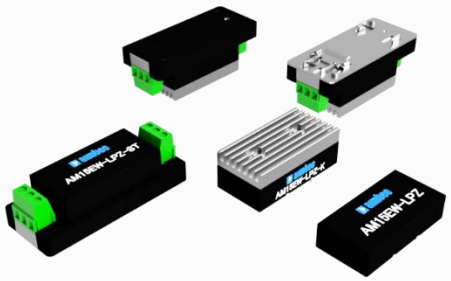
Click to ORDER samples

AM15EW-LPZ



2 x 1

The AM15EW-LPZ is a 15W DC/DC converter that offers a regulated output which contributes to a more stable and reliable output performance. It features a wide 4:1 input voltage range of 9-75VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 85°C. Furthermore, an isolation of 1500VDC, continuous output short circuit protection (OSCP), over-current protection (OCP), over-voltage protection (OVP)), and under voltage lock-out (UVLO) come standard with the series.

The AM15EW-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

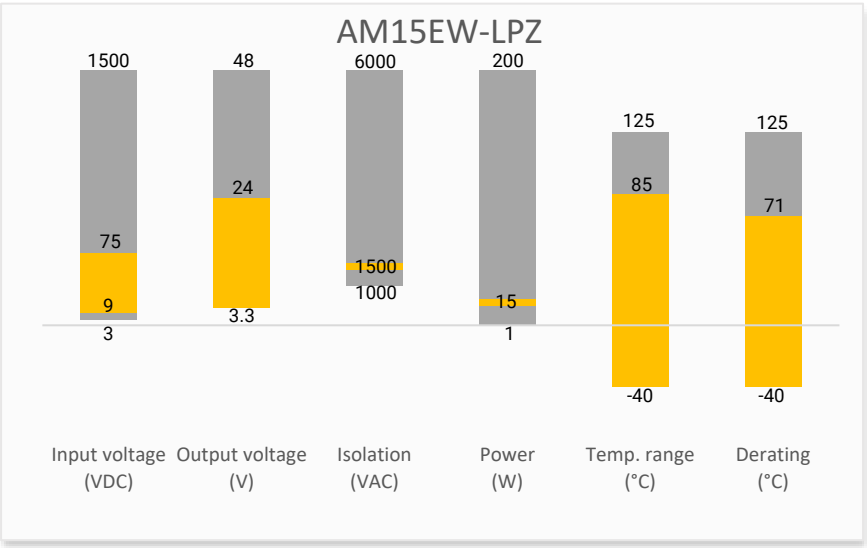
Features

- Operating Temp: -40 °C to +85 °C
- Isolation voltage: 1500VDC
- High efficiency: Up to 89% typ.
- Regulated single output
- Output short circuit, over-current, over-voltage
- Standard 2 x1 package

RoHS

3yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Power Grid

Industrial

Telecom

Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Nominal Vin Input Current Max (mA)		Output Current Max (mA)	Maximum capacitive load (µF)	Efficiency Full Load Typ (%)
			No Load	Full Load			
AM15EW-2403SLPZ	24 (9-36)	3.3	80	744	4000	10000	85
AM15EW-2405SLPZ	24 (9-36)	5	80	744	3000	10000	86
AM15EW-2412SLPZ	24 (9-36)	12	80	744	1250	1600	88
AM15EW-2415SLPZ	24 (9-36)	15	80	744	1000	1000	88
AM15EW-2424SLPZ	24 (9-36)	24	80	744	625	500	89
AM15EW-4803SLPZ	48 (18-75)	3.3	60	363	4000	10000	86
AM15EW-4805SLPZ	48 (18-75)	5	60	363	3000	10000	88
AM15EW-4812SLPZ	48 (18-75)	12	60	363	1250	1600	89
AM15EW-4815SLPZ	48 (18-75)	15	60	363	1000	1000	89
AM15EW-4824SLPZ	48 (18-75)	24	60	363	625	500	89

Note: Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN rail screw terminal bottom plate. Add suffix “-K” for optional heatsink, “-K-ST” for optional heatsink and screw terminal bottom plate or “-K-STD” for optional heatsink and DIN rail screw terminal bottom plate. Models with terminal bottom plates include input reverse polarity protection. Due to the input reverse polarity protection, models with “-ST”, “-STD”, “-K-ST” and “-K-STD” option have their minimum input and start-up voltage increased by 1VDC and efficiency decreased by 2%.

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage types			4:1	
Absolute maximum rating	24Vin, 1sec. max.		-0.7~50	VDC
	48Vin, 1sec. max.		-0.7~100	VDC
Input reflected ripple current	Nominal Vin and full load	30		mA
Start-up time	Nominal Vin and constant resistive load, Power up	10		mS
Start-up voltage	24V input		9	VDC
	48V input		18	VDC
Input under voltage lockout	24V input	5.5-6.5		VDC
	48V input	12-15.5		VDC
Filter	π(Pi) Network			
On/Off control	ON – open or 2.7-12VDC; OFF – short to –Vin or 0-1.2VDC, Idle current: 4 - 7mA			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, 1 mA	≥1600		VDC
Resistance	Input / output, 500VDC	≥1000		MΩ
Capacitance	Input / output, 100KHz/0.1V	2000		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	100% load @ Vin (nom.)	±1	±3	%
Line Regulation	LL to HL at Full Load	±0.2	±0.5	%
Load Regulation	0% to 100% load	±0.5	±1	%
Transient Recovery Time	25% load step change	300	500	µs
Transient recovery deviation	25% load step change	±5	±8	%
External Trim Adj. Range			±10	%
Ripple & Noise*	100% load	80	120	mV pk-pk

* Measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.

General Specifications

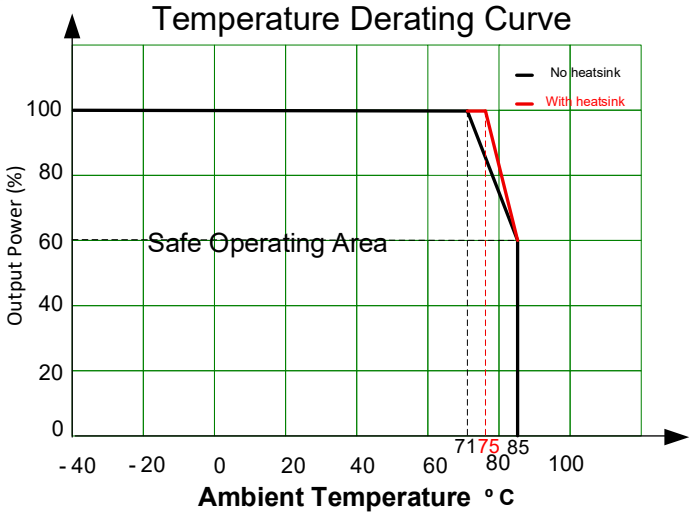
Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		300		KHz
Short circuit protection	Continuous, Auto recovery				
Over current protection	Nominal input	110	140		% of Io
Over voltage protection		110		160	%
Operating temperature	See derating curve	-40		85	°C
Pin soldering temperature				300	°C
Storage temperature		-55		125	°C
Temperature coefficient	100% Load			± 0.03	%/°C
Cooling	Free air convection				
Humidity			≥5	95	% RH
Weight	PCB mountable models		22		G
	With optional heatsink		36		G
	With optional -ST mounting plate		42		G
	With optional -STD mounting plate		62		G
	With optional heatsink and -ST mounting plate		56		G
	With optional heatsink and -STD mounting plate		76		G
Dimensions (L x W x H)	PCB mountable models	2.00 x 1.00 x 0.46 inches (50.8 x 25.4 x 11.8 mm)			
	With optional heatsink	2.00 x 1.00 x 0.73 inches (50.8 x 25.4 x 18.6 mm)			
	With optional -ST mounting plate	2.99 x 1.24 x 0.83 inches (76.0 x 31.5 x 21.2 mm)			
	With optional -STD mounting plate	2.99 x 1.24 x 1.02 inches (76.0 x 31.5 x 25.8 mm)			
	With optional heatsink and -ST mounting plate	2.99 x 1.24 x 1.08 inches (76.0 x 31.5 x 27.4 mm)			
	With optional heatsink and -STD mounting plate	2.99 x 1.24 x 1.26 inches (76.0 x 31.5 x 32.0 mm)			
Case material	Aluminum alloy				
MTBF	≥ 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)				

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.

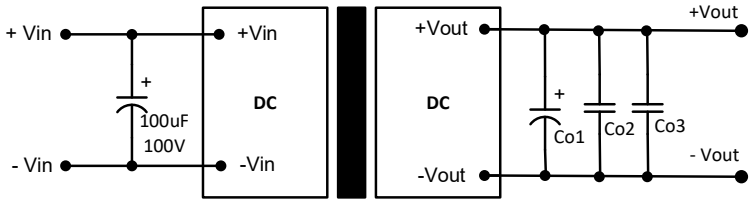
Safety Specifications

Parameters		
Standards	Designed to meet	UL/EN/IEC 62368-1
	EMI - Conducted and radiated emission	CISPR32/EN 55032, Class B with EMC recommended circuit
	Electrostatic Discharge Immunity	EN61000-4-2 Contact ±4kV, perf. Criteria B
	RF, Electromagnetic Field Immunity	EN61000-4-3 10V/m, perf. Criteria A
	Electrical Fast Transient/Burst Immunity	EN61000-4-4 ±2kV, perf. Criteria B with EMC recommended circuit
	Surge Immunity	EN61000-4-5 Line to Line ±2kV, perf. Criteria B with EMC recommended circuit
	RF, Electromagnetic Field Immunity	EN61000-4-6 3Vrms, perf. Criteria A
	Vibration	IEC/EN61373, category 1/grade B

Derating

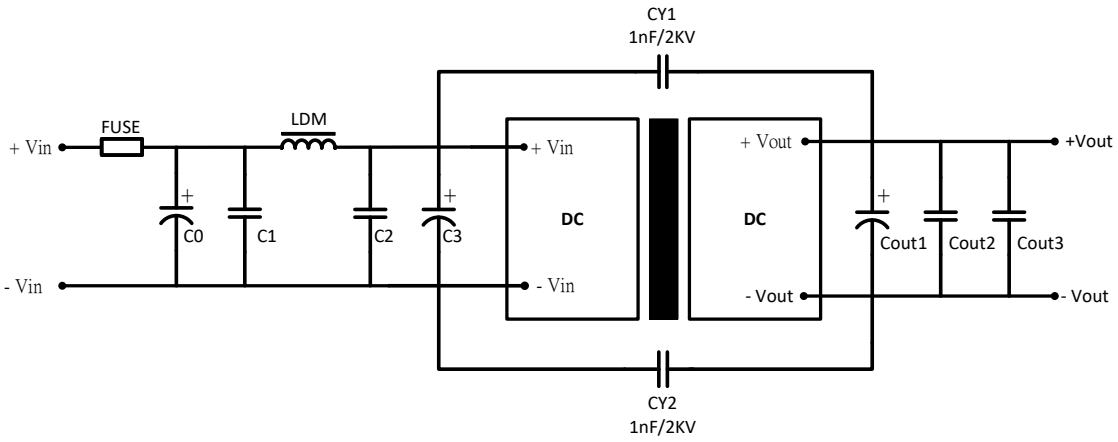


Typical Application Circuit



Single outputs			
Vout	Co1	Co2	Co3
3.3, 5V	100uF, 16V	10uF, 50V	0.1uF, 16V
12, 15V	100uF, 25V	10uF, 50V	0.1uF, 25V
24V	47uF, 50V	10uF, 50V	0.1uF, 50V

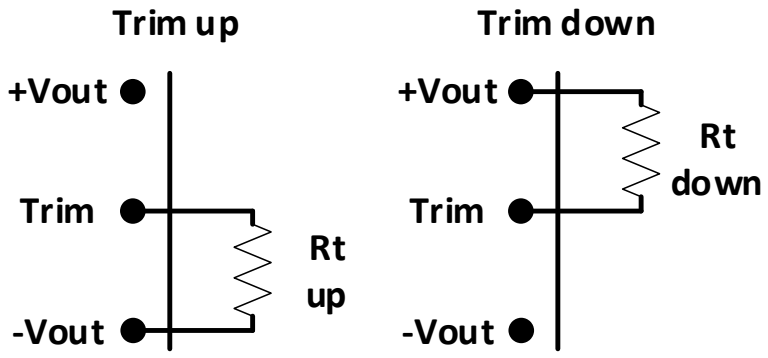
Recommended EMC Circuit



Component	24Vin	48Vin
C0, C3	330µF, 50V	330µF, 100V
C1, C2	4.7µF, 50V	4.7µF, 100V
Co1, Co2, Co3	Refer to Cout in Typical Application Circuit	
LDM	10µH, 4A	10µH, 2A

Trimming

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



Leave open if not used.

3.3V Output

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	2.970
Rt down (KΩ)	1121.642	378.474	220.234	151.369	112.834	88.207	71.111	58.549	48.928	41.324
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	3.630
Rt up (KΩ)	243.933	139.191	95.012	70.649	55.211	44.554	36.755	30.799	26.103	22.305

5V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.950	4.900	4.850	4.800	4.750	4.700	4.650	4.600	4.550	4.500
Rt down (KΩ)	39.966	22.440	13.270	7.631	3.813	1.056	-	-	-	-
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
Rt up (KΩ)	-630.464	135.361	52.843	29.152	17.912	11.350	7.048	4.011	1.752	0.006

12V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.880	11.760	11.640	11.520	11.400	11.280	11.160	11.040	10.920	10.800
Rt down (KΩ)	525.855	272.916	179.060	130.111	100.061	79.736	65.073	53.995	45.330	38.368
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.120	12.240	12.360	12.480	12.600	12.720	12.840	12.960	13.080	13.200
Rt up (KΩ)	190.983	76.518	43.233	27.375	18.096	12.007	7.703	4.500	2.023	0.050

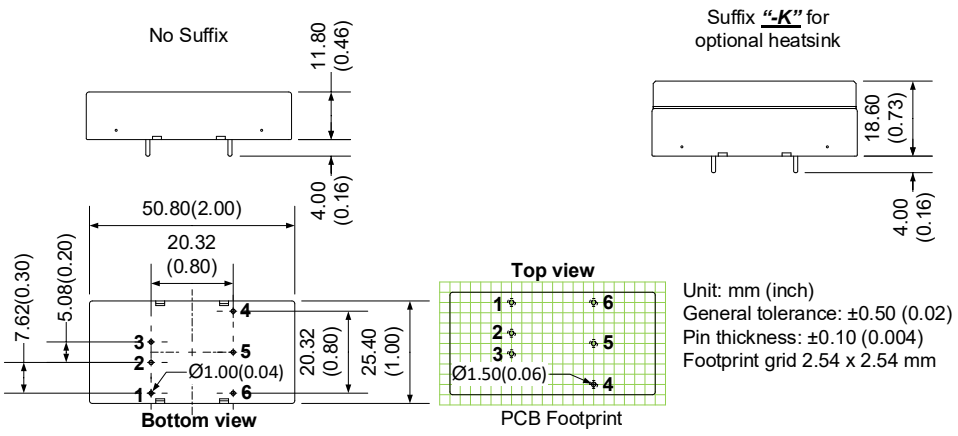
15V Output

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.850	14.700	14.550	14.400	14.250	14.100	13.950	13.800	13.650	13.500
Rt down (KΩ)	675.367	382.496	260.958	194.429	152.455	123.560	102.455	86.363	73.689	63.447
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.150	15.300	15.450	15.600	15.750	15.900	16.050	16.200	16.350	16.500
Rt up (KΩ)	323.076	105.467	56.466	34.831	22.640	14.818	9.373	5.365	2.291	-0.142

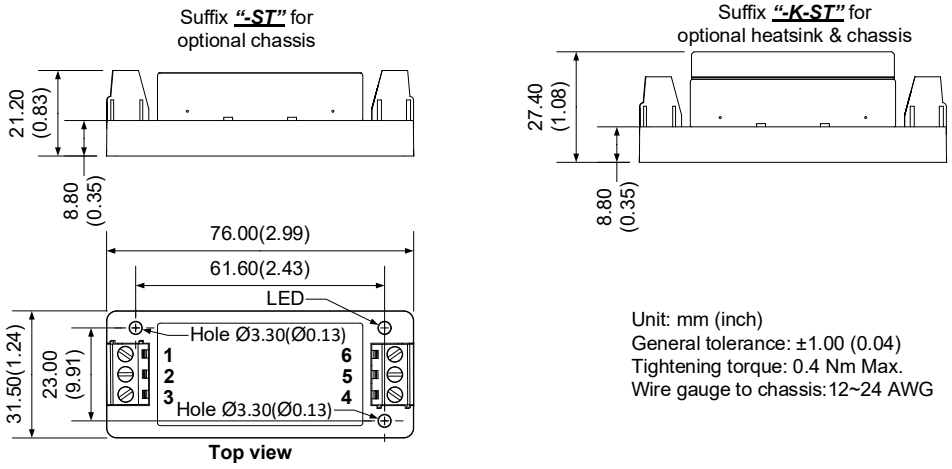
24V Output

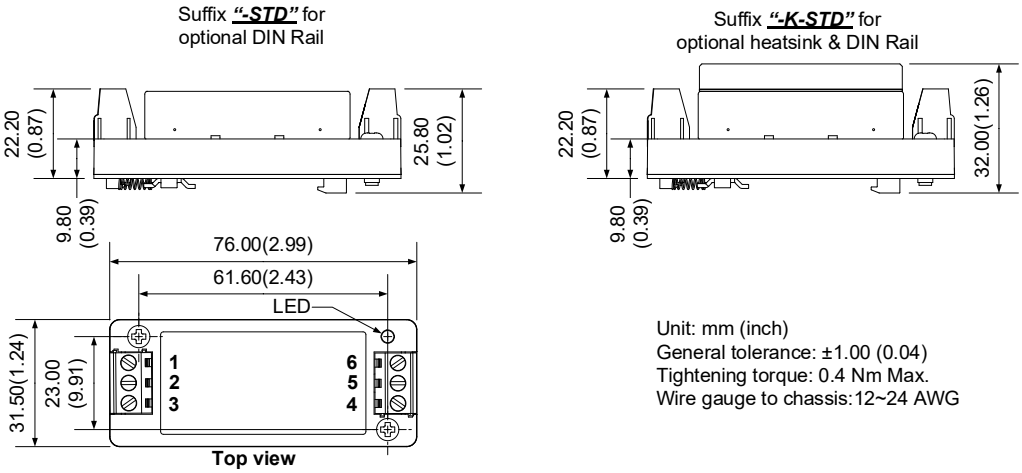
Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.760	23.520	23.280	23.040	22.800	22.560	22.320	22.080	21.840	21.600
Rt down (KΩ)	635.592	358.741	246.163	185.102	146.779	120.487	101.330	86.750	75.282	66.025
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.240	24.480	24.720	24.960	25.200	25.440	25.680	25.920	26.160	26.400
Rt up (KΩ)	154.790	53.216	28.902	17.987	11.787	7.790	4.999	2.939	1.357	0.104

Dimensions



Pin Out Specifications	
Pin	Single
1	On/off control
2	-Vin
3	+Vin
4	+Vout
5	Trim
6	-Vout





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.