SL POWER
ME40 Series

40 Watts Single Output External Power Adapter
Medical Grade

Medical

Advanced Energy's SL Power ME40 series of desktop and wall-plug AC-DC external power adapter comprises five output models. All models feature medical safety approvals and accept a universal input of 90 to 264 VAC. ME40 series power adapters provide up to 40 Watts of output power with IP22 rated enclosure and are ideal for applications that are used in environments where AC mains power may be noisy or unstable and equipment shutdown is not an option.

AT A GLANCE

Total Power

40 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Single

SPECIAL FEATURES

- A high performance power supply designed for Medical applications
- Great EMI, EMC, and noise performance ensures easy integration into the end equipment
- Up to 40 W of AC-DC Power
- IP22 Rated Enclosure*
- Meets EN55011/CISPR11, FCC Part 15.109 Class B Conducted & Radiated Emissions, with 6db Margin
- Meets UL/EN/IEC60601-1-2, 4th edition for EMC
- >8 Years E-Cap Life
- >1,000,000 Hours MTBF
- 3 Years Warranty
- Meets DoE Efficiency Level VI Requirements
- RoHS Compliant

Note: *IP22 does not include interchangeable blade versions.

SAFETY

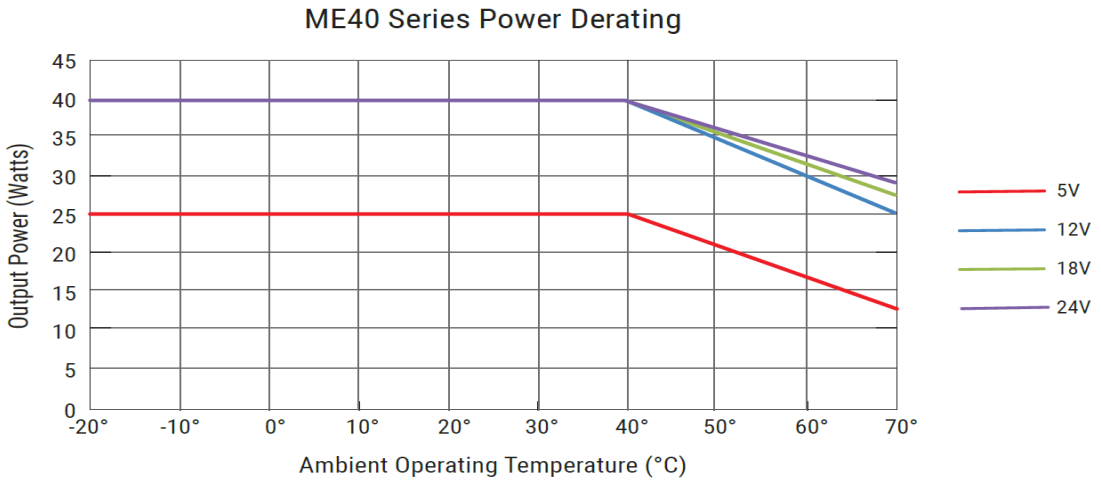
- IEC/EN/UL60601-1, 3rd edition
- CE Mark
- UKCA Mark

ELECTRICAL SPECIFICATIONS

Input	
Input range	100 to 240 VAC, ±10%, 47 to 63 Hz, 1Ø
Input current	1.2 A @ 115 VAC, 0.6 A @ 230 VAC
Inrush current	40 A max., cold start @ 264 VAC input
Input fuses	F1, F2: 2 A, 250 VAC fuses (line & neutral lines) provided on all models
Leakage current Input to GND Output to Earth	 <500 µA @ 264 VAC, 60 Hz, NC <4 mA @ 264 VAC, 60 Hz, NC
Efficiency	87%, Typical
Common Mode Noise	High frequency (100kHz to 20MHz); <40mA pk-pk
No load input power	<0.1 W per DoE Efficiency Level VI Requirements
Output	
Output voltage	See models chart on page 5
Output power	40 W continuous - See models chart for specific voltage model ratings
Turn on time	Less than 700 mS @ 115 VAC, full load
Hold-up time	20 mS min., at full load, 100 VAC input
Ripple and noise	See models chart on page 5
Transient response	500 µS 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, Δi/Δt < 0.2 A/µS. Max. voltage deviation is ±3.5%
Regulation	See models chart on page 5
Reliability	
MTBF	>1,000,000 hours, full load, 110 VAC & 220 VAC input, 25°C amb., per Telcordia 332 Issue 6, Stress Method
E-cap Life	>8 years 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
Protection	
Overtemperature protection	Will shutdown upon an overtemperature condition, auto-recovery
Overload protection	130% to 180% of rating, hiccup mode
Overvoltage protection	Hiccup mode, see models chart on page 5 for OVP range
Short circuit protection	Hiccup mode, auto-recovery
Safety	
Safety standards	Approved to EN/IEC/UL60601-1, 3rd edition
Drop test	1.4 m from table top to wooden platform, 6 faces
Isolation	
Isolation	Input to Output: 4000 VAC Input to Ground: 1500 VAC Output to Ground: 1500 VAC

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

DERATING CHART



EMI/EMC COMPLIANCE

Conducted emissions	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 6db margin typ., at 115 VAC and 230VAC
Radiated emissions	IEC60601-1-2/EN55011/CISPR11 Class B, FCC Part 15, Class B, 3db margin typ., at 115 VAC and 230VAC
Electro-static discharge (ESD) immunity on power ports	EN55024/IEC61000-4-2, Level 4: ±8 kV contact, ±15 kV air, Criteria A
Radiated RF EM fields susceptibility	EN55022/EN61000-4-3, 10 V/m, 80 MHz to 2.7 GHz, 80% AM at 1 kHz
Electrical Fast Transients (EFT)/Burst immunity	EN55024/IEC61000-4-4, Level 4, ±4 kV, 100 kHz rep rate, 40 A, Criteria A
Surges, line to line (Diff mode) and line to ground (CMN mode)	EN55024/IEC61000-4-5, Level 4, ±2 kV DM, ±4 kV CM, Criteria A
Conducted disturbances induced by RF fields	EN55022/IEC61000-4-6, 3.6V/m - Level 4, 0.15 MHz to 80 MHz; and 12 V/m in ISM and amateur radio bands between 0.15 MHz and 80 MHz, 80% AM at 1 kHz
Rated power frequency magnetic fields	EN55024/IEC1000-4-8, Level 4: 30 A/m, 50 Hz / 60 Hz
Voltage interruptions, Dips, Sags & Surges	EN55024/IEC/EN61000-4-11: --100% dip for 20 mS, Criteria A --100% dip for 5000 mS (250/300 cycles), Criteria B --60% dip for 100 mS, Criteria B --30% dip for 500 mS, Criteria A
Harmonic current emissions	EN55011/EN61000-3-2, Class A
Flicker test	EN61000-3-3

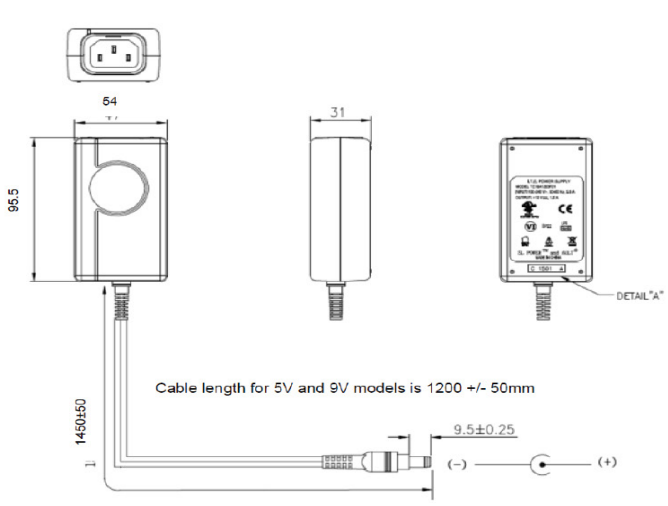
Note:
All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

ENVIRONMENTAL SPECIFICATIONS

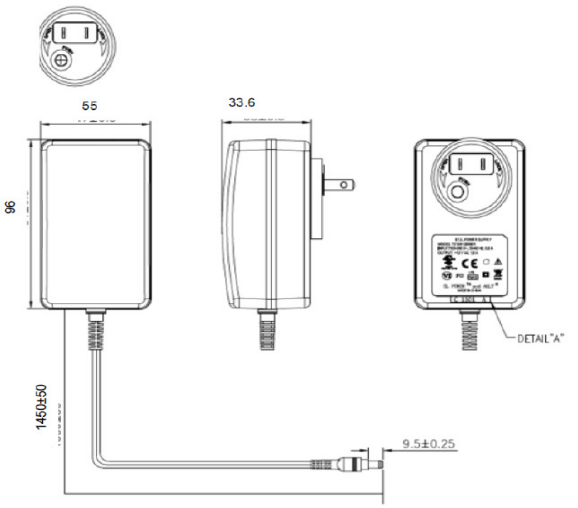
Operating temperature	-20°C to +70°C Start up at -40°C, full load (warmup period before all parameters are within published specifications)
Storage temperature	-40°C to +85°C
Relative humidity	5% to 95%, non-condensing
Weight	250 grams
Temperature derating	See derating chart
Altitude	Operating: to 4000 m Non-operating: -500 ft to 40000 ft
Vibration	Operating: 0.003 g/Hz, 1.5 grams overall, 3 axes, 10 min/axis, 1 Hz to 500 Hz Non-Operating: random waveform, 3 minutes/axis, 3 axes and sine waveform, Vib. frequency/acceleration: 10Hz to 500 Hz/1g, sweep rate of 1 oct/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 6ms Number of shocks: 3 for each of the three axis

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

MECHANICAL DRAWING



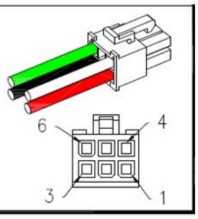
IEC60320 C14 Receptacle, 2.5mm x 5.5mm x 9.5mm Barrel Connector



Interchangeable N.A. Blade, 2.5mm x 5.5mm x 9.5mm Barrel Connector

Notes:
1. Weight: 250 grams.
2. All dimensions in mm.
3. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, AU) order blade kit KT1027K.
4. The unit should not be covered or enclosed to protect against excessive case temperature rise.
5. Pins 4,5,6 are located closest to the locking tab.

LEADWIRE HOOK-UP		
PIN #	FUNCTION	COLOR
1	+V	RED
2	NC	-
3	COMMON	BLACK
4	+V	WHITE
5	NC	-
6	COMMON	GREEN
	BRAID	FG4



ORDERING INFORMATION

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Overvoltage Trip Range	Output Connector	Input Configuration
ME40A0503F01	5.0 V	5.0 A	25 W	100mV pk-pk	± 1%	± 5%	6.0V to 7.5V	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class I Desktop, IEC60320 C14 Receptacle[2]
ME40A0903F01	9.0 V	4.0 A	36 W	100mV pk-pk	± 1%	± 5%	10.8V to 13.5V		
ME40A1203F01	12.0 V	3.4 A	40 W	120mV pk-pk	± 1%	± 5%	14.4V to 18.0V		
ME40A1803F01	18.0 V	2.22 A	40 W	180mV pk-pk	± 1%	± 5%	21.6V to 27.0V		
ME40A2403F01	24.0 V	1.70 A	40 W	240mV pk-pk	± 1%	± 5%	28.8V to 33.6V		
ME40A0503N01	5.0 V	5.0 A	25 W	100mV pk-pk	± 1%	± 5%	6.0V to 7.5V	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Desktop, IEC60320 C8 Receptacle
ME40A0903N01	9.0 V	4.0 A	36 W	100mV pk-pk	± 1%	± 5%	10.8V to 13.5V		
ME40A1203N01	12.0 V	3.4 A	40 W	120mV pk-pk	± 1%	± 5%	14.4V to 18.0V		
ME40A1803N01	18.0 V	2.22 A	40 W	180mV pk-pk	± 1%	± 5%	21.6V to 27.0V		
ME40A2403N01	24.0 V	1.70 A	40 W	240mV pk-pk	± 1%	± 5%	28.8V to 33.6V		
ME40A0503Q01	5.0 V	5.0 A	25 W	100mV pk-pk	± 1%	± 5%	6.0V to 7.5V	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Desktop, IEC60320 C18 Receptacle
ME40A0903Q01	9.0 V	4.0 A	36 W	100mV pk-pk	± 1%	± 5%	10.8V to 13.5V		
ME40A1203Q01	12.0 V	3.4 A	40 W	120mV pk-pk	± 1%	± 5%	14.4V to 18.0V		
ME40A1803Q01	18.0 V	2.22 A	40 W	180mV pk-pk	± 1%	± 5%	21.6V to 27.0V		
ME40A2403Q01	24.0 V	1.70 A	40 W	240mV pk-pk	± 1%	± 5%	28.8V to 33.6V		
ME40A0503B01	5.0 V	5.0 A	25 W	100mV pk-pk	± 1%	± 5%	6.0V to 7.5V	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Wall-Plug, Interchangeable Blades (North American Blade included)[3]
ME40A0903B01	9.0 V	4.0 A	36 W	100mV pk-pk	± 1%	± 5%	10.8V to 13.5V		
ME40A1203B01	12.0 V	3.4 A	40 W	120mV pk-pk	± 1%	± 5%	14.4V to 18.0V		
ME40A1803B01	18.0 V	2.22 A	40 W	180mV pk-pk	± 1%	± 5%	21.6V to 27.0V		
ME40A2403B01	24.0 V	1.70 A	40 W	240mV pk-pk	± 1%	± 5%	28.8V to 33.6V		
ME40A0503C01	5.0 V	5.0 A	25 W	100mV pk-pk	± 1%	± 5%	6.0V to 7.5V	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Wall-Plug, Fixed North American Blades[4]
ME40A0903C01	9.0 V	4.0 A	36 W	100mV pk-pk	± 1%	± 5%	10.8V to 13.5V		
ME40A1203C01	12.0 V	3.4 A	40 W	120mV pk-pk	± 1%	± 5%	14.4V to 18.0V		
ME40A1803C01	18.0 V	2.22 A	40 W	180mV pk-pk	± 1%	± 5%	21.6V to 27.0V		
ME40A2403C01	24.0 V	1.70 A	40 W	240mV pk-pk	± 1%	± 5%	28.8V to 33.6V		

Notes:

1. Measured at the output connector, with noise probe directly across output and load terminated with 0.1 µF ceramic and 10 µF low ESR capacitors. For 5 V and 6 V models, values listed are typical 100 mV pk-pk maximum with 0.1 µF ceramic and 47 µF low ESR capacitors used at measurement point.
2. For input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (ME40B1203F01).
3. Order blade kit KT-1027K for other blades (EU, UK, Australia).
4. 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".
5. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

CONNECTOR INFORMATION

Standard models include a 2.5mm x 5.5mm 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	2.5 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 (Pin 8 = (+); pin 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	2.5 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 		

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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