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AME60-VZ



Encapsulated

The new AME60-VZ is a brand-new AC/DC converter that offers much greater cost effectiveness due to material normalization and production automation also leading to improved reliability and performance. Offering a commercial input voltage range of 85-264VAC and an output voltage range from 5-48V, this series will offer many benefits to your new system design.

This new series offers great operating temperatures, from -40°C to 70°C with full power up to 55°C depending on models also features a 4000VAC isolation for improved reliability and system safety.

Furthermore, a higher MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) and an output over-voltage protection (OVP) come standard with the series.

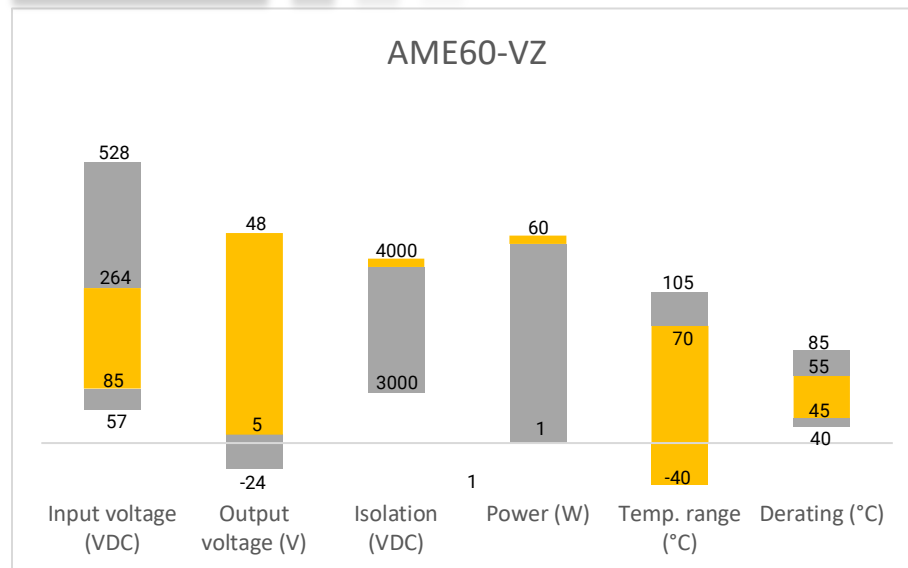
The AME60-SVZ is suitable for street lighting controls, grid power, instrumentation, industrial controls and communication applications.

Features

- Universal Input: 85 - 264VAC/100 - 370VDC
- Operating temperature range: -40°C to +70°C
- High isolation voltage: 4000VAC
- Regulated output, Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- EMI performance meets CISPR32/EN55032 CLASS B
- Approval UL62368-1; designed to meet IEC/EN62368-1 standards



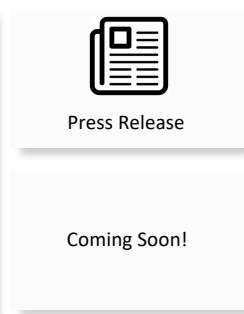
Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid



Industrial



Telecom



Instrumentation

Models & Specifications

Single Output							
Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load (μF)	Efficiency @ 230VAC (%)
AME60-5SVZ	85-264/47-63	100-370	50	5	10	50,000	82
AME60-12SVZ	85-264/47-63	100-370	60	12	5	10,000	86
AME60-15SVZ	85-264/47-63	100-370	60	15	4	8,000	86
AME60-24SVZ	85-264/47-63	100-370	60	24	2.5	2,700	86
AME60-48SVZ	85-264/47-63	100-370	60	48	1.25	680	86

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME60-5SVZ-ST is chassis mounting and AME60-5SVZ-STD is DIN-Rail mounting version).

Input Specifications					
Parameters	Conditions	Minimum	Typical	Maximum	Units
Current	115VAC			1.4	A
	230VAC			0.8	A
Inrush current <2ms (cold start)	115VAC		45		A
	230VAC		90		A
Leakage current				0.25	mA
External fuse	slow blow type	3.15			A

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Line regulation	Full load	±0.5		%
Load regulation	0-100% load	±1		%
Ripple & Noise*	20MHz bandwidth		150	mV p-p
Hold up time	115VAC	8		ms
	230VAC	65		ms
Voltage adjustment range			±10	%

* Ripple and Noise are measured at 20MHz bandwidth by using the referenced Application circuit.

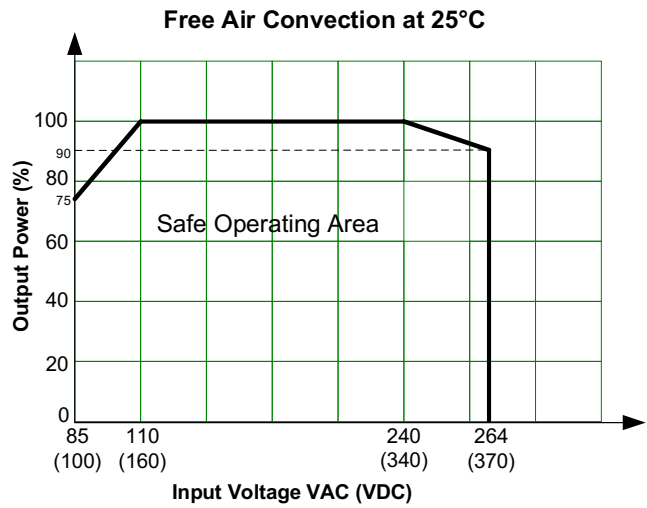
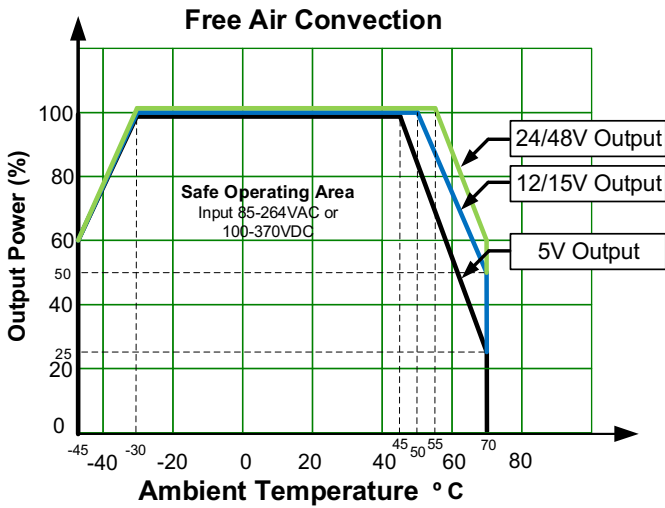
Isolation Specifications				
Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, leakage current < 5mA		4000	VAC

General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Protection class		Class I		
Over Current protection	Auto recovery	≥ 110		% of Iout
Over voltage protection	5V Vout		≤ 9	VDC
	12V Vout		≤ 16	

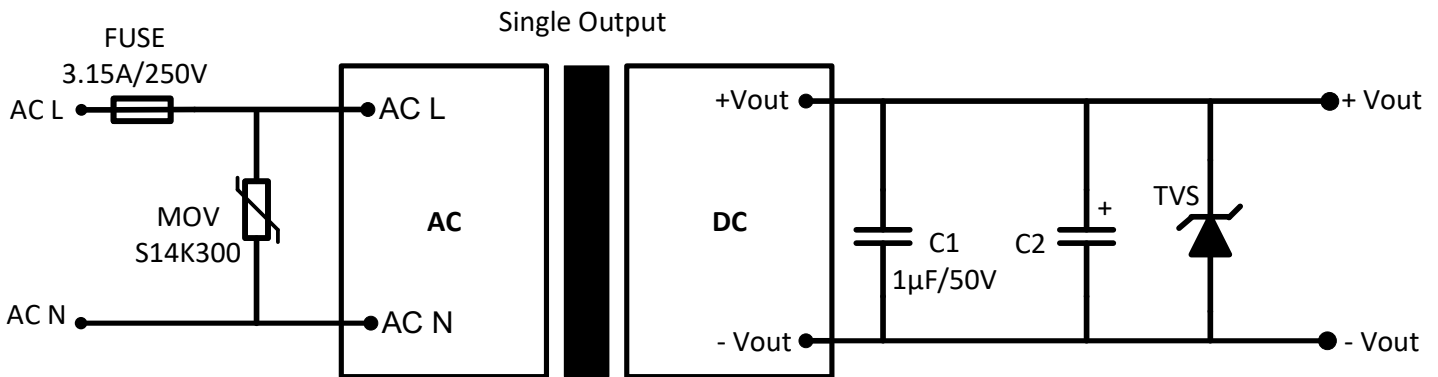
	15V Vout		≤ 24	
	24V Vout		≤ 35	
	48V Vout		≤ 60	
Short circuit protection	Hiccup, Continuous			
Short circuit restart	Auto recovery			
Operating temperature	See derating graph	-40 to +70		°C
Maximum case temperature		100		°C
Storage temperature		-40 to +85		°C
Lead temperature	Wave soldering	260 ± 5 °C; time : 5 - 10s		
	Hand soldering	360 ± 10 °C; time : 3 - 5s		
Power consumption	5V/12V/15V/24V models		0.5	W
	48V model		0.65	
Temperature coefficient		±0.02		% / °C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Weight	PCB mountable models		310	g
	With optional -ST mounting plate:		400	
	With optional -STD mounting plate:		470	
Dimensions (L x W x H)	PCB mountable models	4.29 x 2,30 x 1.18 inches (109.0 x 58.5 x 30.0mm)		
	With optional -ST mounting plate:	5.32 x 2,76 x 1.52 inches (135.0 x 70.0 x 38.5mm)		
	With optional -STD mounting plate:	5.39 x 2,76 x 1.73 inches (137.0 x 70.0 x 44.0mm)		
MTBF	> 300 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load			
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			
Agency approvals	cULus UL 62368-1		
Standards	Information technology Equipment	Design to meet IEC/EN 62368-1	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B	
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV / Air ±8KV, Criteria B	
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A	
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±4KV, Criteria B	
	Surge Immunity	IEC 61000-4-5 L-L ±2KV/L-G ±4KV, with typical application circuit, Criteria B	
		IEC 61000-4-5 L-L ±4KV/L-G ±6KV, with EMC recommended circuit, Criteria B	
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 10Vr.m.s, Criteria A	
Voltage dips, Short Interruptions Immunity	IEC 61000-4-11 0%, 70%, Criteria B		

Derating



Typical Application Circuit

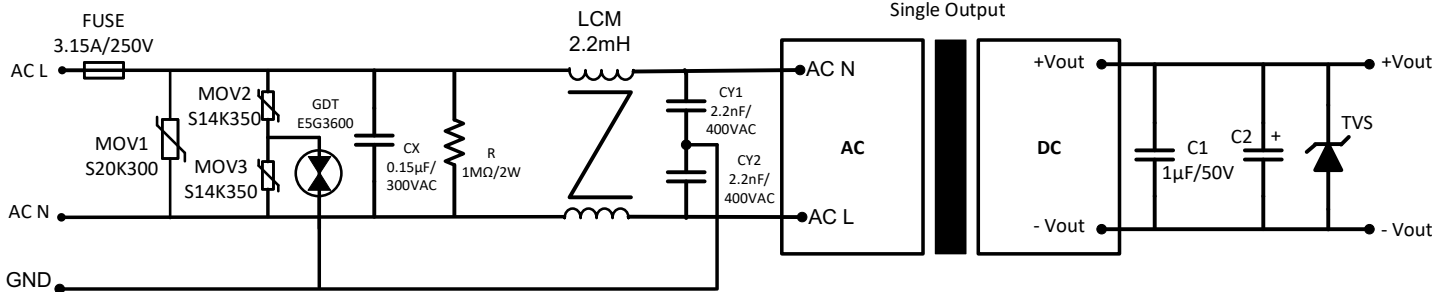


Model	C2	TVS
5 Vout	680 µF / 10V	7V
12 / 15 Vout	330 µF / 25V	20V
24 Vout	200 µF / 35V	30V
48 Vout	100 µF / 63V	64V

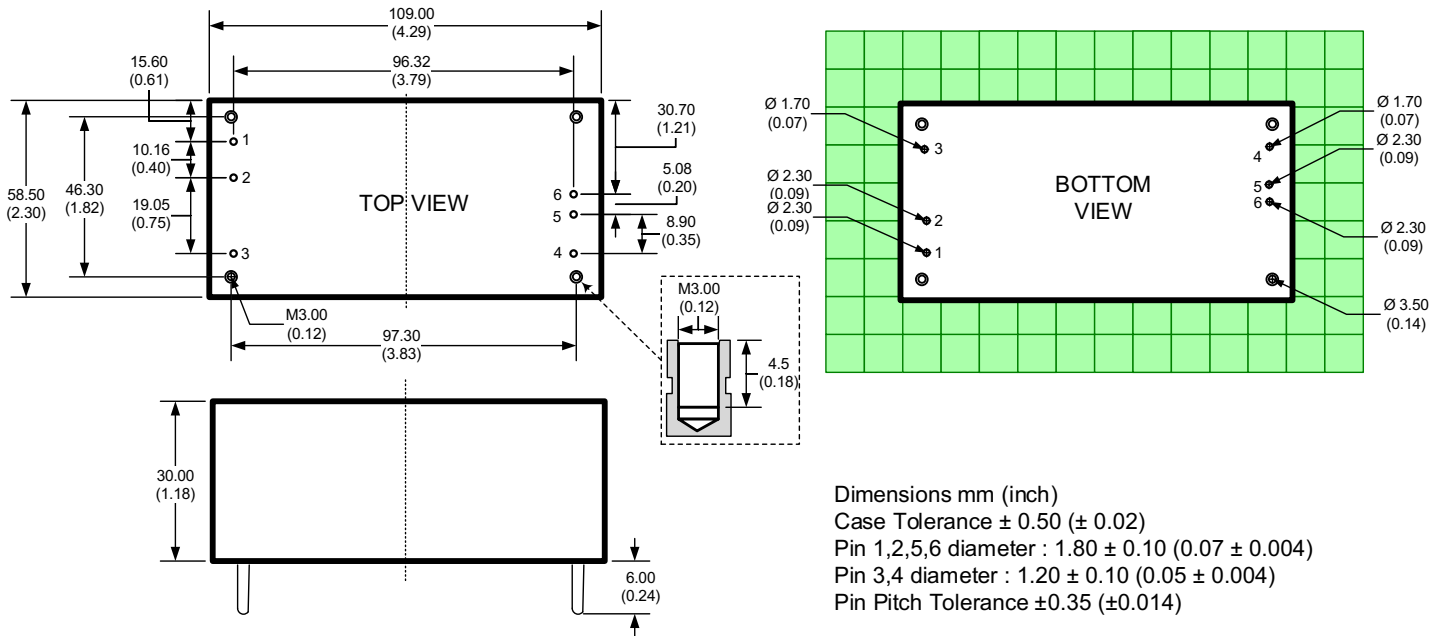
Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

EMC Recommended Circuit



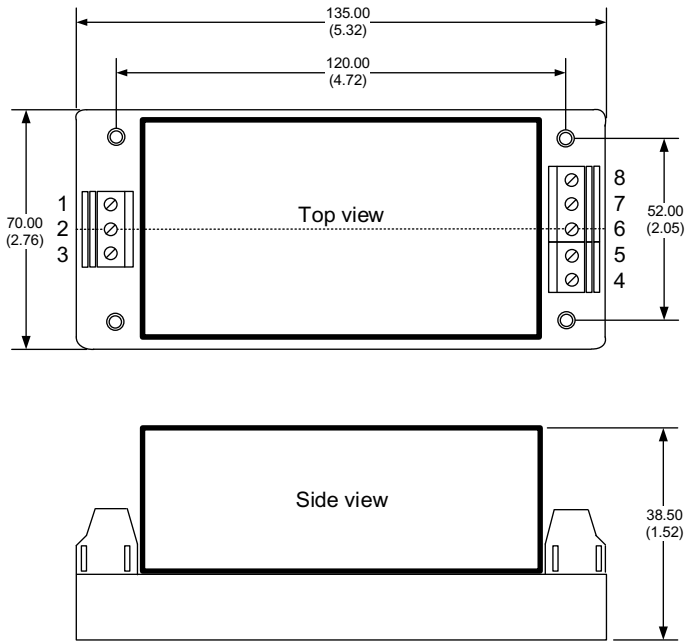
Dimensions



Pin Output Specifications

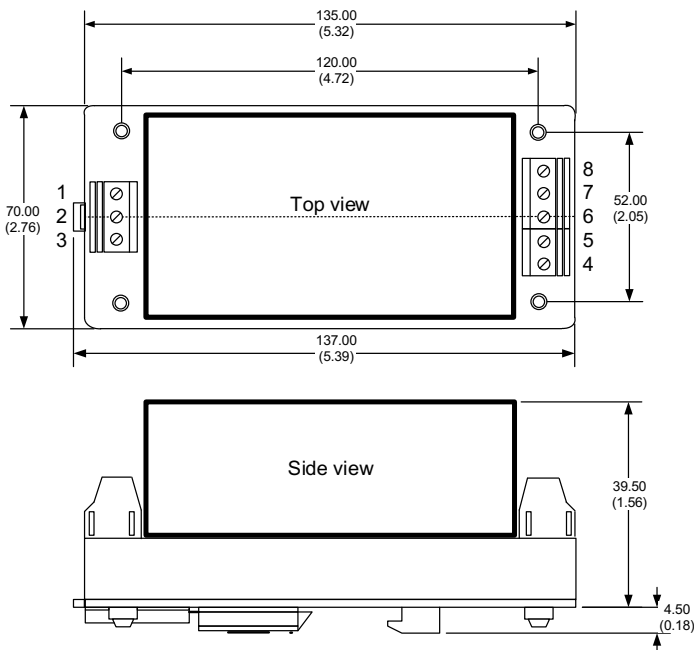
Pin	Single
1	AC Input (N)
2	AC Input (L)
3	GND
4	Trim
5	-V Output
6	+V Output

Dimensions with ST Optional



Pin Output Specifications	
Pin	Single
1	AC Input (N)
2	AC Input (L)
3	GND
4	Trim
5	-V Output
6	+V Output
7	NC
8	NC

Dimensions with STD Optional



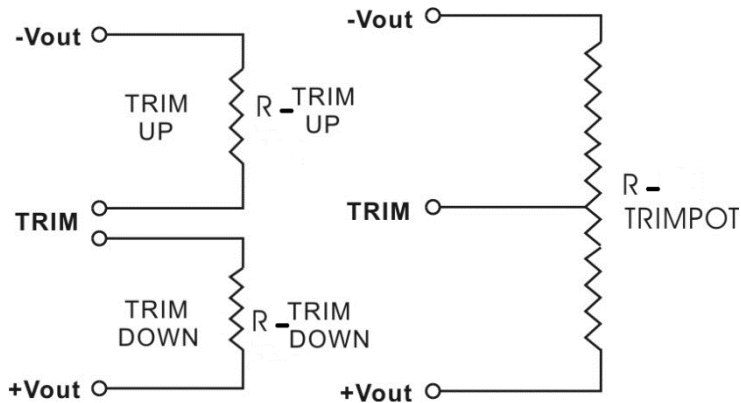
Pin Output Specifications	
Pin	Single
1	AC Input (N)
2	AC Input (L)
3	GND
4	Trim
5	-V Output
6	+V Output
7	NC
8	NC

Trimming



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

Fixed Resistor Variable Potentiometer



Leave open if not used.

AME60-5SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (KΩ)	160.7	78.2	50.7	36.95	28.7	23.2	19.271	16.325	14.033	12.2
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (KΩ)	164	81.5	54	40.25	32	26.5	22.571	19.625	17.333	15.5

AME60-12SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	183.233	111.59	79.474	61.246	49.499	41.299	35.249	30.602	26.921	23.933
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	211.778	57.03	32.596	22.642	17.238	13.845	11.516	9.819	8.527	7.511

AME60-15SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	616.5	304	199.833	147.75	116.5	95.667	80.786	69.625	60.944	54
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	124	61.5	40.667	30.25	24	19.833	16.857	14.625	12.889	11.5

AME60-24SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	471.081	287.942	205.845	159.249	129.221	108.26	92.793	80.914	71.504	63.865
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	239.556	64.606	36.982	25.728	19.619	15.783	13.15	11.232	9.771	8.622

AME60-48SVZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	471.081	287.942	205.845	159.249	129.221	108.26	92.793	80.914	71.504	63.865
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	239.556	64.606	36.982	25.728	19.619	15.783	13.15	11.232	9.771	8.622

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