Specification for Approval

Customer	:	**Linkman Co.,Ltd**
Part Name	:	**AC ADAPTER**
Description	:	**3.3Volts / 2.0Amps**
Model No.	:	**STD-03320U2 (USA/Level V)**
Customer P / N	:	
Product P / N	:	**RXTD03320U415201**
Issued Date	:	**22-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** ： **+3.3V / 0~2.0 A**
- ♦ **Case Dimension** ： **72(L) * 34(W) * 59(H) mm**
- ♦ **Efficiency** ： **Eff (av) ≧ 70.25%**
- ♦ **Safety** ： **CUL / UL / 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. / 230Vac (Cold Start At 25 ºC，Full Load)**
2.5 Efficiency	**Eff (av) ≧ 70.25 % (At 115 Vac & 230 Vac)**
2.6 Power Consumption	**Pi ≦ 0.3 W (At 115 Vac & 230Vac & No Load)**

※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**	**+3.3V ± 10%**
	Current	**2.0A Max.**
	Regulation	**2.97Vmin. ~ 3.30Vtyp. ~ 3.63Vmax.**
	Ripple & Noise	**100 mVpp Max.**
	Total Power	**6.6W 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)	V out *180%(Max)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	5.0A (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 ： CUL / UL / PSE / BSMI / CB

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 Meet

5.3 Leakage Current ： Less than 0.25mA

6. Operation and Environment Performance：

6.1 Temperature Range

Operating	+ 0ºC ~ + 40ºC
Storage	- 20 ºC ~ + 80 ºC

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 25ºC, by MIL-HDBK-217F)

8.Mechanical :

8.1 Weight : 130 g Typical

8.2 Cable Type : Black UL2468 18AWG

(Wire + Plug)

Plug : ø5.5*ø2.1*9.5mm

(Tuning Fork & Cannelure)

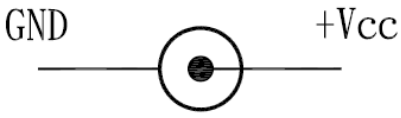
Cable Drawing No. : ADT-1229

8.3 Cable Length : 1500mm

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

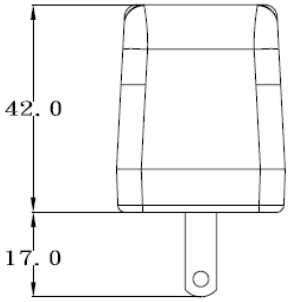
8.5 Material Flammability : UL 94V-0

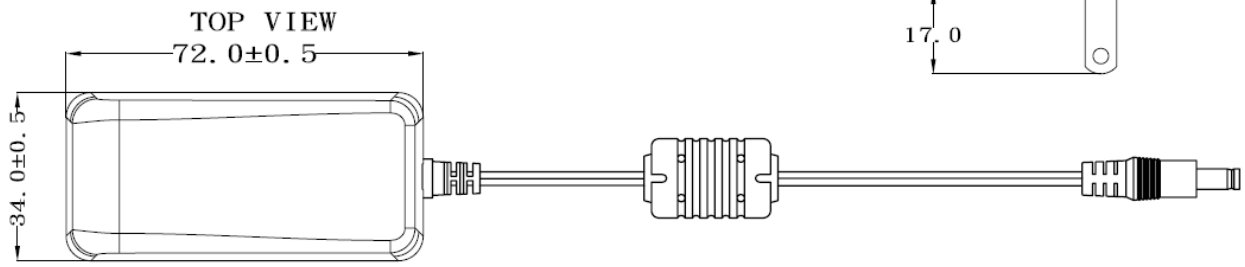
8.6 External Apperance : As drawing below (Scale → mm)

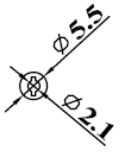


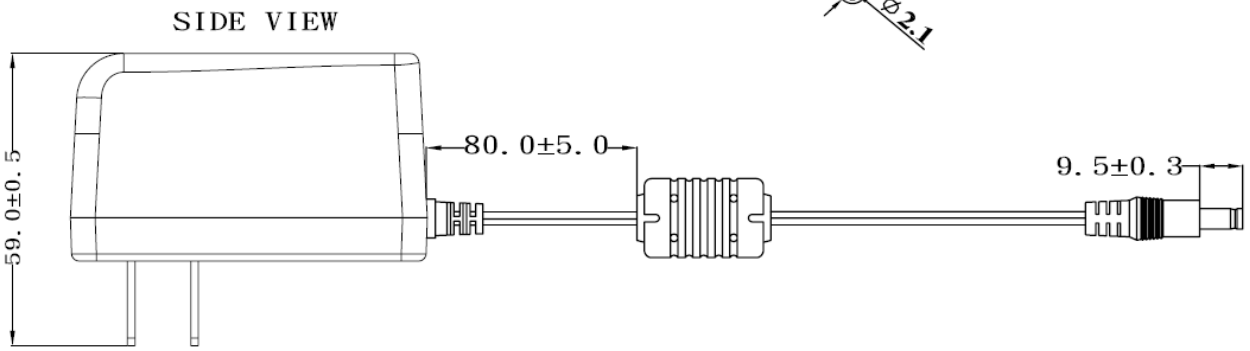
Output Cable Plug Pin Assignment

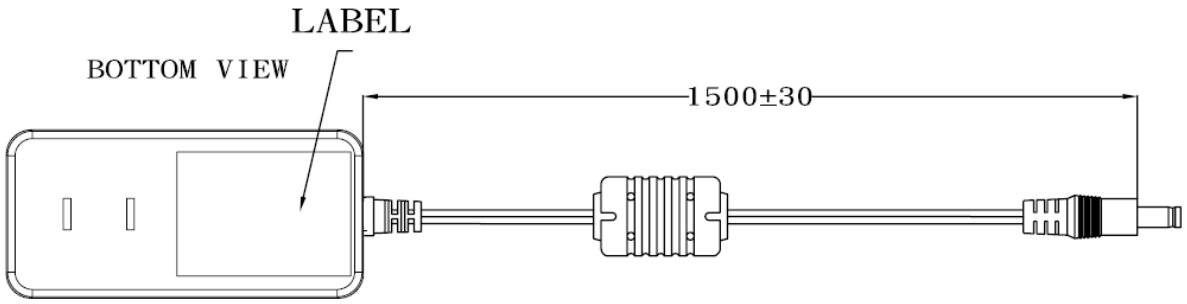
Front-View











A. Line Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	2.97~3.63 V	3.396 V	3.400 V	3.389 V
115Vac / 50 % Load	2.97~3.63 V	3.396 V	3.400 V	3.389 V
132Vac / 50 % Load	2.97~3.63 V	3.396 V	3.400 V	3.389 V
180Vac / 50 % Load	2.97~3.63 V	3.396 V	3.399 V	3.389 V
230Vac / 50 % Load	2.97~3.63 V	3.396 V	3.399 V	3.389 V
264Vac / 50 % Load	2.97~3.63 V	3.396 V	3.399 V	3.389 V

B. Efficiency Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	70.25 % Min.	73.18 %	73.25 %	73.85 %
230Vac	70.25 % Min.	70.40 %	70.39 %	70.63 %

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

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	2.97~3.63 V	3.498 V	3.496 V	3.491 V
115Vac / 50 % Load	2.97~3.63 V	3.396 V	3.400 V	3.389 V
115Vac / 100 % Load	2.97~3.63 V	3.294 V	3.302 V	3.287 V
230Vac / 0 % Load	2.97~3.63 V	3.498 V	3.496 V	3.491 V
230Vac / 50 % Load	2.97~3.63 V	3.396 V	3.399 V	3.389 V
230Vac / 100 % Load	2.97~3.63 V	3.294 V	3.302 V	3.286 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	100 mVpp Max.	31.8mVp-p	29.8mVp-p	24.8mVp-p
230Vac / 100 % Load	100 mVpp Max.	36.8mVp-p	30.1mVp-p	26.8mVp-p

E. Inrush Current

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	30A Max	12.4 A	12.3 A	12.3 A
230Vac / 100 % Load	60A Max	23.2 A	23.3 A	23.2 A

F. Over Current Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	5.0A Max.	2.87 A	2.73 A	2.97 A
230Vac / 100 % Load	5.0A Max.	3.31 A	3.28 A	3.43 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	≤ 0.3W	0.16W	0.23W	0.22W
230Vac / 0 % Load	≤ 0.3W	0.19W	0.25W	0.24W

Efficiency Test Report

A. Model Number : STD-03320Y2(Y=A,B,C,E,K,U,R)(3.3V /2.0A /6.6W)

B. DC Power Cord : UL2468 , 18AWG , 1.5M

C. Average Efficiency :

Energy Star V (0.075*Ln(Nameplate OutputW)+0.561) =70.25 % Min.

Erp (Stage 2) (0.075*Ln(Nameplate OutputW)+0.561) =70.25 % Min.

MEPS V (0.075*Ln(Nameplate OutputW)+0.561) =70.25 % 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 Dequipment :

1. AC Power Source : " Zentech " 2700M-10

2. Electronic Load : " PRODIGIT " 3311C

3. Power Meter : " YOKOGAWA " WT210

4. Digital Meter : " FLUKE " 45

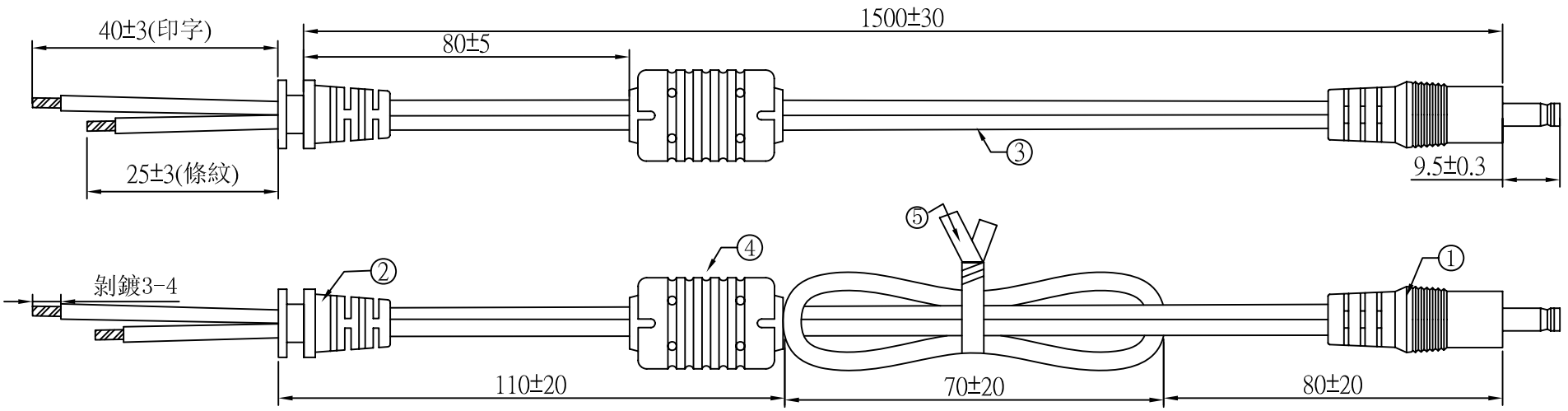
F. AC Input Voltage : 115Vac/60Hz

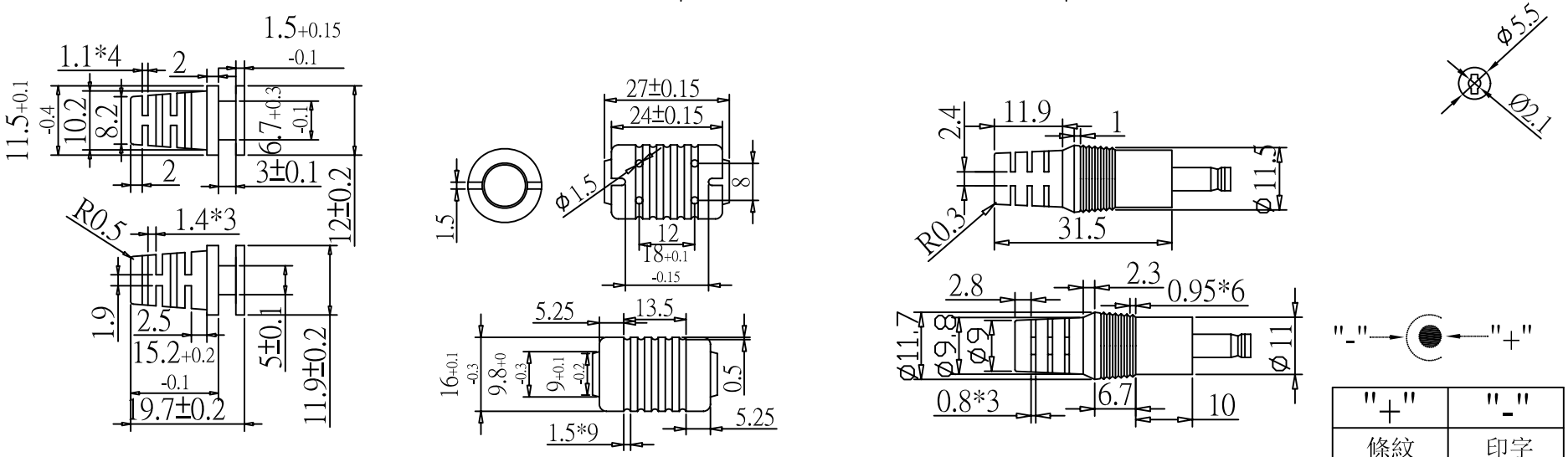
Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	0%* I_0
Rms Output Current(mA)	2000mA	1500mA	1000mA	500mA	0mA
Rms Output Voltage(V)	3.287V	3.338V	3.389V	3.440V	3.491V
Active Output Power(W)	6.57W	5.01W	3.39W	1.72W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	0.149A	0.118A	0.084A	0.050A	0.007A
Rms Input Power(W)	9.00W	6.76W	4.44W	2.39W	0.22W
Voltage T.H.D.(%)	0.16	0.17	0.13	0.12	0.13
True Power Factor	0.523	0.494	0.457	0.414	0.262
Power Consumed by UUT(W)	2.43W	1.75W	1.05W	0.67W	0.22W
Efficiency	73.04%	74.07%	76.33%	71.97%	*
Average Efficiency	73.85%				*

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)	2000mA	1500mA	1000mA	500mA	0mA
Rms Output Voltage(V)	3.286V	3.338V	3.389V	3.440V	3.491V
Active Output Power(W)	6.57W	5.01W	3.39W	1.72W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.100A	0.078A	0.058A	0.034A	0.008A
Rms Input Power(W)	9.26W	6.81W	4.84W	2.53W	0.24W
Voltage T.H.D.(%)	0.11	0.11	0.10	0.10	0.09
True Power Factor	0.401	0.381	0.364	0.326	0.137
Power Consumed by UUT(W)	2.69W	1.80W	1.45W	0.81W	0.24W
Efficiency	70.97%	73.52%	70.02%	67.98%	*
Average Efficiency	70.63%				*

Tester : Chihwei





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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: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

版次	变更内容
02	绕线尺寸及后留长度

料號	R44M1G1501X		
客戶	阿達特	制圖	吳远松
版次	02	審核	
頁數	01	批準	
圖號	ADT-1229	日期	2010/06/21