


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. : **FBP045-240S187J2**
 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>徐恩权</i>	<i>黄岛</i> 2010.11.24	



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

地址: 中国广东省深圳市宝安区西乡街道恒丰工业城 B7 栋 4-6 楼

Add: 4-6F, B7 Building, Hengfeng industrial park, Huangtian village, Xixiang town, Bao'an district, Shenzhen, Guangdong, China.

Tel: (0755) 27474030 27474044, 27474067, 27474073

Fax: (0755)27474076

E-mail: hjliu@ferex.com.cn

Website: <https://www.ferex.com.cn>

Table of contents

No.	Content	Page
0.	Revision control list	2
1.	Scope	3
2.	Input characteristics	3
3.	Output characteristics	3
4.	Energy Efficiency	3
5.	Protection characteristics	4
6.	Safety & EMC Standard	4
7.	Reliability & Quality control	4
8.	Environmental requirement	5
9.	Other requirements	5
10.	Mechanical characteristics:	5
11.	Certificate:	5
	APPENDIX A: Physical Dimensions	6
	APPENDIX B: Nameplate	7
	APPENDIX C: Packing	8
	APPENDIX D: Certificate	9-13

0. 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			
CHKD. by	Hardy 2010-11-22			
APVD. by	H.J.LIU 2010-11-22	Model: FBP045-240S187J2	Rev.:1.0	Page2 Of 13

1. Scope:

This specification defines the input, output, performance characteristics, and environment, noise and safety requirements for a **45.0** watts output switching type power adapter. The adapter input/output are **100-240VAC** input and **+24.0V DC** with **1.87A** 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	1.1A 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	+ 24.0 V	100-240 Vac input
Output voltage range	22.80V-25.20V	1.87A output current & 100-240 Vac input
Min. output current	0 A	100-240 Vac input
Normal output current	1.87A	100-240 Vac input
Ripple	200mV Max.	1.87A output current & 230 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	3.0S Max.	1.87A output current & 100-240 Vac input
Rise Time	20mS Max.	1.87A output current & 100-240 Vac input
Overshoot	5% Max.	1.87A output current & 100-240 Vac input
Remark: Unless otherwise specification output load must set at CC mode.		

4. Energy Efficiency

Item	Requirement	
No-load power consumption	0.3W Max.	100-240 Vac input & No-load
Efficiency	<input checked="" type="checkbox"/> 80 % Min.	1.87A output current & 230 Vac input
	<input type="checkbox"/> 83.49% Min. For average active mode.	100% /75% / 50% / 25% load & 115Vac/60Hz or 230 Vac/50Hz input

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APVD. by	H.J.LIU 2010-11-22	Model: FBP045-240S187J2	Rev.:1.0	Page3 Of 13

5. Protection characteristics

Input fuse	<input checked="" type="checkbox"/> <u>T3.15A</u> 250Vac Fuse <input type="checkbox"/> <u>4.7R/1W</u> 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>30V</u> , at <u>230</u> Vac input & <u>1.87A</u> output current,

6. Safety & EMC Standard

The adapter designed to meet the following standards:

Safety standards	<input checked="" type="checkbox"/> (Australian/New Zealand) AS/NZS 60950.1:2003+A1+A2+A3
	<input checked="" type="checkbox"/> (Australian/New Zealand) AS/NZS 60065:2003+A1
	<input checked="" type="checkbox"/> (TUV-GS) EN 60065/A11:2008;
	<input checked="" type="checkbox"/> (TUV-GS) EN 60950-1/A11:2009;
	<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 checked="" type="checkbox"/> (Australian/New Zealand) C-Tick;AS/NZS CISPR 22:
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	<u>0.25mA</u> Max. at 100-240 Vac input / 50-60Hz

7. Reliability & Quality control

Item	Requirement
MTBF	<u>>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.

8. Environmental requirement

Item	Requirement
Operating Environmental	Temperature: 0°C - 40 °C Relative Humidity: 20%-85%,noncondensing Altitude: Sea level to 2,000 M.

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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:

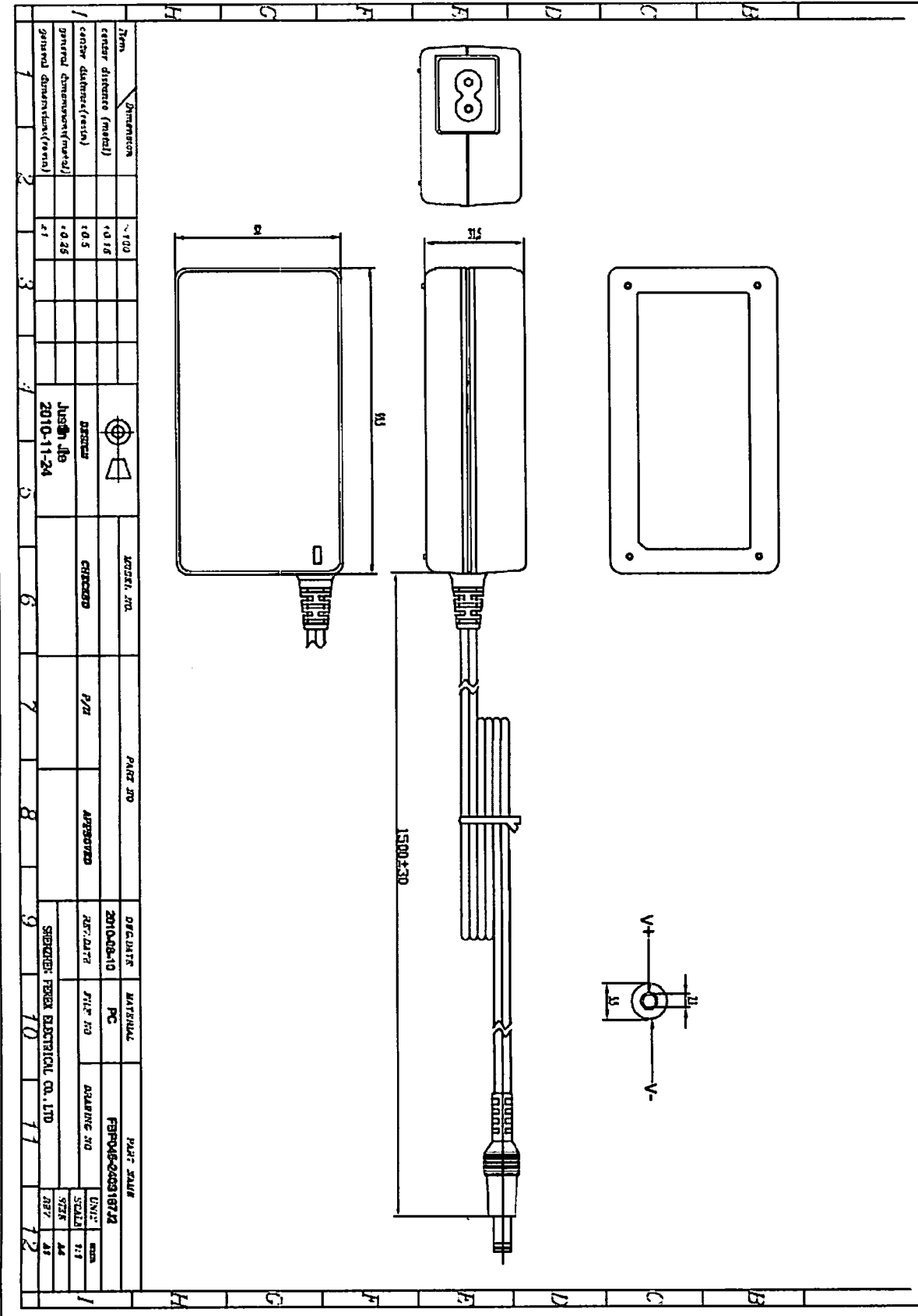
Item	Requirement
Drop test	Dropped freely from 1 m(for wall mount product) height onto the surface is consisted of hardwood 13 mm thick, mounted on two layers of plywood each 19-20 mm thick, all supported on concrete floor once from 3 different surfaces. After testing, the product should not be damaged.
Physical dimensions	The detail dimension of product see APPENDIX A.
Input plug type	<input type="checkbox"/> Desk-type, IEC320-C6, 3-Pin Small <Live, Neutral,FG> <input checked="" type="checkbox"/> Desk-type, IEC320-C8, 2-Pin Small <Live, Neutral> <input type="checkbox"/> Desk-type, IEC320-C14, 3-Pin Small <Live, Neutral,FG>
DC Output cord	Wire: <u>UL2468 20AWG/2C 1500mm Black</u> Plug: (OD) <u>5.5mm</u> *(ID) <u>2.1mm</u> *(length) <u>11.0 mm</u> Center (+) <u>180°音叉叉沟式</u>
Nameplate	The detail information of Nameplate see APPENDIX B.

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 <input checked="" type="checkbox"/> SAA <input checked="" type="checkbox"/> C-TICK The detail Certificate of product see APPENDIX D.
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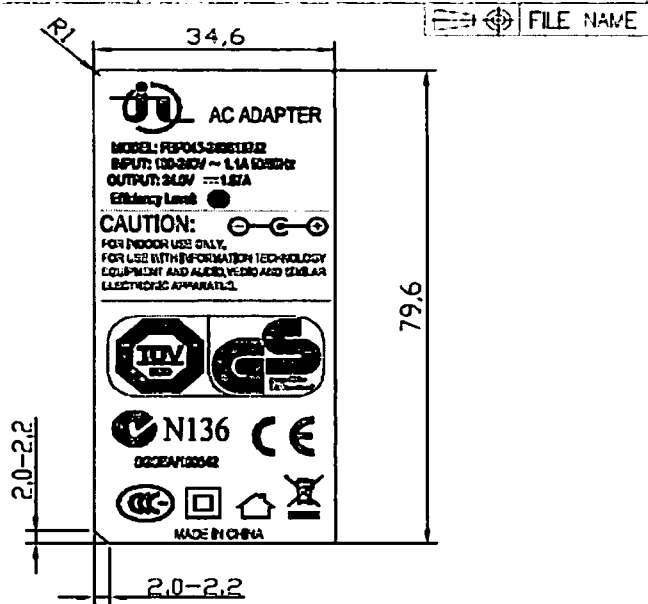
PRED. by	S.G.XU 2010-11-22	福瑞祥 FEREEX	SHENZHEN FEREX ELECTRICAL CO.,LTD.	
CHKD. by	Hardy 2010-11-22			
APVD. by	H.J.LIU 2010-11-22	Model: FBP045-240S187J2	Rev.:1.0	Page5 Of 13

APPENDIX A: Physical dimensions



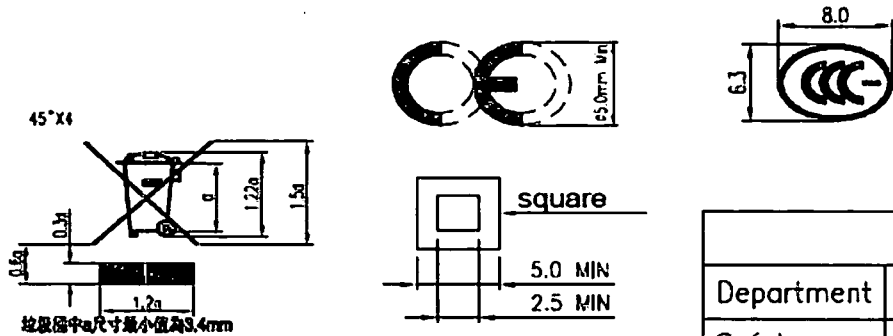
PRED. by	S.G.XU 2010-11-22	 福瑞祥 FEREX	SHENZHEN FEREX ELECTRICAL CO.,LTD.	
CHKD. by	Hardy 2010-11-22			
APVD. by	H.J.LIU 2010-11-22			
Model: FBP045-240S187J2		Rev.:1.0	Page6 Of 13	

APPENDIX B: Nameplate



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;



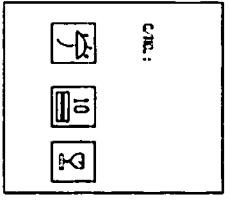
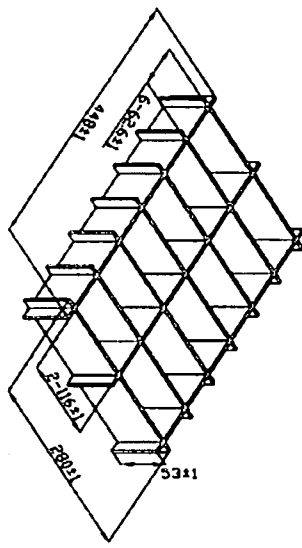
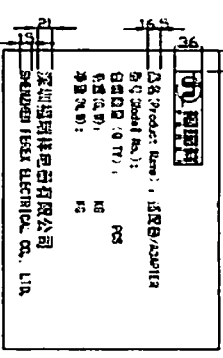
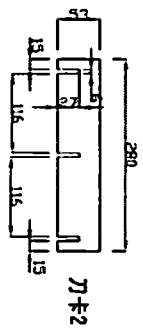
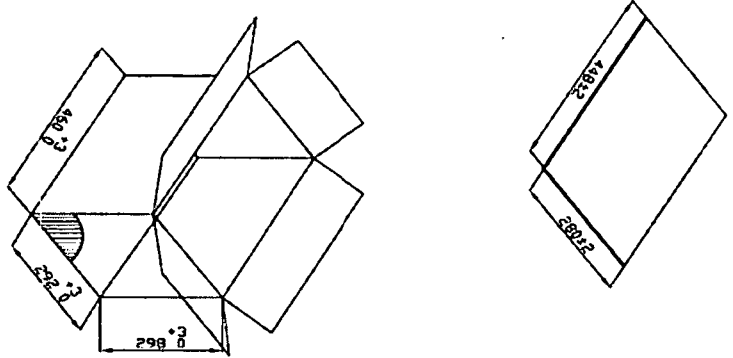
Department	Signature
Safety	
Sales	

				UNIT	TOLERANCE: X XX
				SCALE 1:1	ISSUED DATE 2010-09-15
01	2010-09-15	第一次发行		DRAWN BY Justus	CHECKED BY
REV.	DATE	DESCRIPTION	ECN NO.	DESIGNED BY Justus	APPROVE BY
		ITEM NO. :		DRAWING NO.	SHEET

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: FBP045-240S187J2	Rev.:1.0	Page7 Of 13

APPENDIX C: Packing

REVISION			
ISSUE	ZONE	DESCRIPTION	DATE
		1002 6113	2010.04.12
			REV. NO



侧吸

正吸

- 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. 接口打合;
 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	0~40	~100	~250	~400	400~
center distance (metal)		±0.1	±0.15	±0.2	±0.3	±0.5
center distance (press)		±0.15	±0.25	±0.4	±0.5	±0.7
general dimension (metal)		±0.15	±0.25	±0.4	±0.5	±0.7
general dimension (press)		±0.15	±0.3	±0.5	±0.8	±1.0



DESIGN

CHECKED

P/W

APPROVED

REV. DATE

FILE NO.

DRAWING NO.

DATE

SCALE

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SHENZHEN FEREX ELECTRICAL CO., LTD.

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APPENDIX D: Certificate




Certificate No: SGS/100542

CERTIFICATE OF APPROVAL

This certificate is issued to confirm that **SGS Systems & Services Certification Pty Ltd** (Electrical Product Certification Services (EPCS) Australia) as accredited by JAS-ANZ in accordance with ISO/IEC Guide 65 has certified the equipment / appliance / accessory described hereunder to comply with the minimum safety standards for which the Application has been made by :-

SHENZHEN FEREX ELECTRICAL CO., LTD.
 Block 1, The 3rd Industrial Park
 Lisonglang Village, Gongming Town
 Gongming New District, 518106
 Shenzhen, Guangdong
 P. R. CHINA

DESCRIPTION OF ELECTRICAL EQUIPMENT

Class: Power Supply or Charger
Product: AC Adaptor
 (for I.T. and Audio, video and similar electronic apparatus)
Trade Name / Manufacturer: 
Catalogue / Model No(s): FEP045-XXXXSYYYJ2 series
 (where XXX=080-240 and denotes output voltage; YYY=050-400 and denotes output current)
Rating: Input: 100-240 V a.c.; 50/60 Hz; 1.1 A; Class II
 Output: 8.0-24.0 V d.c.; 0.50-4.00 A; 32-45 W
Standard No.: AS/NZS 60950 1:2003 + A1 + A2 + A3
 AS/NZS 60085:2003 + A1

REQUIRED MARKING: SGSEA/100542
EXPIRY DATE: 26 August 2015
DATE OF CERTIFICATION: 27 August 2010

JAS-ANZ




A. N. Ford

For and On Behalf of
SGS Systems & Services Certification Pty Ltd



SGS EPCS Australia, 460 Princess Highway, NOBLE PARK, VIC 3174, AUSTRALIA

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: FBP045-240S187J2	Rev.:1.0	Page9 Of 13

APVD. by H.J.LIU 2010-11-22	Model: FBP045-240S187J2	Rev.: 1.0	Page 10 of 13
CHKD. by Hardy 2010-11-22	 SHENZHEN FEREX ELECTRICAL CO., LTD.		
PRED. by S.G.XU 2010-11-22			

Page 1 of 1

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product: Adaptors (AC Adapter)

Name and address of the applicant: Shenzhen Ferex Electrical Co., Ltd.
Block 1, The 3rd Industrial Park, Lisongliang Village, Gongming Town, Guangdong, PEOPLES REPUBLIC OF CHINA

Name and address of the manufacturer: Shenzhen Ferex Electrical Co., Ltd., Block 1, The 3rd Industrial Park, Lisongliang Village, Gongming Town, Guangdong, PEOPLES REPUBLIC OF CHINA

Name and address of the factory: Shenzhen Ferex Electrical Co., Ltd., Block 1, The 3rd Industrial Park, Lisongliang Village, Gongming Town, Guangdong, PEOPLES REPUBLIC OF CHINA

Rating and principal characteristics: Values nominales et caracteristiques principales

Trade mark (if any): Marque de fabrication (si elle existe)

Model/Type Ref.: Ref. de type


Additional information (if necessary): Information complementaire (si necessaire)

Additional information (if necessary): A sample of the product was tested and found to be in conformity with Un echantillon de ce produit a été essayé et a été considéré conforme à la as shown in the Test Report Ref. No. which form part of this certificate


Additional information (if necessary): de référence qui constitue une partie de ce certificat

Additional information (if necessary): This CB Test Certificate is issued by the National Certification Body Co Certificat d'essai OC est établi par l'Organisme National de Certification

Date: 2010-04-26
CBS 10 04 70531 018


(Jimmy Huang)

TUV SUD PSB Pte Ltd · 1 Science Park Drive · Singapore 118221

 PSB Singapore

Rated DC Output: 100-240VAC, 60/60HZ, 1.1A
see test report for details

Protection Class: II

Degree of Protection: IP20

Dust and Liquid: see logo in test report

FBP045-XXXXYYJ2 series
(see test report for details of model description)

See Test Report for National Differences and Group Differences

IEC 60085/A1-2005

TUV SUD PSB Pte Ltd
21-300260-000

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) / SYSTEME D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS D'EQUIPEMENTS ELECTRIQUES (IECEE) / SCHEME OF AGREEMENT

 	Ref. Certif. No. SG-TN-01106
--	---------------------------------

No. 1 32 1000

ZERTIFIKAT ◆ CERTIFICATE ◆ 證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

A1.07.09

C E R T I F I C A T E

No. Z1A 10 04 70531 016

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

Block 1, The 3rd Industrial Park
 Lisongliang Village, Gongming Town
 Guangming New District
 518108 Shenzhen, Guangdong
 PEOPLES REPUBLIC OF CHINA

70531

Factory(ies):

Certification Mark:



Adaptors (AC Adapter)

Product:

Model(s):

FBP045-XXXXSYJ2
 (XXX = 080-240, stands for output voltage
 from 8.0VDC to 24.0VDC, YYY = 060-400,
 stands for output current from 0.50A to 4.00A)

Parameters:

Rated Input: 100-240VAC, 50/60Hz, 1.1A
 Rated DC Output: see page 2 for details
 Protection Class: II
 Degree of Protection: IP20
 against Ingress of Dust and Liquid:
 Remark: Maximum operating temperature is 40°C.
 EN 60065/A11: 2008
 EN 60950-1/A11: 2009
 Pp 76001:2008 incl. ZEK 01:2-08

Tested according to:

The product meets the safety and health requirements of the German Equipment and Product Safety Act section 7 subsection 1 sentence 2 PSG. 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.:

68210934801

Valid until:

2012-04-25

Hardy
 (Alex Kong)

Date, 2010-04-26

Page 1 of 2



TUV SUD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany



APVD. by H.J.LIU 2010-11-22	Model: FBP045-240S187J2	Rev.: 1.0	Page 1 of 13
CHKD. by Hardy 2010-11-22	SHENZHEN FEREX ELECTRICAL CO., LTD.		
PRED. by S.G.XU 2010-11-22			

Supplier's declaration of conformity

For compliance levels 1, 2 and 3 in Australia



As required by notices under:

- section 182 of the Australian Radiocommunications Act 1992.

Instructions for completion

- This completed form remains with the supplier as part of the documentation required for the compliance records. Do not return this form to the ACMA.

Supplier's details

Qualsure Consultants

(AGENT)

ACMA supplier code number **N136**

at 18 Hood Street Rosedale Vic.

Product details

Product description – brand name, type, model, lot, batch or serial number (if available)

Brand Name	
Model Number	FBP045-XXXSYYYJ2 (XXX three digits denote range of output voltage, 080-240 denote 8.0V-24.0V; YYY three digits denote range of output current, 050-400 denote 0.50A-4.00A)
Description	AC ADAPTER

Compliance with Radiocommunications (Electromagnetic Compatibility) Standard 2008

The above mentioned product complies with the requirements of the Radiocommunications (Electromagnetic Compatibility) Standard 2008. Evidence of compliance is demonstrated by test reports to the following applicable standards.

Applicable standards

Standard title, number and, if applicable, number of the test report

Standard	Test Report Number
AS/NZS CISPR 22:2009	SEAZ1008134-1

Declaration

I hereby declare that the product mentioned above complies with the requirements of the Radiocommunications (Electromagnetic Compatibility) Standard 2008. All products supplied under this declaration will be identical to the product identified above.

Gordon Slimmon
Director

30 Aug 10

QUALSURE CONSULTANTS
A division of Buijen Pty Ltd (ACN 060 692 354) Registered Office 18 Hood Street Rosedale Vic. 3847
CF3157/1-1

PRED. by	S.G.XU 2010-11-22	福瑞祥 SHENZHEN FEREX ELECTRICAL CO.,LTD.	Model: FBP045-240S187J2	Rev.:1.0	Page 12 Of 13
CHKD. by	Hardy 2010-11-22				
APVD. by	H.J.LIU 2010-11-22				

11/3/2010

Supplier's declaration of conformity

For compliance levels 1, 2 and 3 in Australia

As required by notices under:

- section 182 of the Australian *Radiocommunications Act 1992*.



Instructions for completion

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(AGENT)

ACMA supplier code number **N136**

c/ 18 Hood Street Rosedale Vic.

Product details

Product description – brand name, type, model, lot, batch or serial number (if available)

Brand Name	
Model Number	FBP045-XXXSYYYJ2 (XXX three digits denote range of output voltage, 080-240 denote 8.0V-24.0V; YYY three digits denote range of output current, 050-400 denote 0.50A-4.00A)
Description	AC ADAPTER

Compliance with *Radiocommunications (Electromagnetic Compatibility) Standard 2008*

The above mentioned product complies with the requirements of the *Radiocommunications (Electromagnetic Compatibility) Standard 2008*. Evidence of compliance is demonstrated by test reports to the following applicable standards.

Applicable standards

Standard title, number and, if applicable, number of the test report

Standard	Test Report Number
AS/NZS CISPR 13:2004	TPFV1008134-2

Declaration

I hereby declare that the product mentioned above complies with the requirements of the *Radiocommunications (Electromagnetic Compatibility) Standard 2008*. All products supplied under this declaration will be identical to the product identified above.

Gordon Slimmon
Director

30 Aug 10

QUALSURE CONSULTANTS

A division of Blulen Pty Ltd (ACN 090 692 354) Registered Office 18 Hood Street Rosedale Vic. 3847
CF3158/1-1



PRED. by	S.G.XU 2010-11-22			
CHKD. by	Hardy 2010-11-22			
APVD. by	H.J.LIU 2010-11-22		Model: FBP045-240S187J2	Rev.:1.0