TE120 Family

120W Single Output External Power
Industrial Grade

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[1]	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.[2]	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 Straight Barrel Type conn., center positive	
TE120A1803F01	18.0V	6.67A	120W	180mV pk-pk	±1%	±5%		
TE120A2403F01	24.0V	5.00A	120W	240mV pk-pk	±1%	±5%		
TE120A1251N01	12.0V	10.0A	120W	120mV pk-pk	±1%	±5%	4 cond. #18AWG; 6 pin Molex Type conn.[2]	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 Straight Barrel Type conn., center positive	
TE120A1803N01	18.0V	6.67A	120W	180mV pk-pk	±1%	±5%		
TE120A2403N01	24.0V	5.00A	120W	240mV pk-pk	±1%	±5%		
TE120A1251Q01	12.0V	10.0A	120W	120mV pk-pk	±1%	±5%	4 cond. #18AWG; 6 pin Molex Type conn.[2]	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 Straight Barrel Type conn., center positive	
TE120A1803Q01	18.0V	6.67A	120W	180mV pk-pk	±1%	±5%		
TE120A2403Q01	24.0V	5.00A	120W	240mV 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.
5. Other connector options available, contact factory, or visit www.slpower.com.

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INPUT

AC Input	100-240Vac, ±10%, 47-63Hz, 1Ø
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: <500µA@264Vac, 60Hz, NC 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

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	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 +/-3.5%

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

SAFETY

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

ISOLATION SPECIFICATION

Isolation	Input - Output: 4000Vac Input - Ground: 1500Vac Output - Ground: 1500Vac

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)

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) 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. Non-operating: 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
Dimensions	W: 2.65" x L: 8.3" x H: 1.7" 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.

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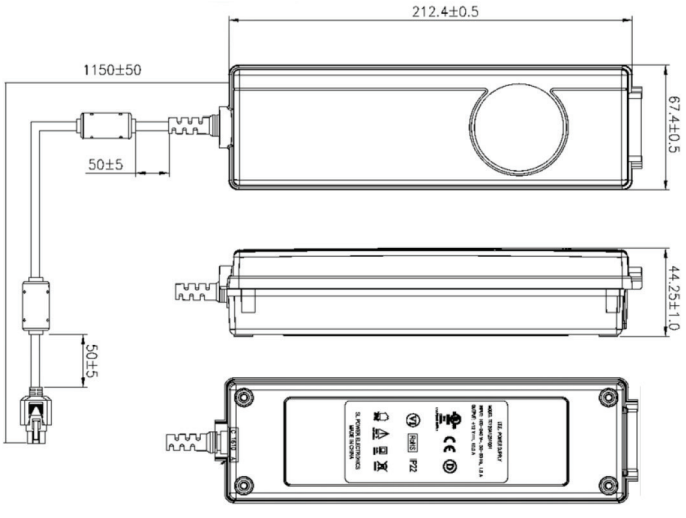
EMI/EMC COMPLIANCE

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: --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
Flicker Test	EN61000-3-3

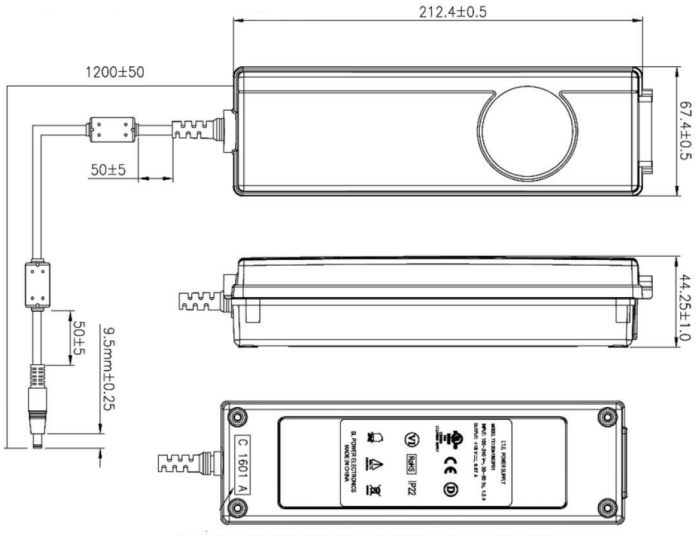
MECHANICAL DRAWING

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.

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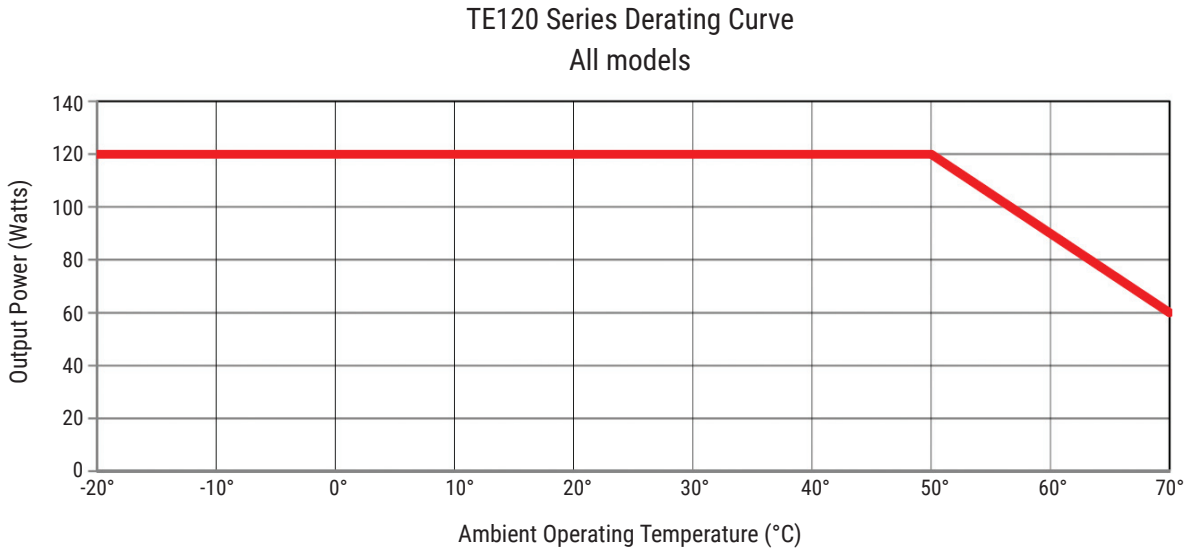
CONNECTOR INFORMATION

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



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EFFICIENCY LEVEL VI INFORMATION

Single-Voltage External 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]
$P_{out} \leq 1$ W	$\geq 0.5 \times P_{out} + 0.16$	≤ 0.100
1 W < $P_{out} \leq 49$ W	$\geq 0.071 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.67$	≤ 0.100
49 W < $P_{out} \leq 250$ W	≥ 0.880	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500
Single-Voltage External 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]
$P_{out} \leq 1$ W	$\geq 0.517 \times P_{out} + 0.087$	≤ 0.100
1 W < $P_{out} \leq 49$ W	$\geq 0.0834 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.609$	≤ 0.100
49 W < $P_{out} \leq 250$ W	≥ 0.870	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500

TE120 Series

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