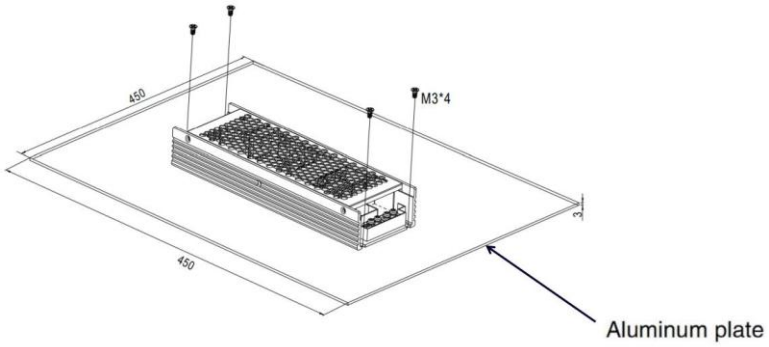
Dimensions

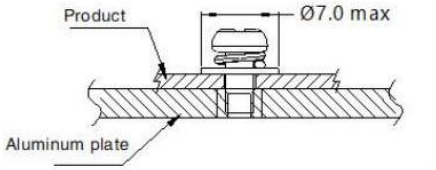


Pin Output Specifications	
Pin	Single
1	PE GND
2	AC Input (N)
3	AC Input (L)
4	+V Output
5	+V Output
6	-V Output
7	-V Output

Note:
Unit: mm(inch)
General tolerance: ±1.0(0.04)
Connector screw: M3 position 1-3, M4 position 4-7

Note:
1.Operate with additional aluminum plate
In order to meet the" Derating Curve" and the "Static Characteristics", the series model must be installed onto an aluminum plate (or the cabinet of the same size) on the bottom. The size of the suggested aluminum plate is 450mm x 450mm. And for optimizing thermal performance, the aluminum plate must have an even and smooth surface (or coated with thermal grease), and the series model must be firmly mounted at the center of the aluminum plate.
2. It is suggested to install the product with M3 combination screws, and the product must be firmly installed at the center of the aluminum plate.





Position	Screw Spec.	Torque(max)
① – ④	M3	0.4N ▪ m

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