

# ASC-E1 Series

## 30 W AC/DC Power Module

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- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, CB, UL, TÜV Approvals
- 2-Years Product Warranty



### Electrical specifications

Model No. ( Single Output )	ASC-3.3S-E1	ASC-5S-E1	ASC-12S-E1	ASC-15S-E1	ASC-24S-E1
Max Output Wattage (W)	20W	30W	30W	30W	30W
Input	Voltage				
	90-264 VAC or 120-370 VDC				
	Frequency (Hz)				
	47-440 Hz				
	Current (Full load)				
	520 mA max. (115 VAC) / 320 mA max. (230 VAC)				
Inrush Current (<2ms)					
23 A max. (115 VAC) / 46 A max. (230 VAC)					
Leakage Current					
0.75 mA max.					
External Fuse (recommend)					
1.5 A slow blow type					
Output	Voltage (V.DC.)				
	3.3V      5V      12V      15V      24V				
	Voltage Accuracy				
	±2%				
	Current (mA) max				
	6000      6000      2500      2000      1250				
	Line Regulation (LL-HL) (typ.)				
	±1%				
	Load Regulation (5-100%) (typ.)				
	±1%				
	Minimum Load				
	5%      4%      2%      2%      2%				
Maximum Capacitive Load					
470-23,000µF depending on model					
Ripple					
<0.2% Vout +40mV max (Vp-p)					
Noise					
<0.5% Vout +50mV max (Vp-p)					
Efficiency					
70%      75%      80%      80%      77%					
Hold-up Time					
15 ms min.					
Switching Frequency					
100 kHz					
Protection	Over Power Protection				
	Hiccup technique, auto-recovery				
	Over Voltage Protection				
Zener diode clamp					
Short Circuit Protection					
Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)				
3000 V					
Environment	Operating Temperature				
	-40°C...+70°C (with derating)				
	Storage Temperature				
	-40°C...+85°C				
	Temperature Coefficient				
	±0.02%/°C				
Humidity					
95% RH					
MTBF					
>200,000 h @ 25°C (MIL-HDBK-217F)					
Vibration					
10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.					
Physical	Dimension (L x W x H)				
	3.5 x 2.5 x 0.98 Inches ( 89.0 x 63.5 x 25.0 mm ) Tolerance ±0.5 mm				
	Case Material				
	Plastic resin with Fiberglass (flammability to UL 94V-0)				
Weight					
220 g					
Cooling Method					
Free air convection					
Safety	Agency Approvals				
UL/cUL, CE, TUV, CB					
EMC	EMI (Conducted & Radiated Emission)				
	EN 55022 class B				
EMS (Noise Immunity)					
EN 55024					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

# ASC-E1 Series

## 30 W AC/DC Power Module

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Model No. ( Dual & Triple Output )		ASC-5D-E1	ASC-12D-E1	ASC-15D-E1	ASC-5S12S-E1	ASC-5S12D-E1	ASC-5S15D-E1
Max Output Wattage (W)		30W	30W	30W	30W	30W	30W
Input	Voltage	90-264 VAC or 120-370 VDC					
	Frequency (Hz)	47-440 Hz					
	Current (Full load)	520 mA max. (115 VAC) / 320 mA max. (230 VAC)					
	Inrush Current (<2ms)	23 A max. (115 VAC) / 46 A max. (230 VAC)					
	Leakage Current	0.75 mA max.					
	External Fuse (recommend)	1.5 A slow blow type					
Output	Voltage (V.DC.)	±5V	±12V	±15V	5V / 12V	5V / ±12V	5V / ±15V
	Voltage Accuracy	±5%	±5%	±5%	±5%	±2%	±2%
	Current (mA) max	±3000	±1250	±1000	3000 / 1250	3000 / ±630	3000 / ±500
	Line Regulation (LL-HL) (typ.)	±1%	±1%	±1%	±1% / ±5%	±1% / ±5%	±1% / ±5%
	Load Regulation (5-100%) (typ.)	±3%	±3%	±3%	±2% / ±6%	±2% / ±6%	±2% / ±6%
	Minimum Load	2%	3%	1%	20%	20%	20%
	Maximum Capacitive Load	470-23,000µF depending on model					
	Ripple	<0.2% Vout +40mV max (Vp-p)					
	Noise	<0.5% Vout +50mV max (Vp-p)					
	Efficiency	73%	78%	76%	77%	77%	76%
	Hold-up Time	15 ms min.					
	Switching Frequency	100 kHz					
Protection	Over Power Protection	Hiccup technique, auto-recovery					
	Over Voltage Protection	Zener diode clamp					
	Short Circuit Protection	Hiccup mode, indefinite (automatic recovery)					
Isolation	Input-Output (V.AC)	3000 V					
Environment	Operating Temperature	-40°C...+70°C (with derating)					
	Storage Temperature	-40°C...+85°C					
	Temperature Coefficient	±0.02%/°C					
	Humidity	95% RH					
	MTBF	>200,000 h @ 25°C (MIL-HDBK-217F)					
	Vibration	10~500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes.					
Physical	Dimension (L x W x H)	3.5 x 2.5 x 0.98 Inches ( 89.0 x 63.5 x 25.0 mm ) Tolerance ±0.5 mm					
	Case Material	Plastic resin with Fiberglass (flammability to UL 94V-0)					
	Weight	220 g					
	Cooling Method	Free air convection					
Safety	Agency Approvals	UL/cUL, CE, TUV, CB					
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B					
	EMS (Noise Immunity)	EN 55024					

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

### Note

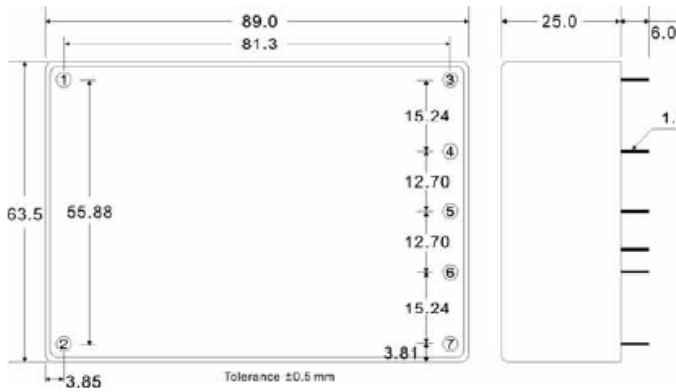
- The triple output required a minimum 20% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices; however they may not meet all listed specification.
- Load regulation for triple output:  
Main output (V1): 20% to 100% with 20% to 100% balanced on auxiliaries.  
Auxiliary outputs (V2 and V3): 20% to 100% balanced on all outputs.
- Cross regulation for triple output:  
Main output 100% load, auxiliary 100%, other auxiliary 25% to 100%.  
Auxiliary outputs (V2 and V3): Main output 100% load, auxiliary 100%, other auxiliary 25% to 100% or main output 25%, auxiliary 25%, other auxiliary 25% to 100%.

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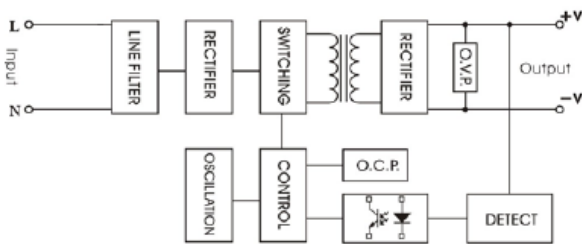
## MECHANICAL DIMENSIONS ( Top View )



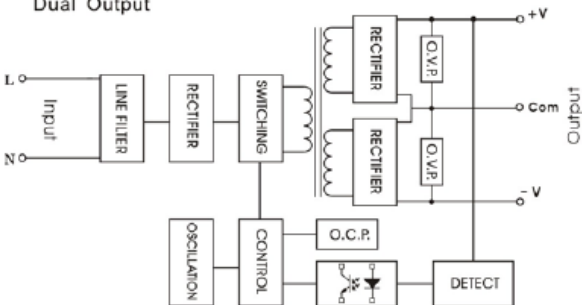
Pin no:	Single	Dual	5S12S	Triple
1	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
2	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
3	+DC OUT	+DC OUT	+12V OUT	+DC OUT
4	NO PIN	NO PIN	+5V OUT	+5V OUT
5	-DC OUT	COMMON	+12V RTN	COMMON
6	NO PIN	NO PIN	+5V RTN	+5V RTN
7	NO CONN	-DC OUT	NO PIN	-DC OUT

## BLOCK DIAGRAM

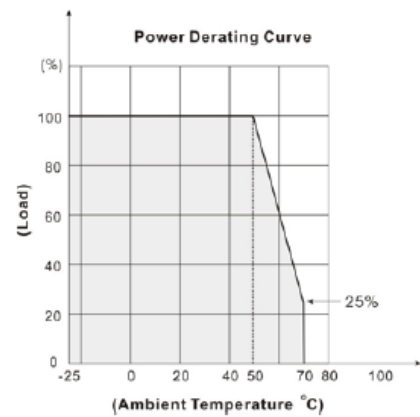
Single Output



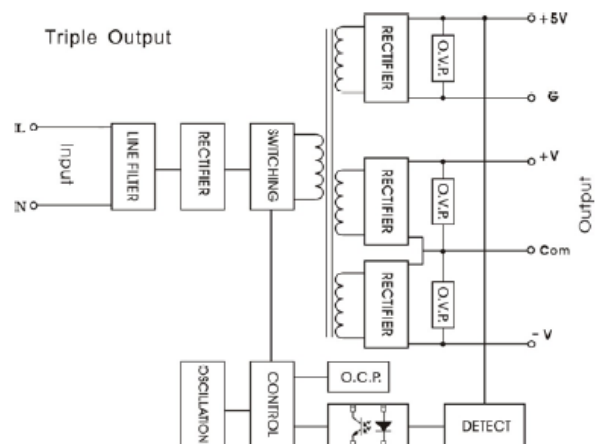
Dual Output



## DERATING



Triple Output



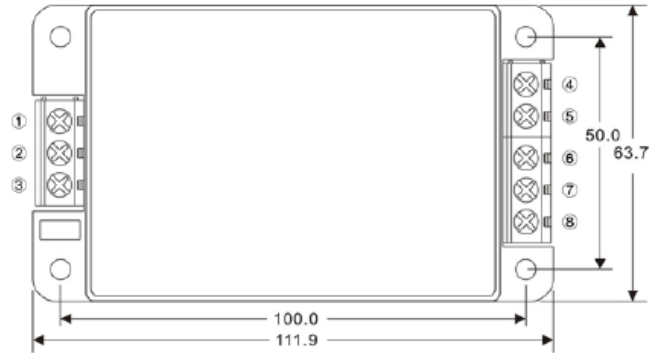
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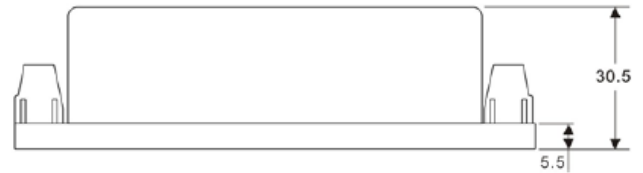
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## SCREW TERMINALS

### ASC-E1-A2

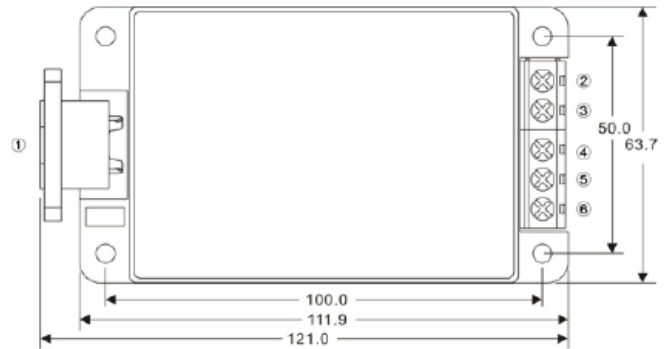


Pin no:	Single	Dual	5S12S	Triple
1	NO CONN	NO CONN	NO CONN	NO CONN
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
4	+DC OUT	+DC OUT	+12V OUT	+DC OUT
5	NO CONN	NO CONN	+5V OUT	+5V OUT
6	-DC OUT	COMMON	+12V RTN	COMMON
7	NO CONN	NO CONN	+5 RTN	+5 RTN
8	NO CONN	-DC OUT	NO CONN	-DC OUT



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### ASC-E1-A3



Pin no:	Single	Dual	5S12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NO CONN	NO CONN	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NO CONN	NO CONN	+5V RTN	+5V RTN
6	NO CONN	-DC OUT	NO CONN	-DC OUT

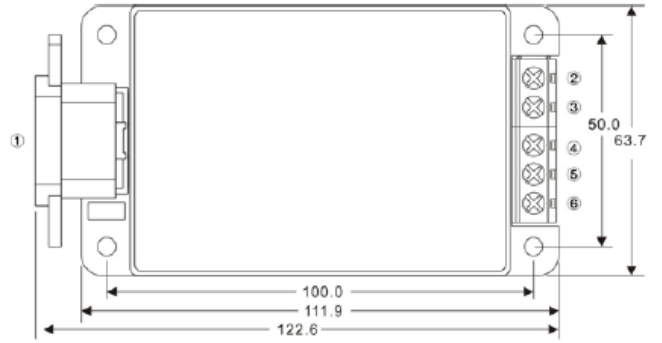


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## ASC-E1-A4

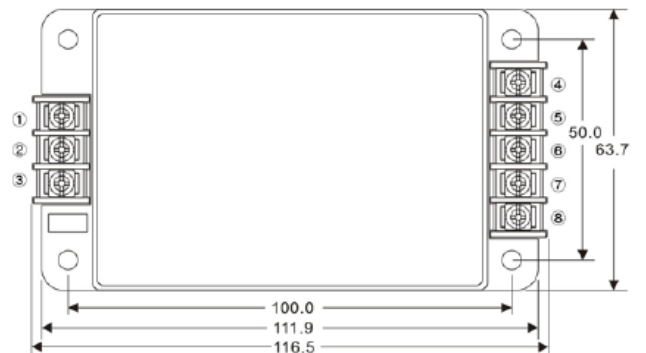


Pin no:	Single	Dual	5S12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NO CONN	NO CONN	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NO CONN	NO CONN	+5V RTN	+5V RTN
6	NO CONN	-DC OUT	NO CONN	-DC OUT



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## ASC-E1-A5



Pin no:	Single	Dual	5S12S	Triple
1	NO CONN	NO CONN	NO CONN	NO CONN
2	AC IN (N)	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)	AC IN (L)
4	+DC OUT	+DC OUT	+12V OUT	+DC OUT
5	NO CONN	NO CONN	+5V OUT	+5V OUT
6	-DC OUT	COMMON	+12V RTN	COMMON
7	NO CONN	NO CONN	+5 RTN	+5 RTN
8	NO CONN	-DC OUT	NO CONN	-DC OUT

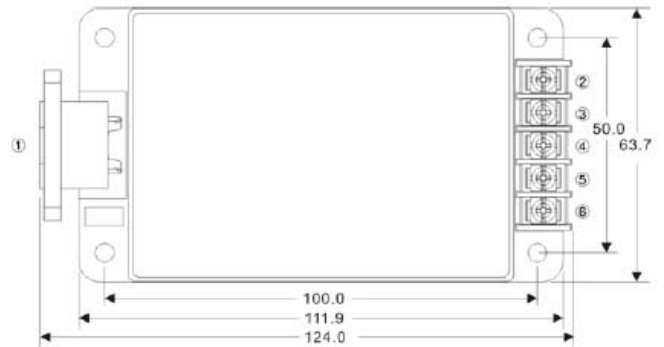


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## ASC-E1-A6

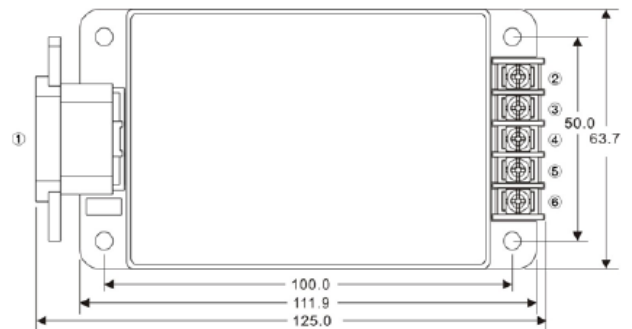


Pin no:	Single	Dual	5S12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NO CONN	NO CONN	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NO CONN	NO CONN	+5V RTN	+5V RTN
6	NO CONN	-DC OUT	NO CONN	-DC OUT



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## ASC-E1-A7



Pin no:	Single	Dual	5S12S	Triple
1	AC IN	AC IN	AC IN	AC IN
2	+DC OUT	+DC OUT	+12V OUT	+DC OUT
3	NO CONN	NO CONN	+5V OUT	+5V OUT
4	-DC OUT	COMMON	+12V RTN	COMMON
5	NO CONN	NO CONN	+5V RTN	+5V RTN
6	NO CONN	-DC OUT	NO CONN	-DC OUT

