



## Features

- Compact size: 6.5" x 2.8" x 1.5"
- 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 and EU CoC Version 5, Tier 2 Requirements
  - No load input power
  - Average Efficiency
- Up to 150W of AC-DC Power
- Universal Input 85-264Vac Input Range
- Meets EN55011/CISPR11, FCC Part 15.109 Class B Conducted & Radiated Emissions, w/ 6db margin
- E-cap life of >10 years
- >3M hours MTBF
- IP22 Rated Enclosure
- 3 Year Warranty\*\*

## Description

A high performance AC to DC external power supply family designed for medical applications. The ME150 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 ME150 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.

\*Professional Equipment only. Consult Factory for Table 9 compliance information.

\*\*Extended Warranty terms available, consult factory.

## Model Selection

Model Number	Volts	Output Current	Output Power	Ripple & Noise <sup>1</sup>	Line Regulation	Load Regulation	Output Connector	Input Configuration
ME150A1251F01	12.0V	12.5A	150W	120mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup>	Class I Desktop, IEC60320 C14 Receptacle
ME150A1551F01	15.0V	10.0A	150W	150mV pk-pk	±1%	±5%		
ME150A1851F01	18.0V	8.33A	150W	180mV pk-pk	±1%	±5%		
ME150A2451F01	24.0V	6.25A	150W	240mV pk-pk	±1%	±5%		
ME150A4851F01	48.0V	3.20A	150W	480mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup>	Class II Desktop, IEC60320 C8 Receptacle
ME150A1251N01	12.0V	12.5A	150W	120mV pk-pk	±1%	±5%		
ME150A1551N01	15.0V	10.0A	150W	150mV pk-pk	±1%	±5%		
ME150A1851N01	18.0V	8.33A	150W	180mV pk-pk	±1%	±5%		
ME150A2451N01	24.0V	6.25A	150W	240mV pk-pk	±1%	±5%		
ME150A4851N01	48.0V	3.20A	150W	480mV pk-pk	±1%	±5%	6 pin Molex Type <sup>2</sup>	Class II Desktop, IEC60320 C18 Receptacle
ME150A1251Q01	12.0V	12.5A	150W	120mV pk-pk	±1%	±5%		
ME150A1551Q01	15.0V	10.0A	150W	150mV pk-pk	±1%	±5%		
ME150A1851Q01	18.0V	8.33A	150W	180mV pk-pk	±1%	±5%		
ME150A2451Q01	24.0V	6.25A	150W	240mV pk-pk	±1%	±5%		
ME150A4851Q01	48.0V	3.20A	150W	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.
  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 return (-), insert a "B" in the part number where the "A" is located (ME150B1251F01).
  4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.
  5. Consult factory for availability of 48V model, and models with "Q01" (C18 input receptacle).

## General Specifications

<b>AC Input</b>	100-240Vac, ±10%, 47-63Hz, 1Ø	<b>Turn On Time</b>	Less than 1 sec @115Vac, full load
<b>Input Current</b>	115Vac: 2.2A, 230Vac: 1.1A	<b>Hold-up Time</b>	20mS min., at full Load, 100Vac input
<b>Inrush Current</b>	264Vac, cold start: will not exceed 60A	<b>Overtemperature Protection</b>	Will shutdown upon an overtemperature condition, auto-recovery.
<b>Input Fuses</b>	F1, F2: 3.15A, 250Vac fuses (line & neutral lines) provided on all models	<b>Overload Protection</b>	125 to 180% of rating, Hiccup Mode
<b>Earth Leakage Current</b>	Input-GND: <500µA@264Vac, 60Hz, NC Output-GND: <4mA@264Vac, 60Hz, NC	<b>Short Circuit Protection</b>	Hiccup Mode, auto recovery.
<b>Efficiency</b>	>88%, typical	<b>Overvoltage Protection</b>	130 to 150% of output voltage, hiccup mode
<b>Output Power</b>	150W continuous – See models chart for specific voltage model ratings.	<b>Isolation</b>	Input-Output: 2 MOPP Input-Ground: 1 MOPP Output-Ground: 1 MOPP
<b>No Load Input Power</b>	<0.150W (meets DoE Efficiency Level VI and CoC Tier 2 Requirements)	<b>Safety Standards</b>	EN/IEC/UL60601-1, 3rd edition
<b>Ripple and Noise</b>	See models chart on pg 1.	<b>Operating Temperature</b>	-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).
<b>Output Voltage</b>	See models chart on pg 1.	<b>Temperature Derating</b>	Derate output power above 40°C to TBD at 50°C
<b>Transient Response</b>	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, $\Delta i/\Delta t < 0.2A/\mu s$ . Max. voltage deviation is +/-3.5%.	<b>Storage Temperature</b>	-40°C to +85°C
<b>Regulation</b>	See models chart on pg 1.	<b>Altitude</b>	Operating: to 5000m. Non-operating: -500 to 40,000 ft.
<b>Drop Test</b>	1.4m from table top to wooden platform, 4 faces. 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	<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Vibration</b>	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	<b>Shock</b>	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
<b>Dimensions</b>	W: 2.83" x L: 6.5" x H: 1.46" W: 72mm x L: 165mm x H: 37mm	<b>MTBF</b>	>250,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6.
<b>Weight</b>	700g	<b>E-Cap Life</b>	>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.

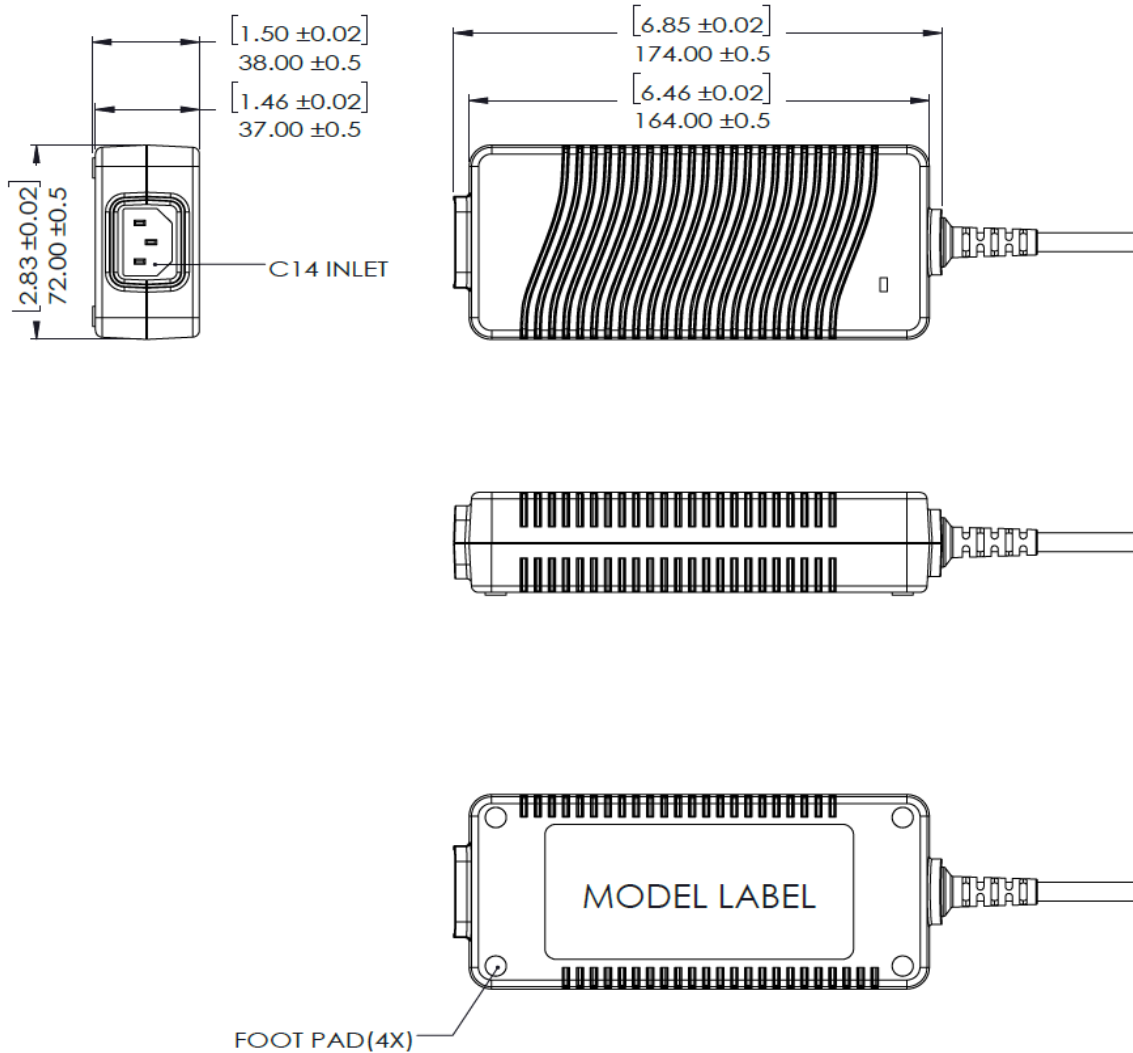
## EMI/EMC Compliance

<b>Conducted Emissions:</b>	EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin typ, at 115 and 230Vac
<b>Radiated Emissions:</b>	EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin typ, at 115 and 230Vac
<b>Common Mode Noise:</b>	High Frequency (100kHz-20MHz): <40mA pk-pk
<b>Electro-Static Discharge (ESD) Immunity on Power ports:</b>	EN55024/IEC61000-4-2, Level 4: +/- 8kV contact, +/- 15kV air, Criteria A IEC60601-1-2, 4 <sup>th</sup> Edition, Table 4
<b>Radiated RF EM Fields Susceptibility</b>	EN55022/EN61000-4-3, 10V/m, 80MHz-2.7GHz, 80% AM at 1kHz IEC60601-1-2, 4 <sup>th</sup> Edition, Table 4
<b>Electrical Fast Transients (EFT) /Bursts:</b>	EN55024/IEC61000-4-4, Level 4, +/- 4kV, 100Khz rep rate, 40A, Criteria A IEC60601-1-2, 4 <sup>th</sup> Edition, Table 5
<b>Surges, Line to Line (Diff Mode) and Line to GND (CMN Mode)</b>	EN55024/IEC61000-4-5, Level 4, +/-2kV DM, +/-4kV CM, Criteria A Surpasses IEC60601-1-2, 4 <sup>th</sup> Edition requirements.
<b>Conducted Disturbances induced by RF Fields</b>	EN55022/IEC61000-4-6, 3V/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, 4 <sup>th</sup> Edition, Table 5.
<b>Rated Power frequency magnetic fields</b>	EN55024/IEC1000-4-8, Level 4: 30A/m, 50/60 Hz IEC60601-1-2, 4 <sup>th</sup> Edition, Table 4

## EMI/EMC Compliance (continued)

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, Criteria A; 100% dip for 20mS, 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























## Mechanical Drawing



- Notes:**
- 1) All dimensions in mm.
  - 2) The unit should not be covered or enclosed to protect against excessive case temperature rise.

## Connector Information

Standard models include a Molex Minifit 39-01-2060 connector. Other standard options are listed below. The "51" in the standard model number is replaced by the applicable digits below. Consult factory for availability.

Connector No.	Description	Connector No.	Description
02	2.0 x 5.5 x 9.5mm straight barrel plug - Center Positive 	44	2.0 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	2.0 x 5.5 x 11mm right angle barrel plug (high retention) - Center Positive 
40	2.0 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	2.0 x 5.5 x 9.5mm straight barrel plug (high retention, no spark) - Center Positive 
42	2.0 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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Date	Rev Level	Description	
05-12-2017	1.2	<ul style="list-style-type: none"><li>Changed operating altitude requirements from 5000m to 5000m (derating allowed, 3000m min.)</li></ul>	Shri
5-24	1.3	<ul style="list-style-type: none"><li>Notes added in redline, yellow highlights</li></ul>	Rob C
5/31	1.3RL	<ul style="list-style-type: none"><li>Comments in Blue Track Changes by David Dai, engineer on TE150 project</li></ul>	David D
6/14	1.4RL	<ul style="list-style-type: none"><li>Lower NLP</li></ul>	RC & DD
5-5-2018	1.5	<ul style="list-style-type: none"><li>Changed low line input; no load power; conn on 48V model; added nopte under models table to consult factory for 48V and Q option.</li></ul>	Paul K