

**FEATURES:**

- Efficiency up to 87%
- Ultra-Wide 4:1 input range
- Continuous Short Circuit Protection
- Operating temperature -40°C to +85°C
- 110Vin models design to meet EN50155
- Input Under-voltage Protection
- Over Voltage, Over Current Protection
- I/O Isolation 2250 & 3000VDC
- On/Off remote control

Models

Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max (µF)	Efficiency (%)
AM10EW-2403SH30-NZ	9-36	3.3	2400	3000	5400	78
AM10EW-2405SH30-NZ	9-36	5	2000	3000	5400	82
AM10EW-2409SH30-NZ	9-36	9	1111	3000	680	84
AM10EW-2412SH30-NZ	9-36	12	833	3000	470	84
AM10EW-2415SH30-NZ	9-36	15	667	3000	330	87
AM10EW-2424SH30-NZ	9-36	24	416	3000	100	86
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-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

* For 110Vin single output models, add suffix “- K” for optional heatsink or “- K-ST” for optional heatsink with screw terminal bottom plate or “-K-STD” for optional heatsink with DIN Rail screw terminal bottom plate.

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

* “-ST” and “-STD” options come with reverse polarity protection. 24Vin and 48Vin models with “-ST” or “-STD” option will increase the minimum input voltage and under voltage lockout threshold by 1V and reduce the efficiency by 2%. 110Vin models with “-ST” or “-STD” option will reduce the efficiency by 2%

Models

Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max (µF)	Efficiency (%)
AM10EW-2405DH30-NZ	9-36	±5	±1000	3000	±1000	81
AM10EW-2412DH30-NZ	9-36	±12	±416	3000	±330	85
AM10EW-2415DH30-NZ	9-36	±15	±333	3000	±220	87
AM10EW-4805DH30-NZ	18-75	±5	±1000	3000	±1000	82
AM10EW-4812DH30-NZ	18-75	±12	±416	3000	±330	86
AM10EW-4815DH30-NZ	18-75	±15	±333	3000	±220	87
AM10EW-11005DH22-NZ	40-160	±5	±1000	2250	±1000	80
AM10EW-11012DH22-NZ	40-160	±12	±417	2250	±470	84
AM10EW-11015DH22-NZ	40-160	±15	±334	2250	±330	84

* For 110Vin dual output models, add suffix “- O” for no on/off control option. (ex. AM10EW-11005DH22-NZ-O Has no on/off control and no Ctrl pin.)

* For 24Vin dual output, and 48Vin dual output models, add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN Rail screw terminal bottom plate.

* “-ST” and “-STD” options come with reverse polarity protection. 24Vin and 48Vin models with “-ST” or “-STD” option will increase the minimum input voltage and under voltage lockout threshold by 1V and reduce the efficiency by 2%.

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	40	VDC
	48	18-75	80	
	110	40~160	170	
Input Current (full load)	24Vin, 3.3Vout	423	527	mA
	24Vin, others	514	434	
	48Vin, 3.3Vout	208	214	
	48Vin, others	254	260	
	110Vin, 3.3Vout	95	98	
	110Vin, ± 5 Vout	113	117	
	110Vin, ± 12 , ± 15 Vout	108	111	
	110Vin, others	110	117	
Filter	π (Pi) Network			
Input surge Voltage (1sec max.)	24		50	VDC
	48		100	
	110		180	
Start-up time	Nominal Input, resistive load		10	ms
Reflected Input Ripple Current	24	40		mA
	48	30		
	110	25		
Under-voltage lockout	24	6.5		V
	48	15.5		
	110	33		
Remote On/Off Control (Except 110Vin single output models)	On	3.5-12VDC or leave open		
Idle current when off	Off	0-1.2VDC or connect to GND		
			10	mA

Isolation Specifications

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

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	AM10EW-11005DH22-NZ, 5-100% load Others, 0-100% load	± 1	± 3	%
Line voltage regulation	Positive output	± 0.2	± 0.5	%
	Negative output	± 0.5	± 1	
Load voltage regulation	110Vin single output, 0-100% load	± 0.5	± 1	%
	Others, 5-100%, positive output	± 0.5	± 1	
	Others, 5-100%, negative output	± 0.5	± 1.5	
Cross Regulation	110Vin, +Vout 50% load, -Vout 25-100% load Others, +Vout 50% load, -Vout 10-100% load		± 5	%
Short Circuit protection	Continuous, Auto Recovery			
Over Voltage Protection	110Vin models	> 110	160	% of Vo
	others	130	160	
Over Current Protection	24 & 48 Vin models	140	190	% of Io
	110 Vin single output	> 120	210	
	110 Vin dual output	> 110	210	
Transient Recovery Time	110 Vin, 25% Load Step Change	300	500	μ s
Transient Response Deviation	110Vin dual output, ± 5 Vout	± 4	± 8	%
	110Vin single output, 3.3, 5Vout	± 3	± 8	
	Others, 25% Load Step Change	± 3	± 5	
Temperature coefficient			± 0.03	%/°C
Ripple & Noise	110Vin, 5-100% load, 20Mhz bandwidth	50	100	mV p-p
	Others, 5-100% load, 20Mhz bandwidth	60	120	

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	110 Vin, 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 (24, 48Vin models) Aluminum Alloy (Others)			
Weight	Pin mountable, 24, 48Vin models	21.2		g
	Pin mountable, 110Vin single output models	26		
	Pin mountable, 110Vin dual output models	27		
	-ST option, 24, 48Vin models	46		
	-ST option, 110Vin models	48		
	-STD option, 24, 48Vin models	66		
	-STD option, 110Vin models	68		
	-K option, 110Vin single output models	34		
-K-ST option, 110Vin single output models	56			
-K-STD option, 110Vin single output models	76			
Dimensions (L x W x H)	24, 48Vin models	2.03 x 1.04 x 0.47inches, 51.50 x 26.50 x 12.00mm		
	110Vin models	2.00 x 1.00 x 0.46inches, 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	2G, 30min, every axis tested
Vibration (110 Vin)	IEC61373 - Category 1, Grade B	

Safety Specifications

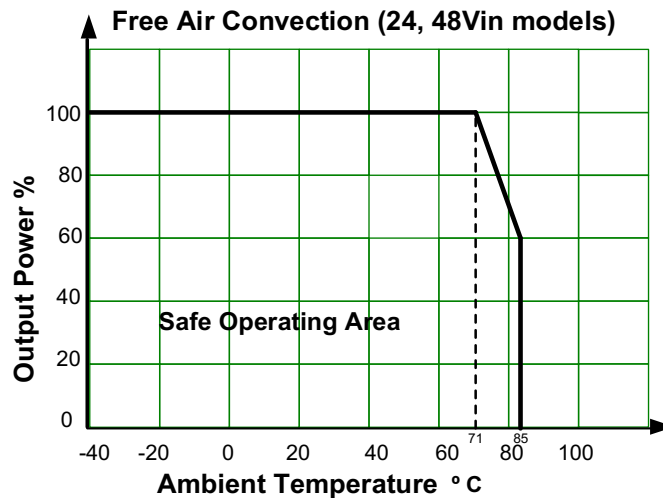
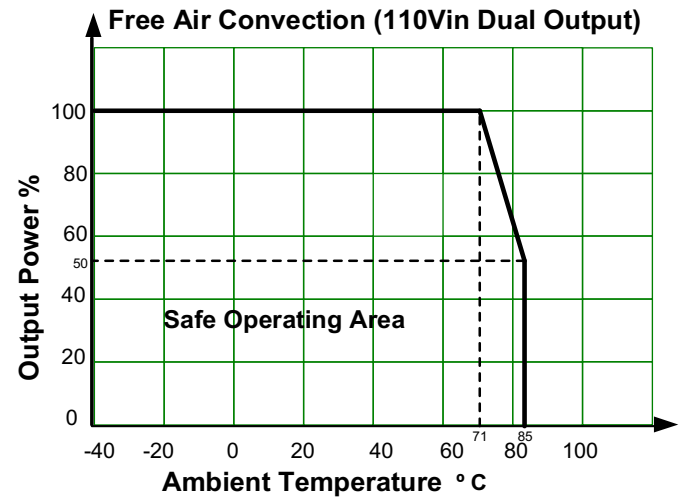
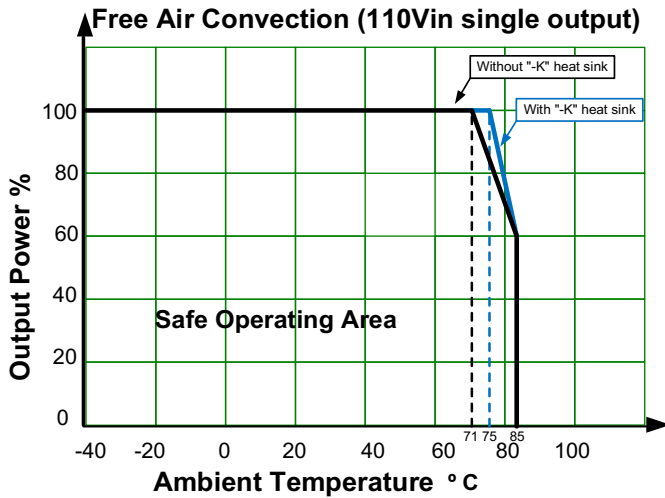
Parameters	
Approvals	CE, UL (24 & 48 Vin models only) EN/IEC/UL60950-1 Design to meet EN62368, EN50155 (2250 VDC Isolated models)
Standards	EMI - Conducted and radiated emission EN55032, class A (all models) Class B (110Vin models) (110Vin dual output models with recommended EMC circuit 1 or 2) (110Vin single output models with recommended EMC circuit 3 or 4) EN50121-3-2 150kHz-500kHz 99dBuV (110Vin models) EN55016-2-1 500kHz-30MHz 93dBuV (110Vin models) EN50121-3-2 30MHz-230MHz 40dBuV/m at 10m (110Vin models) EN55016-2-1 230MHz-1GHz 47dBuV/m at 10m (110Vin models)
	Electrostatic Discharge Immunity IEC61000-4-2, Contact ±6KV, Air ±8KV (110Vin models), Contact ±4KV, Criteria B (24 & 48 Vin models) EN50121-3-2 Contact ±6KV, Air ±8KV, Criteria B (110Vin models)
	RF, Electromagnetic Field Immunity IEC61000-4-3, 10V/m, Criteria A EN50121-3-2 20V/m, Criteria A (110Vin models)
	Electrical Fast Transient/Burst Immunity IEC61000-4-4, ±4KV, Criteria B (110Vin dual output models with recommended EMC circuit 1 or 2) (110Vin single output models with recommended EMC circuit 3 or 4) ±2KV, Criteria B (24 & 48 Vin with the recommended EMC circuit 5) EN50121-3-2 ±2kV, 5/50ns, 5KHz, Criteria A (110Vin models)
	Surge Immunity IEC61000-4-5, L-L ±2KV, Criteria B, (24 & 48 Vin with the recommended EMC circuit 5) L-L ±2KV, L-G ±4KV, Criteria B (110Vin dual output models with recommended EMC circuit 1) (110Vin single output models with recommended EMC circuit 3)

	EN50121-3-2 L-L ± 1 KV (42 Ω 0.5 μ F), L-G ± 2 KV (42 Ω 0.5 μ F), Criteria B (110Vin models)
RF, Conducted Disturbance Immunity	IEC61000-4-6, 3 Vrms, Criteria A (24 & 48 Vin models) 10 Vrms, Criteria A (110Vin models) EN50121-3-2 0.15MHz-80MHz 10Vr.m.s, Criteria A (110Vin models)
Voltage dips, short interruptions and voltage variations immunity	IEC61000-4-29, 0-70%, Criteria B (24 & 48 Vin models)

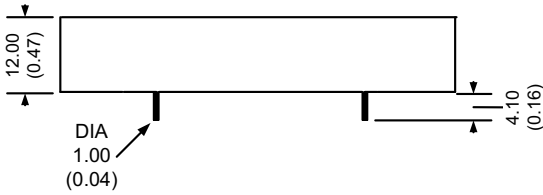
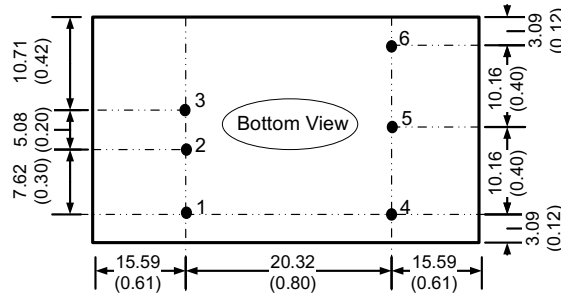
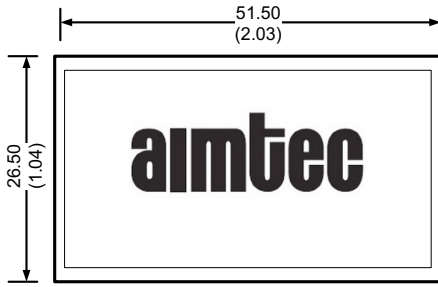
*For 110Vin dual output models, EN50155, EN50121-3-2 and EN55016-2-1 are measured with an input capacitor 100 μ F/200V or AMFW72-13NZ.

*For 110Vin single output models, EN50155, EN50121-3-2 and EN55016-2-1 are measured with an input capacitor 100 μ F/200V or AMFW72-0.41NZ.

Derating



Pin Out Specifications
24 & 48 Vin models

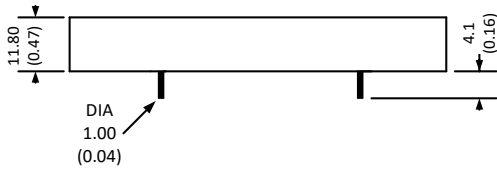
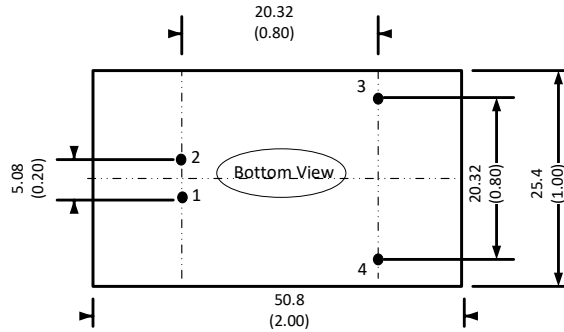
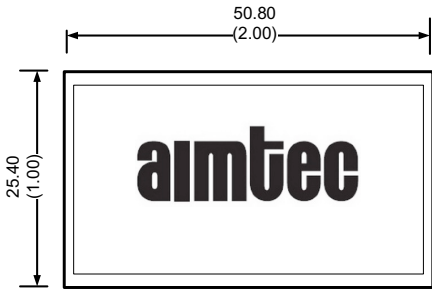


Notes:
All dimensions are typical in millimeters (inches).
General Tolerance ± 0.50 (± 0.02)
Pin diameter Tolerance ± 0.10 (± 0.004)

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

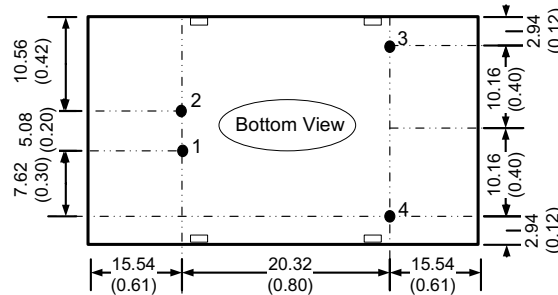
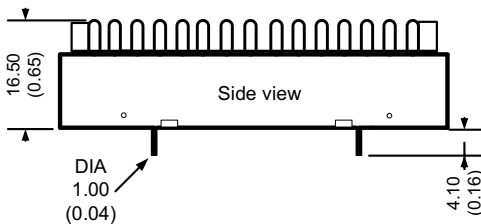
110Vin single output models



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

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

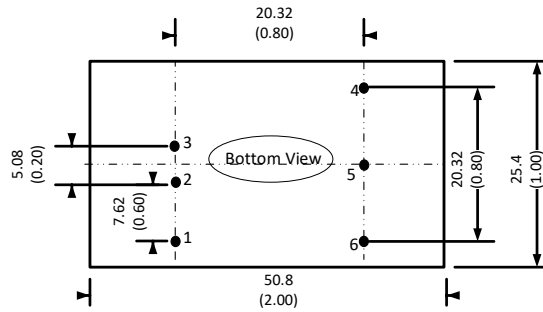
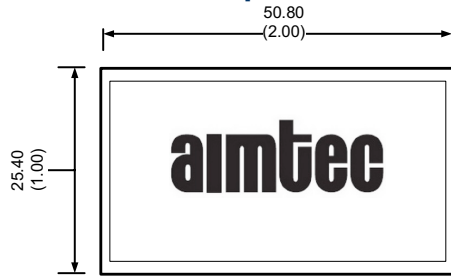
110Vin single output models with -K option



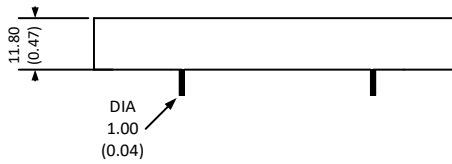
Notes:
All dimensions are typical in millimeters (inches).
Pin diameter Tolerance: ± 0.10 (± 0.004)
General Tolerance: ± 0.50 (± 0.02)

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

110Vin dual output models

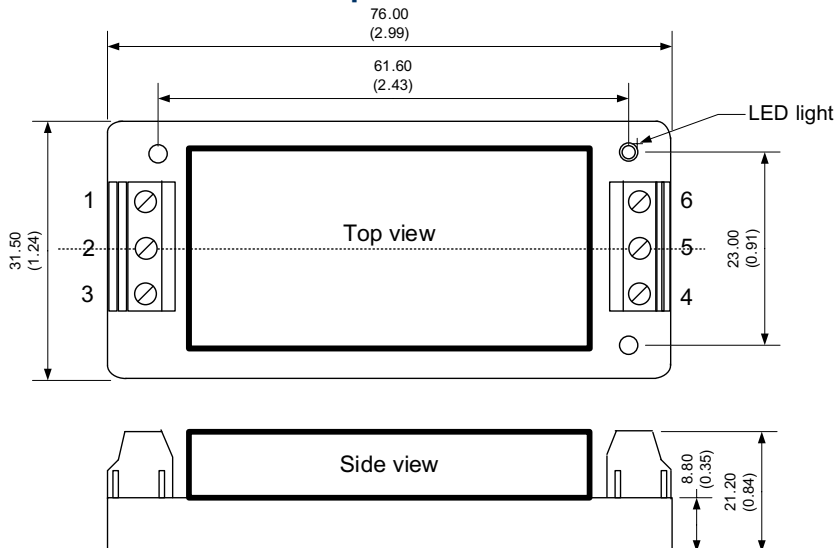


Pin	Single
1	Ctrl
2	-V Input
3	+V Input
4	+V Output
5	Common
6	-V Output



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

Dimensions with -ST options



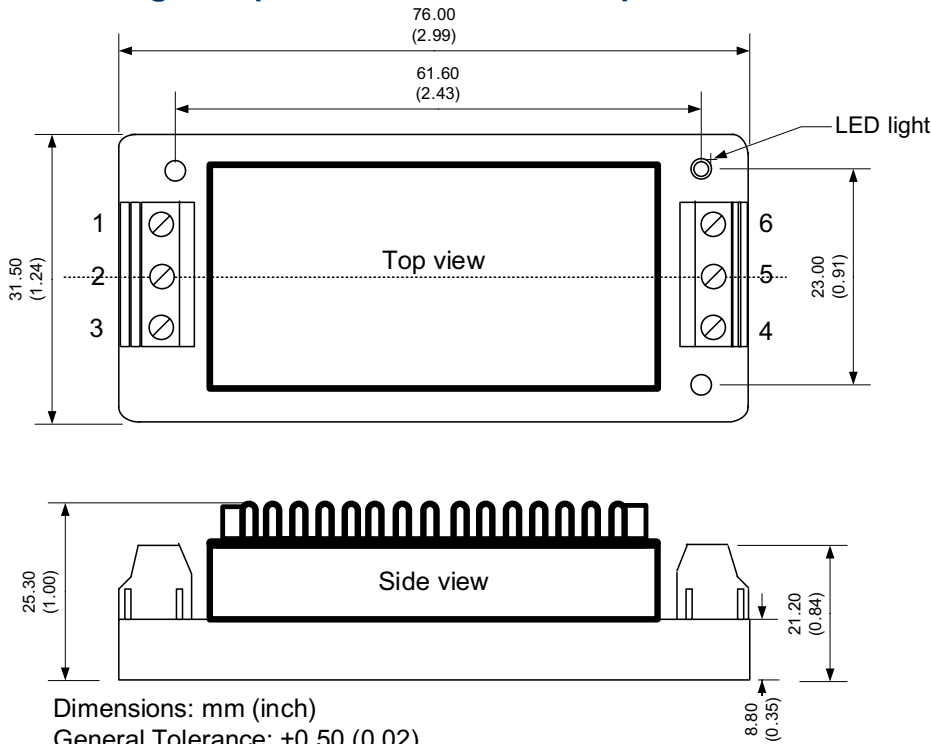
Dimensions: mm (inch)
General Tolerance: ± 0.50 (0.02)
Tightening torque: 0.4N-m max.
Wire gauge: 24-12AWG

Pin Out Specifications

110Vin models	
Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

24 & 48 Vin models		
Pin	Single	Dual
1	On/Off Control	On/Off Control
2	-Vin	-Vin
3	+Vin	+Vin
4	+ Vout	+ Vout
5	NC	Common
6	- Vout	- Vout

110Vin single output models with -K-ST option



Dimensions: mm (inch)
General Tolerance: ± 0.50 (0.02)
Tightening torque: 0.4N-m max.
Wire gauge: 24-12AWG

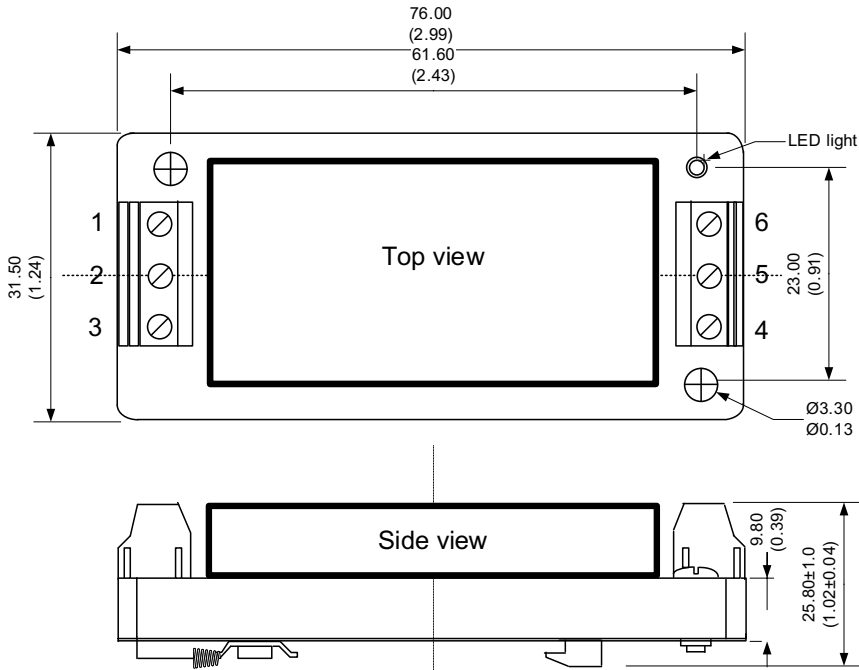
110Vin models	
Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

Dimensions with -STD options

Pin Out Specifications

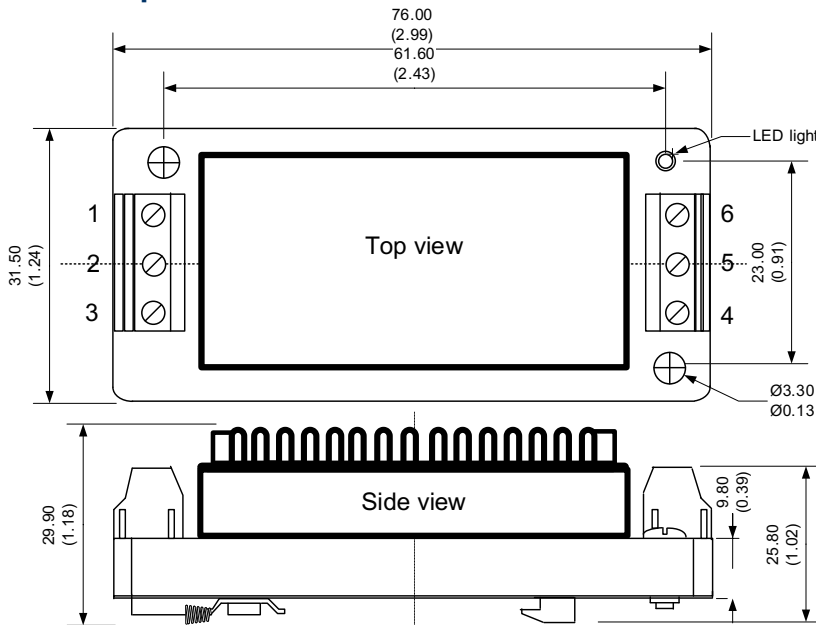
110Vin models	
Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

24 & 48 Vin models		
Pin	Single	Dual
1	On/Off Control	On/Off Control
2	-Vin	-Vin
3	+Vin	+Vin
4	+ Vout	+ Vout
5	NC	Common
6	- Vout	- Vout



Dimensions: mm (inch)
 General tolerance: ±0.50 (0.02)
 Tightening torque: 0.4N-m max.
 Wire gauge: 24-12AWG
 DIN rail: TS35

-K-STD option

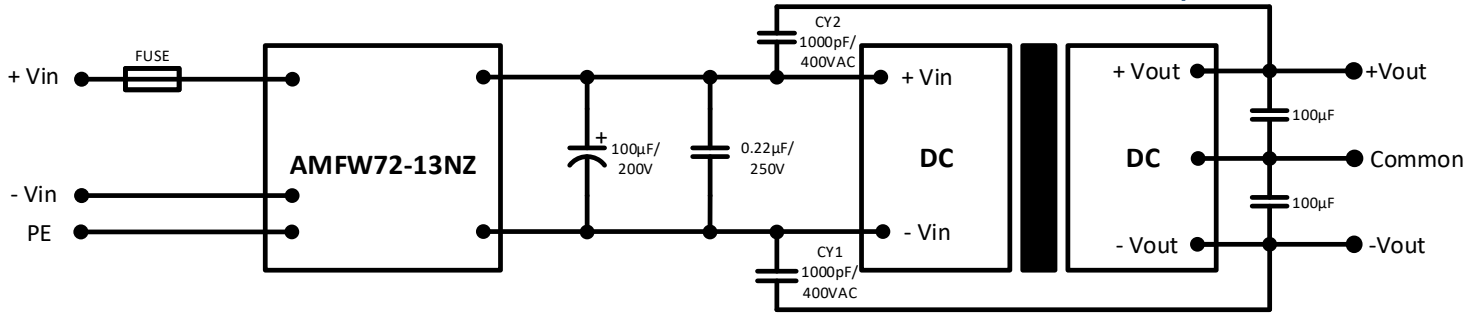


Dimensions: mm (inch)
 General Tolerance: ±0.50 (0.02)
 Tightening torque: 0.4N-m max.
 Wire gauge: 24-12AWG
 DIN rail: TS35

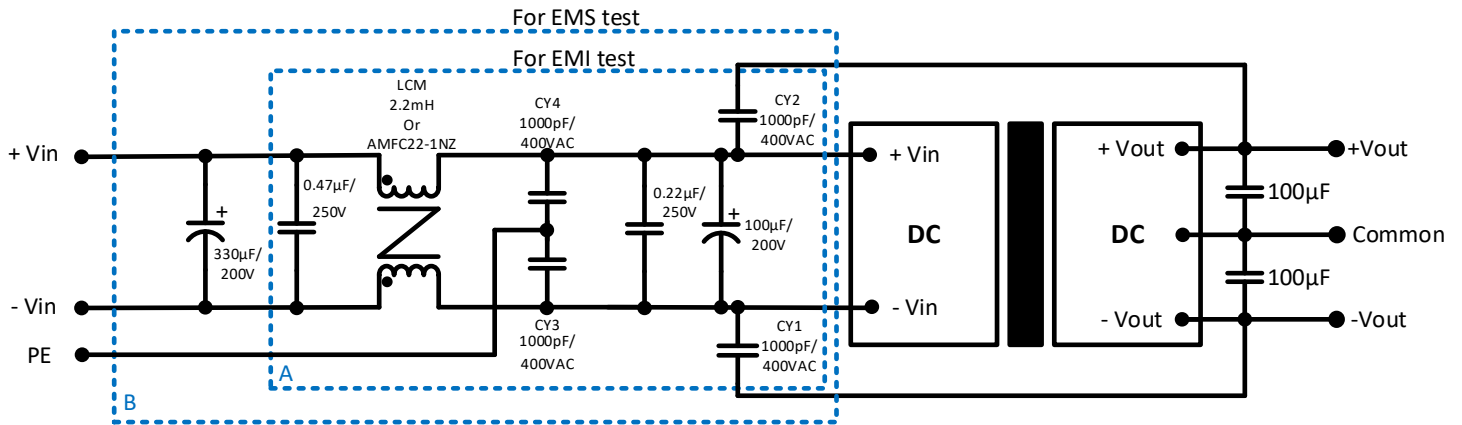
110Vin single output models with

110Vin models	
Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

Recommended EMC circuit 1 (110Vin dual output models)

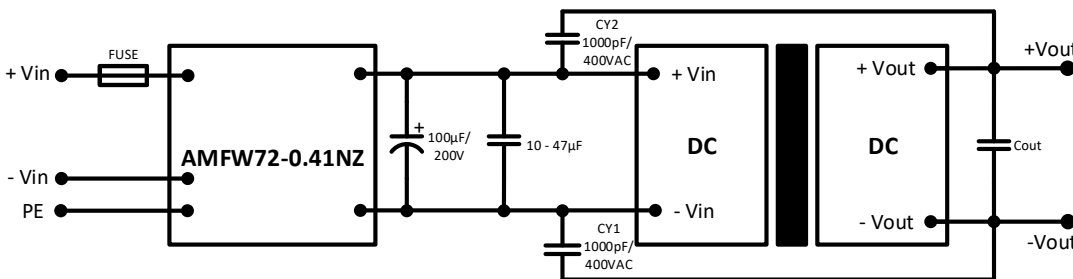


Recommended EMC circuit 2 (110Vin dual output models)



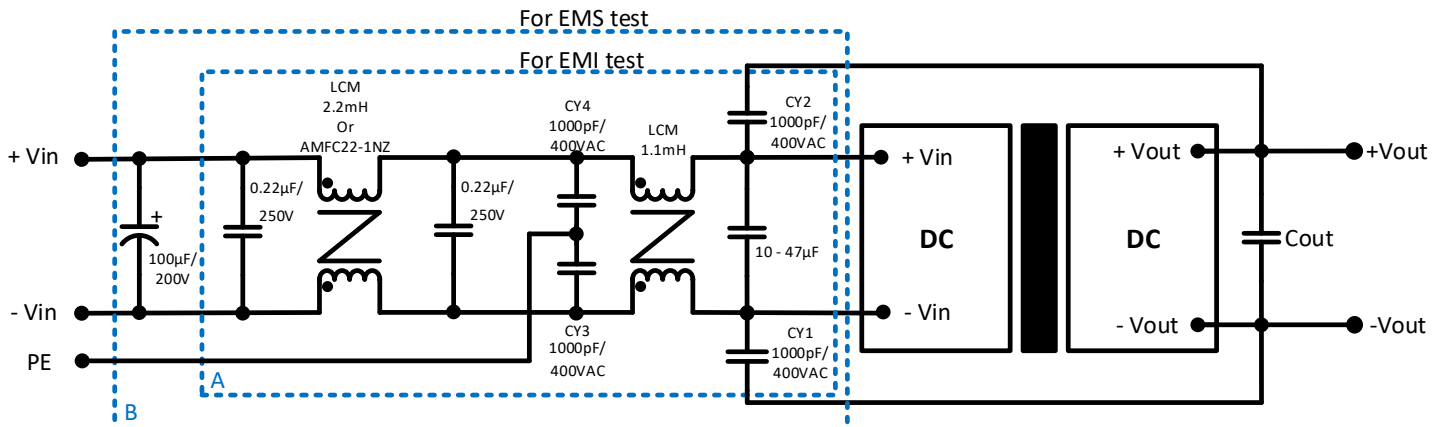
Notes: Part A for EMI filtering and Part B is used for EMS filtering.

Recommended EMC circuit 3 (110Vin single output models)



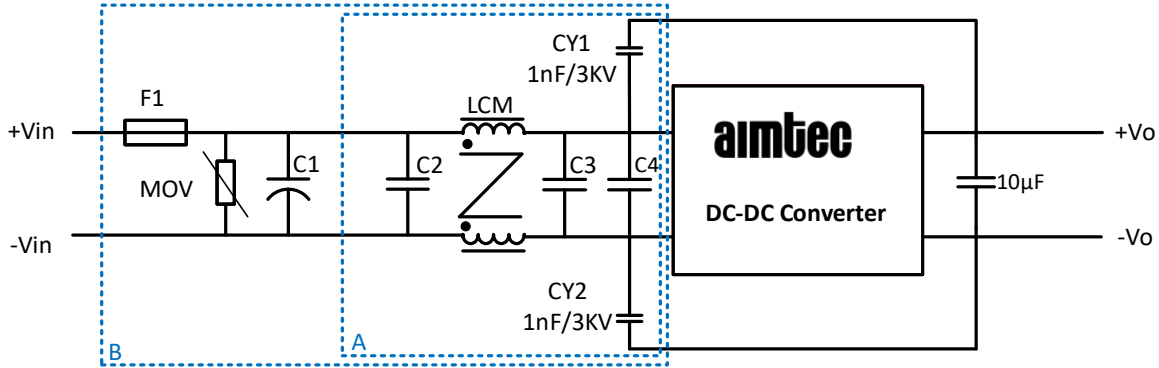
Vout	Cout
3.3 / 5	100µF
12 / 15	47µF
24	22µF

Recommended EMC circuit 4 (110Vin single output models)



Notes: Part A for EMI filtering and Part B is used for EMS filtering.

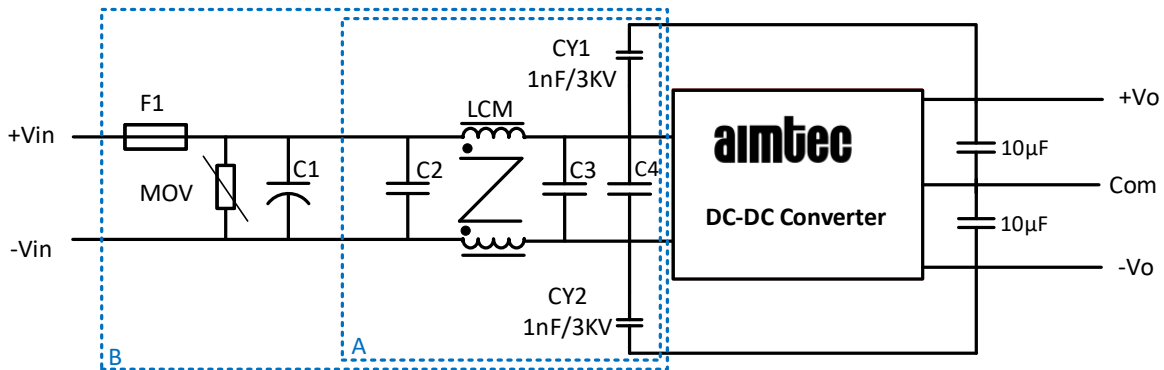
Recommended EMC circuit 5
24 & 48 Vin single output models



Notes: Part A for EMI filtering and Part B is used for EMS filtering.

Vin	MOV	C1	C2	C3	C4	LCM
24V	S20K30	680 µF / 50V	1 µF / 50V	330 µF / 50V	4.7 µF / 50V	4.7mH or AMFC47-3NZ
48V	S14K60	680 µF / 100V	1 µF / 100V	330 µF / 100V	4.7 µF / 100V	6.8mH

24 & 48 Vin dual output models



Notes: Part A for EMI filtering and Part B is used for EMS filtering.

Vin	MOV	C1	C2	C3	C4	LCM
24V	S20K30	680 µF / 50V	1 µF / 50V	330 µF / 50V	4.7 µF / 50V	4.7mH or AMFC47-3NZ
48V	S14K60	680 µF / 100V	1 µF / 100V	330 µF / 100V	4.7 µF / 100V	4.7mH or AMFC47-3NZ

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.

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