



UNIVERSAL INPUT

FEATURES

- ◆ Wide range input 90 to 264VAC
- ◆ No load consumption < 0.5W
- ◆ Low safety ground leakage current
- ◆ Low ripple and noise
- ◆ Fast transient response
- ◆ Overcurrent, Short-circuit, Overvoltage, and Thermal protections
- ◆ 100% burn-in at full rated load
- ◆ Meets CEC and Energy Star efficiency level IV (except for FMA90P-10, -10-1 and -11 models)
- ◆ Meets EN55011, FCC Class B, VCCI, EN61000 Class A,D
- ◆ Compliant with RoHS requirements

DESCRIPTION

This series of switching power supplies are specially designed for portable medical applications. They are capable of delivering up to 90 watts of continuous DC output power. Construction is a 94V-1 rated case with an IEC 320/C14 or C18 inlet to mate with interchangeable cord for world-wide use. All models meet CISPR 11 and FCC class B emission limits and comply with UL, CSA, IEC and CE requirements.

INPUT SPECIFICATIONS

Input Voltage	90 to 264 VAC
Input Frequency	47 to 63 Hz
Input Current	1.2A rms @ 115VAC 0.6A rms @ 230VAC
Inrush Current (at 25°C cold start)	60 amps @ 115VAC 120 amps @ 230VAC
Leakage Current (Touch current)	90µA max @ 115VAC 60Hz 150µA max @ 230VAC 50Hz

ENVIRONMENTAL

Operating Temperature	0 °C to +60 °C.
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5% to 95% RH, non-condensing

FMA90P SERIES 60-90 WATT MEDICAL SWITCHING POWER SUPPLIES

GENERAL SPECIFICATIONS

Construction	94V-1 rated case
Connectors / Terminals	IEC 320/C14 or C18 inlet. Options for DC Output.
Switching Frequency	50KHz to 110KHz
Efficiency	85% min. 78% min , for models FMA90P-10, -10-1, -11, -12
Power Factor	0.98 typical
Dielectric Isolation	4000VAC from input to output 1500VAC from input to ground 500VAC from output to ground
MTBF (per MIL-HDBK-217F)	150,000 hours minimum at full load at 25 °C ambient

OUTPUT SPECIFICATIONS

Total Output Power	Refer to Rating Chart for each model
Derating Output Power	Derate from 100% @ +40 °C linearly to 50% @ +60 °C
Output Voltage / Current, Adjustability, Peak Current	Refer to Rating Chart for each model
Minimum Load	No minimum load required
Hold Up Time	15 mSec min @ 110 VAC
Line Regulation	±0.5% max at full load
Ripple and Noise	2% peak to peak max
Overvoltage Protection	Setting at 112-140% of Vnom output voltage
Overcurrent / Short Circuit Protection	Continuous protection with automatic recovery
Temperature Coefficient	±0.04% / °C max for all outputs
Transient Response	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 uS after a 25% step load change.

EMC and SAFETY (1)

EMC Performance Standard	EN60601-1-2: 2001 EN61000-3-2, -3-3, -4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11
EN55011, FCC-15, VCCI	Class-B Conducted, Radiated
Safety Standards (certified to)	UL60950-1 3rd, CSA C22.2 No 60950-1 3rd, EN60950: 2000 (Nemko)

(1) Products are rated for commercial environments and are not to be used nor are warranted in aerospace or life-support medical applications.



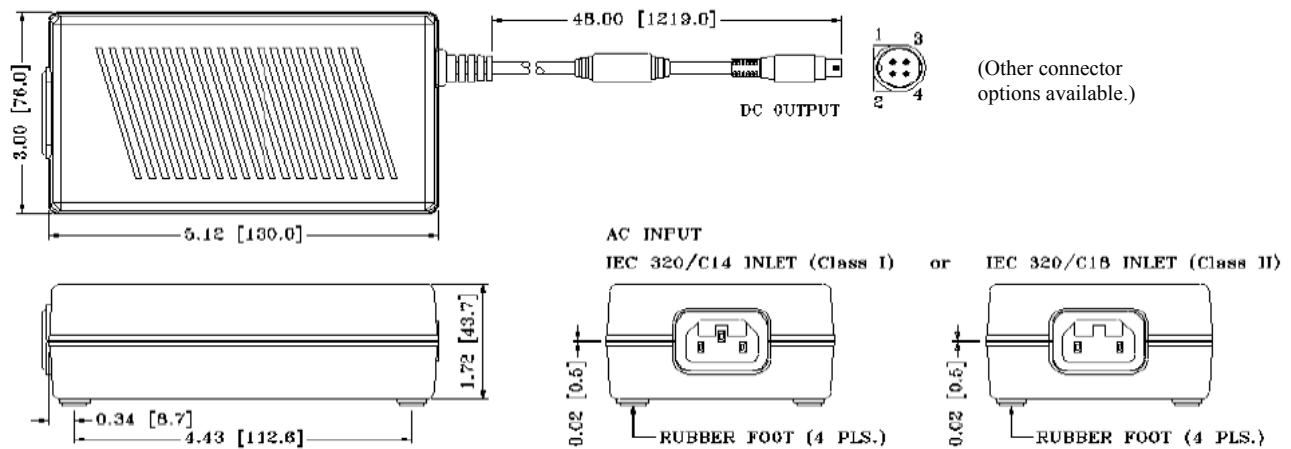
OUTPUT VOLTAGE / CURRENT RATINGS

MODEL	Vnom	Imin	I _{max}	Tol	Max Output Power
FMA90P10	5V	0A	12.0A	5%	60W
FMA90P10-1	6V	0A	10.0A	5%	60W
FMA90P11	9V	0A	7.78A	5%	70W
FMA90P12	12V	0A	6.67A	5%	80W
FMA90P12-1	13.5V	0A	6.3A	5%	85W
FMA90P13	15V	0A	5.67A	5%	85W
FMA90P13-1	18V	0A	5.0A	5%	90W
FMA90P13-2	19V	1A	4.74A	5%	90W
FMA90P14	24V	1A	3.75A	5%	90W
FMA90P16	30V	1A	3.0A	5%	90W
FMA90P18	48V	1A	1.87A	5%	90W

NOTE:

Ripple and noise: Measured peak-t o-peak with 20MHz bandwidth and 10uF tantalum capacitor in parallel with a 0.1µF ceramic capacitor at rated line voltage and load ranges.

MECHANICAL SPECIFICATIONS (mm / inches)



NOTES

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 658 grams approx.
4. DC output connector options are available. Contact Sales for details.
5. DC output connectors for Models FMA90P10, and P10-1 are without lock.
6. To order a model with IEC320/C18 inlet, add letter "F" after letter "P". e.g for FMA90P12-1 becomes. FMA90PF12-1.

PIN ASSIGNMENTS

MODEL \ PIN	1	2	3	4
All models FMA90P	Return	Output (+V)	Return	Output (+V)