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## AMEL10-277NZ



Encapsulated

The new AMEL10-277NZ is a 10W 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 wide industrial input voltage range of 85-305VAC and an output voltage range from 3.3-24V, this series will offer many benefits to your new system design.

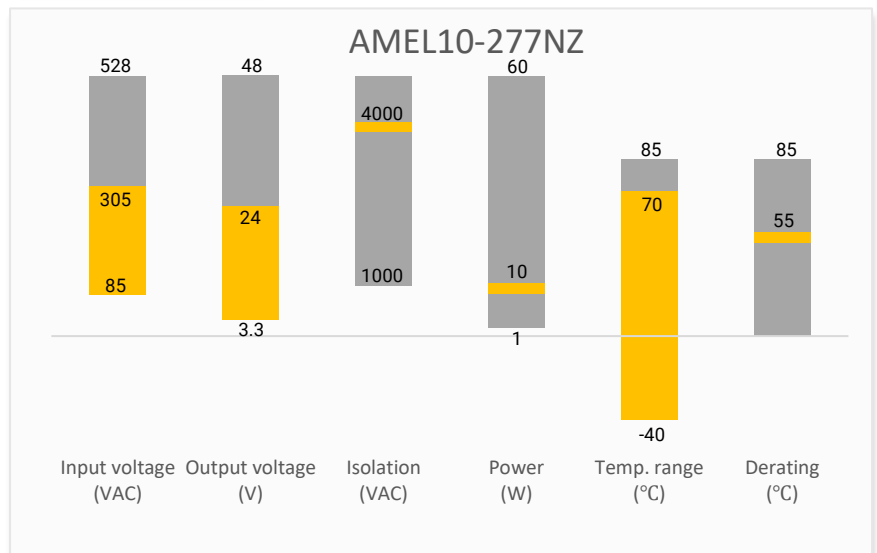
This new series offers great operating temperatures, from -40°C to 70°C and isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 300,000h, output short circuit protection (OSCP) and output over-current protection (OCP) come standard with the series.

The AMEL10-277NZ is perfect for street lighting controls, grid power, LED, instrumentation, industrial controls, communication and civil applications

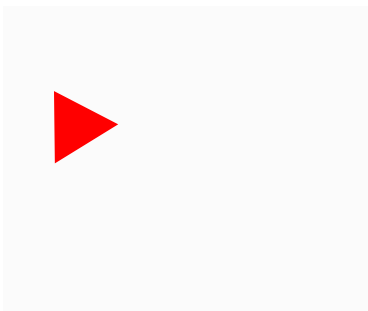
## Features

- Universal Input: 85 - 305VAC/100 - 430VDC
- Operating Temp: -40 °C to +70 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 100mV(p-p), max.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

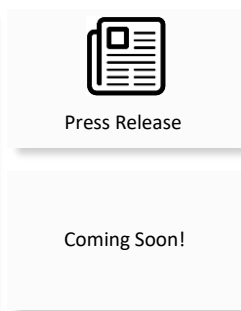
## Summary



## 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 Current max (mA)	Maximum capacitive load ( $\mu$ F)	Efficiency @ 230VAC Typ. (%)
AMEL10-3.3S277NZ	85~305/47~63	100~430	6.6	3.3	2000	26400	72
AMEL10-5S277NZ	85~305/47~63	100~430	10	5	2000	9440	76
AMEL10-9S277NZ	85~305/47~63	100~430	10	9	1100	3600	79
AMEL10-12S277NZ	85~305/47~63	100~430	10	12	900	2000	81
AMEL10-15S277NZ	85~305/47~63	100~430	10	15	700	1170	81
AMEL10-24S277NZ	85~305/47~63	100~430	10	24	450	370	82

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AMEL10-5S277NZ-ST is chassis mounting and AMEL10-5S277NZ-STD is DIN-Rail mounting version).

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input Current	115VAC		230	mA
	230VAC		150	
Inrush Current	115VAC	15		A
	230VAC	30		
Leakage Current			0.25	mA RMS
External Input Fuse	2A/300V, slow-blow type			

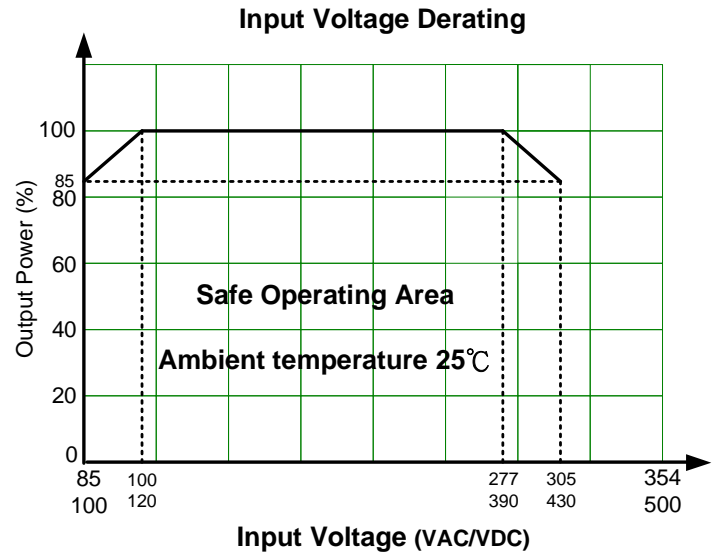
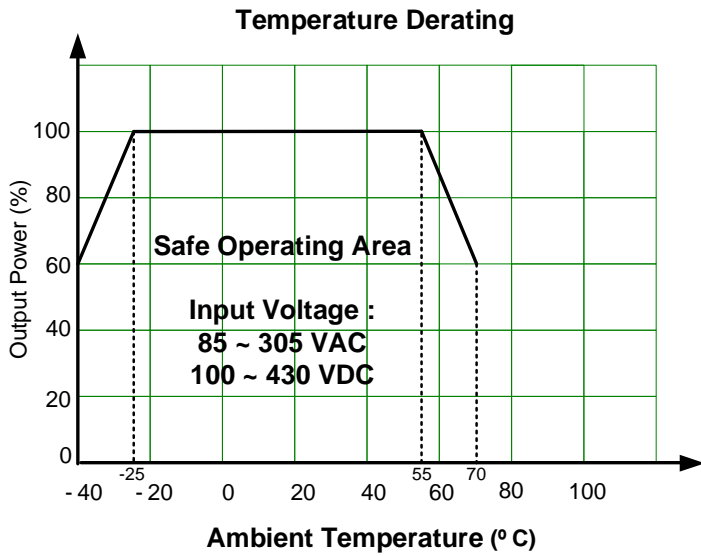
Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	3.3V output model	$\pm 3$		%
	Others	$\pm 2$		
Line regulation	Full load	$\pm 0.5$		%
Load regulation	0-100% load	$\pm 1$		%
Ripple & Noise	20MHz bandwidth		100	mV p-p
Hold up time	115VAC	8		ms
	230VAC	75		
No load power consumption	230VAC/ $I_o=0$		0.5	W

Isolation Specifications				
Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, Leakage current < 5mA	4000		VAC

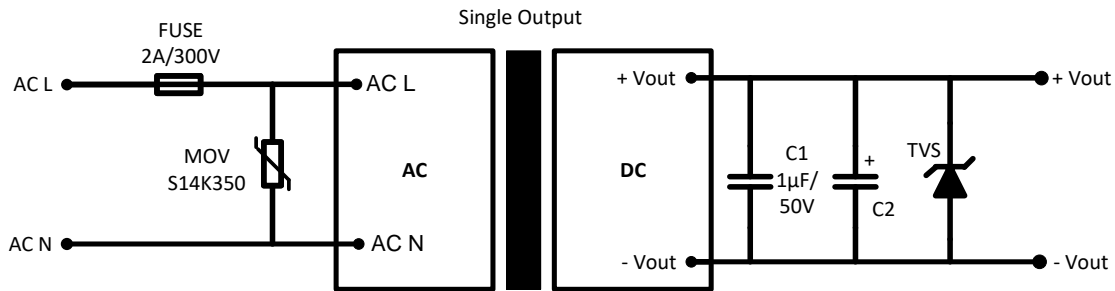
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Over Current protection	Self- recovery	≥ 110	300	% of Iout
Over voltage protection	Zener diode clamp	3.3V / 5V Output	≤ 9	VDC
		9V Output	≤ 15	
		12V Output	≤ 20	
		15V Output	≤ 25	
		24V Output	≤ 35	
Short circuit protection	Hiccup, Continuous, Self-recovery			
Switching Frequency		100		KHz
Operating temperature		-40 to +70		°C
Storage temperature		-40 to +85		°C
Power derating	-40°C ~ -25°C	2.67		% / °C
	55°C ~ 70°C	2.67		
	85 ~ 100 VAC	1		% / VAC
	277 ~ 305 VAC	0.54		
Soldering temperature	Wave-soldering	260 ± 5°C; 5 ~ 10 sec		
	Manual-welding	360 ± 10°C; 3 ~ 5 sec		
Temperature coefficient		±0.02		% / °C
Protection Class	Class II			
Cooling	Free air convection			
Storage Humidity			95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models	48		g
	With optional -ST mounting plate	68		
	With optional -STD mounting plate	88		
Dimensions (L x W x H)	PCB mountable models	2.12 x 1.13 x 0.75 inches (53.80 x 28.80 x 19.00mm)		
	With optional -ST mounting plate	2.99 x 1.24 x 1.09 inches (76.00 x 31.50 x 27.80mm)		
	With optional -STD mounting plate	2.99 x 1.24 x 1.28 inches (76.00 x 31.50 x 32.40mm)		
MTBF	> 300 000 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		
Standards	Designed to meet IEC/EN/UL 62368	
	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 B
		IEC 61000-4-4 ±4KV, with EMC recommended circuit, Criteria B
	Surge Immunity	IEC 61000-4-5 L-L ±1KV, Criteria B
		IEC 61000-4-5 L-L ±2KV/ L-G ±4KV, with EMC recommended circuit, Criteria B
CS, 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

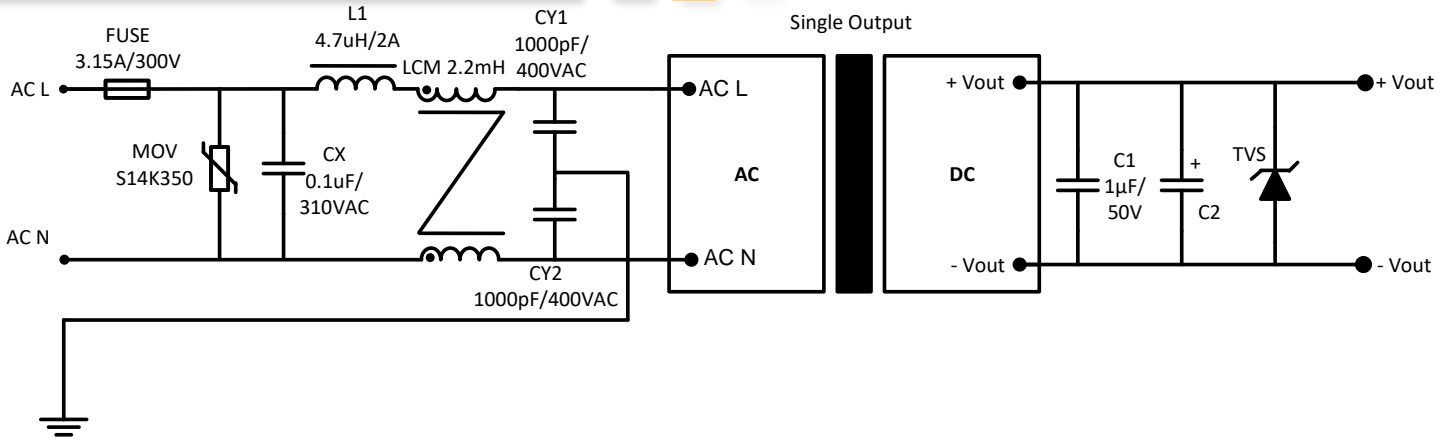


## Typical Application Circuit

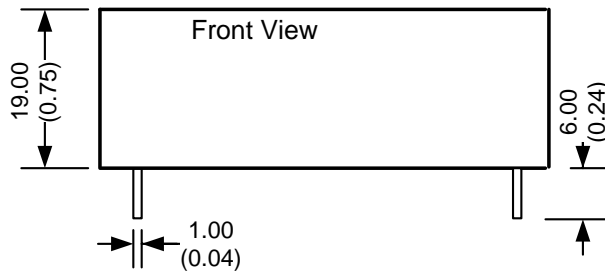
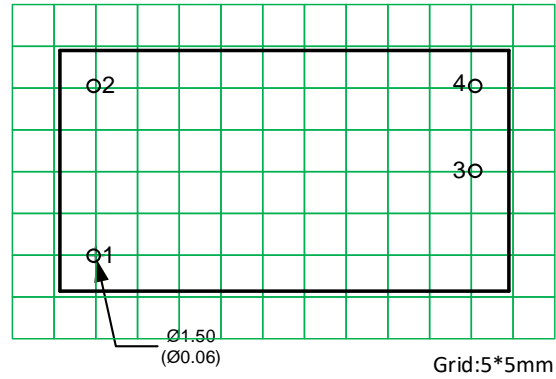
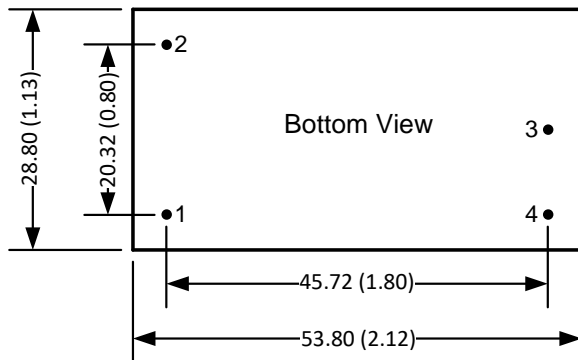


Model	C2(µF)	TVS
AMEL10-3.3S277NZ	470µF/10V	SMBJ7A
AMEL10-5S277NZ	470µF/10V	SMBJ7A
AMEL10-9S277NZ	220µF/25V	SMBJ15A
AMEL10-12S277NZ	220µF/25V	SMBJ20A
AMEL10-15S277NZ	220µF/25V	SMBJ20A
AMEL10-24S277NZ	100µF/35V	SMBJ30A

## EMC Recommended Circuit



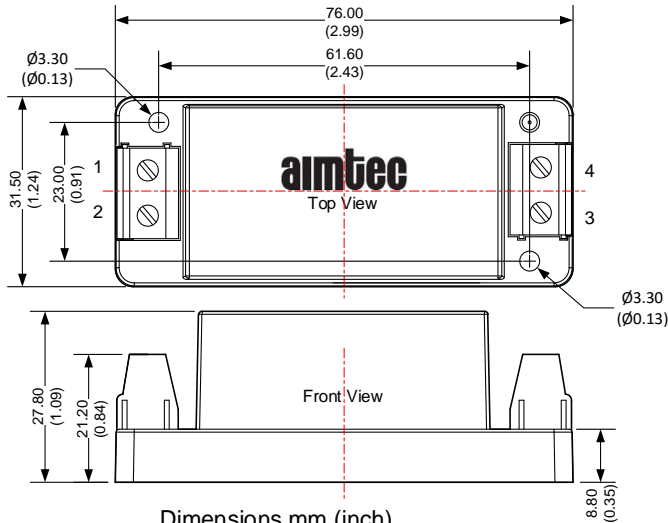
## Dimensions



Dimensions mm (inch).  
Pin diameter tolerance  $\pm 0.1$  ( $\pm 0.004$ )  
General tolerance  $\pm 0.5$  ( $\pm 0.02$ )

Pin Output Specifications	
Pin	Function
1	Input (N)
2	Input (L)
3	-V Output
4	+V Output

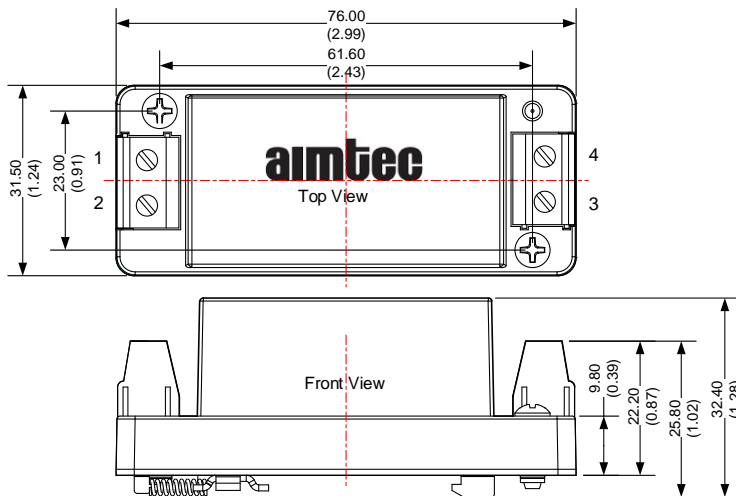
## Dimensions with ST Optional



Dimensions mm (inch)  
Wire range: 24-12 AWG  
General tolerances  $\pm 0.5$  ( $\pm 0.02$ )  
Tightening torque: Max 0.4 N·m

Pin Output Specifications	
Pin	Function
1	Input (N)
2	Input (L)
3	-V Output
4	+V Output

## Dimensions with STD Optional



Dimensions mm (inch)  
Wire range: 24-12 AWG  
General tolerances:  $\pm 1.00$  ( $\pm 0.04$ )  
Mounting rail: DIN RAIL TS35  
Tightening torque: Max 0.4 N·m

Pin Output Specifications	
Pin	Function
1	Input (N)
2	Input (L)
3	-V Output
4	+V Output

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