



全漢企業股份有限公司
FSP TECHNOLOGY INC.

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SPECIFICATION



Released Date:2016/07/15-11:59:28

SPECIFICATION

AC Adapter

FSP180-AAAN2

P.E	R/D	APPROVED	REV.
Matisse	Stephen Li	LJ Wei	02



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History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
000	SPEC ISSUE	Apr.24'13	Vicky	Matisse	Stephen Li	LJ Wei
00	Revise : 3.4 Over Temperature Protection	Sep.13'13	Vicky	Matisse	Stephen Li	LJ Wei
01	Revise : 4.7 Leakage Current	Oct.07'13	Vicky	Matisse	Stephen Li	LJ Wei
02	Add : 1.9 DOE(Level VI) 1.10 Erp(Tier 1)	Nov. 05'15	Vicky	Matisse	Stephen Li	LJ Wei

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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	≥ 88% ≥ 90%
1.7 Power Saving:	115Vac, 230Vac / 10.4mA load(0.25W)	≤ 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)
1.9 DOE(Level VI):	(1)115Vac / 0A load (2)115Vac / 25%,50%,75%,100% load (Average Active Mode Efficiency ,Warm up 30 minutes later)	≤ 0.21W ≥ 88% (DC Cable ≤ 1800 mm,16AWG)
1.10 Erp(Tier 1):	(1)230Vac / 0A load (2)230Vac / 25%,50%,75%,100% load (Average Active Mode Efficiency ,Warm up 30 minutes later)	≤ 0.21W ≥ 88% (DC Cable ≤ 1800 mm,16AWG)

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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)	(1)100Vac, 240Vac / 0A~1.1A load (2)100Vac, 240Vac / 1.1A~7.5A load	\leq 500mVp-p \leq 350mVp-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 10ms
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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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.	No fire, no smoke

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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 Ω)	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】 Department of Energy 【DOE】		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%

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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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Note : Acoustic Noise

