TE30 Family

20W-30W Single Output External Power
Industrial Grade

Industrial

FEATURES AND BENEFITS

- Meets DoE efficiency level VI requirements
  - No load input power
  - Average efficiency
- Up to 30W of AC-DC power
- Universal input 90-264 VAC input range
  - Desktop and Wall-plug versions
- Meets "Heavy Industrial" levels of EN61000 EMC requirements
- Meets EN55032/CISPR22 and FCC Part 15.109 Class B conducted & radiated emissions, with 6db margin
- Approved to EN/CSA/IEC/UL62368-1
- E- cap life of >8 years
- >10,00,000 hours MTBF
- 3 years warranty

Note: *IP22 does not include interchangeable blade versions.

MODEL SELECTION

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Output Cable & Connector	Input Configuration
TE30A0503F01	5.0V	4.00	20W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight barrel type, Center positive	Class I Desktop, IEC60320 C14 receptacle
TE30A0903F01	9.0V	3.00	27W	90mV pk-pk	±1%	±5%		
TE30A1203F01	12.0V	2.50	30W	120mV pk-pk	±1%	±5%		
TE30A1503F01	15.0V	2.00A	30W	150mV pk-pk	±1%	±5%		
TE30A1803F01	18.0V	1.67	30W	180mV pk-pk	±1%	±5%		
TE30A2403F01	24.0V	1.33	30W	240mV pk-pk	±1%	±5%		
TE30A4803F01	48.0V	0.63	30W	480mV pk-pk	±1%	±5%		
TE30A0503N01	5.0V	4.00A	20W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight barrel type, Center positive	Class II Desktop, IEC60320 C8 receptacle
TE30A0903N01	9.0V	3.00	27W	90mV pk-pk	±1%	±5%		
TE30A1203N01	12.0V	2.50	30W	120mV pk-pk	±1%	±5%		
TE30A1503N01	15.0V	2.00	30W	150mV pk-pk	±1%	±5%		
TE30A1803N01	18.0V	1.67	30W	180mV pk-pk	±1%	±5%		
TE30A2403N01	24.0V	1.33	30W	240mV pk-pk	±1%	±5%		
TE30A4803N01	48.0V	0.63A	30W	480mV pk-pk	±1%	±5%		
TE30A0503Q01	5.0V	4.00	20W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight barrel type, Center positive	Class II Desktop, IEC60320 C18 receptacle
TE30A0903Q01	9.0V	3.00	27W	90mV pk-pk	±1%	±5%		
TE30A1203Q01	12.0V	2.50	30W	120mV pk-pk	±1%	±5%		
TE30A1503Q01	15.0V	2.00A	30W	150mV pk-pk	±1%	±5%		
TE30A1803Q01	18.0V	1.67	30W	180mV pk-pk	±1%	±5%		
TE30A2403Q01	24.0V	1.33	30W	240mV pk-pk	±1%	±5%		
TE30A4803Q01	48.0V	0.63	30W	480mV pk-pk	±1%	±5%		

MODEL SELECTION

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Output Cable & Connector	Input Configuration
TE30A0503B01	5.0V	4.00A	20W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight barrel type, Center positive	Class II Wall-plug, Interchangeable blades (North American blade included)[2]
TE30A0903B01	9.0V	3.00A	27W	90mV pk-pk	±1%	±5%		
TE30A1203B01	12.0V	2.50A	30W	120mV pk-pk	±1%	±5%		
TE30A1503B01	15.0V	2.00A	30W	150mV pk-pk	±1%	±5%		
TE30A1803B01	18.0V	1.67A	30W	180mV pk-pk	±1%	±5%		
TE30A2403B01	24.0V	1.33A	30W	240mV pk-pk	±1%	±5%		
TE30A4803B01	48.0V	0.63A	30W	480mV pk-pk	±1%	±5%		
TE30A0503C01	5.0V	4.00A	20W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight barrel type, Center positive	Class II Wall-plug, Fixed North American blades[3]
TE30A0903B01	9.0V	3.00A	27W	90mV pk-pk	±1%	±5%		
TE30A1203C01	12.0V	2.50A	30W	120mV pk-pk	±1%	±5%		
TE30A1503C01	15.0V	2.00A	30W	150mV pk-pk	±1%	±5%		
TE30A1803C01	18.0V	1.67A	30W	180mV pk-pk	±1%	±5%		
TE30A2403C01	24.0V	1.33A	30W	240mV pk-pk	±1%	±5%		
TE30A4803C01	48.0V	0.63A	30W	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 10µF low ESR capacitors. For 5V and 6V models, values listed are typical, 100mV pk-pk maximum with 0.1µF ceramic and 47µF low ESR capacitors used at measurement point.
2. Order blade k replace "C" in the model number with "M", for UK blades, replace "C" with "G", for Australia blades, replace "C" with "H".
3. All specifications are typical at nominal input, full load, at 25°C ambient unless noted.
4. For Input Class I models: For AC GND connected to output common (-), insert a "B" in the part number where the "A" is located (TE30B1203F01).

INPUT

AC Input	100-240VAC, ±10%, 47-63Hz, 1Ø
Input Current	115VAC: 1.2A, 23VAC: 0.6A
Inrush Current	264VAC, cold start: will not exceed 40A
Input Fuses	2.0A, 250VAC
Leakage Current	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	<0.1W per DoE efficiency level VI requirements

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

OUTPUT

Turn On Time	Less than 700ms @115VAC, Full load
Hold-Up Time	20ms at full load, 100VAC input
Output Power	20 to 30W 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%
Regulation	See models chart on pg 1

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

SAFETY

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 100G, Pulse duration of 6ms, Number of shocks: 3 for each of the three axis

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

RELIABILITY

MTBF	>10,00,000 hours, Full load, 110 & 220VAC input, 25°C amb., per Telcordia 332 Issue 6
E-Cap Life	>8 years 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

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

ENVIRONMENT

Operating Temperature	-20°C to +70°C Start Up at -40°C, Full load, (warmup period before all parameters are within published specifications)
Temperature Derating	See derating charts below
Storage Temperature	-40°C to +85°C
Altitude	Operating: to 5000m 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
Weight	250g
Dimensions	See outline drawings

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

ISOLATION SPECIFICATIONS

Isolation	Input-Output: 4,000VAC Input-Ground: 1,500VAC Output-Ground: 1,500VAC

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

PROTECTION

Overtemperature Protection	Will shutdown upon an overtemperature condition, Auto-recovery
Overload Protection	130 to 180% of rating, Hiccup mode
Short Circuit Protection	Hiccup mode, Auto recovery
Overvoltage Protection	Hiccup mode. See model chart above for trip ranges
Safety Drop Test	1.4m from table top to wooden platform, 4 faces

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

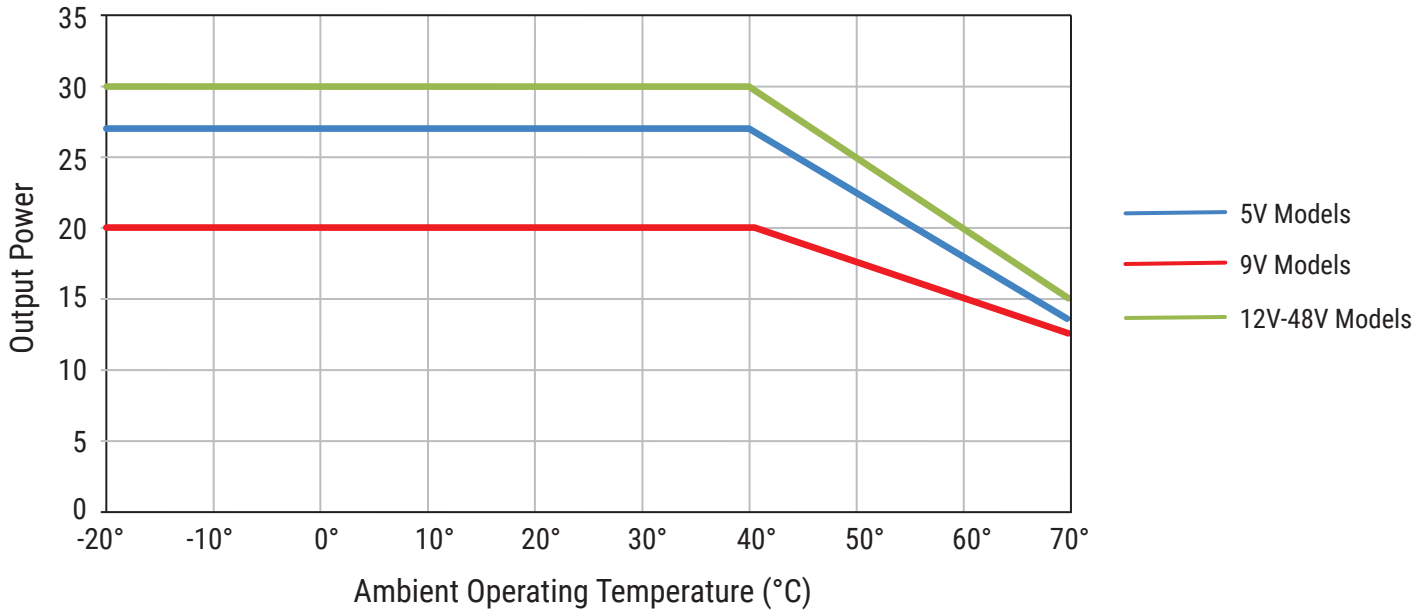
EMI/EMC COMPLIANCE

Conducted Emissions	EN55032/CISPR22 Class B, FCC Part 15 Class B: 6db margin typ, at 115 and 230VAC
Radiated Emissions	EN55032/CISPR22 Class B, FCC Part 15 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, 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
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

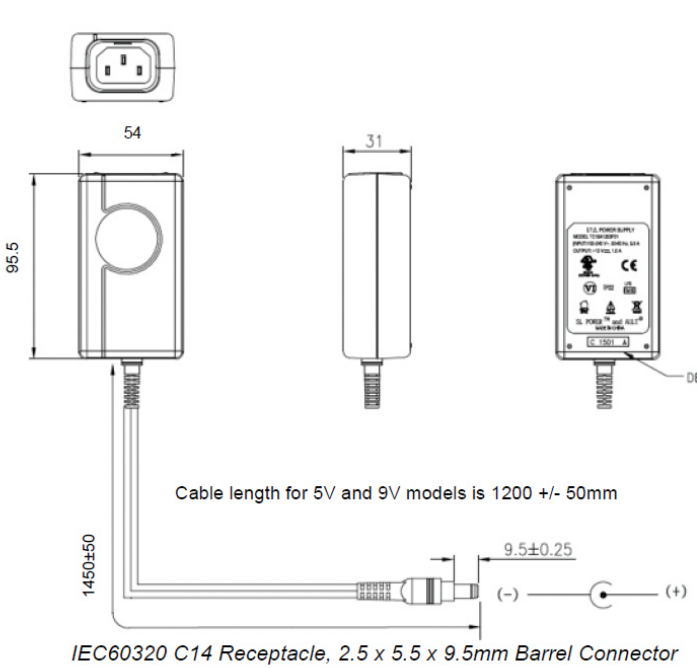
Notes: All specifications are typical at nominal input, full load, at 25°C ambient unless noted.

DERATING CHART

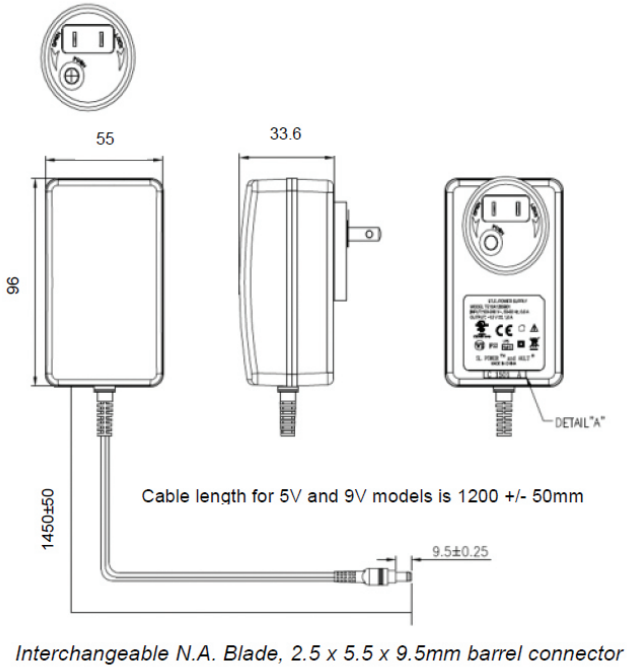
Output power is derated above 40°C as follows, for operation over the entire AC input range (90-264VAC).



MECHANICAL DRAWING



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



Interchangeable N.A. Blade, 2.5 x 5.5 x 9.5mm barrel connector

Notes: 1. All dimensions in mm.
2. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, Aust.) order blade kit KT1027K.

CONNECTOR INFORMATION

Standard models include a 2.5 x 5.5 x 9.5mm 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 (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 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 (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

TE30A Series
9V-48V models

TE30A Series
5V models