AMA40 Series

FiDUS
power in motion...

40 Watts

- Single, dual and triple outputs
- 90-264VAC Input, 47-440Hz
- EN55022 Class B conducted and radiated
- PCB, Chassis or Din rail mount versions
- -40 to +70°C Operation
- Class II isolation
- 5 year warranty

The AMA40 series of compact encapsulated AC-DC power modules are PCB mount with optional screw terminal and DIN Rail versions also available. They have low emissions meeting EN55022 level B for both conducted and radiated noise. They have a wide temperature range from -40 to +70ºC and available in single, dual or triple output variants. High volumes are held in stock for the popular models and all models have a FiDUS 5 Year warranty.

Dimensions:

3.52 x 2.52 x 0.98" (89.5 x 64.1 x 25.0mm)

Models & Ratings

Model Number	Output Power	Output 1		Output 2		Output 3		Efficiency
		Voltage	Current	Voltage	Current	Voltage	Current	
AMA4003	26.4W	3.3V	8A					76%
AMA4005	40W	5V	8A					81%
AMA4009	40W	9V	4.44A					83%
AMA4012(1)	40W	12V	3.33A					84%
AMA4015	40W	15V	2.67A					83%
AMA4024(1)	40W	24V	1.67A					83%
AMA40D01	40W	+5V	4A	-5V	4A			81%
AMA40D02	40W	+12V	1.67A	-12V	1.67A			83%
AMA40D03	40W	+15V	1.33A	-15V	1.33A			83%
AMA40D04(1)	40W	5V	5A	12V	1.25A			82%
AMA40D05(1)	40W	5V	5A	24V	0.63A			82%
AMA40T01	40W	5V	5A	+12V	0.6A	-12V	0.6A	82%
AMA40T02	40W	5V	5A	+15V	0.5A	-15V	0.5A	81%

Notes

1. High stock items
2. Add 'S2' to model number for screw terminal version
3. Outputs 1 and 2 have separate return
4. For separate Din Clip, please order part AMADR

Key specifications

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
AC Input range	90		264	VAC	No derating
Operating temperature	-40		70	°C	Derate linearly from 100% power at 50°C to 40% power at 70°C. Case temperature max. +95°C.
Efficiency	76		84	%	
Dimensions	3.52 x 2.52 x 0.98" (89.5 x 64.1 x 25.0mm)				
EMC	EN55022 Level B Conducted and Radiated. EN61000-3 and EN61000-4, harmonics, flicker, Surge, EFT, ESD, conducted and radiated,				
Safety	IEC60950-1, UL60950-1, CSA22.2 No 234 as per cUL, CE,CB				

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Input

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Input voltage	90		264	VAC	No derating
	100		375	VDC	DC fuse required
Input frequency	47		440	Hz	
Power factor					EN61000-3-2 class A compliant
Input current			860	mA rms	At 115VAC
Inrush current		30/50		A	115/230VAC cold start at 25°C
Earth leakage current					Class II construction

Output

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		24	VDC	See Model & Ratings table
Set point accuracy	Singles: 3.3V output ±3%. All other outputs ±2%			%	
	Duals: AMA40D01, D02 and D03, V1 and V2 ±2%. AMA40D04 and D05, V1 ±3%, V2 ±5%				
	Triples: V1 ±3%, V2 and V3 ±5%				
Line regulation	Singles: All outputs 0.5%			%	
	Duals: AMA40D01, D02 and D03, V1 and V2 0.5%. AMA40D04 and D05, V1 0.5%, V2 5%				
	Triples: V1 0.5%, V2 and V3 5%				
Load regulation	Singles: All outputs 1%			%	1 to 100% for single outputs
	Duals: AMA40D01, D02 and D03, V1 and V2 1% (symmetric load). AMA40D04 and D05, V1 2%, V2 6% (symmetric load).				AMA40D01, D02 and D03, 10 to 100%. AMA40D04 and D05, 25 to 100%
	Triples: V1 3%, V2 and V3 7% (symmetric load).				25 to 100% for triple outputs
Minimum load	Singles: All models, 1%			%	
	Duals: AMA40D01, D02 and D03, 10%. AMA40D04 and D05, 25%				
	Triples: Both models, 25%				
Transient response			4	%	For a 25% load change, recovery to within 1% in less than 500uS.
Ripple & Noise			50	mV pk-pk	3.3V model
			±1%	mV pk-pk	All other models. All models measured with 0.1uF ceramic and 47uF electrolytic. 20MHz bandwidth.
Hold up time			10	mS	
Overload protection	111		193	%	
Short circuit protection					Trip & restart. Automatic recovery
Overvoltage protection	114		141	%	

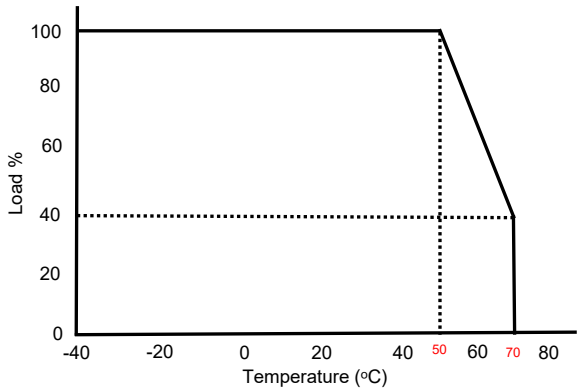
General

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	76		84	%	See Model & Ratings table
Isolation	3000			VAC	Input to output
Switching frequency	124		140	KHz	
Power density			4.6	W/In^3	
MTBF	200		400	KHrs	At 25°C
Weight		280		g	

Environmental

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-40		70	°C	Derate linearly from 100% load at 50°C to 40% load at 70°C.
Storage temperature	-40		85	°C	
Cooling					Convection cooled
Temperature coefficient			±0.01	%/°C	
Humidity			95	% RH	Non derating

Derating curve



EMC: Emissions

	Standard	Test level	Criteria	Notes & Conditions
Conducted	EN55022	B		
Radiated	EN55022	B		
Harmonic current	EN61000-3-2	Class A		
Voltage flicker	EN61000-3-3			

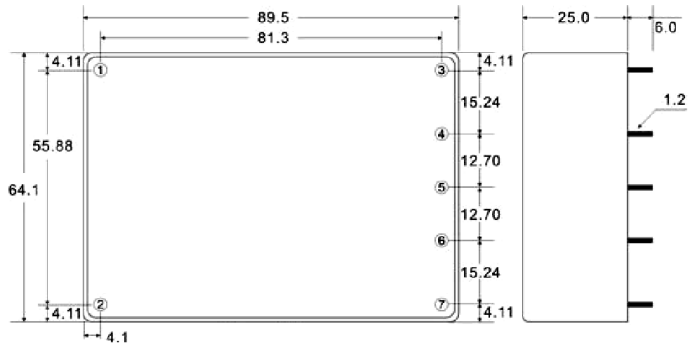
EMC: Immunity

	Standard	Test level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±4kV contact, ±8kV air	A	
Radiated	EN61000-4-3	3V/m	A	
EFT	EN61000-4-4	3	A	
Surges	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	3Vrms	A	
Magnetic Fields	EN61000-4-8	1A/m		

Safety Approvals

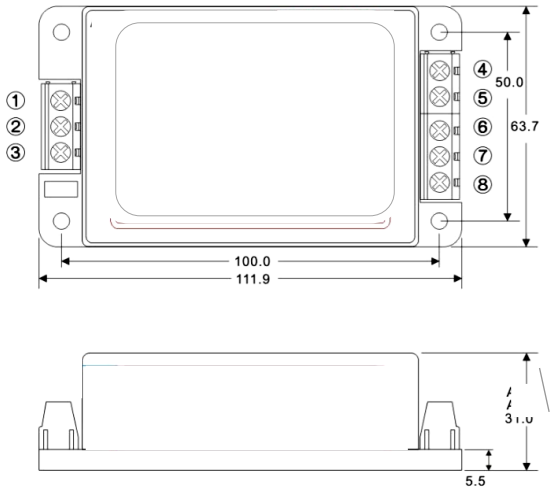
	Safety standard	Notes & Conditions
UL	UL60959-1, CSA 22.2 No 234 as per cUL	
CB	IEC60950-1	
CE		2011/65/EU RoHS Directive and 2006/95/EC Low voltage directive

Mechanical Details



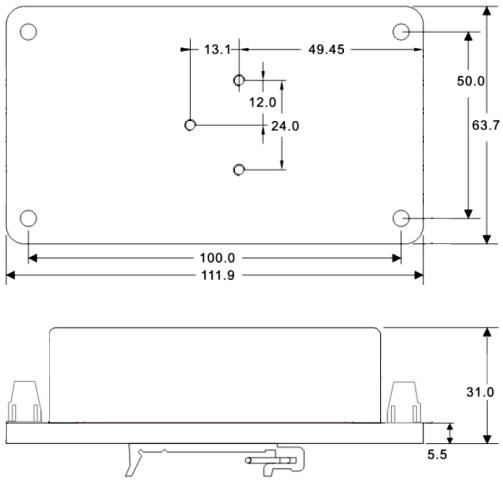
Pin Connections				
Pin	Single	Dual	AMA40D04 AMA40D05	Triple
1	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	+DC OUT	+DC OUT	+OUT2	+DC OUT
4	NO PIN	NO PIN	+OUT1	+5V
5	-DC OUT	COMMON	+OUT2 RTN	COMMON
6	NO PIN	NO PIN	+OUT1 RTN	+5 RTN
7	NO CONNECT	-DC OUT	NO PIN	-DC OUT

Screw terminal version



Pin Connections				
Pin	Single	Dual	AMA40D04 AMA40D05	Triple
1	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
2	NO CONNECT	NO CONNECT	NO CONNECT	NO CONNECT
3	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
4	+DC OUT	+DC OUT	+OUT 2	+DC OUT
5	NO CONNECT	NO CONNECT	+OUT 1	+5V OUT
6	-DC OUT	COMMON	+OUT 2 RTN	COMMON
7	NO CONNECT	NO CONNECT	+OUT 1 RTN	+5V RTN
8	NO CONNECT	-DC OUT	NO CONNECT	-DC OUT

DIN Rail version



Dimension notes

1. All dimensions shown in millimetres
2. Pin diameter 0.5 ±0.05 (0.02 ±0.002)
3. Case tolerance ±0.5 (±0.002)