

---

# ***Specification for Approval***

**Customer** : **Link man Co., Ltd.**

---

**Part Name** : **AC ADAPTER**

---

**Description** : **5Volts / 4Amps**

---

**Model No.** : **STD-05040U ( USA / Level V )**

---

**Customer P / N** :

---

**Product P / N** : **RXTD05040U410203**

---

**Issued Date** : **05-May.-2011**

---

**Version** : **A1**

---

**Issued Stamp** :

|  |
|--|
| <b>Customer's Approval Signature</b>     |
| <br><br><br><br><br><br><br><br><br><br> |

## 1. Feature :

- ◆ **Input** : **Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.**
- ◆ **Output** : **+5 V / 0~4 A**
- ◆ **Case Dimension** : **72 (L) \* 34 (W) \* 69 (H) mm (±0.5mm)**
- ◆ **Efficiency** : **Eff (av) ≥ 78.56% 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 ; 60A Max. / 230Vac<br>(Cold Start At 25 °C , Full Load) |
| 2.5 Efficiency        | Eff (av) ≥ 78.56 % Min. (At 115 Vac & 230 Vac)                             |
| 2.6 Power Consumption | Pi ≤ 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        | +5 V ± 6%                      |
|               | Current        | 4A Max.                        |
|               | Regulation     | 4.7Vmin. ~ 5.0Vtyp. ~ 5.3Vmax. |
|               | Ripple & Noise | 100 mV Max.                    |
|               | Total Power    | 20W Max.                       |

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

## 4. Protection :

|                                    |  |
|------------------------------------|--|
| 4.1 Over Voltage Protection (OVP)  | 6.8V ( Max. )  |
| 4.2 Short Circuit Protection (SCP) | Automatic recovery after short-circuit fault being removed |
| 4.3 Over Current Protection(OCP)   | 7A (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)

|           |              |
|-----------|--------------|
| 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 :

8.1 Weight : 165 g Typical

8.2 Cable Type : Black UL2468 AWG18  
( Wire + Plug )

Plug :  $\phi 5.5 * \phi 2.1 * 9.5 \text{mm}$  ( Tuning Fork & Cannelure )

8.3 Cable Length : 1000mm

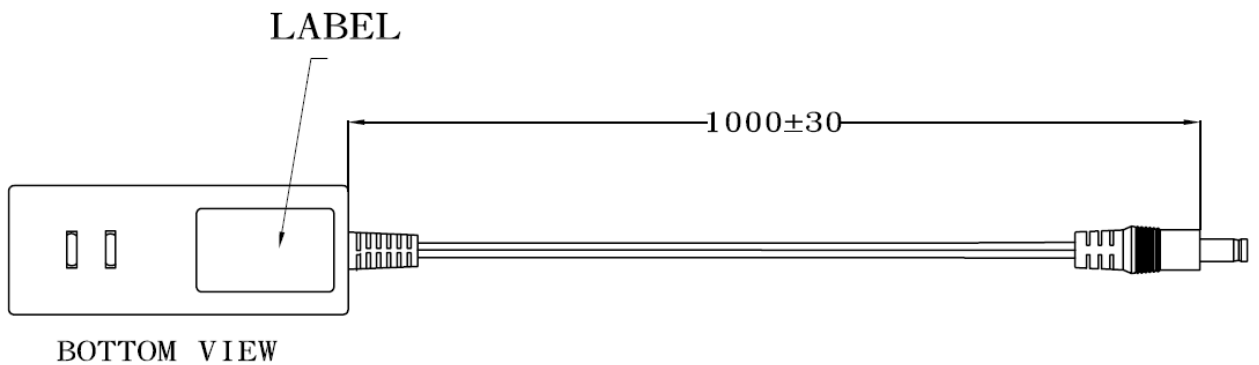
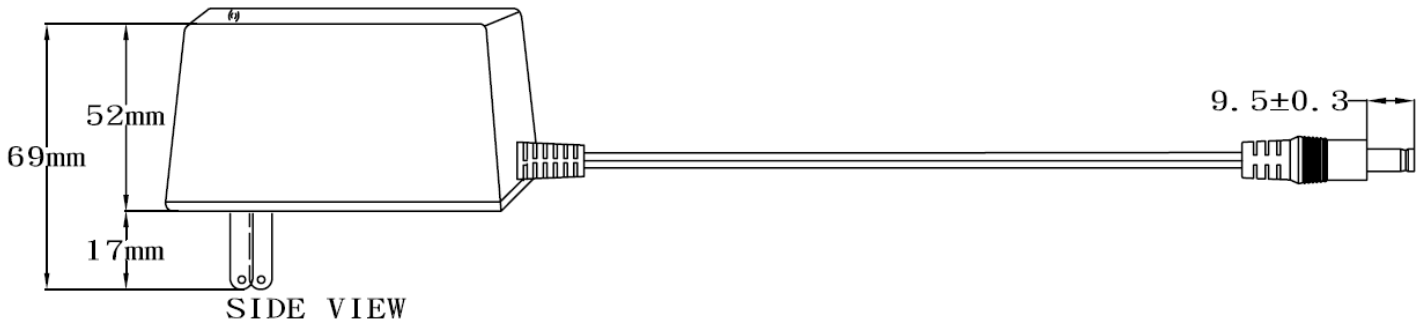
8.4 Case Dimension : 72mm(L)\*34mm(W)\*69mm(H) ( $\pm 0.5 \text{mm}$ )

8.5 Material Flammability : UL 94V-0

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



## Output Cable Plug Pin Assignment



## A. Line Regulation Test

Test Result :

| Test condition     | Spec.       | Reading 1 | Reading 2 | Reading 3 |
|--------------------|-------------|-----------|-----------|-----------|
| 90Vac / 50 % Load  | 4.7V~ 5.3 V | 5.023 V   | 5.014 V   | 5.009 V   |
| 115Vac / 50 % Load | 4.7V~ 5.3 V | 5.023 V   | 5.014V    | 5.009 V   |
| 132Vac / 50 % Load | 4.7V~ 5.3 V | 5.022 V   | 5.013 V   | 5.010 V   |
| 180Vac / 50 % Load | 4.7V~ 5.3 V | 5.020 V   | 5.014 V   | 5.009 V   |
| 230Vac / 50 % Load | 4.7V~ 5.3 V | 5.020 V   | 5.014 V   | 5.008 V   |
| 264Vac / 50 % Load | 4.7V~ 5.3 V | 5.021 V   | 5.013 V   | 5.008 V   |

## B. Efficiency Test

Test Result :

| Test condition | Spec.       | Reading 1 | Reading 2 | Reading 3 |
|----------------|-------------|-----------|-----------|-----------|
| 115Vac         | 78.56% Min. | 79.29%    | 79.35%    | 79.33%    |
| 230Vac 78.56%  | Min.        | 78.61%    | 78.72%    | 78.67%    |

## C. Load Regulation Test

Test Result :

| Test condition      | Spec.       | Reading 1 | Reading 2 | Reading 3 |
|---------------------|-------------|-----------|-----------|-----------|
| 115Vac / 0 % Load   | 4.7V~ 5.3 V | 5.241 V   | 5.235 V   | 5.221 V   |
| 115Vac / 50 % Load  | 4.7V~ 5.3 V | 5.023 V   | 5.011 V   | 5.009 V   |
| 115Vac / 100 % Load | 4.7V~ 5.3 V | 4.794 V   | 4.795 V   | 4.989 V   |
| 230Vac / 0 % Load   | 4.7V~ 5.3 V | 5.242 V   | 5.233 V   | 5.221 V   |
| 230Vac / 50 % Load  | 4.7V~ 5.3 V | 5.020 V   | 5.013 V   | 5.008V    |
| 230Vac / 100 % Load | 4.7V~ 5.3 V | 4.792 V   | 4.795V    | 4.988 V   |

## D. Ripple & Noise Test

Test Result :

| Test condition      | Spec.        | Reading 1 | Reading 2 | Reading 3 |
|---------------------|--------------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 100mVpp Max. | 62.7 mVpp | 63.2 mVpp | 61.9 mVpp |
| 230Vac / 100 % Load | 100mVpp Max. | 46.1 mVpp | 45.5 mVpp | 45.9 mVpp |

---

## E. Inrush Current

Test Result :

| Test condition      | Spec.   | Reading 1 | Reading 2 | Reading 3 |
|---------------------|---------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 30A Max | 28.1A     | 27.6A     | 28.3A     |
| 230Vac / 100 % Load | 60A Max | 42.9A     | 43.5A     | 42.1A     |

## F. Over Current Protection

Test Result :

| Test condition      | Spec.  | Reading 1 | Reading 2 | Reading 3 |
|---------------------|--------|-----------|-----------|-----------|
| 115Vac / 100 % Load | 7A Max | 5.448A    | 5.451A    | 5.435A    |
| 230Vac / 100 % Load | 7A Max | 5.920A    | 5.929A    | 5.901A    |

## 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 | $\leq 0.3$ W | 0.21W 0.20W | 0.20W     |           |

## Efficiency Test Report

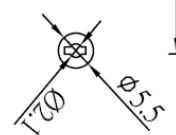
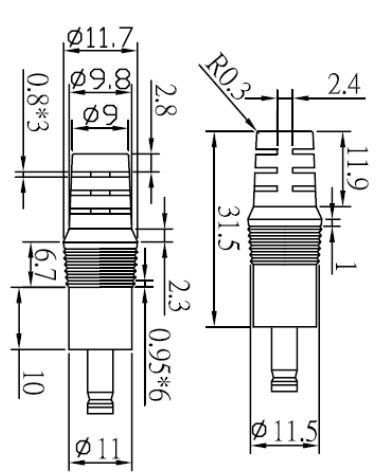
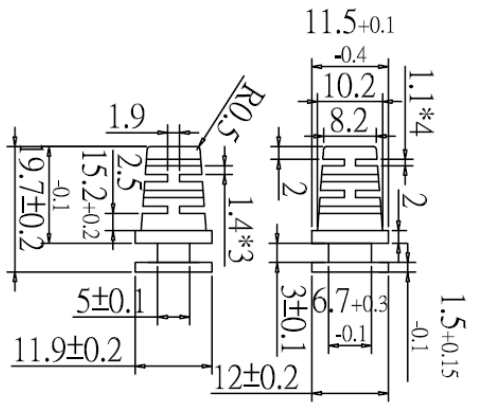
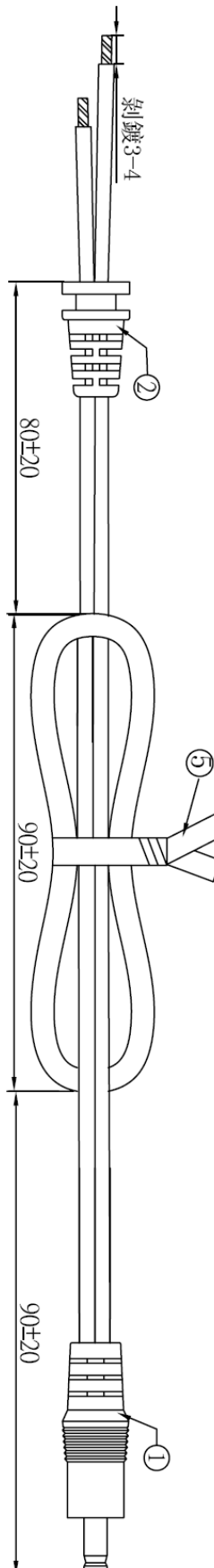
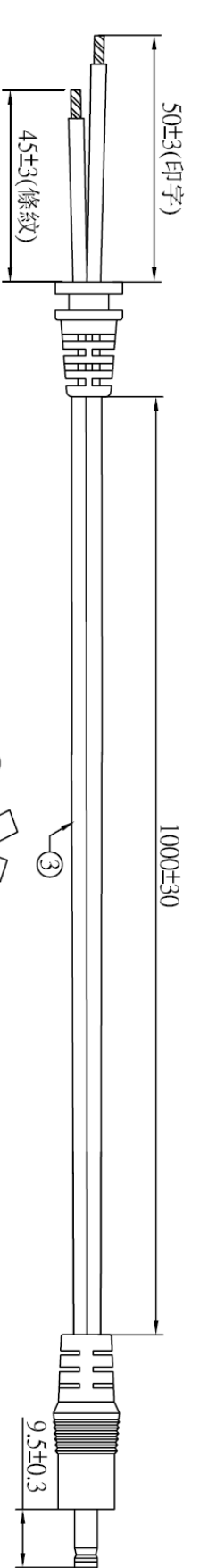
- A. Model Number** : STD-05040Z (Z=A,B,C,E,K,T,U,V) ( 5V / 4A / 20W )
- B. DC Power Cord** : UL2468 , 18AWG , 1M
- C. Average Efficiency** :
- Energy Star V** (0.075\*Ln(Nameplate Output)+0.561) = 78.56 % Min.
- Erp ( Stage 2 )** (0.075\*Ln(Nameplate Output)+0.561) = 78.56 % Min.
- MEPS V** (0.075\*Ln(Nameplate Output)+0.561) = 78.56 % 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 Equipment** :
- 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 <sub>0</sub> | 75%* I <sub>0</sub> | 50%* I <sub>0</sub> | 25%* I <sub>0</sub> | 0%* I <sub>0</sub> |
|--------------------------|----------------------|---------------------|---------------------|---------------------|--------------------|
| Reported Quantity        |                      |                     |                     |                     |                    |
| Rms Output Current(mA)   | 4000mA               | 3000mA              | 2000mA              | 1000mA              | 0mA                |
| Rms Output Voltage(V)    | 4.937V               | 5.007V              | 5.077V              | 5.144V              | 5.232V             |
| Active Output Power(W)   | 19.75W               | 15.02W              | 10.15W              | 5.14W               | 0.00W              |
| Rms Input Voltage(V)     | 115V                 | 115V                | 115V                | 115V                | 115V               |
| Rms Input Current(A)     | 0.427A               | 0.333A              | 0.240A              | 0.139A              | 0.011A             |
| Rms Input Power(W)       | 25.60W               | 19.00W              | 12.60W              | 6.40W               | 0.14W              |
| T.H.D. (Voltage)         | 0.16                 | 0.16                | 0.15                | 0.14                | 0.12               |
| True Power Factor        | 0.543                | 0.516               | 0.472               | 0.409               | 0.126              |
| Power Consumed by UUT(W) | 5.85W                | 3.98W               | 2.45W               | 1.26W               | 0.14W              |
| Efficiency               | 77.14%               | 79.06%              | 80.59%              | 80.38%              | *                  |
| Average Efficiency       | 79.29%               |                     |                     |                     | *                  |

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

| 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> |
|--------------------------|----------------------|---------------------|---------------------|---------------------|--------------------|
| Reported Quantity        |                      |                     |                     |                     |                    |
| Rms Output Current(mA)   | 4000mA               | 3000mA              | 2000mA              | 1000mA              | 0mA                |
| Rms Output Voltage(V)    | 4.938V               | 5.008V              | 5.077V              | 5.147V              | 5.236V             |
| Active Output Power(W)   | 19.75W               | 15.02W              | 10.15W              | 5.15W               | 0.00W              |
| Rms Input Voltage(V)     | 230V                 | 230V                | 230V                | 230V                | 230V               |
| Rms Input Current(A)     | 0.289A               | 0.226A              | 0.157A              | 0.089A              | 0.016A             |
| Rms Input Power(W)       | 25.30W               | 19.00W              | 12.80W              | 6.60W               | 0.22W              |
| T.H.D. (Voltage)         | 0.23                 | 0.19                | 0.15                | 0.12                | 0.1                |
| True Power Factor        | 0.391                | 0.375               | 0.360               | 0.324               | 0.053              |
| Power Consumed by UUT(W) | 5.55W                | 3.98W               | 2.65W               | 1.45W               | 0.22W              |
| Efficiency               | 78.07%               | 79.07%              | 79.33%              | 77.98%              | *                  |
| Average Efficiency       | 78.61%               |                     |                     |                     | *                  |

**Tester : Wei**



|       |     |
|-------|-----|
| " + " | " " |
| 條紋    | 印字  |

**注意:此圖面所需材料符合"ROHS"標準**

- ① 5.5\*2.1\*21 音叉車溝黑色半邊 (YY-PD-00023), 外模P-184號模 (二次成型), 用料外PVC60P 黑色 (YY-PV-00009)
- ② SR-101 號模, 用料PVC60P 黑色 (YY-PV-00009), 吊重: 1米/20磅/60秒
- ③ UL 2468 18AWG(0.16\*41)\*2C BK OD: 2.2\*4.4 (YY-DC-00091) 裁線長度: 1120+10/-0
- ④ PE有鐵芯 紮帶 12CM 黑色 (YY-ES-00001)
- ⑤ 絕緣阻抗: 20Ω, 導通阻抗: 1.5Ωmax
- ⑥ 單位: MM

|    |             |               |
|----|-------------|---------------|
| 料號 | R44M1G10012 |               |
| 客戶 | 阿達特         | 制圖 吳遠松        |
| 版次 | 01          | 初審            |
| 頁數 | 01          | 審核            |
|    |             | 批准            |
| 圖號 | ADT-1793    | 日期 2010/08/20 |