

納 入 仕 様 書

アールエスコンポーターネッツリミテッド 御中

品名:スイッチング AC アダプター

型番: TW-24010U

御 承 認 欄

平成 年 月 日

アイコー電子株式会社

〒101-0021 東京都千代田区外神田 3 - 5 - 2

TEL.03-3251-1335 FAX.03-3251-1327

<http://www.aikoh-d.co.jp>



24W
Switching Power Adapter
SPECIFICATION

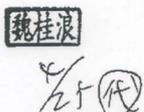
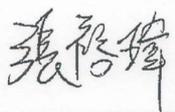
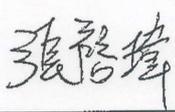
Model No. : STD-24010U (USA / Level V)

Description : 24 Volts / 1.0 Amps

Part No. : RXTD24010U418201

Version : A2

Date : 25-Apr.-2011

| Approved | Checked | Prepared |
|---|---|---|
|  |  |  |



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Approval Documents/Spec. Revised Records

- Customer : AIKOH ELECTORNICS
- Model No. : STD-24010U
- Original Documents Content : Spec. 11 Pages, Attachment 2 Pages

| Revised Records No. | Date (mm/dd/yyyy) | Description (Before / After) | Page(s) Revised | Revised By (Adapter/Customer) | Remark |
|---------------------|-------------------|--------------------------------|-----------------|-------------------------------|--------|
| 1 | 22/Dec./2008 | ISSUE | - | Wei | 3.0 |
| 2 | 03/Aug./2010 | LABEL Update | P-7 | Wei | A1 |
| 3 | 04/25/2011 | LABEL Update | P-7 | Wei | A2 |
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1. Feature :

- ◆ Input : Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.
- ◆ Output : +24V / 0~1 A
- ◆ Case Dimension : 72(L) * 34 (W) * 69 (H) mm
- ◆ Efficiency : Eff (av) \geq 82.22 % Min.
- ◆ Safety : UL / CUL / PSE / BSMI
- ◆ EMI : FCC Class B ; Conduction & Radiation Met.
- ◆ Protection : OVP (Over Voltage Protection) 、 SCP (Short Circuit Protection) 、 OCP (Over Current 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 | 0.58A Max. |
| 2.4 Inrush Current | 30A Max. / 100Vac ; 45A Max. / 240Vac (Cold Start At 25 °C , Full Load) |
| 2.5 Efficiency | Eff (av) \geq 82.22 % Min. (At 115 Vac & 230 Vac) |
| 2.6 Power Consumption | Pi \leq 0.3 W (At 230Vac & No Load) |

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

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

3. Output :

| | | |
|---------------|----------------|-----------------------------------|
| 3.1 DC Output | Voltage | +24V \pm 5% |
| | Current | 1.0A Max. |
| | Regulation | 22.8Vmin. ~ 24.0Vtyp. ~ 25.2Vmax. |
| | Ripple & Noise | 100 mV Max. |
| | Total Power | 24W Max. |

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



4. Protection :

| | |
|------------------------------------|--|
| 4.1 Over Voltage Protection (OVP) | 27V (Max.) |
| 4.2 Short Circuit Protection (SCP) | Automatic recovery after short-circuit fault being removed |
| 4.3 Over Current Protection(OCP) | 2.5A (MAX) |

Remark : When Short Circuit 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 shutdown.

5. Safety 、 EMI and EMC Requirement :

5.1 Safety Requirement

- a. Safety : UL / CUL / PSE / BSMI
- b. Dielectric Strength : 10mA Max. Cut off current

| | | |
|-----|----------------------|----------------------|
| (1) | Primary to Secondary | 3000Vac for 1 Minute |
|-----|----------------------|----------------------|

c. Insulation Resistance :

| | | |
|-----|----------------------|---------------------|
| (1) | Primary to Secondary | 10 M Ohm for 500Vdc |
|-----|----------------------|---------------------|

5.2 EMI Requirement : FCC Class B ; Conduction & Radiation Met.

5.3 Leakage Current : Less than 0.25mA

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)

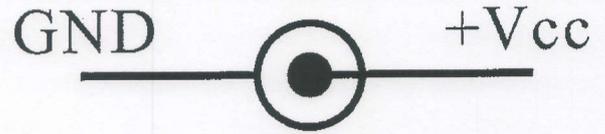
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|-----------|--------------|
| Operating | 20% ~ 80% RH |
| Storage | 10% ~ 90% RH |

6.3 Cooling : By natural air

7. M.T.B.F. : 50,000 Hrs. (At 25°C , By MIL-HDBK-217F)

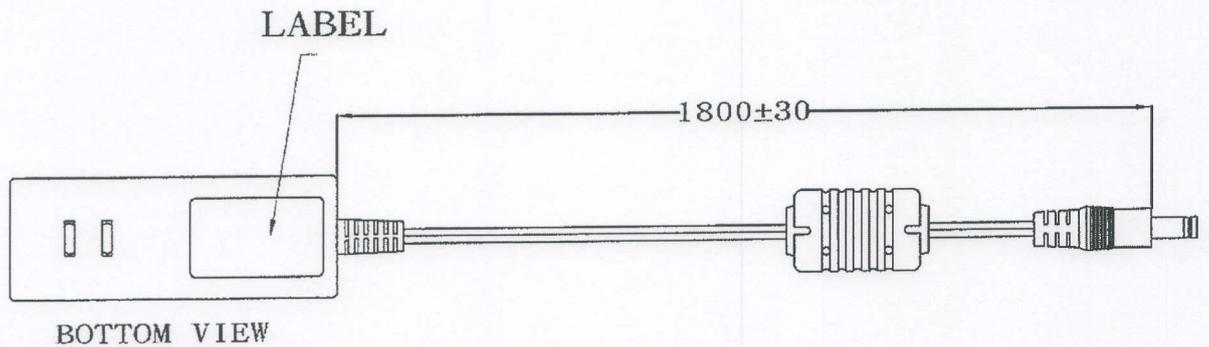
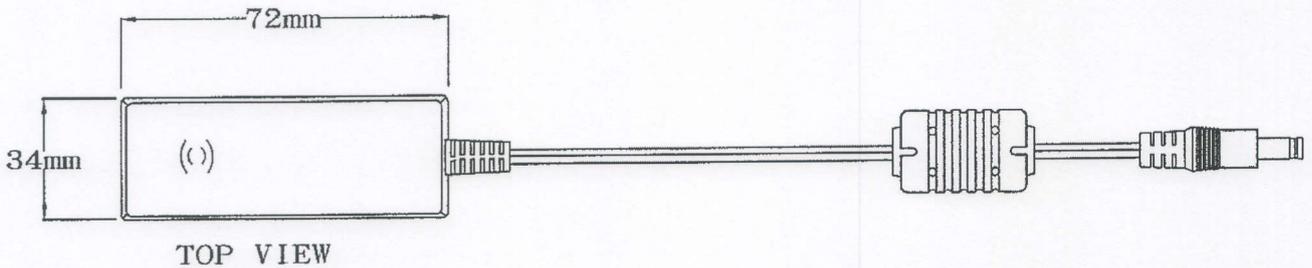
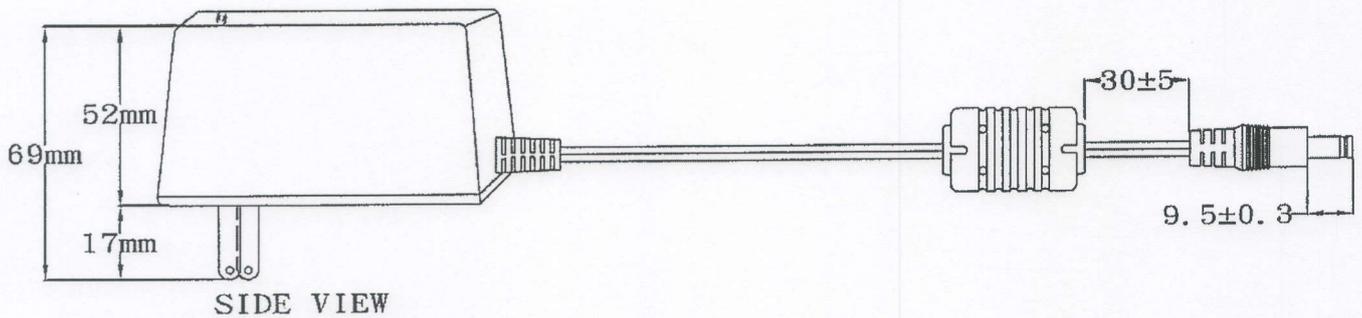


8. Mechanical :



Output Cable Plug Pin Assignment

- 8.1 Weight : 165 g Typical
- 8.2 Cable Type : Black UL2468 AWG20
(Wire + Plug)
Plug : $\phi 5.5 \times \phi 2.1 \times 9.5$ mm (Tuning Fork & Cannelure)
- 8.3 Cable Length : 1800mm
- 8.4 Case Dimension : 72mm(L)*34mm(W)*69mm(H) (± 0.5 mm)
- 8.5 Material Flammability : UL 94V-0
- 8.6 External Apperance : As drawing below (Scale - mm)





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8.7 Spec. Label Materials : Metalized Polyester Label (Silver Gloss)
 Color : Silver Background with Black Printing
 Label Dimension : 34.5mm(L)*24.5mm(W)+/-0.1mm
 Label Thickness : #75

100%



300%



"XXX"

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

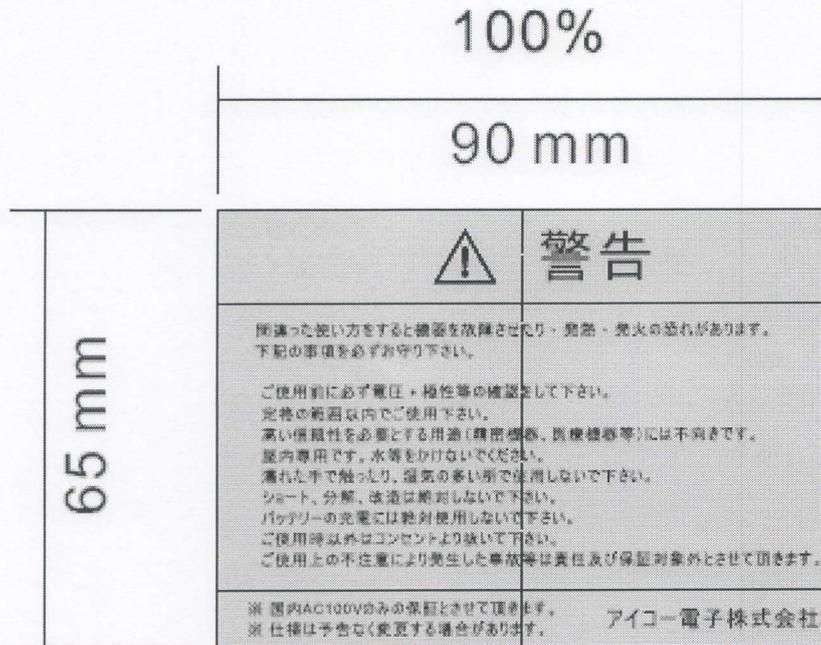
ID NO. "X"

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

Label Part No. : 9443026850

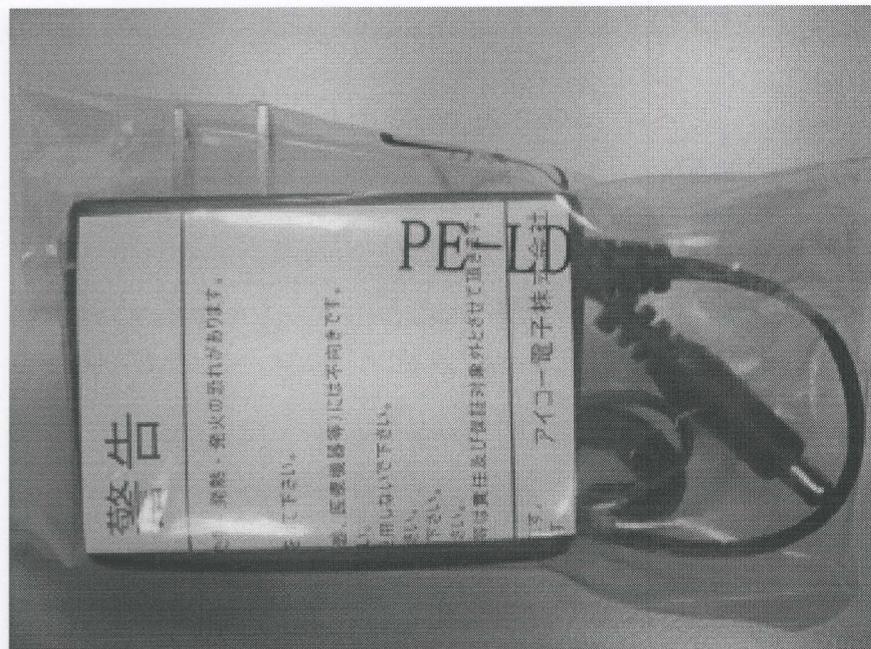
Steven
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8.8 Spec. Label Dimension : 90mm(L)*65mm(W)+/-0.1mm



此虚線為對折線，不需印刷。
 對折方式:字朝外對折
 放入PE袋內

Label Part No. : 9471120201





A. Line Regulation Test

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|--------------------|-------------|-----------|-----------|-----------|
| 90Vac / 50 % Load | 22.8~25.2 V | 23.99 V | 24.37 V | 24.31 V |
| 115Vac / 50 % Load | 22.8~25.2 V | 23.98 V | 24.38 V | 24.30 V |
| 132Vac / 50 % Load | 22.8~25.2 V | 23.99 V | 24.37 V | 24.30 V |
| 180Vac / 50 % Load | 22.8~25.2 V | 23.99 V | 24.37 V | 24.31 V |
| 230Vac / 50 % Load | 22.8~25.2 V | 23.99 V | 24.38 V | 24.30 V |
| 264Vac / 50 % Load | 22.8~25.2 V | 23.98 V | 24.38 V | 24.30 V |

B. Efficiency Test

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---------------------|--------------|-----------|-----------|-----------|
| 115Vac / 100 % load | 82.22 % Min. | 85.69 % | 84.88 % | 84.98 % |
| 230Vac / 100 % load | 82.22 % Min. | 84.77 % | 84.47 % | 84.33 % |

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

E1=efficiency with 25% rated load ; E2= efficiency with 50% rated load
E3=efficiency with 75% rated load ; E4= efficiency with 100% rated load

C. Load Regulation Test

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---------------------|-------------|-----------|-----------|-----------|
| 115Vac / 0 % Load | 22.8~25.2 V | 24.10 V | 24.09 V | 24.15 V |
| 115Vac / 50 % Load | 22.8~25.2 V | 23.98 V | 24.03 V | 24.10 V |
| 115Vac / 100 % Load | 22.8~25.2 V | 23.90 V | 23.97 V | 24.07 V |
| 230Vac / 0 % Load | 22.8~25.2 V | 24.10 V | 24.09 V | 24.15 V |
| 230Vac / 50 % Load | 22.8~25.2 V | 23.99 V | 24.03 V | 24.11 V |
| 230Vac / 100 % Load | 22.8~25.2 V | 23.91 V | 23.96 V | 24.07 V |

D. Ripple & Noise Test

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---------------------|-------------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 100mVpp Max | 60.4mVpp | 58.8mVpp | 57.9mVpp |
| 230Vac / 100 % Load | 100mVpp Max | 52.4mVpp | 52.7mVpp | 54.5mVpp |



E. Inrush Current

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---------------------|----------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 30A Max. | 27.8 A | 27.9A | 27.5A |
| 230Vac / 100 % Load | 45A Max | 42.6 A | 43.2A | 43.3A |

F. Over Current Protection

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|---------------------|-----------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 2.5A Max. | 1.463A | 1.476A | 1.473A |
| 230Vac / 100 % Load | 2.5A Max. | 1.556 A | 1.576A | 1.520A |

G. Short Circuit Protection

Test Result :

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

H. Input Power Consumption(No Load)

Test Result :

| Test condition | Spec. | Reading 1 | Reading 2 | Reading 3 |
|-------------------|--------------|-----------|-----------|-----------|
| 230Vac / 0 % Load | ≤ 0.3 W | 0.28 W | 0.28 W | 0.29 W |



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Efficiency Test Report

- A. Model Number : STD-24010Z (Z=A,B,C,E,K,T,U,V) (24V / 1A / 24W)
- B. DC Power Cord : UL2468 , 22AWG , 1.8M
- C. Average Efficiency :
- Energy Star V (0.0626*Ln(Nameplate Output)+0.622) = 82.09 % Min.
- Erp (Stage 2) (0.063*Ln(Nameplate Output)+0.622) = 82.22 % Min.
- MEPS V (0.0626*Ln(Nameplate Output)+0.622) = 82.09 % Min.
- D. NO Load Power Consumption :
- Energy Star V 0.3W Max.
- Erp (Stage 2) 0.3W Max.
- MEPS V 0.3W Max.
- E. Testing Dequpment :
- a. AC Power Source : " Zentech " 2700M-10
- b. Electronic Load : " PRODIGIT " 3311C
- c. Power Meter : " Zentech " 2100
- d. Digital Meter : " FLUKE " 45
- F. AC Input Voltage : 115Vac/60Hz

| Load Conditions | 100%* I ₀ | 75%* I ₀ | 50%* I ₀ | 25%* I ₀ | 0%* I ₀ |
|--------------------------|----------------------|---------------------|---------------------|---------------------|--------------------|
| Reported Quantity | | | | | |
| Rms Output Current(mA) | 1000mA | 750mA | 500mA | 250mA | 0mA |
| Rms Output Voltage(V) | 23.750V | 23.810V | 23.870V | 23.920V | 23.990V |
| Active Output Power(W) | 23.75W | 17.86W | 11.94W | 5.98W | 0.00W |
| Rms Input Voltage(V) | 115V | 115V | 115V | 115V | 115V |
| Rms Input Current(A) | 0.447A | 0.349A | 0.254A | 0.150A | 0.011A |
| Rms Input Power(W) | 27.80W | 20.80W | 13.80W | 7.00W | 0.19W |
| T.H.D. (Voltage) | 0.16 | 0.15 | 0.15 | 0.12 | 0.1 |
| True Power Factor | 0.540 | 0.517 | 0.470 | 0.404 | 0.153 |
| Power Consumed by UUT(W) | 4.05W | 2.94W | 1.87W | 1.02W | 0.19W |
| Efficiency | 85.43% | 85.85% | 86.49% | 85.43% | * |
| Average Efficiency | 85.80% | | | | * |

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

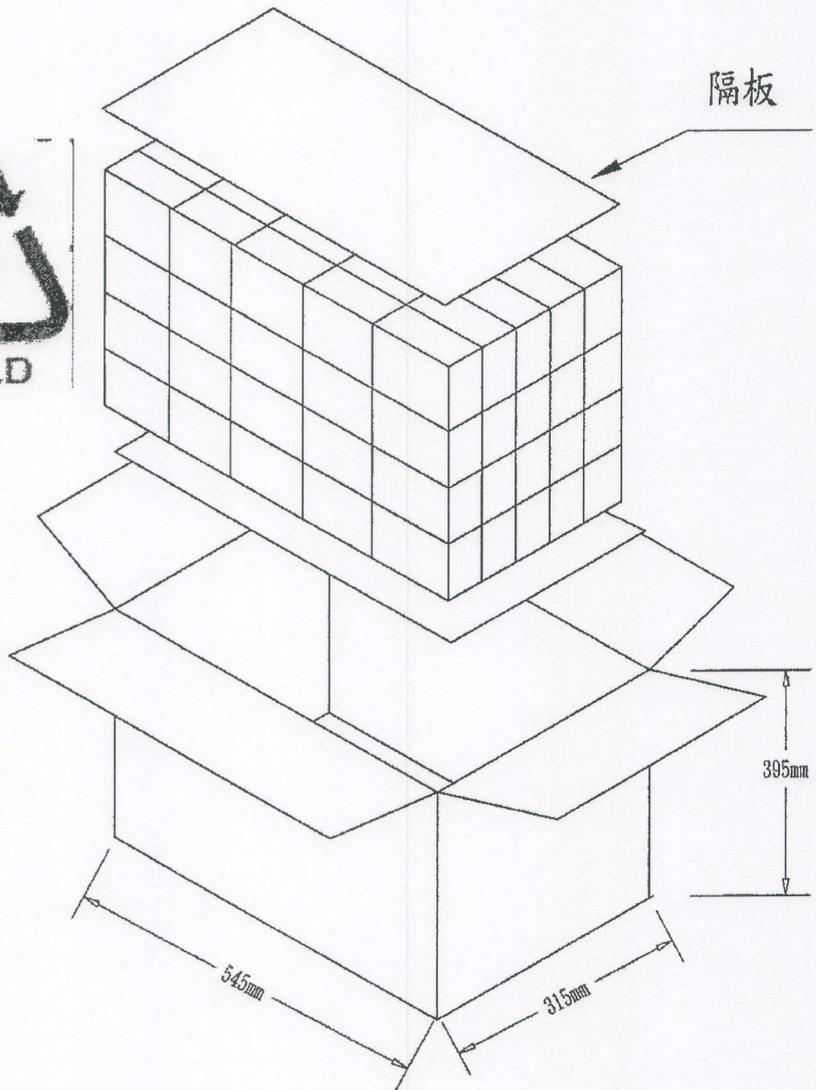
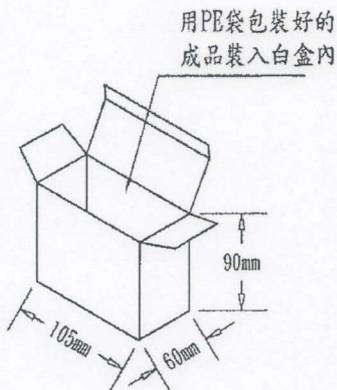
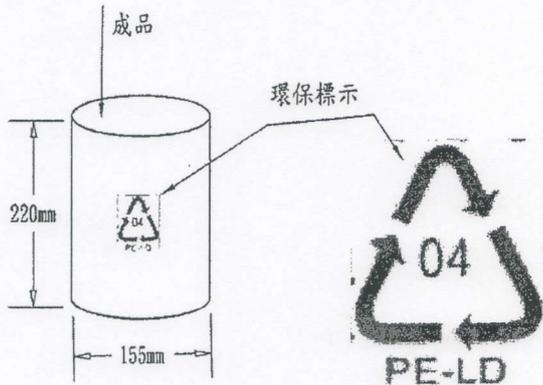
| Load Conditions | 100%* I ₀ | 75%* I ₀ | 50%* I ₀ | 25%* I ₀ | 0%* I ₀ |
|--------------------------|----------------------|---------------------|---------------------|---------------------|--------------------|
| Reported Quantity | | | | | |
| Rms Output Current(mA) | 1000mA | 750mA | 500mA | 250mA | 0mA |
| Rms Output Voltage(V) | 23.750V | 23.810V | 23.870V | 23.920V | 23.980V |
| Active Output Power(W) | 23.75W | 17.86W | 11.94W | 5.98W | 0.00W |
| Rms Input Voltage(V) | 230V | 230V | 230V | 230V | 230V |
| Rms Input Current(A) | 0.302A | 0.238A | 0.168A | 0.095A | 0.016A |
| Rms Input Power(W) | 27.40W | 20.60W | 13.90W | 7.10W | 0.25W |
| T.H.D. (Voltage) | 0.23 | 0.19 | 0.15 | 0.12 | 0.1 |
| True Power Factor | 0.394 | 0.376 | 0.360 | 0.325 | 0.067 |
| Power Consumed by UUT(W) | 3.65W | 2.74W | 1.97W | 1.12W | 0.25W |
| Efficiency | 86.68% | 86.69% | 85.86% | 84.23% | * |
| Average Efficiency | 85.86% | | | | * |

Tester : Wei



Adapter Technology Co., Ltd.

| SHOW | REV | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|-------------|----------|
| △ | A | 初版制作 | Jun/25/2009 | |
| | | | | |
| | | | | |



零件料號

- 9550006001 1. 隔板: 530*300*6mm B=B 2/100
- 2. 數量: 25*4=100PCS
- 9520006502 3. 外箱: L*W*H=545*315*395mm K=K 1/100
- 9510003502 4. 紙盒: L*W*H=105*60*90mm 白盒 350P+CE(即C9紙加裱350磅白板紙)
- 9540003001 5. 環保PE袋: 220*155*0.09mm 無色透明, 長邊中間位置印環保標示, 短邊單端開口
- 6. 成品裝入氣泡袋后, 用小膠紙封口
- 7. 外箱, 紙盒標注為外徑尺寸
- 8. 上述所有材料須符合環保ROHS標準.

阿達特科技股份有限公司

| | | | | |
|-------------------------|-------------------------|----------------------|----------|------------------|
| DRAWING NO. PIS18W00008 | | APPROVAL 1 BY | | |
| UNIT | MODEL NO. 18W, 24K(抽插式) | APPROVAL 2 BY | | |
| NO. | FILE NO. PACKAGE_Y_356 | CHECKED BY(ENGINEER) | 張裕璋 | DATE: 2009/06/25 |
| SCALE | REV. A | SHEET 1/1 | DRAWN BY | SUN |
| | | | | DATE: 2009/06/25 |

Steven 4/11/11