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AMESP200-277NZ

Enclosed

The AMESP200-277NZ is an 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 45°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 AMESP200-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication, and civil applications.

Features

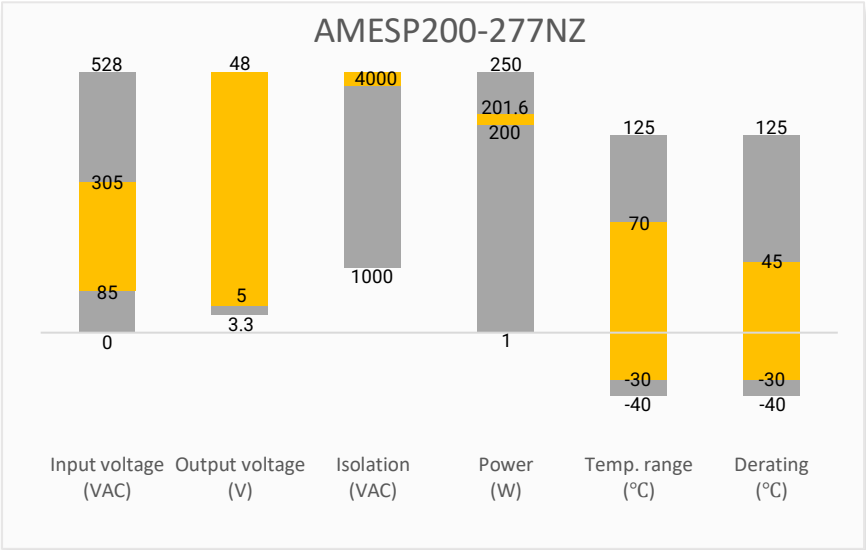
- Universal Input: 85 - 305VAC/120 - 430VDC
- Operating Temp: -30 °C to +70 °C
- PFC > 0.95
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 240mV(p-p) typ.
- Output short circuit, over-current, over-voltage and over temperature protection
- Regulated Output
- Optional conformal coating
- 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)	Efficiency @230VAC (%)
AMESP200-5S277NZ	85-305/47-63	120-430	200	5	4.5-5.5	40	3000	85
AMESP200-12S277NZ	85-305/47-63	120-430	200.4	12	11.4-12.6	16.7	4000	88
AMESP200-15S277NZ	85-305/47-63	120-430	201	15	14.25-15.75	13.4	3300	88
AMESP200-24S277NZ	85-305/47-63	120-430	201.6	24	22.8-25.2	8.4	1500	90
AMESP200-48S277NZ	85-305/47-63	120-430	201.6	48	45.6-50.4	4.2	470	89

Add suffix "-P" for optional terminal protective cover (ex. AMESP200-5S277NZ-P is terminal with protective cover version) or suffix "-Q" for optional conformal coating (ex. AMESP200-5S277NZ-Q is conformal coating version).

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC, 5V output	2.1	3	A
	230VAC, 5V output	1.1	1.5	A
	115VAC, others	2.5	3.0	A
	230VAC, others	1.3	2.0	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	±0.5		%
Load regulation	230VAC, 0-100% load, 5V output	±1		%
	230VAC, 0-100% load, Others	±0.5		%
Ripple & Noise*	5V output	60	150	mV p-p
	12V,15V,24V output	150		mV p-p
	48V output	240		mV p-p
Hold up time	115VAC, 230VAC, 5V output	12		ms
	115VAC, 230VAC, others	8		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 not for specific details.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 5mA, 5V output		4000	VAC
	60 sec, leakage current < 3mA, Others		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	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 Current protection	Auto recovery, 5V output	≥ 105	150	% of Iout
	Auto recovery, others	≥ 105	200	% of Iout
Over voltage protection	Hiccup, Auto recovery, 5V output		7	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, 5V output	50		°C
	Deactivation, others	55		°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
No-load power consumption	230VAC, 5V output	0.7		W
	230VAC, 12V,15V,24V,48V output	0.75	1	W
Power derating	50 °C to 70 °C, 5V output	2.5		% / °C
	45 °C to 70 °C, 12V,15V,24V,48V output	2		% / °C
	85VAC to 100VAC, 50Hz, -30°C to 30 °C, 5V output	2		% / VAC
	85VAC to 115VAC, 50Hz, 30°C to 70 °C, 5V output	1.5		% / VAC
	85VAC to 100VAC, 60Hz, -30°C to 30 °C, 5V output	1.33		% / VAC
	85VAC to 115VAC, 60Hz, 30°C to 70 °C, 5V output	1.33		% / VAC
	85VAC to 100VAC, 50Hz, 12V,15V,24V,48V output	2.0		% / VAC
	85VAC to 100VAC, 60Hz, 12V,15V,24V,48V output	1.67		% / VAC
	120 VDC to 140VDC, -30°C to 30 °C, 5V output	1.25		% / VDC
	120 VDC to 160VDC, 30°C to 70 °C, 5V output	1.25		% / VDC
	120 VDC to 140VDC, 12V,15V,24V,48V output	1.25		% / VDC
Ambient temperature derating	Operating altitude > 2000m	5		°C / 1000m
Temperature coefficient		±0.03		% / °C
Cooling	Free air convection, forced air convection			
Humidity	Non-condensing, Storage	≥ 10	95	% RH
	Non-condensing, Operating	≥ 20	90	% RH
Case material	Metal (1100 Aluminum, SGCC)			
Weight	5V output	750		g
	Others	475		g
Dimensions (L x W x H)	5V output	8.46 x 4.52 x 1.18inch (215.0 x 115.0 x 30.0mm)		
	Others	7.05 x 3.90 x 1.18inch (179.0 x 99.0 x 30.0mm)		
MTBF	> 250 000 hrs (MIL-HDBK -217F, t=+25°C)			

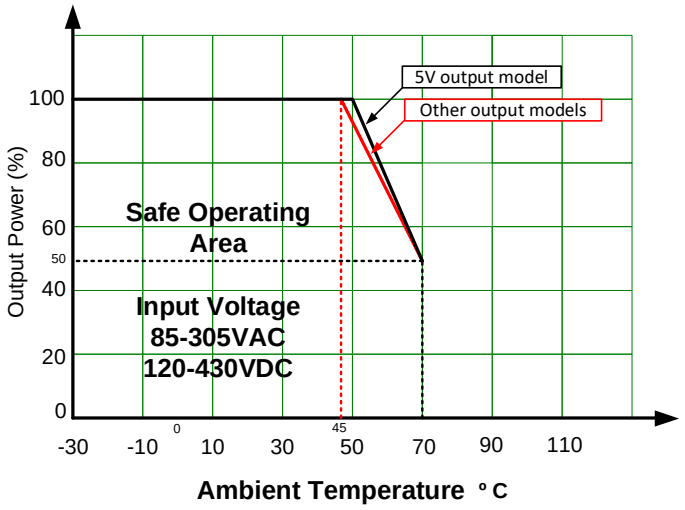
***Tested under full-load condition.**
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Safety Specifications

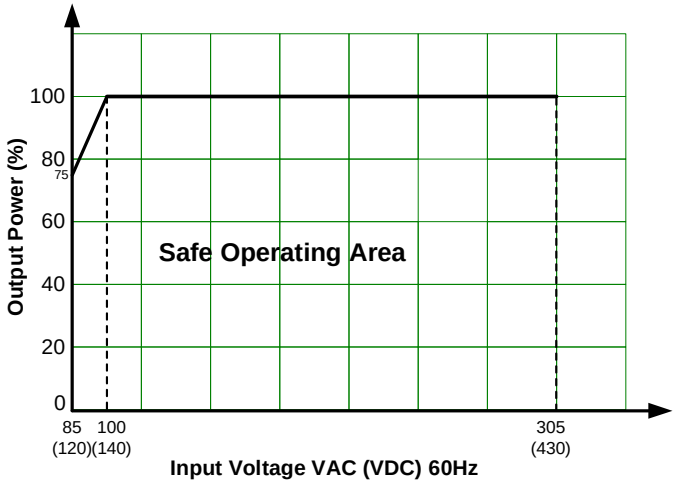
Parameters		
Standards	Information technology Equipment	Design to meet IEC/EN/UL 62368-1, EN60335-1, GB4943
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Harmonic current	IEC 61000-3-2, class A
	Voltage Flicker	IEC 61000-3-3
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±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 (5V output model) IEC 61000-4-4 ±4KV, Criteria A (other models)
	Surge Immunity	IEC 61000-4-5 L-L ±1KV/L-G ±2KV, Criteria A (5V output model) IEC 61000-4-5 L-L ±2KV/L-G ±4KV, Criteria A (other models)
	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.		

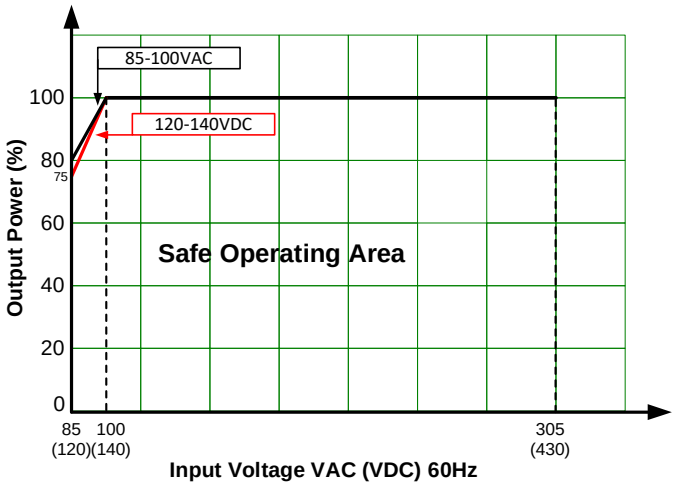
Derating



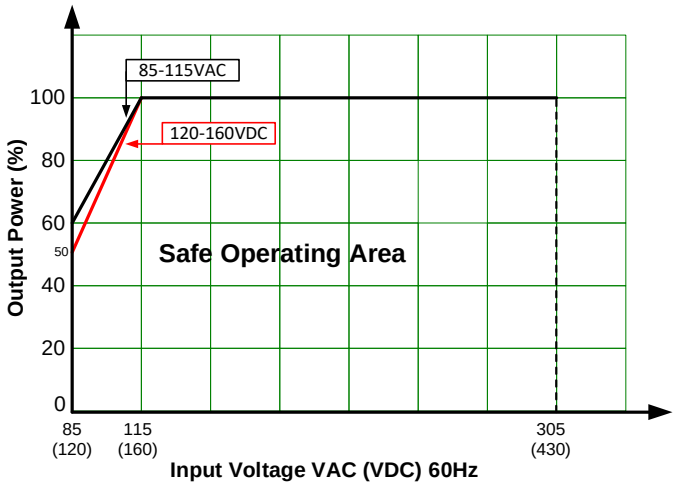
12, 15, 24, 48V models free air convection at 25°C



5V model at -30°C to 30°C



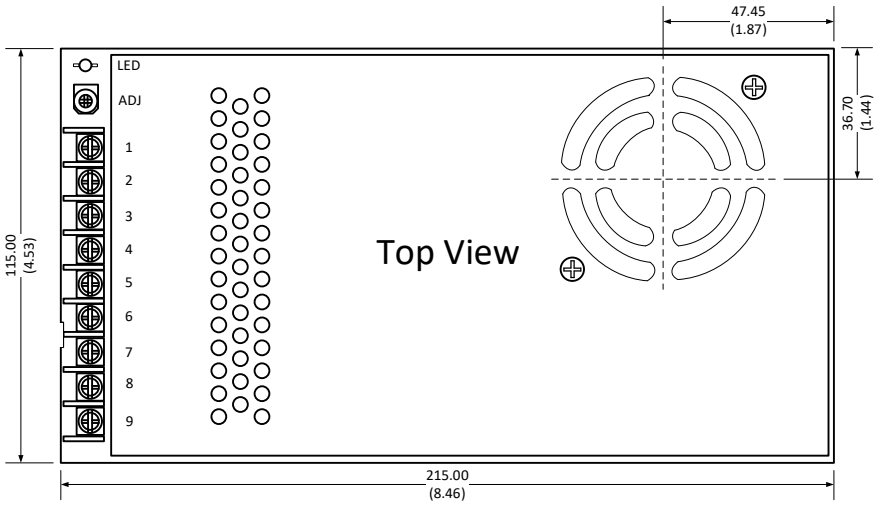
5V model at 30°C to 70°C



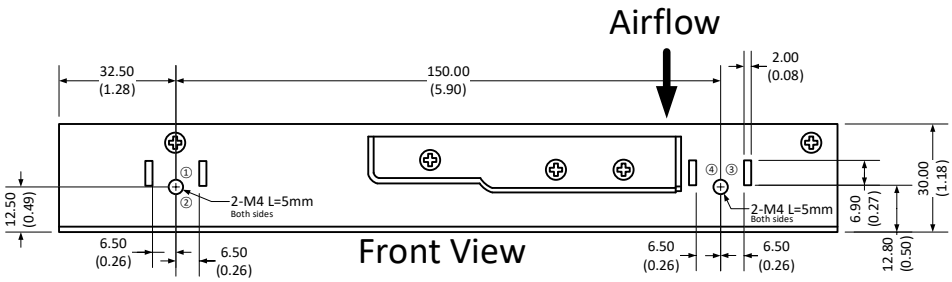
Note: In addition to the temperature derating, input voltage derating must be applied when the input voltage is between 85-100VAC/120-140VDC or 85-115VAC/120-160VDC.

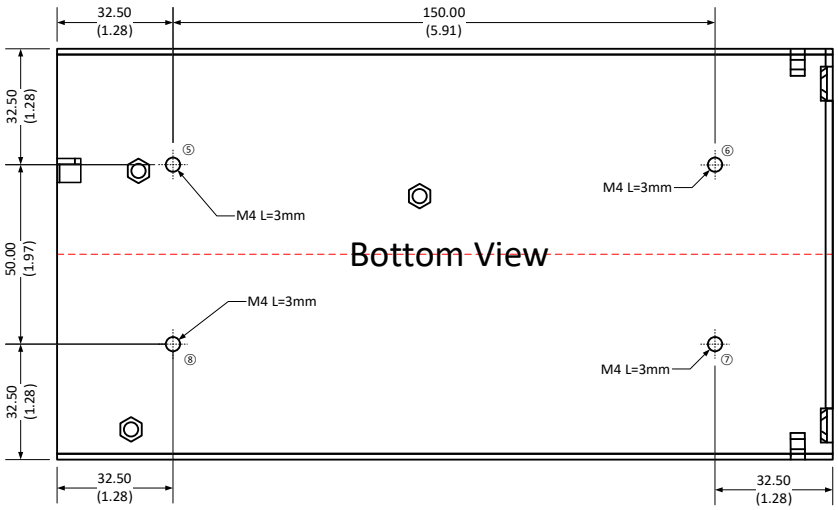
Dimensions

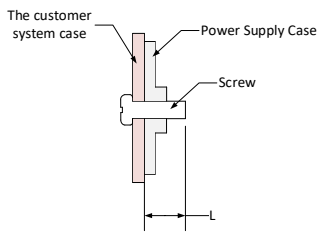
5V output model



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)

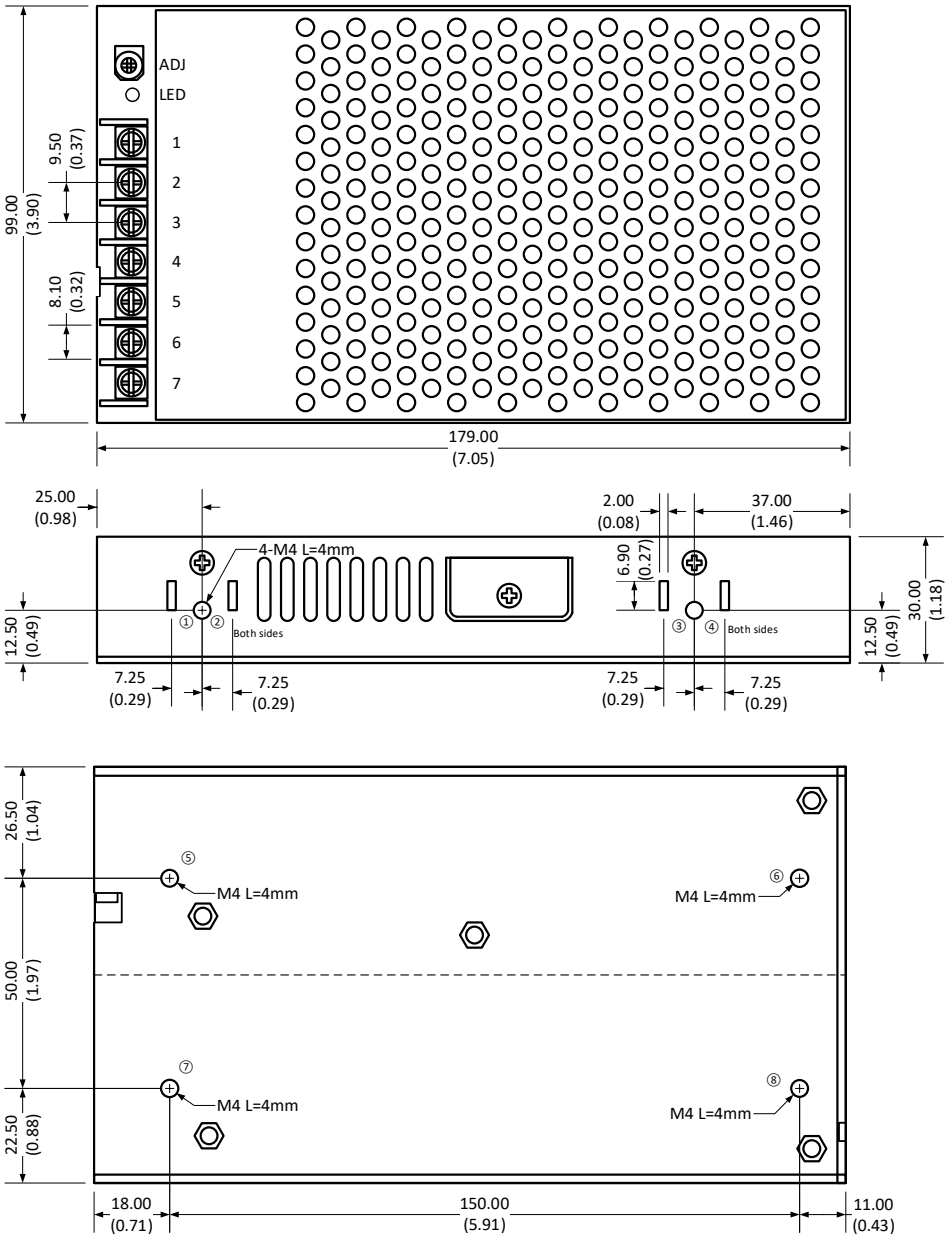




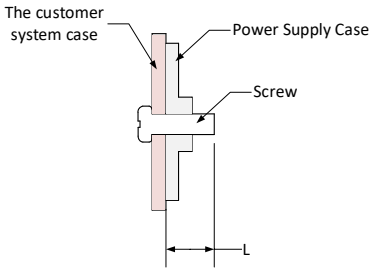


Note:
Unit: mm(inch)
Wire gauge: 22-12AWG
Screw terminal tightening torque: M3.5, 0.8N-m
Mounting screw tightening torque: M4, 0.9N-m
General tolerance: ±1.0(±0.04)
At least one of the ① - ⑧ location must be connected to PE

12, 15, 24, 48V output models



Pin Output Specifications	
Pin	Single
1	+V Output
2	+V Output
3	-V Output
4	-V Output
5	GND
6	AC Input (N)
7	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: ±1.0(±0.04)
At least one of the ① - ⑧ location must be connected to PE