



全漢企業股份有限公司  
FSP TECHNOLOGY INC.

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# SPECIFICATION



ESD13030226

FSP150-AAAN2/9NA1504000

Released Date:2014/04/17-15:47:38



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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

FSP150-AAAN2

P.E	R/D	APPROVED	REV.
Angela	Stephen Li	LJ Wei	01

表單編號：7000P-0105



# Electrical Specification

## History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
<b>000</b>	SPEC ISSUE	Apr.24'13	Feimin	Angela	Stephen Li	LJ Wei
<b>00</b>	Revise SPEC	Jul.05'13	Feimin	Angela	Stephen Li	LJ Wei
<b>01</b>	Revise : 4.7 Leakage Current	Oct.07'13	Feimin	Angela	Stephen Li	LJ Wei

MODEL NO. **FSP150-AAAN2**

SHEET 1 OF 7



# 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 / 6.25A load	≤ 2A	
1.5 Input Current Harmonic:		IEC61000-3-2	
1.6 Efficiency: (Warm up 10minutes later)	100Vac / 6.25A load 240Vac / 6.25A load	≥ 88% ≥ 90%	※ Meet : (1) 【ErP】 Energy-related
1.7 Power Saving:	115Vac, 230Vac / 0A load 115Vac, 230Vac / 10.4mA load(0.25W)	≤ 0.21W ≤ 0.5W	Products (2) 【DOE】 Department of Energy
1.8 Inrush Current:	100Vac, 240Vac / 6.25A load	Shall be less than the rating of adapter critical component (including rectifiers, fuse surge and current limiting device)	

MODEL NO. **FSP150-AAAN2**

SHEET 2 OF 7



# 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 6.25A
2.3 Output Voltage Setting:	at the output end of DC cable	24V $\pm$ 5%
2.4 Output Voltage Ripple and Noise: (0.1 $\mu$ F Ceramic Cap. and 35V 47 $\mu$ F Aluminum Cap. Paralleled between the end of output cable)	(1)100Vac, 240Vac / 0A~0.9A load (2)100Vac, 240Vac / 0.91A~6.25A load	$\leq$ 500mVp-p $\leq$ 350mVp-p
2.5 Turn-On Delay Time:	At 100Vac / 6.25A load, output voltage shall remain regulation	$\leq$ 3Sec
2.6 Hold Up Time:	At 100Vac or 240Vac / 6.25A load, output voltage shall remain regulation	$\geq$ 10ms
2.7 Rise Time:	At 100Vac / 6.25A 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 6.25A load	24V $\pm$ 10%

MODEL NO. **FSP150-AAAN2**

SHEET 3 OF 7



# 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 adapter will enter into shut down that means no output while over voltage happened at output terminal that caused by internal fault, the output trip voltage shall not exceed 37 volts. That will be return to normal state by AC reset.	Shutdown and 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. That will be return to normal state by AC reset.	No fire, no smoke

MODEL NO. **FSP150-AAAN2**

SHEET 4 OF 7



# 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  $\pm 2\text{kV}$ applied common mode	Normal operation shall be continued  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 <b>【ErP】</b> Department of Energy <b>【DOE】</b>		Regulated by customer  Comply with ErP standard Comply with DOE standard
4.7 Leakage Current:	264Vac / 50Hz	$\leq 0.25\text{mA}$
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%

MODEL NO. **FSP150-AAAN2**

SHEET 5 OF 7





# Electrical Specification

5. Mechanical Characteristics:		
ITEM	CONDITION	SPECIFICATION
5.1 Dimension (Length x Width x Height):		171 X 72 X 42 mm
5.2 Adapter weight:		800g (typical)
5.3 Input AC socket Type:		IEC 320-C14 Type
5.4 Vibration Test:	(1) Non-operating, 0.01g <sup>2</sup> /Hz at 5Hz slopping to 0.02g <sup>2</sup> /Hz at 20Hz, And maintain 0.02g <sup>2</sup> /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

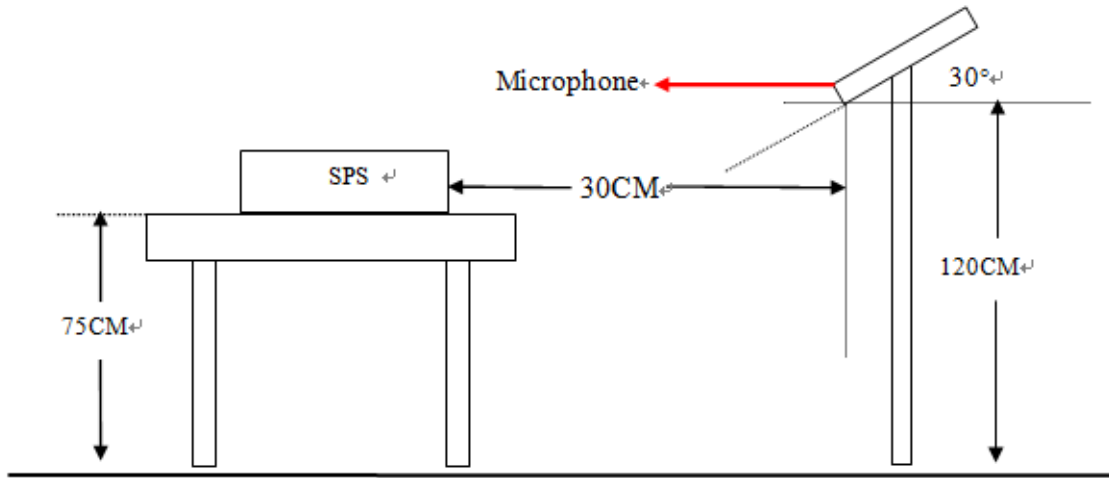
MODEL NO. **FSP150-AAAN2**

SHEET 6 OF 7



# Electrical Specification

Note : Acoustic Noise



MODEL NO. **FSP150-AAAN2**

SHEET 7 OF 7