AB40S/D Series

AC/DC Power Module 40W, Industrial & Medical Safety

FEATURES

- Fully encapsulated Plastic Case
- 3 Mounting Versions:
  - PCB Mounting with Solder Pins
  - Chassis Mounting with Screw Terminals
  - DIN-Rail Mounting
- Package Dimension 88.9x63.5x30.0 mm (PCB Mounting Version)
- Universal Input 85-264VAC, 47-440 Hz
- Protection Class II
- Extended Operating Temp.Range -40°C to +60°C at full Load
- LED Output Indicator (Chassis Version Models)
- Industrial Safety to UL/cUL/IEC/EN 60950-1 and UL508
- Medical Safety Approval to UL/cUL/IEC/EN 60601-1 3rd Edition
- Over Load and Over Temperature Protection
- 3 Year Product Warranty

The AB40S/D 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 EN55022, class B and FCC,part15, class B.

The AB40S/D series power modules provide an economical solution for many space critical applications in commercial, medical and industrial electronic equipment.

Model Selection Guide

Model Number PCB Mounting	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	%
AB40S0500A	5	8000	716	429	8000	81
AB40S1200A	12	3330	689	414	3900	84
AB40S1500A	15	2660	680	408	3900	85
AB40S2400A	24	1660	687	413	680	84
AB40D1212A	±12	±1660	687	413	1500#	84
AB40D1515A	±15	±1330	680	408	1000#	85

For each output

E-mail: DCDC@delta.com.tw
http://www.deltaww.com/dcdc

Input Specifications

Parameter	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 (Cold Start at 25℃)	115VAC	---	---	30	A
	230VAC	---	---	60	A

Output Specifications

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			---	±2.0	---	%
Line Regulation			---	±0.5	---	%
Load Regulation	Single Output Model		---	±1.0	---	%
	Dual Output Models		---	±2.0	---	%
Min.Load	No minimum Load Requirement					
Ripple & Noise	0-20 MHz Bandwidth	5VDC 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	%
Current Limitation	85VAC, Hiccup Mode, auto-recovery (long term overload condition may cause damage)		105	---	---	% Inom.
Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)					

General Specifications

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (reinforced)		4000	---	---	VACrms
Leakage Current		---	80	---	μA
I/O Isolation Resistance	500 VDC	1000	---	---	MΩ
Switching Frequency		---	130	---	KHz
Hold-up Time	115VAC, 60Hz	---	25	---	ms
	230VAC, 50Hz	---	80	---	ms
MTBF (calculated)	MIL-HDBK-217F@25℃, Ground Benign	200,000	---	---	Hours
Protection Class II		According IEC/EN 60536			
Safety Approvals		IEC/EN 60950-1, 60601-1 3rd, 2XMOPP cUL/UL 60950-1, 60601-1 3rd, 2XMOPP, UL 508 listed			

EMC Specifications

Parameter	Standards & Level	Performance
Conducted and radiated EMI	EN55011, EN55022, FCC part 15	Class B
ESD	EN61000-4-2 air ± 8kV , Contact ± 4kV	A
Radiated immunity	EN61000-4-3 10V/m	A
Fast transient	EN61000-4-4 ±2kV	A
Surge	EN61000-4-5 ±1kV	A
Conducted immunity	EN61000-4-6 10Vrms	A
PFMF	EN61000-4-8 30A/m	A
Dips	EN61000-4-11 30% 10ms	A
Interruptions	EN61000-4-11 >95% 5000ms	B

Environmental Specifications

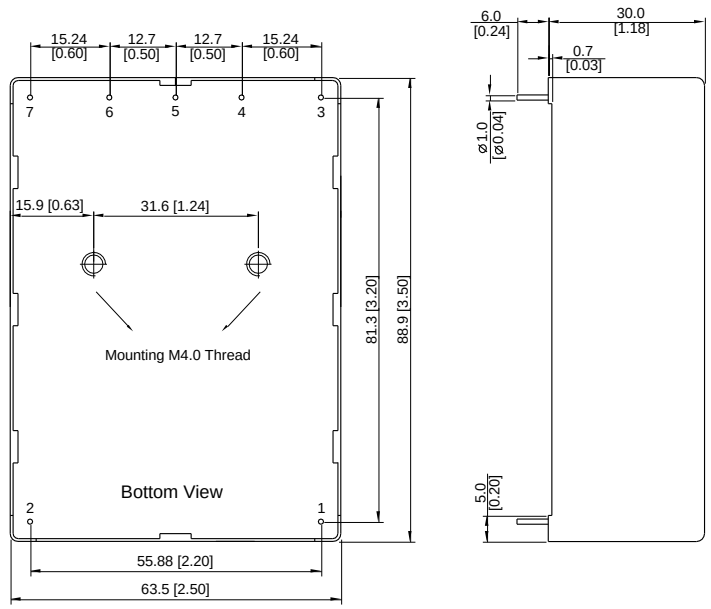
Parameter	Conditions	Min.	Max.
Temperature Range (operational)	Ambient	-40℃	+80℃
Power Derating	Above +60℃		1.5W / ℃
Storage Temperature Range		-40℃	+95℃
Over Temperature Protection	Shutdown at 90℃ (automatic recovery at approx. 67℃)		
Humidity (non condensing)		---	95% rel. H
Cooling	Free-Air convection		

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 Ripple & Noise measured with a 0.1μF/50V MLCC and a 1μF/50V Aluminum electrolytic.
4 Safety approvals cover frequency 47-63 Hz.
5 We recommend to protect the converter by a slow blow fuse in the input supply line.
6 Other input and output voltage may be available, please contact factory.
7 To order the module with chassis mount package, please add a **suffix C** (e.g. AB40S2400C).
8 To order the module in chassis mount with DIN-Rail kit, please add a **suffix D** (e.g. AB40S2400D).
9 That “natural convection” is about 20LFM but is not equal to still air (0 LFM).
10 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	+Vout	+Vout
4	No Pin	No Pin
5	-Vout	Common
6	No Pin	No Pin
7	NC	-Vout

NC: No Connection

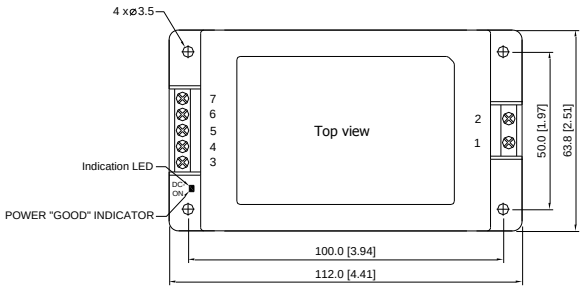
▶All dimensions in mm (inches)
▶Tolerance: ±0.5 (±0.02)
▶Pin diameter ⇔ 1.0 ±0.1 (0.04±0.004)

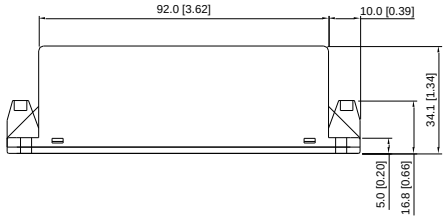
Physical Characteristics

Case Size	:	88.9x63.5x30.0mm (3.50x2.50x1.18 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Pin Material	:	Copper Alloy with Gold Plate Over Nickel Subplate
Weight	:	310g

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	+Vout	+Vout
4	NC	NC
5	-Vout	Common
6	NC	NC
7	NC	-Vout

NC: No Connection

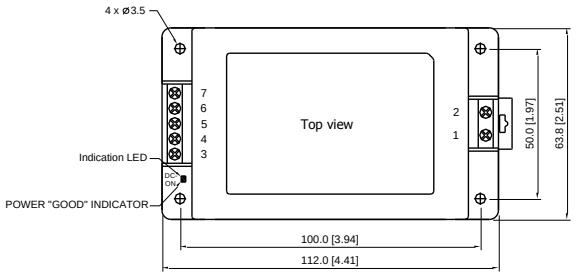
- All dimensions in mm (inches)
- Tolerance: ±0.5 (±0.02)

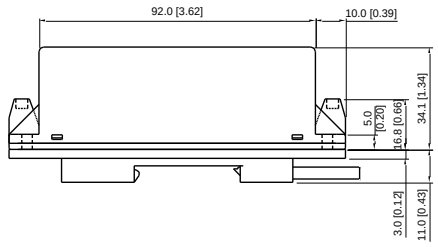
Physical Characteristics

Case Size	:	112.0x63.8x34.1mm (4.41x2.51x1.34 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Weight	:	320g

Package Specifications with DIN Rail Mounting Bracket (order code suffix D)

Mechanical Dimensions

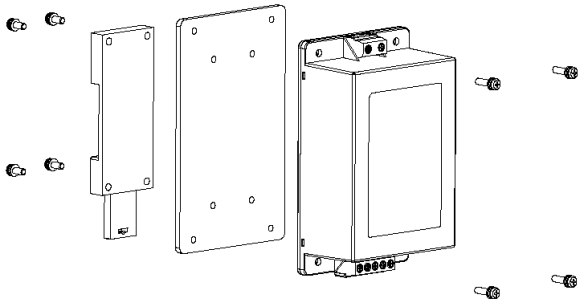


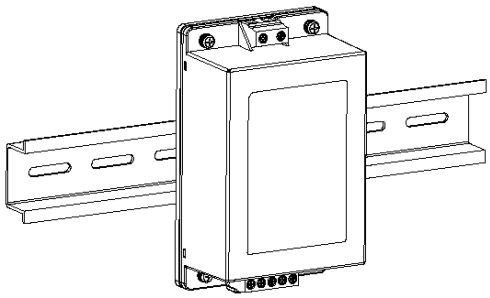


Physical Characteristics

Case Size	:	112.0x63.8x34.1mm (4.41x2.51x1.34 inches)
Case Material	:	Plastic resin (flammability to UL 94V-0 rated)
Weight	:	374g

DIN-Rail Mounting Bracket





Part Numbering System

A	B	40	S	05	00	A
Product type	Family series	Watt	Number of Outputs	Output Voltage I	Output Voltage II	Option Code
AC/DC Power Module	Medical application	40 - 40W	S - Single	05 - 5V	00 - not applicable	A - PCB Mount
			D - Dual	12 - 12V	12 - 12V	C - Chassis Mount
				15 - 15V	15 - 15V	D - Din Rail Mount
				24 - 24V		

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WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Delta Electronics:

AB40S0500A AB40D1212A AB40S1500A AB40D1515A AB40S1200A AB40S2400A