



Industrial

### FEATURES AND BENEFITS

Meets DoE efficiency level VI requirements

- No load input power
- Average efficiency

Up to 120W of AC-DC power

Universal input 90-264Vac input range

IPX-2 rated enclosure for protection against liquid ingress

Meets "Heavy Industrial" levels of EN61000 EMC requirements

Meets EN55011/CISPR11, FCC Part 15.109 Class B conducted & radiated emissions, with 6db margin

Approved to EN/IEC/UL60950-1, 2nd Edition, Am. 2

E-cap life of >7 years

3 years warranty

RoHS/REACH compliant



### MODEL SELECTION

| Model Number  | Volts | Output Current | Output Power | Ripple & Noise <sup>1</sup> | Line Regulation | Load Regulation | Output Cable & Connector                            | Input Configuration                       |
|---------------|-------|----------------|--------------|-----------------------------|-----------------|-----------------|-----------------------------------------------------|-------------------------------------------|
| TE120A1251F01 | 12.0V | 10.0A          | 120W         | 120mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 6 pin Molex Type conn. <sup>2</sup> | Class I Desktop, IEC60320 C14 Receptacle  |
| TE120A1551F01 | 15.0V | 8.00A          | 120W         | 150mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 2.5 x 5.5 x 9.5mm                   |                                           |
| TE120A1803F01 | 18.0V | 6.67A          | 120W         | 180mV pk-pk                 | ±1%             | ±5%             | Straight Barrel Type conn.,                         |                                           |
| TE120A2403F01 | 24.0V | 5.00A          | 120W         | 240mV pk-pk                 | ±1%             | ±5%             | center positive                                     |                                           |
| TE120A1251N01 | 12.0V | 10.0A          | 120W         | 120mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 6 pin Molex Type conn. <sup>2</sup> | Class II Desktop, IEC60320 C8 Receptacle  |
| TE120A1551N01 | 15.0V | 8.00A          | 120W         | 150mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 2.5 x 5.5 x 9.5mm                   |                                           |
| TE120A1803N01 | 18.0V | 6.67A          | 120W         | 180mV pk-pk                 | ±1%             | ±5%             | Straight Barrel Type conn.,                         |                                           |
| TE120A2403N01 | 24.0V | 5.00A          | 120W         | 240mV pk-pk                 | ±1%             | ±5%             | center positive                                     |                                           |
| TE120A1251Q01 | 12.0V | 10.0A          | 120W         | 120mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 6 pin Molex Type conn. <sup>2</sup> | Class II Desktop, IEC60320 C18 Receptacle |
| TE120A1551Q01 | 15.0V | 8.00A          | 120W         | 150mV pk-pk                 | ±1%             | ±5%             | 4 cond. #18AWG; 2.5 x 5.5 x 9.5mm                   |                                           |
| TE120A1803Q01 | 18.0V | 6.67A          | 120W         | 180mV pk-pk                 | ±1%             | ±5%             | Straight Barrel Type conn.,                         |                                           |
| TE120A2403Q01 | 24.0V | 5.00A          | 120W         | 240mV pk-pk                 | ±1%             | ±5%             | center positive                                     |                                           |

- 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.
  5. Other connector options available, contact factory, or visit [www.slpower.com](http://www.slpower.com).



### INPUT

|                                         |                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------|
| AC Input                                | 100-240Vac, $\pm 10\%$ , 47-63Hz, 1 $\phi$                                    |
| Input Current                           | 100Vac: 1.5A, 230Vac: 0.7A                                                    |
| Inrush Current                          | 264Vac, cold start: will not exceed 40A peak                                  |
| Input Fuses                             | F1, F2: 3.15A, 250Vac fuses (line & neutral lines) provided on all models     |
| Earth Leakage Current (Input to Ground) | Input-GND: <500 $\mu$ A@264Vac, 60Hz, NC<br>Output-GND: <4mA@264Vac, 60Hz, NC |
| Efficiency                              | Meets US DoE efficiency level VI average efficiency levels                    |
| No Load Input Power                     | <0.210W per DoE efficiency level VI requirements                              |

### PROTECTION

|                            |                                                                    |
|----------------------------|--------------------------------------------------------------------|
| 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     | 130 to 150% of output voltage (max. 60V on 48V model), hiccup mode |
| Safety Drop Test           | 1.4m from table top to wooden platform, 6 faces                    |

### ISOLATION SPECIFICATION

|           |                                                                                |
|-----------|--------------------------------------------------------------------------------|
| Isolation | Input - Output: 4000Vac<br>Input - Ground: 1500Vac<br>Output - Ground: 1500Vac |
|-----------|--------------------------------------------------------------------------------|

### ENVIRONMENT

|                       |                                                                                                                                                                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | -20°C to +50°C. Derate above 50°C                                                                                                                                                                                                                                               |
| Storage Temperature   | -40°C to +85°C                                                                                                                                                                                                                                                                  |
| Temperature Derating  | See Derating Curve                                                                                                                                                                                                                                                              |
| Case Temperature      | Case Temperatures are within regulatory guidelines. Power Supply unit should not be covered or enclosed to ensure proper heat dissipation                                                                                                                                       |
| Altitude              | Operating: to 5000m (derate to TBD temp. above 3000m)<br>Non-operating: -500 to 40,000 ft.                                                                                                                                                                                      |
| Relative Humidity     | 5% to 95%, non-condensing                                                                                                                                                                                                                                                       |
| Vibration             | Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz.<br>Non-operating: random waveform, 3 minutes per axis, 3 axes and Sine waveform, Vib.<br>Frequency/Acceleration: 10-500Hz/1g, sweep rate of 1 octave / minutes, Vibration time of 10 sweeps / axes, 3 axes |
| Dimensions            | W: 2.65" x L: 8.3" x H: 1.7"<br>W: 67.4mm x L: 212.4mm x H: 44.25mm                                                                                                                                                                                                             |
| Weight                | 710g                                                                                                                                                                                                                                                                            |

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

### OUTPUT

|                    |                                                                                                                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hold-up Time       | 20mS min., at full Load, 100Vac input                                                                                                                                                                            |
| Turn On Time       | Less than 1 sec @115Vac, full load                                                                                                                                                                               |
| Output Power       | 120W 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 $\mu$ 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, $\Delta i/\Delta t < 0.2A/\mu s$ .<br>Max. voltage deviation is $\pm 3.5\%$ |

### SAFETY

|                  |                                                                                                                                                                                                   |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Standards | EN/CSA/UL/IEC 60950-1, 2nd Edition, Am 2                                                                                                                                                          |
| Shock            | Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total<br>Non-Operating: Half-sine waveform, impact acceleration of 50G, Pulse duration of 6mS, Number of shocks: 3 for each of the three axis |

### RELIABILITY

|            |                                                                                                                                                                   |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MTBF       | >250,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6                                                                               |
| E-Cap Life | >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 12V model) |

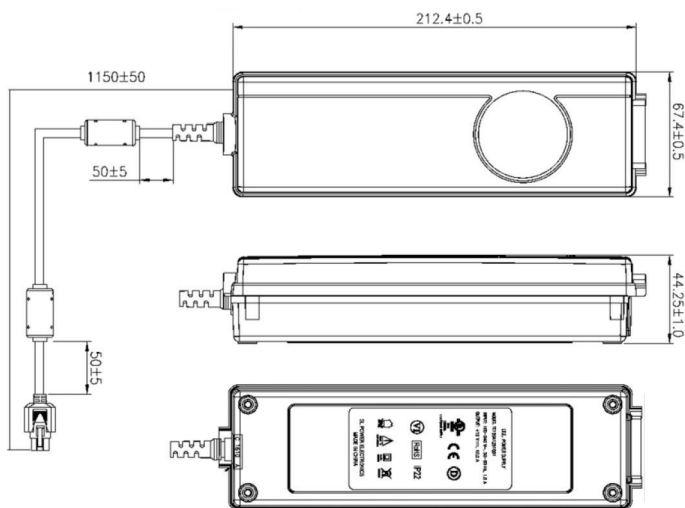


### EMI/EMC COMPLIANCE

|                                                             |                                                                                                                                                                                         |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                |
| 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, +/-2kV DM, +/-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:<br>--100% dip for 20mS, 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 |
| Harmonic Current Emissions                                  | EN55011/EN61000-3-2, Class A                                                                                                                                                            |
| Flicker Test                                                | EN61000-3-3                                                                                                                                                                             |

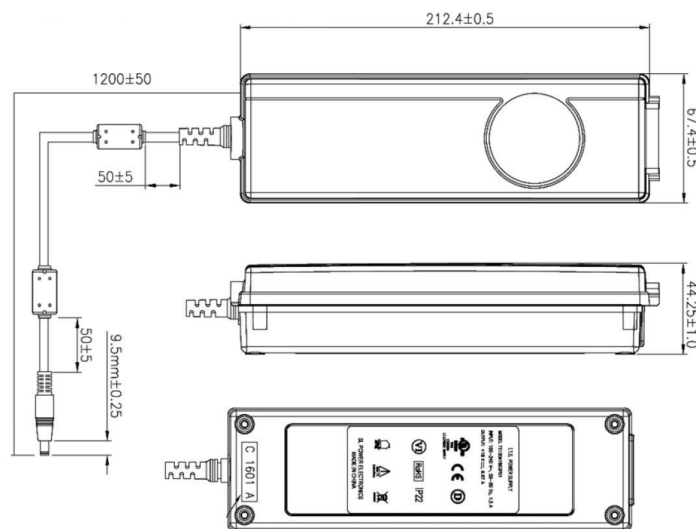
### MECHANICAL DRAWING

Mechanical Drawing (12V, 15V Models):



Output Connector: 6 pin Molex 39-01-2060 or equiv. Pins 1, 4 = (+), pins 3, 6 = (-), pins 2, 5 = NC

Mechanical Drawing (18V, 24V models):



Output Connector: 2.5 x 5.5 x 9.5mm straight barrel type, center positive.

- Notes :
1. All dimensions in mm.
  2. Other connector options available. See below.
  3. The unit should not be covered or enclosed to protect against excessive case temperature rise.



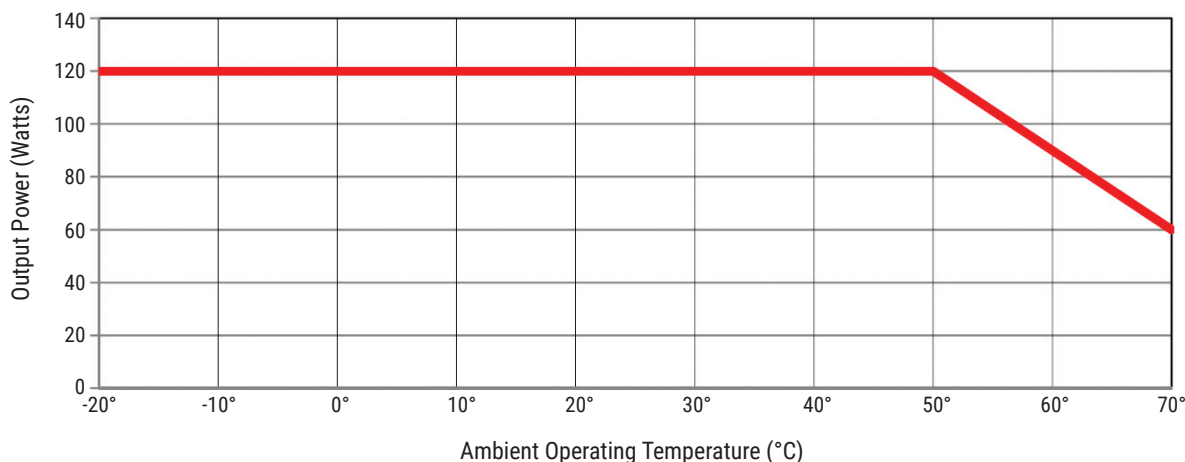
### CONNECTOR INFORMATION

Standard models include a 2.5 x 5.5 x 9.5mm straight barrel type connector (Ault #3), center positive. (#51 for the 12V models). 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            | 2.0 x 5.5 x 9.5 mm straight barrel plug - Center Positive                     |    | 44            | 2.0 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 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            | 2.0 x 5.5 x 11 mm right angle barrel plug (high retention) Center positive         |    |
| 40            | 2.0 x 5.5 x 9.5 mm right angle barrel plug (high retention) Center positive   |   | 71            | 2.5 x 5.5 x 11 mm 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            | 2.0 x 5.5 x 9.5 mm straight barrel plug (high retention, no spark) Center positive |  |
| 42            | 2.0 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                                          |  |

### DERATING CURVE

TE120 Series Derating Curve  
All models





### EFFICIENCY LEVEL VI INFORMATION

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

-----TE120 Series