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AME40-VZ



Encapsulated

The new **AME40-VZ** is a brand-new AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Due to these improvements, we are proud to offer you this converter at a price never yet seen for a 40W Aimtec AC/DC converter. Offering a commercial input voltage range of 85-264VAC and output voltages of 5, 12, 15, 24 & 48VDC, this series will greatly benefit your new system design.

This new series offers operating temperatures from -40°C to 70°C with full power up to 55°C depending on models. It also features a 4000VAC isolation for improved reliability and system safety.

Furthermore, a higher MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

The **AME40-VZ** is suitable for street lighting controls, grid power, instrumentation, industrial controls and communication applications.

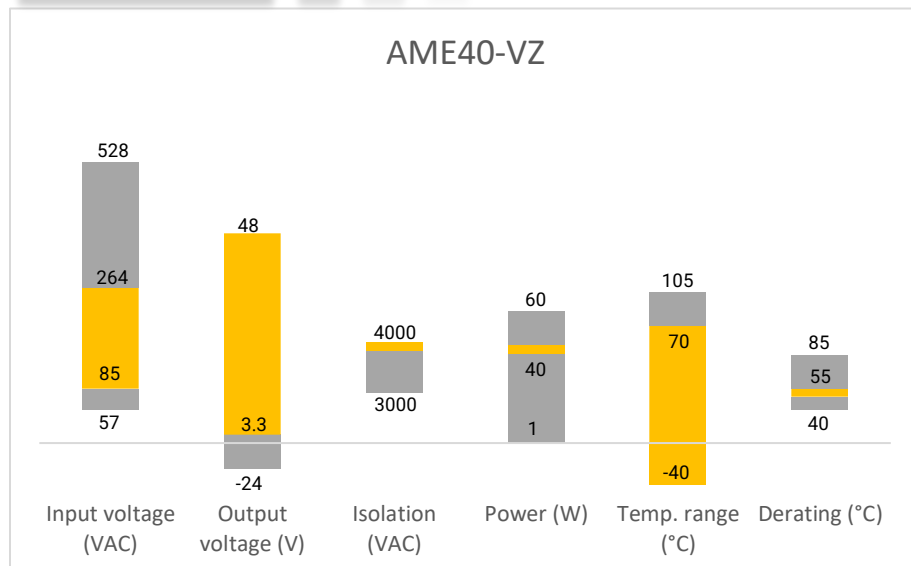
Features



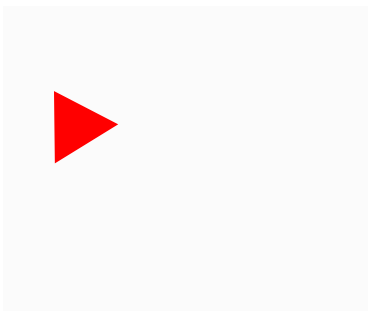
- Universal Input: 85 - 264VAC/100 - 370VDC
- Operating temperature range: -40°C to +70°C
- High isolation voltage: 4000VAC
- Regulated output, Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- EMC performance meets CISPR32/EN55032 CLASS B
- Certified to IEC62368, UL62368, EN62368 standards (pending)



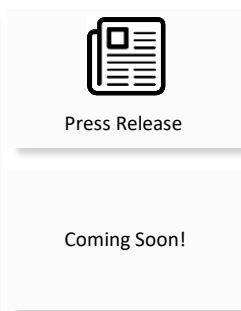
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid



Industrial



Telecom



Instrumentation

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 (μ F)	Efficiency @ 230VAC (%)
AME40-3.3SVZ	85-264/47-63	100-370	26.4	3.3	8	60,000	78
AME40-5SVZ	85-264/47-63	100-370	40	5	8	40,000	82
AME40-12SVZ	85-264/47-63	100-370	40	12	3.33	9,000	84
AME40-15SVZ	85-264/47-63	100-370	40	15	2.66	7,000	84
AME40-24SVZ	85-264/47-63	100-370	40	24	1.67	2,000	84
AME40-48SVZ	85-264/47-63	100-370	40	48	0.83	1000	84

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME40-5SVZ-ST is chassis mounting and AME40-5SVZ-STD is DIN-Rail mounting version).

Input Specifications

Parameters	Conditions	Minimum	Typical	Maximum	Units
Current	115VAC			1.0	A
	230VAC			0.6	A
Inrush current <2ms (cold start)	115VAC		50		A
	230VAC		70		A
External fuse	slow blow type	3.15			A

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		± 2		%
Line regulation	Full load	± 0.5		%
Load regulation	0-100% load	± 1	± 3	%
Ripple & Noise*	20MHz bandwidth	80	150	mV p-p
Hold up time	115VAC	10		ms
	230VAC	50		ms
Minimum Load Requirement		0		%

* Ripple and Noise are measured at 20MHz bandwidth by using the referenced Application circuit.

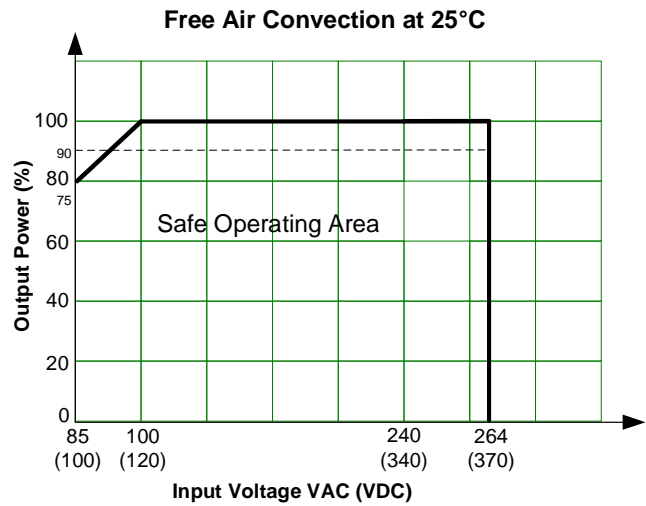
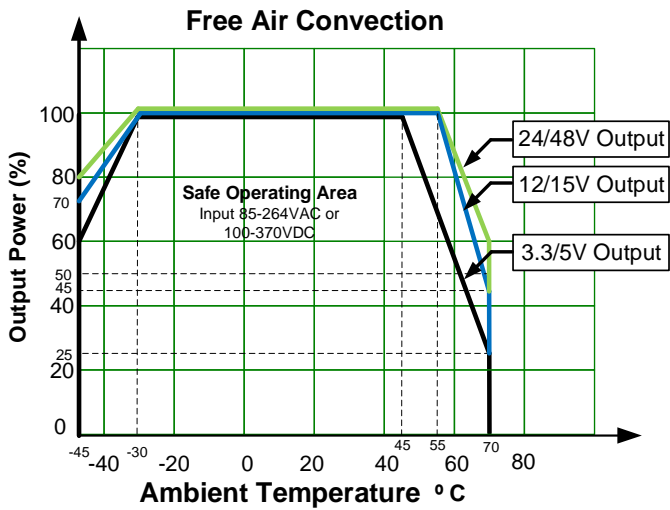
Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 10mA		4000	VAC

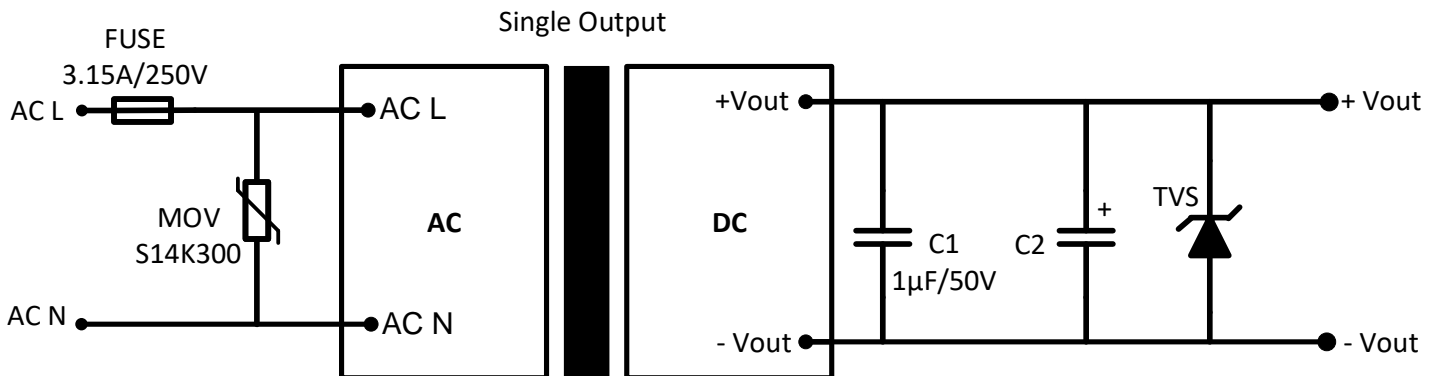
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Protection class	Class II			
Over Current protection	Auto recovery	≥ 110		% of I _{out}
Over voltage protection	3.3V V _{out}		≤ 5.5	VDC
	5V V _{out}		≤ 9	
	12V V _{out}		≤ 16	
	15V V _{out}		≤ 24	
	24V V _{out}		≤ 35	
	48V V _{out}		≤ 56	
Short circuit protection	Hiccup, Continuous			
Short circuit restart	Auto recovery			
Operating temperature	See derating graph	-40 to +70		°C
Maximum case temperature		100		°C
Storage temperature		-40 to +85		°C
Lead temperature	Wave soldering	260 ± 5 °C; time : 5 - 10s		
	Hand soldering	360 ± 10 °C; time : 3 - 5s		
No-load power consumption			0.5	W
Temperature coefficient		±0.02		% / °C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models		215	g
	With optional -ST mounting plate		300	
	With optional -STD mounting plate		360	
Dimensions (L x W x H)	PCB mountable models	3.50 x 2.50 x 0.98 inches (89.0 x 63.5 x 25.0mm)		
	With optional -ST mounting plate	5.32 x 2.76 x 1.31 inches (135.0 x 70.0 x 33.5mm)		
	With optional -STD mounting plate	5.39 x 2.76 x 1.35 inches (137.0 x 70.0 x 39.0mm)		
MTBF	> 300 000 hrs (MIL-HDBK -217F, t _e =+25°C)/Full Load			
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		
Standards	Information technology Equipment	Design to meet IEC/EN/UL 62368
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±2KV, Criteria B
		IEC 61000-4-4 ±4KV, with EMC recommended circuit, Criteria B
	Surge Immunity	IEC 61000-4-5 L-L ±1KV, Criteria B
		IEC 61000-4-5 L-L ±2KV/L-G ±4KV, with EMC recommended circuit, Criteria B
RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A	

Derating



Typical Application Circuit

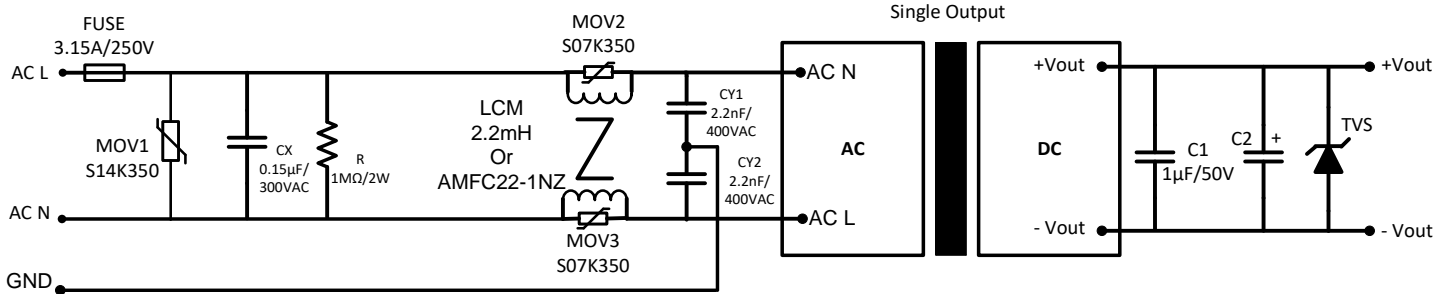


Model	C2	TVS
3 / 5 Vout	680 µF / 10V	7V
12 / 15 Vout	220 µF / 25V	20V
24 Vout	120 µF / 35V	30V
48 Vout	100 µF / 63V	64V

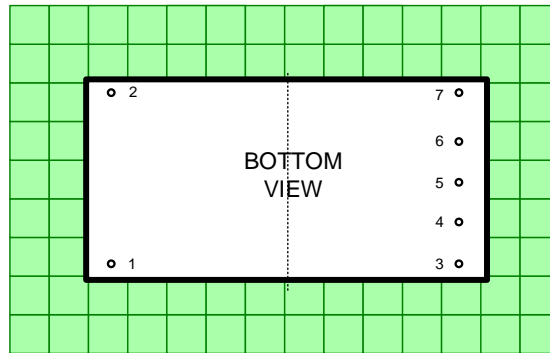
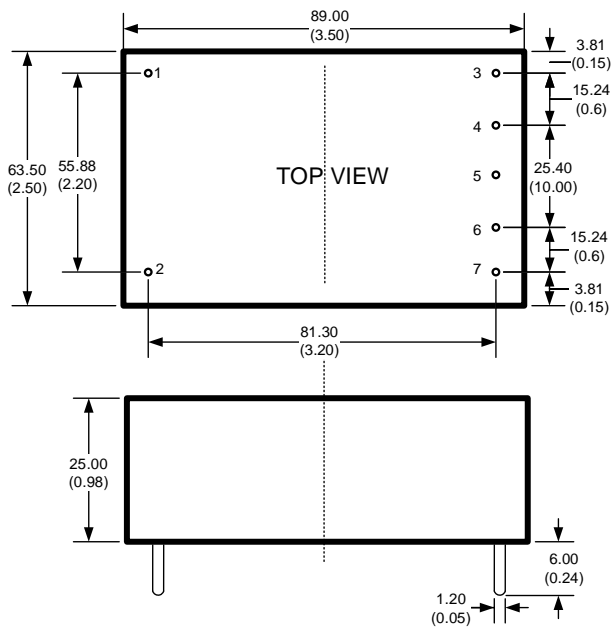
Output Filter Components:

Aimtec recommends using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

EMC Recommended Circuit



Dimensions

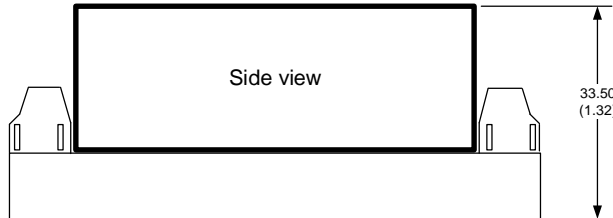
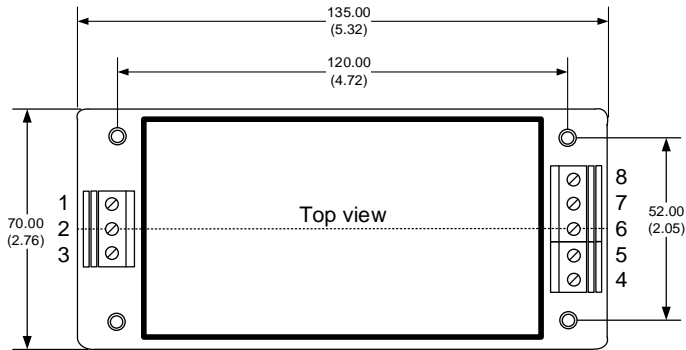


Dimensions mm (inch)
Pin diameter: 1.20 ± 0.10 (0.05 ± 0.004)
General tolerance: ±0.5 (±0.02)

Pin Output Specifications

Pin	Single
1	AC Input (L)
2	AC Input (N)
3	+V Output
4	No Pin
5	-V Output
6	No Pin
7	Trim

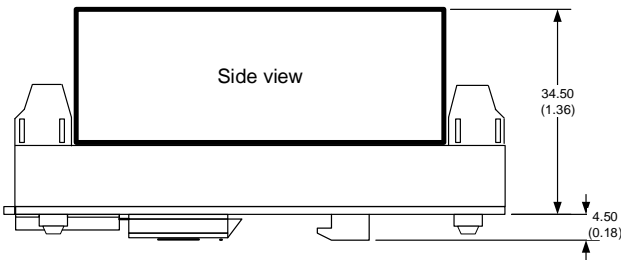
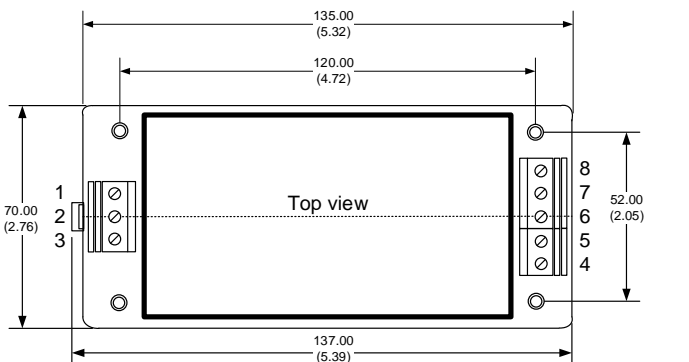
Dimensions with ST Optional



Note:
Unit: mm(inch)
General tolerance: $\pm 1.00(0.04)$
Wire gauge: 24 – 12AWG
Tightening torque: 0.4N-m max.

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

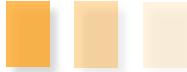
Dimensions with STD Optional



Note:
Unit: mm(inch)
General tolerance: $\pm 1.00(0.04)$
Wire gauge: 24 – 12AWG
Tightening torque: 0.4N-m max.
Mounting rail: TS35

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

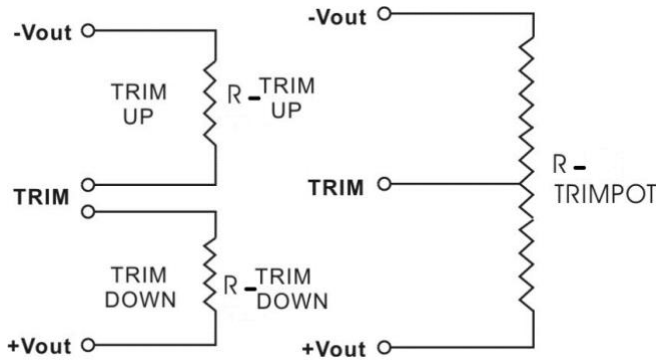
Trimming



Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor

Variable Potentiometer



Leave open if not used.

AME40-3.3SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.97
Rt down (KΩ)	101.202	53.881	36.117	26.808	21.078	17.195	14.391	12.271	10.611	9.277
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.63
Rt up (KΩ)	93.177	40.798	25.859	18.787	14.663	11.962	10.055	8.637	7.542	6.67

AME40-5SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (KΩ)	160.7	78.2	50.7	36.95	28.7	23.2	19.271	16.325	14.033	12.2
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (KΩ)	164	81.5	54	40.25	32	26.5	22.571	19.625	17.333	15.5

AME40-12SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	183.233	111.59	79.474	61.246	49.499	41.299	35.249	30.602	26.921	23.933
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	211.778	57.03	32.596	22.642	17.238	13.845	11.516	9.819	8.527	7.511

AME40-15SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	616.5	304	199.833	147.75	116.5	95.667	80.786	69.625	60.944	54
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	124	61.5	40.667	30.25	24	19.833	16.857	14.625	12.889	11.5

AME40-24SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	471.081	287.942	205.845	159.249	129.221	108.258	92.793	80.914	71.504	63.865
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	239.556	64.606	36.982	25.728	19.619	15.783	13.15	11.232	9.771	8.622

AME40-48SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	47.52	47.04	46.56	46.08	45.6	45.12	44.64	44.16	43.68	43.2
Rt down (KΩ)	1217.75	757.639	546.609	425.485	346.902	291.797	251.014	219.613	194.691	174.429
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	48.48	48.96	49.44	49.92	50.4	50.88	51.36	51.84	52.32	52.8
Rt up (KΩ)	375	87.766	49.699	34.664	26.613	21.597	18.172	15.684	13.796	12.313

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 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.