# GE30D Family

24W Dual Output Power
Medical / Industrial Grade

Medical

Industrial

## FEATURES AND BENEFITS

| | |
|---|---|
| Various DC outputs plus USB A port | UL/CSA/IEC/IEC60601-1, 62368-1 Approved |
| Up to 24W of AC-DC Power | Class B Conducted & Radiated Emissions |
| Universal Input 90-264Vac Input Range | Meets 4th Edition/Heavy Industrial EMC |
| 2 MOPP output-output isolation | >250,000 hours MTBF |
| 1 MOPP input-output isolation | IP20 Rated Enclosure |
| Meets EN55011/CISPR11, FCC Part 15.109 | 3 Years Warranty |

## MODEL SELECTION

| Model Number | Volts | Output Current | Output Power | Ripple & Noise | Line Regulation | Load Regulation | Output Connector |
|---|---|---|---|---|---|---|---|
| GE30D0502F01 | V1: 5.0V<br>V2: 5.0V | 2.4A<br>2.4A | 12W<br>12W | 75mV pk-pk<br>50mV pk-pk | ±1%<br>±1% | ±5%<br>+2%, -4% | 2.1x5.5x9.5mm Straight Barrel Type, center positive for V1; USB "A" female port for V2 |

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

## INPUT

| | |
|---|---|
| AC Input | 100-240Vac, ±10%, 47-63Hz, 1, Class I |
| Input Current | 115Vac: 0.55A, 230Vac: 0.33A |
| Inrush Current | 264Vac, cold start: will not exceed 60A |
| Input Fuses | F1, F2: 2.0A, 250Vac fuses (line & neutral lines) provided on all models |
| Earth Leakage Current | Input-GND: <500μA@264Vac, 60Hz, NC<br>Output-GND: <4mA@264Vac, 60Hz, NC<br>Input-Output: <90uA@264Vac, 60 Hz, NC |
| Efficiency | >70% @ full load, typical |
| No Load Input Power | <1W |

## SAFETY

| | |
|---|---|
| Standards | EN/IEC/cUL60601-1-1, 3rd edition<br>EN/IEC/cUL62368-1 |
| Drop Test | 1.4m from table top to wooden platform, six faces. |

## ISOLATION

| | |
|---|---|
| Isolation | Input-Output: 2 MOPP<br>Input-Ground: 1 MOPP<br>Output-Ground: 1 MOPP |

## OUTPUT

| | |
|---|---|
| Output Power | 24W continuous – See models chart for specific voltage model ratings |
| No Load Input Power | <1W |
| Ripple and Noise | See models chart on pg 1 |
| Regulation | See models chart on pg 1 |
| 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, Δi/Δt< 0.2A/μs. Max. voltage deviation is +/-5% |

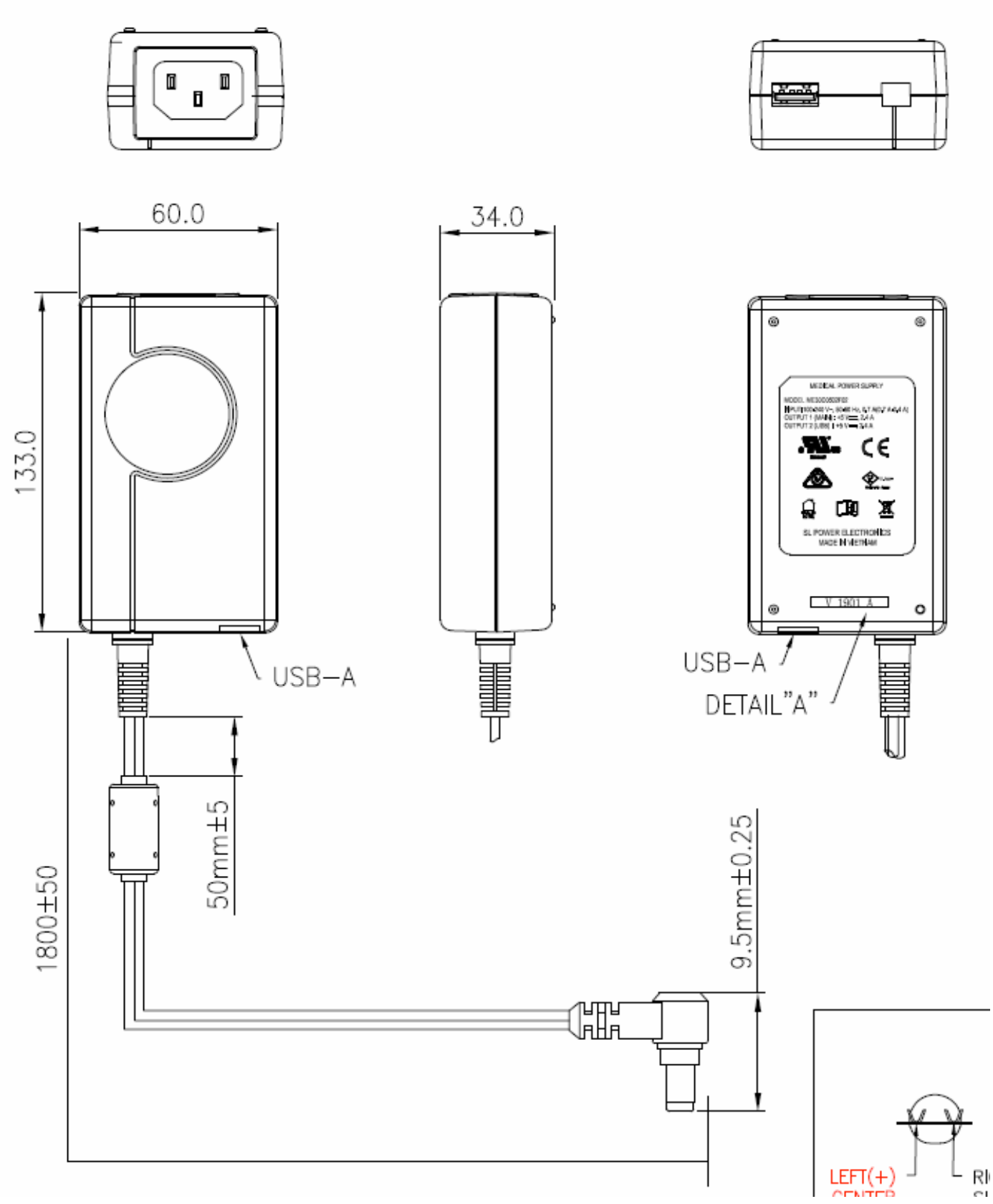
## ENVIROMENT

| | |
|---|---|
| Overvoltage Protection | V1: 115 to 155% of nominal, latch mode, requires AC recycle to reset.<br>V2: 115% to 155% of nominal,USB has a "Cut-out switch" latch protection, Requires AC recycle to reset. |
| Short Circuit Protection | V1: Hiccup Mode, auto recovery.<br>V2: Constant Current. Auto-recovery.<br>If the second output is short circuited or overloaded, the first output shall continue to operate normally.<br>(Note: If the first output is short circuited or overloaded, it is not required that the second output shall continue to operate normally.) |
| Thermal Protection | Will shutdown upon an over temperature condition, auto-recovery |
| Overload Protection | V1: 110 to 150% of rating, Constant current, then Hiccup Mode, Auto Recovery<br>V2: 130 to 180% of rating, Constant current, Recovery |
| Turn On Time | Less than 1000mS @115Vac, full load |
| Hold-up Time | 20mS min., at full Load, 100Vac input |
| Operating Temperature | -20°C to +40°C |
| Case Temperature | 71C max at 40C ambient, full load |
| Storage Temperature | -40°C to +85°C |
| Altitude | Operating: to 5000m.<br>Non-operating: -500 to 40,000 ft. |
| Relative Humidity | 5% to 95%, non-condensing |
| MTBF | >250,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6. |
| Unit Weight | 300g |
| Dimensions | W: 4" x L: 6"x H: 1.6" |

## EMI/EMC COMPLIANCE

| | |
|---|---|
| Conducted Emissions | EN55011/CISPR11 Class B, FCC Part 15.107, Class B: >6db margin typ, at 115 and 230Vac |
| Radiated Emissions | EN55022/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<br>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<br>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<br>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<br>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<br>IEC60601-1-2, 4th Edition, Table 5. |
| Rated Power frequency magnetic fields | EN55024/IEC1000-4-8, Level 4:<br>30A/m, 50/60 Hz<br>IEC60601-1-2, 4th Edition, Table 4 |
| Voltage Interruptions, Dips, Sags & Surges | EN55024/IECEN61000-4-11:<br><br>--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 (250/300cs), Criteria B<br>-- 60% dip for 100mS, Criteria B<br>-- 30% dip for 500mS, Criteria A<br><br>IEC60601-1-2, 4th Edition, Table 5 |
| Harmonic Current Emissions | EN55011/EN61000-3-2, Class A |
| Flicker Test | EN61000-3-3 |

## OUTLINE DRAWING



## CONNECTOR INFORMATION

**Notes:** 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 | 2.1 x 5.5 x 9.5 mm straight barrel plug - Center positive |  | 44 | 2.1 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) |  | 45 | 2.5 x 5.5 x 9.5 mm 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 = (-); pins 5, 6 = NC) |  |
| 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 (Pins 8 = (+); pins 5=(-); all others = NC) |  | 65 | Stripped and Tinned Leads |  |
| 33 | 2.5 x 5.5 x 12.5 mm 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 9.5 mm 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 9.5 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 |  |
| 42 | 2.1 x 5.5 x 11 mm straight 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 |  |
| 43 | 2.5 x 5.5 x 11 mm straight barrel plug (High retention) - Center positive |  | 74 | EIAJ#5 style connector - Central positive |  |