



**Specification for Approval**

**Customer : ELFA AB**

**Part Name : AC ADAPTER**

**Description : 24 Volts / 6.6 Amps**

**Model No. : STD-24066 (LEVEL V)**

**Customer P / N : 69-234-85**

**Product P / N : RXTD24066D15205**

**Issued Date : 03 – Feb. – 2012**

**Version : A2**

**Issued Stamp :**

**Customer's Approval Signature**

**ADAPTER TECHNOLOGY CO.,LTD.**

**Office (Taiwan) : 6F-9,No.258, Liancheng Rd.,Zhonghe District,New Taipei City 235,Taiwan (R.O.C.)**

**TEL : +886-2-8226-2279**

**FAX : +886-2-8226-2238**

**E-mail : service\_tw@ adaptertech.com.tw ; service@ adaptertech.com.tw**

**Factory (China) : BOAYANG ELECTRONICS CO., LTD.**

**Di Feng Gong Ye Qu 2 Hao,Xiasha Liuwu Village, Shipai Town, Dong Guan City,  
Guang Dong Province,China**

**TEL : 86-0769-8136-9899 ; 86-0769-8136-0909 ; 86-0769-8136-9008**

**86-0769-8186-8338 ; 86-0769-8186-8900**

**FAX : 86-0769-8136-9009**



<p style="text-align: center;"><b>160 W</b> <b>AC ADAPTER</b> <b>SPECIFICATION</b></p>
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**Model No.** : **STD-24066 (LEVEL V)**

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**Description** : **24 Volts / 6.6 Amps**

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**Part No.** : **RXTD24066D15205**

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**Version** : **A2**

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**Date** : **03 – Feb. – 2012**

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<b>Approved</b>	<b>Checked</b>	<b>Prepared</b>



## ■ Approval Documents/Spec. Revised Records

- Customer : ELFA AB
- Model No. : STD-24066
- Original Documents Content : Spec. 10 Pages, Attachment 2 Pages

Revised Records : No.	Date (mm/dd/yyyy)	Description ( Before / After )	Page(s) Revised	Revised By (Adapter/Customer)	Version
1	Dec./08/2011	ISSUE	-	<i>Satoshi</i>	A1
2	Feb./03/2012	Revise Caution on nameplate.	P7	<i>Satoshi</i>	A2



## 1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.
- ◆ **Output** : +24 V / 0 ~ 6.6 A
- ◆ **Case Dimension** : 175.2 (L) \* 74 (W) \* 42 (H) mm
- ◆ **Efficiency** : Eff (av)  $\geq$  87%
- ◆ **Safety** : CUL / UL / GS / PSE / BSMI
- ◆ **EMI** : CE / FCC Class B, Conduction & Radiation Met.
- ◆ **Protection** : OVP (Over Voltage Protection), SCP (Short Circuit Protection), OCP (Over Current Protection), OTP (Over Temperature Protection)
- ◆ High frequency design, less power consumption.
- ◆ Suitable for usage at Telecommunication, Computer, Industrial Controller, & OA System.
- ◆ Meet Energy Star V / Erp (Stage 2) / MEPS V.

## 2. Input :

2.1 Voltage	Universal 100 ~ 240Vac, single phase
2.2 Frequency	47 ~ 63 Hz
2.3 Current	2.2 A Max.
2.4 Inrush Current	100 A Max. / 230 Vac (Cold start at 25 °C, full load)
2.5 Efficiency	Eff (av) $\geq$ 87% (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi $\leq$ 0.5 W ( At 230Vac & No load)
2.7 Power Factor (PF)	Pi $\geq$ 0.9 ( At Full load)

$$\text{※Eff (av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

$E_1$ =efficiency with 25% rated load,  $E_2$ = efficiency with 50% rated load  
 $E_3$ =efficiency with 75% rated load,  $E_4$ = efficiency with 100% rated load

## 3. Output :

3.1 DC Output	Voltage	+24.00 V $\pm$ 5%
	Current	6.6 A Max.
	Regulation	22.8 Vmin. ~ 24.0 Vtyp. ~ 25.2 Vmax.
	Ripple & Noise	480 mV Max.
	Total Power	160 W Max.

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1 $\mu$ F multilayer Cap. and a Low ESR Electrolytic Cap. (10  $\mu$ F) at output connector terminals. (At nominal line voltage, full load)



## 4. Protection :

4.1 Over Voltage Protection (OVP)	Vout * (105% ~ 150%)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	Iout * (105% ~ 150%)
4.4 Over Temperature Protection (OTP)	OTP about 110 degree. Latch protection.

Remark : When Short Circuit Protection or Over Current Protection is activated, the power supply will shutdown automatically. Once the abnormal condition resulting in the failure being removed, the power supply will restart accordingly. When Over Voltage Protection is activated, the power supply will latch.

## 5. Safety 、EMI and EMC Requirement :

### 5.1 Safety Requirement

a. Safety : CUL / UL / GS / PSE / BSMI

b. Dielectric Strength : Cut off current 10 mA

(1)	Primary to Secondary	1800 Vac for 1 Minute
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c. Insulation Resistance :

(1)	Primary to Secondary	10 M ohm for 500Vdc
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5.2 EMI Requirement : CE / FCC Class B, Conduction & Radiation Met.

5.3 Leakage Current : Less than 3.5 mA

5.4 Grounding Test : Resistance 0.1 ohm Max. @ 25 A

## 6. Operation and Environment Performance :

### 6.1 Temperature Range

Operating	+ 0°C ~ + 40°C
Storage	- 20 °C ~ + 80 °C

### 6.2 Humidity Range (Non-condensing)

Operating	20% ~ 80% RH
Storage	10% ~ 90% RH

6.3 Cooling : By natural air.

7. M.T.B.F. : 50,000 hours min. at 25°C, by MIL-HDBK-217F

## 8. Mechanical :

8.1 Weight : 700 g Typical

8.2 Cable Type : Black UL2464 AWG16  
(Wire + Plug)

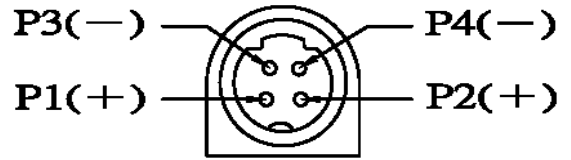
Plug : 4 Pin Din

8.3 Cable Length : 1500 mm

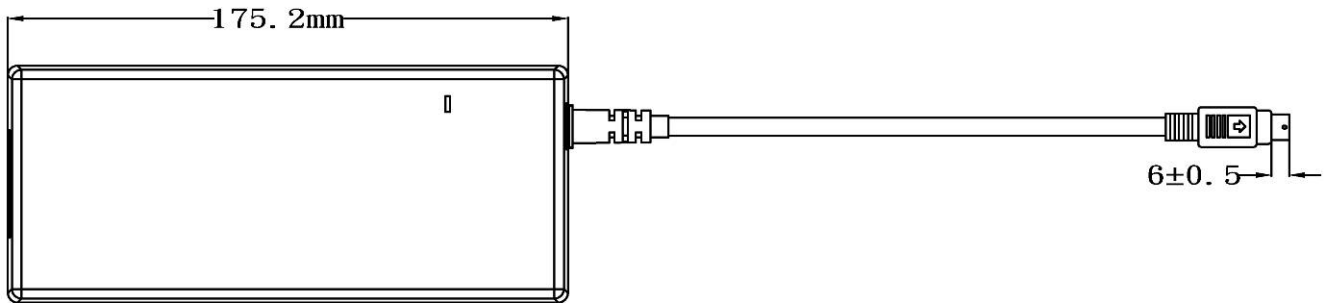
8.4 Case Dimension : 175.2mm(L) \* 74 mm(W) \* 42 mm(H)

8.5 Material Flammability : UL 94V-0

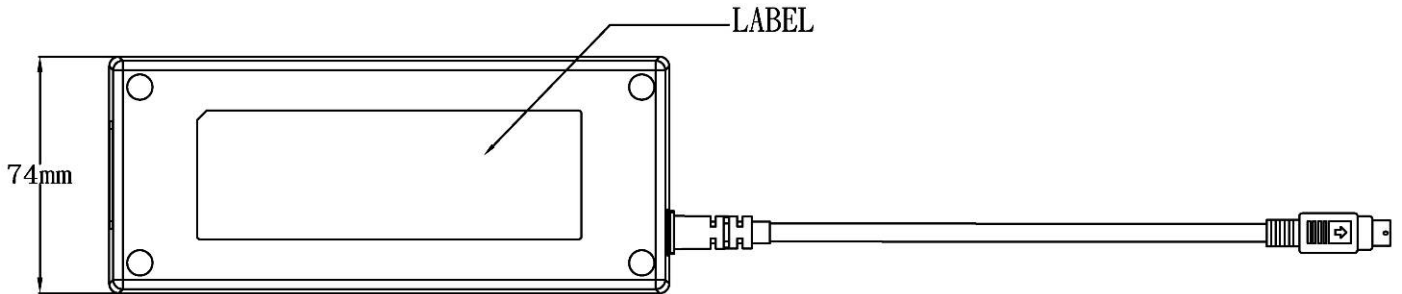
8.6 External Apperance : As drawing below ( Scale → mm )



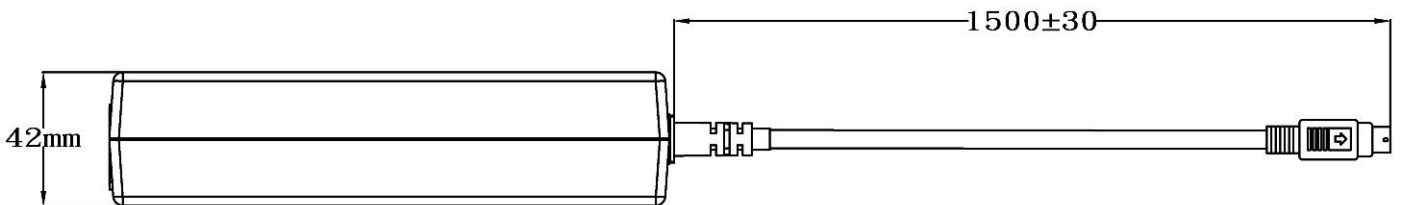
Output Cable Plug Pin Assignment



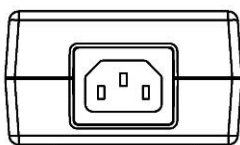
TOP-VIEW



BOTTOM-VIEW



SIDE-VIEW



FRONT-VIEW



# Adapter Technology Co, Ltd

87 Spec Label Materials : Metalized Polyester Label ( Silver Gloss )  
 Color : Black Background with Silver Printing  
 Label Dimension : 39mm(H)\*119mm(W)

## 100%

**NORDIC POWER**

**AC ADAPTER 交換式電源供應器**  
**Model (型號) : STD-24066**  
**INPUT (輸入) : 100-240V ~ 47-63Hz 2.2A MAX.**  
**OUTPUT (輸出) : 24V 6.6A**  
**FOR INDOOR USE ONLY**

For use with information technology equipment only  
 Laite on Liitettävä suojamaadoituskoskettimilla  
 varustettuun pistorasiaan  
 Apparatet må tilkobles jordet stikkontakt  
 Apparaten skall anslutas till jordat uttag

RoHS R33154  
**EFFICIENCY LEVEL V**

**PS E JET**  
 I/P : AC 100-240V 50/60Hz 170VA-190VA 2.2A  
 O/P : DC 24V 6.6A 必ず接地接続を行って下さい。

P3(-) P4(-)  
 P1(+) P2(+)

FC N136  
 LISTED I.T.E. POWER SUPPLY  
 60JJ E225703  
 D/C:1120  
**MADE IN CHINA**  
 ID NO. A  
 XXX  
 ADAPTER TECH.

### "XXX"

Label supplier's code  
 It is accurate that the number  
 of words depends on the real  
 finished product

## 160%

**NORDIC POWER**

**AC ADAPTER 交換式電源供應器**  
**Model (型號) : STD-24066**  
**INPUT (輸入) : 100-240V ~ 47-63Hz 2.2A MAX.**  
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RoHS R33154  
**EFFICIENCY LEVEL V**

**PS E JET**  
 I/P : AC 100-240V 50/60Hz 170VA-190VA 2.2A  
 O/P : DC 24V 6.6A 必ず接地接続を行って下さい。

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FC N136  
 LISTED I.T.E. POWER SUPPLY  
 60JJ E225703  
 D/C:1120  
**MADE IN CHINA**  
 ID NO. A  
 XXX  
 ADAPTER TECH.

**Label Part No:9443030741**  
**Rev: B**

## A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.74 V	24.07 V
115 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.74 V	24.07 V
132 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.74 V	24.07 V
180 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.73 V	24.07 V
230 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.73 V	24.07 V
264 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.73 V	24.07 V

## B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	87 % Min.	89.88%	89.03%	89.27%
230 Vac	87 % Min.	91.31%	90.42%	91.07%

$$\text{Eff (av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

$E_1$ =efficiency with 25% rated load,  $E_2$ = efficiency with 50% rated load  
 $E_3$ =efficiency with 75% rated load,  $E_4$ = efficiency with 100% rated load

## C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	22.8 V ~ 25.2 V	23.99 V	23.85 V	24.18 V
115 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.74 V	24.07 V
115 Vac / 100 % Load	22.8 V ~ 25.2 V	23.75 V	23.64 V	23.96 V
230 Vac / 0 % Load	22.8 V ~ 25.2 V	23.99 V	23.84 V	24.18 V
230 Vac / 50 % Load	22.8 V ~ 25.2 V	23.87 V	23.73 V	24.07 V
230 Vac / 100 % Load	22.8 V ~ 25.2 V	23.75 V	23.62 V	23.96 V

## D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	480 mV Max.	114 mV	122 mV	124 mV
230 Vac / 100 % Load	480 mV Max.	119 mV	138 mV	136 mV





## E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 100 % Load	100 A Max.	77 A	78 A	78 A

## F. Over Voltage Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Vout*(105%~150%)	125%	125%	125%
230 Vac / 100 % Load	Vout*(105%~150%)	126%	126%	126%

## G. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Iout*(105%~150%)	115%	113%	113%
230 Vac / 100 % Load	Iout*(105%~150%)	114%	113%	113%

## H. Short Circuit Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Auto Recovery	OK	OK	OK
230 Vac / 100 % Load	Auto Recovery	OK	OK	OK

## I. Input Power Consumption(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 0 % Load	$\leq 0.5$ W	0.35W	0.32W	0.34W

## J. Power Factor

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	$\geq 0.9$	0.99	0.99	0.99
230 Vac / 100 % Load	$\geq 0.9$	0.95	0.95	0.95



## Efficiency Test Report

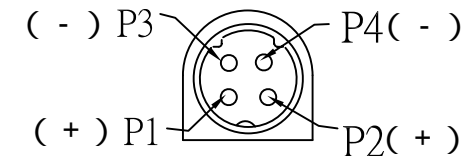
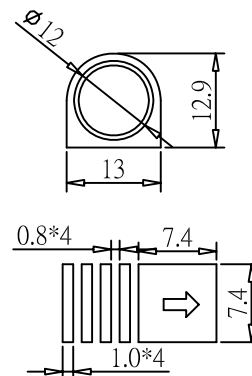
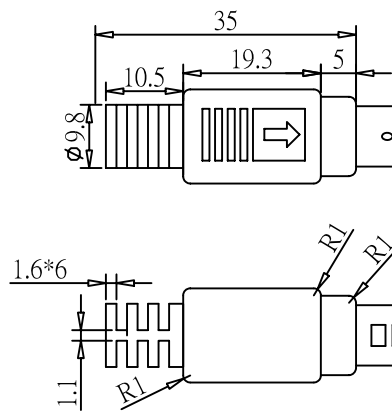
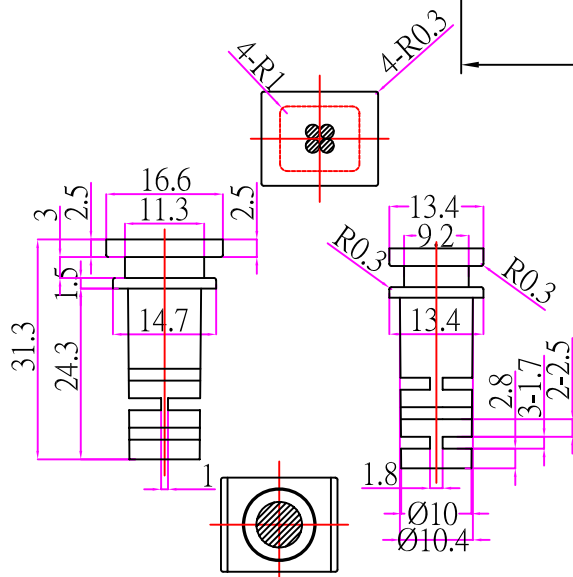
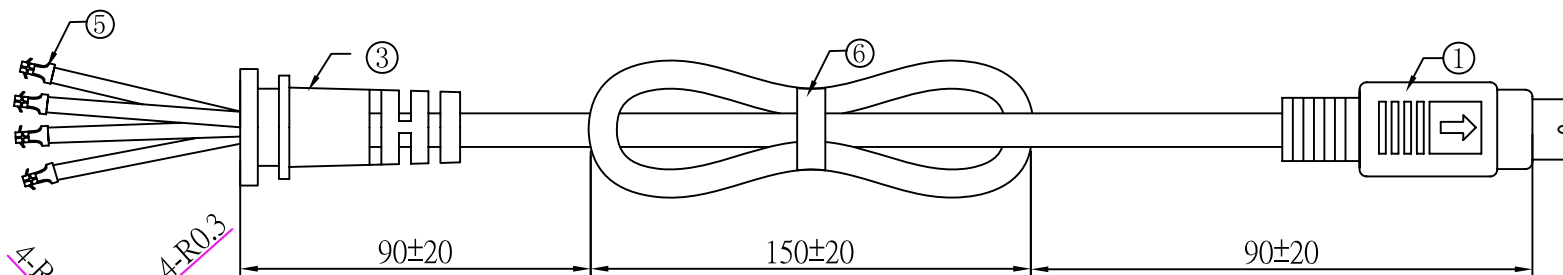
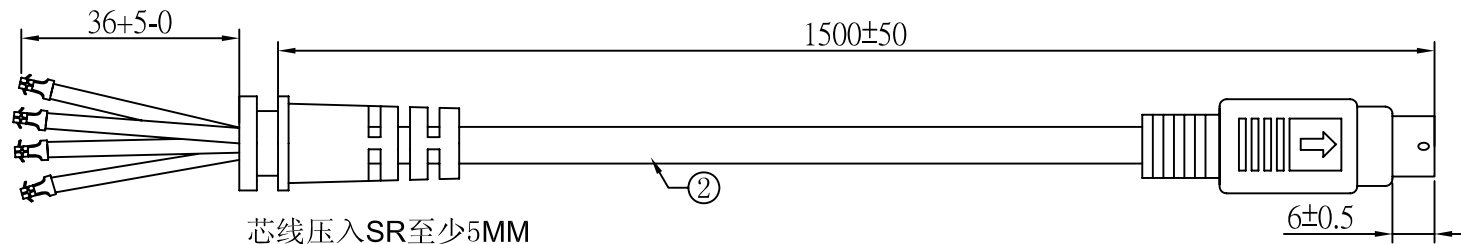
- A. Model Number : STD-24066(24V/6.6A /160 W)
- B. DC Power Cord : UL2464, 16AWG, 1500 mm
- C. Average Efficiency :
- Energy Star V : 87 % Min.
- Erp ( Stage 2 ) : 87 % Min.
- MEPS V : 87 % Min.
- D. NO Load Power Consumption :
- Energy Star V : 0.5W max.
- Erp ( Stage 2 ) : 0.5W max.
- MEPS V : 0.5W max.
- E. Testing Dequpment :
1. AC Power Source : " APE " 2700M-10
2. Electronic Load : " PRODIGIT " 3302C
3. Power Meter : " YOKOGAWA" WT-210
4. Digital Meter : " FLUKE " 179
- F. AC Input Voltage : 115Vac/60Hz

Reported Quantity \ Load Conditions	100%* I <sub>0</sub>	75%* I <sub>0</sub>	50%* I <sub>0</sub>	25%* I <sub>0</sub>	0%* I <sub>0</sub>
Rms Output Current(mA)	6600mA	4950mA	3300mA	1650mA	0mA
Rms Output Voltage(V)	23.750V	23.810V	23.870V	23.930V	23.990V
Active Output Power(W)	156.75W	117.86W	78.77W	39.48W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.514A	1.137A	0.777A	0.407A	0.034A
Rms Input Power(W)	173.00W	129.50W	87.00W	45.20W	0.36W
Voltage T.H.D.(%)	0.19	0.17	0.15	0.10	0.09
True Power Factor	0.991	0.990	0.972	0.961	0.098
Power Consumed by UUT(W)	16.25W	11.64W	8.23W	5.72W	0.36W
Efficiency	90.61%	91.01%	90.54%	87.36%	*
Average Efficiency	89.88%				*

- G. AC Input Voltage : 230Vac/50Hz

Reported Quantity \ Load Conditions	100%* I <sub>0</sub>	75%* I <sub>0</sub>	50%* I <sub>0</sub>	25%* I <sub>0</sub>	0%* I <sub>0</sub>
Rms Output Current(mA)	6600mA	4950mA	3300mA	1650mA	0mA
Rms Output Voltage(V)	23.750V	23.810V	23.870V	23.930V	23.990V
Active Output Power(W)	156.75W	117.86W	78.77W	39.48W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.773A	0.593A	0.414A	0.230A	0.035A
Rms Input Power(W)	169.70W	127.60W	86.00W	44.40W	0.35W
Voltage T.H.D.(%)	0.17	0.15	0.12	0.11	0.09
True Power Factor	0.956	0.936	0.905	0.840	0.043
Power Consumed by UUT(W)	12.95W	0.43W	7.23W	4.92W	0.35W
Efficiency	92.37%	92.37%	91.59%	88.93%	*
Average Efficiency	91.31%				*

Tester : Satoshi



正面圖

注意:此圖面所需材料符合"ROHS"標準

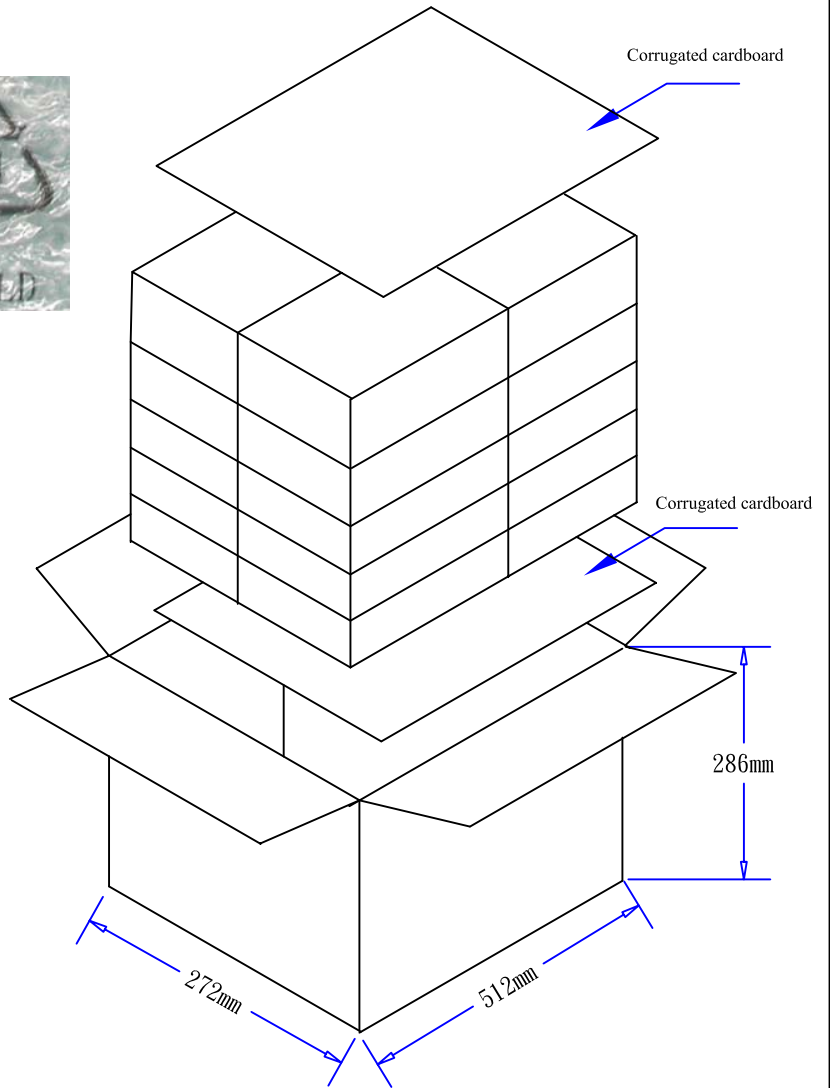
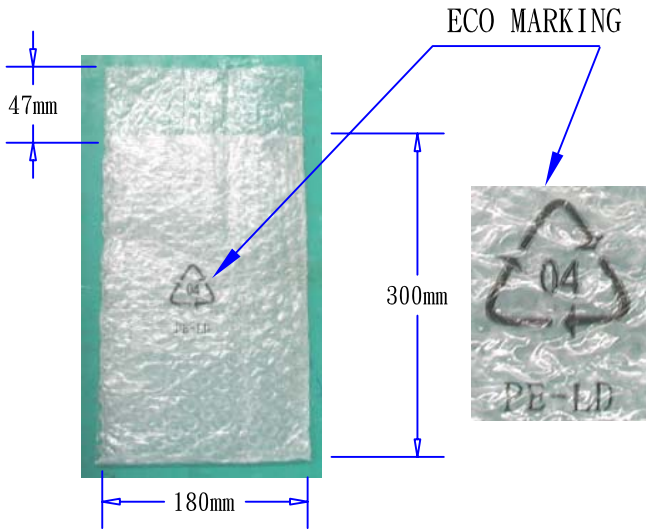
- ① 4PIN 粗針成型式,外模P-180號模(二次成型),大網尾,單箭頭,用料外PVC60P黑色
- ② UL 2464 16AWG(0.254\*26)\*4C(紅,黑,白,黃)過粉線 BK亮 OD:6.5 裁線長度:1560+10/-0
- ③ SR-511號模,用料PVC60P黑色(YV-PVC-00009):吊重:1米/20磅/60秒
- ④ PE有鐵芯紮帶14CM(YV-ES-00001)
- ⑤ 机板端:D262A(旗欣提供)\*4PCS
- ⑥ 絕緣阻抗:20Ω,導通阻抗:1.5Ωmax
- ⑦ 單位:MM

芯線	黃色	紅色	白色	黑色
PIN	P1	P2	P3	P4

料號	R44R1515015		
客戶	阿達特	制圖	吳遠松
版次	01	初審	
頁數	01	審核	
		批准	
泰岳電子有限公司			
圖號	ADT-2070	日期	2011/07/01

# PIS200W0003

REVISIONS				
SHOW	REV	DESCRIPTION	DATE	APPROVED
△	A	按客户要求, 初版制作	10/07/22	
	B			
	C			



- |   |         |            |      |
|---|---------|------------|------|
| 1. Corrugated cardboard: .500*260*6mm               | B=B     | 9550013001 | 2/20 |
| 2. Q'ty: 4*5=20PCS                                  |         |            |      |
| 3. Master carton: L*W*H=512*272*286mm               | K=K     | 9520017101 | 1/20 |
| 4. White box: L*W*H=250*130*50mm                    | 350P+CE | 9510008101 | 1/1  |
| 5. PE bubble bag: 300*180*47mm, no color and clear. |         |            |      |
| 5. Carton, box marks with dimension                 |         |            |      |
| 6. Above materials should be compliance with RoHS   |         |            |      |

Adapter Technology Co., Ltd

DRAWING NO. 10-07-22-1		APPROVAL2	
UNIT	200W 白盒裝	APPROVAL1	
mm	ADT-0045	ENGINEER	
SCALE	REV. A	SHEET 1/1	DRAWN BY