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AM30EW-LPZ



2 x 1

The AM30EW-LPZ is a 30W 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 80°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 AM30EW-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

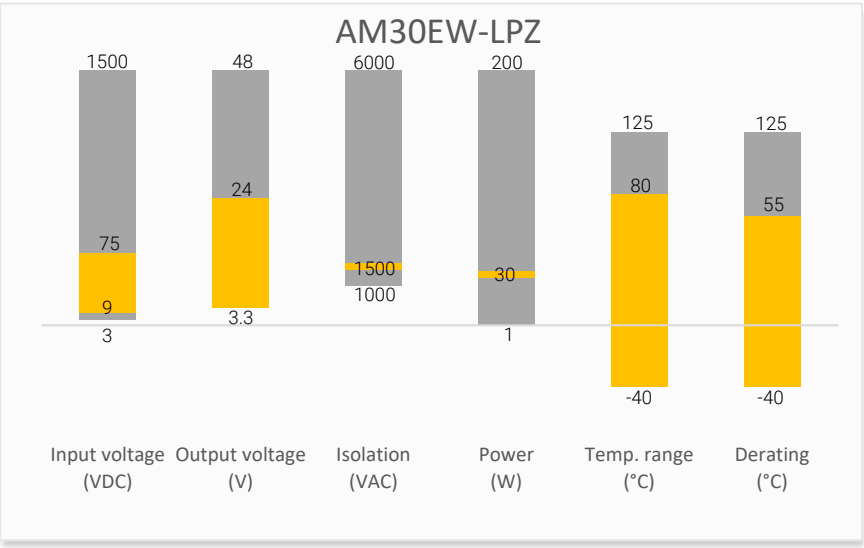
Features

- Operating Temp: -40 °C to +80 °C
- Isolation voltage: 1500VDC
- High efficiency: Up to 90% 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

Application Notes

Coming Soon!

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			
AM30EW-2403SLPZ	24 (9-36)	3.3	60	970	6000	10000	85
AM30EW-2405SLPZ	24 (9-36)	5	60	1454	6000	10000	86
AM30EW-2409SLPZ	24 (9-36)	9	6	1388	3333	4700	88
AM30EW-2412SLPZ	24 (9-36)	12	6	1388	2500	2400	90
AM30EW-2415SLPZ	24 (9-36)	15	6	1388	2000	1680	90
AM30EW-2424SLPZ	24 (9-36)	24	6	1388	1250	680	90
AM30EW-4803SLPZ	48 (18-75)	3.3	20	474	6000	10000	86
AM30EW-4805SLPZ	48 (18-75)	5	20	710	6000	10000	87
AM30EW-4812SLPZ	48 (18-75)	12	5	702	2500	2700	88
AM30EW-4815SLPZ	48 (18-75)	15	5	702	2000	1680	89
AM30EW-4824SLPZ	48 (18-75)	24	5	702	1250	680	87

Dual 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			
AM30EW-2405DLPZ	24 (9-36)	±5	60	1454	±3000	2000	85
AM30EW-2412DLPZ	24 (9-36)	±12	6	1388	±1250	1250	89
AM30EW-2415DLPZ	24 (9-36)	±15	6	1388	±1000	680	89
AM30EW-2424DLPZ	24 (9-36)	±24	6	1388	±625	470	89
AM30EW-4805DLPZ	48 (18-75)	±5	20	710	±3000	2000	86
AM30EW-4812DLPZ	48 (18-75)	±12	5	702	±1250	1250	88
AM30EW-4815DLPZ	48 (18-75)	±15	5	702	±1000	680	88

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	40		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 3.5-12VDC; OFF – short to –Vin or 0-1.2VDC, Idle current: 5 - 8mA			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, 1 mA	≥1500		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, positive output	±0.2	±0.5	%
	LL to HL at Full Load, negative output	±0.5	±1	%
Load Regulation	5% to 100% load, positive output	±0.5	±1	%
	5% to 100% load, negative output	±0.5	±1.5	%
Cross Regulation	Dual, positive output 50% load, negative output 10% to 100% Load		±5	%
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	20MHz Bandwidth, 100% load, single output	50	100	mV pk-pk
	20MHz Bandwidth, 100% load, dual output	50	150	mV pk-pk

General Specifications

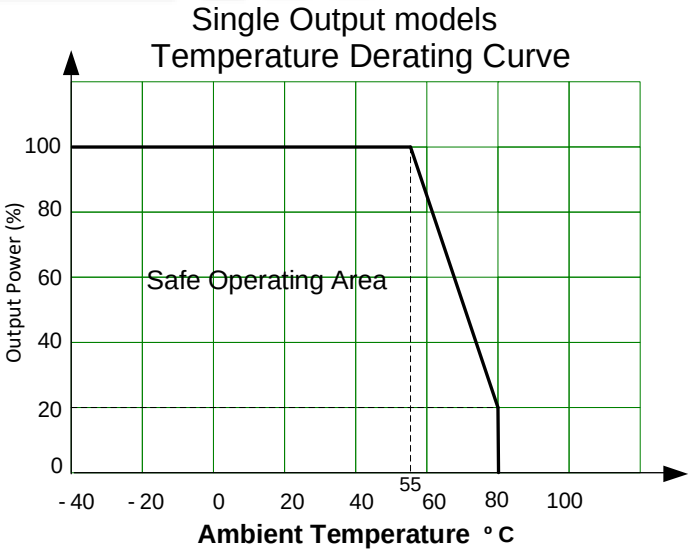
Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		330		KHz
Short circuit protection	Continuous, Auto recovery				
Over current protection	Nominal input	110		190	% of Io
Over voltage protection		110		160	%
Operating temperature	See derating curve	-40		80	°C
Maximum soldering temperature	1.5mm from case for 10 sec			300	°C
Storage temperature		-55		125	°C
Temperature coefficient	100% Load			± 0.03	%/ °C
Cooling	Free air convection				
Humidity			≥5	95	% RH
Weight			30		g
Dimensions (L x W x H)		2.00x 1.00 x 0.47 inches (50.8 x 25.4 x 12.0 mm)			
Case material	Aluminum alloy				
MTBF	≥ 1 000 000 hrs (MIL-HDBK -217F, t=+25°C)				

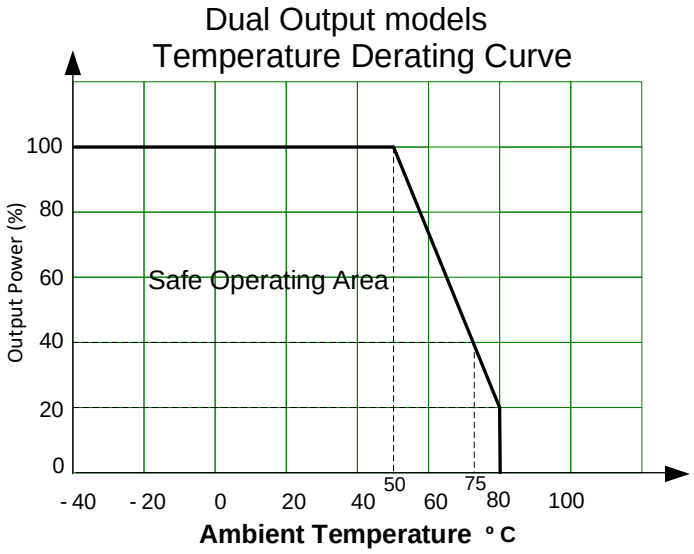
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

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
	RF, Electromagnetic Field Immunity	EN61000-4-3
	Electrical Fast Transient/Burst Immunity	EN61000-4-4
	Surge Immunity	EN61000-4-5
	RF, Electromagnetic Field Immunity	EN61000-4-6
	Vibration	IEC/EN61373, category 1/grade B

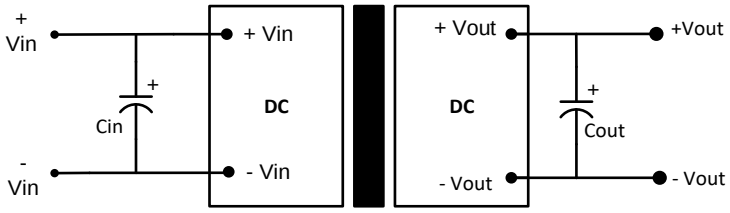
Derating





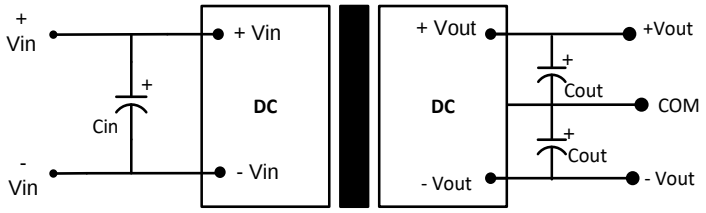
Typical Application Circuit

Single



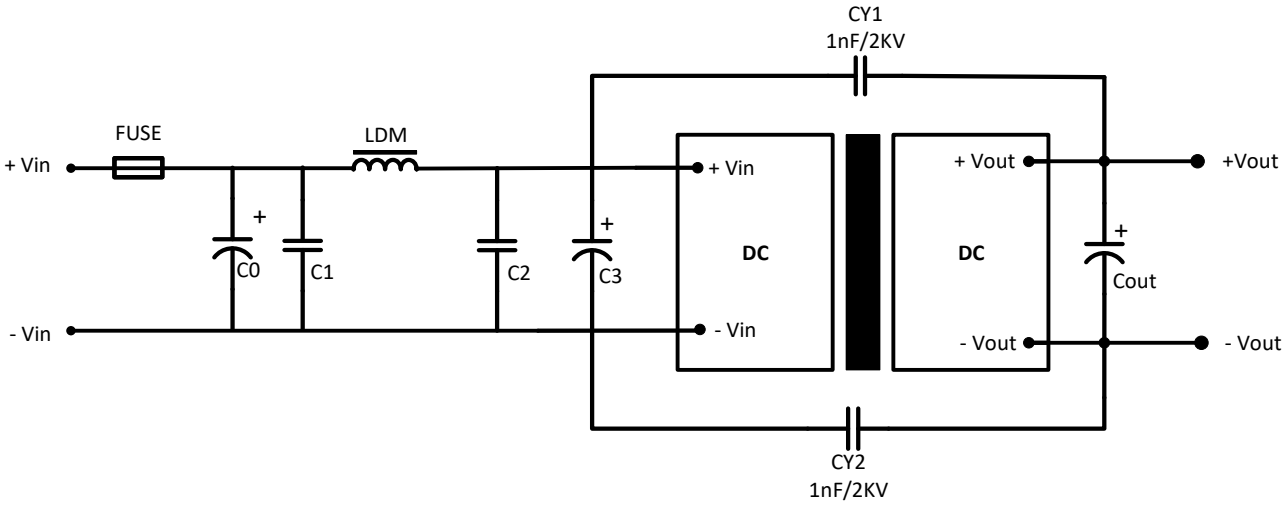
Single outputs			
Vin	Cin	Vout	Cout
24VDC	100µF/50V	3.3VDC	220µF,24V
48VDC	100µF/100V	5VDC	220µF,24V
		9VDC	220µF,24V
		12VDC	100µF,50V
		15VDC	100µF,50V
		24VDC	100µF,50V

Dual



Dual outputs			
Vin	Cin	Vout	Cout
24VDC	100µF/50V	±5VDC	220µF,24V
48VDC	100µF/100V	±12VDC	220µF,24V
		±15VDC	220µF,24V
		±24VDC	100µF,50V

Recommended EMC Circuit

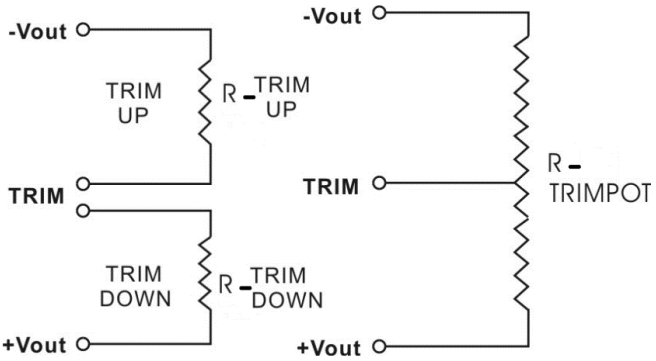


Component	24Vin	48Vin
C0, C3	330µF, 50V	330µF, 100V
C1, C2	4.7µF, 50V	4.7µF, 100V
Cout	Refer to Cout in Typical Application Circuit	
LDM	2.2µH, 4A	2.2µH, 2A

Trimming

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

Fixed Resistor **Variable Potentiometer**



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	4.680	4.679	4.550	4.500
Rt down (KΩ)	39.966	22.440	13.270	7.631	3.813	1.056	0.156	0.114	--	--
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.060	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500
Rt up (KΩ)	21961.378	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

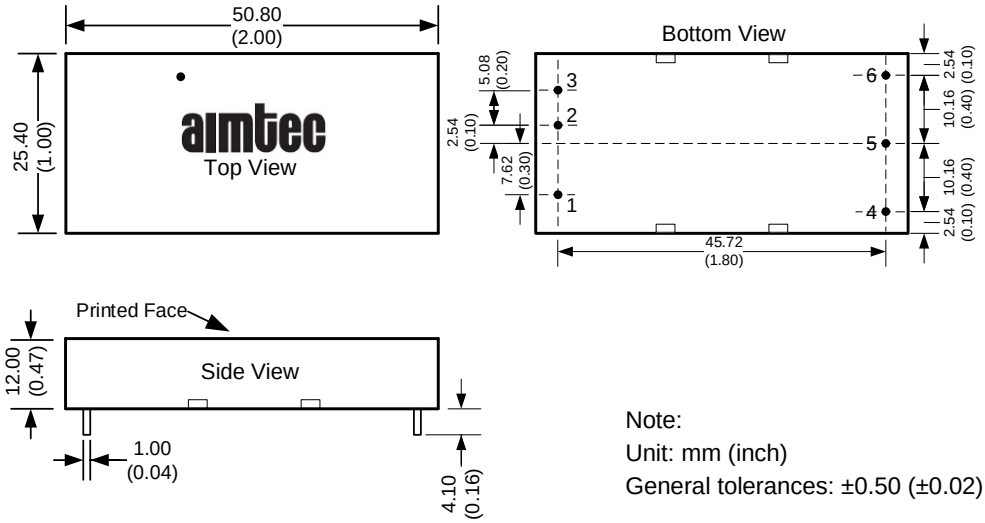
15V Output

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	16.490
Rt up (KΩ)	323.076	105.467	56.466	34.831	22.640	14.818	9.373	5.365	2.291	0.004

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



Note:
Unit: mm (inch)
General tolerances: ±0.50 (±0.02)

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

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