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## AMEL90-277HAGY



Encapsulated

The AMEL90-277HAGY series is an efficient 90W AC-DC power supply module. Offering a commercial input voltage range of 85-305VAC, output voltage ranges from 12-48V, low power consumption, high efficiency, high reliability and safer isolation.

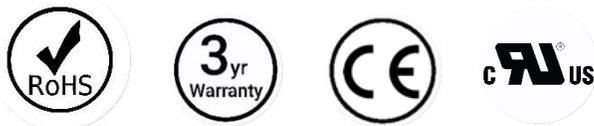
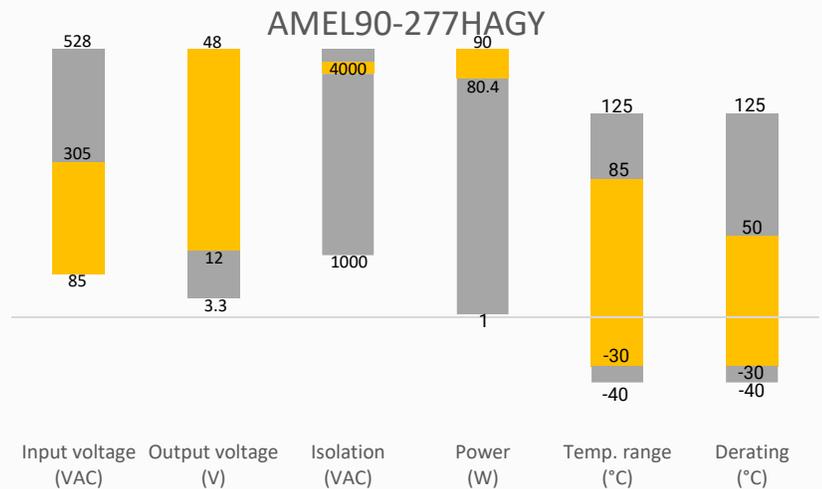
This new series offers great operating temperatures, from -30°C to 85°C with full power up to 50°C and features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 500,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The AMEL90-277HAGY is suitable for grid power, industrial instrumentation and controls, communication, and civil applications.

## Features

- Universal Input: 85 - 305VAC/120 – 370VDC
- Operating Temp: -30 °C to +85 °C
- High isolation voltage: 4000VAC
- Output short circuit, over-current, over-voltage protection
- Low no-load power consumption of 0.3W max.
- Agency approval: UL62368-1
- Designed to meet: IEC/EN62368-1, IEC60335-1

## Summary



## Training



Product Training Video  
(click to open)



Application Notes

## Applications



Power Grid



Industrial



Telecom

## Models & Specifications

### Single Output

Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load ( $\mu$ F)	Average Efficiency (%)
AMEL90-12S277HAGY	85-305/47-63	120-370	80	12	6.67	6800	89.5
AMEL90-15S277HAGY	85-305/47-63	120-370	85	15	5.67	4500	90.5
AMEL90-24S277HAGY	85-305/47-63	120-370	90	24	3.75	3000	91
AMEL90-48S277HAGY	85-305/47-63	120-370	90	48	1.88	470	91.5

Note: Use suffix "-ST" for chassis mounting (ex. AMEL90-12S277HAGY-ST is chassis mounting version).

### Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Input current	115VAC	1.9		A
	230VAC	1.1		A
Inrush current	115VAC	40		A
	230VAC	100		A
Leakage	264VAC		0.25	mA

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		$\pm 2$		%
Line regulation	Full load	$\pm 0.5$		%
Load regulation	12V output	$\pm 1$		%
	Others	$\pm 0.5$		%
Ripple & Noise*	12V output		120	mV p-p
	15V output		150	mV p-p
	24V output		200	mV p-p
	48V output		360	mV p-p
Hold up time	115VAC	12		ms
	230VAC	50		ms

\* Ripple and Noise are measured at 20MHz bandwidth with a 47 $\mu$ F electrolytic capacitor and a 0.1 $\mu$ F ceramic capacitor. Please refer to the application note for specific details.

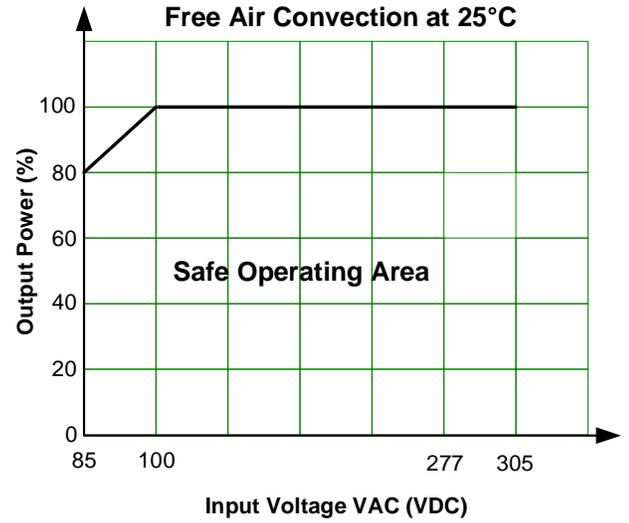
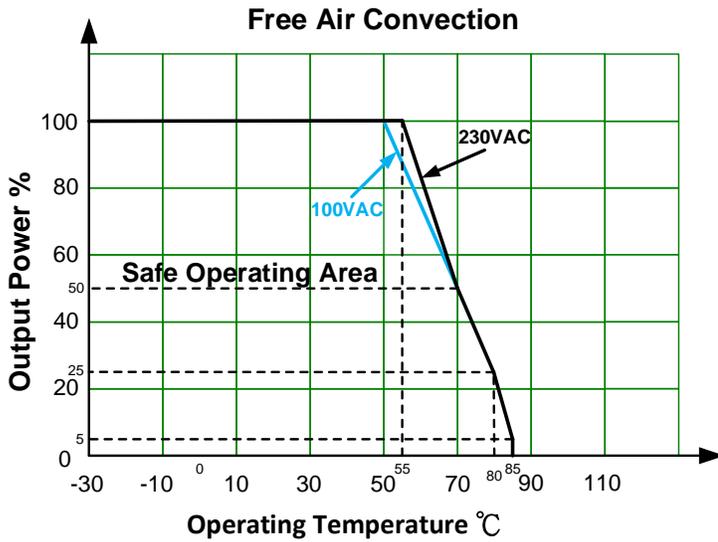
### Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec	4000		VAC
Resistance	500VDC	>100		M $\Omega$

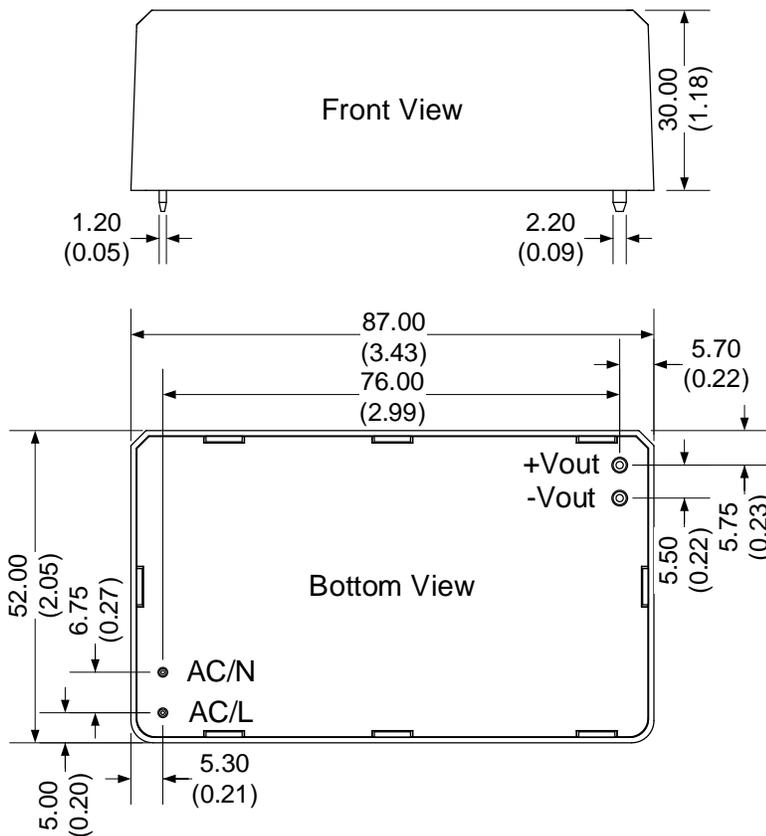
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Isolation level	II			
Oversoltage category	II (designed to meet EN62368-1)			
Over current protection	Hiccup, Auto recovery	≥ 105	160	% of Iout
Over voltage protection	12Vout, shut off o/p voltage, clamping by Zener diode	12.6	16.5	VDC
	15Vout, shut off o/p voltage, clamping by Zener diode	15.75	24	VDC
	24Vout, shut off o/p voltage, clamping by Zener diode	25.2	34	VDC
	48Vout, shut off o/p voltage, clamping by Zener diode	50.4	65	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery			
Operating temperature	See derating graph	-30 to +85		°C
Storage temperature		-40 to +85		°C
Wave soldering temperature	Duration 5s max.	265		°C
Manual soldering temperature	Duration 3s max.	390		°C
No-load power consumption			0.3	W
Power Derating	+50 °C to +70 °C, 100VAC	2.5		%/°C
	+55 °C to +70 °C, 230VAC	3.33		%/°C
	+70 °C to +80 °C	2.5		%/°C
	+80 °C to +85 °C	4		%/°C
	85VAC to 100VAC	1.33		%/VAC
Temperature coefficient	0~50°C	±0.03		%/°C
Cooling	Free air convection			
Humidity	Non-condensing, Storage	10	95	% RH
	Non-condensing, Operating	20	90	% RH
Altitude application			2000	m
Vibration	PCB mountable models	10 ~ 500Hz, 2G 10min. /1cycle, period for 60min. each along X,Y,Z axes		
	With optional -ST mounting plate	10 ~ 500Hz, 5G 10min. /1cycle, period for 60min. each along X,Y,Z axes		
Weight	PCB mountable models	195		g
	With optional -ST mounting plate	260		g
Dimensions (L x W x H)	PCB mountable models	3.43 x 2.05 x 1.18 inches (87.00 x 52.00 x 30.00 mm)		
	With optional -ST mounting plate	4.30 x 2.07 x 1.33 inches (109.30 x 52.70 x 33.90mm)		
MTBF	> 500 000 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	UL62368-1	
Standards	Information technology Equipment	Design to meet IEC/EN62368-1, IEC60335-1
	EMI - Conducted and radiated emission	BS EN/EN55014-1, class B
	Limits for Harmonic current emissions	BS EN/EN 61000-3-2, class A
	Voltage fluctuations and flicker	BS EN/EN 61000-3-3
	Electrostatic Discharge Immunity	BS EN/EN 61000-4-2, Level 2 contact ±4KV, Level 3 Air ±8KV, Criteria A
	RF, Electromagnetic Field Immunity	BS EN/EN 61000-4-3, Level 3, Criteria A
	Electrical Fast Transient/Burst Immunity	BS EN/EN 61000-4-4, Level 3, Criteria A
	Surge Immunity	BS EN/EN 61000-4-5, Level 4 ±2KV/L-N, Criteria A
	RF, Conducted Disturbance Immunity	BS EN/EN 61000-4-6, Level 3, Criteria A
	Magnetic field immunity	BS EN/EN 61000-4-8, Level 4, Criteria A
	Voltage Dips and interruptions	BS EN/EN 61000-4-11, >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods

**Derating**

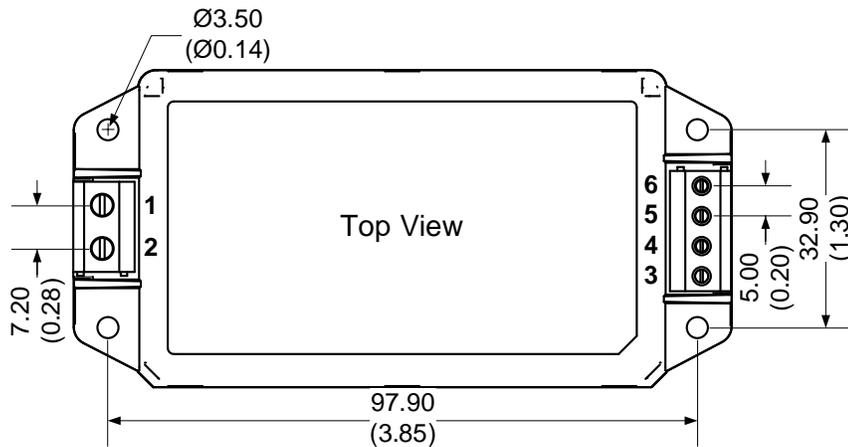


**Dimensions**

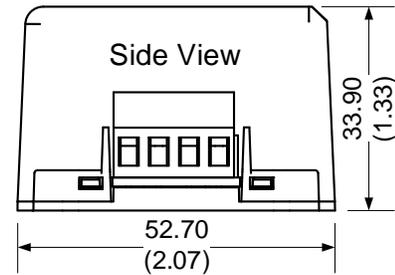
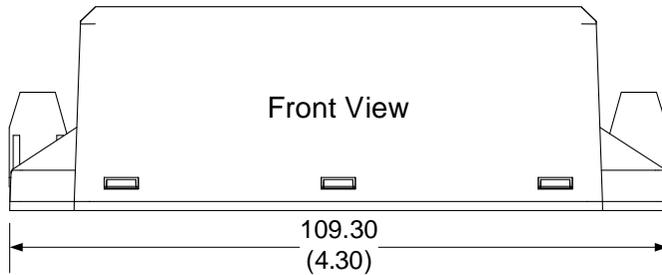


Note:  
 Unit: mm(inch)  
 General tolerance:  $\pm 0.50$  ( $\pm 0.02$ )  
 Pin diameter tolerances:  $\pm 0.10$  ( $\pm 0.04$ )

Dimensions with Optional - ST



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



Note:

Unit: mm(inch)

General tolerance:  $\pm 1.00$  ( $\pm 0.04$ )

Connection wire diameter: 24-12AWG

Screw clamp unit: M2.5 Max 0.4 N\*m

**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).