



**FEATURES:**

- Wide 4:1 Input Voltage Range
- High efficiency up to 88%
- 1500 & 2250VDC Isolation
- Over Current Protection
- Design to meet EN50155
- Operating Temperature -40°C to +85°C
- Output Over Voltage protection
- Continuous Short Circuit Protection
- Input Under Voltage Protection

**Models**  
**Single output**



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM6CW-2403S-NZ	9-36	3.3	1500	1500	1800	79
AM6CW-2405S-NZ	9-36	5	1200	1500	1000	83
AM6CW-2409S-NZ	9-36	9	667	1500	680	85
AM6CW-2412S-NZ	9-36	12	500	1500	470	87
AM6CW-2415S-NZ	9-36	15	400	1500	220	87
AM6CW-2424S-NZ	9-36	24	250	1500	100	88
AM6CW-4803S-NZ	18-75	3.3	1500	1500	1800	79
AM6CW-4805S-NZ	18-75	5	1200	1500	1000	83
AM6CW-4812S-NZ	18-75	12	500	1500	470	87
AM6CW-4815S-NZ	18-75	15	400	1500	220	88
AM6CW-4824S-NZ	18-75	24	250	1500	100	88
AM6CW-11005SH22-NZ	40-160	5	1200	2250	1000	80
AM6CW-11012SH22-NZ	40-160	12	500	2250	470	84
AM6CW-11015SH22-NZ	40-160	15	400	2250	220	85
AM6CW-11024SH22-NZ	40-160	24	250	2250	100	86

**Models**  
**Dual output**

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load(uF)	Efficiency (%)
AM6CW-2405D-NZ	9-36	±5	±600	1500	±470	83
AM6CW-2412D-NZ	9-36	±12	±250	1500	±100	87
AM6CW-2415D-NZ	9-36	±15	±200	1500	±100	87
AM6CW-2424D-NZ	9-36	±24	±125	1500	±100	87
AM6CW-4805D-NZ	18-75	±5	±600	1500	±470	83
AM6CW-4812D-NZ	18-75	±12	±250	1500	±100	87
AM6CW-4815D-NZ	18-75	±15	±200	1500	±100	88
AM6CW-11005DH22-NZ	40-160	±5	±600	2250	±470	80
AM6CW-11012DH22-NZ	40-160	±12	±250	2250	±100	84
AM6CW-11015DH22-NZ	40-160	±15	±200	2250	±100	85

**Note:**  
 \* Add suffix “-ST” for optional screw terminal bottom plate.  
 \*\* Add suffix “-STD” for optional DIN Rail screw terminal bottom plate.  
 \*\*\* For 110V input models, add suffix “-K” for optional heatsink.  
 \*\*\*\* For 110V input models, add suffix “-K-ST” for optional heat sink with screw terminal bottom plate.  
 \*\*\*\*\* For 110V input models, add suffix “-K-STD” for optional heat sink with DIN Rail screw terminal bottom plate.  
 \*\*\*\*\* -ST and -STD bottom plates come with the reverse polarity protection and will reduce the efficiency by 2%.  
 \*\*\*\*\* For 24V and 48V input models with -ST or -STD option, the input under voltage protection threshold and minimum input voltage will increase by 1V.

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	
Filter	Pi			
Absolute maximum rating (1s)	24		-0.7 - 50	VDC
	48		-0.7 - 100	
	110		-0.7 - 180	
No load input current	24		12	mA
	48, 110		8	
Input reflected current	24, 48	20		mA
	110	25		
Input under voltage turn off	24	6.5		VDC
	48	15.5		
	110	33		
Startup time	110	10		ms

### Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, <1mA		1500 & 2250	VDC
Tested I, O / Case voltage	60 sec, <1mA, 110Vin models		1600	VDC
Resistance	500VDC		>1000	MOhm
Capacitance	I/O, 100KHz/0.1V	1000		pF

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1	±3	%
Over voltage protection		110-160		% of Vout
Over current protection	24 & 48Vin models	110-190		% of Iout
	110Vin models	120-210		% of Iout
Short Circuit protection	Continuous			
Short circuit restart	Auto-Recovery			
Line voltage regulation	Full load, LL to HL, single output	±0.2	±0.5	% of Vin
	Full load, LL to HL, dual output	±0.5	±1	% of Vin
Load voltage regulation	0-100% load, 110Vin single output	±0.5	±1	%
	5- 100% load, 24/48Vin single output	±0.5	±1	%
	5% to 100% load, dual output	±0.5	±1.5	%
Cross Regulation	24/48Vin, output1 50% load, output2 10-100% load		±5	%
	110Vin, output1 50% load, output2 25-100% load		±10	%
Temperature coefficient	100% load		±0.03	%/°C
Ripple & Noise*	24/48Vin, 20MHz bandwidth, 5-100% load	60	85	mV p-p
	110Vin, 20MHz bandwidth, 5-100% load	50	100	mV p-p
Transient recovery time	25% load step change	300	500	µS
Transient recovery deviation	25% load step change		±8	%

\* Please refer to the application note for specific detail.

### General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency*	100% load	300		KHz
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity			95	% RH
Case material	Aluminum Alloy			
Weight	Pin mountable	12.5		g
	With optional -ST mounting plate:	36		
	With optional -STD mounting plate:	56		
	With optional -K Pin mountable	17		
	With optional -ST-K mounting plate:	40		
	With optional -STD-K mounting plate:	59		

Dimensions (L x W x H)	Pin mountable With optional -ST mounting plate: With optional -STD mounting plate: With optional -K Pin mountable With optional -ST-K mounting plate: With optional -STD-K mounting plate:	1 x 1 x 0.46inches, 25.40 x 25.40 x 11.70mm 2.99 x 1.24 x 0.84inches, 76.00 x 31.50 x 21.20mm 2.99 x 1.24 x 1.02inches, 76.00 x 31.50 x 25.80mm 1 x 1 x 0.64inches, 25.40 x 25.40 x 16.20mm 2.99 x 1.24 x 0.99inches, 76.00 x 31.50 x 25.20mm 2.99 x 1.24 x 1.17inches, 76.00 x 31.50 x 29.80mm
MTBF	>1,000,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C)	
Soldering temperature	1.5mm from case for 10 sec	300 °C

## Environmental Specifications

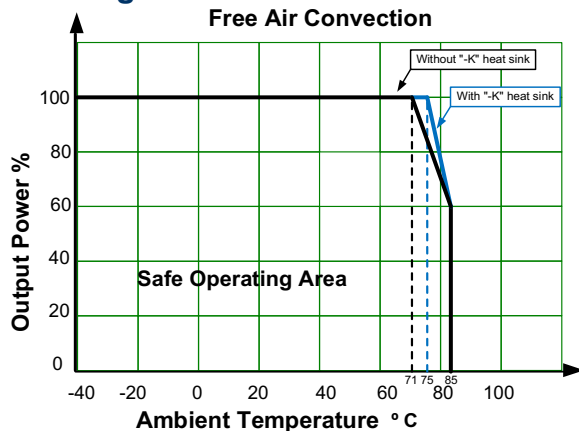
Parameters		
Vibration	Test mode	IEC61373 - Category 1, Grade B

## Safety Specifications

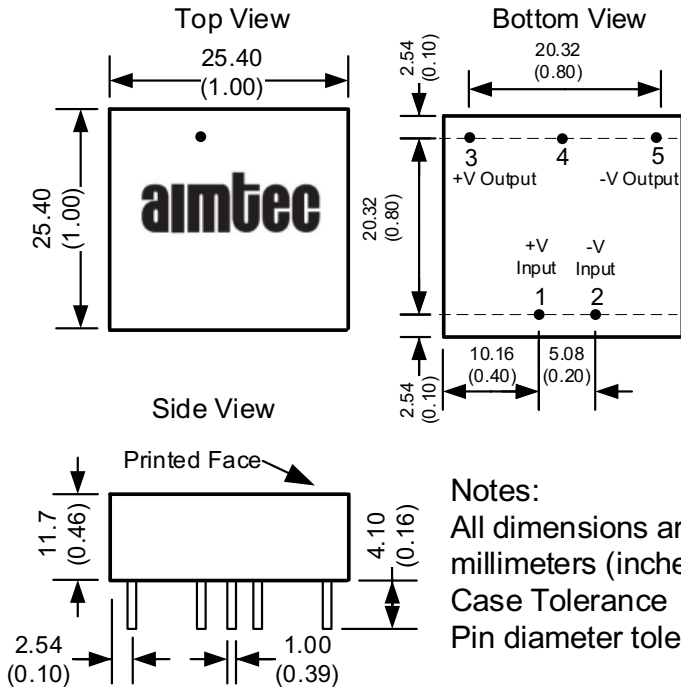
Parameters	
Approvals	CE, UL EN/IEC/UL60950-1 Design to meet EN62368 (except 110Vin single output models), EN50155
EMI - Conducted and radiated emission	EN55032, class A (24 & 48Vin models only, without external components) EN55032, class B (24 & 48Vin models with EMC circuit 3-B) (110Vin models with EMC circuit 1 or 2-B) EN50121-3-2 150kHz-500kHz 99dBuV (24 & 48Vin models with EMC circuit 3-B) * EN55016-2-1 500kHz-30MHz 93dBuV (24 & 48Vin models with EMC circuit 3-B) * EN50121-3-2 30MHz-230MHz 40dBuV/m at 10m (24 & 48Vin models with EMC circuit 3-B) * EN55016-2-1 230MHz-1GHz 47dBuV/m at 10m (24 & 48Vin models with EMC circuit 3-B) *
Electrostatic Discharge Immunity	IEC61000-4-2, Contact ±4KV, Criteria B (24 & 48Vin models only) IEC61000-4-2, Contact ±6KV, Air ±8KV, Criteria B (110Vin models only) EN50121-3-2 Contact ±6KV, Air ±8KV, Criteria A (24 & 48Vin models only) EN50121-3-2 Contact ±6KV, Air ±8KV, Criteria B (110Vin models only) *
RF, Electromagnetic Field Immunity	IEC61000-4-3, 10V/m, Criteria A (24 & 48Vin models only) IEC61000-4-3, 20V/m, Criteria A (110Vin models only) EN50121-3-2 20V/m, Criteria A *
Electrical Fast Transient/Burst Immunity	IEC61000-4-4, ±2KV, Criteria B (24 & 48Vin models only, with EMC circuit 3-A) IEC61000-4-4, ±4KV, Criteria B (110Vin models only, with EMC circuit 1 or 2-A) EN50121-3-2 ±2kV, 5/50ns, 5KHz, Criteria A (24 & 48Vin models with EMC circuit 3-A) *
Surge Immunity	IEC61000-4-5, L-L ±2KV, Criteria B, (24 & 48Vin models only, with EMC circuit 3-A) IEC61000-4-5, L-L ±2KV, L-G ±4KV, Criteria B (110Vin models only, with EMC circuit 1) EN50121-3-2 L-L ±1KV (42Ω 0.5μF) (24 & 48Vin models only, with EMC circuit 3-A) EN50121-3-2 L-L ±1KV (42Ω 0.5μF), L-G ±2KV (42Ω 0.5μF), Criteria B (110Vin models only) *
RF, Conducted Disturbance Immunity	IEC61000-4-6, 3 Vrms, Criteria A (24 & 48Vin models only) IEC61000-4-6, 10 Vrms, Criteria A (110Vin models only) EN50121-3-2 0.15MHz-80MHz 10Vr.m.s, Criteria A*
Voltage dips, short interruptions, and voltage variations	IEC61000-4-29, 0-70%, Criteria B (24 & 48Vin models only)

\* For 110Vin models, EN50155, EN50121-3-2 and EN55016-2-1 are measured with a 100μF/200V input capacitor or AMFW72-13NZ.

## Derating

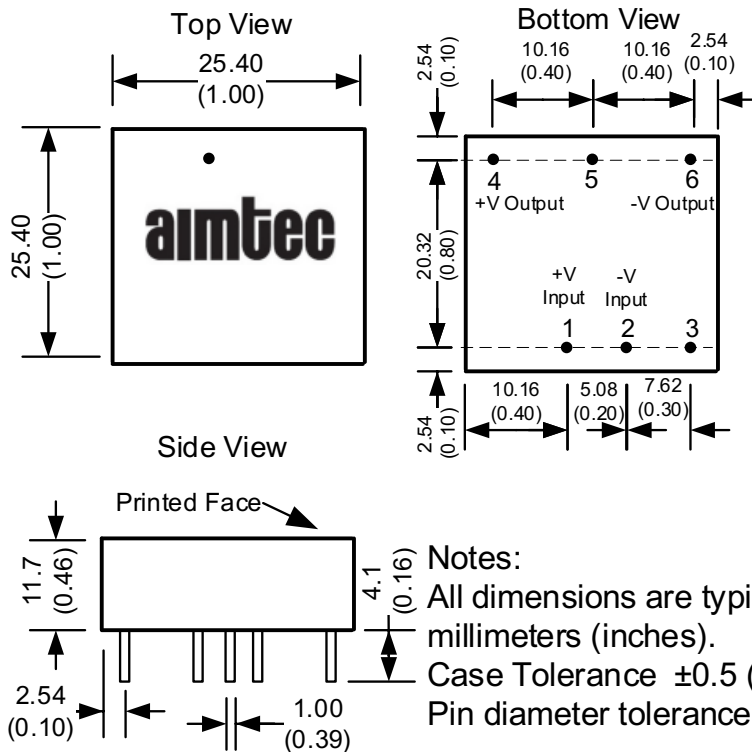


**Dimensions**  
24, 48Vin models



**Notes:**  
All dimensions are typical in millimeters (inches).  
Case Tolerance  $\pm 0.5$  ( $\pm 0.02$ )  
Pin diameter tolerance  $\pm 0.1$  ( $\pm 0.004$ )

**110Vin models**



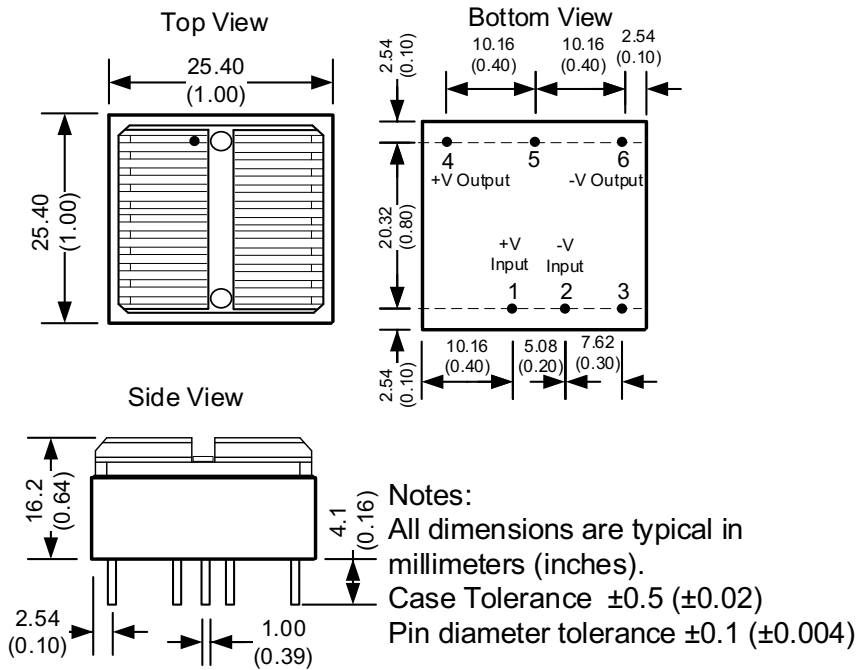
**Notes:**  
All dimensions are typical in millimeters (inches).  
Case Tolerance  $\pm 0.5$  ( $\pm 0.02$ )  
Pin diameter tolerance  $\pm 0.1$  ( $\pm 0.004$ )

**Pin Out Specifications**

24, 48Vin models		
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	No pin	Common
5	-V Output	-V Output

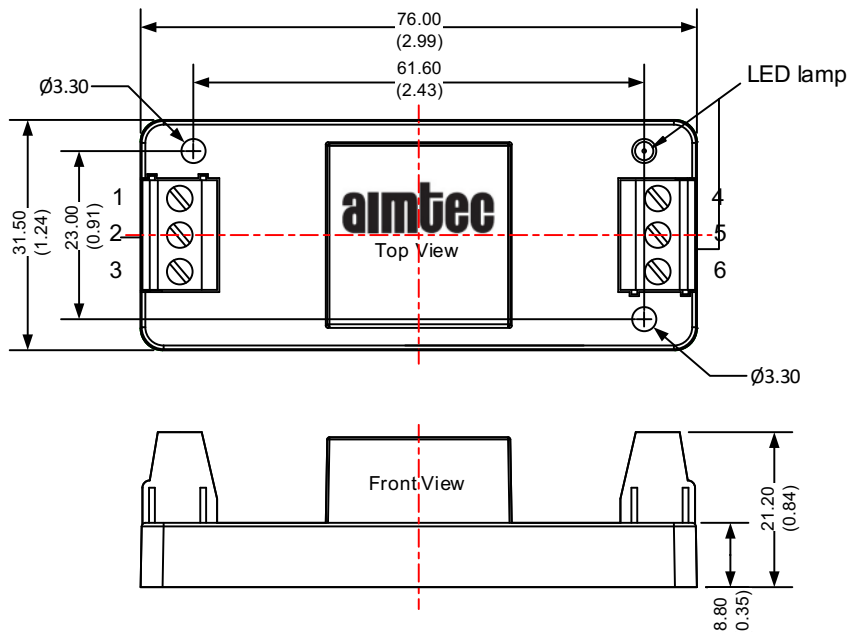
110Vin models		
Pin	Single	Dual
1	+ V input	+ V input
2	- V input	- V input
3	No pin	On/Off Control
4	+ V output	+ V output
5	No pin	Common
6	- V output	- V output

**Heatsink Option: AM6CW-NZ-K**  
110Vin models



110Vin models		
Pin	Single	Dual
1	+ V input	+ V input
2	- V input	- V input
3	No pin	On/Off Control
4	+ V output	+ V output
5	No pin	Common
6	- V output	- V output

**Screw Terminal Option: AM6CW-NZ-ST**

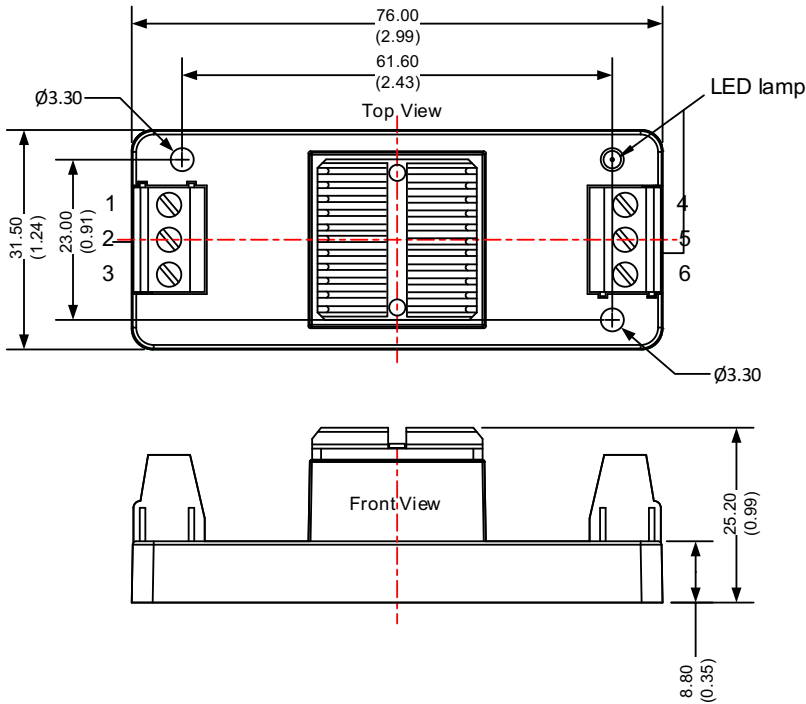


**Note:**  
Unit: mm (inch)  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

24, 48Vin models		
Pin	Single	Dual
1	NC	NC
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

110Vin models		
Pin	Single	Dual
1	NC	On/Off Control
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

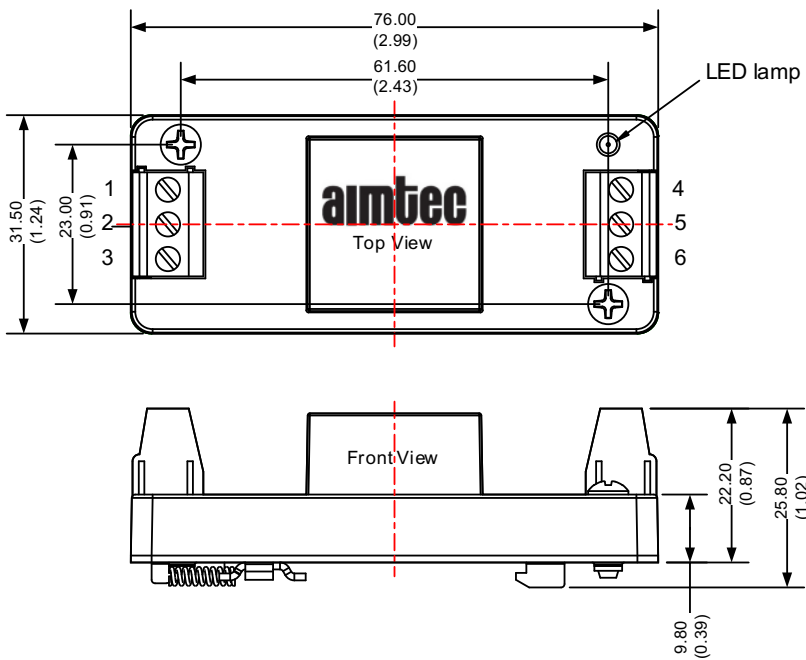
**Screw Terminal with heatsink Option: AM6CW-NZ-K-ST**



110Vin models		
Pin	Single	Dual
1	NC	On/Off Control
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

Note:  
Unit: mm (inch)  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances: ±0.50 (±0.02)

**DIN-RAIL Option: AM6CW-NZ-STD**

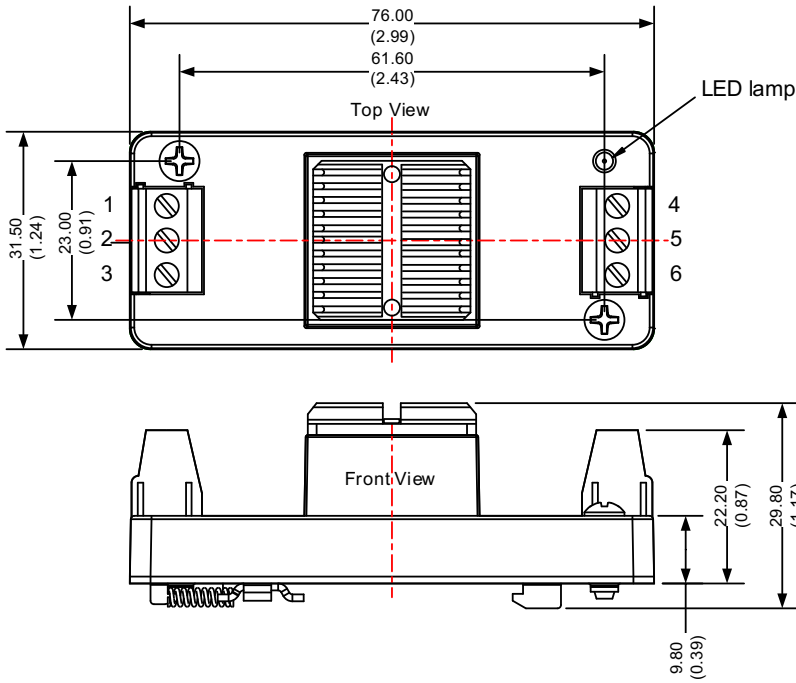


24, 48Vin models		
Pin	Single	Dual
1	NC	NC
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

110Vin models		
Pin	Single	Dual
1	NC	On/Off Control
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

Note:  
Unit: mm (inch)  
Mounting rail: TS35  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances: ±0.50 (±0.02)

**DIN-RAIL with heatsink Option: AM6CW-NZ-K-STD**



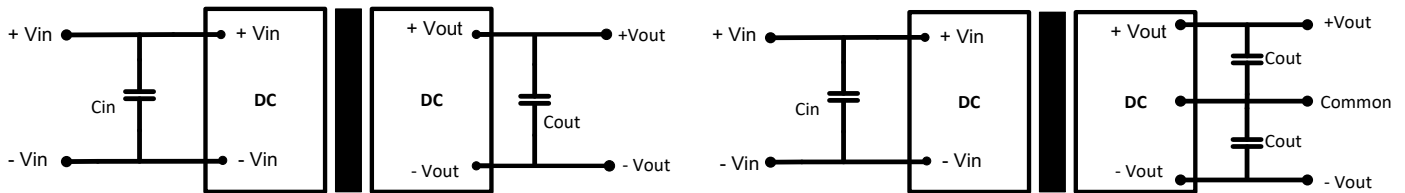
110Vin models		
Pin	Single	Dual
1	NC	On/Off Control
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	NC	Common
6	+V Output	+V Output

Note:  
Unit: mm (inch)  
Mounting rail: TS35  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances: ±0.50 (±0.02)

**Typical application circuit**

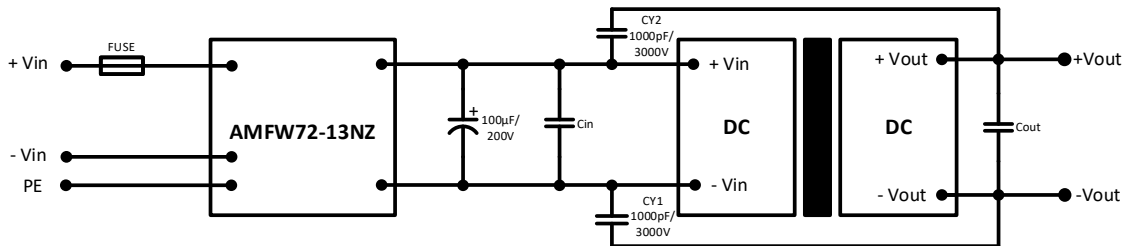
**Single output models**

**Dual output models**

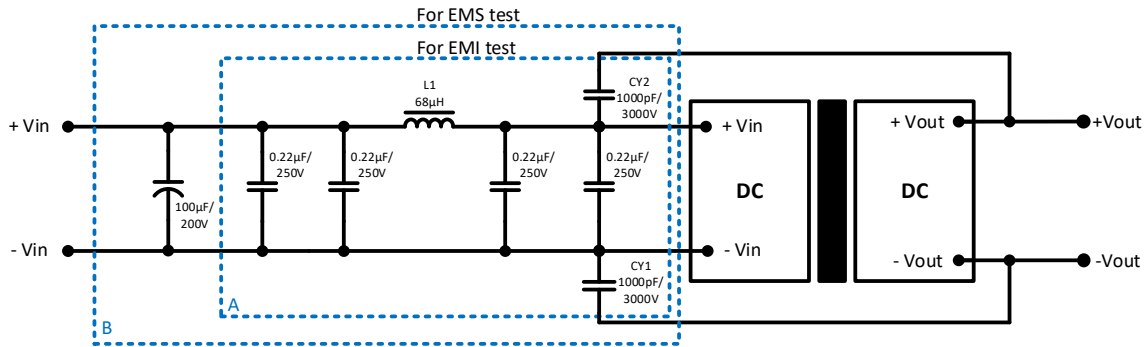


Vin	Cin	Cout
24V	100µF	10µF
48V, 110V	10-47µF	10µF

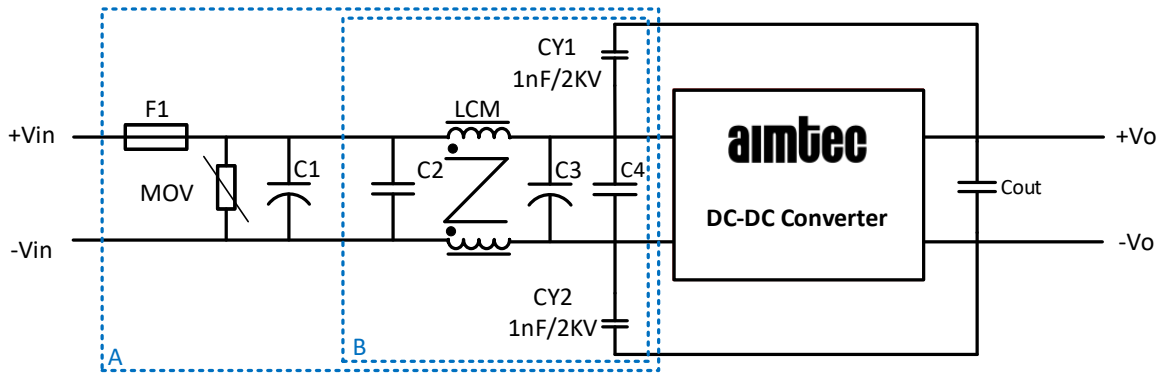
**Recommended EMC circuit 1 (110Vin models)**



**Recommended EMC circuit 2 (110Vin models)**



**Recommended EMC circuit 3 (24 & 48 Vin 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
48V	S14K60	680 µF / 100V	1 µF / 100V	330 µF / 100V	4.7 µF / 100V	4.7mH

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