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AMES15-277NZ



Enclosed

The AMES15-277NZ is a 15W 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.

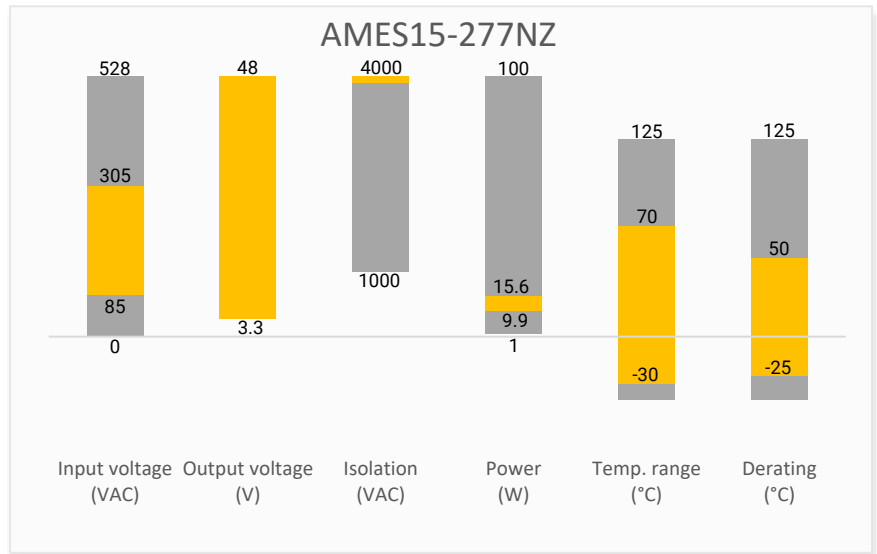
This series offers great operating temperatures, from -30°C to 70°C and also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 700,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMES15-277NZ is suitable for street lighting controls, grid power, instrumentation, industrial controls, communication and civil applications.

Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -30 °C to +70 °C
- High isolation voltage: Up to 4000VAC
- Low ripple & noise, 150mV(p-p) typ.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

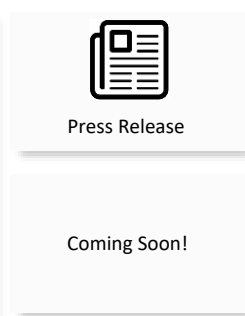
Summary



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 Typ. (%)
AMES15-3S277NZ	85-305/47-63	100-430	9.9	3.3	2.85-3.6	3	3000	73
AMES15-5S277NZ	85-305/47-63	100-430	15	5	4.5-5.5	3	2400	78
AMES15-12S277NZ	85-305/47-63	100-430	15.6	12	10.2-13.8	1.3	1800	82
AMES15-15S277NZ	85-305/47-63	100-430	15	15	13.5-18	1	1200	82
AMES15-24S277NZ	85-305/47-63	100-430	15	24	21.6-28.8	0.625	600	83
AMES15-48S277NZ	85-305/47-63	100-430	15.36	48	42-54	0.32	300	83

Note: Add suffix “-P” for optional terminal protective cover (ex. AMES15-3S277NZ-P is terminal with protective cover version) or suffix “-Q” for conformal coating (ex. AMES15-3S277NZ-Q is conformal coating version).

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC		0.35	A
	230VAC		0.25	A
Inrush current	Cold start, 115VAC	30		A
	Cold start, 230VAC	50		A
Leakage current	277VAC		0.5	mA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3V output	±3		%
	5V output	±2		%
	Others	±1		%
Line regulation	3.3, 5V output	±1		%
	Others	±0.5		%
Load regulation	0-100% load, 3.3, 5V output	±1		%
	0-100% load, Others	±0.5		%
Ripple & Noise*	3.3, 5V output	80		mV p-p
	12V, 15V output	120		mV p-p
	Others	150		mV p-p
Hold up time	115VAC	≥ 7		ms
	230VAC	≥ 48		ms

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.

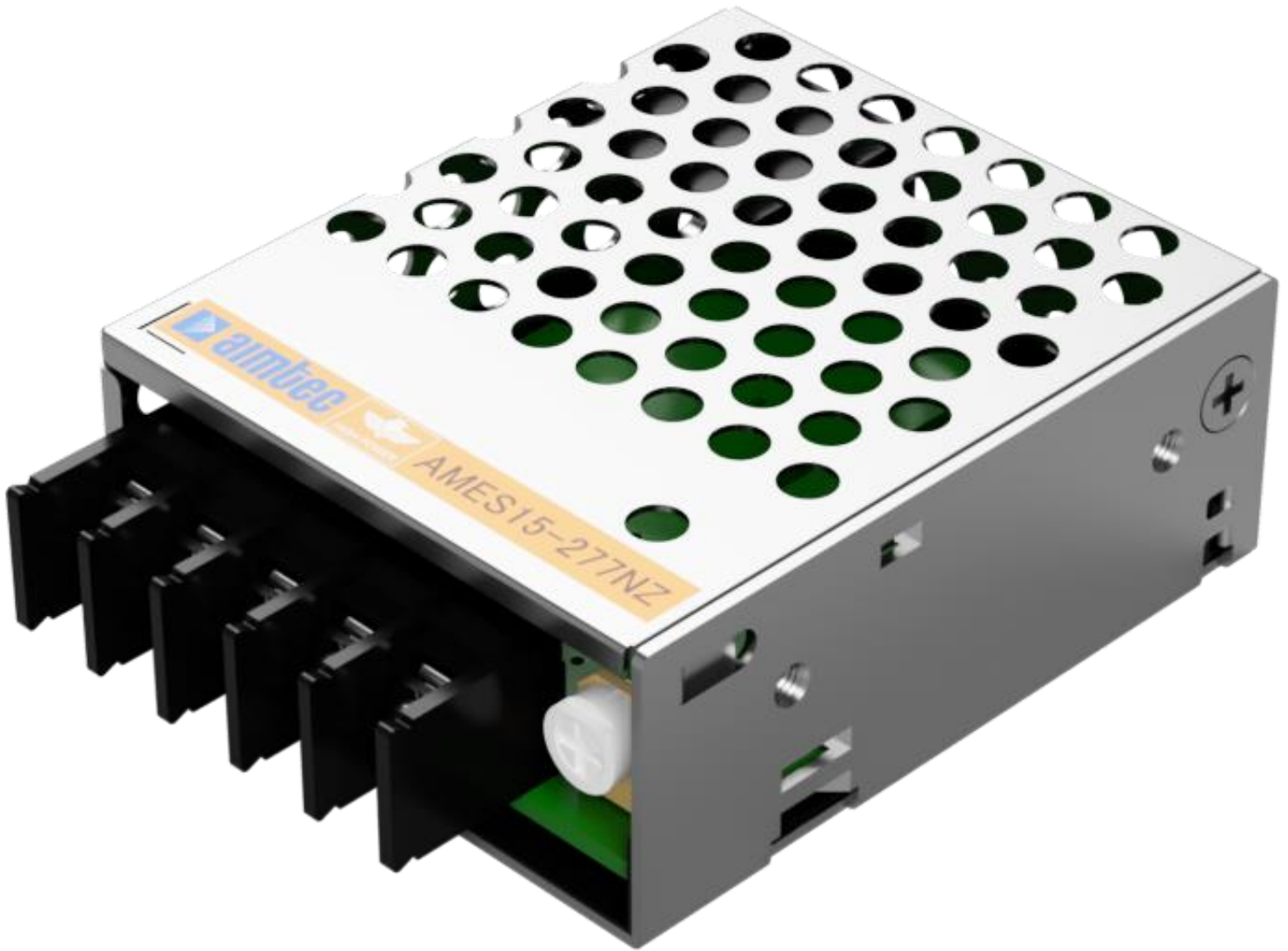
Isolation Specifications

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

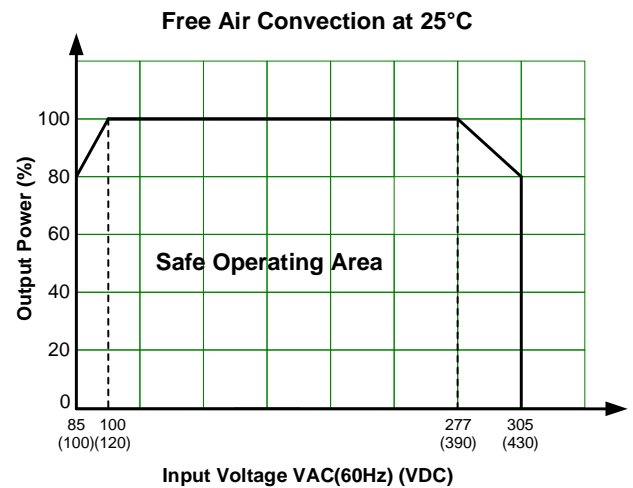
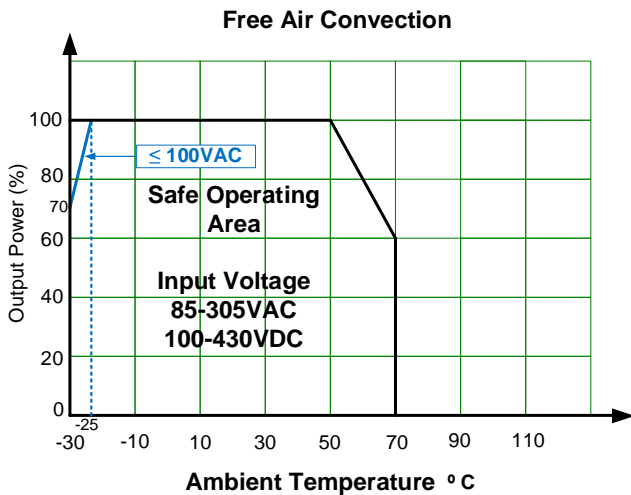
Resistance (I/O, I/O to GND)	500VDC		100	MΩ
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General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class I			
Switching Frequency		65		KHz
Over Current protection	Auto recovery	≥ 110	200	% of I _{out}
Over voltage protection	3.3, 5V output, hiccup or voltage clamp		6.75	VDC
	12V output, hiccup or voltage clamp		16.2	VDC
	15V output, hiccup or voltage clamp		21.8	VDC
	24V output, hiccup or voltage clamp		33.6	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		0.3	0.5	W
Power derating	-30°C to -25°C, 85VAC - 100VAC	6		% / °C
	50°C to 70°C	2		% / °C
	85VAC - 100VAC	1.33		% / VAC
	277VAC - 305VAC	0.72		% / VAC
Ambient temperature derating	Operating altitude > 2000m	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		90		g
Dimensions (L x W x H)	2.56 x 2.16 x 0.98inch (65.0 x 55.0 x 25.0mm)			
MTBF	> 700 000 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.				

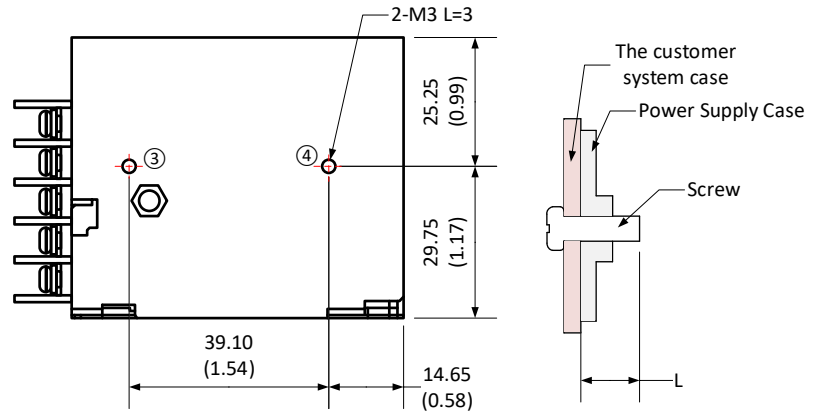
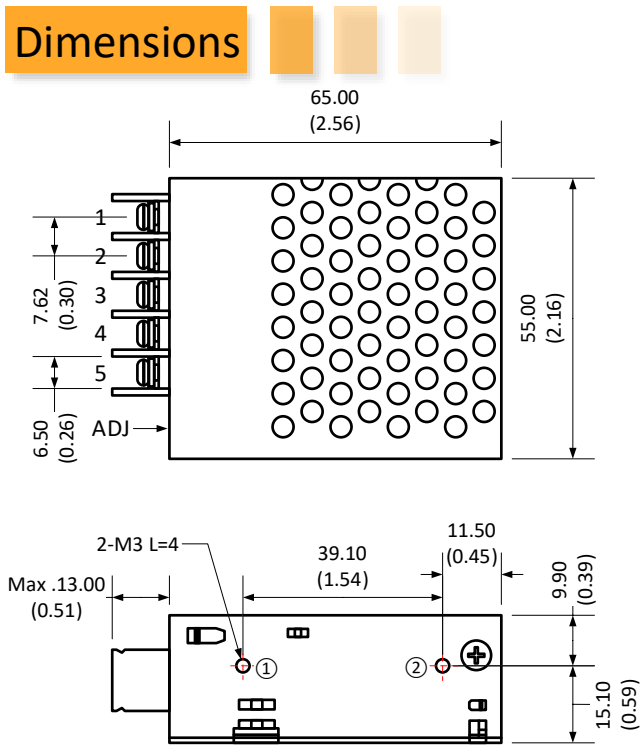
Safety Specifications		
Parameters		
Agency approvals	UL 62368-1	
Standards	Design to meet IEC/EN 62368-1, GB4943	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B
	RF, Electromagnetic Field Immunity	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



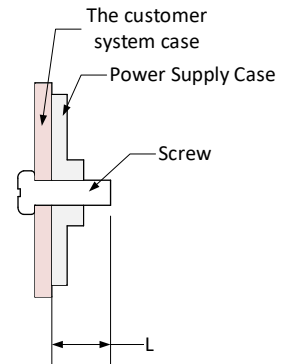
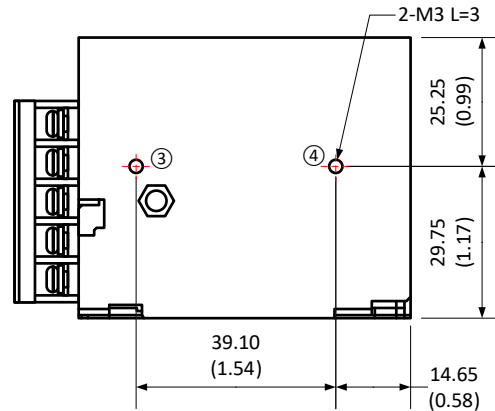
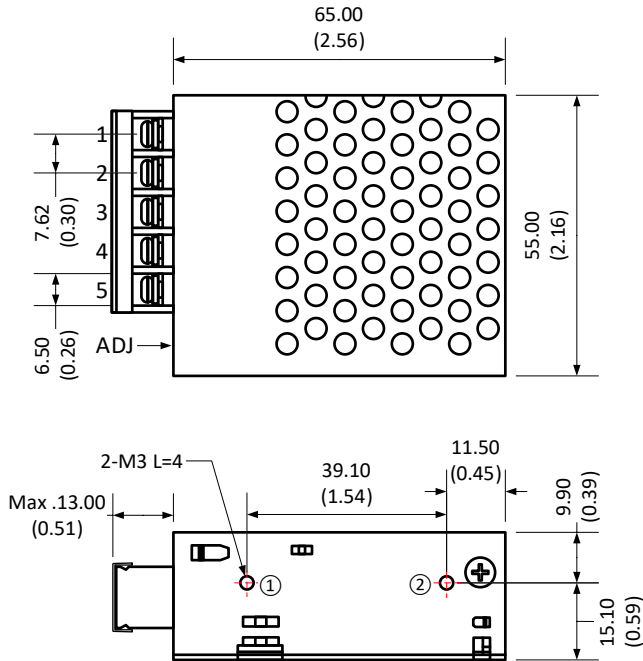
Dimensions



Note:
Unit: mm(inch)
Wire gauge: 22-14AWG
Screw terminal tightening torque: M3, 0.4N-m
Mounting screw tightening torque: M3, 0.4N-m
General tolerance: $\pm 1.0(0.04)$
At least one of the ① - ④ location must be connected to PE

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



Note:

Unit: mm(inch)

Wire gauge: 22-14AWG

Screw terminal tightening torque: M3, 0.4N-m

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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 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.