



### 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 low power 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 ME40A 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 <sup>1</sup> | Line Regulation | Load Regulation | Overvoltage Trip Range | Output Connector                                              | Input Configuration                                                |
|--------------|-------|----------------|--------------|-----------------------------|-----------------|-----------------|------------------------|---------------------------------------------------------------|--------------------------------------------------------------------|
| ME40A1203F01 | 12.0V | 3.40A          | 40W          | 120mV pk-pk                 | ±1%             | ±5%             | 120%-150%              | 2.5 x 5.5 x 9.5mm<br>Straight Barrel Type,<br>center positive | Class I Desktop,<br>IEC60320 C14<br>Receptacle                     |
| 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%              |                                                               |                                                                    |
| ME40A1203N01 | 12.0V | 3.40A          | 40W          | 120mV pk-pk                 | ±1%             | ±5%             | 120%-150%              | 2.5 x 5.5 x 9.5mm<br>Straight Barrel Type,<br>center positive | Class II Desktop,<br>IEC60320 C8<br>Receptacle                     |
| 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%              |                                                               |                                                                    |
| ME40A1203Q01 | 12.0V | 3.40A          | 40W          | 120mV pk-pk                 | ±1%             | ±5%             | 120%-150%              | 2.5 x 5.5 x 9.5mm<br>Straight Barrel Type,<br>center positive | Class II Desktop,<br>IEC60320 C18<br>Receptacle                    |
| 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%              |                                                               |                                                                    |
| ME40A1203B01 | 12.0V | 3.40A          | 40W          | 120mV pk-pk                 | ±1%             | ±5%             | 120%-150%              | 2.5 x 5.5 x 9.5mm<br>Straight Barrel Type,<br>center positive | Class II Wall-Plug,<br>Interchangeable<br>Blades <sup>2</sup>      |
| 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%              |                                                               |                                                                    |
| ME40A1203C01 | 12.0V | 3.40A          | 40W          | 120mV pk-pk                 | ±1%             | ±5%             | 120%-150%              | 2.5 x 5.5 x 9.5mm<br>Straight Barrel Type,<br>center positive | Class II Wall-Plug,<br>Fixed North<br>American Blades <sup>3</sup> |
| 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:
- Measured at the output connector, with noise probe directly across output and load terminated with 0.1µF ceramic and 10µF low ESR capacitors.
  - Standard models are fitted with North American blades. Order blade kit KT-1027K for other blades (EU, UK, Australia)
  - 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".
  - All specifications are typical at nominal input, full load, at 25°C ambient unless noted.
  - 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

|                              |                                                                                                                                                                                                                                                                          |                                   |                                                                                                                                                                                                     |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC Input</b>              | 100-240Vac, $\pm 10\%$ , 47-63Hz, 1 $\phi$                                                                                                                                                                                                                               | <b>Turn On Time</b>               | Less than 700mS @115Vac, full load                                                                                                                                                                  |
| <b>Input Current</b>         | 115Vac: 1.2A, 230Vac: 01.6A                                                                                                                                                                                                                                              | <b>Hold-up Time</b>               | 20mS min., at full Load, 100Vac input                                                                                                                                                               |
| <b>Inrush Current</b>        | 264Vac, cold start: will not exceed 40A                                                                                                                                                                                                                                  | <b>Overtemperature Protection</b> | Will shutdown upon an overtemperature condition, auto-recovery.                                                                                                                                     |
| <b>Input Fuses</b>           | F1, F2: 2.0A, 250Vac fuses (line & neutral lines) provided on all models                                                                                                                                                                                                 | <b>Overload Protection</b>        | 130 to 180% of rating, Hiccup Mode                                                                                                                                                                  |
| <b>Earth Leakage Current</b> | Input-GND: <500 $\mu$ A@264Vac, 60Hz, NC<br>Output-GND: <4mA@264Vac, 60Hz, NC                                                                                                                                                                                            | <b>Short Circuit Protection</b>   | Hiccup Mode, auto recovery.                                                                                                                                                                         |
| <b>Efficiency</b>            | >87%, typical                                                                                                                                                                                                                                                            | <b>Overvoltage Protection</b>     | Hiccup mode. See models chart for trip ranges.                                                                                                                                                      |
| <b>Output Power</b>          | 40W continuous – See models chart for specific voltage model ratings.                                                                                                                                                                                                    | <b>Isolation</b>                  | Input-Output: 2 MOPP<br>Input-Ground: 1 MOPP<br>Output-Ground: 1 MOPP                                                                                                                               |
| <b>No Load Input Power</b>   | <0.1W per DoE Efficiency Level VI Requirements                                                                                                                                                                                                                           | <b>Safety Standards</b>           | EN/IEC/UL60601-1, 3rd edition and                                                                                                                                                                   |
| <b>Ripple and Noise</b>      | See models chart on pg 1.                                                                                                                                                                                                                                                | <b>Operating Temperature</b>      | -20°C to +70°C                                                                                                                                                                                      |
| <b>Output Voltage</b>        | See models chart on pg 1.                                                                                                                                                                                                                                                | <b>Temperature Derating</b>       | See derating chart                                                                                                                                                                                  |
| <b>Transient Response</b>    | 500 $\mu$ S 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 $\pm 3.5\%$ .                                                          | <b>Storage Temperature</b>        | -40°C to +85°C                                                                                                                                                                                      |
| <b>Regulation</b>            | See models chart on pg 1.                                                                                                                                                                                                                                                | <b>Altitude</b>                   | Operating: to 5000m.<br>Non-operating: -500 to 40,000 ft.                                                                                                                                           |
| <b>Drop Test</b>             | 1.4m from table top to wooden platform, 6 faces.                                                                                                                                                                                                                         | <b>Relative Humidity</b>          | 5% to 95%, non-condensing                                                                                                                                                                           |
| <b>Vibration</b>             | Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz.<br>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<br>Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis |
| <b>Dimensions</b>            | See outline drawings                                                                                                                                                                                                                                                     | <b>MTBF</b>                       | >1,000,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6.                                                                                                              |
| <b>Weight</b>                | 250g                                                                                                                                                                                                                                                                     | <b>E-Cap Life</b>                 | >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.                                                          |

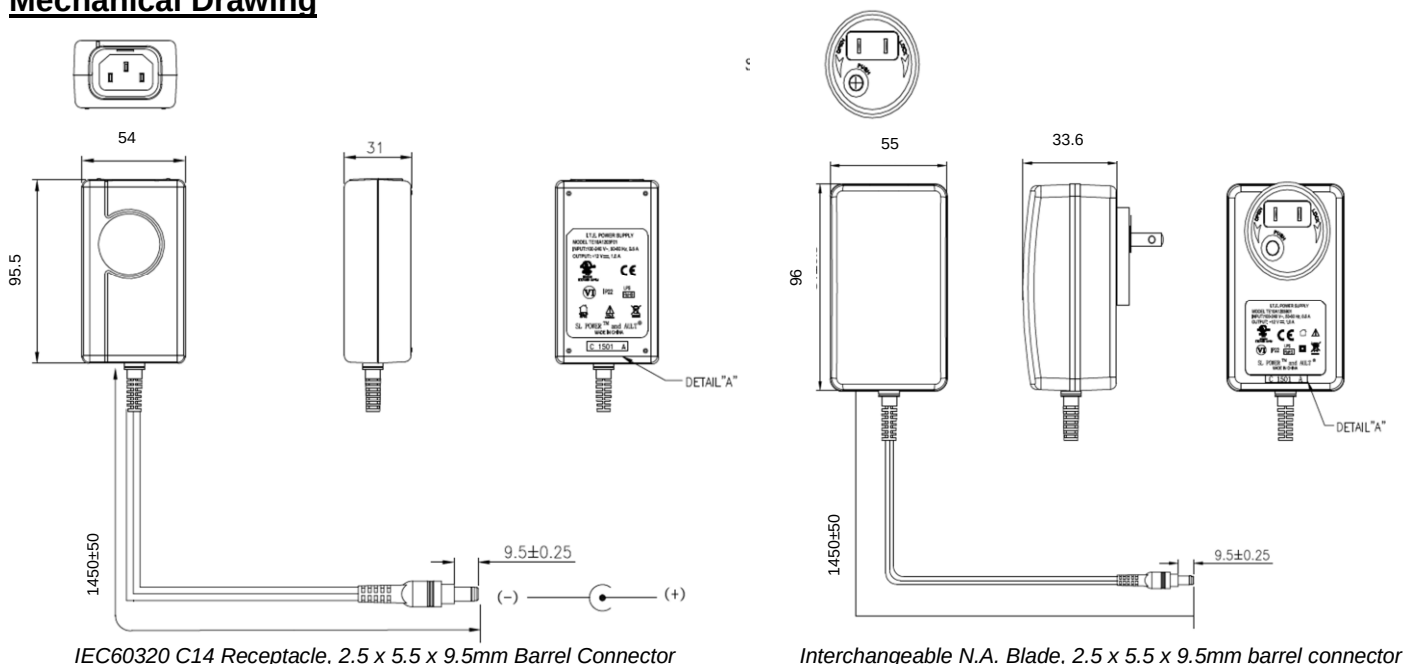
All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

### EMI/EMC Compliance

|                                                             |                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>IEC60601-1-2, 4 <sup>th</sup> Edition, Table 4                                                                                                                                                                                           |
| Radiated RF EM Fields Susceptibility                        | EN55022/EN61000-4-3, 10V/m, 80MHz-2.7GHz, 80% AM at 1kHz<br>IEC60601-1-2, 4 <sup>th</sup> Edition, Table 4                                                                                                                                                                                                           |
| Electrical Fast Transients (EFT) /Bursts:                   | EN55024/IEC61000-4-4, Level 4, +/- 4kV, 100Khz rep rate, 40A, Criteria A<br>IEC60601-1-2, 4 <sup>th</sup> 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<br>Surpasses IEC60601-1-2, 4 <sup>th</sup> 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<br>IEC60601-1-2, 4 <sup>th</sup> Edition, Table 5.                                                                                                                        |
| Rated Power frequency magnetic fields                       | EN55024/IEC1000-4-8, Level 4: 30 A/m, 50/60 Hz<br>IEC60601-1-2, 4 <sup>th</sup> 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<br>--100% dip for 5000mS (250/300 cycles), Criteria B<br>--60% dip for 100mS, Criteria B<br>--30% dip for 500mS, Criteria A<br>IEC60601-1-2, 4 <sup>th</sup> 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.

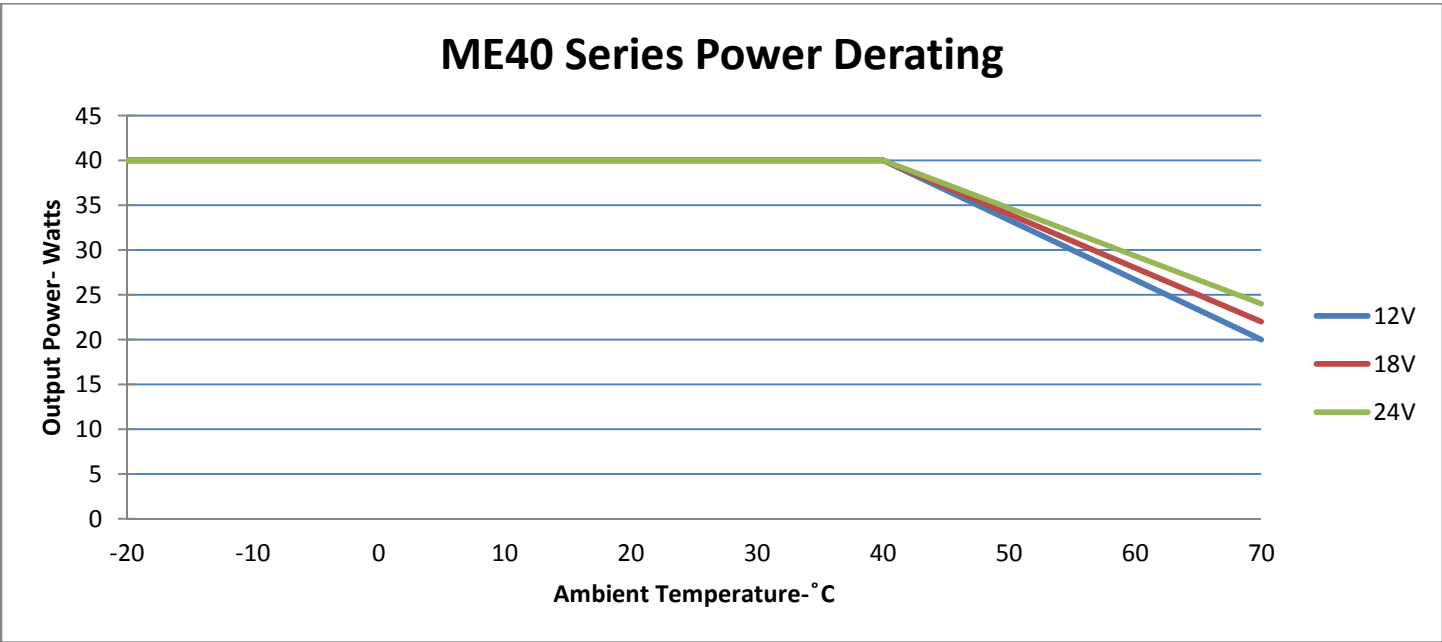
### Mechanical Drawing



#### 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.

## 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                                            |  |