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AM10EW-LPZ

2 x 1

The AM10EW-LPZ is a 10W 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 9-160VDC, which will benefit your new system design.

This series offers great operating temperatures, from -40°C to 85°C. Furthermore, an isolation of 1500VDC/2250VDC, 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 AM10EW-LPZ is suitable for grid power, instrumentation, industrial controls, communication, and civil applications.

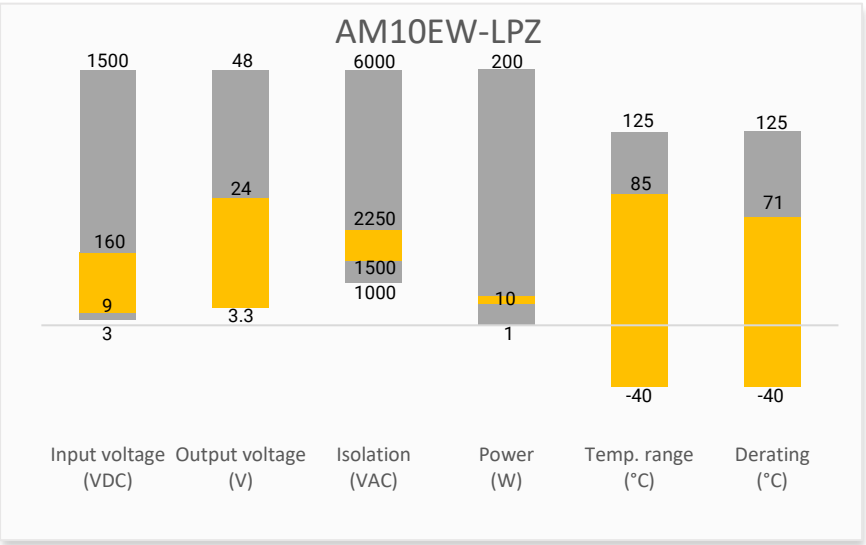
Features

- Operating Temp: -40 °C to +85 °C
- Isolation voltage: 1500VDC/2250VDC
- High efficiency: Up to 87% 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 Typ (mA)		Output Current Max (mA)	Maximum capacitive load (µF)	Efficiency Full Load Typ (%)
			No Load	Full Load			
AM10EW-2403SLPZ	24 (9-36)	3.3	5	423	2400	2200	78
AM10EW-2405SLPZ	24 (9-36)	5	5	502	2000	2200	83
AM10EW-2409SLPZ	24 (9-36)	9	5	502	1111	680	85
AM10EW-2412SLPZ	24 (9-36)	12	5	502	833	470	86
AM10EW-2415SLPZ	24 (9-36)	15	5	502	667	330	86
AM10EW-2424SLPZ	24 (9-36)	24	5	502	416	100	88
AM10EW-4803SLPZ	48 (18-75)	3.3	4	190	2400	2200	79
AM10EW-4805SLPZ	48 (18-75)	5	4	251	2000	2200	83
AM10EW-4812SLPZ	48 (18-75)	12	4	251	833	470	87
AM10EW-4815SLPZ	48 (18-75)	15	4	251	667	330	87
AM10EW-4824SLPZ	48 (18-75)	24	4	251	416	100	88
AM10EW-11003SH22LPZ	110 (40-160)	3.3	3	95	2400	5400	76
AM10EW-11005SH22LPZ	110 (40-160)	5	3	110	2000	5400	80
AM10EW-11012SH22LPZ	110 (40-160)	12	3	110	833	470	84
AM10EW-11015SH22LPZ	110 (40-160)	15	3	110	667	330	84
AM10EW-11024SH22LPZ	110 (40-160)	24	3	110	417	100	85

Dual Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Nominal Vin Input Current Typ (mA)		Output Current Max (mA)	Maximum capacitive load (µF)	Efficiency Full Load Typ (%)
			No Load	Full Load			
AM10EW-2405DLPZ	24 (9-36)	±5	5	502	±1000	1000	83
AM10EW-2409DLPZ	24 (9-36)	±9	5	502	±555	680	86
AM10EW-2412DLPZ	24 (9-36)	±12	5	502	±416	470	87
AM10EW-2415DLPZ	24 (9-36)	±15	5	502	±333	330	87
AM10EW-2424DLPZ	24 (9-36)	±24	5	502	±208	100	87
AM10EW-4805DLPZ	48 (18-75)	±5	4	251	±1000	1000	83
AM10EW-4812DLPZ	48 (18-75)	±12	4	251	±416	470	87
AM10EW-4815DLPZ	48 (18-75)	±15	4	251	±333	330	87
AM10EW-4824DLPZ	48 (18-75)	±24	4	251	±208	100	87

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
	110Vin, 1sec. max.		-0.7~180	VDC
Input reflected ripple current	Nominal Vin and full load, 24Vin models	40		mA
	Nominal Vin and full load, 48Vin models	30		mA
	Nominal Vin and full load, 110Vin models	25		mA

Start-up time	Nominal Vin and constant resistive load	10		mS
Start-up voltage	24V input		9	VDC
	48V input		18	VDC
	110V input		40	VDC
Input under voltage lockout	24V input	5.5-6.5		VDC
	48V input	12-15.5		VDC
	110V input	28-33		VDC
Filter	π(Pi) Network			
On/Off control (24/48Vin models)	ON – open or 2.7-9VDC; OFF – short to –Vin or 0-1.2VDC, Idle current: 5 - 10mA			

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested isolation voltage	Input / output, 60 sec, 1 mA, 24/48Vin models	≥1500		VDC
	Input / output, 60 sec, 1 mA, 110Vin models	≥2250		VDC
	Input to case / output to case, 60 sec, 1 mA, 110Vin models	≥1600		VDC
Resistance	Input / output, 500VDC	≥1000		MΩ
Capacitance	Input / output, 100KHz/0.1V, 24/48Vin models	2000		pF
	Input / output, 100KHz/0.1V, 110Vin models	2200		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance	5%-100% load @ Vin (nom.)	±1	±3	%
Line Regulation	LL to HL at Full Load, 24/48Vin models, output 1	±0.2	±0.5	%
	LL to HL at Full Load, 24/48Vin models, output 2	±0.5	±1	%
	LL to HL at Full Load, 110Vin models	±0.4	±1	%
Load Regulation	5% to 100% load, output 1	±0.5	±1	%
	5% to 100% load, output 2	±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, 110Vin @ 3.3/5Vout models	±3	±8	%
	25% load step change, others	±3	±5	%
Ripple & Noise	20MHz Bandwidth, 100% load, 24/48Vin models	40	80	mV pk-pk
	20MHz Bandwidth, 100% load, 110Vin models	50	100	mV pk-pk

General Specifications

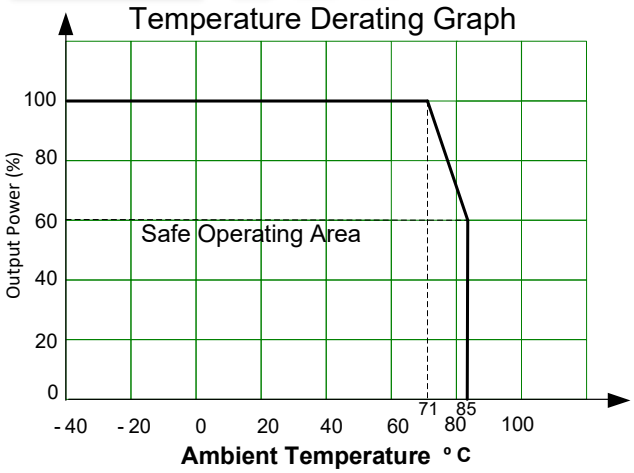
Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency	100% load		300		KHz
Short circuit protection	Continuous, Auto recovery				
Over current protection	24/48Vin models	110	140	190	% of Io
	110Vin models	120		210	% of Io
Over voltage protection		110		160	%
Operating temperature	See derating curve	-40		85	°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	24/48Vin models		30		g
	110Vin models		41		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				
Vibration	IEC/EN61373, category 1/grade B				
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

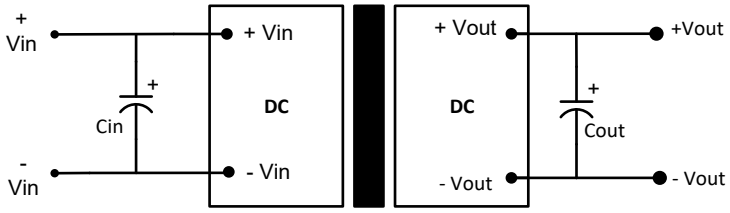
Parameters		
Standards	Designed to meet EN55016-2-1 (110Vin models)	
	Information technology Equipment	Designed to meet UL/EN/IEC 62368-1 (24/48Vin models) Designed to meet EN/IEC 62368-1 (110Vin models)
	Electronic equipment in railway application	Designed to meet EN50155 (110Vin models)
	EMI - Conducted and radiated emission	CISPR32/EN55032, Class B with the recommended EMC 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

Derating



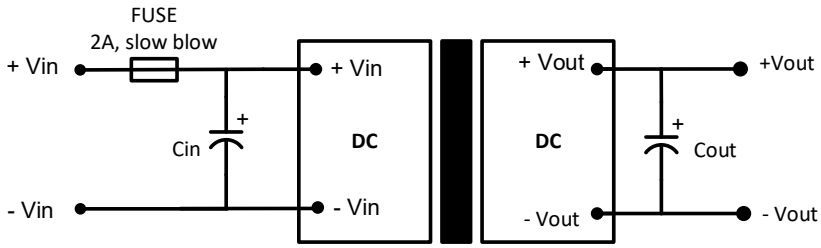
Typical Application Circuit

Single Output 24/48Vin models



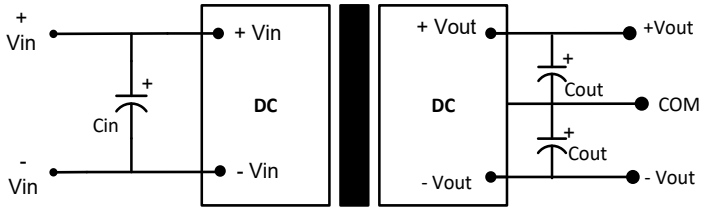
Single outputs			
Vin	Cin	Vout	Cout
24VDC	100µF/50V	3.3VDC	10µF
48VDC	10~47µF/100V	5VDC	
		9VDC	
		12VDC	
		15VDC	
		24VDC	

Single Output 110Vin models



Single outputs			
Vin	Cin	Vout	Cout
110VDC	10~47µF	3.3VDC	100µF
		5VDC	100µF
		12VDC	47µF
		15VDC	47µF
		24VDC	22µF

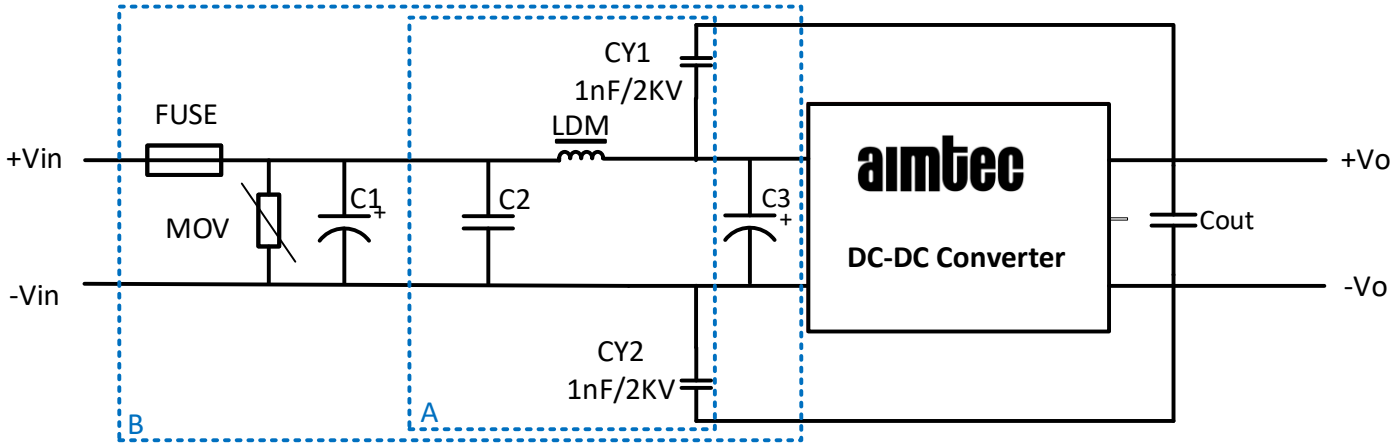
Dual Output 24/48Vin models



Dual outputs			
Vin	Cin	Vout	Cout
24VDC	100µF/50V	±5VDC	10µF
48VDC	10~47µF/100V	±9VDC	
		±12VDC	
		±15VDC	
		±24VDC	

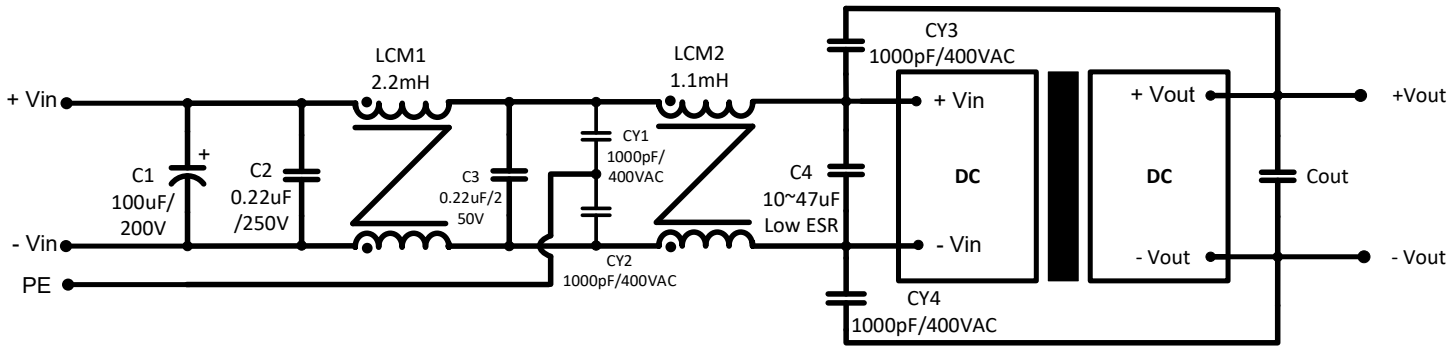
Recommended EMC Circuit

24/48Vin models



Component	24Vin	48Vin
C1, C3	330µF, 50V	330µF, 100V
C2	1µF, 50V	1µF, 100V
Cout	Refer to Cout in Typical Application Circuit	
LDM	4.7µH	4.7µH
MOV	20D470K	14D101K

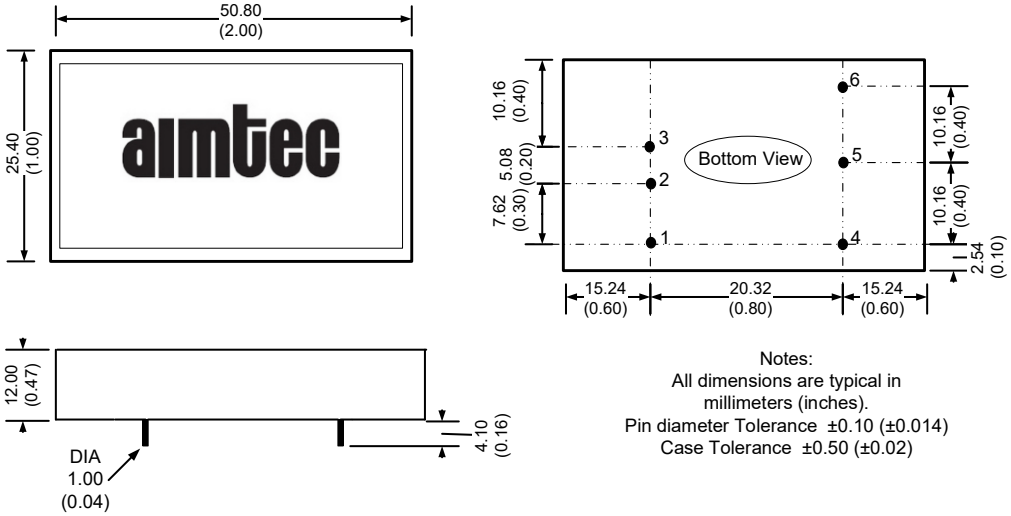
110Vin models



Component	110Vin
Cout	Refer to Cout in Typical Application Circuit

Dimensions

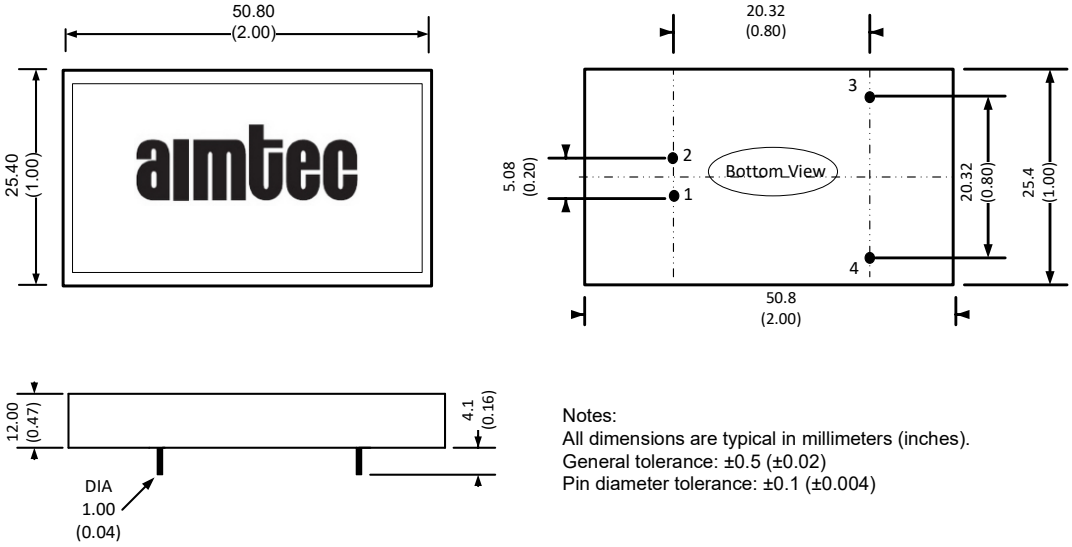
24/48Vin models



Notes:
All dimensions are typical in millimeters (inches).
Pin diameter Tolerance ±0.10 (±0.014)
Case Tolerance ±0.50 (±0.02)

Pin Out Specifications		
Pin	Single	Dual
1	On/off control	On/off control
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	No Pin	Common
6	+Vout	+Vout

110Vin models



Notes:
All dimensions are typical in millimeters (inches).
General tolerance: ±0.5 (±0.02)
Pin diameter tolerance: ±0.1 (±0.004)

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

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