TE20 Family

15W-20W Single Output External Power Industrial Grade

Industrial

FEATURES AND BENEFITS

- Universal Input 90-264Vac Input Range Desktop and Wall-Plug Versions
- Up to 20W of AC-DC Power
- Meets DoE Efficiency Level VI Requirements No Load Input Power Average Efficiency
- Meets "Heavy Industrial" Levels of EN61000 EMC Requirements
- Meets EN55022/CISPR22, FCC Part 15.109 Class B Conducted & Radiated Emissions, with 6db Margin
- Approved to EN/CSA/IEC/UL62368-1
- E-Cap Life of>10 Years
- >1,000,000 Hours MTBF
- 3 Year Warranty
- IP22 Rated Enclosure

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 Connector	Input Configuration
TE20A0503F01	5.0V	3.00A	15W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class I Desktop, IEC60320 C14 Receptacle
TE20A0603F01	5.9V	2.50A	15W	75mV pk-pk	±1%	±5%		
TE20A0703F01	7.5V	2.00A	15W	75mV pk-pk	±1%	±5%		
TE20A0903F01	9.0V	2.00A	18W	90mV pk-pk	±1%	±5%		
TE20A1203F01	12.0V	1.50A	18W	120mV pk-pk	±1%	±5%		
TE20A1503F01	15.0V	1.20A	18W	150mV pk-pk	±1%	±5%		
TE20A1803F01	18.0V	1.10A	20W	180mV pk-pk	±1%	±5%		
TE20A2403F01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A4803F01	48.0V	0.42A	20W	480mV pk-pk	±1%	±5%		
TE20A0503N01	5.0V	3.00A	15W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C8 Receptacle
TE20A0603N01	5.9V	2.50A	15W	75mV pk-pk	±1%	±5%		
TE20A0703N01	7.5V	2.00A	15W	75mV pk-pk	±1%	±5%		
TE20A0903N01	9.0V	2.00A	18W	90mV pk-pk	±1%	±5%		
TE20A1203N01	12.0V	1.50A	18W	120mV pk-pk	±1%	±5%		
TE20A1503N01	15.0V	1.20A	18W	150mV pk-pk	±1%	±5%		
TE20A1803N01	18.0V	1.10A	20W	180mV pk-pk	±1%	±5%		
TE20A2403N01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A4803N01	48.0V	0.42A	20W	480mV pk-pk	±1%	±5%		

Model Number	Volts	Output Current	Output Power	Ripple & Noise[1]	Line Regulation	Load Regulation	Output Connector	Input Configuration
TE20A0503Q01	5.0V	3.00A	15W	75mV pk-pk	±1%	±5%	2.5 x 5.5 x 9.5mm Straight Barrel Type, center positive	Class II Desktop, IEC60320 C18 Receptacle
TE20A0603Q01	5.9V	2.50A	15W	75mV pk-pk	±1%	±5%		
TE20A0703Q01	7.5V	2.00A	15W	75mV pk-pk	±1%	±5%		
TE20A0903Q01	9.0V	2.00A	18W	90mV pk-pk	±1%	±5%		
TE20A1203Q01	12.0V	1.50A	18W	120mV pk-pk	±1%	±5%		
TE20A1803Q01	18.0V	1.10A	20W	180mV pk-pk	±1%	±5%		
TE20A1503Q01	15.0V	1.20A	18W	150mV pk-pk	±1%	±5%		
TE20A2403Q01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A4803Q01	48.0V	0.42A	20W	480mV pk-pk	±1%	±5%		
TE20A0503B01	5.0V	3.00A	15W	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]
TE20A0603B01	5.9V	2.50A	15W	75mV pk-pk	±1%	±5%		
TE20A0703B01	7.5V	2.00A	15W	75mV pk-pk	±1%	±5%		
TE20A0903B01	9.0V	2.00A	18W	90mV pk-pk	±1%	±5%		
TE20A1203B01	12.0V	1.50A	18W	120mV pk-pk	±1%	±5%		
TE20A1503B01	15.0V	1.20A	18W	150mV pk-pk	±1%	±5%		
TE20A1803B01	18.0V	1.10A	20W	180mV pk-pk	±1%	±5%		
TE20A2403B01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A4803B01	48.0V	0.42A	20W	480mV pk-pk	±1%	±5%		
TE20A0503C01	5.0V	3.00A	15W	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
TE20A0603C01	5.9V	2.50A	15W	75mV pk-pk	±1%	±5%		
TE20A0703C01	7.5V	2.00A	15W	75mV pk-pk	±1%	±5%		
TE20A0903C01	9.0V	2.00A	18W	90mV pk-pk	±1%	±5%		
TE20A1203C01	12.0V	1.50A	18W	120mV pk-pk	±1%	±5%		
TE20A1503C01	15.0V	1.20A	18W	150mV pk-pk	±1%	±5%		
TE20A2403C01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A2403C01	24.0V	0.83A	20W	240mV pk-pk	±1%	±5%		
TE20A4803C01	48.0V	0.42A	20W	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 kit KT-1027K for other blades (EU. UK, Australia)
3. 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"
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 (TE20B0503F01)
5. All specifications are typical at nominal input, full load, at 25°C ambient unless noted

INPUT

AC Input	100-240Vac, ±10%, 47-63Hz, 1
Input Current	115Vac: 0.5A, 230Vac: 0.25A
Inrush Current	264Vac, cold start: will not exceed 40A
Input Fuses	F1, F2: 3.15A, 250Vac fuses (line & neutral lines) provided on all models
Earth Leakage Current	Input-GND: <500µA@264Vac, 60Hz, NC Output-GND: <4mA@264Vac, 60Hz, NC
Efficiency	Meets US DoE Efficiency Level VI Average efficiency levels
Common Mode Noise	High Frequency (100kHz-20MHz): <40mA pk-pk
No Load Input Power	<0.1W per DoE Efficiency Level VI Requirements

PROTECTION

Overvoltage Protection	130 to 150% of output voltage, hiccup mode
Short Circuit Protection	Hiccup Mode, auto recovery
Overtemperature Protection	Will shutdown upon an overtemperature condition, auto-recovery
Overload Protection	130 to 180% of rating, Hiccup Mode

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

OUTPUT

Output Voltage	See models chart on pg 1
Output Power	15 to 20W continuous – See models chart for specific voltage model ratings.
Turn On Time	Less than 700mS @115Vac, full load
Hold-up Time	20mS min., at full Load, 100Vac input
Ripple and Noise	See models chart on pg 1
Transcient Response	500µs response time, return to within 0.5% of final value for any 50% load step over 5% to 100% of rated load, Δi/Δt< 0.2A/µs. Max. voltage deviation is +/-3.5%

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
Electro-Static Discharge (ESD) Immunity on Power ports	EN55024/IEC61000-4-2, Level 4: +/- 8kV contact, +/- 15kV air, Criteria A
Common Mode Noise	High Frequency (100kHz-20MHz): <40mA pk-pk
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, 3V/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: 30A/m, 50/60Hz
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

ENVIRONMENT

Operating Temperature	-20°C to +70°C Start Up at -40°C, full load, (warmup period before all parameters are within published specifications)
Relative Humidity	5% to 95%, non-condensing
Weight	110g
Temperature Derating	See Derating Chart
Altitude	Operating: to 5000m. Non-operating: -500 to 40,000 ft.
Storage Temperature	-40°C to +85°C
Vibration	Operating: 0.003g/Hz, 1.5grms overall, 3 axes, 10 min/axis, 1-500Hz. Non-Oper.: random waveform, 3 minutes per axis, 3 axes; Sine waveform, Vib. frequency/ acceleration: 10-500Hz/1g, sweep rate of 1 octave/min., Vibration time of 10 sweeps / axes, 3 axes
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 100G, Pulse duration of 6 mS, Number of shocks: 3 for each of the three axis

SAFETY

Safety Standards	Approved to EN/CSA/IEC/UL62368-1
Drop Test	1.4m from table top to wooden platform, 6 faces

RELIABILITY

MTBF	>1,000,000 hours, full load, 110 & 220Vac input, 25°C amb., per Telcordia 332 Issue 6, Stress Method

ISOLATION

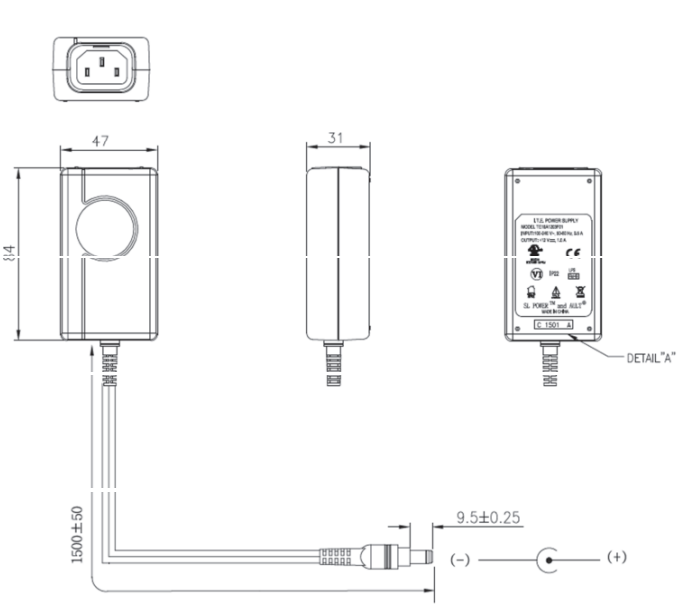
Isolation	Input-Output: 4000Vac Input-Ground: 1500Vac Output-Ground: 1500Vac

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

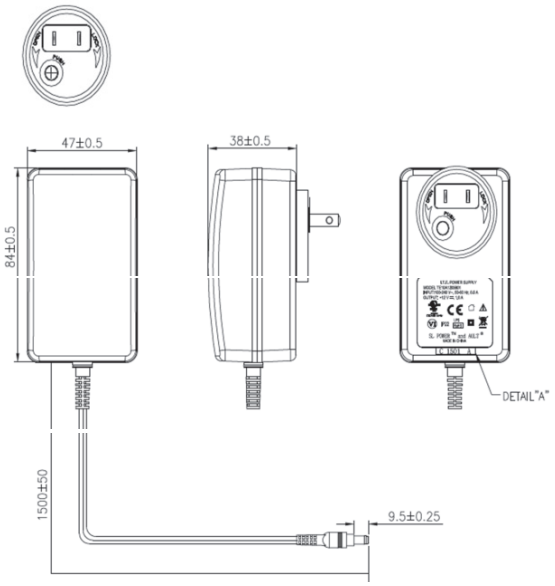
Notes:

1. Weight: 110g.
2. All dimensions in mm.
3. Interchangeable blade models come with North American blade fitted. For other blades (EU, UK, Aust.) order blade kit KT1027K.
4. The unit should not be covered or enclosed to protect against excessive case temperature rise

MECHANICAL DRAWING



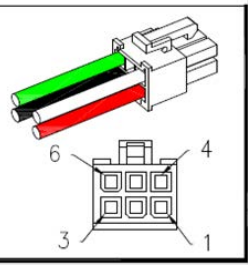
IEC60320C 14 Receptacle,2 .5 x5 .5 x9 .5mm Barrel Connector



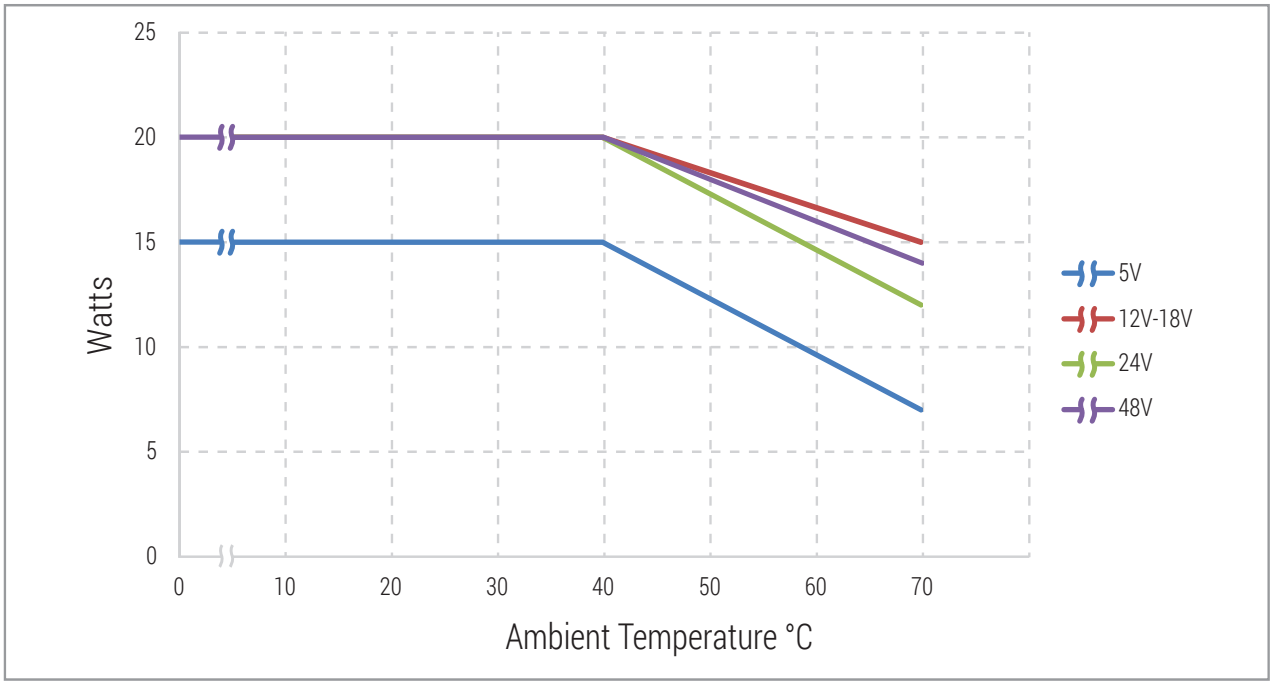
Interchangeable N.A. Blade, 2.5x 5.5x 9.5mmb arrelc onnector

Note: 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



DERATING CHART



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 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	

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

TE20A Series

Disclaimer: The information and specifications contained herein are believed to be correct at the time of publication. However, SL Power accepts no responsibility for consequences arising from reproduction errors or inaccuracies. Specifications are subject to change without notice.