


# SPECIFICATION FOR APPROVAL

Customer : RCS Components LTD.  
 Product name : AC ADAPTER ( 电源适配器 )  
 Customer Model No. :  
 Customer Part No. :  
 Supplier Model No. : FAP012A-120S100E2  
 Supplier Part No. :

## CUSTOMER APPROVED SIGNATURE

Approved by:	Checked by:	Tested by:
Explain: Please return to us "SPECIFICATION FOR APPROVAL" with your approved signatures. (承认书确认后请回签一份)		

### Supplier approval signature:

Prepared by:	Checked by:	Approved by:
王鹏 2010.11.25	黄景东 2010.11.25	



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FEREX  
 R&D  
 5

### 0. Revision control list:

Date	Description of Change	Revised by	Checked by	Approved by
2010-11-23	First release	王鹏	黄景东	刘红军

PRED. by	W.P 2010-11-23	 <b>福瑞祥</b> SHENZHEN FEREX ELECTRICAL CO.,LTD.		
CHKD. by	Hardy 201011-23			
APVD. by	HJ.LIU 2010-11-23	Model: FAP012A-120S100E2	Rev.:1.0	Page2 Of 9

## 1. Scope:

This specification defines the input, output, performance characteristics, and environment, noise and safety requirements for a **12.0** watts output switching type power adapter. The adapter input/output are **100-240VAC** input and **+12.0V DC** with **1.0A** Normal output current.

## 2. Input characteristics:

Test item	Min.	Normal	Max.
AC input voltage	90 V	100-240 V	264 V
AC input frequency	47 Hz	50/60 Hz	63 Hz
AC input current	<b>0.3A</b> Max. @ 100-240Vac input		
Inrush current (cold)	No damage shall occur and the input fuse shall not blow up.		

## 3. Output characteristics:

Test item	Output	Test condition
Rated output voltage	<b>+ 12.0 V</b>	100-240 Vac input
Output voltage range	<b>11.4V~12.6V</b>	<b>0A-1.0A</b> output current & <b>230</b> Vac input
Min. output current	<b>0 A</b>	100-240 Vac input
Normal output current	<b>1.0A</b>	100-240 Vac input
Ripple	<b>200mV</b> Max.	<b>1.0A</b> output current & <b>230</b> Vac input
		* measured at the end of output cables which added a 0.1uF(104)ceramic capacitor and a 47uF electrolytic capacitor(connect parallel), measured with a 20MHz bandwidth.
Turn-on Delay Time	<b>3S</b> Max.	<b>1.0A</b> output current & 100-240 Vac input
Rise Time	<b>20mS</b> Max.	<b>1.0A</b> output current & 100-240 Vac input
Overshoot	<b>5%</b> Max.	<b>1.0A</b> output current & 100-240 Vac input
Remark: Unless otherwise specification output load must set at <b>CC</b> mode.		

## 4. Energy Efficiency

Item	Requirement	
No-load power consumption	<b>0.3W</b> Max.	100-240 Vac input & No-load
Efficiency	▮ <b>77.8 %</b> Min.	<b>1.0A</b> output current & <b>230</b> Vac input
	▮ <b>77.8%</b> Min. For average active mode.	100% / 75% / 50% / 25% load & 230Vac/60Hz or 230 Vac/50Hz input

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## 5. Protection characteristics

Input fuse	<input checked="" type="checkbox"/> <u>T1A 250Vac Fuse</u> <input type="checkbox"/> <u>4.7R/1W Wire-wound Fuse-resistor</u>
Short-Circuit protection	The adapter must withstand a continuous short circuit on the output without damage and Auto-recovery when short-circuit moved.
Over-Current protection	In Overload mode, The output must drop to a low voltage.
Over-Voltage protection	Single component failure must not cause output voltage over <u>20V</u> , at <u>230Vac</u> input & <u>1.0A</u> output current,

## 6. Safety & EMC Standard

The adapter designed to meet the following standards:

Safety standards	<input type="checkbox"/> (CHINA) CCC GB4943-2001 <input type="checkbox"/> (CHINA) CCC GB8898-2001 <input type="checkbox"/> (U.S.) UL 60950-1, 2007 <input type="checkbox"/> (U.S.) UL 60065-1, 2007 <input checked="" type="checkbox"/> (CE) LVD 2006/95/EC Directive IEC 60950-1/EN 60950-1 <input type="checkbox"/> (CE) LVD 2006/95/EC Directive IEC 60065/EN 60065
EMC Standards	<input type="checkbox"/> (CHINA) CCC GB9254-2008 <input type="checkbox"/> (CHINA) CCC GB13837-2003 <input type="checkbox"/> (CHINA) CCC GB17625.1-2003 <input type="checkbox"/> (U.S.) FCC part 15 Class B /ICES-003:CLASS B <input checked="" type="checkbox"/> (CE) EMC 2004/108/EC Directive EN55022/EN55024/EN61000-3-2:2006/EN61000-3-3 <input type="checkbox"/> (CE) EMC 2004/108/EC Directive EN55020/EN55013/EN61000-3-2:2006/EN61000-3-3
Hi-Pot	Primary To Secondary: <u>3000Vac 10mA</u> 1 minute or <u>4242Vdc 10mA</u> 1 minute.
Insulation Resistance	Primary To Secondary: <u>10M ohm</u> Min. at <u>500Vdc</u> .
Leakage Current	0.25mA Max. at 100-240 Vac input / 50-60Hz

## 7. Reliability & Quality control

Item	Requirement
MTBF	<u>&gt;20000</u> Hours at 25°C (Standard:MIL-HDBK-217F), <u>230</u> Vac input & <u>80%</u> Normal output current.
Burn-In	The power supply shall withstand a minimum of <u>2</u> hours Burn-In test at <u>230</u> Vac input & Normal output current with 35-40 °C room temperatures. After test, product shall operate normally.

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## 8. Environmental requirement

Item	Requirement
Operating Environmental	Temperature: 0°C - 40 °C Relative Humidity: 20%-85%,noncondensing Altitude: Sea level to 2,000 M.
Storage (Non-operating) Environmental	Temperature: -20°C - 60°C Relative Humidity: 5%-95%,noncondensing Altitude: Sea level to 2,000 M.
Cooling	Natural convection cooling
Vibration and Shock	(Non-operating, with packing) Reference to IEC 68-2-6 Frequency: 5-500 Hz Sweep:2hour,each axis (X, Y, Z) Acceleration: 0.6G (5~50 Hz, peak - peak), 1.5G (50~500 Hz, peak - peak) Displacement: 0.4 mm (5~50 Hz)

## 9. Other requirements

Item	Requirement
Hazardous substances	The components and materials shall be in compliance with <input checked="" type="checkbox"/> EU Directive 2002/95/EC "ROHS" <input checked="" type="checkbox"/> EU Directive 2002/96/ec "WEEE"

## 10. Mechanical characteristics:

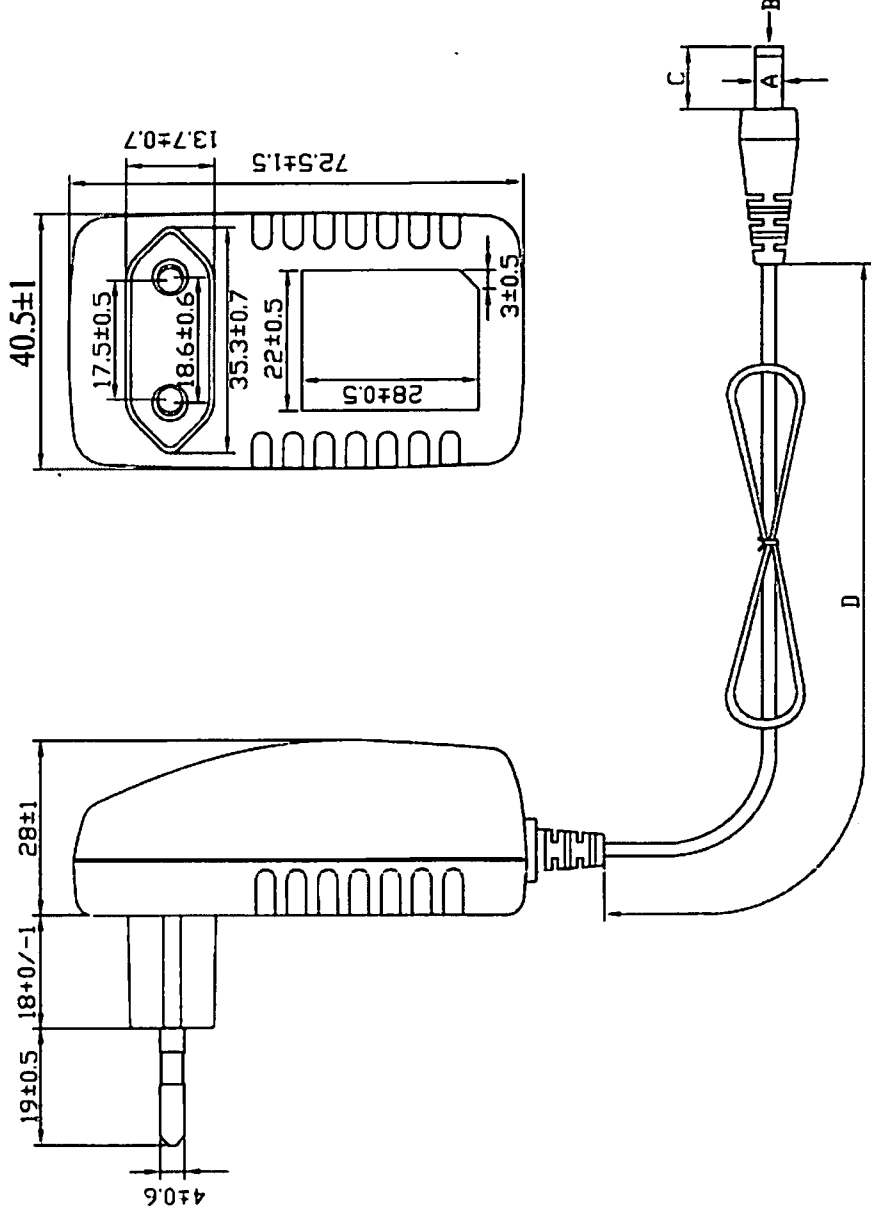
Item	Requirement
Drop test	Dropped freely from 1 m(for wall mount product) height onto the surface is consisted of hardwood 13 mm thick, mounted on two layers of plywood each 19-20 mm thick, all supported on concrete floor once from 3 different surfaces. After testing, the product should not be damaged.
Physical dimensions	The detail dimension of product see APPENDIX A.
Input plug type	<input type="checkbox"/> Wall-mount type, CCC-pin, 2 Conductors, <Live, Neutral> <input checked="" type="checkbox"/> Wall-mount type, EU-pin, 2 Conductors, <Live, Neutral> <input type="checkbox"/> Wall-mount type, US-pin, 2 Conductors, <Line, Neutral>
Output connector	Wire: <u>UL2468 22AWG 1500mm Black</u> Plug: (OD) <u>5.5mm</u> *(ID) <u>2.1mm</u> *(length) <u>10.0 mm</u> Center (+) <u>180°</u>
Nameplate	The detail information of Nameplate see APPENDIX B.
Packing	The detail information of packing see APPENDIX C.

## 11. Certificate:

Type of Certificate	<input type="checkbox"/> CCC <input checked="" type="checkbox"/> CE <input type="checkbox"/> GS <input type="checkbox"/> FCC <input type="checkbox"/> UL The detail Certificate of product see APPENDIX D.
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APVD. by	HJ.LIU 2010-11-23				

APPENDIX A: Physical dimensions



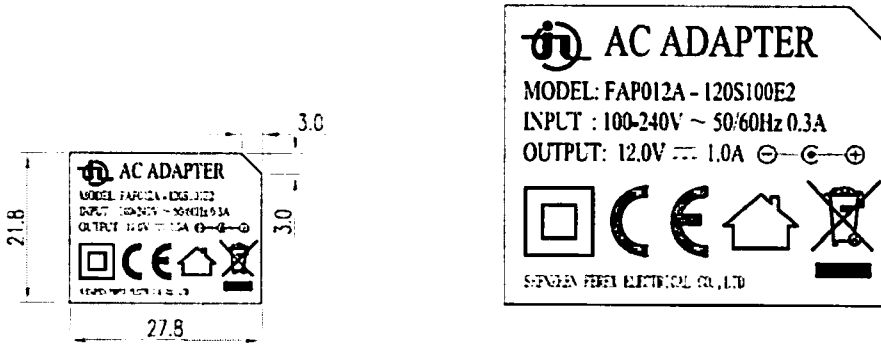
	$\phi A$	$\phi B$	C	D
DIMENSION	5.5	2.1	10.0	1500
TOLERANCE	$\pm 0.1$	$+0.1 / -0$	$\pm 0.5$	$\pm 50$
REMARK	UL2468 22AVG/2C 300VAC 80°C BLACK			

SHENZHEN FEREX ELECTRICAL.,LTD	
DESCRIPTION	FAP012-VDE
DESIGN BY:	Wang Peng
REVISER	REV A0
CHECKED BY:	
DATE	2010-11-23
APPROVED BY:	
UNIT:	MM

PRED. by	W.P 2010-11-23	 <b>福瑞祥</b> SHENZHEN FEREX ELECTRICAL CO.,LTD.	Page 6 Of 9
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		FAP012A-120S100E2	

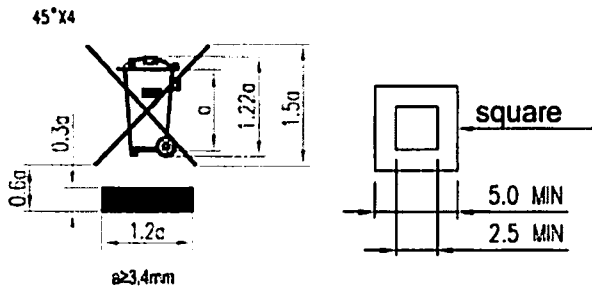
APPENDIX B: Nameplate

FILE NAME



NOTES:

- 1.SCALE: 1/1;
- 2.Thickness: 0.1~0.2mm;
- 3.Tolerance+0/-0.2;
- 4.Material: 8#PP synthetic paper or better;
- 5.COLOR: WHITE CHARACTERS ON BLACK;



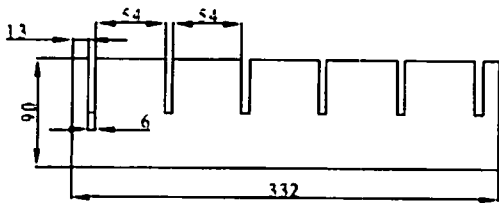
Cer. No.:	
Department	Signature
Safety	
Sales	

			UNIT	TOLERANCE: X +0,-0.2 XX ±.1
			SCALE	1:1 ISSUED DATE 2010-11-23
			DRAWN BY W Peng	CHECKED BY
REV	DATE	DESCRIPTION	ECN NO	DESIGNED BY APPROVE BY
		ITEM NO :	DRAWING NO.	SHEET

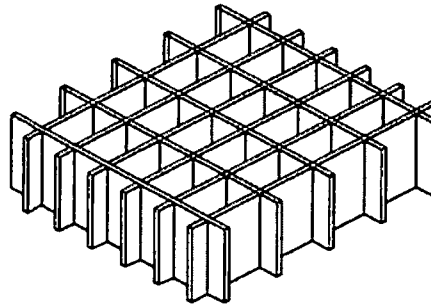
PRED. by	W.P 2010-11-23	<b>福瑞祥</b> SHENZHEN FEREX ELECTRICAL CO.,LTD.		
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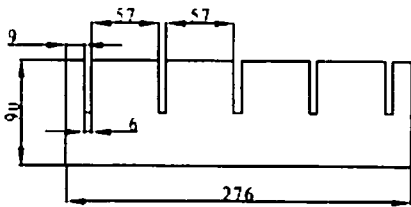
# APPENDIX C: Packing



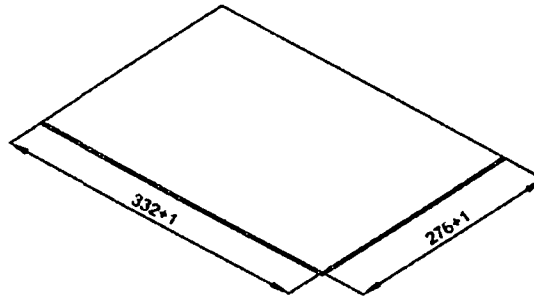
刀卡1



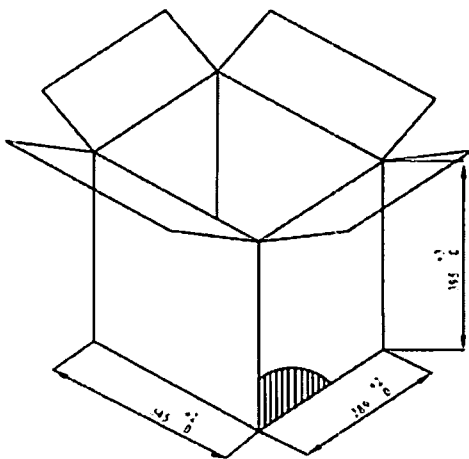
刀卡组装示意图



刀卡2



平卡



卡通箱

箱唛

**NOTE:**

1. 纸箱材质为A=A, 每箱4层, 每层20台, 共计80台, 标示尺寸(345MMX289MMX395MM)为外尺寸;
2. 平卡材质为B3B, 数量: 5片;
3. 刀卡1: 材质为B=B, 数量: 24片;
4. 刀卡2: 材质为B=B, 数量: 20片;
5. 注意波纹方向, 勿沿纹路纵向切割;
6. 接口钉合;
7. 进料前需先送样承认OK方可;
8. 使用材料要符合环保要求, 禁止使用有害物质;
9. 尺寸以标注为准, 切勿实际测量。

 <p><b>福瑞祥</b> 开关电源·适配器 SMPS &amp; ADAPTER</p> <p>深圳市福瑞祥电器有限公司 SHENZHEN FEREX ELECTRICAL CO., LTD.</p> <p>345MM</p>	 <p>型号(MODEL): _____ 数量(Q'TY): _____ PCS 规格(SIZE): 345x289x395 MM</p> <p style="text-align: center;"><b>空箱回收</b></p>	 <p><b>福瑞祥</b> 开关电源·适配器 SMPS &amp; ADAPTER</p> <p>深圳市福瑞祥电器有限公司 SHENZHEN FEREX ELECTRICAL CO., LTD.</p> <p>289MM</p>	 <p>型号(MODEL): _____ 数量(Q'TY): _____ PCS 规格(SIZE): 345x289x395 MM</p> <p style="text-align: center;"><b>空箱回收</b></p>
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**SHENZHEN FEREX ELECTRICAL.,LTD**

DESCRIPTION	FAP018&FAP012 包装箱	DESIGN BY:	
REVISER	REV A0	CHECKED BY:	
DATE	2010-07-26	APPROVED BY:	



UNIT: mm

PRED. by	W.P 2010-11-23	 <p><b>福瑞祥</b> SHENZHEN FEREX ELECTRICAL CO.,LTD.</p>		
CHKD. by	Hardy 201011-23		Model:	Rev.:1.0
APVD. by	H.J.LIU 2010-11-23	FAP012A-120S100E2		





Certificate No.: E/EC3324100118352

For the following equipment:

Product Description: AC Adapter

Model No: FAP012A/B-XXXSYYYE2/B2

Rating(s): 100-240V~ 50/60Hz 0.3A

Trademark: 

Applicant: Shenzhen Ferex Electrical Co., Ltd.

Block 1, The 3rd Industrial Park, Lisongiang Village, Gongming Town,  
Guangming New District, Shenzhen, Guangdong, China

Manufacturer: Shenzhen Ferex Electrical Co., Ltd.

Block 1, The 3rd Industrial Park, Lisongiang Village, Gongming Town,  
Guangming New District, Shenzhen, Guangdong, China

is herewith confirmed to comply with the requirements of 2006/95/EC—Low Voltage Directive (LVD), 2004/108/EC—Electromagnetic Compatibility (EMC) Directive and 93/68/EEC—CE Marking Directive.

Test standards: IEC 60065:2001 + Amd 1:2005 / EN60065:2002+A1:2006+A11: 2008

EN55013:2001+A1:2003+A2:2006 EN55020:2007

EN61000-3-2:2006

EN61000-3-3:1995+A1:2001+ A2:2005

Test report No.: Z0912CE8888-0492-S Z0912CE8888-0492L

Date of issue: 2010-01-18



Yang Lin  
Director

**CB**

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FD-1501-07 QZ 510610 P/R C

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CHKD. by	Hardy 201011-23			
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