


# SPECIFICATION FOR APPROVAL

Customer : *PCS Components LTD*  
 Product name : **AC ADAPTER (电源适配器)**  
 Customer Model No. :  
 Customer Part No. :  
 Supplier Model No. : **FAP040-120S300E2**  
 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:
<i>徐思桂</i>	<i>黄景东 2010.11.24</i>	



**深圳市福瑞祥电器有限公司恒丰分厂**  
**SHENZHEN FEREX ELECTRICAL CO., LTD.**

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### O. Revision control list:

Date	Description of Change	Revised by	Checked by	Approved by
2010-11-22	First release	S.G.XU	HARDY	H.J.LIU

PRED. by	S.G.XU 2010-11-22		SHENZHEN FEREX ELECTRICAL CO.,LTD.	
CHKD. by	Hardy 2010-11-22			
APVD. by	H.J.LIU 2010-11-22		Model: FAP040-120S300E2	Rev.:1.0

## 1. Scope:

This specification defines the input, output, performance characteristics, and environment, noise and safety requirements for a **36.0** watts output switching type power adapter. The adapter input/output are **100-240VAC** input and **+12.0V DC** with **3.0A** 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>1.0A</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>3.0A</b> output current & 100-240 Vac input
Min. output current	<b>0 A</b>	100-240 Vac input
Normal output current	<b>3.0A</b>	100-240 Vac input
Ripple	<b>200mV</b> Max.	<b>3.0A</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>3.0S</b> Max.	<b>3.0A</b> output current & 100-240 Vac input
Rise Time	<b>20mS</b> Max.	<b>3.0A</b> output current & 100-240 Vac input
Overshoot	<b>5%</b> Max.	<b>3.0A</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	<input checked="" type="checkbox"/> <b>80%</b> Min.	<b>3.0A</b> output current & 230 Vac input
	<input type="checkbox"/> <b>83%</b> Min. For average active mode.	100% /75% / 50% / 25% load & 115Vac/60Hz or 230 Vac/50Hz input

PRED. by	S.G.XU 2010-11-22	 <b>福瑞祥</b> <b>SHENZHEN FEREX ELECTRICAL CO.,LTD.</b>	
CHKD. by	Hardy 2010-11-22		
APVD. by	H.J.LIU 2010-11-22		
Model: FAP040-120S300E2		Rev.:1.0	Page3 Of 10

## 5. Protection characteristics

Input fuse	<input checked="" type="checkbox"/> T2A 250Vac Fuse <input type="checkbox"/> Wire-wound Fuse-resistor
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>20 V</u> , at <u>230</u> Vac input & <u>3.0A</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 checked="" 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 checked="" 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;30000</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:2hours,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"

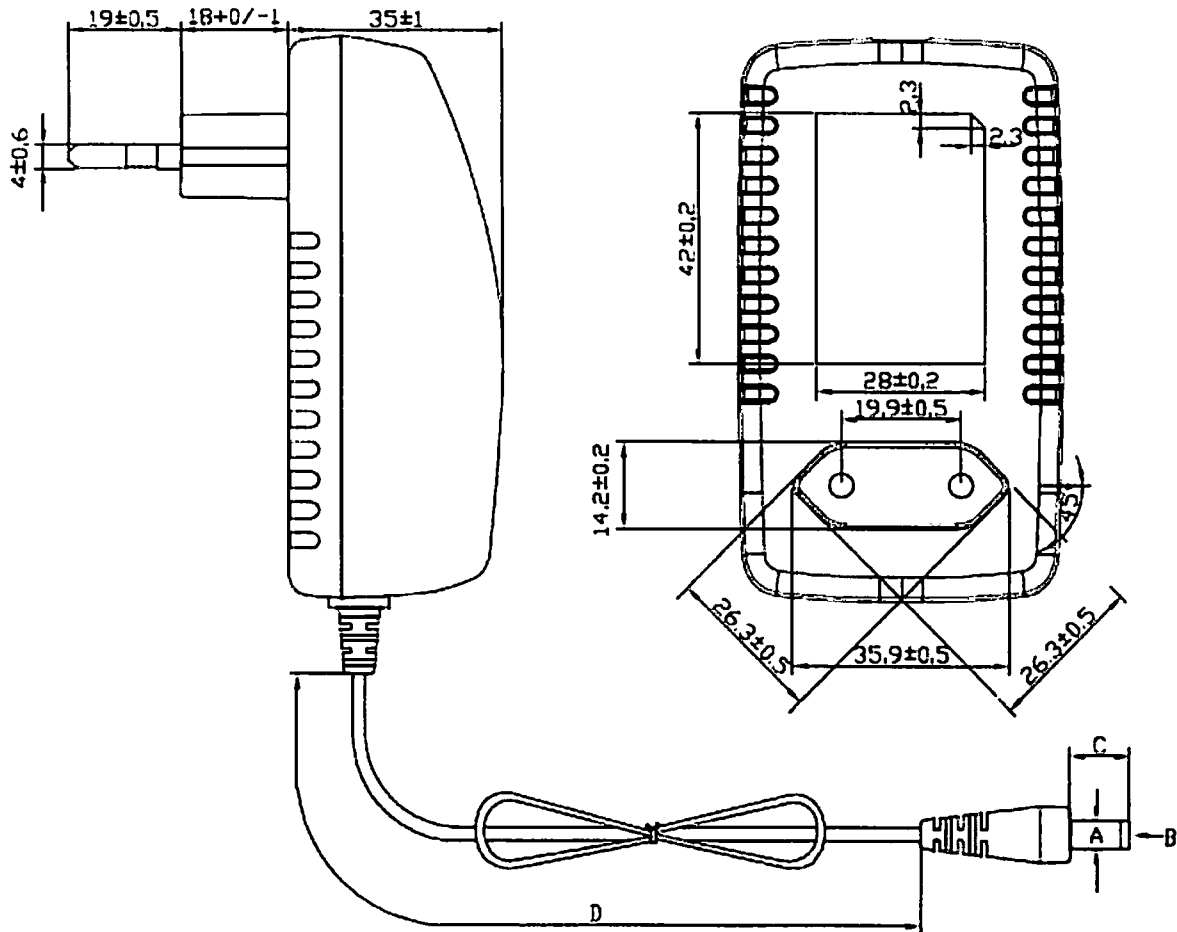
## 10. Mechanical characteristics:

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 cord	Wire: <u>UL2468 18AWG/2C 1500mm Black</u> Plug: (OD) <u>5.5mm</u> *(ID) <u>2.1mm</u> *(length) <u>11.0 mm</u> Center (+) <u>180°音叉</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 checked="" type="checkbox"/> GS <input type="checkbox"/> FCC <input type="checkbox"/> UL The detail Certificate of product see APPENDIX D.		
PRED. by	S.G.XU 2010-11-22	 <b>SHENZHEN FEREX ELECTRICAL CO.,LTD.</b>	
CHKD. by	Hardy 2010-11-22		
APVD. by	H.J.LIU 2010-11-22		
Model: FAP040-120S300E2		Rev.:1.0	Page5 Of 10

# APPENDIX A: Physical dimensions




	ØA	ØB	C	D
DIMENSION	5.5	2.1	11.0	1500
TOLERANCE	±0.1	+0.1/-0	±0.5	±50
REMARK	UL2468 18AWG/2C 300VAC 80°C BLACK			

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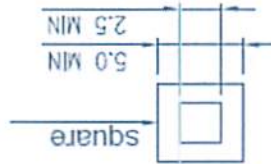
DESCRIPTION	FAP040-120S300E2	DESIGN BY:	 1:1-1/1
REVISION	REV A0	CHECKED BY:	
DATE	2010-07-06	APPROVED BY:	

PRED. by	S.G.XU 2010-11-22		SHENZHEN FEREX ELECTRICAL CO.,LTD.	
CHKD. by	Hardy 2010-11-22			
APVD. by	HJ.LIU 2010-11-22			
		Model: FAP040-120S300E2	Rev.:1.0	Page6 Of 10

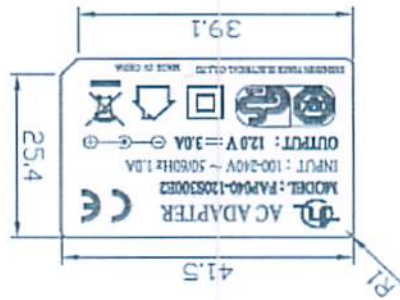
APVD. by H.J.LIU 2010-11-22	Model: FAP040-120S300E2 Rev.:1.0	Page 7 of 10
CHKD. by Hardy 2010-11-22	 <b>福瑞祥</b> FEREX SHENZHEN FEREX ELECTRICAL CO.,LTD.	
PRED. by S.G.XU 2010-11-22		

REV. DATE	DESCRIPTION	ECN NO.	DESIGNED BY Justin	APPROVE BY
			DRAWN BY Justin	CHECKED BY
			SCALE 1:1	ISSUED DATE
			UNIT	TOLERANCE: X.XX

Department	Signature
Safety	
Sales	



- 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;



FILE NAME

APPENDIX C: Packing

REVISION				
ISSUE	ZONE	DESCRIPTION	DATE	REVISER
		1#PACK 6.0.2	2010.04.12	REV A0

460±0.3  
292±0.3

460±0.3  
292±0.3

刀卡1

刀卡2

6-82.6±1  
448±1  
2-116±1  
280±1

正唛

31.2

品名(Product Name): 适配器/ADAPTER  
 型号(Model No.):  
 包装数量(Pack Qty): PCS  
 毛重(G.W): KG  
 净重(N.W): KG

深圳福瑞祥电器有限公司  
 SHENZHEN FEREX ELECTRICAL CO., LTD.

侧唛

C.T.C.:

NOTE:

1. 纸箱材质为A-A, 装箱数量为共60台, 每层装12台, 标示尺寸为外尺寸;
2. 平板材质为B3B, 数量: 6片;
3. 刀卡1: 材质为B-B, 数量: 15张;
4. 刀卡2: 材质为B-B, 数量: 35张;
5. 注意波纹方向, 材质需符合环保要求;
6. 注意: 保证箱外尺寸为460X292X298MM;
7. 接口钉合;
8. 进料前需先送样承认OK方可;
9. 禁止使用危害物质;
10. 尺寸以标注为准, 切勿实际测量。

Item	Dimension	0~20	~100	~250	~600	800~		MODEL NO	PART NO		DWG DATE	MATERIAL	PART NAME	
center distance (metal)		±0.1	±0.15	±0.2	±0.3	±0.5					2010.04.12			
center distance (resin)		±0.15	±0.25	±0.4	±0.5	±0.7	DESIGN	CHECKED	P/N	APPROVED	REV DATE	FILE NO	DRAWING NO	UNIT
general dimensions (metal)		±0.15	±0.25	±0.4	±0.5	±0.7	Tulkinging							SCALE
general dimensions (resin)		±0.15	±0.3	±0.5	±0.8	±1.0								
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	<p>S.G.XU 2010-11-22</p>	<p>Hardy 2010-11-22</p>	<p>H.J.LIU 2010-11-22</p>	<p>SHENZHEN FEREX ELECTRICAL CO.,LTD.</p>	<p>Page 8 Of 10</p>
<p>PRED. by</p>	<p>CHKD. by</p>	<p>APVD. by</p>		<p>Model: FAP040-120S300E2</p>	<p>Rev.: 1.0</p>



ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFICAT ◆ ЗЕРТИФІКАТ ◆ 證書 ◆ CERTIFICATE ◆ ZERTIFIKAT



Product Service

# CERTIFICATE

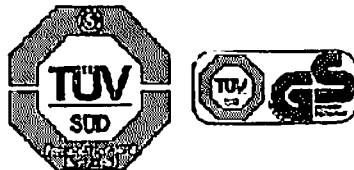
No. Z1A 10 05 70531 022

**Holder of Certificate:** Shenzhen FereX Electrical Co., Ltd.

Block 1, The 3rd Industrial Park  
 Liconglong Village, Gongming Town  
 Guangming New District  
 518106 Shenzhen, Guangdong  
 PEOPLE'S REPUBLIC OF CHINA

**Factory(ies):** 70531

**Certification Mark:**



**Product:** Adaptors  
(AC Adapter)

**Model(s):** FAP040-XXXSYYYZZ series  
 (XXX = 080-240, stands for output voltage from  
 8.0VDC to 24.0VDC; YYY = 050-400, stands for  
 output current from 0.50A to 4.00A; Z=E for EU plug)

**Parameters:**  
 Rated Input: 100 240VAC, 50/60Hz, 1.0A  
 Rated DC Output: see page 2 for details  
 Protection Class: II  
 Degree of Protection against Ingress of Dust and Liquid: IP20  
 Remark: Maximum operating temperature is 40°C

**Tested according to:** EN 60355/A11: 2008  
 EN 60950-1/A11:2009  
 PPP 76101:2009 incl ZEK 01 2-06

The product meets the safety and health requirements of the German Equipment and Product Safety Act section 7 subsection 1 sentence 2 GPSG. The certification marks shown above can be affixed on the product. It is not permitted to alter the certification marks in any way. In addition the certificate holder must not transfer the certificate to third parties. This certificate is valid until the listed date, unless it is cancelled earlier. See also notes overleaf.

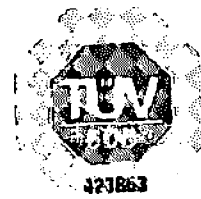
**Test report no.:** 08210934601

**Valid until:** 2012-05-12

Date, 2010-05-14

(Alex Kong)

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CHKD. by	Hardy 2010-11-22			
APVD. by	HJ.LIU 2010-11-22	Model: FAP040-120S300E2	Rev.:1.0	Page9 Of 10



Product Service

## Attestation of Conformity

No. NB 10 05 70531 023

**Holder of Certificate:** Shenzhen Ferex Electrical Co., Ltd.

Block 1, The 3rd Industrial Park  
Lisonglang Village, Gongming Town  
Guangming New District  
618106 Shenzhen, Guangdong  
PEOPLE'S REPUBLIC OF CHINA

**Product:** Adaptors  
(AC Adapter)

**Model(s):** FAP040-XXXSYYYZZ series  
(XXX = 080-240, stands for output voltage from  
8.0VDC to 24.0VDC; YYY = 060-400, stands for  
output current from 0.60A to 4.00A; Z=E for EU plug)

**Parameters:**

Rated Input :	100-240VAC, 50/60Hz, 1.0A
Rated DC Output :	see page 2 for details
Protection Class :	II
Degree of Protection against Ingress of Dust and Liquid :	IP20
Remark:	Maximum operating temperature is 40°C.

**Tested according to:** EN 60065/A11:2008  
EN 60950-1/A11:2009

This Attestation of Conformity is issued on a voluntary basis according to the Low Voltage Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits. It confirms that the listed equipment complies with the principal protection requirements of the directive. It refers only to the particular sample submitted for testing and certification. See also notes overleaf.

**Test report no.:** 60210934601



**Date,** 2010-05-14

(Alex Kong)



After preparation of the necessary technical documentation as well as the EC conformity declaration the required CE marking can be affixed on the product. Other relevant directives have to be observed.

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PRED. by	S.G.XU 2010-11-22	 <b>福瑞祥</b> SHENZHEN FEREX ELECTRICAL CO.,LTD.	Model: FAP040-120S300E2	Rev.:1.0	Page10 Of 10
CHKD. by	Hardy 2010-11-22				
APVD. by	H.J.LIU 2010-11-22				