Specification for Approval

Customer	:	**Linkman Co.,Ltd.**
Part Name	:	**AC ADAPTER**
Description	:	**12Volts / 1.6 Amps**
Model No.	:	**STD-12016U (USA / Level V)**
Customer P / N	:	
Product P / N	:	**RXTD12016U415211**
Issued Date	:	**27 – Jan. – 2015**
Version	:	**A1**
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

19.2W
AC Adapter
SPECIFICATION

Model No.	:	**STD-12016U (USA / Level V)**
Description	:	**12 Volts / 1.6 Amps**
Part No.	:	**RXTD12016U415211**
Version	:	**A1**
Date	:	**27 – Jan. – 2015**

Approved	Reviewed	Checked	Prepared	Sales
		阿達特 2015.01.27 張裕瑋	阿達特 2015.01.27 羅妍庭	Adapter Tech. 2015.01.29 StefanieWu

Approval Documents/Spec. Revised Records

- Customer : Linkman Co.,Ltd.
- Model No. : STD-12016U
- Original Documents Content : Spec.__10__Pages, Attachment___2___Pages

Revised Records : No.	Date	Description (Before / After)	Page(s) Revised	Revised By (Adapter/Customer)	Remark
1	Jan./27/2015	Issue	-	Wei	A1
2					
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1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.**
- ♦ **Output** ： **+12V / 0~1.6 A**
- ♦ **Case Dimension** ： **72 (L) * 34 (W) * 69 (H) mm (±0.5mm)**
- ♦ **Efficiency** ： **Eff (av) ≧ 80.81 % Min.**
- ♦ **Safety** ： **PSE**
- ♦ **EMI** ： **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	**0.48A Max.**
2.4 Inrush Current	**60A Max. / 230Vac(Cold Start At 25 ℃，Full Load)**
2.5 Efficiency	**Eff (av) ≧ 80.81 % Min. (At 115 Vac & 230 Vac)**
2.6 Power Consumption	**Pi ≦ 0.3 W (At 230 Vac & 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**	**+12V ± 5%**
	Current	**1.6A Max.**
	Regulation	**11.4Vmin. ~ 12.0Vtyp. ~ 12.6Vmax.**
	Ripple & Noise	**100 mV Max.**
	Total Power	**19.2W 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)	15V (MAX)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	3.5A (MAX)

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 ： PSE

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	+ 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.：300,000Hrs.(Calculated Hours at 25℃,By Telcordia SR-332)

8.Mechanical :

Output Cable Plug Pin Assignment

8.1 Weight : 165 g Typical

8.2 Cable Type : Black UL2468 AWG20

(Wire + Plug)

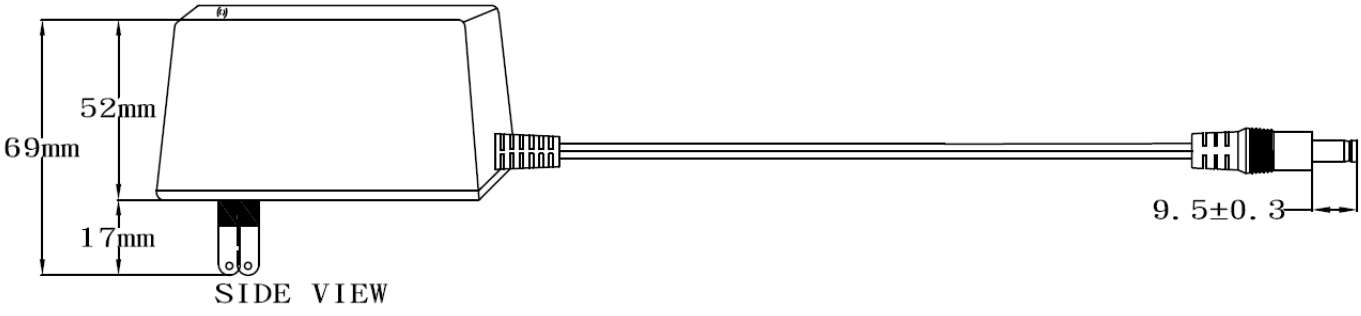
Plug : ø5.5*ø2.1*9.5mm (Tuning Fork & Cannelure)

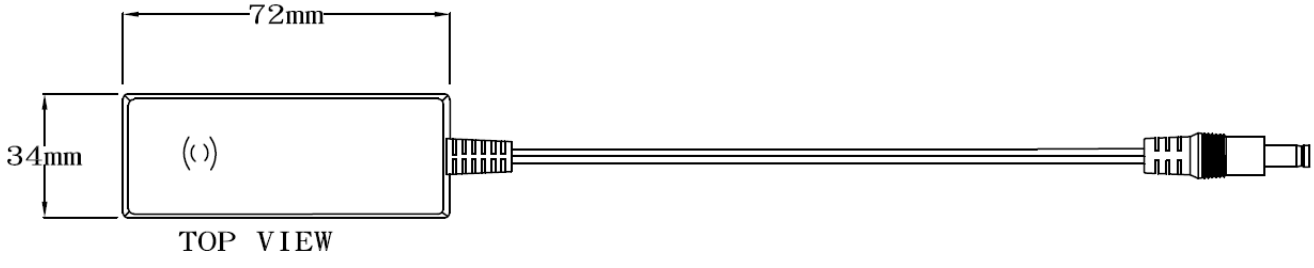
8.3 Cable Length : 1500mm

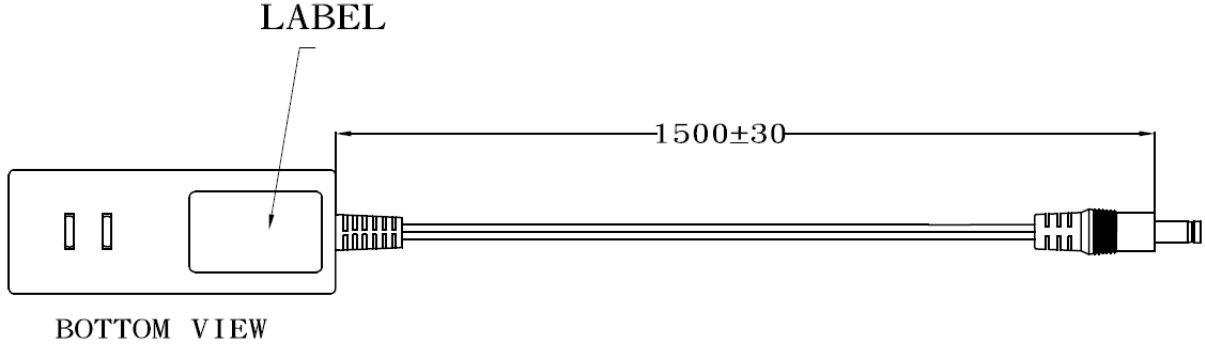
8.4 Case Dimension : 72mm(L)*34mm(W)*69mm(H) (±0.5mm)

8.5 Material Flammability : UL 94V-0

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

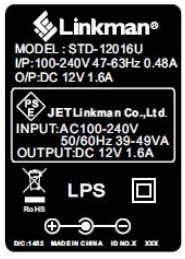




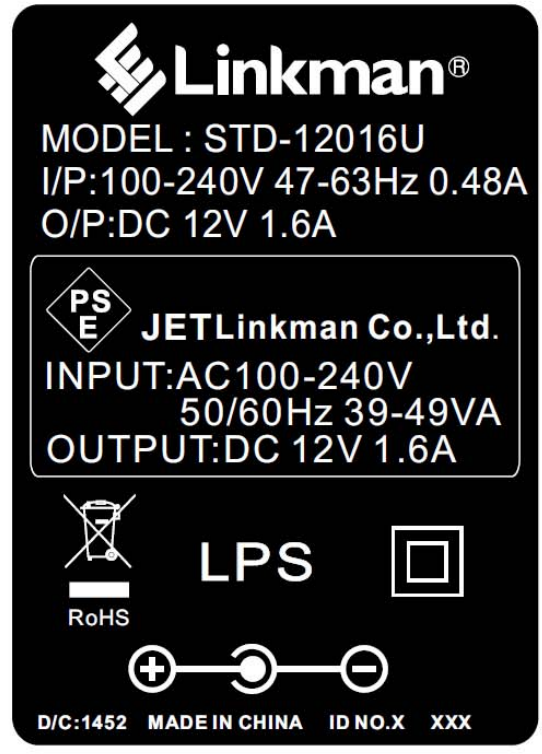


8.7 Spec. Label Materials : Metalized Polyester Label (Silver Gloss)
Color : Black Background with Silver Printing
Label Dimension : 34.5mm(L)*24.5mm(W)+/-0.1mm
Label Thickness : #75

100%



300%



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

ID NO."X"
Manufacturer's code.
It is accurate that the number of words depends on the real finished product.

Label Part No. :9443052530

A. Line Regulation Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.4~12.6 V	11.949 V	11.948 V	11.950 V
115Vac / 50 % Load	11.4~12.6 V	11.950 V	11.949 V	11.951 V
132Vac / 50 % Load	11.4~12.6 V	11.950 V	11.949 V	11.951 V
180Vac / 50 % Load	11.4~12.6 V	11.950 V	11.947 V	11.950 V
230Vac / 50 % Load	11.4~12.6 V	11.950 V	11.949 V	11.949 V
264Vac / 50 % Load	11.4~12.6 V	11.950 V	11.949 V	11.950 V

B. Efficiency Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	80.81 % Min..	80.89 %	81.11 %	80.98 %
230Vac	80.81 % Min..	81.90 %	81.43 %	81.33 %

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

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	11.4~12.6 V	12.075 V	12.073 V	12.074 V
115Vac / 50 % Load	11.4~12.6 V	11.950 V	11.948 V	11.949 V
115Vac / 100 % Load	11.4~12.6 V	11.824 V	11.825 V	11.822 V
230Vac / 0 % Load	11.4~12.6 V	12.075 V	12.077V	12.073 V
230Vac / 50 % Load	11.4~12.6 V	11.950 V	11.952V	11.948 V
230Vac / 100 % Load	11.4~12.6 V	11.824 V	11.822 V	11.822 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	100 mVpp Max.	37.6 mVpp	37.4 mVpp	37.9 mVpp
230Vac / 100 % Load	100 mVpp Max.	31.6 mVpp	31.9 mVpp	31.8 mVpp

E. Inrush Current

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 100 % Load	60A 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	3.5A Max.	2.41 A	2.39A	2.35A
230Vac / 100 % Load	3.5A Max.	3.01 A	3.15A	3.11A

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	0.27 W	0.27 W

Efficiency Test Report

A. Model Number : STD-12016Z (Z=A,B,C,E,K,T,U,V) (12V / 1.6A / 19.2W)

B. DC Power Cord : UL2468 , 20AWG , 1.8M

C. Average Efficiency :

Energy Star V (0.0626*Ln(Nameplate Output)+0.622) = 80.69 % Min.

Erp (Stage 2) (0.063*Ln(Nameplate Output)+0.622) = 80.81 % Min.

MEPS V (0.0626*Ln(Nameplate Output)+0.622) = 80.69 % 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 :

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

b. Electronic Load : " PRODIGIT " 3311C

c. Power Meter : " Zentech " 2100

d. Digital Meter : " FLUKE " 45

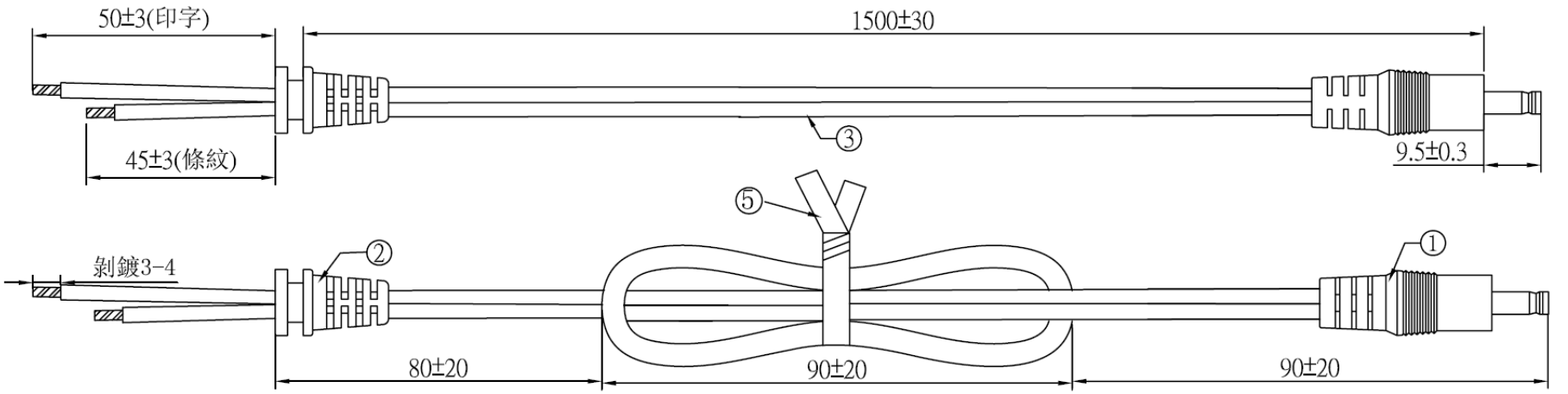
F. AC Input Voltage : 115Vac/60Hz

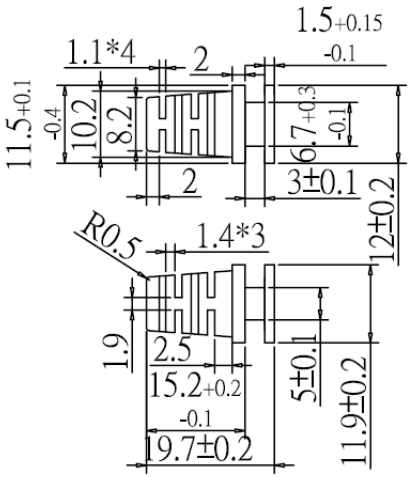
Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	0%* I_0
Rms Output Current(mA)	1600mA	1200mA	800mA	400mA	0mA
Rms Output Voltage(V)	11.954V	12.007V	12.060V	12.113V	12.167V
Active Output Power(W)	19.13W	14.41W	9.65W	4.85W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	0.390A	0.307A	0.225A	0.130A	0.011A
Rms Input Power(W)	23.57W	17.54W	11.73W	5.92W	0.21W
T.H.D. (Voltage)	0.18	0.19	0.17	0.14	0.1
True Power Factor	0.521	0.492	0.447	0.395	0.165
Power Consumed by UUT(W)	4.44W	3.13W	2.08W	1.08W	0.21W
Efficiency	81.15%	82.15%	82.25%	81.82%	*
Average Efficiency	81.84%				*

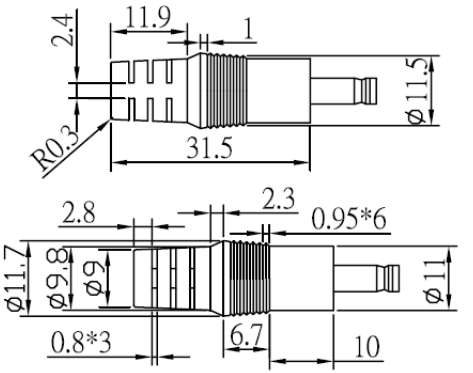
G. AC Input Voltage : 230Vac/50Hz

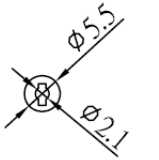
Load Conditions / Reported Quantity	100%* I_0	75%* I_0	50%* I_0	25%* I_0	0%* I_0
Rms Output Current(mA)	1600mA	1200mA	800mA	400mA	0mA
Rms Output Voltage(V)	11.955V	12.008V	12.061V	12.114V	12.168V
Active Output Power(W)	19.13W	14.41W	9.65W	4.85W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.267A	0.210A	0.147A	0.084A	0.015A
Rms Input Power(W)	23.28W	17.69W	11.90W	6.15W	0.26W
T.H.D. (Voltage)	0.22	0.18	0.15	0.12	0.09
True Power Factor	0.377	0.366	0.352	0.316	0.067
Power Consumed by UUT(W)	4.15W	3.28W	2.25W	1.30W	0.26W
Efficiency	82.16%	81.46%	81.08%	78.79%	*
Average Efficiency	80.87%				*

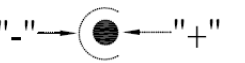
Tester : Wei











"+"	"-"
條紋	印字

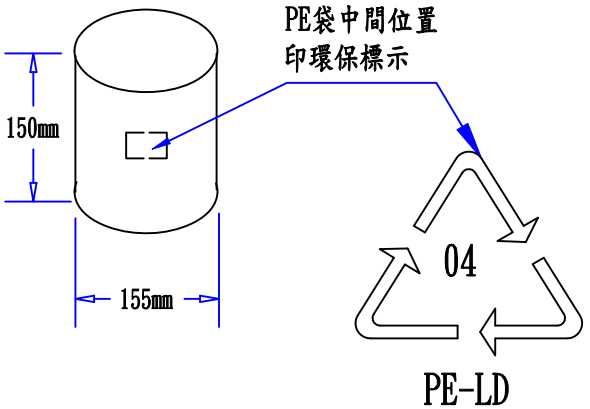
注意:此圖面所需材料符合"ROHS"標準

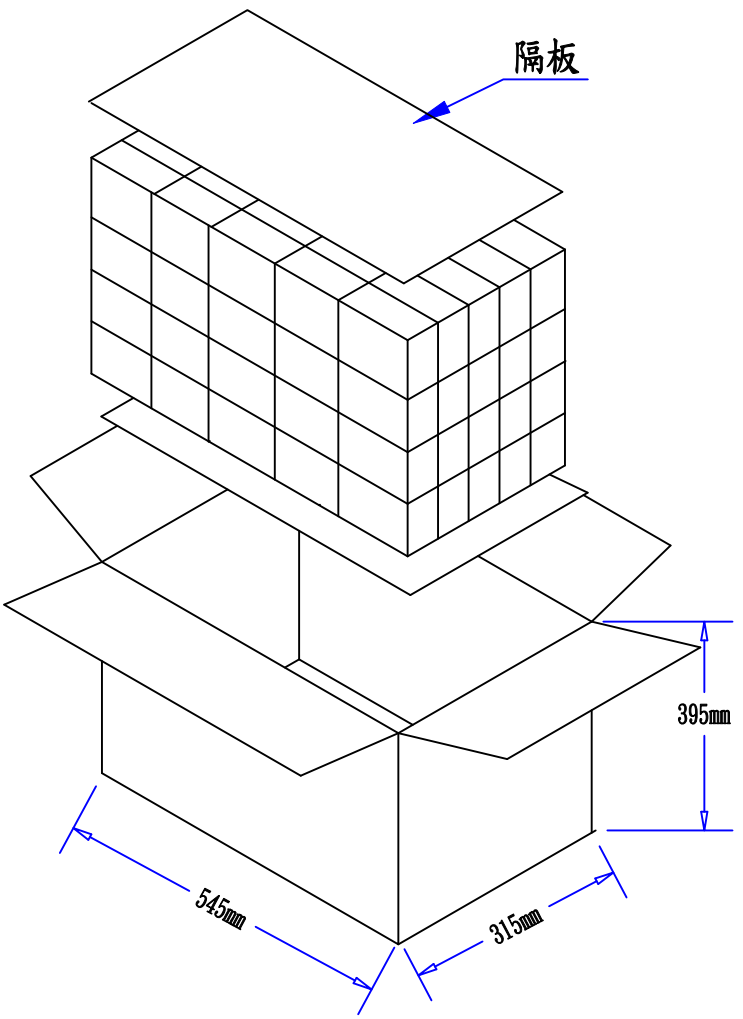
① 5.5*2.1*23音叉車溝黑色半邊(YY-PD-00186),外模P-184號模(二次成型),
用料外PVC60P黑色(YY-PV-00009)
② SR-101號模,用料PVC60P黑色(YY-PV-00009),吊重:1米/20磅/60秒
③ UL 2468 20AWG(0.16*26) BK OD:1.9*3.8(YY-DC-00164) 裁線長度:1560+10/-0
④ PE有鐵芯紮帶10CM黑色(YY-ES-00001)
⑤ 絕緣阻抗:20Ω,導通阻抗:1.5Ωmax
⑥ 單位:MM

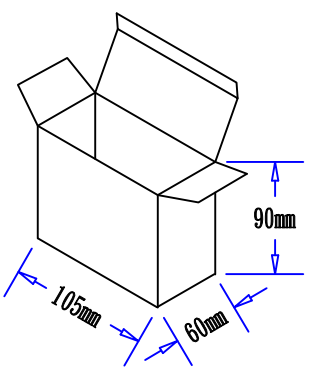
版次	內容
02	SR尺寸

料號	R44M1915013		
客戶	阿達特	制圖	劉鋒
版次	02	初審	
		審核	
頁數	01	批準	
圖號	ADT-0949	日期	2009/06/04

SHOW	REV	DESCRIPTION	DATE	APPROVED
0	A	初版制作	13/08/12	







PIS18W00048 包裝(FOR 18W,24W插墻式) 短環保PE泡袋厚0.09-白盒-100

9550006001 1.隔板:530(L)*300(W)*6mm B=B 2/100

2.數量:25*4=100PCS

9520006502 3.外箱:545(L)*315(W)*395(H)mm K=K 1/100

9510003502 4.白盒:105(L)*60(W)*90(H)mm 350P+CE(即C9紙加裱350磅白板紙) 1/1

9540008801 5.環保PE袋:150(L)*155(W)*0.09mm 無色透明,單端開口,中間位置印環保標示. 1/1

6.成品裝入PE袋后封好,再放入外箱,方向必須統一.

7.外箱,白盒標注為外徑尺寸

8.上述所有材料須符合環保ROHS標準.

	DRAWING NO. PIS18W00048		APPROVAL 1 BY		
	UNIT mm	MODEL NO.18W,24W(插牆式)	APPROVAL 2 BY		
		FILE NO. ADT-0211	CHECKED BY(ENGINEER)		
	SCALE	REV. A SHEET 1/1	DRAWN BY	李金朝	DATE: 2013/08/12