ME10

10W-12W 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 applications with and isolation levels which satisfy the 2 MOPP requirements
- Meets DoE Efficiency Level VI Requirements
  - No load input power
  - Average Efficiency
- Up to 12W 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
- E-cap life of >7 years
- <1,000,000 Hours MTBF
- 3 Year Warranty
- IP22 Rated Enclosure

Description

A high performance AC to DC external power supply family designed for medical applications. The ME10 Medical Series external AC-DC 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 ME10 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 and wall-plug versions, include an IP22 rating per IEC60529 for the enclosure, and output cable 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
ME10A0503F01	5.0V	2.0A	10W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class I Desktop, IEC60320 C14 Receptacle
ME10A0603F01	5.9V	1.6A	10W	75mV pk-pk	±1%	±5%		
ME10A0703F01	7.5V	1.3A	10W	75mV pk-pk	±1%	±5%		
ME10A0903F01	9.0V	1.1A	10W	90mV pk-pk	±1%	±5%		
ME10A1203F01	12.0V	1.0A	12W	120mV pk-pk	±1%	±5%		
ME10A1503F01	15.0V	0.8A	12W	150mV pk-pk	±1%	±5%		
ME10A2403F01	24.0V	0.5A	12W	240mV pk-pk	±1%	±5%		
ME10A0503N01	5.0V	2.0A	10W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C8 Receptacle
ME10A0603N01	5.9V	1.6A	10W	75mV pk-pk	±1%	±5%		
ME10A0703N01	7.5V	1.3A	10W	75mV pk-pk	±1%	±5%		
ME10A0903N01	9.0V	1.1A	10W	90mV pk-pk	±1%	±5%		
ME10A1203N01	12.0V	1.0A	12W	120mV pk-pk	±1%	±5%		
ME10A1503N01	15.0V	0.8A	12W	150mV pk-pk	±1%	±5%		
ME10A2403N01	24.0V	0.5A	12W	240mV pk-pk	±1%	±5%		
ME10A0503Q01	5.0V	2.0A	10W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C18 Receptacle
ME10A0603Q01	5.9V	1.6A	10W	75mV pk-pk	±1%	±5%		
ME10A0703Q01	7.5V	1.3A	10W	75mV pk-pk	±1%	±5%		
ME10A0903Q01	9.0V	1.1A	10W	90mV pk-pk	±1%	±5%		
ME10A1203Q01	12.0V	1.0A	12W	120mV pk-pk	±1%	±5%		
ME10A1503Q01	15.0V	0.8A	12W	150mV pk-pk	±1%	±5%		
ME10A2403Q01	24.0V	0.5A	12W	240mV pk-pk	±1%	±5%		

Model Selection (continued)

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Output Connector	Input Configuration
ME10A0503B01	5.0V	2.0A	10W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Wall-Plug, Interchangeable Blades (North American Blade included)[2]
ME10A0603B01	5.9V	1.6A	10W	75mV pk-pk	±1%	±5%		
ME10A0703B01	7.5V	1.3A	10W	75mV pk-pk	±1%	±5%		
ME10A0903B01	9.0V	1.1A	10W	90mV pk-pk	±1%	±5%		
ME10A1203B01	12.0V	1.0A	12W	120mV pk-pk	±1%	±5%		
ME10A1503B01	15.0V	0.8A	12W	150mV pk-pk	±1%	±5%		
ME10A2403B01	24.0V	0.5A	12W	240mV pk-pk	±1%	±5%		
ME10A0503C01	5.0V	2.0A	10W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Wall-Plug, Fixed North American Blades[3]
ME10A0603C01	5.9V	1.6A	10W	75mV pk-pk	±1%	±5%		
ME10A0703C01	7.5V	1.3A	10W	75mV pk-pk	±1%	±5%		
ME10A0903C01	9.0V	1.1A	10W	90mV pk-pk	±1%	±5%		
ME10A1203C01	12.0V	1.0A	12W	120mV pk-pk	±1%	±5%		
ME10A1503C01	15.0V	0.8A	12W	150mV pk-pk	±1%	±5%		
ME10A2403C01	24.0V	0.5A	12W	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. For 5V and 6V models, values listed are typical, 100mV pk-pk maximum with 0.1µF ceramic and 47µF low ESR capacitors used at measurement point.
2. 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. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (ME10B0503F01).
5. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

General Specifications

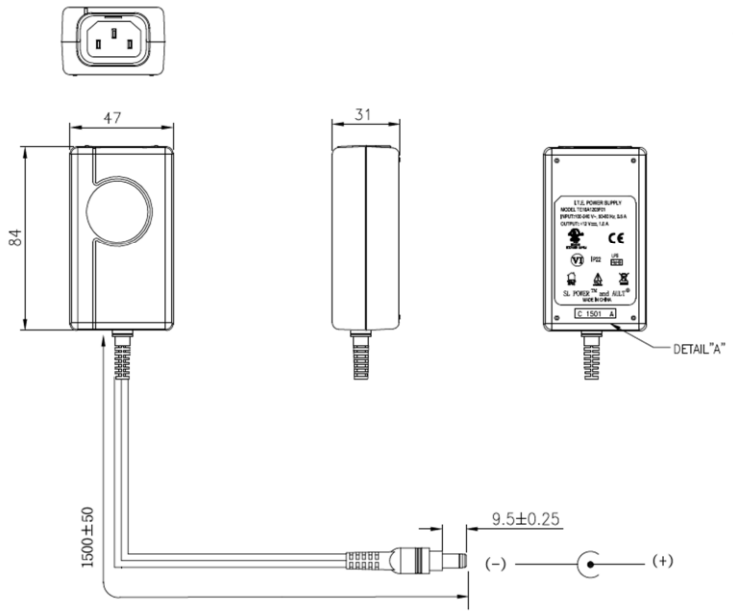
AC Input	100-240Vac, ±10%, 47-63Hz, 1∅	**Turn On Time**	Less than 700mS @115Vac, full load
Input Current	115Vac: 0.45A, 230Vac: 0.22A	**Hold-up Time**	20mS min., at full Load, 100Vac input
Inrush Current	264Vac, cold start: will not exceed 40A	**Overtemperature Protection**	Will shutdown upon an overtemperature condition, auto-recovery.
Input Fuses	F1, F2: 3.15A, 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	>87%, typical	**Overvoltage Protection**	130 to 150% of output voltage, hiccup mode
Output Power	10 to 12W continuous – See models chart for specific voltage model ratings.	**Isolation**	Input-Output: 2 MOPP Input-Ground: 1 MOPP Output-Ground: 1500Vac
No Load Input Power	<0.1W per 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	**Operating Temperature**	-20°C to +70°C
Output Voltage	See models chart	**Temperature Derating**	See derating chart
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	**Altitude**	Operating: to 5000m. Non-operating: -500 to 40,000 ft.
Drop Test	1.4m from table top to wooden platform, 6 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
E-Cap Life	>10 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.	**MTBF**	>1,000,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6, Stress Method.

EMI/EMC Compliance

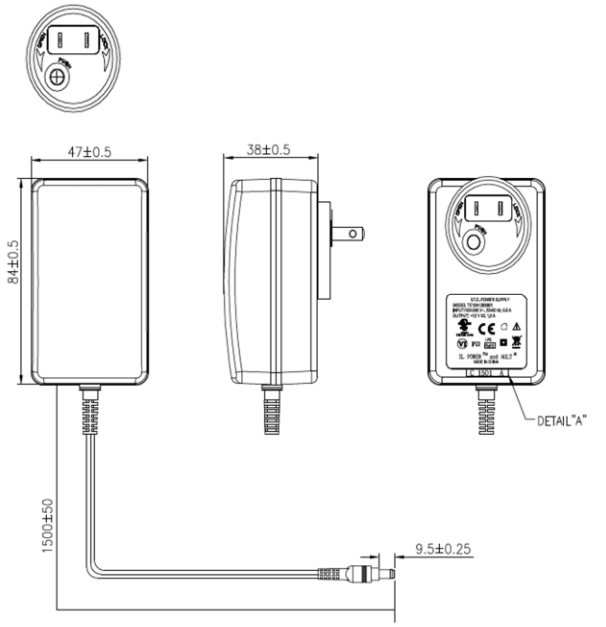
Conducted Emissions:	EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
Radiated Emissions:	EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 and 230Vac
Common Mode Noise:	High Frequency (100kHz-20MHz): <40mA pk-pk
Electro-Static Discharge (ESD) 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



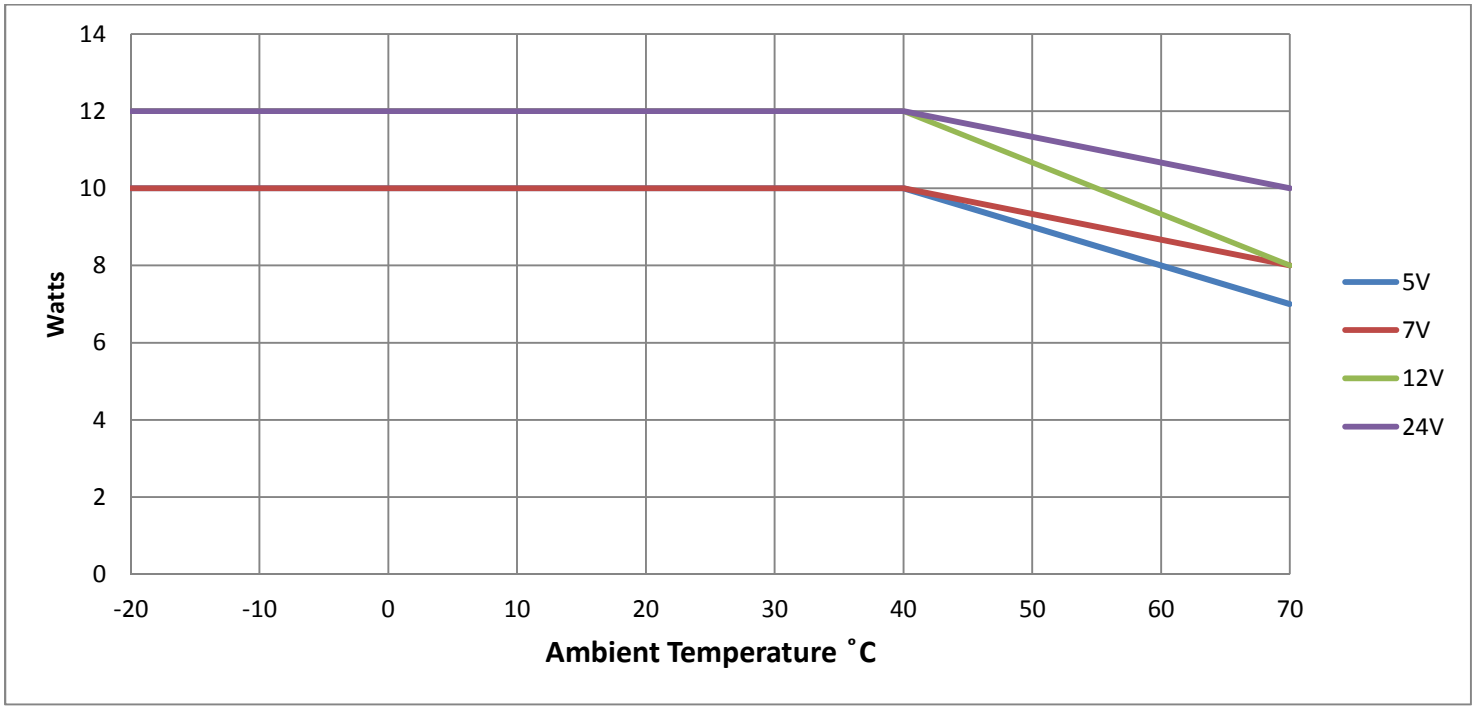
IEC60320 C14 Receptacle, 2.5 x 5.5 x 9.5mm Barrel Connector



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

Notes:
1. All dimensions in mm.
2. Weight = 110g
2. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, Aust.) order blade kit KT1027K.
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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