



全漢企業股份有限公司  
FSP TECHNOLOGY INC.

台灣桃園市建國東路22號 統一編號：84239055  
No. 22, Jianguo East Road., Taoyuan City, Taiwan, R.O.C.  
TEL:+886-3-375-9888 Website : www.FSP-group.com  
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# SPECIFICATION



FSP180-AAAN1



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## Efficiency Testing Criteria

The Product Meet	Regulation	Output Power	Average Efficiency in Active Mode	Maximum Power in No Load	Total Harmonic Distortion	115V/60HZ 100% Load
	Energy Star EPS2.0	$\geq 50W$	$\geq 87\%$	$\leq 0.5W$	THD,V <2%	PF>0.9
	ErP Lot 7 Tier2	>51W	$\geq 87\%$	$\leq 0.5W$	THD,V <2%	PF>0.9



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# SPECIFICATION

AC Adapter

FSP180-AAAN1

P.E	R/D	APPROVED	REV.
Matisse	Stephen Li	LJ Wei	05

表單編號：7000P-0105



# Electrical Specification

## History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
<b>00</b>	SPEC ISSUE	May.09'07	Gigi Yu	Matisse	Stephen Li	LJ Wei
<b>001</b>	Item1.6 Efficiency : 100Vac→87%,240Vac→89%	Nov'20'07	Vicky	Matisse	Stephen Li	LJ Wei
<b>002</b>	Add : (1)Over shoot Test(2) Vibration Test	Jan'15'08	Vicky	Matisse	Stephen Li	LJ Wei
<b>00</b>	3.2 Over-Voltage Protection revise	Sep'16'08	Vicky	Matisse	Stephen Li	LJ Wei
<b>01</b>	Remove Item 5.4	Dec'16'08	Vicky	Matisse	Stephen Li	LJ Wei
<b>02</b>	Item4.7 Leakage Current : 0.25mA→3.5mA	Dec'19'08	Vicky	Matisse	Stephen Li	LJ Wei
<b>03</b>	Modify: 5.1 Dimension (Length x Width x Height) : 41mm→42mm	Mar'13'10	Vicky	Matisse	Stephen Li	LJ Wei
<b>04</b>	Modify: 5.1 Dimension (Length x Width x Height) : 42mm→42.5mm	Aug'04'10	Vicky	Matisse	Stephen Li	LJ Wei
<b>05</b>	Add:5.5 Acoustic Noise Revise: 1.6 Efficiency CEC→Erp 4.6.1 California Energy Commission 【CEC】 → Energy-related Products 【ErP】	June'8'11	Vicky	Matisse	Stephen Li	LJ Wei

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# Electrical Specification

## Electrical Requirements

### 1. Input Characteristics:

ITEM	CONDITION	SPECIFICATION	
1.1 Rated Input Voltage		100Vac / 240Vac	
1.2 Input Voltage Range		90Vac to 264Vac	
1.3 Input Frequency Range		47Hz to 63Hz ( ± 1Hz )	
1.4 Input Current	100Vac, 240Vac / 7.5A Load	≤ 2.5A	
1.5 Input Current Harmonic		IEC61000-3-2	
1.6 Efficiency: (Warm up 10minutes later)	100Vac / 7.5A Load 240Vac / 7.5A Load	≥ 87% ≥ 89%	※ Meet 【ErP】 Energy-related Products
1.7 Power Saving	115Vac, 230Vac / 0A Load	≤ 0.5W	
1.8 Inrush Current	100Vac, 240Vac / 7.5A Load	Shall be less than the rating of adapter critical component (including rectifiers, fuse surge and current limiting device)	

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# Electrical Specification

## 2. Output Characteristics:

※Measured at the end of DC cable.

ITEM	CONDITION	SPECIFICATION
2.1 Output Rated Voltage		24V
2.2 Output Current	at constant voltage mode	0A to 7.5A
2.3 Output Voltage Setting	at the output end of DC cable	24V $\pm$ 5%
2.4 Output Voltage Ripple and Noise: (0.1uF Ceramic Cap. and 35V 47uF Aluminum Cap. Paralleled between the end of output cable)	100Vac / 7.5A Load 240Vac / 7.5A Load	$\leq$ 380mVp-p
2.5 Turn-On Delay Time:	At 100Vac / 7.5A load, output voltage shall remain regulation	$\leq$ 3Sec.
2.6 Hold Up Time:	At 100Vac or 240Vac / 7.5A load, output voltage shall remain regulation	$\geq$ 5mS
2.7 Rise Time:	At 100Vac / 7.5A load, DC output rise time from 5% to 95% of Vo	$\leq$ 50mS
2.8 Dynamic Load Change:	(1) Output load step is : 【1】 0 % ~50 % 【2】 50 %~100 % (2) S/R=0.5A/us (3) Frequency is 100Hz and 1KHz	24V $\pm$ 10%
2.9 Overshoot	100Vac, 240Vac / 0A and 7.5A Load	24V $\pm$ 10%

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# Electrical Specification

## 3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload or short circuit is applied to the output, the power supply shall shut down and enter auto-recovery mode.	Shutdown and no damage
3.2 Over-Voltage Protection	The output voltage will limit under 35V that means to protect while over voltage happened at output terminal that caused by internal fault.	No damage
3.3 Over Power Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload or short circuit is applied to the output, the power supply shall shut down and enter auto-recovery mode.	Shutdown and no damage
3.4 Over Temperature Protection:	The power supply will enter into shut down while the abnormal thermal rise occurs. It will enter into normal condition if the fault condition is removed.	No fire, no smoke

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# Electrical Specification

## 4. Environmental Characteristics:

ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients : Refer to IEC61000- 4-4	Impulse: $\pm 1\text{kV}$ applied to L,N	Normal operation shall be continued.
4.2 Lightning Surge: Refer to IEC61000-4-5	$\pm 1\text{kV}$ applied differential mode	Normal operation shall be continued.
	$\pm 2\text{kV}$ applied common mode	Normal operation shall be continued.
4.3 Electron Static Discharge: (Refer to IEC61000-4-2 Energy Storage Capacitor 150pF; Discharge Resistor 330 $\Omega$ )	Air Discharge: $\pm 15\text{KV}$ Contact Discharge: $\pm 8\text{KV}$	Normal operation shall be continued.
4.4 Cooling	Natural air cooling	
4.5 EMI: Adapter comply with the following national standards:  EMI Conducted Emission  EMI Radiated Emission	1.Full Load  2. The power supply with internal filter can meet.	FCC PART 15J CLASS B  CISPR22 EN55022 CLASS B  VCCI LEVEL II
4.6 Safety conforming:  4.6.1 Energy-related Products 【ErP】		Regulated by customer  Comply with ErP standard
4.7 Leakage Current	254Vac / 50Hz	$\leq 3.5\text{mA}$
4.8 Dielectric Strength: (Hi-Pot)	Between AC input and secondary applied AC 1.5KV / test time 1 minute / cut off current shall be less than 10mA	
4.9 Temperature:	Operating Storage	0 to 40°C -20 to +80°C
4.10 Humidity:	Operating Storage	20% ~ 80% 10% ~ 90%

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# Electrical Specification

## 5. Mechanical Characteristics:

ITEM	CONDITION	SPECIFICATION
5.1 Dimension (Length x Width x Height)		170 X 85 X 42.5mm
5.2 Adapter weight		860g (typical)
5.3 Input AC socket Type		IEC 320-C14 Type
5.4 Vibration Test	(1) Non-operating, $0.01g^2/Hz$ at 5Hz slopping to $0.02g^2/Hz$ at 20Hz, And maintain $0.02g^2/Hz$ from 20Hz ~ 500Hz (2) PSD=3.13grms, 15 minutes/axis (3) Vibration duration:15minutes (4) Vibration waveform:Random (5) Force Direction X,Y,Z	Normal operation shall be continued.
5.5 Acoustic Noise	(1) Position the microphone 30 centimeters above the x-y center of the AC adapter (2) Input voltage:110Vac/60Hz 220Vac/50Hz	The EUT < 30dB

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# Electrical Specification

Note : Acoustic Noise

