ME60

60W Single Output External Power
Medical Series

Features

- 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 60W of AC-DC Power
- Universal Input 90-264Vac Input Range
- 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 Year Warranty
- IP22 Rated Enclosure

Description

A high performance AC to DC external power supply family designed for medical applications. The ME60A Medical Series low power external AC-DC power supplies are approved to safety EN/IEC/UL60601-1, 3rd edition and EN/IEC/UL60601-1-11:2010 for Home Healthcare (non-hospital use) applications with and isolation levels which satisfy the 2 MOPP requirements and designed to UL/EN/IEC60601-1-2, 4th edition for EMC*. The ME60A Series models will operate at universal input range of 90 to 264Vac over the wide temperature range of -20°C to +50°C, delivering full rated output power up to +40°C and applicable output power derating at 50°C. These models are available in desktop versions, include an IP22 rating per IEC60529 for the enclosure, and the output cable can be terminated at a variety of output connectors.

*Consult Factory for Table 9 compliance information.

Model Selection

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Output Connector	Input Configuration
ME60A0551F01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%	6 pin Molex Type[2]	Class I Desktop, IEC60320 C14 Receptacle
ME60A1203F01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	
ME60A1503F01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%		
ME60A1803F01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%		
ME60A2403F01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%		
ME60A4803F01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%		
ME60A0551N01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%	6 pin Molex Type[3]	Class II Desktop, IEC60320 C8 Receptacle
ME60A1203N01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	
ME60A1503N01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%		
ME60A1803N01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%		
ME60A2403N01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%		
ME60A4803N01	48.0V	1.35A	60W	480mV pk-pk	±1%	±5%		
ME60A0551Q01	5.0V	7.00A	35W	75mV pk-pk	±1%	±5%	6 pin Molex Type[3]	Class II Desktop, IEC60320 C18 Receptacle
ME60A1203Q01	12.0V	5.00A	60W	120mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	
ME60A1503Q01	15.0V	4.00A	60W	150mV pk-pk	±1%	±5%		
ME60A1803Q01	18.0V	3.30A	60W	180mV pk-pk	±1%	±5%		
ME60A2403Q01	24.0V	2.70A	60W	240mV pk-pk	±1%	±5%		
ME60A4803Q01	48.0V	1.35A	60W	480mV 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. For 5V models, values listed are typical, 100mV pk-pk maximum.
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 (TE60B1203F01).
4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

General Specifications

AC Input	100-240Vac, ±10%, 47-63Hz, 1∅	**Turn On Time**	Less than 1 sec @115Vac, full load
Input Current	100Vac: 1.5A, 240Vac: 0.7A	**Hold-up Time**	20mS min., at full Load, 100Vac input
Inrush Current	264Vac, cold start: will not exceed 40A	**Overtemperature Protection**	Will shutdown upon an overtemperature condition, auto-recovery.
Input Fuses	F1, F2: 2A, 250Vac fuses (line & neutral lines) provided on all models	**Overload Protection**	130 to 180% of rating, Hiccup Mode
Earth Leakage Current	Input-GND: <500µA@264Vac, 60Hz, NC Output-GND: <4mA@264Vac, 60Hz, NC	**Short Circuit Protection**	Hiccup Mode, auto recovery.
Efficiency	>88%, typical	**Overvoltage Protection**	130 to 150% of output voltage (max. 60V on 48V model), hiccup mode
Output Power	60W continuous – See models chart for specific voltage model ratings.	**Isolation**	Input-Output: 2 MOPP Input-Ground: 1 MOPP Output-Ground: 1 MOPP
No Load Input Power	<0.210W (meets DoE Efficiency Level VI Requirements)	**Safety Standards**	EN/IEC/UL60601-1, 3rd edition and EN/IEC/UL60601-1-11:2010 for Home Healthcare
Ripple and Noise	See models chart on pg 1.	**Operating Temperature**	-20°C to +70°C. Derate above 40°C. Start Up at -40°C, full load, (warmup period before all parameters are within published specifications).
Output Voltage	See models chart on pg 1.	**Temperature Derating**	See derating curve.
Transient Response	500µs 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/µs. Max. voltage deviation is +/-3.5%.	**Storage Temperature**	-40°C to +85°C
Regulation	See models chart on pg 1.	**Altitude**	Operating: to 5000m. Non-operating: -500 to 40,000 ft.
Drop Test	1.4m from table top to wooden platform, 4 faces.	**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	**Shock**	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis
Dimensions	W: 2.67" x L: 4.25" x H: 1.29" W: 67.9mm x L: 108mm x H: 32.7mm	**MTBF**	>250,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6.
Weight	400g	**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 model)

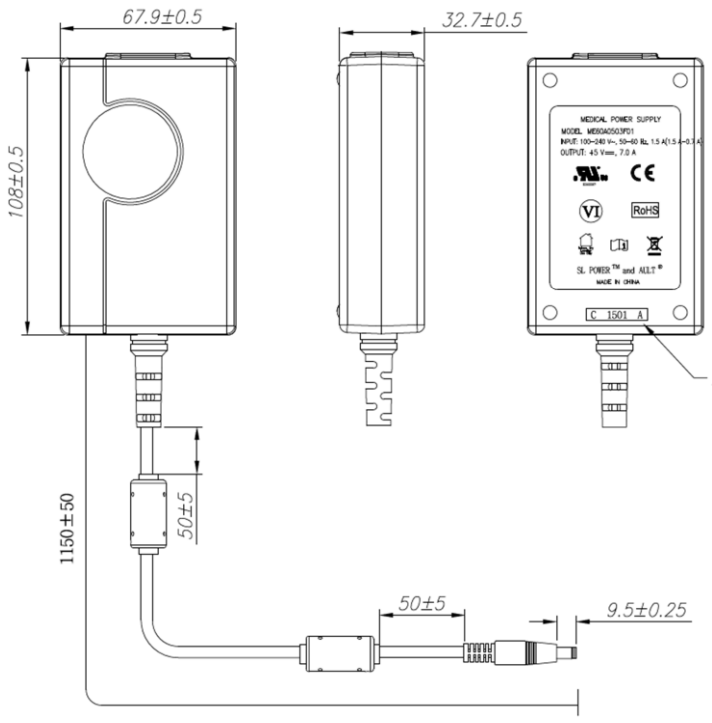
All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

EMI/EMC Compliance

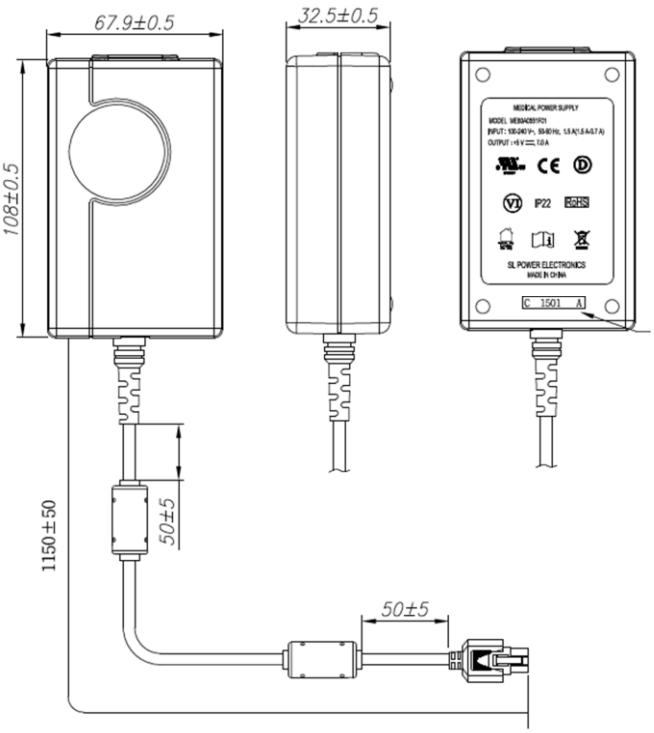
Conducted Emissions:	EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
Radiated Emissions:	EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 and 230Vac
Common Mode Noise:	High Frequency (100kHz-20MHz): <40mA pk-pk
Electro-Static Discharge (ESD) 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	EN55022/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, +/- 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	EN55022/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: 30 A/m, 50/60 Hz IEC60601-1-2, 4th Edition, Table 4
Voltage Interruptions, Dips, Sags & Surges	EN55024/IECEN61000-4-11: --100% dip for 10 mS, at 0, 45, 90, 135, 180, 225, 270 and 315 degrees, 100% dip for 20mS, 0 deg., Criteria A --100% dip for 5000mS (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

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.

Mechanical Drawing



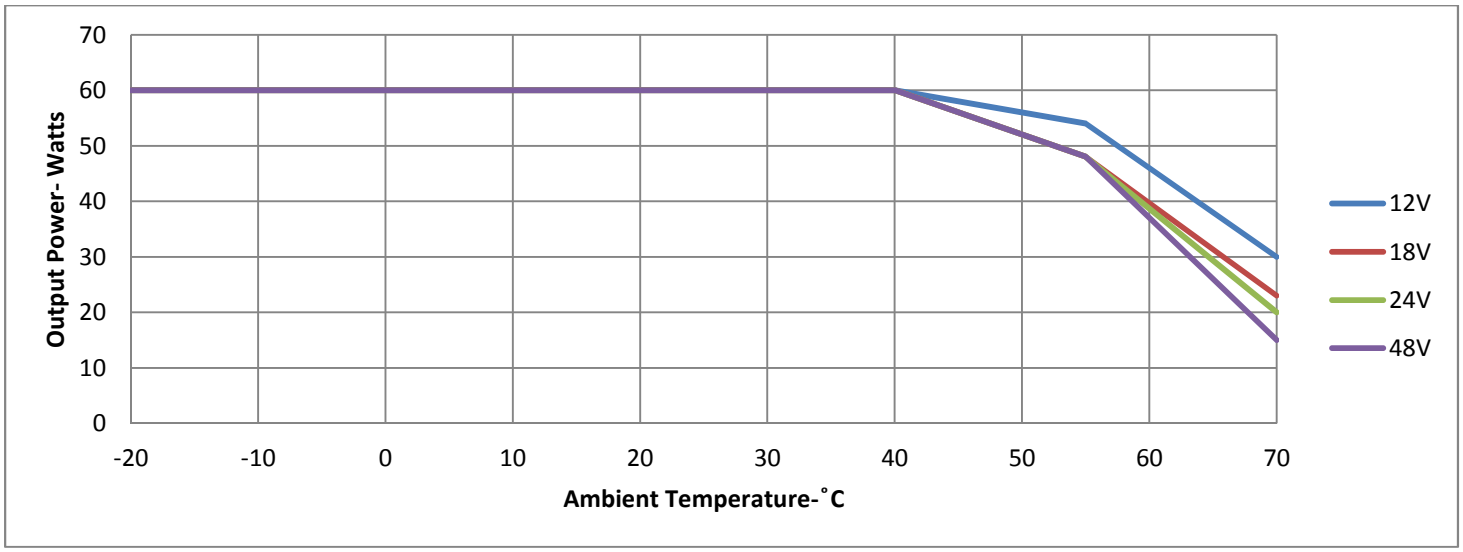
12V through 48V Models: 2.5 x 5.5 x 9.5mm
Barrel Connector, center positive.



5V Models: Output Connector: 6 pin Molex 39-01-2060
or equiv. Pins 1, 4 = (+), pins 3, 6 = (-), pins 2, 5 = NC

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.

Derating Chart:



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

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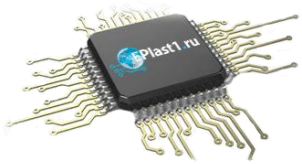
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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