



Industrial

FEATURES AND BENEFITS

Compact Size: 6.5" x 2.8" x 1.5"

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

>10 Years E-Cap Life

Universal Input Range 90-264Vac

IP22 Rated Enclosure

Meets EN55015/CISPR15, CISPR22, CISPR32, FCC Part 15.109 Class B Conducted & Radiated Emissions, with 6db Margin

Approved to EN/CSA/IEC/UL62368-1

3 Year Warranty

RoHS/REACH Compliant

Blue LED Indicator



MODEL SELECTION

| Model Number | Volts | Output Current | Output Power | Ripple & Noise ¹ | Line Regulation | Load Regulation | Output Cable & Connector | Input Configuration |
|---------------|-------|----------------|--------------|-----------------------------|-----------------|-----------------|-------------------------------------------------------------------------------------|----------------------------------------------------|
| TE150A1251F01 | 12.0V | 12.5A | 150W | 120mV pk-pk | ±1% | ±5% | 6 pin Molex Type ² 2.5 x 5.5 x 9.5mm Str. Barrel Type, center (+) | Class I Desktop, IEC60320 C14 Receptacle |
| TE150A1551F01 | 15.0V | 10.0A | 150W | 150mV pk-pk | ±1% | ±5% | | |
| TE150A1851F01 | 18.0V | 8.33A | 150W | 180mV pk-pk | ±1% | ±5% | | |
| TE150A2451F01 | 24.0V | 6.25A | 150W | 240mV pk-pk | ±1% | ±5% | | |
| TE150A4803F01 | 48.0V | 3.20A | 150W | 480mV pk-pk | ±1% | ±5% | | |
| TE150A1251N01 | 12.0V | 12.5A | 150W | 120mV pk-pk | ±1% | ±5% | 6 pin Molex Type ² 2.5 x 5.5 x 9.5mm Str. Barrel Type, center (+) | Class II Desktop, IEC60320 C8 Receptacle |
| TE150A1551N01 | 15.0V | 10.0A | 150W | 150mV pk-pk | ±1% | ±5% | | |
| TE150A1851N01 | 18.0V | 8.33A | 150W | 180mV pk-pk | ±1% | ±5% | | |
| TE150A2451N01 | 24.0V | 6.25A | 150W | 240mV pk-pk | ±1% | ±5% | | |
| TE150A4803N01 | 48.0V | 3.20A | 150W | 480mV pk-pk | ±1% | ±5% | | |
| TE150A1251Q01 | 12.0V | 12.5A | 150W | 120mV pk-pk | ±1% | ±5% | 6 pin Molex Type ² 2.5 x 5.5 x 9.5mm Str. Barrel Type, center (+) | Class II Desktop, IEC60320 C18 Receptacle |
| TE150A1551Q01 | 15.0V | 10.0A | 150W | 150mV pk-pk | ±1% | ±5% | | |
| TE150A1851Q01 | 18.0V | 8.33A | 150W | 180mV pk-pk | ±1% | ±5% | | |
| TE150A2451Q01 | 24.0V | 6.25A | 150W | 240mV pk-pk | ±1% | ±5% | | |
| TE150A4803Q01 | 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 47µF 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 common (-), insert a "B" in the part number where the "A" is located (TE120B1251F01).
 4. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.



INPUT

| | |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| AC Input | 100-240Vac, $\pm 10\%$, 47-63Hz, 1 \emptyset |
| Input Current | 115Vac: 1.6A, 230Vac: 0.8A |
| Inrush Current | 230Vac, cold start: will not exceed 70A pk |
| Input Fuses | F1, F2: 3.15A/250Vac fuses (line & neutral lines) provided on all models |
| Leakage Current | Input-GND: $< 500\mu\text{A}@264\text{Vac}$, 60Hz, NC Output-GND: $< 4\text{mA}@264\text{Vac}$, 60Hz, NC Enclosure Leakage: TBDuA |
| Efficiency | Meets US DoE Efficiency Level VI, EU CoC Version 5, Tier 2 average efficiency levels |
| No Load Input Power | $< 0.150\text{W}$ surpassing DoE Efficiency Level VI and EU CoC Version 5, Tier 2 Requirements |

PROTECTION

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|----------------------------|----------------------------------------------------------------------------------------------|
| Overtemperature Protection | Will shutdown upon an over-temperature condition, auto-recovery |
| Overload Protection | 130 to 180% of rating, Hiccup Mode |
| Short Circuit Protection | Hiccup Mode, auto recovery |
| Overvoltage Protection | 115 to 130% of output voltage (max. 60V on 48V model), latching, recycle AC power to recover |

SAFETY

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|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Standards | EN/CSA/IEC/UL62368-1 |
| Shock | 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 |
| Safety Drop Test | 1.4m from table top to wooden platform, 5 faces (face with the output cord not needed) |

ISOLATION SPECIFICATIONS

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|-----------|---------------------------------------------------------------------------|
| Isolation | Input-Output: 3,000Vac Input-Ground: 1,500Vac Output-Ground: 500Vac |
|-----------|---------------------------------------------------------------------------|

OUTPUT

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|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hold-Up Time | 20mS min., at full Load, 100Vac input |
| Turn On Time | Less than 1 sec @115Vac, full load |
| Output Power | 150W continuous – See models chart for specific voltage model ratings |
| Output Voltage | See models chart on pg 1 |
| Ripple and Noise | See models chart on pg 1 |
| 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, $\Delta i/\Delta t < 0.2\text{A}/\mu\text{s}$. Max voltage deviation is $\pm 3.5\%$ of final value |

RELIABILITY

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MTBF | $> 250,000$ hours, full load, 115 & 230Vac input, 25°C amb., Telcordia SR-332 Issue 3 |
| 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. (80% load on 12V models) |

ENVIRONMENT

| | |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | -20°C to +70°C. Derate above 50°C Ripple & Noise = 2% from -20°C to 0°C |
| Temperature Derating | Derate output power above 40°C to TBD at 50°C |
| Storage Temperature | -40°C to +85°C |
| Altitude | Operating: to 5000m (derate to TBD temp. above 3000m) Non-operating: -500 to 40,000 ft. |
| Relative Humidity | 5% to 95%, non-condensing |
| Vibration | Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10min/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 |
| Case Temperature | Case Temperatures are within regulatory guidelines Care should be taken to avoid prolonged contact with skin or other heat sensitive surfaces |
| Dimensions | W: 6.49" x L: 1.45" x H: 2.83" Case |
| Weight | 700g |

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

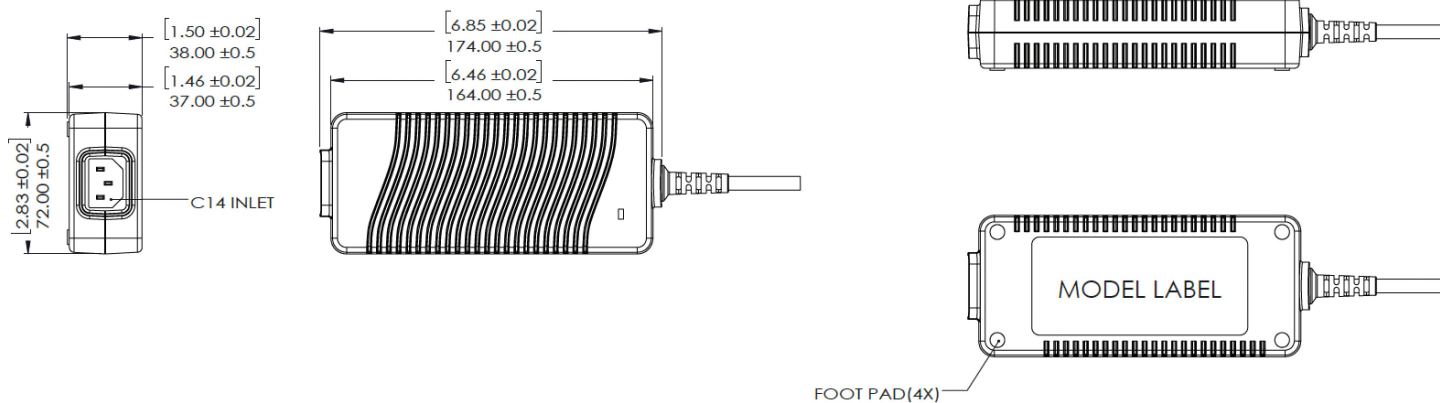


EMI/EMC COMPLIANCE

| | |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conducted Emissions | EN55015/CISPR15:2013 Class B, CISPR22 2006 Class B, CISPR32 Class B, FCC Part 15.107, Class B: 6db margin type, at 115 and 230Vac |
| Radiated Emissions | EN55022/CISPR22 Class B, CISPR32 Class B, FCC Part 15.109, Class B: 3db margin type, 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 |
| Radiated RF EM Fields Susceptibility | EN55022/EN61000-4-3, 10V/m, 80MHz-2.7GHz, 80% AM at 1kHz |
| Electrical Fast Transients (EFT) /Bursts | EN55024/IEC61000-4-4, Level 4, +/- 4.4kV, 100Khz rep rate, 40A, Criteria A |
| Surges, Line to Line (Diff Mode) and Line to GND (CMN Mode) | EN55024/IEC61000-4-5, Level 4, +/-2.2kV DM, +/-4.4kV CM, Criteria A |
| Conducted Disturbances induced by RF Fields | EN55022/IEC61000-4-6, 10Vrms – Level 4, in ISM and amateur radio bands between 0.15Mhz and 80Mhz, 80% AM at 1KHz |
| Rated Power frequency magnetic fields | EN55024/IEC1000-4-8, Level 4: 30 A/m, 50/60 Hz |
| Voltage Interruptions, Dips, Sags & Surges | EN55024/IECEN61000-4-11: --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 |
| Harmonic Current Emissions | EN55011/EN61000-3-2, Class A & C (at 100% load) |
| Flicker Test | EN61000-3-3 |

Notes: Above parameters will be tested to 20% margin at 10%, 50%, 100% load.

MECHANICAL DRAWING






CONNECTOR INFORMATION

Standard 48V models include a 2.5 x 5.5 x 9.5mm straight barrel type connector (Ault #3), center positive. (#51 for the 12V thru 24V models). Other standard options are listed below. The "03" or "51" 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 | 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 = (-)) |
| 23 | 8 pin DIN male connector (Pins 3, 7 = (+); pins 1, 4, 6, 8 = (-); shell = FG) | 51 | 6 pin Minitit - 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 |

Notes:  XLR type connectors also are available, consult factory for details.



EFFICIENCY LEVEL VI INFORMATION

| Single-Voltage Extrenal AC-DC Power Supply, Basic-Voltage | | |
|-----------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|
| Nameplate Output Power (P_{out}) | Minimum Average Efficiency in Active Mode (expressed as a decimal) | Maximum Power in No-Load Mode [W] |
| $P_{out} \leq 1 \text{ W}$ | $\geq 0.5 \times P_{out} + 0.16$ | ≤ 0.100 |
| $1 \text{ W} < P_{out} \leq 49 \text{ W}$ | $\geq 0.071 \times \ln(P_{out}) - 0.0014$ $\times P_{out} + 0.67$ | ≤ 0.100 |
| $49 \text{ W} < P_{out} \leq 250 \text{ W}$ | ≥ 0.880 | ≤ 0.210 |
| $P_{out} > 250 \text{ W}$ | ≥ 0.875 | ≤ 0.500 |
| Single-Voltage Extrenal AC-DC Power Supply, Low-Voltage | | |
| Nameplate Output Power (P_{out}) | Minimum Average Efficiency in Active Mode (expressed as a decimal) | Maximum Power in No-Load Mode [W] |
| $P_{out} \leq 1 \text{ W}$ | $\geq 0.517 \times P_{out} + 0.087$ | ≤ 0.100 |
| $1 \text{ W} < P_{out} \leq 49 \text{ W}$ | $\geq 0.0834 \times \ln(P_{out}) - 0.0014$ $\times P_{out} + 0.609$ | ≤ 0.100 |
| $49 \text{ W} < P_{out} \leq 250 \text{ W}$ | ≥ 0.870 | ≤ 0.210 |
| $P_{out} > 250 \text{ W}$ | ≥ 0.875 | ≤ 0.500 |

In addition, TE150 Series will meet the EU Code of Conduct, Version 5, Tier 2 requirements. (<0.150W no load input power)