

# Specification for Approval

**Customer** : **Linkman Co.,Ltd.**

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

**Description** : **12 Volts / 5Amps**

**Model No.** : **ATS065- A120 (Level V)**

**Customer P / N** :

**Product P / N** : **ATS065A120415206**

**Issued Date** : **15-Oct.-2015**

**Version** : **A3**

**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**

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**60 W**  
**AC ADAPTER**  
**SPECIFICATION**

**Model No.** : **ATS065-A120 (Level V)**

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**Description** : **12Volts / 5Amps**

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**Part No.** : **ATS065A120415206**

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<b>Approved</b>	<b>Reviewed</b>	<b>Checked</b>	<b>Prepared</b>	<b>Sales</b>

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## ■ Approval Documents/Spec. Revised Records

■ Customer : Linkman Co.,Ltd.

■ Model No. : ATS065-A120

■ Original Documents Content : Spec. 10 Pages, Attachment 3 Pages

Revised Records : No.	Date	Description ( Before / After )	Page(s) Revised	Revised By (Adapter/Customer)	Remark
1	Oct./21/2013	ISSUE	-	Sun	A1
2	Dec./21/2013	Modify packing	A4	Sun	A2
3	Oct./15/2015	Modify Attachment	Attachment	李智杰	A3

## 1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ **Output** : +12V / 0~5A
- ◆ **Case Dimension** : 115 (L) \*53 (W) \* 38 (H) mm
- ◆ **Efficiency** : Eff (av)  $\geq$  87%
- ◆ **Safety** : UL / cUL / GS / PSE / BSMI / CB / RCM
- ◆ **EMI** : CE / 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 DoE / ErP ( Stage 2 ) / GEMS / NRCan**

## 2. Input :

2.1 Voltage	Universal 100~240Vac, single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	1.4A Max.
2.4 Inrush Current	80A Max. / 240Vac (Cold start at 25 °C , full load)
2.5 Efficiency	Eff (av) $\geq$ 87% (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi $\leq$ 0.5 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	+12V $\pm$ 5%
	Current	5 A Max.
	Regulation	11.40Vmin. ~ 12.00Vtyp. ~ 12.60Vmax.
	Ripple & Noise	120mV Max.
	Total Power	60 W Max.

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

#### 4. Protection :

4.1 Over Voltage Protection (OVP)	(V out *150%) Max.
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	(I out *180%) 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 latch .

#### 5. Safety 、 EMI and EMC Requirement :

##### 5.1 Safety Requirement

a. Safety : UL / cUL / GS / PSE / BSMI / CB / RCM

b. Dielectric Strength : Cut off current 10mA

	Primary to Secondary	3000Vac for 1 Minute
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c. Insulation Resistance :

	Primary to Secondary	10 M ohm for 500Vdc
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5.2 EMI Requirement : CE / FCC Class B ; Conduction & Radiation Met.

5.3 Leakage Current : Less than 0.25 mA

#### 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. : 300,000 Hrs.(Calculated Hours At 25°C , By Telcordia SR-332)

## 8. Mechanical :

8.1 Weight : 310 g Typical

8.2 Cable Type : Black UL1185 AWG16  
( Wire + Plug )

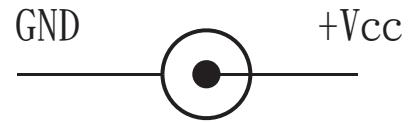
Plug :  $\phi 5.5 * \phi 2.1 * 9.5 \text{mm}$   
(Cannelure)

8.3 Cable Length : 1500mm

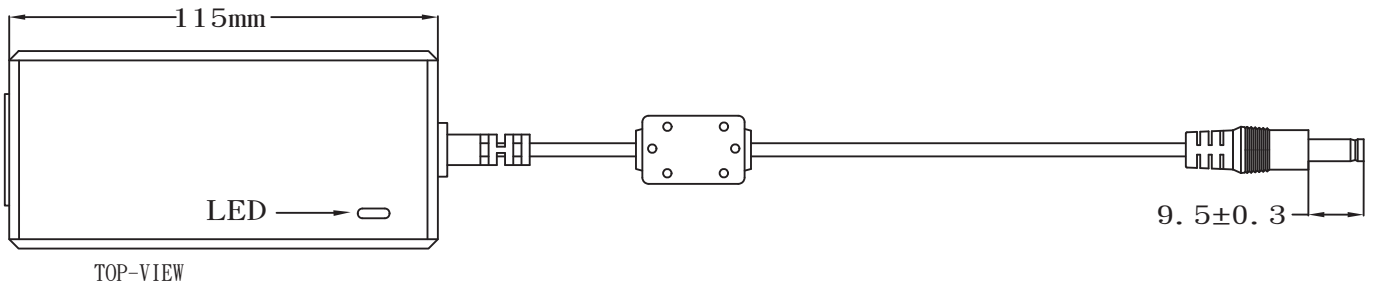
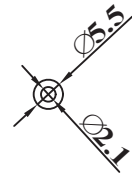
8.4 Case Dimension : 115mm(L)\*53mm(W)\*38mm(H)

8.5 Material Flammability : UL 94V-0

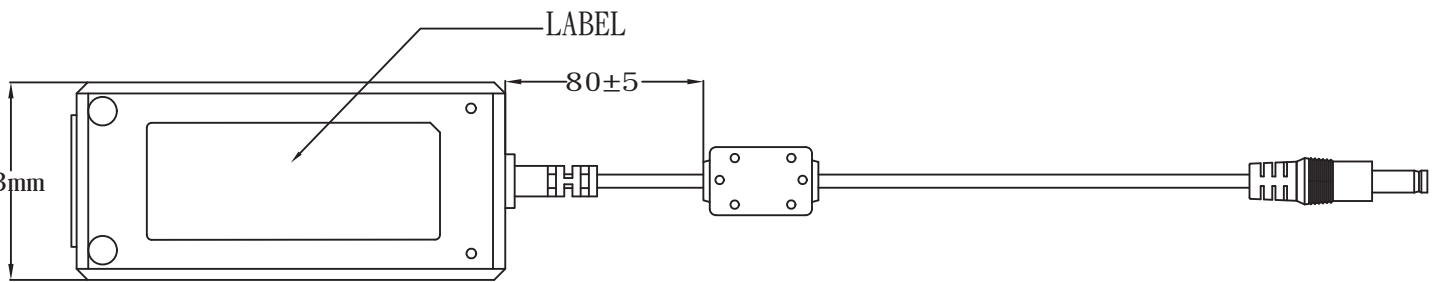
8.6 External Apperance : As drawing below ( Scale  $\rightarrow$  mm )



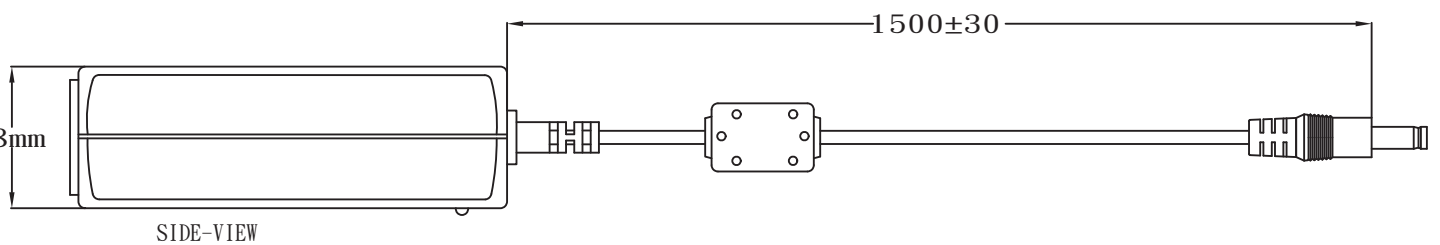
Output Cable Plug Pin Assignment



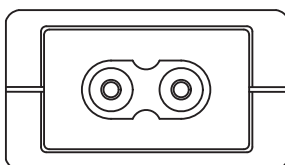
TOP-VIEW



BOTTOM-VIEW



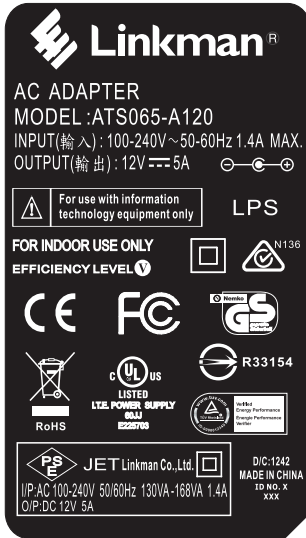
SIDE-VIEW



FRONT-VIEW

**8.7 Spec. Label Materials : Metalized Polyester Label ( Silver Gloss )**  
**Color : Black Background with Silver Printing**  
**Label Dimension : 70.8mm(L)\*40.4mm(W)+/-0.1mm**  
**Label Thickness : 75#**

100%



"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.**

200%



**Label Part No.:9443042420**  
**REV.:A**

## A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
132Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.09 V
180Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.09 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.09 V
264Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.10 V	12.10 V

## B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87 % Min.	87.12 %	87.32 %	87.08 %
230Vac	87 % Min.	87.36 %	87.55%	87.16 %

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

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	11.4 V ~ 12.6 V	12.25 V	12.23 V	12.22 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.08 V
115Vac / 100 % Load	11.4 V ~ 12.6 V	11.97 V	11.95 V	11.94 V
230Vac / 0 % Load	11.4 V ~ 12.6 V	12.25 V	12.23 V	12.22 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.11 V	12.09 V	12.09 V
230Vac / 100 % Load	11.4 V ~ 12.6 V	11.97 V	11.95 V	11.93 V



## D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120mV Max.	63.4 mV	60.8 mV	65.4 mV
230Vac / 100 % Load	120mV Max.	61.2 mV	62.1 mV	63.3 mV

## E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	80A Max	63 A	65 A	64 A

## F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	(I out *180%) Max.	122 %	120 %	121 %
230Vac / 100 % Load	(I out *180%) Max.	121 %	122 %	123 %

## 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	$\leq 0.5$ W	0.25 W	0.28 W	0.27 W

## Efficiency Test Report

- A. Model Number : ATS065-A120 (12.0V/5.0A/60.0W)  
 B. DC Power Cord : UL1185,16AWG,1.5M  
 C. Average Efficiency :  
     LEVEL V : 87%Min.  
 D. NO Load Power Consumption :  
     LEVEL V : 0.5W max.  
 E. Testing equipment :  
     1. AC Power Source : " ALL POWER "      APW-110N  
     2. Electronic Load : " PRODIGIT "      3311C  
     3. Power Meter : " Zentech "      WT210  
     4. Digital Meter : " FLUKE "      79III  
 F. AC Input Voltage : 115Vac/60Hz

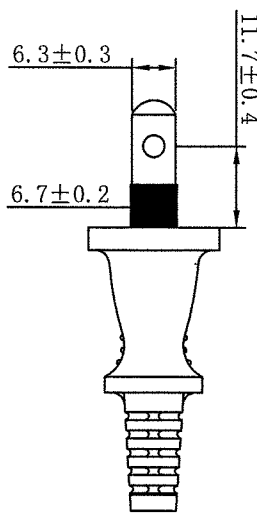
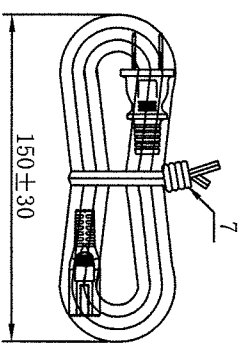
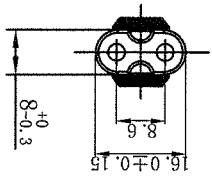
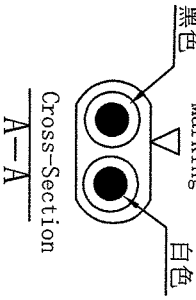
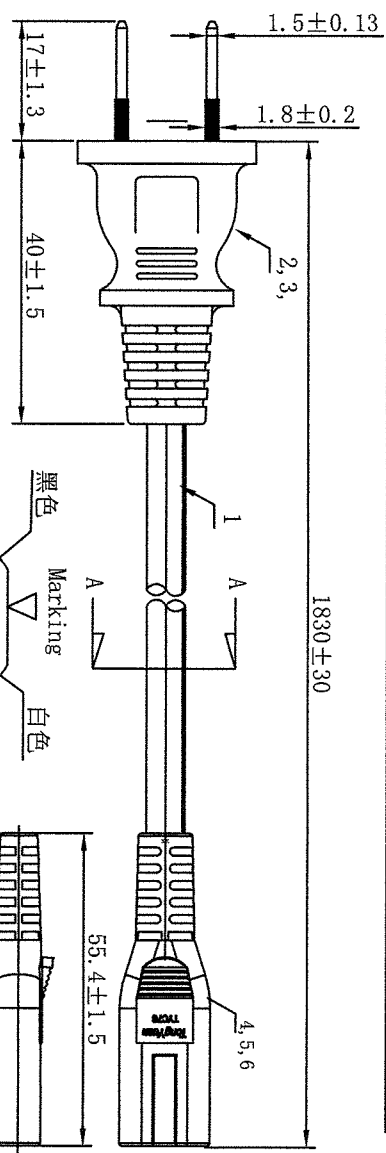
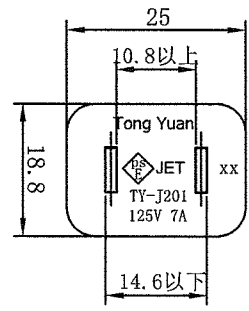
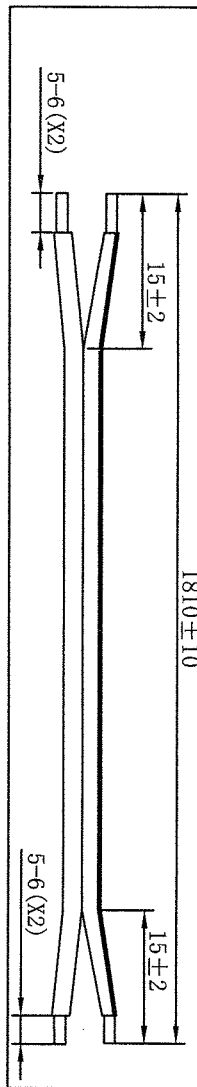
Load Conditions Reported Quantity	100%* I <sub>0</sub>	75%* I <sub>0</sub>	50%* I <sub>0</sub>	25%* I <sub>0</sub>	0%* I <sub>0</sub>
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	11.970V	12.040V	12.110V	12.180V	12.250V
Active Output Power(W)	59.85W	45.15W	30.28W	15.23W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.198A	0.957	0.687A	0.372A	0.015A
Rms Input Power(W)	69.81W	52.05W	34.45W	17.28W	0.15W
Voltage T.H.D.(%)	0.51	0.46	0.35	0.21	0.11
True Power Factor	0.507	0.473	0.436	0.403	0.086
Power Consumed by UUT(W)	9.96W	6.90W	4.18W	2.06W	0.15W
Efficiency	85.73%	86.74%	87.88%	88.11%	*
Average Efficiency	87.12%				*

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

Load Conditions Reported Quantity	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>
Rms Output Current(mA)	5000mA	3750mA	2500mA	1250mA	0mA
Rms Output Voltage(V)	11.970V	12.040V	12.110V	12.180V	12.250V
Active Output Power(W)	59.85W	45.15W	30.28W	15.23W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.700A	0.532A	0.369A	0.204A	0.024A
Rms Input Power(W)	69.32W	51.09W	34.13W	17.70W	0.25W
Voltage T.H.D.(%)	0.50	0.42	0.32	0.22	0.11
True Power Factor	0.431	0.417	0.402	0.378	0.045
Power Consumed by UUT(W)	9.47W	5.94W	3.86W	2.48W	0.25W
Efficiency	86.34%	88.37%	88.70%	86.02%	*
Average Efficiency	87.36%				*

**Tester : Mingan**

1810±10		版本	改变内容	制作人	日期
5-6 (X2)		A/0	初版发行	彭力	2015/07/28

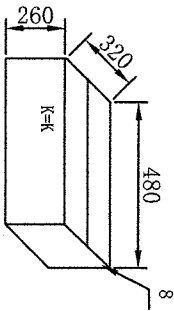


电线印字 (油印)

<PS>E TYAI JET S. TONGYUAN. I VVF 2×0.75mm<sup>2</sup>-F-XXXX LF  
XXXX表示生产年份

电线结构

导体		绝缘		外被	
导体	导体结构	绝缘厚度	绝缘	绝缘厚度	外被
(AWG/AMF)	(根数/MM)	(MM)	(MM)	(MM)	(MM)
0.75	30/0.18	0.72	2.7±0.1	4±0.15	2.7±0.1x5.4±0.15

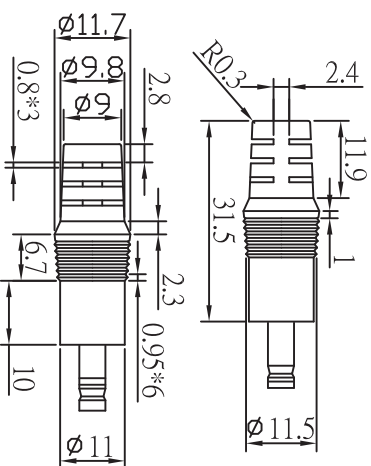
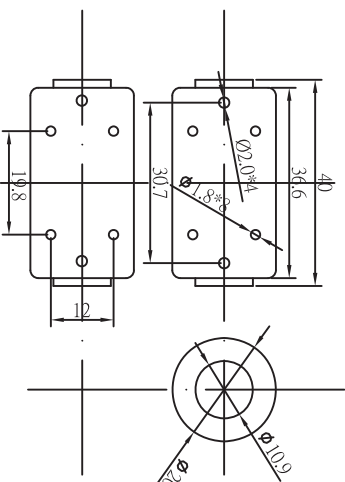
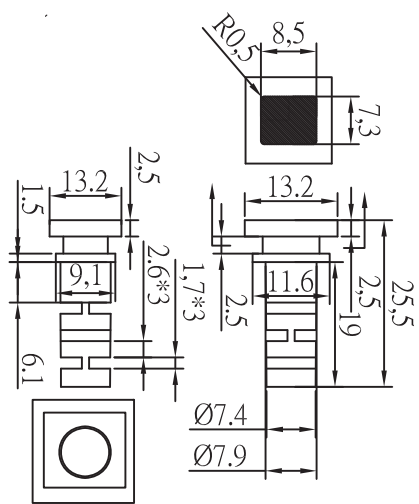
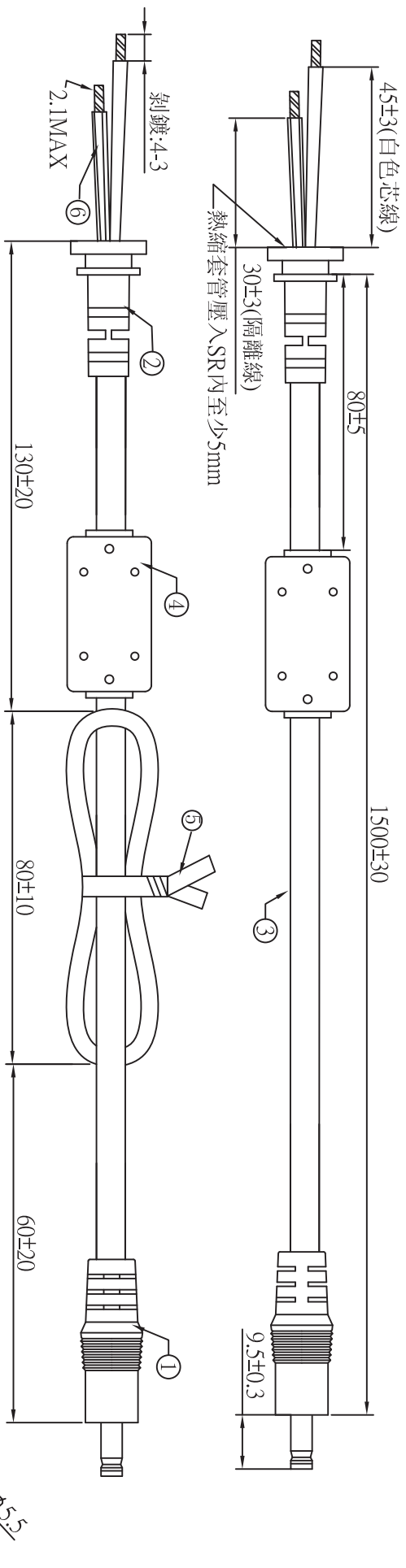


装箱要求:  
1. 10PCS 每把.

S/N	DESCRIPTION	ITEM NO	QTY
9	纸箱K=K 48*32*26CM 普通	41-0003N	0.0033PCS
8	PE扎带, 黑色, 6"	52-0006N	1PCS
7	C7连接器塑料内架	82-0002N	1PCS
6	C7连接器插座	92-0012N	2PCS
5	普通插头PVC 黑色 75A	12-P700175-100N	0.008KG
4	普通插头PVC 黑色 85A	12-P700185-114N	0.011KG
3	日规+绝缘插头片状端子, 建通P97675BS-1B	91-0025N	2PCS
2	VVF 2X0.75 PFS 黑色 油印	S15010-7004	1810MM
1			

深圳通源实业有限公司		FMX	0755-28015039
Shenzhen Tongyuan Electrical Wire & Cable Co., Ltd.		TEL	0755-28026115
标题	日本两插连八字尾	公差	A/0
客户名	东莞柏洋电子有限公司 (阿达特)	客户产品代码	R426AF18313
通源代码	T0259-J201C713	单位	MM
制作	彭力	检查	彭力
日期	2015/10/08	日期	
比例	/	日期	



" + "	" - "
白色芯線	隔離線

**注意:此圖面所需材料符合"ROHS"標準**

- ① 5.5\*2.1\*23內縮車溝黑色半邊,外模P-184號模(二次成型),用料外PVC60P黑色(YT-PV-00009)
- ② SR-348(C)號模,用料PVC75P黑色(YT-PV-00031),吊重:1米/20磅/60秒
- ③ UL 1185 16AWG(0.254\*26)單芯隔離線加粗(0.16\*65) BK亮 OD:4.3 截線長度:1560+10/-0
- ④ 鐵芯規格:14.2\*28.5\*6.35(YT-CR-00009),外模SR-118號模用料PVC60P黑色(YT-PV-00009)
- ⑤ PE有鐵芯紮帶10CM黑色(YT-ES-00001)
- ⑥ 熱縮套管:Ø2\*36(YT-ES-00008)
- ⑦ 絕緣阻抗:20Ω,導通阻抗:1.5Ωmax
- ⑧ 單位:MM

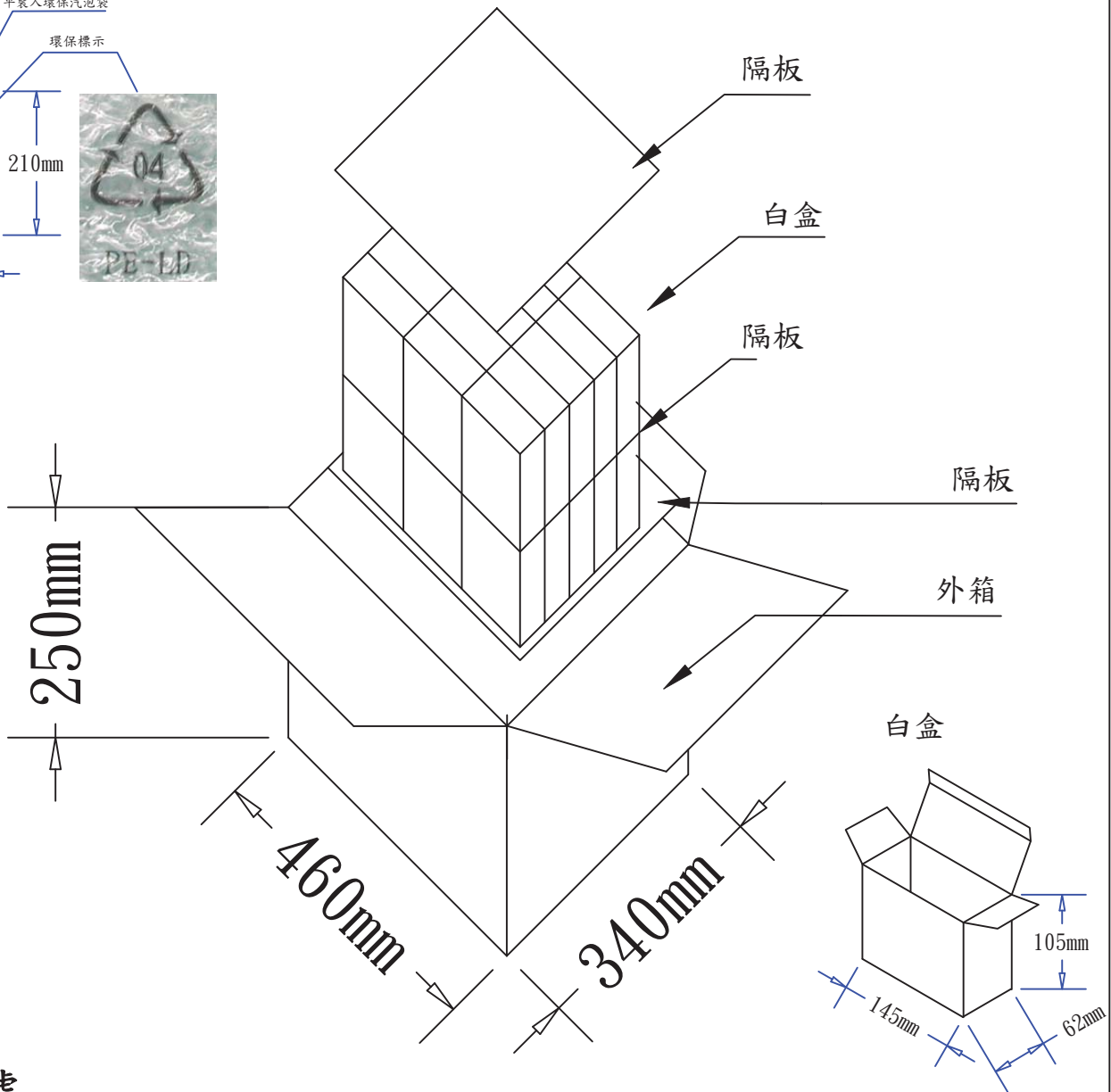
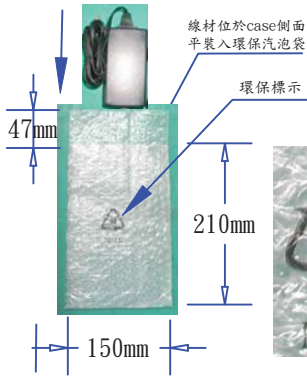
料號 R44N111501L

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-2041 日期 2011/06/14



### 零件料號

- |                   |   |         |      |
|-------------------|---|---------|------|
| <b>9550008101</b> | 1. 隔板:445*325*6mm                                 | B=B     | 3/30 |
|                   | 2. 數量:15*2=30PCS                                  |         |      |
| <b>9520009401</b> | 3. 外箱:L*W*H=460*340*250mm                         | K=K     | 1/30 |
| <b>9510001702</b> | 4. 白盒:L*W*H=145*62*105mm                          | 350P+CE |      |
| <b>9540000901</b> | 5. 環保雙面汽泡袋:210*150*47mm 無色透明, 短邊單端開口, 長邊中間位置印環保標誌 |         |      |
|                   | 6. 成品銘板向上與AC POWER CORD平裝入白盒內, 方向須統一,             |         |      |
|                   | 7. 成品CASE朝前裝入汽泡袋, 銘板與環保標示同一側, 折合袋口后用小膠紙封口         |         |      |

DRAWING NO. <b>PIS18W00005</b>			APPROVAL 1 BY	
UNIT	MODEL NO. 18W-65W(附AC線)		APPROVAL 2 BY	
mm	FILE NO.		CHECKED BY(ENGINEER)	鄧應親(DEN) DATE: 2009/06/25
SCALE	REV. A	SHEET 1/1	DRAWN BY	SUN DATE: 2009/06/24