ME40

40W 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
  - 2 MOPP Input to Output Isolation
- Meets DoE Efficiency Level VI Requirements
  - No load input power
  - Average Efficiency
- Up to 40W of AC-DC Power
- Universal Input 90-264Vac Input Range
- Desktop and Wall-Plug versions
- Meets EN55011/CISPR11, FCC Part 15.109 Class B Conducted & Radiated Emissions, with 6db margin
- IP22 Rated Enclosure
- E-cap life of >8 years
- >1,000,000 hours MTBF
- 3 Year Warranty

Description

A high performance AC to DC external power supply family designed for medical applications. The ME40A Medical Series power supplies are approved to safety EN/IEC/UL60601-1, 3rd edition with isolation levels which satisfy the 2 MOPP requirements and designed to UL/EN/IEC60601-1-2, 4th edition for EMC*. The ME40A Series models will operate at universal input range of 90 to 264Vac over the wide temperature range of -20°C to +70°C.

*Consult Factory for Table 9 compliance information.

Model Selection

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Overvoltage Trip Range	Output Connector	Input Configuration
ME40A0503F01	5.0V	5.00A	25W	100mV pk-pk	±1%	±5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class I Desktop, IEC60320 C14 Receptacle
ME40A0903F01	9.0V	4.00A	36W	100mV pk-pk	±1%	±5%	120%-150%		
ME40A1203F01	12.0V	3.40A	40W	120mV pk-pk	±1%	±5%	120%-150%		
ME40A1503F01	15.0V	2.66A	40W	150mV pk-pk	±1%	±5%	120%-150%		
ME40A1803F01	18.0V	2.22A	40W	180mV pk-pk	±1%	±5%	120%-150%		
ME40A2403F01	24.0V	1.70A	40W	240mV pk-pk	±1%	±5%	120%-140%		
ME40A0503N01	5.0V	5.00A	25W	100mV pk-pk	±1%	±5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C8 Receptacle
ME40A0903N01	9.0V	4.00A	36W	100mV pk-pk	±1%	±5%	120%-150%		
ME40A1203N01	12.0V	3.40A	40W	120mV pk-pk	±1%	±5%	120%-150%		
ME40A1503N01	15.0V	2.66A	40W	150mV pk-pk	±1%	±5%	120%-150%		
ME40A1803N01	18.0V	2.22A	40W	180mV pk-pk	±1%	±5%	120%-150%		
ME40A2403N01	24.0V	1.70A	40W	240mV pk-pk	±1%	±5%	120%-140%		
ME40A0503Q01	5.0V	5.00A	25W	100mV pk-pk	±1%	±5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C18 Receptacle
ME40A0903Q01	9.0V	4.00A	36W	100mV pk-pk	±1%	±5%	120%-150%		
ME40A1203Q01	12.0V	3.40A	40W	120mV pk-pk	±1%	±5%	120%-150%		
ME40A1503Q01	15.0V	2.66A	40W	150mV pk-pk	±1%	±5%	120%-150%		
ME40A1803Q01	18.0V	2.22A	40W	180mV pk-pk	±1%	±5%	120%-150%		
ME40A2403Q01	24.0V	1.70A	40W	240mV pk-pk	±1%	±5%	120%-140%		
ME40A0503B01	5.0V	5.00A	25W	100mV pk-pk	±1%	±5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Wall-Plug, Interchangeable Blades[2]
ME40A0903B01	9.0V	4.00A	36W	100mV pk-pk	±1%	±5%	120%-150%		
ME40A1203B01	12.0V	3.40A	40W	120mV pk-pk	±1%	±5%	120%-150%		
ME40A1503B01	15.0V	2.66A	40W	150mV pk-pk	±1%	±5%	120%-150%		
ME40A1803B01	18.0V	2.22A	40W	180mV pk-pk	±1%	±5%	120%-150%		
ME40A2403B01	24.0V	1.70A	40W	240mV pk-pk	±1%	±5%	120%-140%		
ME40A0503C01	5.0V	5.00A	25W	100mV pk-pk	±1%	±5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Wall-Plug, Fixed North American Blades[3]
ME40A0903C01	9.0V	4.00A	36W	100mV pk-pk	±1%	±5%	120%-150%		
ME40A1203C01	12.0V	3.40A	40W	120mV pk-pk	±1%	±5%	120%-150%		
ME40A1503C01	15.0V	2.66A	40W	150mV pk-pk	±1%	±5%	120%-150%		
ME40A1803C01	18.0V	2.22A	40W	180mV pk-pk	±1%	±5%	120%-150%		
ME40A2403C01	24.0V	1.70A	40W	240mV pk-pk	±1%	±5%	120%-140%		

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. Standard models are fitted with North American blades. Order blade kit KT-1027K for other blades (EU. UK, Australia)
3. For EU fixed blades, replace "C" in the model number with "M", for UK blades, replace "C" with "G", for Australia blades, replace "C" with "H".
4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.
5. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (TE40B1203F01).

General Specifications

Parameter	Specification	Parameter	Specification
AC Input	100-240Vac, ±10%, 47-63Hz, 1∅	**Turn On Time**	Less than 700mS @115Vac, full load
Input Current	115Vac: 1.2A, 230Vac: 01.6A	**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 over-temperature condition, auto-recovery.
Input Fuses	F1, F2: 2.0A, 250Vac fuses (line & neutral lines) provided on all models	**Overload Protection**	130 to 180% of rating, Hiccup Mode
Earth Leakage Current (Input to Ground)	<500µA@264Vac, 60Hz, NC <1mA@264Vac, 60Hz, SFC	**Short Circuit Protection**	Hiccup Mode, auto recovery.
Patient Leakage Current (Output to Earth)	<100µA@264Vac, 60Hz, NC <500µA@264Vac, 60Hz, SFC	**Overvoltage Protection**	Hiccup mode. See models chart for trip ranges.
Efficiency	>87%, typical	**Isolation**	Input-Output: 2 MOPP Input-Ground: 1 MOPP Output-Ground: 1 MOPP
Output Power	40W continuous – See models chart for specific voltage model ratings.	**Safety Standards**	EN/IEC/UL60601-1, 3rd edition and
No Load Input Power	<0.1W per DoE Efficiency Level VI Requirements	**Operating Temperature**	-20°C to +70°C
Ripple and Noise	See models chart on pg 1.	**Temperature Derating**	See derating chart
Output Voltage	See models chart on pg 1.	**Storage Temperature**	-40°C to +85°C
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%.	**Altitude**	Operating: to 5000m. Non-operating: -500 to 40,000 ft.
Regulation	See models chart on pg 1.	**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 50G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis
Drop Test	1.4m from table top to wooden platform, 6 faces.	**MTBF**	>1,000,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6.
Weight	250g	**E-Cap Life**	>8 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.

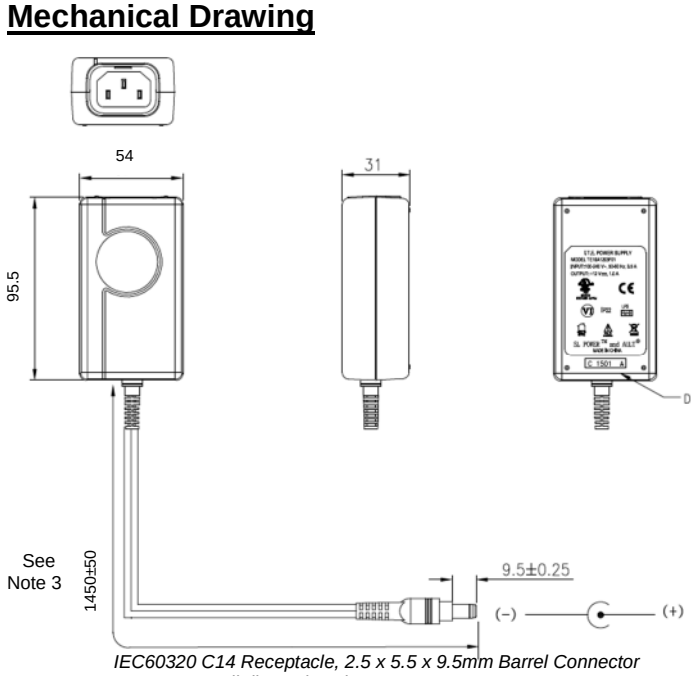
All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

EMI/EMC Compliance

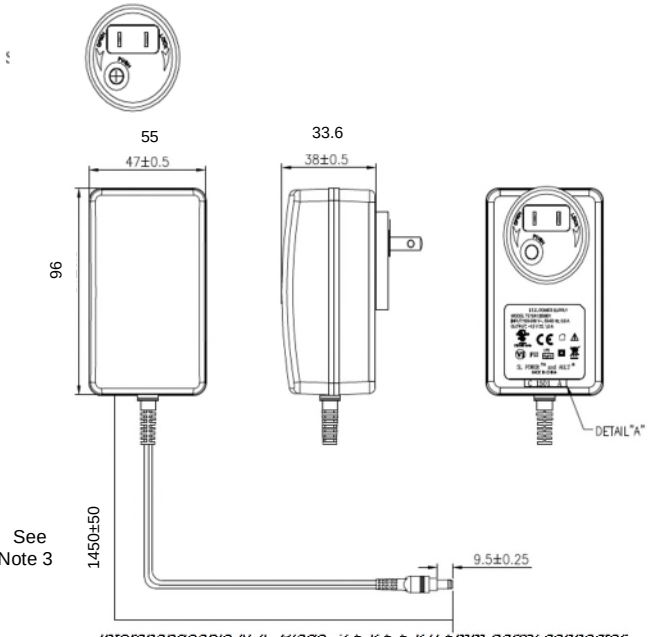
Parameter	Specification
Conducted Emissions:	EN55011/CISPR22 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
Radiated Emissions:	EN55022/CISPR22 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 and 230Vac
Common Mode Noise:	High Frequency (100kHz-20MHz): <40mA pk-pk
Electro-Static 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, +/- 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



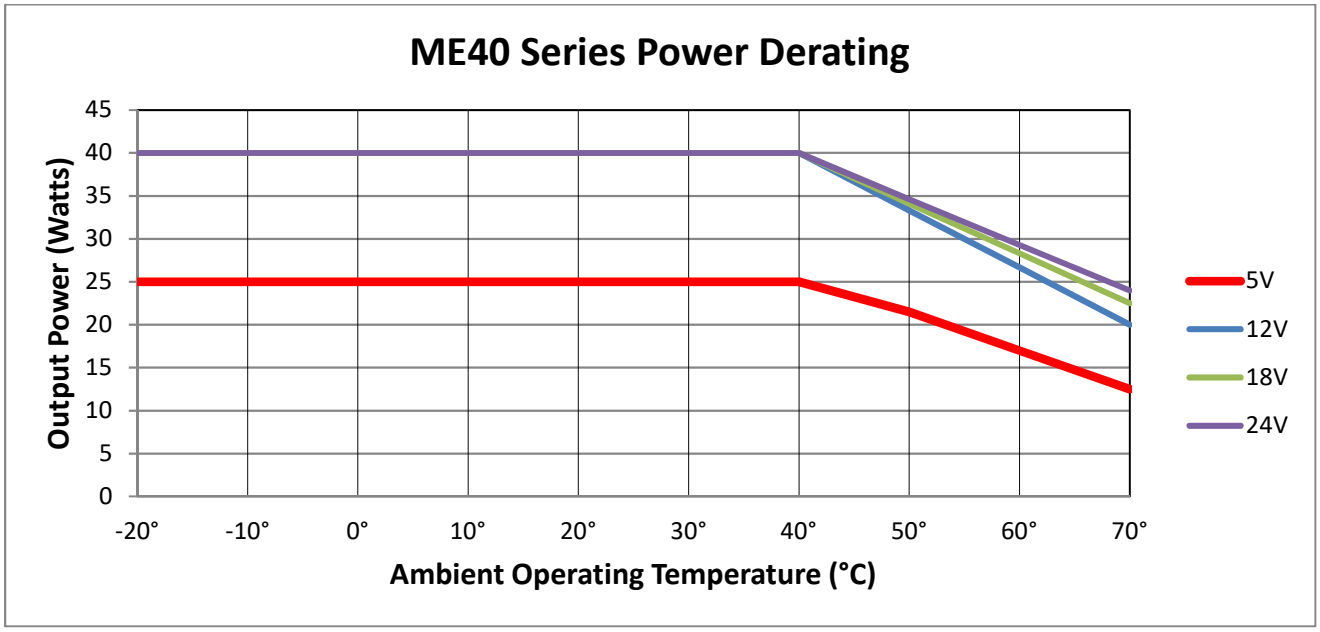
IEC60320 C14 Receptacle, 2.5 x 5.5 x 9.5mm Barrel Connector



Interchangeable N.A. Blade, 2.5 x 5.5 x 9.5mm barrel connector

Notes:
1. All dimensions in mm.
2. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, Aust.) order blade kit KT1027K.
3. Cable length for 5V through 12V models is 1200mm +/- 50mm

Derating Chart: (15V model derating is same as 12V model below)



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:

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.

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SL Power:

ME40A2403F01 ME40A1803F01 ME40A1203F01 ME40A1203B01 ME40A2403B01 ME40A1803B01 ME40A1203C01 ME40A1802C01 ME40A1802F01 ME40A1803N01 ME40A2402Q01 ME40A1202C01 ME40A2402N01 ME40A1802Q01 ME40A2402C01 ME40A1202B01 ME40A1202Q01 ME40A2402F01 ME40A1202N01 ME40A1202F01 ME40A1802B01 ME40A2402B01 ME40A1803C01 ME40A2403C01 ME40A1203N01 ME40A2403N01 ME40A1802N01