



Medical



### FEATURES AND BENEFITS

Meets UL/EN/IEC60601-1-2, 4th edition for EMC\*

Approved to EN/IEC/UL60601-1, 3rd edition with isolation levels which satisfy the 2 MOPP requirements

Meets DoE efficiency level VI requirements

- No load input power
- Average efficiency

Up to 90W of AC-DC power

Desktop Style Package

Meets EN55011/CISPR11, FCC Part 15.109 Class B conducted & radiated emissions, with 6db margin

E-cap life of >7 years

3 years warranty

IP22 rated enclosure

Note: \* Professional equipment only. Consult factory for Table 9 compliance information.

### MODEL SELECTION

Model Number	Volts	Output Current	Output Power	Ripple & Noise <sup>1</sup>	Line Regulation	Load Regulation	Output Connector	Overvoltage Trip Level
ME90A1251F01	12.0V	7.50A	90W	120mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup> 2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class I Desktop, IEC60320 C14 Receptacle
ME90A1503F01	15.0V	6.00A	90W	150mV pk-pk	±1%	±5%		
ME90A1803F01	18.0V	5.00A	90W	180mV pk-pk	±1%	±5%		
ME90A2403F01	24.0V	3.75A	90W	240mV pk-pk	±1%	±5%		
ME90A1251N01	12.0V	7.50A	90W	120mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup> 2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C8 Receptacle
ME90A1503N01	15.0V	6.00A	90W	150mV pk-pk	±1%	±5%		
ME90A1803N01	18.0V	5.00A	90W	180mV pk-pk	±1%	±5%		
ME90A2403N01	24.0V	3.75A	90W	240mV pk-pk	±1%	±5%		
ME90A1251Q01	12.0V	7.50A	90W	120mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup> 2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C18 Receptacle
ME90A1503Q01	15.0V	6.00A	90W	150mV pk-pk	±1%	±5%		
ME90A1803Q01	18.0V	5.00A	90W	180mV pk-pk	±1%	±5%		
ME90A2403Q01	24.0V	3.75A	90W	240mV pk-pk	±1%	±5%		

Notes : 1. Measured at the output connector, with noise probe directly across output and load terminated with 0.1µF ceramic and 10µF low ESR capacitors.  
2. Molex p/n 39-01-2060 or equivalent. See outline drawing for pinout information.  
3. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (ME90B1251F01).

### INPUT

AC Input	100-240Vac, ±10%, 47-63Hz, 1Ø
Input Current	115Vac: 2.0A, 230Vac: 1.0A
Inrush Current	264Vac, cold start: will not exceed 60A
Input Fuses	F1, F2: 3.15A, 250Vac fuses (line & neutral lines) provided on all models
Earth Leakage Current (Input to Ground)	<500µA@264Vac, 60Hz, NC <1mA@264Vac, 60Hz, SFC
Efficiency	>88%, typical
No Load Input Power	<0.210W (meets DoE efficiency level VI requirements)



### OUTPUT

Hold-Up Time	20mS min., at full Load, 100Vac input
Turn On Time	Less than 1 sec @115Vac, full load
Patient Leakage Current (Output to Earth)	<100 $\mu$ A@264Vac, 60Hz, NC <500 $\mu$ A@264Vac, 60Hz, SFC
Output Power	90W continuous - See models chart for specific voltage model ratings
Output Voltage	See models chart on pg 1
Ripple and Noise	See models chart on pg 1
Transient Response	500 $\mu$ s response time for return to within 0.5% of final value for any 50% load step over the range of 5% to 100% of rated load, $\Delta i/\Delta t < 0.2A/\mu s$ . Max. voltage deviation is +/-3.5%
Regulation	See models chart on pg 1

### PROTECTION

Overtemperature Protection	Will shutdown upon an overtemperature condition, auto-recovery
Overload Protection	130 to 180% of rating, Hiccup Mode
Short Circuit Protection	Hiccup Mode, auto recovery
Overvoltage Protection	130 to 150% of output voltage, hiccup mode
Drop Test	1.4m from table top to wooden platform, 4 faces

### ISOLATION SPECIFICATION

Isolation	Input - Output: 2 MOPP Input - Ground: 1 MOPP Output - Ground: 1 MOPP
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### SAFETY

Safety Standards	EN/IEC/UL60601-1, 3rd edition
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6mS, Number of shocks: 3 for each of the three axis

### RELIABILITY

MTBF	>2,50,000 hours, Full load, 110 & 220Vac input, 25°C amb, per Telcordia 332 Issue 6
E-Cap Life	>7 year life based on calculations at 115Vac/60Hz & 230Vac/50Hz, ambient 25°C at 24 hrs per day, 365 days/year, 6 power up cycles per day. (80% load on 5V, 12V models)

### ENVIRONMENT

Operating Temperature	-20°C to +50°C. Derate above 40°C Start Up at -40°C, full load, (warmup period before all parameters are within published specifications)
Storage Temperature	-40°C to +85°C
Altitude	Operating: to 5000m. Non-operating: -500 to 40,000 ft
Relative Humidity	5% to 95%, non-condensing
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz Non-Oper.: random waveform, 3 minutes per axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10-500Hz/1g, sweep rate of 1 octave / minutes, Vibration time of 10 sweeps / axes, 3 axes
Dimensions	W: 2.58" x L: 5.9" x H: 1.34" W: 65.5mm x L: 150.5Mm x H: 34mm
Weight	600g



### EMI/EMC COMPLIANCE

Conducted Emissions	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 6db margin typ., at 115 and 230Vac
Radiated Emissions	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 3db margin typ., at 115 and 230Vac
Common Mode Noise	High Frequency (100kHz-20MHz): <40mA pk-pk
Electro-Static Discharge (ESD) Immunity on Power ports	EN55024/IEC61000-4-2, Level 4: +/- 8kV contact, +/- 15kV air, Criteria A IEC60601-1-2, 4th Edition, Table 4
Radiated RF EM Fields Susceptibility	EN55024/EN61000-4-3, 10V/m, 80MHz-2.7GHz, 80% AM at 1kHz IEC60601-1-2, 4th Edition, Table 4
Electrical Fast Transients (EFT) /Bursts	EN55024/IEC61000-4-4, Level 4, +/- 4kV, 100Khz rep rate, 40A, Criteria A IEC60601-1-2, 4th Edition, Table 5
Surges, Line to Line (Diff Mode) and Line to GND (CMN Mode)	EN55024/IEC61000-4-5, Level 4, +/-2kV DM, +/-4kV CM, Criteria A Surpasses IEC60601-1-2, 4th Edition requirements
Conducted Disturbances induced by RF Fields	EN55024/IEC61000-4-6, 3.6V/m – Level 4, 0.15 to 80Mhz; and 12V/m) in ISM and amateur radio bands between 0.15Mhz and 80Mhz, 80% AM at 1KHz IEC60601-1-2, 4th Edition, Table 5
Rated Power frequency magnetic fields	EN55024/IEC1000-4-8, Level 4: 30A/m, 50/60 Hz IEC60601-1-2, 4th Edition, Table 4
Voltage Interruptions, Dips, Sags & Surges	EN55024/IECEN61000-4-11: --100% dip for 10mS, at 0, 45, 90, 135, 180, 225, 270 and 315 degrees, Criteria A; 100% dip for 20mS, Criteria A --100% dip for 500mS (250/300 cycles), Criteria B --60% dip for 100mS, Criteria B --30% dip for 500mS, Criteria A IEC60601-1-2, 4th Edition, Table 5
Harmonic Current Emissions	EN55011/EN61000-3-2, Class A
Flicker Test	EN61000-3-3

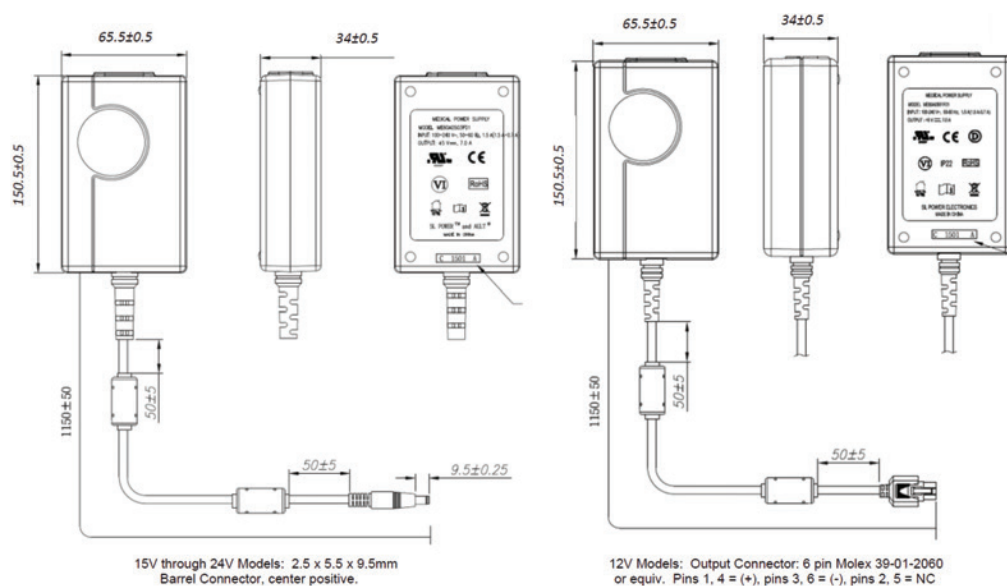
**Notes :** All specifications are typical at nominal input, full load, at 25°C ambient unless noted. Consult factory for information regarding testing for or usage under special environments.

Performance criteria are based as defined as following:

A – Normal performance during and after the test. B – Temporary degradation, self-recoverable.

C – Temporary degradation, operator intervention required to recover the operation. D – Permanent damage.

### MECHANICAL DRAWING



**Notes :** 1) All dimensions in mm.






2) 2.5mm barrel connector shown, other options are available.

3) The unit should not be covered or enclosed to protect against excessive case temperature rise.



### CONNECTOR INFORMATION

Standard models include a 2.5 x 5.5 x 9.5mm straight barrel type connector (Ault #3), center positive. Other standard options are listed below. The "03" in the standard model number is replaced by the applicable digits below:

Connector No.	Description		Connector No.	Description	
02	2.1 x 5.5 x 9.5 mm straight barrel plug - Center Positive		45	902.5 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive	
03	2.5 x 5.5 x 9.5 mm straight barrel plug - Center Positive (Standard models)		48	3 pin Snap n Lock, Kycon Kpp-3P or equivalent (Pin 1 = (+), pin 2 =(-))	
12	5 pin DIN-180 male connector (Pins 3, 5 = (+), pins 1, 2, 4 = (-))		49	4 pin Snap n Lock, Kycon Kpp-4P or equivalent (Pins 1, 3 = (+), pins 2, 4 = (-))	
22	6 pin DIN male connector (Pins 1, 2 = (+), pins 4, 5 = (-))		51	6 pin Minifit - Molex 39-01-2060 or equivalent (Pins 1, 4 = (+), pins 3, 6 = (-))	
23	8 pin DIN male connector (Pins 3, 7 = (+), pins 1, 4, 6, 8 = (-), shell = FG)		65	Stripped and Tinned Leads	
32	9 pin "D" type, female (Pins 8 = (+), pins 5=(-), all others=NC)		70	2.1 x 5.5 x 11 mm right angle barrel plug (high retention) Center positive	
33	2.5 x 5.5 x 12.5 mm straight barrel plug - Center positive		71	2.5 x 5.5 x 11 mm right angle barrel plug (high retention) Center positive	
40	2.1 x 5.5 x 9.5 mm right angle barrel plug (high retention) Center positive		72	2.1 x 5.5 x 9.5 mm straight barrel plug (high retention, no spark) Center positive	
41	2.5 x 5.5 x 9.5 mm right angle barrel plug (high retention) Center positive		73	2.5 x 5.5 x 9.5 mm straight barrel plug (high retention, no spark) Center positive	
42	2.1 x 5.5 x 11 mm straight barrel plug (high retention) Center positive		74	EIAJ#5 style connector Central positive	
43	2.1 x 5.5 x 11 mm straight barrel plug (high retention) Center positive		99	Micro USB	
44	2.1 x 5.5 x 9.5 mm straight barrel plug, locking - Center positive				

These are the most common standard connectors. SL Power has the capability to incorporate any non-standard output connector. All output connectors are limited by wattage range and application type. The SL Power applications team is available to provide professional support and can be contacted here: [info@slpower.com](mailto:info@slpower.com).

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