FEATURES

- Fully Encapsulated Plastic Case for PCB, Chassis and DIN-Rail Mounting Version
- Universal Input 85~264VAC, 47~440Hz
- Protection Class II as per IEC/EN 60536
- I/O Isolation 4000VAC with Reinforced Insulation
- Operating Ambient Temp. Range -40℃ to +80℃
- Overload/Voltage and Short Circuit Protection
- Designed-in EMI Emission meets EN 55011/32 Class B & FCC Level B
- Designed-in EMC Immunity meets EN61000-4-2,3,4,5,6,8,11
- Medical EMC Standard meets 4th Edition of EMI EN 55011 and EMS EN 60601-1-2
- Medical Safety meets 2xMOPP per 3rd Edition of IEC/EN 60601-1 & ANSI/AAMI ES60601-1
- UL508 Safety Approval Specifically for Industrial Application
- UL/cUL/IEC/EN 60950-1 Safety Approval & CE Marking

PRODUCT OVERVIEW

The new MINMAX AJM-24 series is a range of fully encapsulated AC/DC power modules. These high performance products feature an extended operating temperature range of -40°C to +80°C. Universal input voltage 85-264VAC and UL/IEC/EN safety approvals including medical safety and UL508 listing qualify these power supplies modules for applications in products with worldwide markets.EMI-filter meets EN 55011/32, class B and FCC,part15, class B. The AJM-24 series power modules provide an economical solution for many space critical applications in commercial, medical and industrial electronic equipment.

Model Selection Guide

Model Number	Output Voltage	Output Current	Input Current		Max. capacitive Load	Efficiency (typ.)
			115VAC, 60Hz	230VAC, 50Hz		
		Max.	@Max. Load			@Max. Load, 115VAC
	VDC	mA	mA(typ.)		μF	%
AJM-24S05	5	3000	282	169	2200	77
AJM-24S09	9	2666	424	255	1000	82
AJM-24S12	12	2000	419	252	1000	83
AJM-24S15	15	1600	424	255	680	82
AJM-24S24	24	1000	409	246	470	85
AJM-24D12	±12	±1000	414	249	470#	84
AJM-24D15	±15	±800	414	249	330#	84

For each output

Input Specifications

Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
AC Voltage Input Range	All Models		85	---	264	VAC
Input Frequency Range			47	---	440	Hz
DC Voltage Input Range			120	---	370	VDC
No-Load Power Consumption			---	---	0.3	W
Inrush Current	115VAC	Cold Start at 25℃	---	---	20	A
	230VAC		---	---	40	A

Output Specifications

Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
Output Voltage Setting Accuracy			---	±2.0	---	%Vnom.
Line Regulation	Vin=Min. to Max. @Full Load		---	±0.5	---	%
Load Regulation	Io=0% to 100%	Single Output Model	---	±0.5	---	%
		Dual Output Models	---	±2.5	---	%
Minimum Load	No minimum Load Requirement					
Ripple & Noise	0-20 MHz Bandwidth	5V Output Models	---	1.5	1.8	%V_{PP} of Vo
		Other Output Models	---	1.0	1.3	%V_{PP} of Vo
Over Voltage Protection	Zener diode clamp			120		% of Vo
Temperature Coefficient			---	±0.02	---	%/℃
Overshoot			---	---	5	%
Over Load Protection	85VAC, Hiccup Mode, auto-recovery (long term overload condition may cause damage)		105	---	---	%Inom.
Short Circuit Protection	Hiccup mode, Automatic Recovery					

General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	Reinforced Insulation, Rated For 60 Seconds	4000	---	---	VACrms
Leakage Current		---	80	---	μA
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
Switching Frequency		---	132	---	KHz
Hold-up Time	115VAC, 60Hz	---	20	---	ms
	230VAC, 50Hz	---	80	---	ms
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign		400,000		Hours
Protection Class II	According IEC/EN 60536				
Safety Standards	UL/cUL 60950-1, CSA C22.2 No 60950-1				
	ANSI/AAMI ES60601-1, CAN/CSA-C22.2 No. 60601-1				
	IEC/EN 60950-1, IEC/EN 60601-1 3rd Edition 2xMOPP				
Safety Approvals	UL/cUL 60950-1 recognition (UL certificate), IEC/EN 60950-1 (CB-report)				
	ANSI/AAMI ES60601-1 2xMOPP recognition (UL certificate), IEC/EN 60601-1 3rd Edition (CB-report)				

Environmental Specifications

Parameter	Conditions / Model		Min.	Typ.	Max.	Unit
Operating Ambient Temperature Range	Natural Convection		-40	---	+80	℃
Storage Temperature Range			-40	---	+95	℃
Power Derating	Above +65℃	5V Output Models	---	---	0.75	W / ℃
		Other Models	---	---	1.2	W / ℃
Thermal Shutdown	Shutdown, Internal IC Junction Temperature		---	142	---	℃
	Automatic Recovery, Internal IC Junction Temperature		---	67	---	℃
Humidity (non condensing)			---	---	95	% rel. H
Cooling	Natural Convection					
Lead Temperature (1.5mm from case for 10Sec.)			---	---	260	℃

EMC Specifications

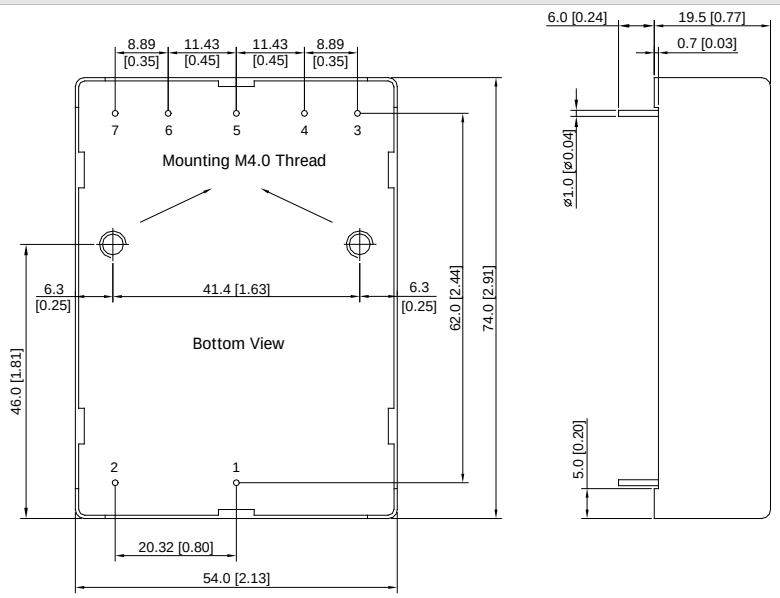
Parameter	Standards & Level				Performance
EMI	Conduction and Radiation	EN 55011, EN 61000-6-4, EN 61000-6-3, FCC part 15			Class B
EMS	EN 60601-1-2 4th, EN 55024, EN 61000-6-2, EN 61000-6-1				
	ESD	EN 61000-4-2 Air ± 15kV, Contact ± 8kV			A
	Radiated immunity	EN 61000-4-3 10V/m			A
	Fast transient	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 & Interruptions	EN 61000-4-11	0% of 230VAC	0.5 cycle	A
			0% of 230VAC	1 cycle	A
			70% of 230VAC	25/30 cycle	A
			0% of 230VAC	250/300 cycle	B

Notes

1. This product is not designed for use in critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet.
2. Specifications typical at Ta=+25℃, resistive load, 115VAC, 60Hz input voltage, after warm-up time rated output current unless otherwise noted.
3. Safety approvals cover frequency 47-63 Hz.
4. We recommend to protect the converter by a slow blow fuse in the input supply line.
5. Other input and output voltage may be available, please contact factory.
6. That “natural convection” is about 20LFM but is not equal to still air (0 LFM).
7. Specifications are subject to change without notice.

Package Specifications PCB Mounting

Mechanical Dimensions



Pin Connections

Pin	Single Output	Dual Output
1	AC (N)	AC (N)
2	AC (L)	AC (L)
3	No Pin	No Pin
4	-Vout	-Vout
5	No Pin	Common
6	+Vout	+Vout
7	No Pin	No Pin

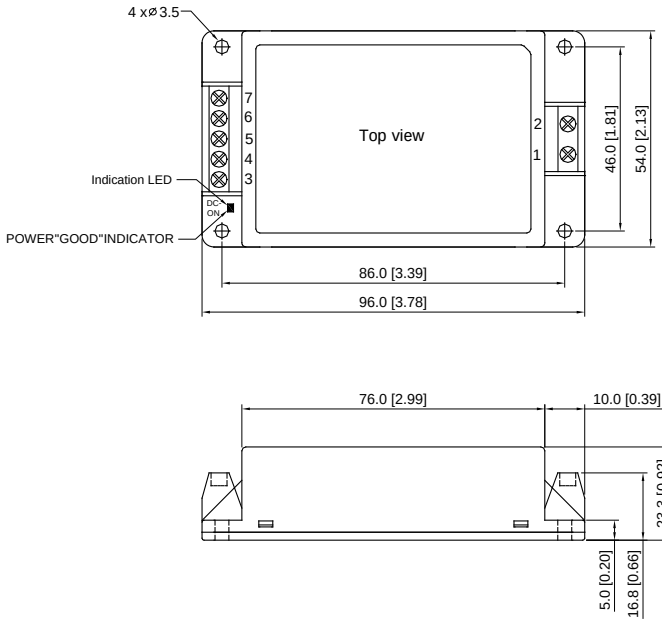
- All dimensions in mm (inches)
- Tolerance: ±0.5 (±0.02)
- Pin diameter ∅ 1.0 ±0.1 (0.04±0.004)

Physical Characteristics

Case Size	:	74.0x54.0x19.5mm (2.91x2.13x0.77 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Pin Material	:	Copper Alloy with Gold Plate Over Nickel Subplate
Weight	:	137g

Package Specifications Chassis Mounting (order code suffix C)

Mechanical Dimensions



Connections

Pin	Single Output	Dual Output
1	AC (N)	AC (N)
2	AC (L)	AC (L)
3	NC	NC
4	-Vout	-Vout
5	NC	Common
6	+Vout	+Vout
7	NC	NC

NC: No Connection

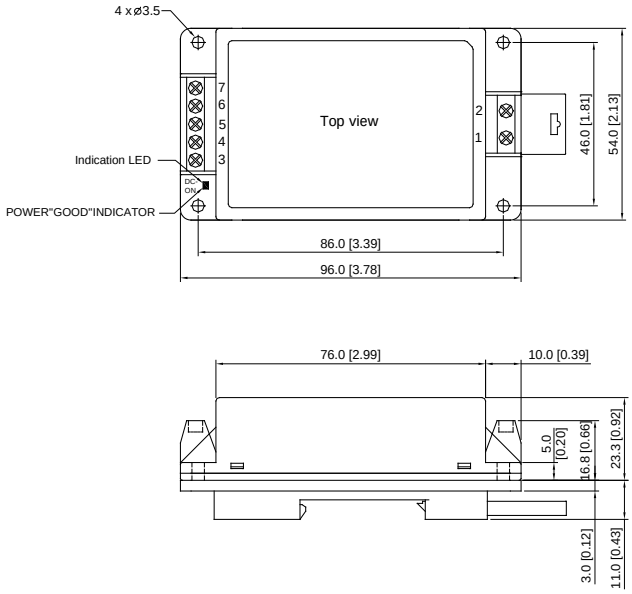
- All dimensions in mm (inches)
- Tolerance: ±0.5 (±0.02)

Physical Characteristics

Case Size	:	96.0x54.0x23.3mm (3.78x2.13x0.92 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Weight	:	147g

Package Specifications with DIN Rail Mounting Bracket

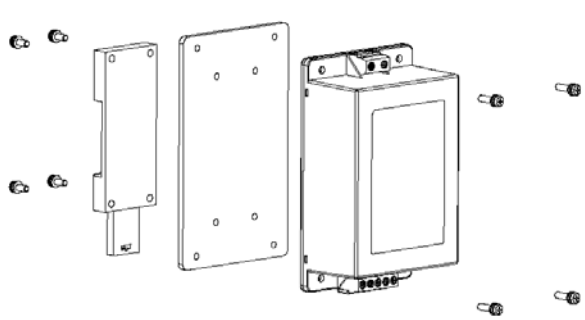
Mechanical Dimensions

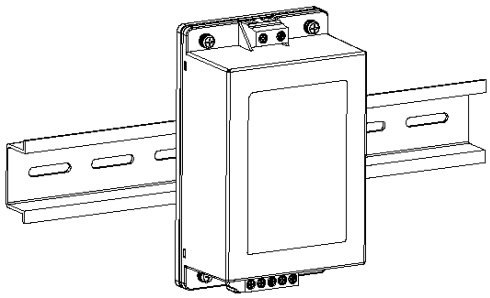


Physical Characteristics

Case Size	:	96.0x54.0x23.3mm (3.78x2.13x0.92 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Weight	:	201g

DIN-Rail Mounting Bracket (Order code for Kit : AC-DIN-01)





Order Code Table			
PCB Mounting	Chassis Mounting	With DIN Rail Mounting by two Order Code	
AJM-24S05	AJM-24S05C	AJM-24S05C	AC-DIN-01
AJM-24S09	AJM-24S09C	AJM-24S09C	AC-DIN-01
AJM-24S12	AJM-24S12C	AJM-24S12C	AC-DIN-01
AJM-24S15	AJM-24S15C	AJM-24S15C	AC-DIN-01
AJM-24S24	AJM-24S24C	AJM-24S24C	AC-DIN-01
AJM-24D12	AJM-24D12C	AJM-24D12C	AC-DIN-01
AJM-24D15	AJM-24D15C	AJM-24D15C	AC-DIN-01