

**FEATURES:**

- Efficiency up to 87%
- Ultra-Wide 4:1 input range
- Continuous Short Circuit Protection
- Operating temperature -40°C to + 85°C
- On/Off remote control
- Input Under-voltage Protection
- Over Voltage, Over Current Protection
- I/O Isolation 1500, 2250 & 3000VDC
- No-load power consumption  $\leq 0.12$ W

### Models

#### Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max ( $\mu$ F)	Efficiency (%)
AM10EW-2403SH30-NZ	9-36	3.3	2400	3000	5400	79
AM10EW-2405SH30-NZ	9-36	5	2000	3000	5400	82
AM10EW-2409SH30-NZ	9-36	9	1111	3000	680	85
AM10EW-2412SH30-NZ	9-36	12	833	3000	470	86
AM10EW-2415SH30-NZ	9-36	15	667	3000	330	87
AM10EW-2424SH30-NZ	9-36	24	416	3000	100	87
AM10EW-4803SH30-NZ	18-75	3.3	2400	3000	5400	79
AM10EW-4805SH30-NZ	18-75	5	2000	3000	5400	82
AM10EW-4812SH30-NZ	18-75	12	833	3000	470	86
AM10EW-4815SH30-NZ	18-75	15	667	3000	330	87
AM10EW-4824SH30-NZ	18-75	24	416	3000	100	87
AM10EW-11005S-NZ	40~160	5	2000	1500	2200	81
AM10EW-11012S-NZ	40~160	12	833	1500	220	85
AM10EW-11015S-NZ	40~160	15	667	1500	100	85
AM10EW-11024S-NZ	40~160	24	416	1500	47	86
AM10EW-11003SH22-NZ	40~160	3.3	2400	2250	5400	76
AM10EW-11005SH22-NZ	40~160	5	2000	2250	5400	80
AM10EW-11012SH22-NZ	40~160	12	833	2250	470	84
AM10EW-11015SH22-NZ	40~160	15	667	2250	330	84
AM10EW-11024SH22-NZ	40~160	24	417	2250	100	85

\*Add suffix "-ST" for optional screw terminal bottom plate or "-STD" for optional DIN Rail screw terminal bottom plate.

### Models

#### Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max ( $\mu$ F)	Efficiency (%)
AM10EW-2405DH30-NZ	9-36	$\pm 5$	$\pm 1000$	3000	$\pm 1000$	82
AM10EW-2412DH30-NZ	9-36	$\pm 12$	$\pm 416$	3000	$\pm 330$	86
AM10EW-2415DH30-NZ	9-36	$\pm 15$	$\pm 333$	3000	$\pm 220$	87
AM10EW-4805DH30-NZ	18-75	$\pm 5$	$\pm 1000$	3000	$\pm 1000$	82
AM10EW-4812DH30-NZ	18-75	$\pm 12$	$\pm 416$	3000	$\pm 330$	86
AM10EW-4815DH30-NZ	18-75	$\pm 15$	$\pm 333$	3000	$\pm 220$	87

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.

### Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24	9-36		VDC
	48	18-75		
	110	40~160		
Input Current (full load)	24		521	mA
	48		261	

	110	π (Pi) Network		117	
Filter					
Input Surge Voltage (1sec max.)	24 48 110			50 100 180	VDC
Start-up time	Nominal Input, resistive load		10		ms
Reflected Input Ripple Current	24 48 110	40 30 30			mA
Under-voltage lockout	24 48 110 (2250 Isolated models)	6.5 15.5 33			V
Remote On/Off Control (24 & 48Vin)	On Off	3.5-12VDC or leave open 0-1.2VDC or connect to GND, idle current 5-6mA			

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	1 min, <1mA		1500, 2250 & 3000	VDC
Tested I/FG & O/FG	1 min, <1Ma, 2250VDC I/O isolated models		1600	VDC
Resistance	At 500VDC Isolation	> 1000		MOhm
Capacitance	24 & 48 Vin, I/O, 100KHz/0.1V 110 Vin (1500VDC isolation), I/O, 100KHz/0.1V 110 Vin (2250VDC isolation), I/O, 100KHz/0.1V	500 1000 2200		pF

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	110 Vin (2250VDC isolation), 0-100% load Others, 5-100% load	±1	±3	%
Voltage balance (Dual Output Models)	Balanced Load	±1	±2	%
Line voltage regulation	110 Vin (2250VDC isolation), Full Load (HL-LL) Others, Full Load (HL-LL)	±0.2 ±0.5	±0.5 ±1	%
Load voltage regulation	110 Vin (2250VDC isolation), 0-100% load Others, 5-100% load	±0.5 ±0.5	±1 ±1.5	%
Cross Regulation	50% load on one output & 10-100% load on second load		±5	%
Short Circuit protection		Continuous		
Short Circuit restart	Auto Recovery			
Over Voltage Protection		120	160	% of Vo
Over Current Protection	24 & 48 Vin models 110 Vin (2250VDC isolation)	140 120	190 210	% of Io
Transient Recovery Time	110 Vin (2250VDC isolation), 25% Load Step Change Others, 25% Load Step Change	300 500	500 1000	µs
Transient Response Deviation	25% Load Step Change	±3	±8	%
Temperature coefficient		±0.03		%/°C
Ripple & Noise	20Mhz bandwidth	60	120	mV p-p

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	110 Vin (2250VDC isolation), 100% load Others, 100% load	300 350		KHz
Operating temperature	Derating above 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max case temperature			105	°C
Cooling	Free air convection			
Humidity	Non-condensing		95	%
Solder Temp Leads	1.5 mm from case 10 sec.		300	°C
Case material	Plastic (3000VDC Isolated models) Aluminum Alloy (Others)			
Weight	Pin mountable	24 (3000VDC Isolated models) 22 (1500VDC Isolated models)		g

		26 (2250VDC Isolated models)
	-ST option	46 (3000VDC Isolated models) 44 (1500VDC Isolated models) 48 (2250VDC Isolated models)
	-STD option	66 (3000VDC Isolated models) 64 (1500VDC Isolated models) 68 (2250VDC Isolated models)
Dimensions (L x W x H)	3000VDC Isolated models	2.03 x 1.04 x 0.47 inches; 51.50 x 26.50 x 12.00mm
	Others	2.00 x 1.00 x 0.46 inches; 50.80 x 25.40 x 11.80mm
	Optional packages	See dimensions drawing
MTBF	>1 000 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)	

## Environmental Specifications

### Parameters

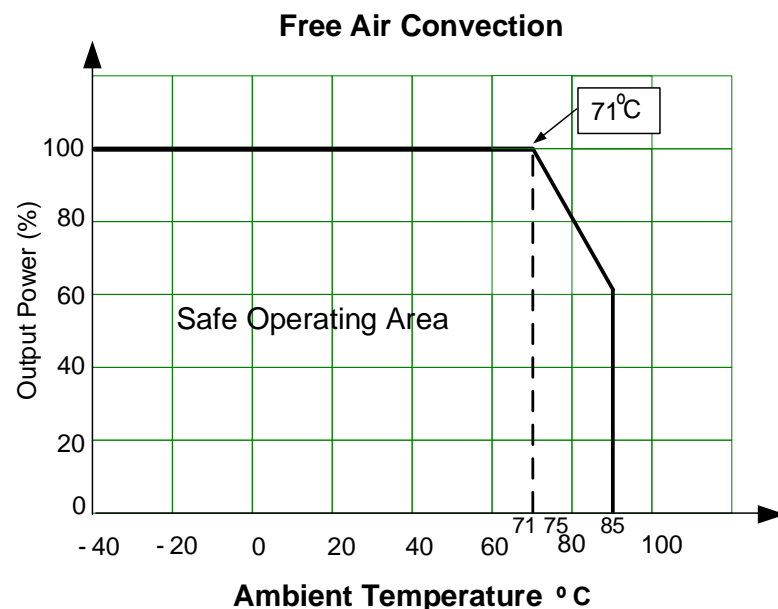
Vibration (24 & 48 Vin)	Test mode	10-55Hz
	Acceleration	10G, 30min one cycle, every axis tested
Vibration (110 Vin/1500VDC isolation)	Test mode	5-150Hz
	Acceleration	2G, 30min one cycle, every axis tested
	Displacement	7.5mm
Vibration (110 Vin/2250VDC isolation)	IEC61373 car body 1 B mold	

## Safety Specifications

### Parameters

Approvals	CE, UL (3000VDC Isolated models only) EN/IEC/UL60950-1
Standards	EN 55022, class A (all models) and EMI EN50121-3-2 class A (2250 VDC Isolated models) IEC61000-4-2, Contact ±6KV (110Vin), Contact ±4KV (24 & 48 Vin), Criteria B IEC61000-4-3, 10V/m, Criteria A IEC61000-4-4, ±4KV (110Vin), ±2KV (24 & 48 Vin with the recommended EMC circuit), Criteria B IEC61000-4-5, ±2KV, Criteria B, (with the recommended EMC circuit) IEC61000-4-6, 3 Vrms, 10 Vrms (2250 VDC Isolated models) Criteria A IEC61000-4-29, 0-70%, Criteria B IEC/EN/UL 60950-1 Meets EN50155 (2250 VDC Isolated models)

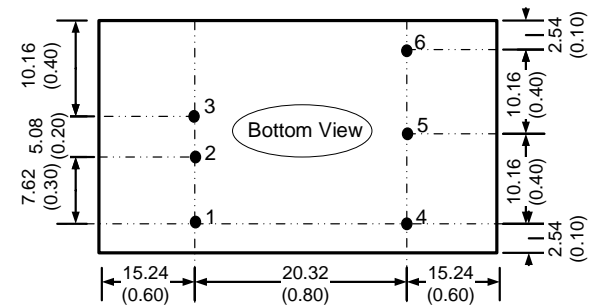
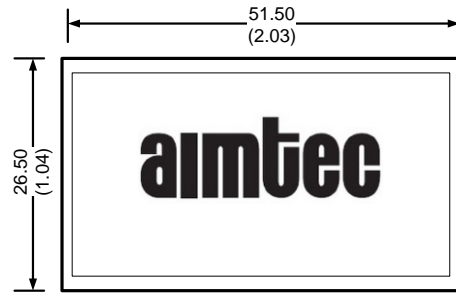
## Derating



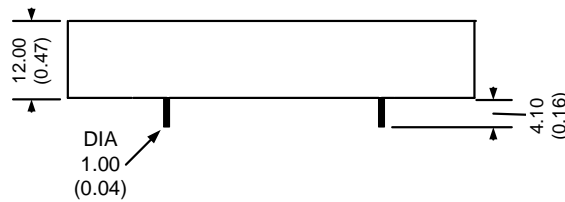
**Pin Out Specifications**  
3000VDC Isolated models

**Dimensions 3000VDC Isolated models**

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout



Pin	Dual
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	Common
6	+ Vout

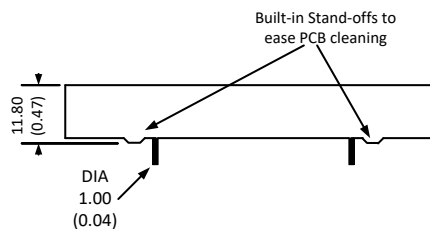
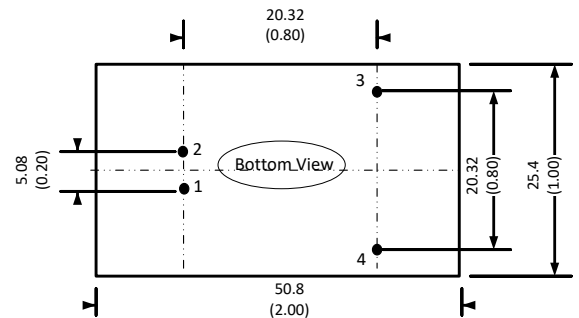
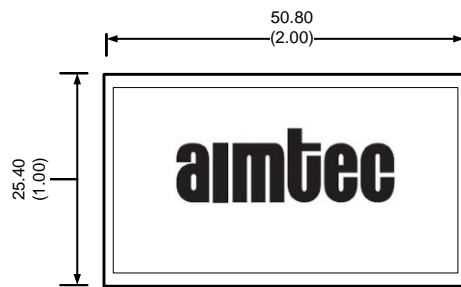


Notes:  
All dimensions are typical in millimeters (inches).  
Pin diameter Tolerance  $\pm 0.10$  ( $\pm 0.004$ )  
Case Tolerance  $\pm 0.50$  ( $\pm 0.02$ )

**Pin Out Specifications**  
Other models

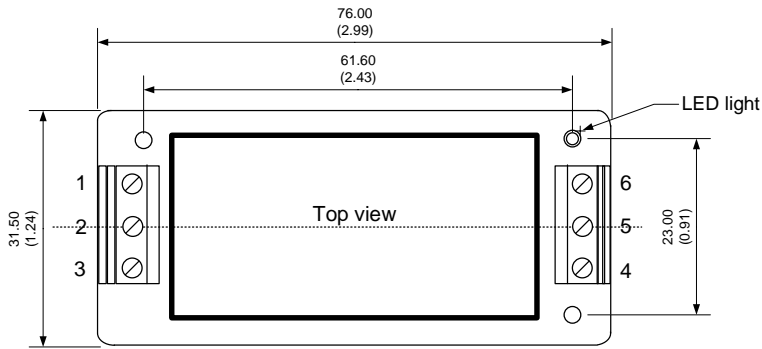
**Dimensions of Other models**

Pin	Single
1	Vin -
2	Vin +
3	+Vout
4	-Vout

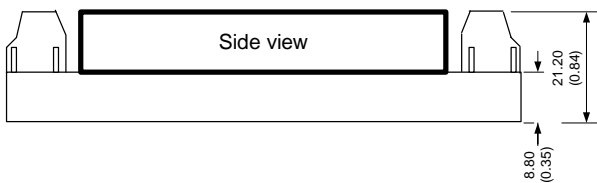


Notes:  
All dimensions are typical in millimeters (inches).  
Tolerance  $\pm 0.25$  ( $\pm 0.01$ )

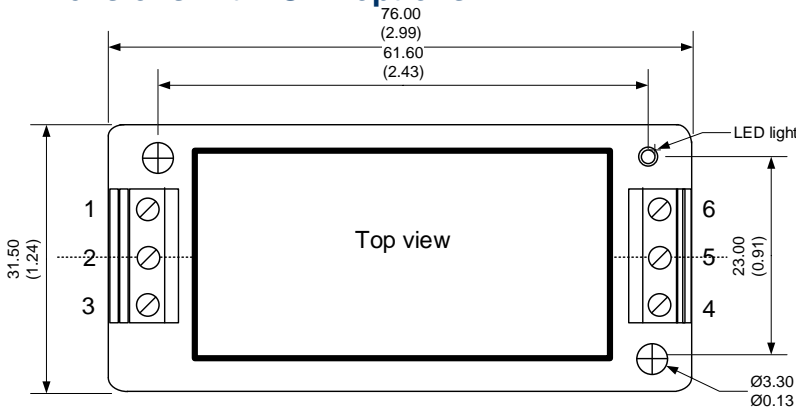
### Dimensions with -ST options



Dimensions: mm (inch)  
Case Tolerance:  $\pm 0.50$  (0.02)  
Wire gauge: 24-12AWG

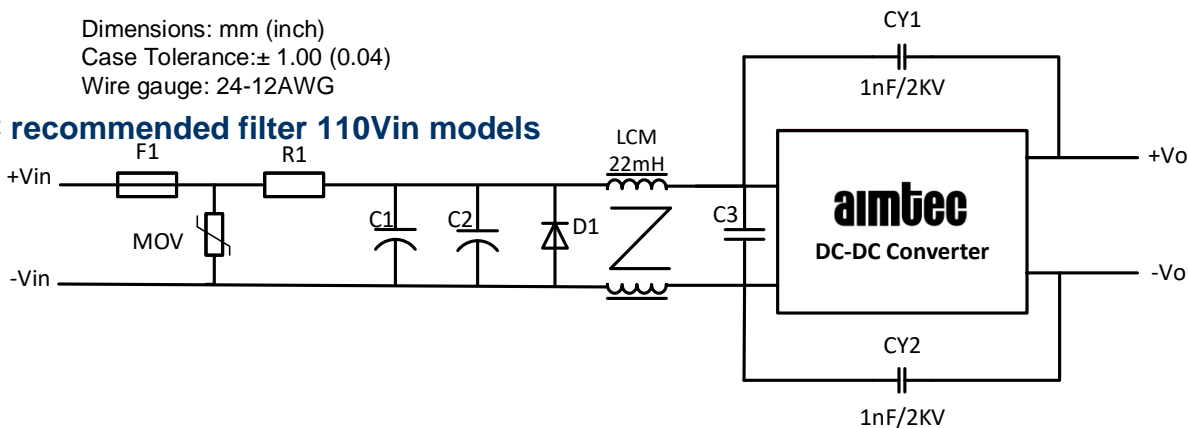


### Dimensions with -STD options



Dimensions: mm (inch)  
Case Tolerance:  $\pm 1.00$  (0.04)  
Wire gauge: 24-12AWG

### EMC recommended filter 110Vin models



Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

### 3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

### Pin Out Specifications

Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

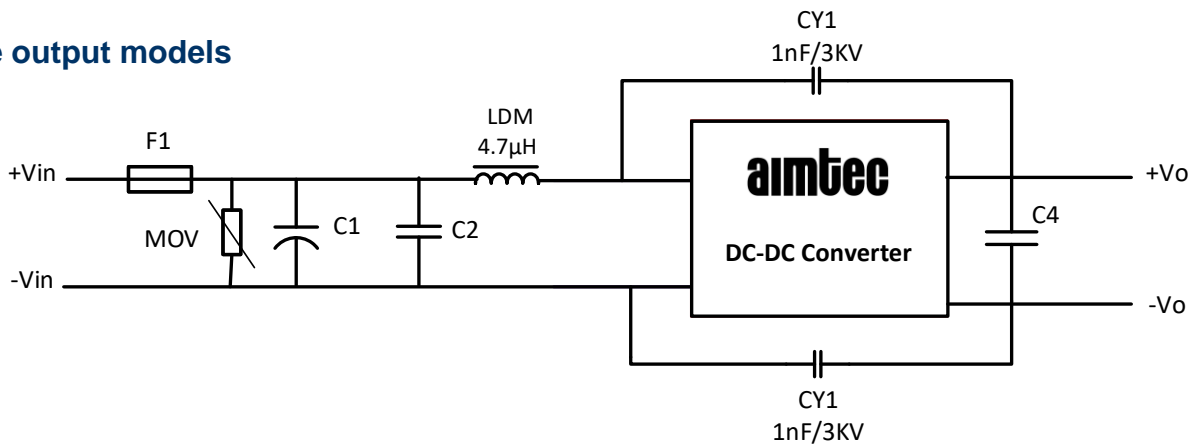
### 3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

MOV	C1 & C2	R1	C3	D1
S20K130	1 $\mu$ F / 200V	1 $\Omega$	100 $\mu$ F / 200V	ER304

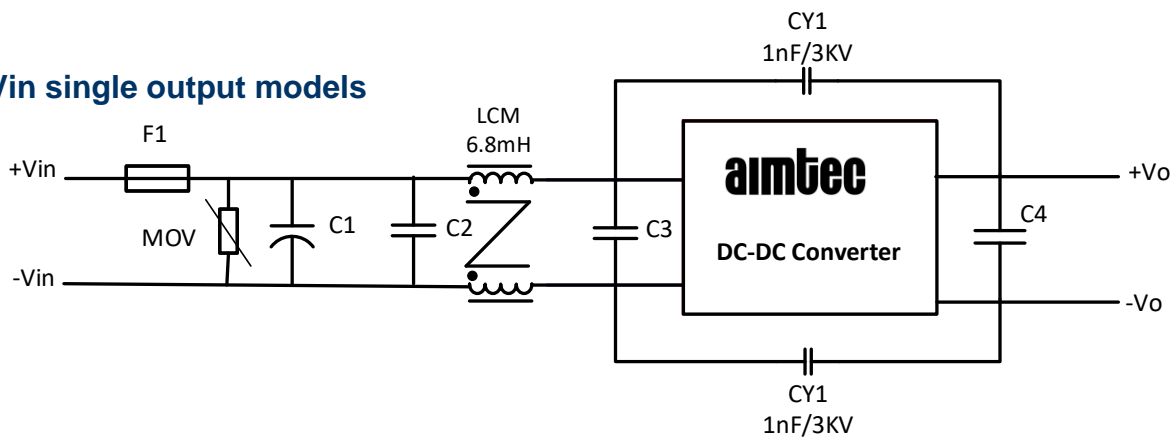
**EMC recommended filter 3000VDC Isolated models**

**24Vin single output models**



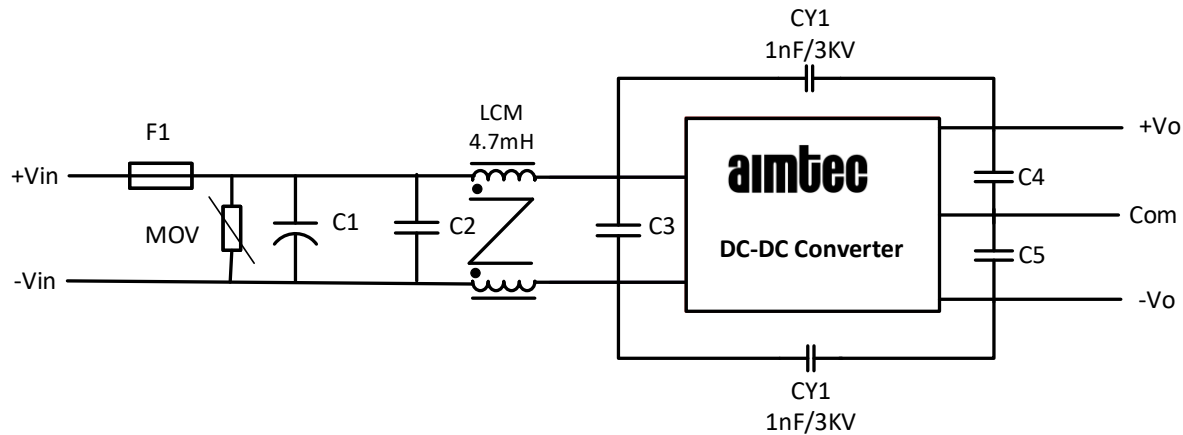
MOV	C1	C2	C4	CY1 & CY2	LDM
S20K30	330 $\mu$ F / 50V	1 $\mu$ F / 50V	10 $\mu$ F / 50V	1 nF / 3KV	4.7 $\mu$ H

**48Vin single output models**



MOV	C1	C2 & C3	C4
S20K60	330 $\mu$ F / 100V	1 $\mu$ F / 100V	10 $\mu$ F / 50V

### 3000VDC Isolated dual output models



Vin	MOV	C1	C2 & C3	C4 & C5
24V	S20K30	330 $\mu$ F / 50V	1 $\mu$ F / 50V	10 $\mu$ F / 50V
28V	S20K60	330 $\mu$ F / 100V	1 $\mu$ F / 100V	

**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](http://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 than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at [www.aimtec.com](http://www.aimtec.com).