RHENXV
Your Vision, Our Solutions

AC - DC CONVERTERS

10 WATTS

ACE10W-xxV

UK CA CE RoHS

FEATURES

- Ultra-wide voltage input range
- Low no-load power consumption
- Protection: Short Circuit/Over Current/ Over Voltage
- Super Small Design
- Low Ripple & Noise, high efficiency
- 3 years warranty

ACE10W-xxV series is super small size up to 1.57*1 inch, adopting the full range: 85-305VAC/100-430VDC input. The series has extremely low no-load power consumption, high efficiency to reduce power loss. The series cost-effective, high reliability, operates from -40°C To +85°C . A variety of appearance sizes are available for easy installation and use. These converters offer excellent EMC performance and meet international standards. They are widely used in areas of industrial design, household appliances, communications, testing instruments.

MODEL NUMBERING

ACE10W-xxV

- Series Name
- Enclosed
- Rated Wattage
- Output Voltage

SELECTION GUIDE

Product Model	DC Voltage (VdC)	Rated Current (A)	Rated Power (W)	Max.Capacitive Load (uF)
ACE10W-03V	3.3	2600	8.58	6600
ACE10W-05V	5	2000	10	5000
ACE10W-09V	9	1100	9.9	3600
ACE10W-12V	12	830	9.96	2000
ACE10W-15V	15	660	9.9	820
ACE10W-24V	24	410	9.84	470

Note : Add Suffix "ST" for Panel Mount & Suffix "DT" for Din Mount

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INPUT

Parameter	Units	Model
RATED VOLTAGE RANGE	100-277VAC	
VOLTAGE RANGE	85-305VAC/100-430VDC	
FREQUENCY RANGE	47-63Hz	
AVERAGE EFFICIENCY(TYP.)	74.0%	ACE10W-03V
	79.0%	ACE10W-05V
	81.0%	ACE10W-09V
	83.5%	ACE10W-12V
	83%	ACE10W-15V
	84%	ACE10W-24V
AC CURRENT(TYP.)	0.23A/115VAC	
	0.15A/230VAC	
INRUSH CURRENT(TYP.)	COLD START 80A AT 230VAC 50HZ	
	COLD START 25A AT 115VAC 50HZ	
LEAKAGE CURRENT	<0.1mA/277VAC	

OUTPUT

Parameter	Units
RIPPLE & NOISE (MAX.)	100mVp-p
VOLTAGE TOLERANCE	±2.0%
LINE REGULATION	±0.5%
LOAD REGULATION	±1.0%
SETUP, RISE, HOLD UP TIME	1.0s,30ms,40ms/230VAC(at full load)
	1.5s,30ms,8ms/115VAC(at full load)

Protection

Parameter	Units
OVER LOAD	>110%
	Shut down o/p voltage, recovers automatically after fault condition is removed.
SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.
OVER VOLTAGE	3.3V : 3.8~9VDC
	5V : 5.5~9VDC
	9V : 10~16VDC
	12V : 13~15VDC
	15V : 17~24VDC
	24V : 26~34VDC
	Output voltage clamp or Hiccup mode

Environment

Parameter	Units
WORKING TEMP.	-40°C To +85°C (Refer to "Derating Curve".)
WORKING HUMIDITY	20 ~ 95% RH Non-condensing
STORAGE TEMP. HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH Non-condensing
TEMP. COEFFICIENT	±0.02%/(0 ~ 40°C)
VIBRATION	PCB Mounting: 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes
	Terminal Blocks: 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes
SOLDERING TEMPERATURE	Wave soldering:260°C,10s(max.); Manual soldering:370°C,5s(max.)
OVER VOLTAGE CATEGORY	OVC II; According to EN61558-1; altitude up to 4000 meters
SAFETY PROTECTION	Class II

SAFETY & EMC

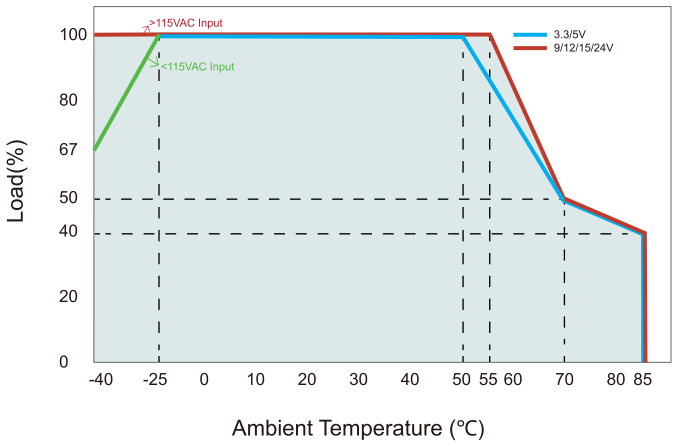
Parameter	Units		
SAFETY STANDARDS	IEC62368-1, EN IEC62368-1 approved		
WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/1min		
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH		
EMC EMISSION	**Parameter**	**Standard**	**Test Level/Note**
	Conducted	EN IEC55032	CLASS B
	Radiated	EN IEC55032	CLASS B
	Harmonic Current/Note5	EN61000-3-2	CLASS A
	Voltage Flicker	EN61000-3-3	.....
EMC IMMUNITY	EN IEC55035		
	Parameter	**Standard**	**Test Level/Note**
	ESD	EN61000-4-2	Level 3, 8KV air,Level 2, 4KV contact criteria A
	Radiated Susceptibility	EN61000-4-3	10V/m, criteria A
	EFT/Burst	EN61000-4-4	±2KV, criteria A
			±4KV, criteria A (Consider figure 2 or 3)
	Surge	EN61000-4-5	±1KV/L-L, criteria A
			±2KV/L-L, criteria A (Consider figure 2 or 3)
	Conducted	EN61000-4-6	10Vr.m.s, criteria A
	Magnetic Field	EN61000-4-8	10A/m, criteria A
	Voltage Dips and interruptions	EN61000-4-11	> 95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods

DIMENSION, WEIGHT & PACKING

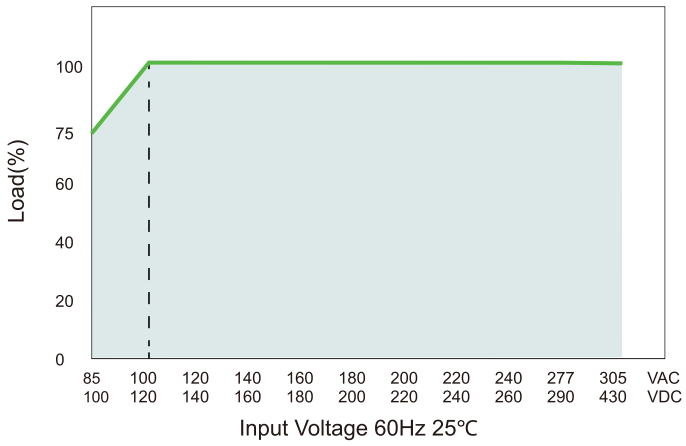
Parameter	Units
Weight	PCB Mounting: 34g/pcs; Terminal Blocks: 54g/pcs;
Packing	PCB Mounting: 42.5 × 34.5 × 16cm 200pcs/Carton;
	Terminal Blocks: 57 × 27 × 19cm 100pcs/Carton
Dimension (LxWxH)	PCB Mounting: 40 × 25.4 × 21 mm
	Terminal Blocks: 75.8 × 31.3 × 29.7 mm
Housing material	Plastic / UL94-V0
MTBF	300Khrs min. MIL-HDBK-217F(25°C)

ENGINEERING DATA

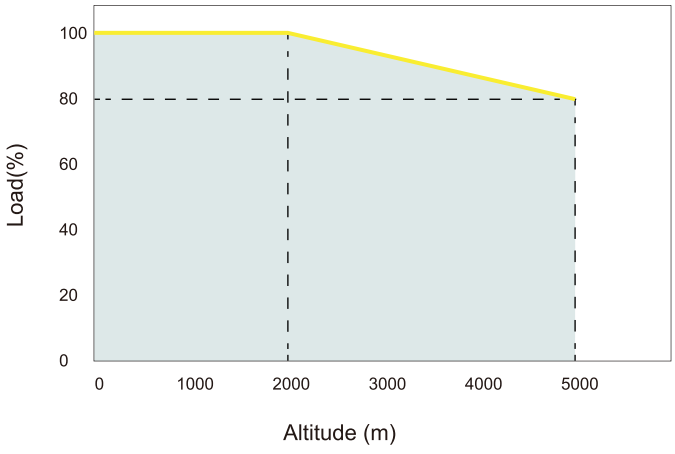
Derating Curve



Static Characteristics



Altitude Derating Curve

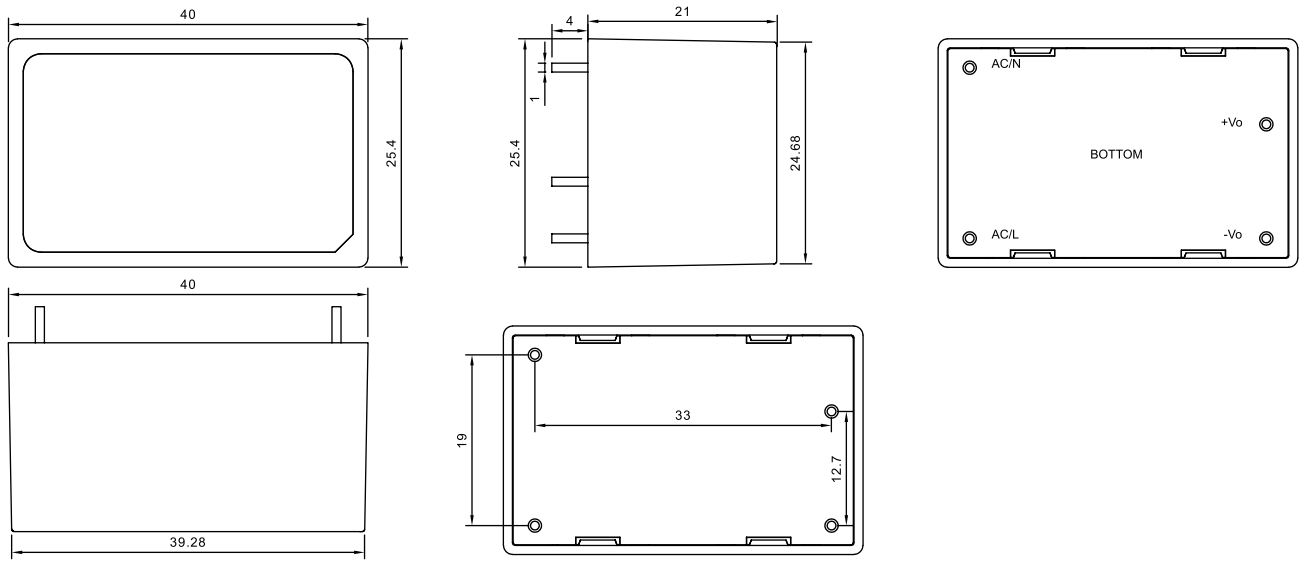


Note：1.With anAC input between 85-115VAC and a DC input between 100-165VDC, the output power must be derated as per temperature deratingcurves.

2.This product is suitable for applications using natural air cooling.

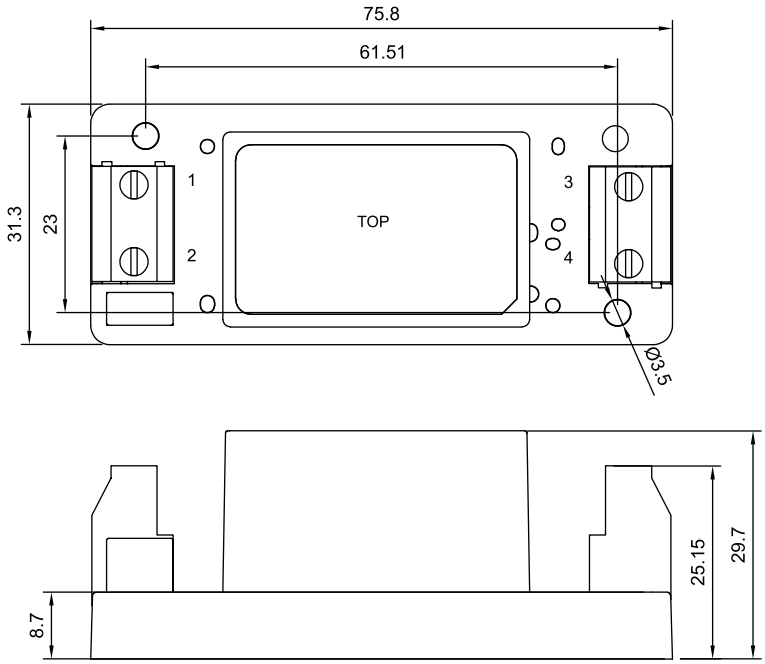
Dimensions and Installation (ACE10W-xxV)

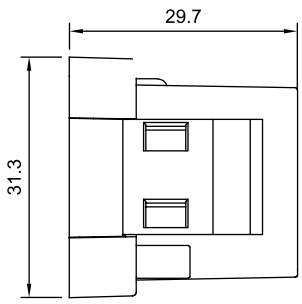
(Unit: mm , tolerance: ±0.5mm)



DIMENSIONS AND INSTALLATION (ACE10W-xxVST)

(Unit: mm , tolerance: ±0.5mm)





Pin Mode

Pin	Function
1	AC/N
2	AC/L
3	+VO
4	-VO

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.

2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.

3. The ambient temperature derating of 3.5°C/1000m with fan less models and of 5 °C/1000m with fan models for operating altitude higher than 2000m (6500ft).

4. The power supply is considered as an independent unit ,but the final equipment still need to re-confirm that the whole system complies with the EMC directives.

5. If the product is not operated within the required load range the product performance cannot be guaranteed to comply with all parameters in the datasheet.

6.When the output terminal of the product needs to be connected to PE through a Y capacitor, or close to the metal frame, please refer to the Fig. 3 for recommended circuit.

7.Unless otherwise specified, EMC performance indicators are tested according to typical application circuits (Fig. 1)

DESIGN REFERENCE

1.Typical application

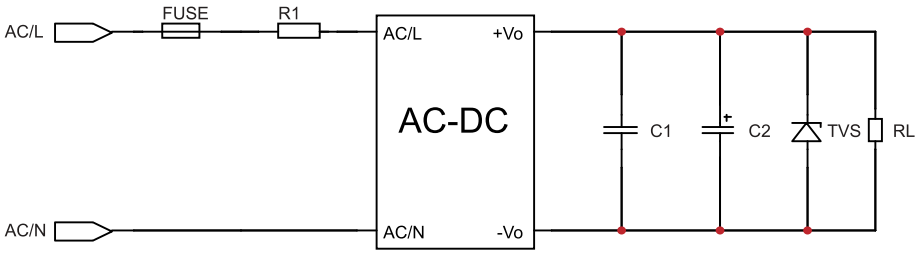


Fig.1:Typical circuit diagram

Product model	FUSE	R1	C1	C2	TVS
ACE10W-03V	2A/300V,Slow fuse, must be connected	6.8Ω /3W(Wire wound resistor, must be connected)	1uF/50V	220uF/16V	SMBJ7.0A
ACE10W-05V				220uF/16V	SMBJ7.0A
ACE10W-09V				100uF/25V	SMBJ12A
ACE10W-12V				100uF/25V	SMBJ20A
ACE10W-15V				100uF/25V	SMBJ20A
ACE10W-24V				100uF/35V	SMBJ30A

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a Capacitor voltage rating with at least 20% margin. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2.EMC Solution - Recommended circuit

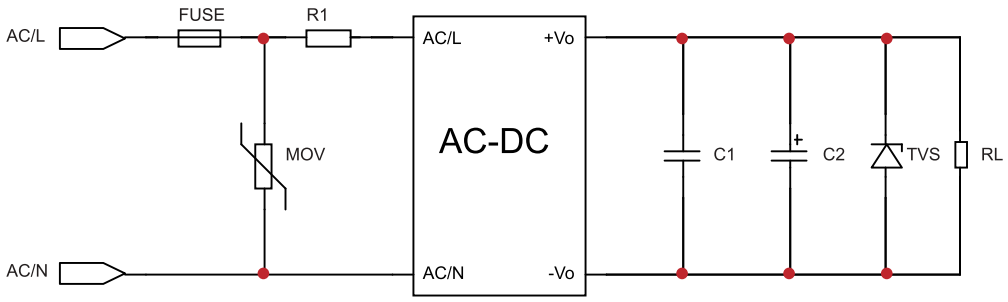


Figure 2:EMC application circuit with higher requirements

Component Type	Recommended Value
MOV	14D561K

3.EMC Solution - Recommended circuit

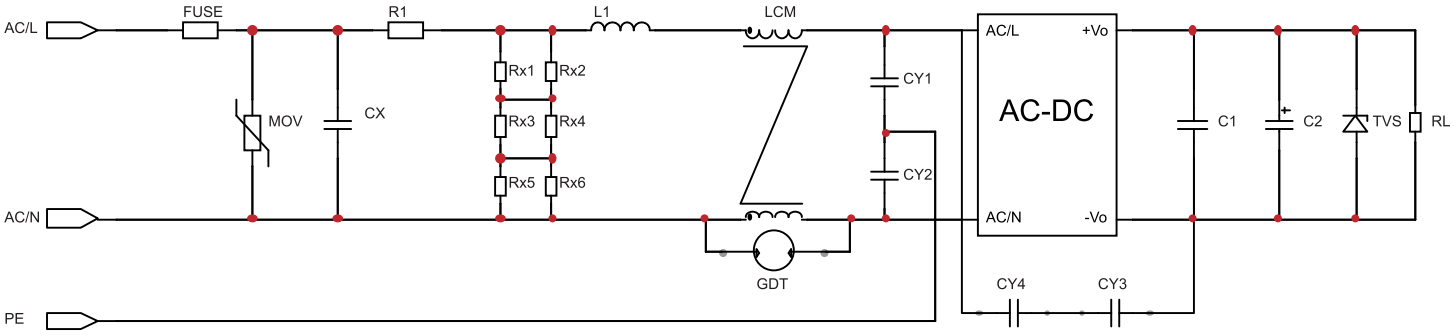


Figure 3 : category I device recommendation circuit

(Recommended when the output end of the product needs to be connected to PE or connected to PE through a Y capacitor)

Component Type	Recommended Value
FUSE	2A/300V Slow fuse, must be connected
MOV	14D561K
CX	334K/305VAC
R1	33Ω/3W(Winding resistor, must be connected)
L1	1.2mH/0.3A
CY1/CY2/CY3/CY4	1nF/400VAC
GDT	300V/1KA
LCM	20mH
Note:Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleed resistance of CX, the recommended resistance value is 1.5MΩ/150VDC	