SL POWER
TE30 Family

20 W to 30 W Single Output
External Power

Advanced Energy's SL Power TE30 series of desktop and wall-plug AC-DC external power adapter comprises seven output models. All models feature industrial safety approvals and accept a universal input of 90 to 264 VAC. These compact switch-mode power supplies feature output overvoltage, overtemperature, overload protection, with short-circuit protection on all output models. TE30 series power adapters provide up to 31.9 Watts of output power with IP22 rated enclosure and meets DoE Efficiency Level VI Requirements.

AT A GLANCE

Total Power

20 to 30 Watts

Input Voltage

90 to 264 VAC

# of Outputs

Single

SPECIAL FEATURES

- Universal Input 90 to 264 VAC Input Range Desktop and Wall-Plug Versions
- Up to 31.9 W of AC-DC Power
- IP22 Rated Enclosure*
- Meets EN55022/CISPR22, FCC Part 15.109 Class B Conducted & Radiated Emissions, with 6db Margin
- Meets "Heavy Industrial" Levels of EN61000 EMC Requirements
- >8 Years E-Cap Life
- >1,000,000 Hours MTBF
- 3 Years Warranty
- Meets DoE Efficiency Level VI Requirements No Load Input Power Average Efficiency
- RoHS Compliant

SAFETY

- CSA/IEC/EN/UL62368-1

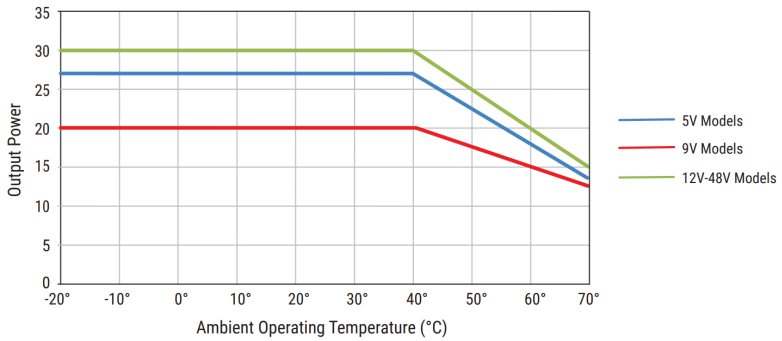
Note: *IP22 does not include interchangeable blade versions.

ELECTRICAL SPECIFICATIONS

Input	
Input range	90 to 264 VAC, 47 to 63 Hz, 1Ø
Input current	1.2 A @ 115 VAC, 0.6 A @ 230 VAC
Inrush current	40 A max., cold start @ 264 VAC input
Input fuses	2 A, 250 VAC
Earth leakage current Input to GND Output to GND	 <500 µA @ 264 VAC, 60 Hz, NC <4 mA @ 264 VAC, 60 Hz, NC
Efficiency	Meets US DoE Efficiency Level VI average efficiency levels
No load input power	<0.1 W per DoE Efficiency Level VI requirements
Output	
Output voltage	See models chart on page 5
Output power	20 W to 30 W continuous - see models chart for specific voltage model ratings
Turn on time	Less than 700 mS @ 115 VAC, full load
Hold-up time	20 mS min., at full load, 100 VAC input
Ripple and noise	See models chart on page 5
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, $\Delta i/\Delta t < 0.2$ A/µS Max. voltage deviation is ±3.5%
Reliability	
MTBF	>1,000,000 hours, full load, 110 VAC & 220 VAC input, 25°C amb., per Telcordia 332 Issue 6, Stress Method
E-Cap life	>8 years life based on calculations at 115 VAC/60 Hz & 230 VAC/50 Hz, ambient 25°C at 24 hrs per day, 365 days/year, 6 power up cycles per day
Protection	
Overtemperature protection	Will shutdown upon an overtemperature condition, auto-recovery
Overload protection	130% to 180% of rating, hiccup mode
Overvoltage protection	Hiccup mode. See model chart for trip ranges
Short circuit protection	Hiccup mode. Auto-recovery
Safety	
Safety standards	Approved to EN/CSA/IEC/UL62368-1
Shock	Operating: Half-sine, 20 gpk, 10 ms, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100 G, Pulse duration of 6 ms Number of shocks: 3 for each of the three axis
Isolation	
Isolation	Input to Output: 4000 VAC Input to Ground: 1500 VAC Output to Ground: 1500 VAC

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

DERATING CHART



EMI/EMC COMPLIANCE

Conducted emissions	EN55022/CISPR22 Class B, FCC Part 15, Class B: 6db margin type, at 115 VAC and 230 VAC
Radiated emissions	EN55022/CISPR22 Class B, FCC Part 15, Class B: 3db margin type, at 115 VAC and 230 VAC
Electro-static discharge (ESD) immunity on power ports	EN55024/IEC61000-4-2, Level 4: ±8 kV contact, ±15 kV air, Criteria A
Radiated RF EM fields susceptibility	EN55022/EN61000-4-3, 10 V/m, 80 MHz to 2.7 GHz, 80% AM at 1 kHz
Electrical Fast Transients (EFT)/Burst immunity	EN55024/IEC61000-4-4, Level 4, ±4.4 kV, 100 kHz rep rate, 40 A, Criteria A
Surges, line to line (Diff mode) and line to ground (CMN mode)	EN55024/IEC61000-4-5, Level 4, ±2 kV DM, ±4 kV CM, Criteria A
Conducted disturbances induced by RF fields	EN55022/IEC61000-4-6, 3.6 V/m - Level 4, 0.15 MHz to 80 MHz; and 12 V/m in ISM and amateur radio bands between 0.15 MHz and 80 MHz, 80% AM at 1 kHz
Rated power frequency magnetic fields	EN55024/IEC1000-4-8, Level 4: 30 A/m, 50/60 Hz
Voltage interruptions, Dips, Sags & Surges	EN55024/IEC/EN61000-4-11: --100% dip for 20 mS, Criteria A --100% dip for 5000 mS (250/300 cycles), Criteria B --60% dip for 100 mS, Criteria B --30% dip for 500 mS, Criteria A
Harmonic current emissions	EN55011/EN61000-3-2, Class A
Flicker test	EN61000-3-3
Common mode noise	High frequency (100 kHz to 20 MHz): <40 mA pk-pk

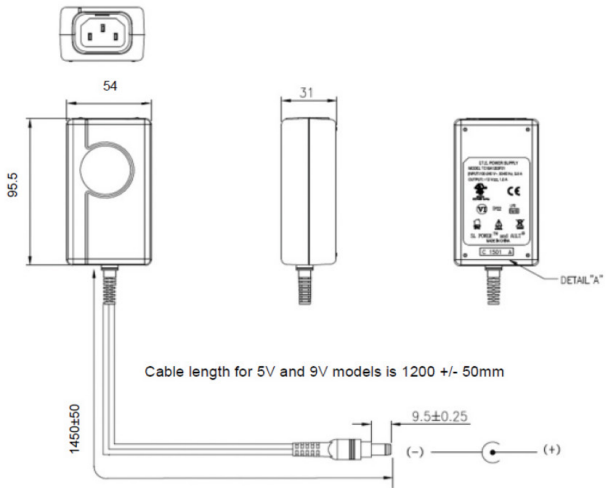
Note:
All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

ENVIRONMENTAL SPECIFICATIONS

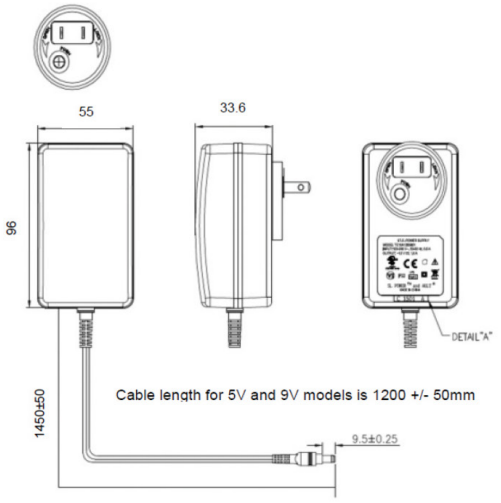
Operating temperature	-20°C to +70°C Start up at -40°C, full load (warmup period before all parameters are within published specifications)
Storage temperature	-40°C to +85°C
Relative humidity	5% to 95%, non-condensing
Weight	250 grams
Temperature derating	See derating chart
Altitude	Operating: to 5000 m Non-operating: -500 ft to 40000 ft
Vibration	Operating: 0.003 g/Hz, 1.5 grams overall, 3 axes, 10 min/axis, 1 Hz to 500 Hz Non-Operating: random waveform, 3 minutes/axis, 3 axes and sine waveform, Vib. frequency/acceleration: 10 to 500 Hz/1g, sweep rate of 1 octave/minutes, Vibration time of 10 sweeps/axes, 3 axes
Shock	Operating: half-sine, 20 gpk, 10 mS, 3 axes, 6 shocks total Non-Operating: half-sine waveform, impact acceleration of 100 G, pulse duration of 6 mS, Number of shocks: 3 for each of the 3 axis

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

MECHANICAL DRAWING



IEC60320 C14 Receptacle, 2.5 x 5.5 x 9.5 mm Barrel Connector

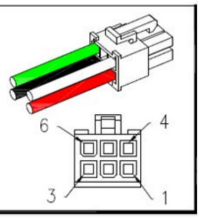


Interchangeable N.A. Blade, 2.5 x 5.5 x 9.5 mm Barrel Connector

Notes:
1. All dimensions in mm.
2. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, AU) order blade kit KT1027K.
3. Pins 4,5,6 are located closest to the locking tab.

LEADWIRE HOOK-UP

PIN #	FUNCTION	COLOR
1	+V	RED
2	NC	-
3	COMMON	BLACK
4	+V	WHITE
5	NC	-
6	COMMON	GREEN
	BRAID	FG4



MODEL SELECTION

Model Number	Output Voltage	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Overvoltage Trip Range	Output Connector	Input Configuration
TE30A0503F01	5.0 V	4.00 A	20.0 W	75mV pk-pk	± 1%	± 5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class I Desktop, IEC60320 C14 Receptacle[2]
TE30A0903F01	9.0 V	3.00 A	27.0 W	90mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1203F01	12.0 V	2.50 A	30.0 W	120mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1503F01	15.0 V	2.00 A	30.0 W	150mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1803F01	18.0 V	1.67 A	30.0 W	180mV pk-pk	± 1%	± 5%	120%-140%		
TE30A2403F01	24.0 V	1.33 A	31.9 W	240mV pk-pk	± 1%	± 5%	120%-140%		
TE30A4803F01	48.0 V	0.63 A	30.2 W	480mV pk-pk	± 1%	± 5%	120%-140%		
TE30A0503N01	5.0 V	4.00 A	20.0 W	75mV pk-pk	± 1%	± 5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Desktop, IEC60320 C8 Receptacle
TE30A0903N01	9.0 V	3.00 A	27.0 W	90mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1203N01	12.0 V	2.50 A	30.0 W	120mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1503N01	15.0 V	2.00 A	30.0 W	150mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1803N01	18.0 V	1.67 A	30.0 W	180mV pk-pk	± 1%	± 5%	120%-140%		
TE30A2403N01	24.0 V	1.33 A	31.9 W	240mV pk-pk	± 1%	± 5%	120%-140%		
TE30A4803N01	48.0 V	0.63 A	30.2 W	480mV pk-pk	± 1%	± 5%	120%-140%		
TE30A0503Q01	5.0 V	4.00 A	20.0 W	75mV pk-pk	± 1%	± 5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Desktop, IEC60320 C18 Receptacle
TE30A0903Q01	9.0 V	3.00 A	27.0 W	90mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1203Q01	12.0 V	2.50 A	30.0 W	120mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1503Q01	15.0 V	2.00 A	30.0 W	150mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1803Q01	18.0 V	1.67 A	30.0 W	180mV pk-pk	± 1%	± 5%	120%-140%		
TE30A2403Q01	24.0 V	1.33 A	31.9 W	240mV pk-pk	± 1%	± 5%	120%-140%		
TE30A4803Q01	48.0 V	0.63 A	30.2 W	480mV pk-pk	± 1%	± 5%	120%-140%		
TE30A0503B01	5.0 V	4.00 A	20.0 W	75mV pk-pk	± 1%	± 5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Wall-Plug, Interchangeable Blades (North American Blade included)[3]
TE30A0903B01	9.0 V	3.00 A	27.0 W	90mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1203B01	12.0 V	2.50 A	30.0 W	120mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1503B01	15.0 V	2.00 A	30.0 W	150mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1803B01	18.0 V	1.67 A	30.0 W	180mV pk-pk	± 1%	± 5%	120%-140%		
TE30A2403B01	24.0 V	1.33 A	31.9 W	240mV pk-pk	± 1%	± 5%	120%-140%		
TE30A4803B01	48.0 V	0.63 A	30.2 W	480mV pk-pk	± 1%	± 5%	120%-140%		
TE30A0503C01	5.0 V	4.00 A	20.0 W	75mV pk-pk	± 1%	± 5%	120%-150%	2.5 x 5.5 x 9.5mm Straight Barrel Type, Center Positive	Class II Wall-Plug, Fixed North American Blades[4]
TE30A0903C01	9.0 V	3.00 A	27.0 W	90mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1203C01	12.0 V	2.50 A	30.0 W	120mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1503C01	15.0 V	2.00 A	30.0 W	150mV pk-pk	± 1%	± 5%	120%-150%		
TE30A1803C01	18.0 V	1.67 A	30.0 W	180mV pk-pk	± 1%	± 5%	120%-140%		
TE30A2403C01	24.0 V	1.33 A	31.9 W	240mV pk-pk	± 1%	± 5%	120%-140%		
TE30A4803C01	48.0 V	0.63 A	30.2 W	480mV pk-pk	± 1%	± 5%	120%-140%		

Notes:
1. Measured at the output connector, with noise probe directly across output and load terminated with 0.1 µF ceramic and 10 µF low ESR capacitors. For 5 V and 6 V models, values listed are typical 100 mV pk-pk maximum with 0.1 µF ceramic and 47 µF low ESR capacitors used at measurement point.
2. 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).
3. Order blade kit KT-1027K for other blades (EU, UK, Australia).
4. 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".
5. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

CONNECTOR INFORMATION

Standard models include a 2.5 x 5.5 x 9.5 mm 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 9.5 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 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 12.5 mm straight barrel plug - Center positive 	70	2.1 x 5.5 x 11 mm 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 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	2.1 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 

EFFICIENCY LEVEL VI INFORMATION

Single-Voltage External AC-DC Power Supply, Basic-Voltage		
Nameplate Output Power (Pout)	Minimum Average Efficiency in Active Mode (expressed as a decimal)	Maximum Power in No-Load Mode (W)
Pout ≤ 1 W	≥0.5 x Pout + 0.16	≤0.100
1 W < Pout ≤ 49 W	**≥0.071 x ln (Pout) - 0.0014 x Pout + 0.67**	**≤0.100**
49 W < Pout ≤ 250 W	≥0.880	≤0.210
Pout > 250 W	≥0.875	≤0.500
Single-Voltage External AC-DC Power Supply, Low-Voltage		
Nameplate Output Power (Pout)	Minimum Average Efficiency in Active Mode (expressed as a decimal)	Maximum Power in No-Load Mode (W)
Pout ≤ 1 W	≥0.517 x Pout + 0.087	≤0.100
1 W < Pout ≤ 49 W	**≥0.0834 x ln (Pout) - 0.0014 x Pout + 0.609**	**≤0.100**
49 W < Pout ≤ 250 W	≥0.870	≤0.210
Pout > 250 W	≥0.875	≤0.500

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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