



- Miniature 4.59" x 2.4" x 0.5." Size
- High Power Density up to 90.78W/ Inch<sup>3</sup>
- High Efficiency up to 90% at 230VAC (48V)
- Low Output Noise
- Metal Baseplate
- Thermal Protection
- Over Voltage Protection
- Current Limit/Short Circuit Protection
- Adjustable Output Voltage 60-120% of Vo, Set
- Remote Sense
- Power On Signal (ENA) Open Collector (10mA sink current). Low (ON) when output is present

**DESCRIPTION:**

AC-DC Converter SMV-xx-500 modules are high power density and high efficiency AC-DC converters designed for uses in telecom and other centralized modular and distributed power applications. All use metal baseplates, planar transformers, and surface mount construction to produce up to 500W maximum.

Model Number	Output Voltage	Output Amps	Input Range	Max. Iin FL	Efficiency (Tb=25°C)	O/P Set Point
SMV-28-500	28 VDC	18	85-265 VAC	6.2A	88.5% @ 230Vin	27.44-28.56VDC
SMV-48-500	48 VDC	10.5	85-265 VAC	6.2A	90% @ 230Vin	47.04-48.96VDC

*All specifications are typical at nominal input, full load, and 25DegC unless otherwise noted*



## ABSOLUTE MAXIMUM RATINGS (MIN TO MAX.)

Input Power with No Damage	300 VAC
Power Factor Correction	0.95 min HL-LL and Full Load
Storage Temperature / Humidity	-55 to +125°C / 10 to 95%
Operating Temperature (Note 5)	-40 to 100°C
Operating Humidity	20 to 95%
Output Power	500 Watts

## INPUT SPECIFICATIONS

Input Voltage (AC(L) to AC(N))	85-265 VAC
Input Frequency	47-63 Hz
Input Current FL @ 100 Vin, FL	6.2A max.
Inrush Current (Note 3)	40A @ 265VAC

## OUTPUT SPECIFICATIONS

Output Voltage & Current	See Model Selection Chart PG. 1
Output Set Point	See Model Selection Chart PG. 1
Output Voltage Adjustment Range	28 Vout:16.8-33.6VDC @ FL 48 Vout:28.8-57.6VDC @ FL
Line & Load Regulation (NL-FL)	28V: 56mV typ. / 48V: 96mV typ.
Ripple/Noise p-p max. (Note 1)	28 Vout: 280mV 48 Vout: 480mV
Dynamic Response (Note 6)	25% - 50% - 75% Load
Peak Deviation:	3% Vo, set
Settling Time	300uS
Current Limit (Note 2)	105-140% of Rated Load
Over Voltage Protection	125-145% Vo, set, Io=0.5A, Inverter Shutdown Method
Over Temperature Protection	Shutdown: 110°C typ. Auto Recovery: 90°C min.
Efficiency (Tb=25°C, FL)	
28 Vout:	86.5% @ 110 Vin, 88.5% @ 230Vin
48 Vout:	88% @ 110 Vin, 90% @ 230Vin, FL
	See Figs. 4a & b

## EFFICIENCY CURVES

## STRUCTURAL DYNAMICS

Vibration	(Note 4)
Shock	196.1mS <sup>2</sup>

## ISOLATION SPECIFICATIONS

Input-Output	3000VAC, 60S
Input-Case	2500VAC, 60S
Output-Case	1500VDC, 60S
Input-Output Capacitance	2000pF
Isolation Resistance	100MΩ @ Tb=25°C & 70%RH
	Output to Baseplate-500VDC

## GENERAL SPECIFICATIONS

MTBF (Tb=40°C, 80%L, 230 Vin)	28V: 1.47 Mhrs, 48V: 1.59 Mhrs
Weight	7.05 oz (200g)
Dimensions	4.59" x 0.5" x 2.4" (116.8 x 12.7 x 61mm)
Safety Approvals	UL: UL 60950-1-07, 2nd Edition TUV: EN 60950-1:2006 CE: EN 60950-1:2006

## CONTROL SPECIFICATIONS

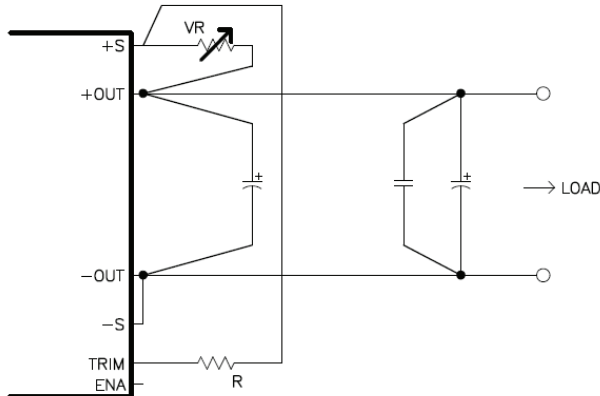
Turn-on Time	3S max., 90% Vo, set, FL
Trim Adjustment Range	60-120% w Cap. 940uF/35V (28V); 440uF/100V (48V) Tb=25°C See Fig. 1 TRIM CIRCUIT

## NOTES

1. Bandwidth 5Hz to 20MHz and with filter 4.7nF MLCC series 50Ω (28V) 100Ω (48V) min. Output Capacitor: 470uF\*2, TC≥ -20°C, 470uF\*4, TC≤ -20°C (28V); 220uF\*2, TC≥ -20°C, 220uF\*4, TC≤ -20°C (48V)
2. Current Limit inception point Vo=90% of Vo, set @ Tb=25°C; Auto recovery.
3. Turn on @ 265Vin, External Components are needed for operation Refer to Fig. 3 for application circuit.
4. Sine Wave, 10-55Hz (Sweep for 1 min.), Amplitude 0.825mm Constant (Max. 0.5g) X, Y, Z 1 Hour each, at No Operating
5. Temperature measurement shall be taken from the baseplate (Tb). See Fig. 2 for location definition .
6. 0.1A/uS; with cap 940uF/35V (28V); 440uF/100V (48V) Tb=25°C, Vin=200VAC

**TRIM CIRCUIT:**

Output Voltage Adjusted by using external resistor and/or variable resistor:

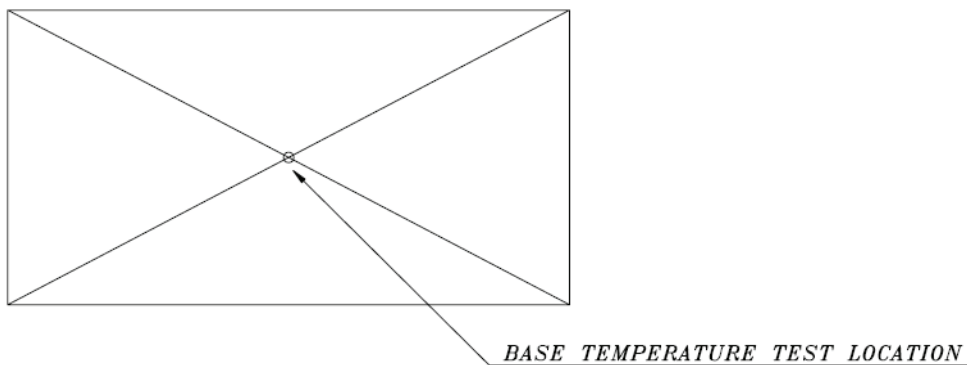


For 28Vout, R=35.7Kohm      $VR = 2.709 \left( \frac{V_{O_{trim}}}{2.469} - 1 \right) - 15.692$  (UNIT:KΩ)

For 48Vout, R=42.2Kohm      $VR = \left( \frac{V_{O_{trim}}}{1.472} \right) - 19.532$  (UNIT:KΩ)

Fig1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.

**BASEPLATE MEASURE POINT:**



APPLICATION CIRCUIT:

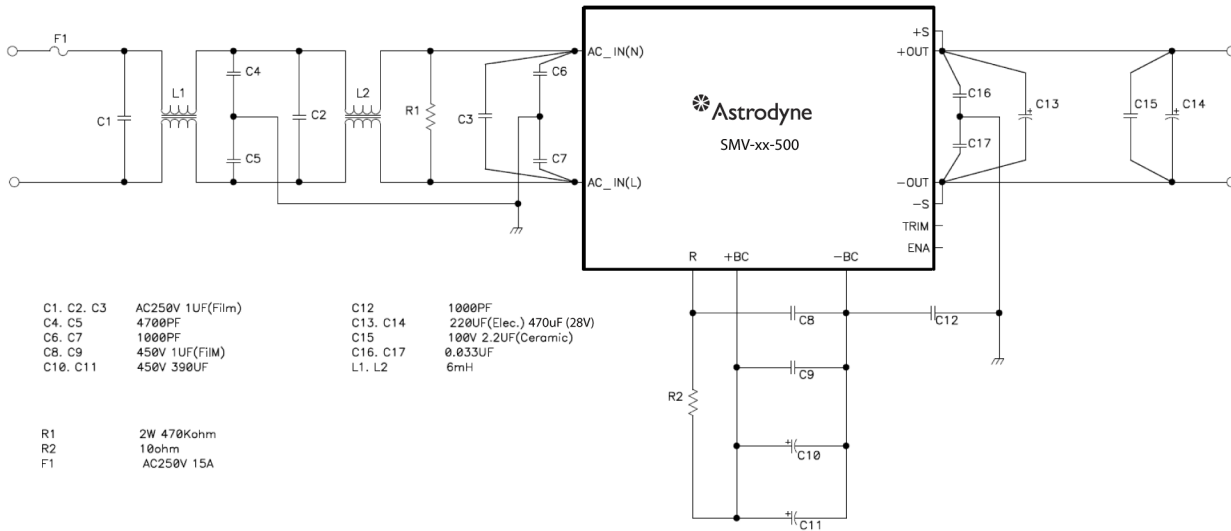


Fig. 3 Application Circuit.

EFFICIENCY CURVE (28V):

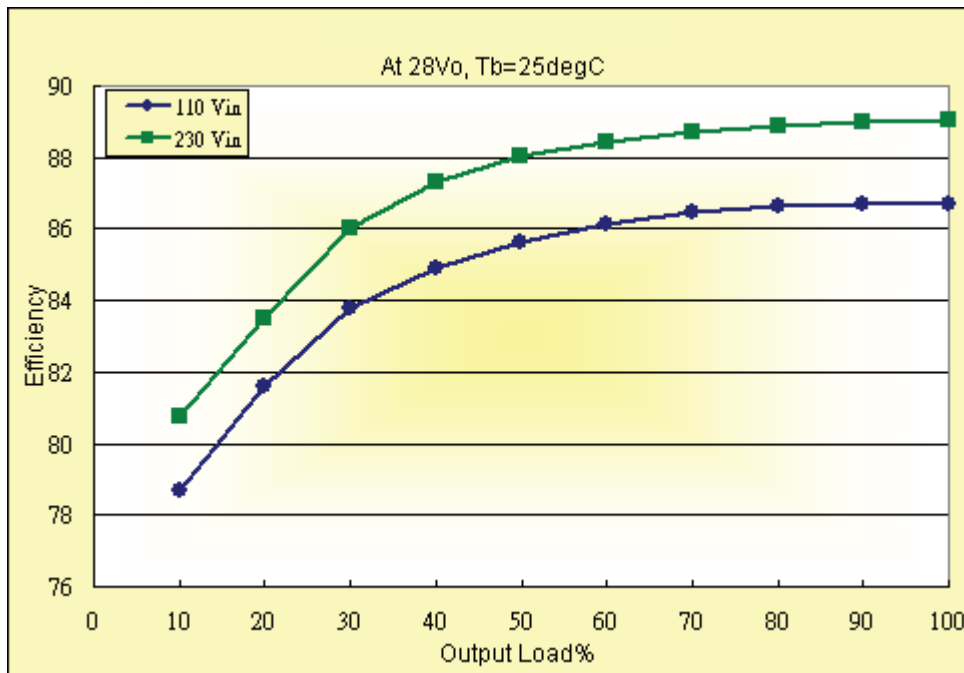


Fig. 4a Efficiency curve

**EFFICIENCY CURVE (48V):**

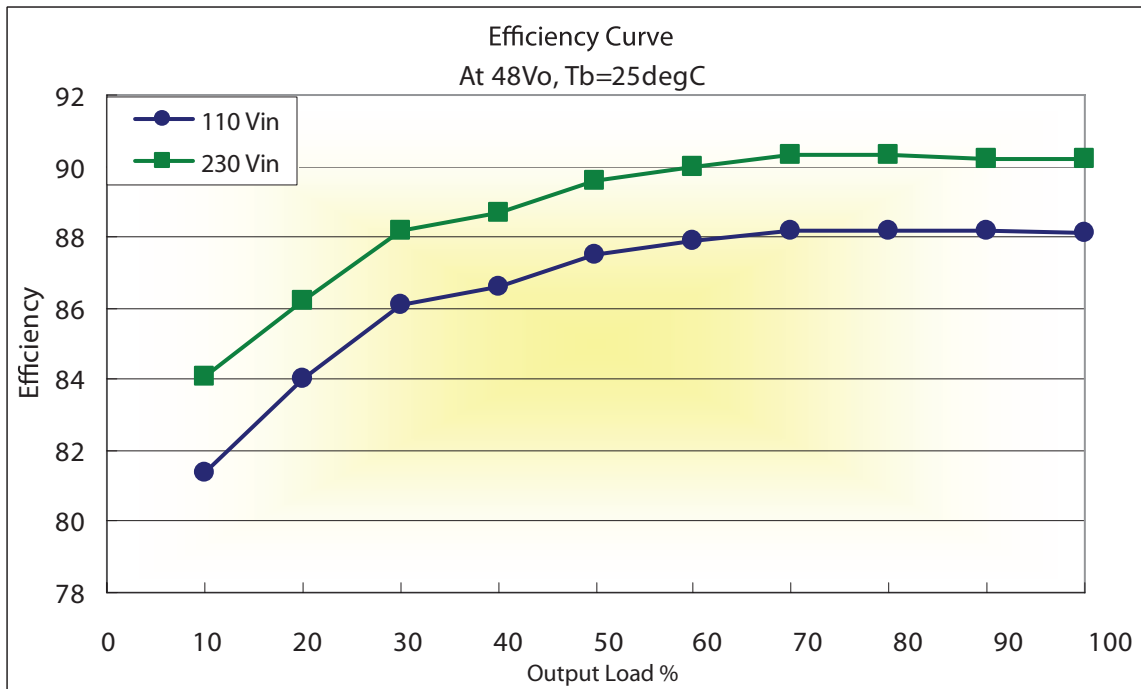


Fig. 4b Efficiency curve

**MECHANICAL DIMENSIONS**

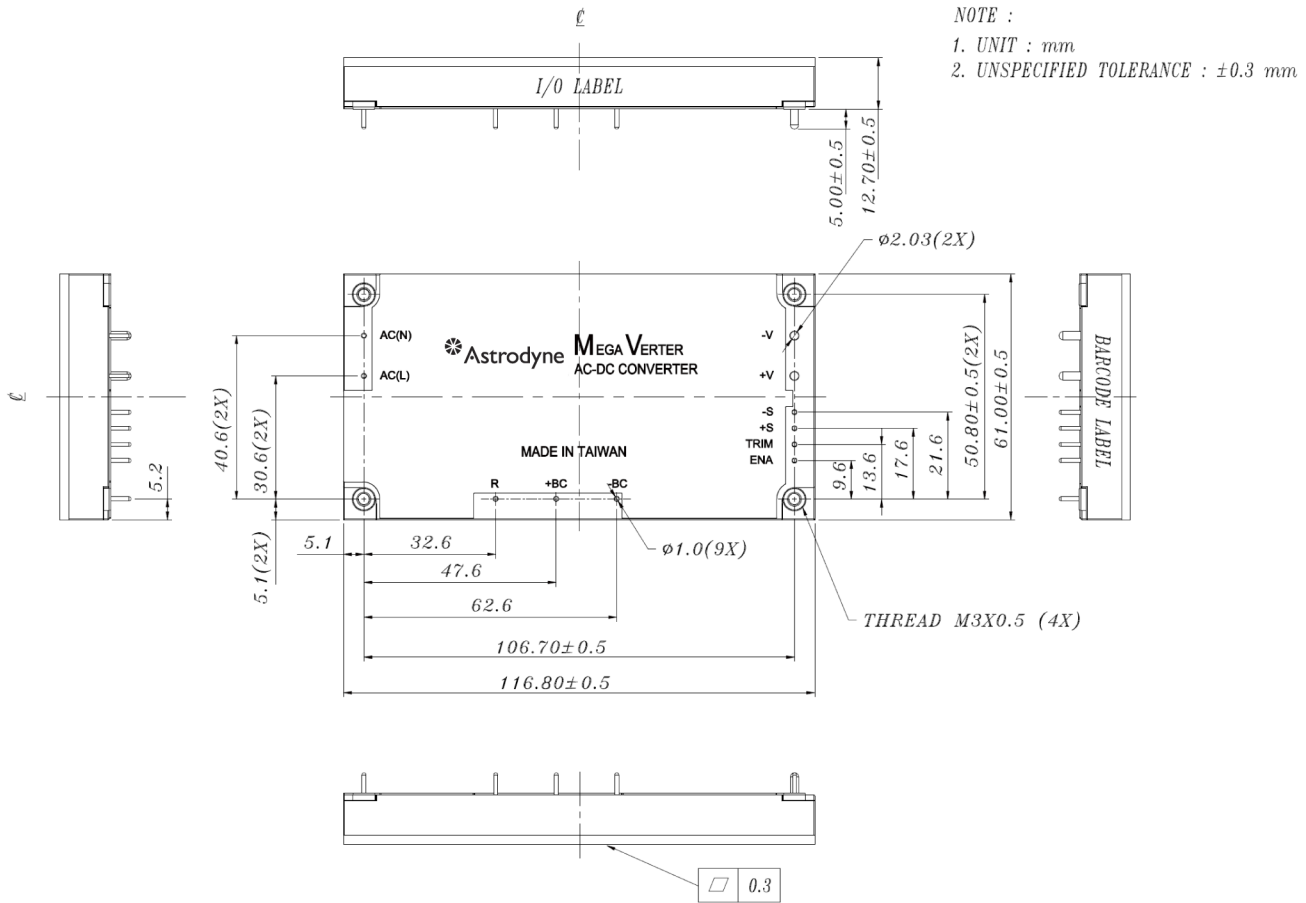


Fig. 5 Outline drawing.