
Specification for Approval

Customer : **Linkman Co.,Ltd**

Part Name : **AC ADAPTER**

Description : **12.0 Volts / 1.0 Amps**

Model No. : **STD-12010U2(USA/Level V)**

Customer P / N :

Product P / N : **RXTD12010U415212**

Issued Date : **21-Jun.-2010**

Version : **1.0**

Issued Stamp :

Customer's Approval Signature

1. Feature :

- ◆ **Input** : **Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.**
- ◆ **Output** : **+12.0V / 0~1.0A**
- ◆ **Case Dimension** : **72(L) * 34(W) * 59(H) mm**
- ◆ **Efficiency** : **Eff (av) \geq 77.85%**
- ◆ **Safety** : **UL / CUL / PSE / BSMI / CB**
- ◆ **EMI** : **FCC Class B ; Conduction & Radiation Meet**
- ◆ **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	0.31A Max.
2.4 Inrush Current	30A Max. / 100Vac ; 60A Max. / 240Vac (Cold start At 25 °C , full load)
2.5 Efficiency	Eff (av) \geq 77.85 % (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi \leq 0.3 W (At 115 Vac & 230 Vac & 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	+12.00V \pm 5%
	Current	1.0A Max.
	Regulation	11.40Vmin. ~ 12.00Vtyp. ~ 12.60Vmax.
	Ripple & Noise	120 mVpp Max.
	Total Power	12.0W 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)	V out *180%(Max)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	2.5A (Max)(Auto Recovery)

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 shutdown.

5. Safety 、EMI and EMC Requirement :

5.1 Safety Requirement

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

b. Dielectric Strength : Cut off current 10mA

(1)	Primary to Secondary	3000Vac 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 : FCC Class B ; Conduction & Radiation Meet

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 hours min. (at 25°C, by MIL-HDBK-217F)

8. Mechanical :

8.1 Weight : 114 g Typical

8.2 Cable Type : Black UL2468 22AWG
(Wire + Plug)

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

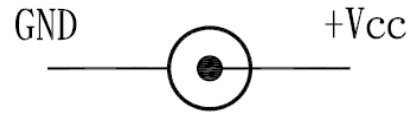
Cable Drawing No. : ADT-1130

8.3 Cable Length : 1500mm

8.4 Case Dimension : 72mm(L)*34mm(W)*59mm(H)

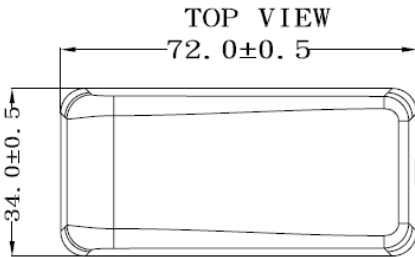
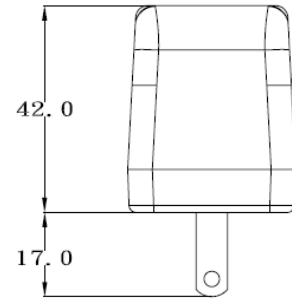
8.5 Material Flammability : UL 94V-0

8.6 External Apperance : As drawing below (Scale \rightarrow mm)

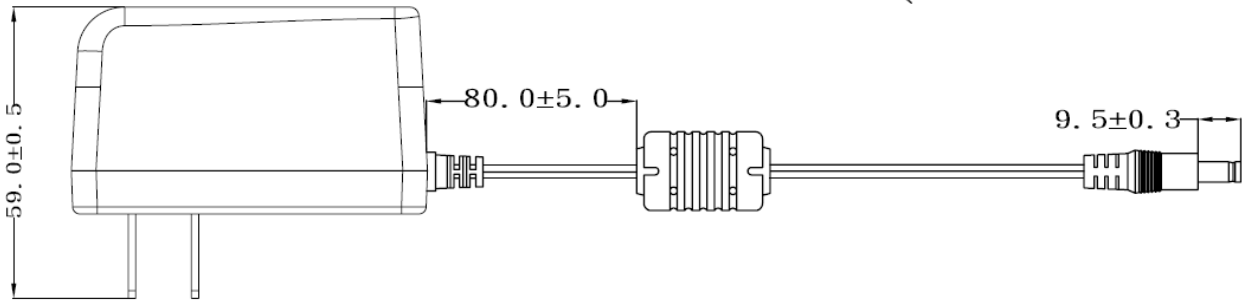


Output Cable Plug Pin Assignment

Front-View

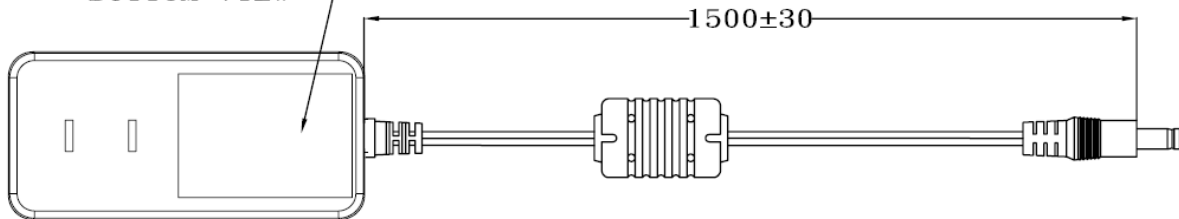


SIDE VIEW



LABEL

BOTTOM VIEW



A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.40 V ~ 12.60 V	12.096 V	12.080 V	12.060 V
115Vac / 50 % Load	11.40 V ~ 12.60 V	12.096 V	12.080 V	12.060 V
132Vac / 50 % Load	11.40 V ~ 12.60 V	12.096 V	12.080 V	12.060 V
180Vac / 50 % Load	11.40 V ~ 12.60 V	12.095 V	12.087 V	12.056 V
230Vac / 50 % Load	11.40 V ~ 12.60 V	12.095 V	12.087 V	12.056 V
264Vac / 50 % Load	11.40 V ~ 12.60 V	12.095 V	12.087 V	12.056 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	77.85 % Min.	82.67 %	82.59 %	81.06 %
230Vac	77.85 % Min.	80.12 %	79.36 %	80.26 %

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

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	11.40 V ~ 12.60 V	12.179 V	12.175 V	12.160 V
115Vac / 50 % Load	11.40 V ~ 12.60 V	12.079 V	12.080 V	12.060 V
115Vac / 100 % Load	11.40 V ~ 12.60 V	11.979 V	11.983 V	11.961 V
230Vac / 0 % Load	11.40 V ~ 12.60 V	12.178 V	12.184 V	12.159 V
230Vac / 50 % Load	11.40 V ~ 12.60 V	12.080 V	12.087 V	12.056 V
230Vac / 100 % Load	11.40 V ~ 12.60 V	11.980 V	11.990 V	11.949 V

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120mVpp Max.	26.4 mVpp	26.4 mVpp	26.8 mVpp
230Vac / 100 % Load	120mVpp Max.	25.4 mVpp	25.4 mVpp	25.7 mVpp

E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	30A Max	12.0 A	12.0 A	12.1 A
230Vac / 100 % Load	60A Max	22.6 A	22.6 A	22.68A

F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	2.5A (Max)	1.69 A	1.56 A	1.59 A
230Vac / 100 % Load	2.5A (Max)	1.91 A	1.78 A	1.82 A

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
115Vac / 0 % Load	≤ 0.3 W	0.20W 0.21W	0.19W	
230Vac / 0 % Load	≤ 0.3 W	0.21W 0.22W	0.19W	

Efficiency Test Report

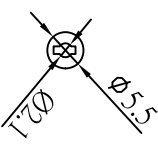
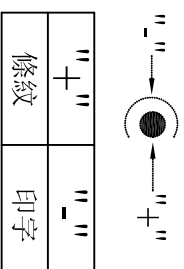
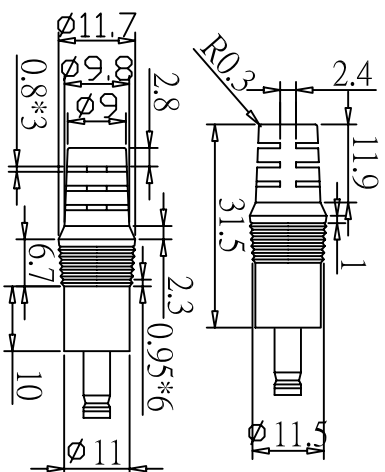
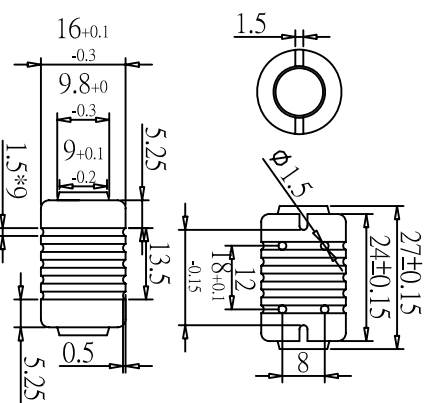
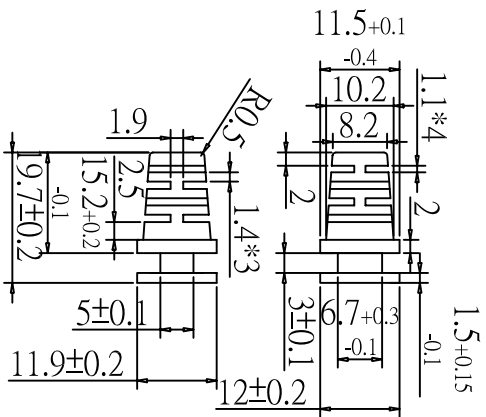
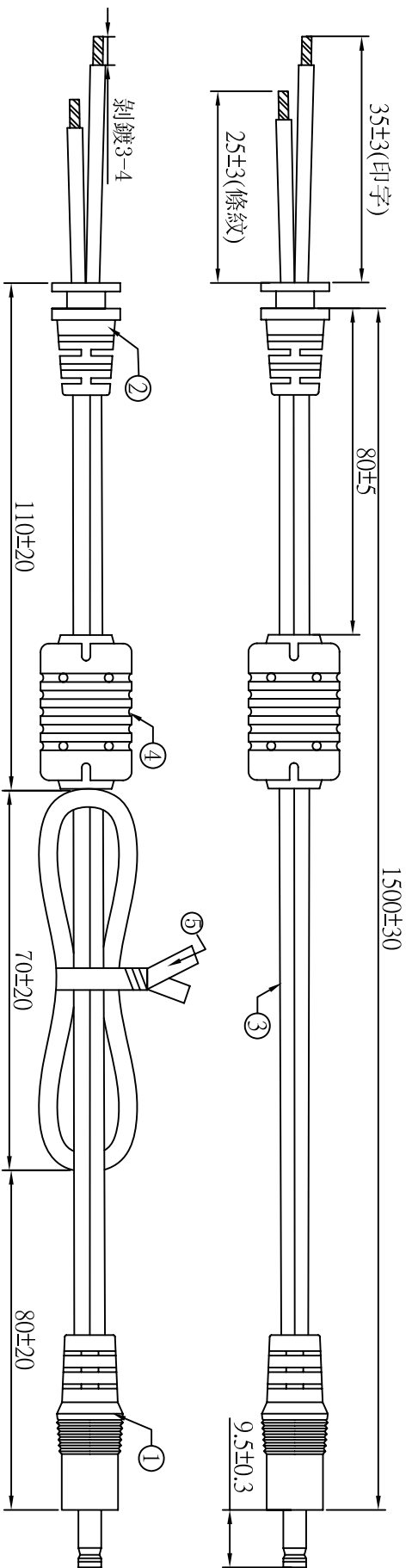
- A. **Model Number** : STD-12010Y2 (Y=A,B,C,E,K,U,R)(12.0V /1.0A /12.0W)
- B. **DC Power Cord** : UL2468 , 22AWG , 1.5M
- C. **Average Efficiency** :
- Energy Star V** (0.0626*Ln(Nameplate OutputW)+0.622) =77.76 % Min.
- Erp (Stage 2)** (0.063*Ln(Nameplate OutputW)+0.622) =77.85 % Min.
- MEPS V** (0.0626*Ln(Nameplate OutputW)+0.622) =77.76 % 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** :
1. **AC Power Source** : " Zentech " 2700M-10
2. **Electronic Load** : " PRODIGIT " 3311C
3. **Power Meter** : " YOKOGAWA " WT210
4. **Digital Meter** : " FLUKE " 45
- F. **AC Input Voltage** : 115Vac/60Hz

Load Conditions Reported Quantity	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Rms Output Current(mA)	1000mA	750mA	500mA	250mA	0mA
Rms Output Voltage(V)	11.874V	11.939V	12.005V	12.070V	12.136V
Active Output Power(W)	11.87W	8.95W	6.00W	3.02W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	0.229A	0.179A	0.128A	0.076A	0.007A
Rms Input Power(W)	14.70W	10.91W	7.23W	3.85W	0.19W
Voltage T.H.D.(%)	0.13	0.12	0.14	0.12	0.12
True Power Factor	0.558	0.528	0.490	0.436	0.244
Power Consumed by UUT(W)	2.83W	1.96W	1.23W	0.83W	0.19W
Efficiency	80.78%	82.07%	83.02%	78.38%	*
Average Efficiency	81.06%				*

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

Load Conditions Reported Quantity	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Rms Output Current(mA)	1000mA	750mA	500mA	250mA	0mA
Rms Output Voltage(V)	11.865V	11.928V	11.995V	12.062V	12.129V
Active Output Power(W)	11.87W	8.95W	6.00W	3.02W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.150A	0.115A	0.082A	0.047A	0.008A
Rms Input Power(W)	14.70W	10.87W	7.43W	3.90W	0.19W
Voltage T.H.D.(%)	0.15	0.14	0.11	0.10	0.10
True Power Factor	0.433	0.412	0.393	0.359	0.112
Power Consumed by UUT(W)	2.84W	1.92W	1.43W	0.88W	0.19W
Efficiency	80.71%	82.30%	80.72%	77.32%	*
Average Efficiency	80.26%				*

Tester : Chihwei



注意:此圖面所需材料符合"ROHS"標準

- ① 5.5*2.1*23 音叉串溝黑色半邊 (YY-PD-00186), 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 22AWG(0.16*17)*2C BK OD:1.8*3.6 (YY-DC-00025) 裁線長度:1560+10/-0
- ④ 鐵芯:12*20*5.6, 外模P-136號模(二次成型), 用料外PVC40P黑色 (YY-PV-00009)
- ⑤ PE有鐵芯紮帶12CM 黑色 (YY-ES-00001)
- ⑥ 絕緣阻抗:20Ω, 導通阻抗:1.5Ωmax
- ⑦ 單位:MM

料號	R44MIC15016		
客戶	阿達特		
版次	02	制圖	吳远松
頁數	01	初審	
		審核	
		批准	
圖號	ADT-1130	日期	2010/04/20
版次	02	變更內容	
		繞線尺寸	