

Switching Power Adapter

19Volts / 13,2Amps

- Input Universal 100 - 240 Vac / 50 - 60 Hz Input, without any slide switch.
- Output 19V / 0 ~ 13,2A
- Case Dimension 204(L) * 94 (W) * 43.5(H) mm ± 1 mm
- Efficiency Eff (av) ≥88%, Eff 79% @ 10% load
- Safety CUL / UL / GS / BSMI / PSE
- EMI CE / FCC (Conduction & Radiation Class B)
- Protection OVP (Over Voltage Protection), SCP (Short Circuit Protection), OCP (Over Current Protection), OTP (Over Temperature Protection)
- Suitable for usage at I.T.E., Industrial Controller.
- Meet DoE Level VI/ ErP (Lot 7) / GEMS / NRCan.

Item	Value Unit Remarks
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1. Input

Voltage	Universal 100~240Vac, single phase
Frequency	50 - 60 Hz
Current	3.3A Max.
Inrush Current	120 A Max. / 230Vac (Cold start at 25 °C, full load)(ac source chroma 6530)
Efficiency	Eff (av) ≥88% (At 115 Vac & 230 Vac), Eff 79% @ 10% load (at 230 Vac)
Power Consumption	Pi ≤ 0.21 W (At No load)
Power Factor (PF)	Pi ≥ 0.9 (At No load)

$$\text{Eff (av)} = \frac{E1 + E2 + E3 + E4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

2. Output

DC output	
Voltage	+19V ±5%
Current	13.2A Max.
Regulation	18.1Vmin. ~ 19Vtyp. ~19.9Vmax.
Ripple & Noise	190 mVpp Max.
Total Power	250.8W Max.

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1µF multilayer Cap. and a Low ESR Electrolytic Cap. (47 µF) at output connector terminals. (At nominal line voltage, Full Load)

3. Protection

Over Voltage Protection (OVP)	V out *150%(Max) , latch off.
Short Circuit Protection (SCP)	Shut down.
Over Current Protection(OCP)	I out *150%(Max), autorecovery
Over Temperature Protection (OTP)	Latch off.

4. Safety Requirement

Dielectric Strength		Cut off current 10mA
1	Primary to Secondary	3000Vac for 1 Minute
2	Primary to Frame Ground	1770Vac for 1 Minute
Secondary return isolated to FG		
Insulation Resistance		
1	Primary to Secondary	10 M ohm for 500Vdc
2	Primary to Frame Ground	10 M ohm for 500Vdc
Secondary return isolated to FG		
Grounding test		< 0.1 ohm
Leakage Current		Less than 3.5mA

5. Operation and Environment Performance

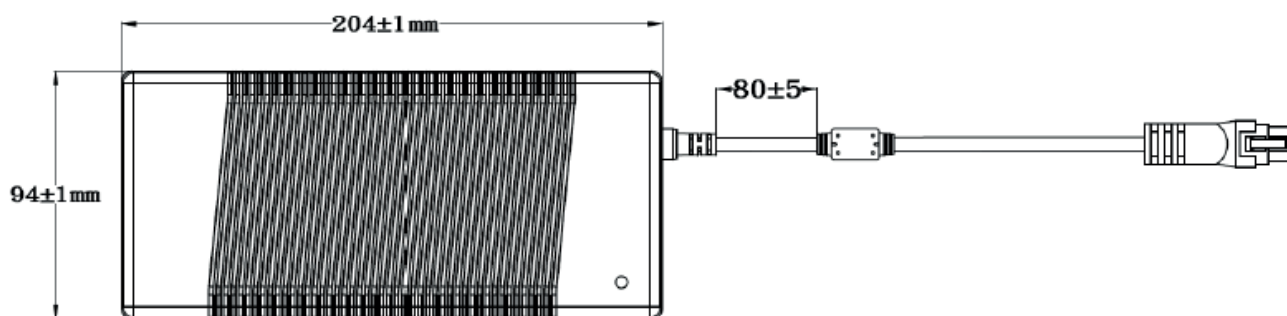
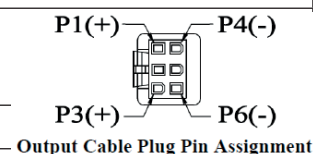
Temperature Range		
	Operating	-20°C ~ +40° C
	Storage	-20°C ~ +80° C
Humidity Range(Non-condensing)		
	Operating	20% ~ 80% RH
	Storage	10% ~ 90% RH
Cooling		By natural air

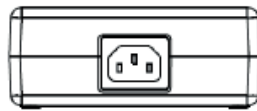
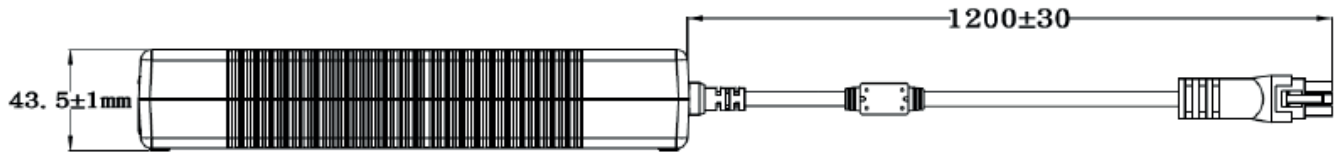
6. M.T.B.F.

300000Hrs.(Calculated Hours at 25 °C , By Telcordia SR-332)

7. Mechanical

Weight	1040 g Ref.
Cable Type	Black UL2464 16AWG*4C (Wire + Housing) Plug : 6Pin Housing
Cable Length	1200mm
Case Dimension	204mm(L)*94mm(W)*43.5mm(H) ± 1 mm
Material Flammability	UL 94V-0
External Apperance	As drawing below (Scale - mm)

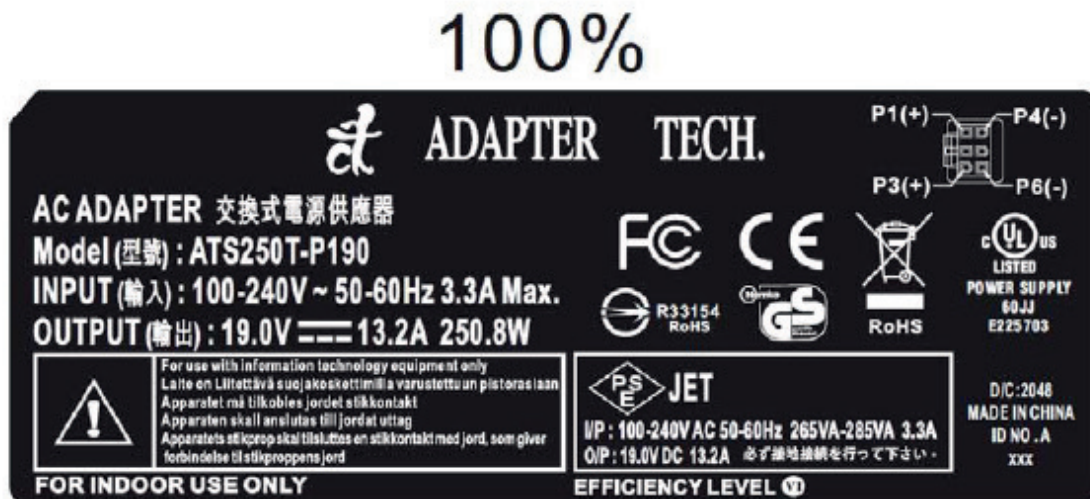




FRONT-VIEW

8. Spec. Label

Label Materials	Metalized Polyester Label (Silver Gloss)
Color	Black Background with Silver Printing
Dimension	52mm(L)*137mm(W)+/-0.1mm
Thickness	75#



"XXX"

Label supplier's code

It is accurate that the number of words depends on the real finished product

Line Regulation Test
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.988 V
115Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.988 V
132Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.988 V
180Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.988 V
230Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.988 V
264Vac / 50 % Load	18.1 V ~ 19.9 V	19.031 V	18.975 V	18.989 V

Efficiency Test
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	88 % Min.	89.11 %	89.60 %	89.55 %
230Vac	88 % Min.	90.71 %	90.90 %	90.82 %
230 Vac@10% load	79 % Min.	87.55 %	87.21 %	86.38 %

$$\text{Eff (av)} = \frac{E1 + E2 + E3 + E4}{4}$$

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

Load Regulation Test
Test Result:

9.07 V	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	18.1 V ~ 19.9 V	19.275 V	19.181 V	19.212 V
115Vac / 50 % Load	18.1 V ~ 19.9 V	19.012 V	18.956 V	18.988 V
115Vac / 100 % Load	18.1 V ~ 19.9 V	18.731 V	18.675 V	18.705 V
230Vac / 0 % Load	18.1 V ~ 19.9 V	19.275 V	19.181 V	19.212 V
230Vac / 50 % Load	18.1 V ~ 19.9 V	18.993 V	18.956 V	18.988 V
230Vac / 50 % Load	18.1 V ~ 19.9 V	18.712 V	18.731 V	18.705 V

Ripple & Noise Test
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	190mVpp Max	64.1 mV	71.9 mV	78.1 mV
230Vac / 100 % Load	190mVpp Max	68.7 mV	76.6 mV	79.7 mV

Inrush Current
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	120 A Max.	83.7 A	86.9 A	85.1 A

Over Voltage Protection
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Vout*150% Max.	120%	120%	121%
230Vac / 100 % Load	Vout*150% Max.	119%	120%	121%

Over Current Protection
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Vout*150% Max.	126%	127%	127%
230Vac / 100 % Load	Vout*150% Max.	126%	127%	127%

Short Circuit Protection
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Shut down	OK	OK	OK
230Vac / 100 % Load	Shut down	OK	OK	OK

Input Power Consumption(No Load)
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	$\leq 0.21\text{W}$	0.125 W	0.130 W	0.140 W
230Vac / 0 % Load	$\leq 0.21\text{W}$	0.184 W	0.188 W	0.187 W

Power Factor
Test Result:

Test Condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	≥ 0.9	0.991	0.991	0.991
230Vac / 0 % Load	≥ 0.9	0.963	0.963	0.963



Adapter Technology Co., Ltd.

Efficiency Test Report

A.	Model Number	: ATS250T-P190	19.0V	13.20A	250.80W
B.	DC Power Cord	: UL2464 16AWG * 4C, 1.2M			
C.	Average Efficiency	:			
	Erp (LOT 7)	88.0%	Min.		
	DoE Level VI	88.0%	Min.		
	GEMS Level VI	88.0%	Min.		
D.	NO Load Power Consumption	:			
	Erp (LOT 7)	0.21W Max.			
	DoE Level VI	0.21W Max.			
	GEMS Level VI	0.21W Max.			
E.	Testing Dequpment	:			
	a. AC Power Source	: " Chroma " 61604			
	b. Electronic Load	: " PRODIGIT " 3311F			
	c. Power Meter	: " YOKOGAWA " WT-310A			
	d. Digital Meter	: " FLUKE " 45			
F.	AC Input Voltage	: 115Vac/60Hz			

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Reported Quantity						
Rms Output Current(mA)	13200mA	9900mA	6600mA	3300mA	1320mA	0mA
Rms Output Voltage(V)	18.875V	18.984V	19.086V	19.183V	19.241V	19.280V
Active Output Power(W)	249.15W	187.94W	125.97W	63.30W	25.40W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	2.457A	1.836A	1.230A	0.646A	0.310A	0.089A
Rms Input Power(W)	279.980W	208.900W	139.050W	70.760W	30.728W	0.140W
True Power Factor (PF)	0.991	0.989	0.983	0.952	0.862	0.014
Total Harmonic Distortion of the input current	11.3A%	12.8A%	15.5A%	20.0A%	22.8A%	3.8A%
Power Consumed by UUT(W)	30.830W	20.958W	13.082W	7.456W	5.330W	0.140W
Active Efficiency	88.988%	89.967%	90.592%	89.463%	82.655%	*
Average Efficiency	89.753%				82.655%	*

G. AC Input Voltage : 230Vac/50Hz

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Reported Quantity						
Rms Output Current(mA)	13200mA	9900mA	6600mA	3300mA	1320mA	0mA
Rms Output Voltage(V)	18.876V	18.985V	19.086V	19.184V	19.242V	19.281V
Active Output Power(W)	249.16W	187.95W	125.97W	63.31W	25.40W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	1.239A	0.945A	0.657A	0.419A	0.265A	0.133A
Rms Input Power(W)	274.500W	205.940W	138.170W	69.050W	29.010W	0.197W
True Power Factor (PF)	0.963	0.948	0.914	0.717	0.476	0.006
Total Harmonic Distortion of the input current	18.2A%	20.3A%	23.3A%	21.5A%	49.9A%	3.6A%
Power Consumed by UUT(W)	25.337W	17.989W	12.202W	5.743W	3.611W	0.197W
Active Efficiency	90.770%	91.265%	91.169%	91.683%	87.554%	*
Average Efficiency	91.222%				87.554%	*

Tester : Wentsai