

FEATURES

- ▶ Ultra Compact Size 2.06x1.07x0.93 "
- ▶ Fully Encapsulated Plastic Case for PCB, Chassis and DIN-Rail Mounting Version
- ▶ Universal Input 85-264VAC, 90-370VDC, 47-440Hz
- ▶ I/O Isolation 3000VAC with Reinforced Insulation
- ▶ No Min. Load Requirement & Low no-load power consumption
- ▶ Operating Ambient Temp. Range -40°C to +70°C
- ▶ Overload/Voltage and Short Circuit Protection
- ▶ EMI Emission EN55014-1/55032 Class B Approved
- ▶ EMS Immunity EN61000-4-2,3,4,5,6,8,11 Approved
- ▶ Safety Approval to UL/cUL/IEC/EN 62368-1, IEC/EN 60335-1 & CE Marking

**NEW****PRODUCT OVERVIEW**

The MINMAX AMF-15 series is a new generation of fully encapsulated AC-DC power supply modules with ultra-compact size for higher power density and space saving.

The product features universal AC input 85-264VAC and wider DC input 90-370VDC, regulated output voltages 5.1, 12, 15, 24, 48VDC ; I/O Isolation 3000VAC with Reinforced Insulation ; EMI emission EN55014-1/32 Class B and EMS immunity EN 61000-4 standards approved ; no min. load requirement and low no-load power consumption ; abnormal protection mechanism with output overload, short circuit and overvoltage protections.

The AMF-15 series equips with PCB, Chassis and DIN-Rail Mounting Version for flexible installation and comply with UL/IEC/EN 62368-1 & IEC/EN 60335-1 for safety usage. It provides a cost effective solution especially for space critical applications in industrial and household electronic equipment.

Model Selection Guide

Model Number	Output Voltage	Output Power	Output Current	Input Current	Max. capacitive Load	Efficiency (typ.)
				115VAC, 60Hz		
	VDC	W	mA	@Max. Load mA(typ.)	μF	@Max. Load, 115VAC %
AMF-15S051	5.1	15.3	3000	318	3300	80
AMF-15S12	12	15	1250	306	560	85
AMF-15S15	15	15	1000	306	330	86
AMF-15S24	24	15	625	299	220	86
AMF-15S48	48	15.02	313	306	47	86

Input Specifications

Parameter	Conditions / Model	Min.	Typ.	Max.	Unit
AC Input Voltage Range	All Models	85	---	264	VAC
AC Input Frequency Range		47	---	440	Hz
DC Input Voltage Range		90	---	370	VDC
No-Load Power Consumption	115VAC	---	---	150	mW
	230VAC	---	---	300	mW
Inrush Current (Cold Start at 25°C)	115VAC	---	---	25	A
	230VAC	---	---	45	A

Output Specifications

Parameter	Conditions / Model	Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy		---	±1.0	±2.0	%
Line Regulation	Vin=Min. to Max. @Full Load	---	---	±0.5	%
Load Regulation	Io=0% to 100%	---	---	±1.0	%
Minimum Load	No minimum Load Requirement				
Ripple & Noise	0-20 MHz Bandwidth	5.1VDC Output Model	---	80	mV _{P-P}
		Other Output Models	---	1	%V _{PP} of Vo
Temperature Coefficient		---	±0.01	±0.02	%/°C
Over Load Protection	auto-recovery (long term overload condition may cause damage)	---	150	---	%Inom.
Short Circuit Protection	Hiccup mode, Automatic Recovery				

General Specifications

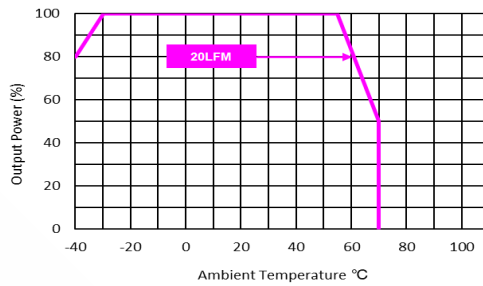
Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	60 Seconds	3000	---	---	VAC
I/O Isolation Resistance	500 VDC	10	---	---	GΩ
Switching Frequency		---	---	125	kHz
Hold-up Time	115VAC, 60Hz	8	---	---	ms
	230VAC, 50Hz	40	---	---	ms
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	458,989	---	---	Hours
Safety Approvals	UL/cUL 62368-1 recognition(UL certificate), IEC/EN 62368-1(CB-report)				
	IEC/EN 60335-1, 61558-1, 61558-2-16 recognition(CB-report)				

EMC Specifications

Parameter	Standards & Level			Performance
General	Compliance with EN 61204-3 Switch mode power supplies			
EMI	Conduction	EN 55014-1, EN 55032	Without external components	Class B
	Radiation			
EMS	EN 55014-2, EN 55024, EN 55035			
	ESD	Direct discharge	Indirect discharge HCP & VCP	
		EN 61000-4-2 Air ± 8kV, Contact ± 6kV	Contact ± 6kV	
	Radiated immunity	EN 61000-4-3 10V/m		A
	Fast transient	EN 61000-4-4 ±2kV		A
	Surge	EN 61000-4-5 ±1kV		A
	Conducted immunity	EN 61000-4-6 10Vrms		A
	PFMF	EN 61000-4-8 30A/m		A
	Dips	EN 61000-4-11 30% 10ms		A
Interruptions	EN 61000-4-11 >95% 5000ms		B	

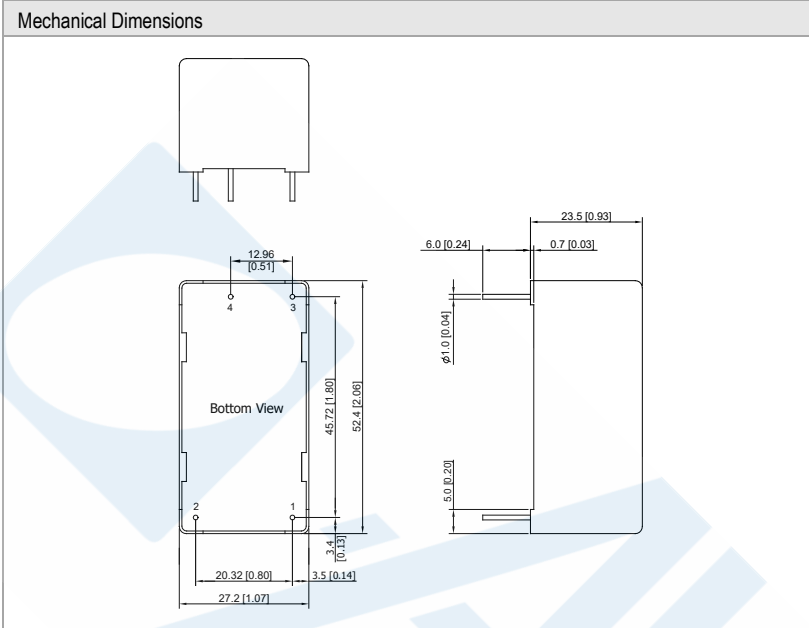
Environmental Specifications

Parameter	Min.	Max.	Unit
Operating Ambient Temperature Range (See Power Derating Curve)	-40	+70	°C
Storage Temperature Range	-40	+85	°C
Humidity (non condensing)	---	95	% rel. H
Lead Temperature (1.5mm from case for 10Sec.)	---	260	°C

Power Derating Curve**Notes**

- 1 All specifications typical at $T_a=+25^{\circ}\text{C}$, resistive load, 115VAC, 60Hz input voltage and after warm-up time rated output current unless otherwise noted.
- 2 We recommend to protect the converter by a slow blow fuse in the input supply line.
- 3 Other input and output voltage may be available, please contact MINMAX.
- 4 The continuous operation on DC input voltage of 80VDC to 370VDC is available after start-up at 90VDC.
- 5 Specifications are subject to change without notice.

Package Specifications PCB Mounting



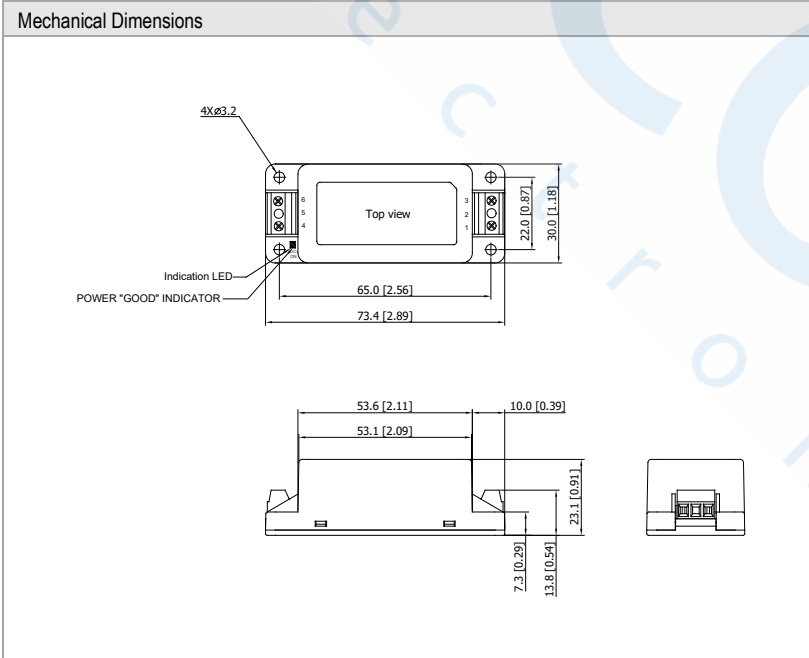
Pin Connections	
Pin	Function
1	AC(N)
2	AC(L)
3	+Vout
4	-Vout

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: ± 0.5 (± 0.02)
- ▶ Pin pitch tolerance: ± 0.25 (± 0.01)
- ▶ Pin diameter $\varnothing 1.0 \pm 0.1$ (0.02 ± 0.004)

Physical Characteristics

Case Size	: 52.4x27.2x23.5mm (2.06x1.07x0.93 inches)
Case Material	: Plastic resin (flammability to UL 94V-0 rated)
Pin Material	: Copper Alloy with Tin Plate Over Nickel Subplate
Weight	: 51g

Package Specifications Chassis Mounting



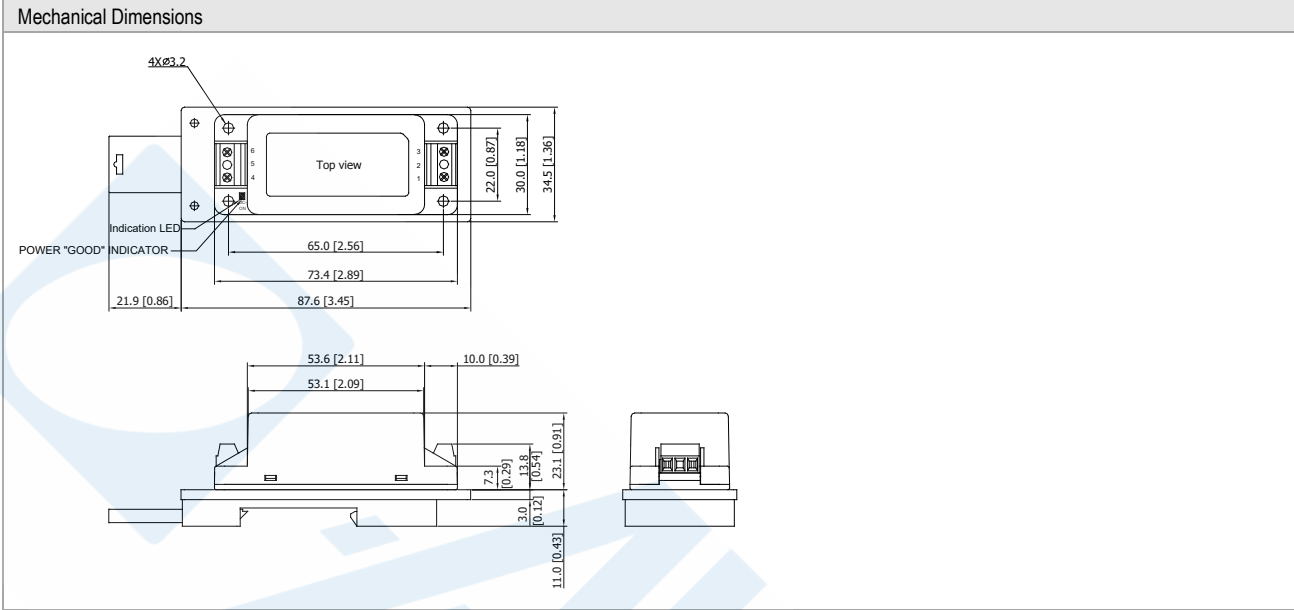
Pin Connections	
Pin	Function
1	AC(N)
2	No Pin
3	AC(L)
4	+Vout
5	No Pin
6	-Vout

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: ± 0.5 (± 0.02)

Physical Characteristics

Case Size	: 73.4x30.0x23.1mm (2.89x1.18x0.91 inches)
Case Material	: Plastic resin (flammability to UL 94V-0 rated)
Weight	: 56g

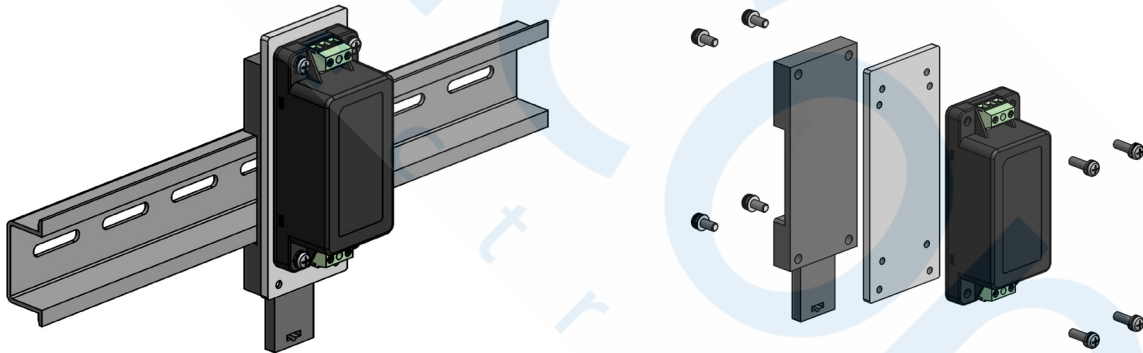
Package Specifications with DIN Rail Mounting Bracket (order code AC-DIN-06)



Physical Characteristics

Case Size	: 73.4x30.0x23.1mm (2.89x1.18x0.91 inches)
Case Material	: Plastic resin (flammability to UL 94V-0 rated)
Weight	: 101g

DIN-Rail Mounting Kit



Order Code Table

PCB Mounting	Chassis Mounting	With DIN Rail Mounting by two Order Code	
AMF-15S051	AMF-15S051C	AMF-15S051C	AC-DIN-06
AMF-15S12	AMF-15S12C	AMF-15S12C	AC-DIN-06
AMF-15S15	AMF-15S15C	AMF-15S15C	AC-DIN-06
AMF-15S24	AMF-15S24C	AMF-15S24C	AC-DIN-06
AMF-15S48	AMF-15S48C	AMF-15S48C	AC-DIN-06