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## AME10-CVZ



Encapsulated

The AME10-CVZ is a compact AC/DC converter that offers a commercial input voltage range of 85-264VAC and multiple outputs ranging from 5 / 24 to ±15V.

This series offers great operating temperatures of -40°C to 70°C with full power throughout the entire range. It also features an isolation of 4000VAC for improved reliability and system safety, a high 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.

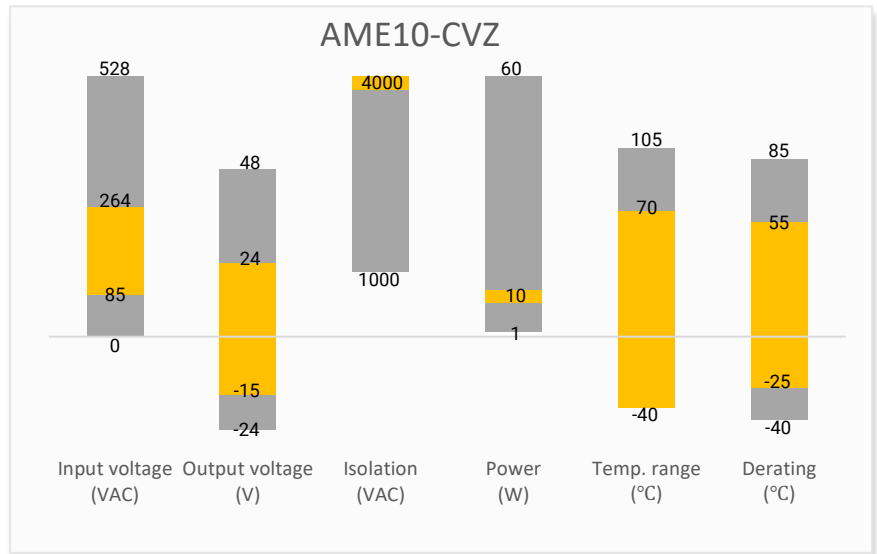
The AME10-CVZ is great for grid power, instrumentation, industrial controls, communication and civil applications.

## Features

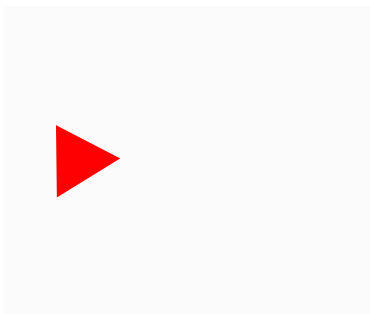


- Universal Input: 85 - 264VAC/100 - 370VDC
- Operating Temp: -40 °C to +70 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 130mV(p-p), Max.
- Output short circuit, over-current, over-voltage protection
- Regulated Output

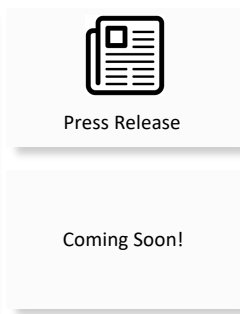
## Summary



## Training



Product Training Video  
(click to open)



Application Notes

## Applications



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

### Dual 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 (%)
				Vout 1	Vout 2	Iout 1	Iout 2	Vout 1	Vout 2	
AME10-5DCVZ	85-264/47-63	100-370	10	5	-5	1	-1	8800	8800	76
AME10-12DCVZ	85-264/47-63	100-370	10	12	-12	0.45	-0.45	1970	1970	80
AME10-15DCVZ	85-264/47-63	100-370	10	15	-15	0.35	-0.35	1970	1970	81

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME10-5DCVZ-ST is chassis mounting and AME10-5DCVZ-STD is DIN-Rail mounting version).

### Triple 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 (%)
				Vout 1	Vout 2	Iout 1	Iout 2	Vout 1	Vout 2	
AME10-512TCVZ	85-264/47-63	100-370	9.8	5	±12	1	±0.2	3200	±260	75
AME10-515TCVZ	85-264/47-63	100-370	10.5	5	±15	0.9	±0.2	2100	±80	75

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME10-512TCVZ-ST is chassis mounting and AME10-512TCVZ-STD is DIN-Rail mounting version).

### Dual Separated 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 (%)
				Vout 1	Vout 2	Iout 1	Iout 2	Vout 1	Vout 2	
AME10-505DCVZ	85-264/47-63	100-370	10	5	5	1.8	0.2	8000	540	75
AME10-512DCVZ	85-264/47-63	100-370	10	5	12	1.5	0.2	4400	260	78
AME10-515DCVZ	85-264/47-63	100-370	10	5	15	1.4	0.2	4400	170	79
AME10-524DCVZ	85-264/47-63	100-370	10	5	24	1	0.2	4000	170	80

Note: Use suffix "ST" for chassis and suffix "STD" for DIN-Rail mounting (ex. AME10-505DCVZ-ST is chassis mounting and AME10-505DCVZ-STD is DIN-Rail mounting version).

### Input Specifications

Parameters	Conditions	Minimum	Typical	Maximum	Units
Current	115VAC			0.26	A
	230VAC			0.16	A
Inrush current	115VAC		13		A
	230VAC		23		A
External fuse	slow blow type,250V		1		A

Output Specifications					
Parameters	Conditions		Typical	Maximum	Units
Voltage accuracy	Vout 1		±2		%
	Vout 2		±10		%
Line regulation	Full load	Vout 1	±0.5		%
		Vout 2	±1.5		%
Load regulation	10-100% load	Dual separated output models	Vout 1	±3	%
			Vout 2	±5	%
		Dual output models		±2	
Ripple & Noise*	20MHz bandwidth	Dual 12,15V output		130	mV p-p
		Others		100	mV p-p
Hold up time	115VAC		8		ms
	230VAC		60		ms

\* 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	All models		4000	VAC
Tested Input to GND voltage				2500	VAC
Tested Vout 1 to Vout 2 voltage		Dual separated output models		500	VDC

General Specifications					
Parameters	Conditions		Typical	Maximum	Units
Safety class	Class I				
Switching Frequency			100		KHz
Over current protection	Auto recovery	Triple output models	≥ 130		% of Iout
		Others	≥ 150		% of Iout
Over voltage protection	Vout 1	5V Vout		7.5	VDC
		12V,15V Vout		20	VDC
Short circuit protection	Hiccup, Continuous, Auto recovery				
Operating temperature	See derating graph		-40 to +70		°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 derating	-40 °C ~ -25 °C		2.5		% / °C
	55 °C ~ 70 °C		3.3		% / °C
	85VAC ~ 100VAC		1		% / VAC
Temperature coefficient	Vout 1		±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		75		g
	With optional -ST mounting plate:		130		
	With optional -STD mounting plate:		170		
Dimensions (L x W x H)	PCB mountable models		2.17 x 1.77 x 0.83 inches (55.0 x 45.0 x 21.0mm)		
	With optional -ST mounting plate:		3.78 x 2.13 x 1.16 inches (96.1 x 54.0 x 29.5mm)		
	With optional -STD mounting plate:		3.78 x 2.13 x 1.34 inches (96.1 x 54.0 x 34.1mm)		
MTBF	> 300 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load				

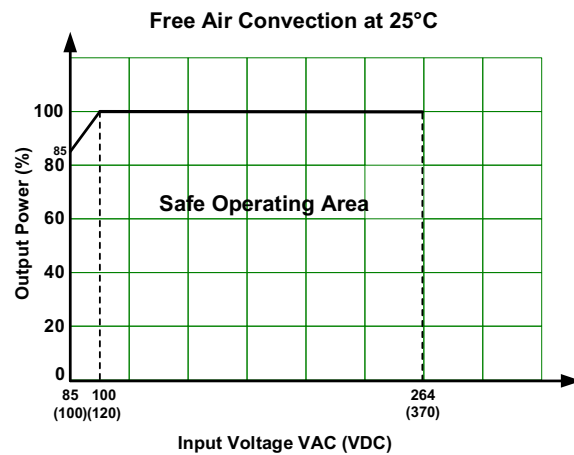
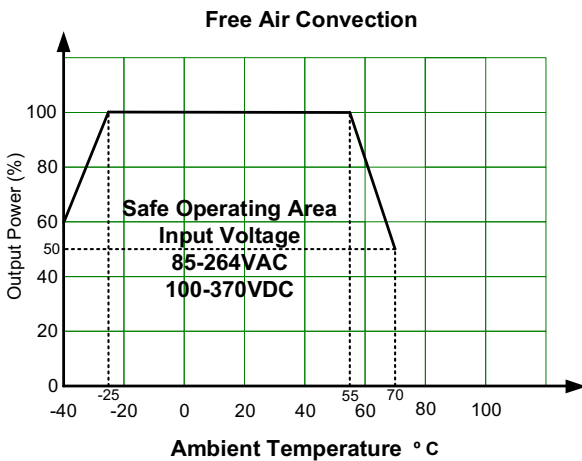
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

## Safety Specifications

### Parameters

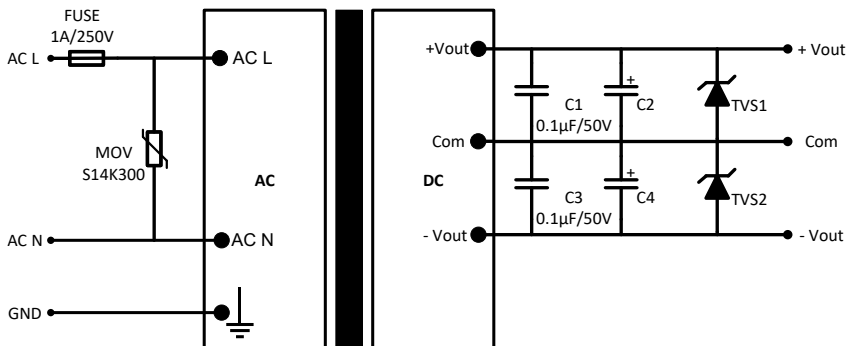
Standards	Information technology Equipment	Design to meet IEC/EN/UL 62368
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact $\pm 6\text{KV}$ / Air $\pm 8\text{KV}$ , Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 $\pm 2\text{KV}$ , Criteria B
		IEC 61000-4-4 $\pm 4\text{KV}$ , with EMC recommended circuit, Criteria B
	Surge Immunity	IEC 61000-4-5 L-L $\pm 1\text{KV}$ /L-G $\pm 2\text{KV}$ , Criteria B
		IEC 61000-4-5 L-L $\pm 2\text{KV}$ /L-G $\pm 4\text{KV}$ , 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

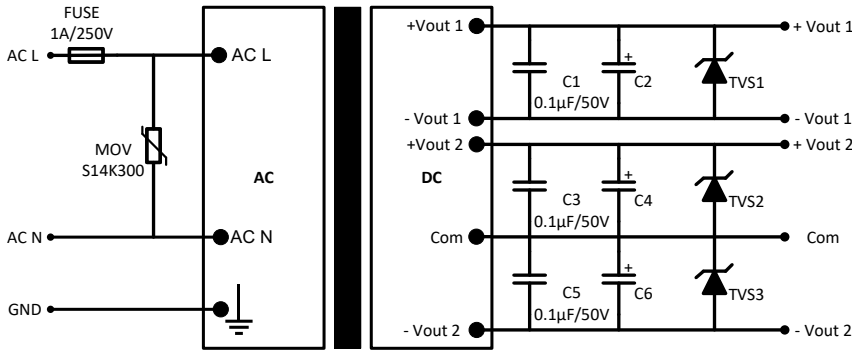


## Typical Application Circuit

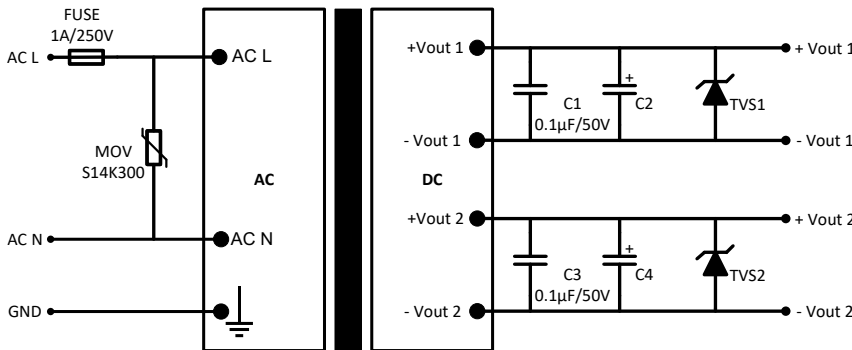
### Dual Output Models



### Triple Output Models



### Dual Separated Output Models

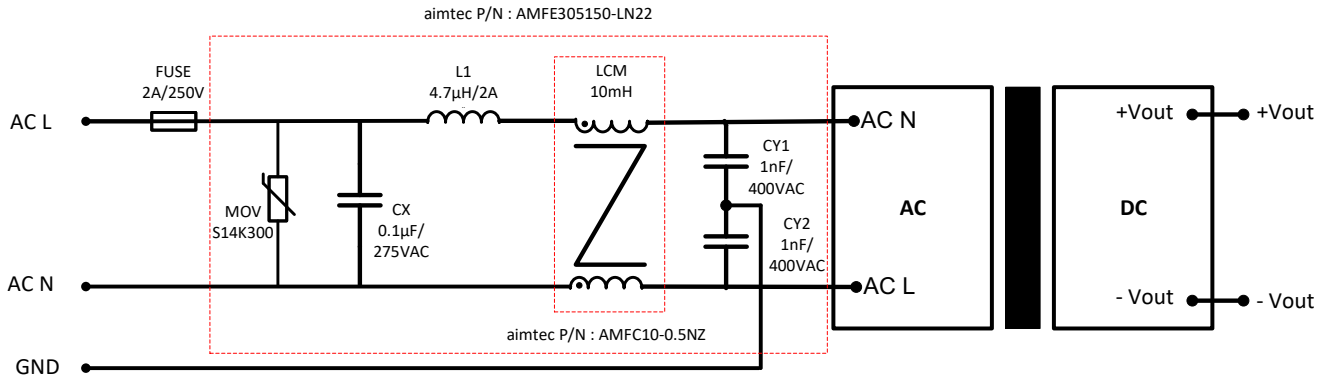


Model	C2 (µF)	C4 (µF)	C6 (µF)	TVS1	TVS2	TVS3
AME10-5DCVZ	220	220	N/A	SMBJ7.0A	SMBJ7.0A	N/A
AME10-12DCVZ	120	120	N/A	SMBJ20A	SMBJ20A	N/A
AME10-15DCVZ	47	47	N/A	SMBJ20A	SMBJ20A	N/A
AME10-512TCVZ	47	47	47	SMBJ7.0A	SMBJ20A	SMBJ20A
AME10-515TCVZ	47	47	47	SMBJ7.0A	SMBJ20A	SMBJ20A
AME10-505DCVZ	100	100	N/A	SMBJ7.0A	SMBJ7.0A	N/A
AME10-512DCVZ	100	100	N/A	SMBJ7.0A	SMBJ20A	N/A
AME10-515DCVZ	100	100	N/A	SMBJ7.0A	SMBJ20A	N/A
AME10-524DCVZ	100	100	N/A	SMBJ7.0A	SMBJ30A	N/A

#### Output Filter Components:

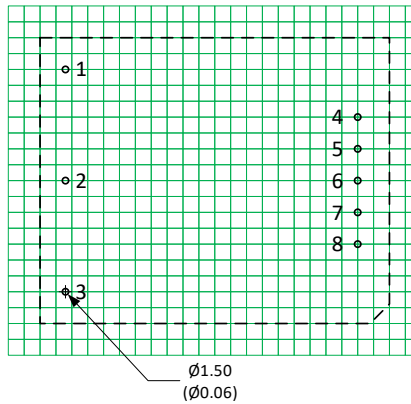
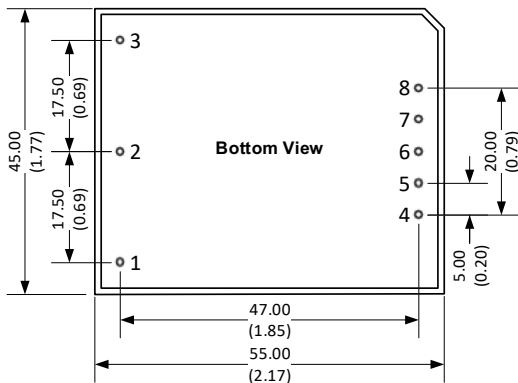
We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2, C4 and C6. C1, C3 and C5 are ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode.

## EMC Recommended Circuit

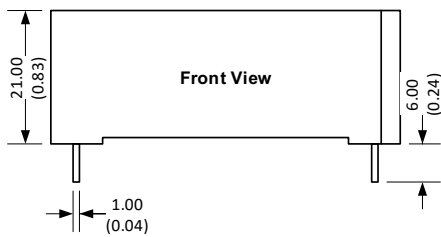


Note : AMFE305150-LN22 is aimtec 2KV/4KV EMC filter.  
AMFC10-0.5NZ is aimtec Common mode choke.

## Dimensions



Note : Grid 2.54\*2.54 mm

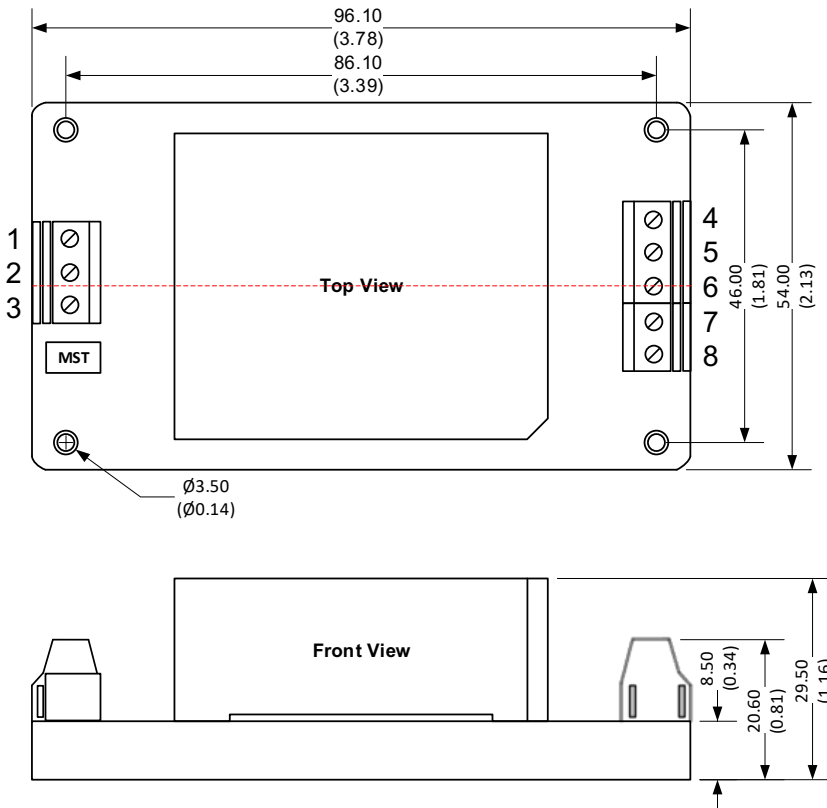


Notes:  
All dimensions are typical in millimeters (inches).  
Pin diameter tolerances :  $\pm 0.10$  ( $\pm 0.004$ )  
General tolerance :  $\pm 0.50$  ( $\pm 0.02$ )

### Pin Output Specifications

Pin	Dual output	Triple output	Dual separated
1	GND	GND	GND
2	AC Input (N)	AC Input (N)	AC Input (N)
3	AC Input (L)	AC Input (L)	AC Input (L)
4	-V Output	-V Output 1	-V Output 1
5	NC	+V Output 1	+V Output 1
6	Com	-V Output 2	NC
7	NC	Com	-V Output 2
8	+V Output	+V Output 2	+V Output 2

## Dimensions with ST Optional

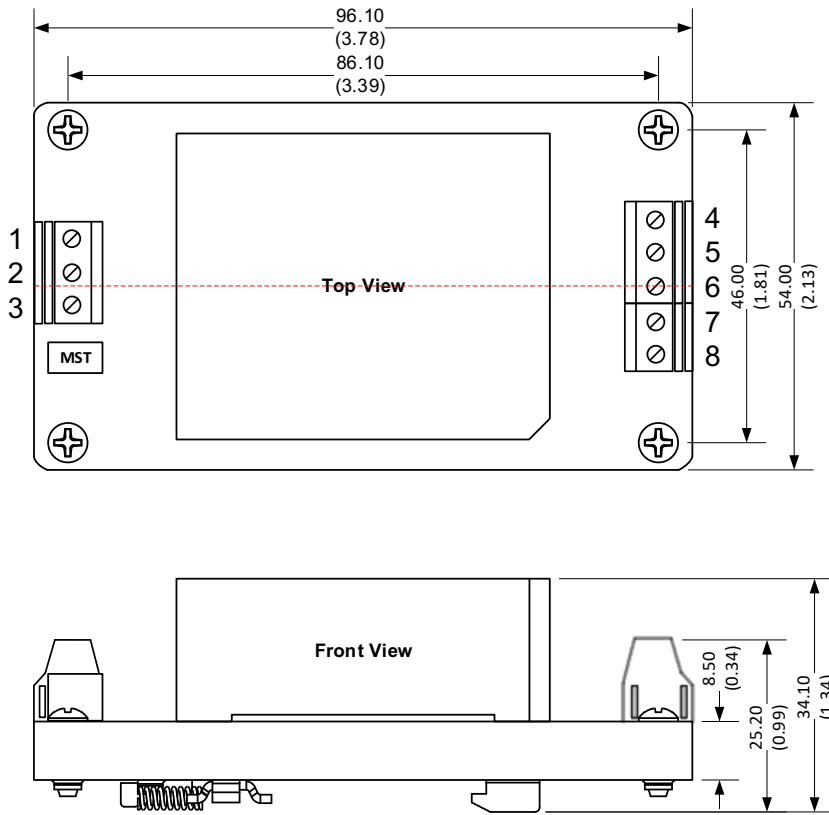


**Notes:**  
 All dimensions are typical in millimeters (inches).  
 Wire range : 24-12 AWG  
 Tightening torque : Max 0.4 N.m  
 General tolerance  $\pm 1.00$  : ( $\pm 0.04$ )

### Pin Output Specifications

Pin	Dual output	Triple output	Dual separated
1	GND	GND	GND
2	AC Input (N)	AC Input (N)	AC Input (N)
3	AC Input (L)	AC Input (L)	AC Input (L)
4	-V Output	-V Output 1	-V Output 1
5	NC	+V Output 1	+V Output 1
6	Com	-V Output 2	NC
7	NC	Com	-V Output 2
8	+V Output	+V Output 2	+V Output 2

## Dimensions with STD Optional



**Notes:**  
 All dimensions are typical in millimeters (inches).  
 Mounting rail : TS35, rail need to connect safety ground  
 Wire range : 24-12 AWG  
 Tightening torque : Max 0.4 N.m  
 General tolerance  $\pm 1.00$  : ( $\pm 0.04$ )

Pin Output Specifications			
Pin	Dual output	Triple output	Dual separated
1	GND	GND	GND
2	AC Input (N)	AC Input (N)	AC Input (N)
3	AC Input (L)	AC Input (L)	AC Input (L)
4	-V Output	-V Output 1	-V Output 1
5	NC	+V Output 1	+V Output 1
6	Com	-V Output 2	NC
7	NC	Com	-V Output 2
8	+V Output	+V Output 2	+V Output 2

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