



Specification for Approval

Customer : 株式会社アコン

Part name : AC Adapter

Description : 5.0 Volts / 2.0 Amps

Model no. : ATS012S-W050U (Level VI)

Customer P / N :

Product P / N : ATS012SW050U415210

Issued date : 01 - Aug. - 2023

Version : A1

Issued stamp :

Customer's approval signature

ADAPTER TECHNOLOGY CO.,LTD.

Office (Taiwan) : 6F, 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@adaptech.com.tw ; service_tw@adaptech.com.tw

Factory (China) : BOAYANG ELECTRONICS CO., LTD.



**10.0 W
AC Adapter
Specification**

Model no. : **ATS012S-W050U (Level VI)**

Description : **5.0 Volts / 2.0 Amps**

Part no. : **ATS012SW050U415210**

Version : **A1**

Date : **01 - Aug. - 2023**

Approved	Reviewed	Checked	Prepared	Sales



1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz input , without any slide switch
- ◆ **Output** : 5.0 V / 0 ~ 2.0 A
- ◆ **Case dimension** : 65.4 (L) * 33.8 (W) * 25.4 (H) ± 1 mm
- ◆ **Efficiency** : Eff (av) ≥ 78.704% (at 115 V / 60Hz & 230 Vac / 50 Hz input)
Eff (av) ≥ 69.734% (at 230 V / 50 Hz input 10 % load)
- ◆ **Safety** : UL / cUL / PSE / BSMI
- ◆ **EMC** : FCC (conduction & radiation Class B)
- ◆ **Protection** : OVP (Over voltage protection) 、 SCP (Short circuit protection) 、 OCP (Over current protection)
- ◆ **Suitable for usage at I.T.E., industrial controller**
- ◆ **Meet NRCan / DoE Level VI**

2. Input :

2.1 Voltage	Universal 100 ~ 240 Vac , single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	0.31 A Max.
2.4 Inrush current	Cold start at 25 °C , full load 50 A max. / 240 Vac (ac source chroma 6530) 120 A max. / 230 Vac (mains electricity from wall)
2.5 Efficiency	Eff (av) ≥ 78.704% (at 115 V / 60Hz & 230 Vac / 50 Hz input) Eff (av) ≥ 69.734% (at 230 V / 50 Hz input 10 % load)
2.6 Power consumption	Pi ≤ 0.10 W (at 115 Vac & 230 Vac & no Load)

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

E_1 =efficiency with 25% rated load , E_2 =efficiency with 50% rated load
 E_3 =efficiency with 75% rated load , E_4 =efficiency with 100% rated load

3. Output :

3.1 DC output	Voltage	5.0 V ± 6 %
	Current	2.0 A max.
	Regulation	4.7 V min. ~ 5.0 V typ. ~ 5.3 V max.
	Ripple & Noise	200 mV _{p-p} max.
	Total power	10.0 W max.

Remark : For ripple & noise measurement , use a 20 MHz bandwidth frequency oscilloscope , and add a 0.1 μF multilayer cap. and a low ESR electrolytic cap. (47 μF) at output connector terminals. (at nominal line voltage , full load)



4. Protection :

4.1 Over voltage protection (OVP)	7.5 V max.
4.2 Short circuit protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over current protection (OCP)	4 A 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 requirement :

5.1. Dielectric strength : Cut off current 10 mA

(1)	Primary to secondary	3000 Vac (RMS) for 1 minute
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5.2. Insulation resistance :

(1)	Primary to secondary	10 MΩ for 500Vdc
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5.3 Leakage current : Less than 0.25 mA

6. Operation and environment performance :

6.1 Temperature range

Operating	-20 °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 : 66 g Ref.

8.2 Cable type : Black UL 2468 20 AWG
(wire + plug)

Plug : $\phi 5.5 * \phi 2.1 * 9.5$ mm

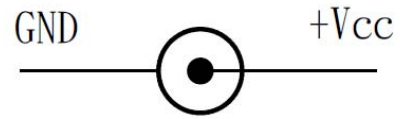
(Tuning Fork & cannelure)

8.3 Cable length : 1500 mm

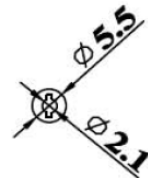
8.4 Case dimension : 65.4 (L) * 33.8 (W) * 25.4 (H) ± 1 mm

8.5 Material flammability : UL 94V-0

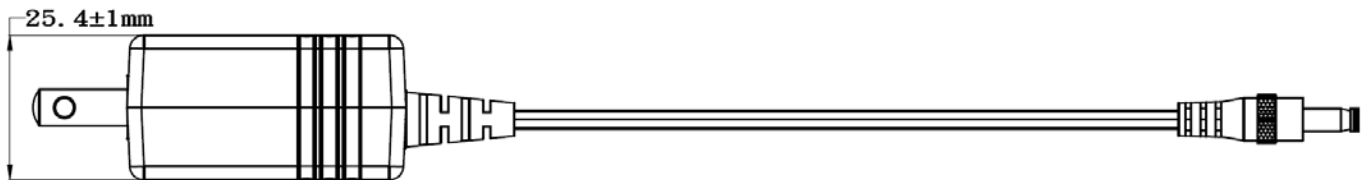
8.6 External appearance : As drawing below (scale \rightarrow mm)



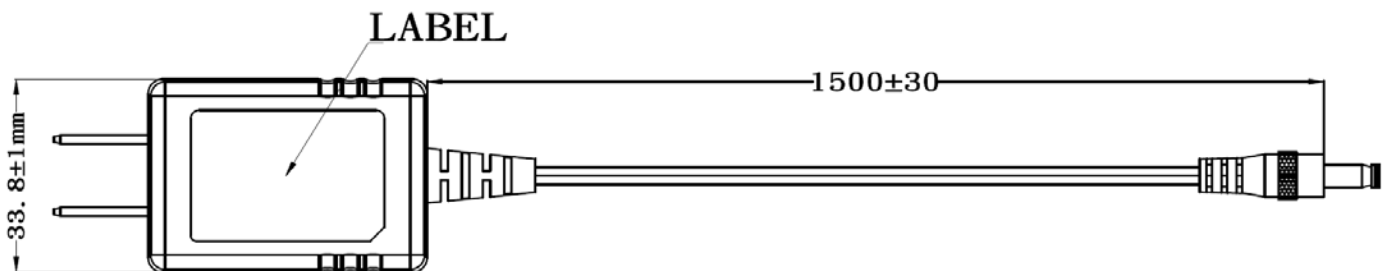
Output cable plug pin assignment



TOP VIEW



SIDE VIEW



BOTTOM VIEW



Adapter Technology Co., Ltd.

9. Label

- 9.1 Label materials : Metalized polyester label (silver gloss)
- 9.2 Color : Black background with silver printing
- 9.3 Label dimension : 33mm(L)*22mm(W)+/-0.1mm
- 9.4 Label thickness : 75#

100%



"XXX"

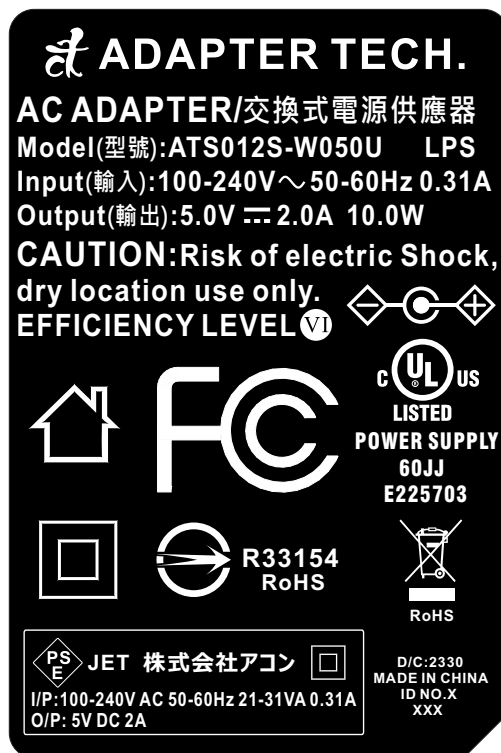
Label supplier's code.
It is accurate that the number of words depends on the real finished product.

ID NO."X"

Manufacturer's code.
It is accurate that the number of words depends on the real finished product.

Label Part No. :9443129450

300%



A. Line regulation test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90 Vac / 50 % Load	4.7 V ~ 5.3 V	4.872 V	4.934 V	4.883 V
115 Vac / 50 % Load	4.7 V ~ 5.3 V	4.872 V	4.934 V	4.883 V
132 Vac / 50 % Load	4.7 V ~ 5.3 V	4.872 V	4.934 V	4.883 V
180 Vac / 50 % Load	4.7 V ~ 5.3 V	4.871 V	4.930 V	4.882 V
230 Vac / 50 % Load	4.7 V ~ 5.3 V	4.871 V	4.930 V	4.882 V
264 Vac / 50 % Load	4.7 V ~ 5.3 V	4.871 V	4.930 V	4.882 V

B. Efficiency test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	78.704 % min.	80.115 %	80.016 %	80.077 %
230 Vac	78.704 % min.	79.692 %	79.729 %	79.806 %
230Vac 10% load	69.734 % min.	74.740 %	74.735 %	74.737 %

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

E_1 =efficiency with 25% rated load , E_2 =efficiency with 50% rated load
 E_3 =efficiency with 75% rated load , E_4 =efficiency with 100% rated load

C. Load regulation test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	4.7 V ~ 5.3 V	5.011 V	5.081 V	5.049 V
115 Vac / 50 % Load	4.7 V ~ 5.3 V	4.872 V	4.934 V	4.883 V
115 Vac / 100 % Load	4.7 V ~ 5.3 V	4.862 V	4.909 V	4.889 V
230 Vac / 0 % Load	4.7 V ~ 5.3 V	5.000 V	5.073 V	5.047 V
230 Vac / 50 % Load	4.7 V ~ 5.3 V	4.871 V	4.930 V	4.882 V
230 Vac / 100 % Load	4.7 V ~ 5.3 V	4.860 V	4.919 V	4.874 V



D. Ripple & Noise test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	200 mV _{p-p} max.	100.1 mV _{p-p}	101.6 mV _{p-p}	99.3 mV _{p-p}
230 Vac / 100 % Load	200 mV _{p-p} max.	94.5 mV _{p-p}	96.3 mV _{p-p}	93.1 mV _{p-p}

E. Inrush current

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 100 % Load	50 A max. (chroma 6530)	37.5 A	38.1 A	36.5 A

F. Over voltage protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	7.5 V max.	6.10 V	6.15 V	6.04 V
230 Vac / 100 % Load	7.5 V max.	6.20 V	6.23 V	6.18 V

G. Over current protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	4 A max.	2.74 A	2.89 A	2.63 A
230 Vac / 100 % Load	4 A max.	2.68 A	2.81 A	2.56 A

H. Short circuit protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Auto recovery	Ok	Ok	Ok
230 Vac / 100 % Load	Auto recovery	Ok	Ok	Ok

I. Input power consumption (no load)

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	≤ 0.10 W	0.059 W	0.063 W	0.060 W
230 Vac / 0 % Load	≤ 0.10 W	0.080 W	0.081 W	0.081 W



Efficiency Test Report

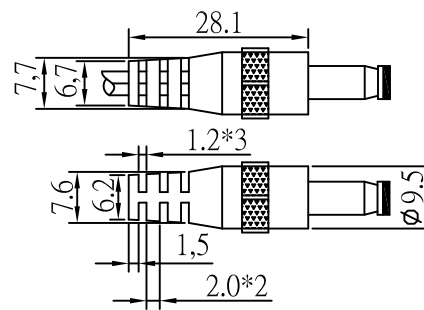
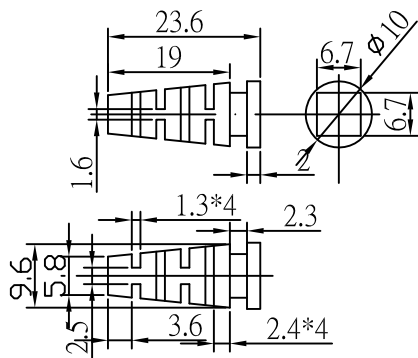
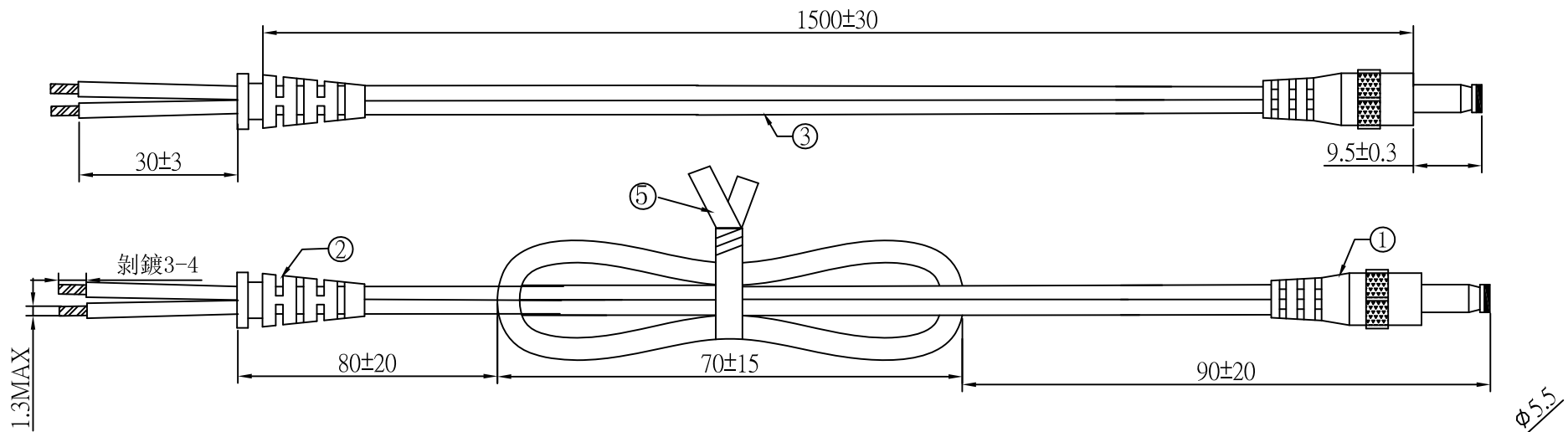
- A. Model Number : ATS012S-W050U 5.0V 2.00A 10.00W
- B. DC Power Cord : UL2468 20AWG , 1.5M
- C. Average Efficiency :
- Erp (Lot 7) $0.0834 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.609 = 78.704\%$ Min.
- DoE Level VI $0.0834 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.609 = 78.704\%$ Min.
- GEMS Level VI $0.0834 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.609 = 78.704\%$ Min.
- CoC Tier 2 $0.0834 \cdot \ln(P_{no}) - 0.0011 \cdot P_{no} + 0.609 = 79.004\%$ Min.
- CoC Tier 2 (10% Load) $0.0834 \cdot \ln(P_{no}) - 0.00127 \cdot P_{no} + 0.518 = 69.734\%$ Min.
- D. NO Load Power Consumption :
- Erp (Lot 7) 0.10W Max.
- DoE Level VI 0.10W Max.
- GEMS Level VI 0.10W Max.
- CoC Tier 2 0.075W Max.
- E. Testing Equipment :
- a. AC Power Source : " Zentech " 2700M-10
- b. Electronic Load : " PRODIGIT " 3311C
- c. Power Meter : " YOKOGAWA " WT-210A
- 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	10%* I ₀	0%* I ₀
Rms Output Current(mA)	2000mA	1500mA	1000mA	500mA	200mA	0mA
Rms Output Voltage(V)	4.862V	4.872V	4.872V	4.891V	4.967V	5.011V
Active Output Power(W)	9.72W	7.31W	4.87W	2.45W	0.99W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	0.191A	0.149A	0.106A	0.060A	0.030A	0.003A
Rms Input Power(W)	12.300W	9.130W	6.045W	3.028W	1.259W	0.059W
True Power Factor (PF)	0.560	0.533	0.496	0.439	0.365	0.171
Total Harmonic Distortion of the input current	132.7A%	145.6A%	166.3A%	203.6A%	242.3A%	305.1A%
Power Consumed by UUT(W)	2.576W	1.822W	1.173W	0.583W	0.266W	0.059W
Active Efficiency	79.057%	80.044%	80.596%	80.763%	78.904%	*
Average Efficiency	80.115%				78.904%	*

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

Load Conditions	Reported Quantity					
	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	10%* I ₀	0%* I ₀
Rms Output Current(mA)	2000mA	1500mA	1000mA	500mA	200mA	0mA
Rms Output Voltage(V)	4.860V	4.856V	4.871V	4.886V	4.959V	5.000V
Active Output Power(W)	9.72W	7.28W	4.87W	2.44W	0.99W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.121A	0.095A	0.069A	0.040A	0.020A	0.003A
Rms Input Power(W)	12.240W	9.127W	6.081W	3.075W	1.327W	0.080W
True Power Factor (PF)	0.440	0.418	0.383	0.334	0.288	0.116
Total Harmonic Distortion of the input current	201.8A%	219.1A%	239.9A%	277.2A%	310.5A%	242.9A%
Power Consumed by UUT(W)	2.520W	1.843W	1.210W	0.632W	0.335W	0.080W
Active Efficiency	79.412%	79.807%	80.102%	79.447%	74.740%	*
Average Efficiency	79.692%				74.740%	*

Tester : Ian



"+"	"-"
條紋	印字

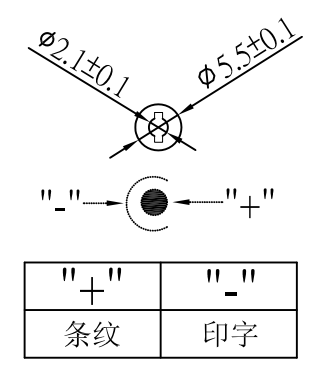
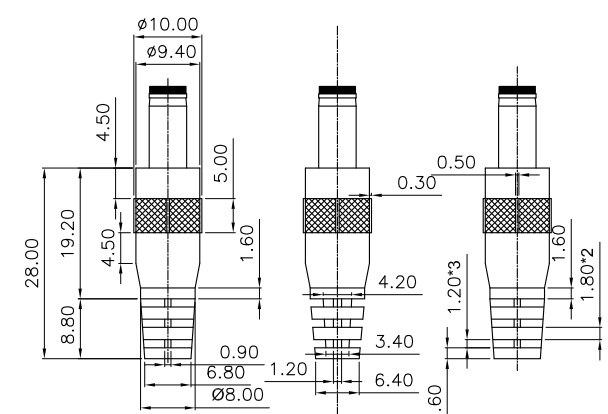
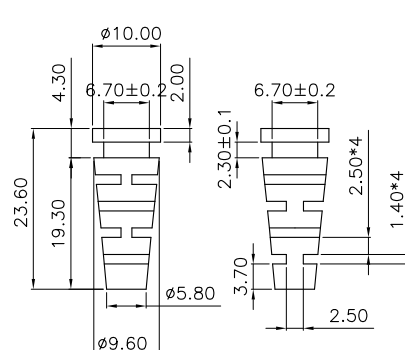
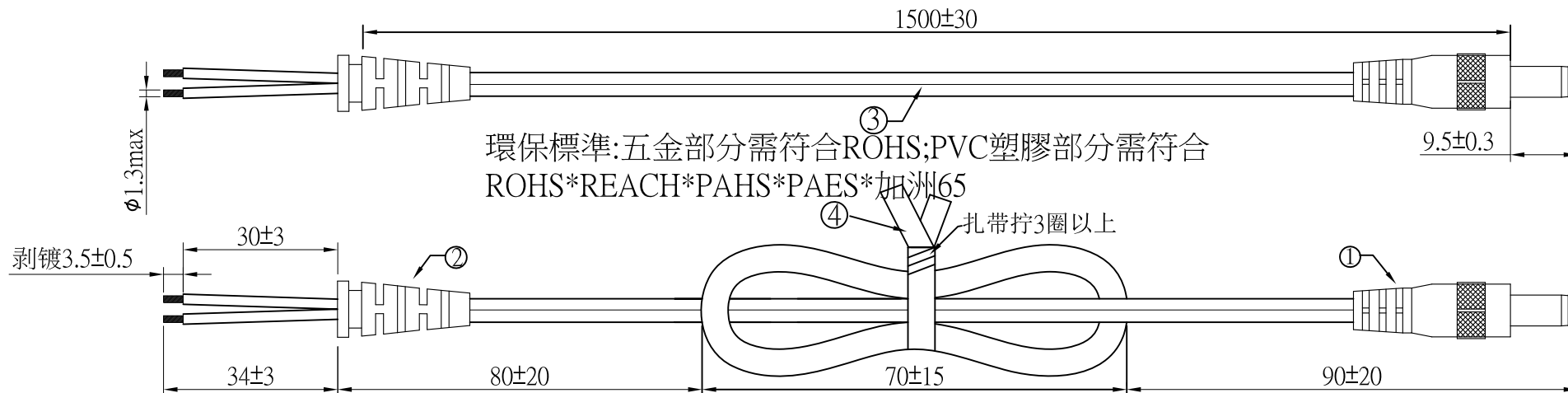
注意:此圖面所需材料符合"ROHS"標準

- ① 5.5*2.1*21音叉車溝黑色半邊,外模P-69號模(二次成型),用料外PVC60P黑色
- ② SR-132號模(不包膠),用料PVC75P黑色,吊重:1米/20磅/60秒
- ③ UL 2468 20AWG(0.16*26) BK OD:1.9*3.8 裁線長度:1560+10/-0
- ④ PE无鐵芯紮帶10CM黑色
- ⑤ 單位:MM

一般公差表		
1.0mm以下	±0.1mm	15.0mm以下 ±0.60mm
2.0mm以下	±0.15mm	20.0mm以下 ±0.80mm
3.0mm以下	±0.20mm	30.0mm以下 ±1.0mm
10.0mm以下	±0.50mm	30.0mm以上 ±1.2mm

01	新出	2018/11/30
版次	變更內容	日期

料號	X44M109150108		
客戶	阿達特	制圖	陶勝英
頁數	01	審核	
		批准	
泰岳電子有限公司			
圖號	ADT-5614	日期	2018/11/30



- ① 5.5*2.1*21音叉叉沟黑色带尾,外模P-122(泰岳P-69)号模(两次成型),外模用PVC 60P黑色胶粒成型
- ② SR-211A號模(泰岳SR-132不包胶)用PVC 75P黑色膠粒成型 吊重:1米/20磅/60秒
- ③ UL 2468 20AWG(BC/0.16*26)*2C 黑亮面 OD:1.9*3.8 裁線長度:1560+10-0
- ④ PET无鐵芯紮帶10CM黑色
絕緣阻抗:20M Ω 導通阻抗:1.5 Ω MAX
單位:mm

長度(MM)	公差範圍(MM)
5以下	±0.2
5~10	±0.5
10~30	±1
31以上	±1.5

版本	變更內容	變更人	日期
A	初出	吳青喜	2018-11-30

GD 廣多貿易(廣全)有限公司
 廣東省東莞市大朗鎮蔡邊村白雲前工業區雲蓮路一街6號
 TEL:0769-83019738 83019739 FAX:0769-83201033

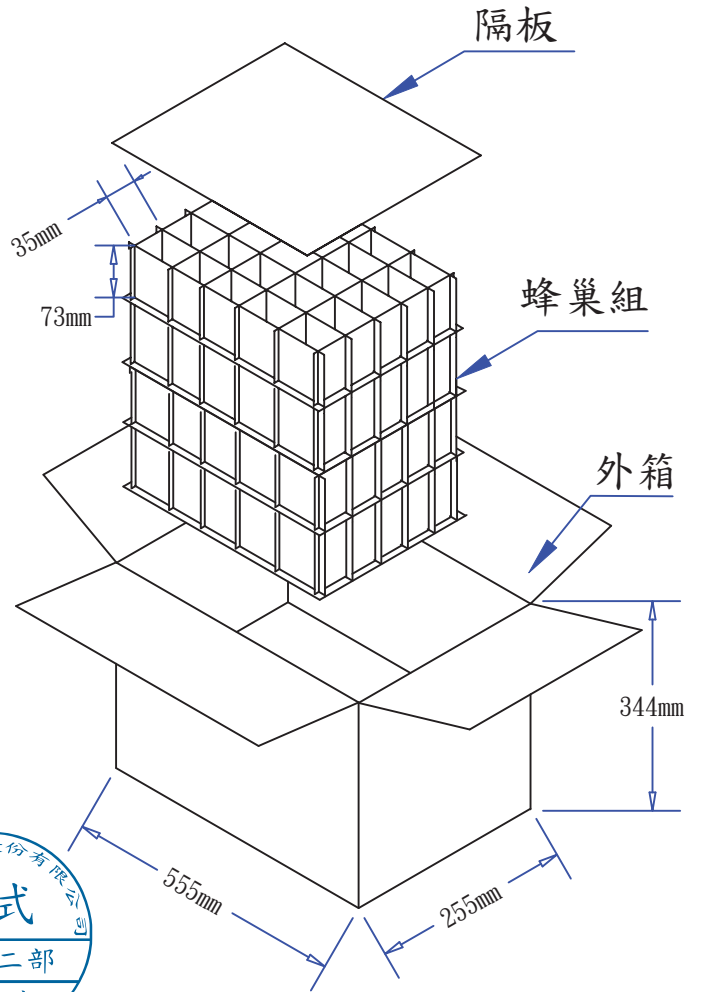
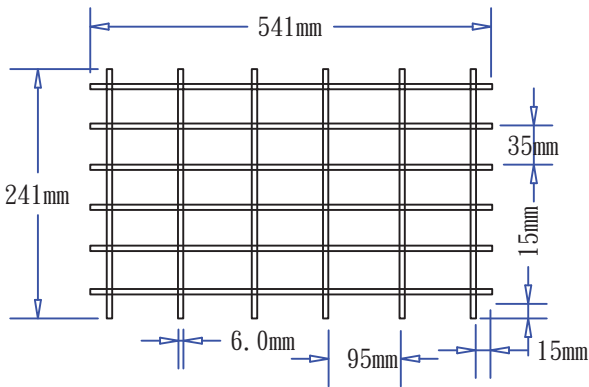
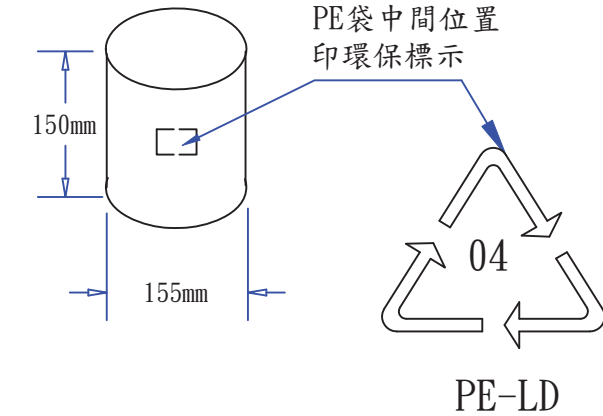
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客戶	阿达特	制圖	吳青喜
廣多版本	A	頁數	01/01
客戶版本	01	審核	
		批准	
图号	ADT-Q1164	日期	2018-11-30

用膠帶封口

無需膠帶封口

REVISIONS

SHOW	REV	DESCRIPTION	DATE	APPROVED
△	A	初版製作	18/09/06	Sun
△	B	更新格式	21/12/04	Sun



PIS12W00006 包裝(FOR ATS012S-W美規)(K=K)環保PE袋-刀卡-100

- | | | | |
|-------------------|--|-----|--------|
| 9550023701 | 1. 隔板:541(L)*241(W)*6mm | K=K | 5/100 |
| | 2. 數量:5*5*4=100PCS | | |
| 9520033501 | 3. 外箱:555(L)*255(W)*344(H)mm | K=K | 1/100 |
| 9560025001 | 4. 六刀卡:541(L)*73(W)*6mm(邊分) | K=K | 24/100 |
| 9560025101 | 5. 六刀卡:241(L)*73(W)*6mm(邊分) | K=K | 24/100 |
| 9540008801 | 6. 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. | | |
7. 成品裝入環保PE袋后再對折袋口.側立裝入蜂巢內,方向須統一.
 8. 外箱標注為外徑尺寸.
 9. 上述所有材料須符合環保ROHS標準.

阿達特科技股份有限公司
Adapter Technology Co., Ltd.

DRAWING NO. PIS12W00006		APPROVAL 1 BY		
UNIT	MODEL NO. ATS012S-W美規	APPROVAL 2 BY		
mm	FILE NO. ADT-0570	CHECKED BY(ENGINEER)	Sun	2021/12/04
SCALE	REV. B	SHEET	1/1	DRAWN BY
				Moon
				2021/12/04
Apply for sales		Apply for engineer		Use the sales
				Use the engineer

阿達特
2021.12.06
林士顯



Adapter Technology Co., Ltd.

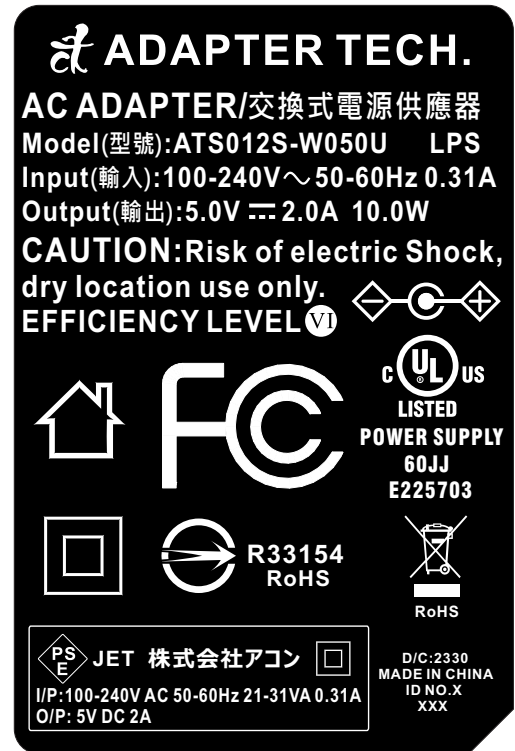
9. Label

- 9.1 Label materials : Metalized polyester label (silver gloss)
- 9.2 Color : Black background with silver printing
- 9.3 Label dimension : 33mm(L)*22mm(W)+/-0.1mm
- 9.4 Label thickness : 75#

100%



300%



"XXX"

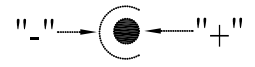
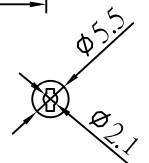
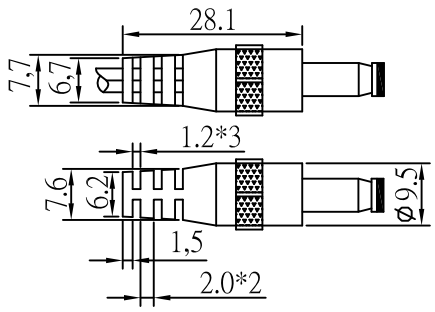
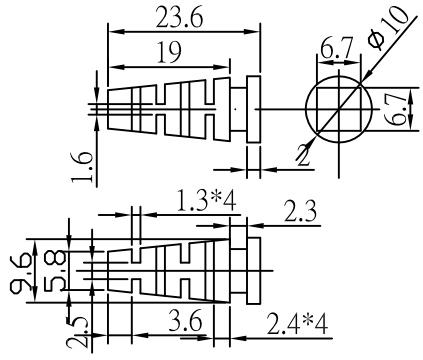
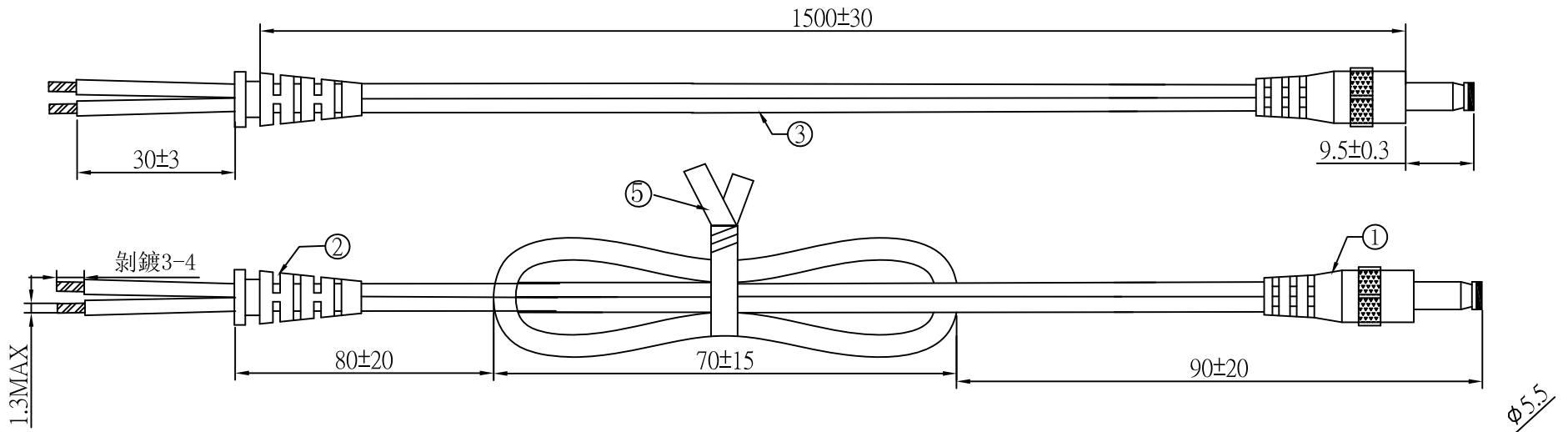
Label supplier's code.
It is accurate that the number of words depends on the real finished product.

ID NO."X"

Manufacturer's code.
It is accurate that the number of words depends on the real finished product.



Label Part No. :9443129450



"+"	"-"
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,外模P-69號模(二次成型),用料外PVC60P黑色
- ② SR-132號模(不包膠),用料PVC75P黑色,吊重:1米/20磅/60秒
- ③ UL 2468 20AWG(0.16*26) BK OD:1.9*3.8 裁線長度:1560+10/-0
- ④ PE无鐵芯紮帶10CM黑色
- ⑤ 單位:MM

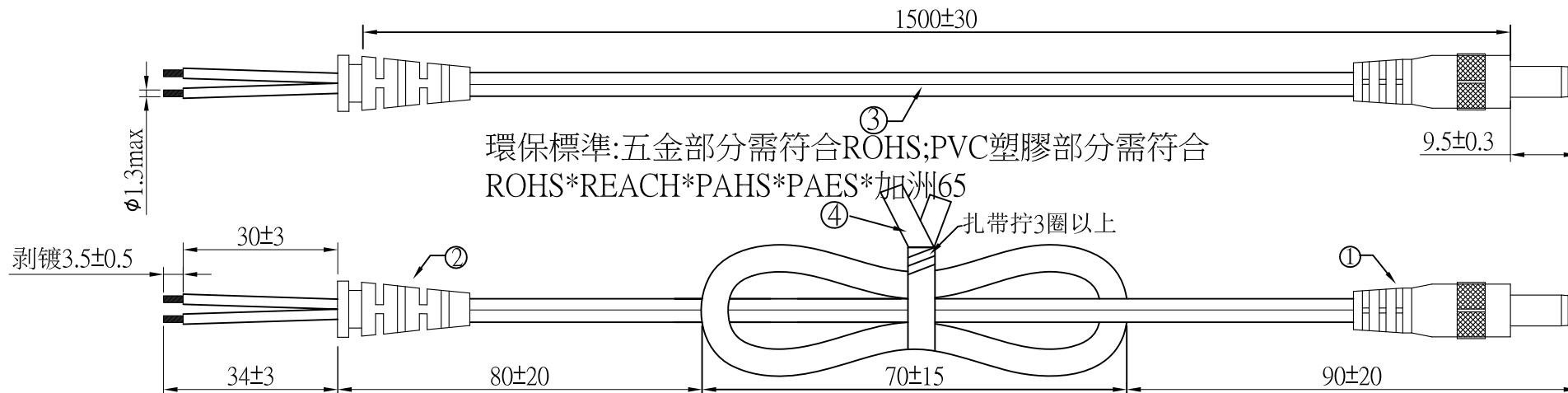
Adaoter Tech.
2023.07.31
Steven Liao

阿達特
2023.07.28
陳信宇

1.0mm以下	±0.1mm	15.0mm以下	±0.60mm
2.0mm以下	±0.15mm	20.0mm以下	±0.80mm
3.0mm以下	±0.20mm	30.0mm以下	±1.0mm
10.0mm以下	±0.50mm	30.0mm以上	±1.2mm

01	新出	2018/11/30
版次	變更內容	日期

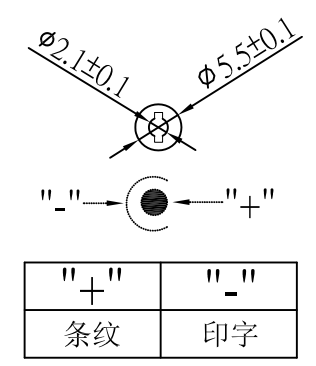
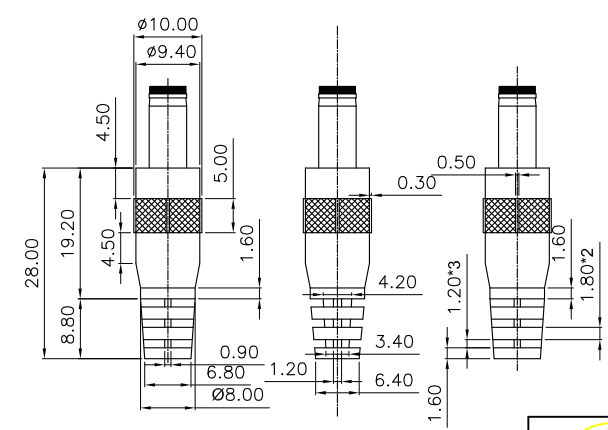
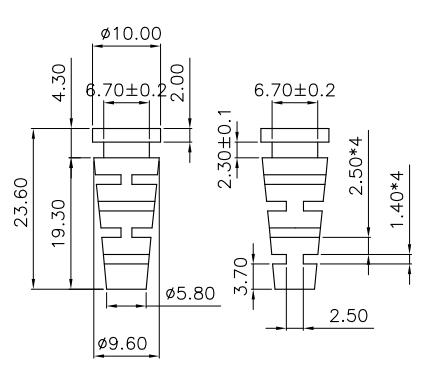
料號	X44M109150108		
客戶	阿達特	制圖	陶勝英
頁數	01	審核	
		批准	
泰岳電子有限公司			
圖號	ADT-5614	日期	2018/11/30



剥镀3.5±0.5

環保標準:五金部分需符合ROHS;PVC塑膠部分需符合ROHS*REACH*PAHS*PAES*加洲65

扎帶拧3圈以上



- ① 5.5*2.1*21音叉叉沟黑色带尾,外模P-122(泰岳P-69)号模(两次成型),外模用PVC 60P黑色胶粒成型
 ② SR-211A號模(泰岳SR-132不包胶)用PVC 75P黑色膠粒成型 吊重:1米/20磅/60秒
 ③ UL 2468 20AWG(BC/0.16*26)*2C 黑亮面 OD:1.9*3.8 裁線長度:1560+10-0
 ④ PET无鐵芯紮帶10CM黑色
 絕緣阻抗:20M Ω 導通阻抗:1.5 Ω MAX
 單位:mm

Adaoter Tech.
2023.07.31
Steven Liao

阿達特
2023.07.28
陳信宇

長度(MM)	公差範圍(MM)
5以下	±0.2
5-10	±0.5
10-30	±1
31以上	±1.5

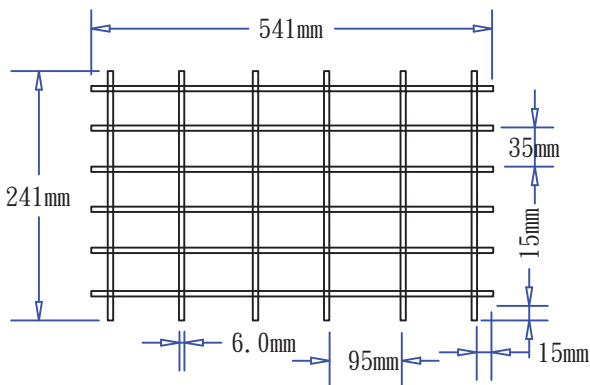
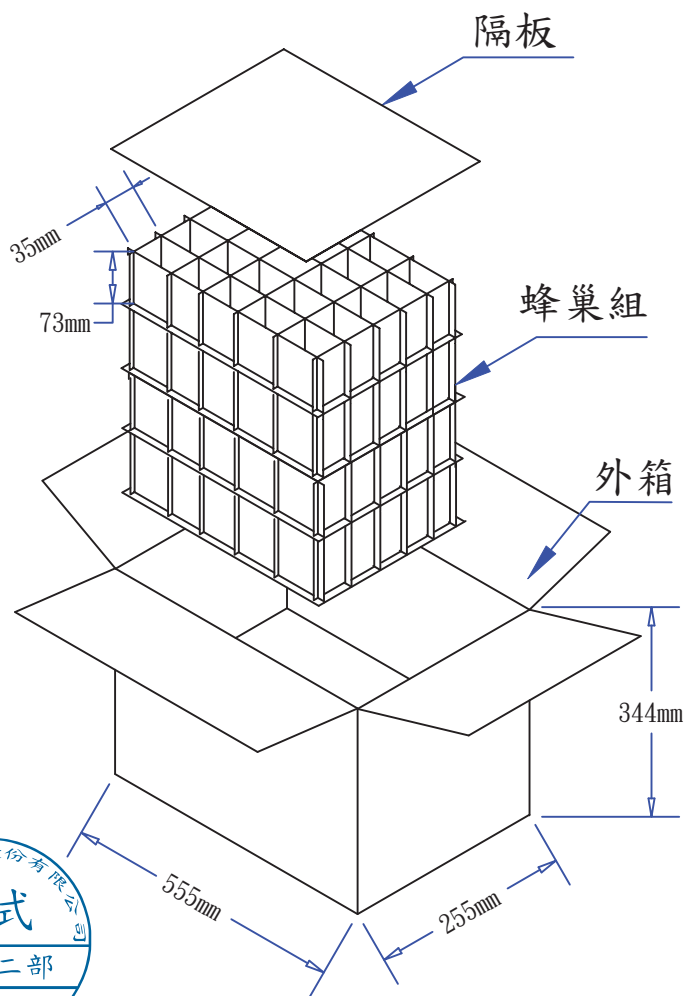
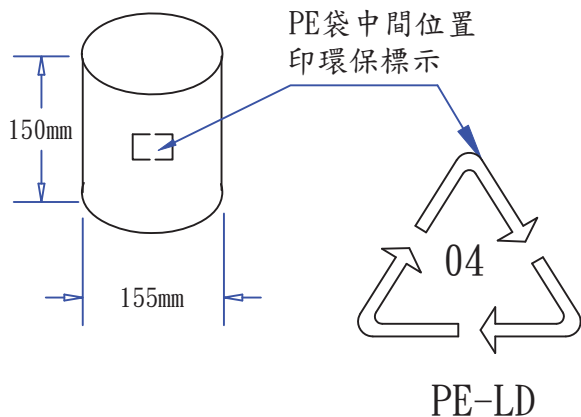
版本	變更內容	變更人	日期
A	初出	吳青喜	2018-11-30

GD 廣多貿易(廣全)有限公司
 廣東省東莞市大朗鎮蔡邊村白雲前工業區雲蓮路一街6號
 TEL:0769-83019738 83019739 FAX:0769-83201033

料號	X44M109150108		
客戶	阿達特	制圖	吳青喜
廣多版本	A	頁數	01/01
客戶版本	01	審核	
圖號	ADT-Q1164	日期	2018-11-30

- 用膠帶封口
- 無需膠帶封口

REVISIONS				
SHOW	REV	DESCRIPTION	DATE	APPROVED
△	A	初版製作	18/09/06	Sun
△	B	更新格式	21/12/04	Sun



PIS12W00006 包裝(FOR ATS012S-W美規)(K=K)環保PE袋-刀卡-100

- | | | | |
|----------------------------|--|-----|--------|
| 9550023701 | 1. 隔板:541(L)*241(W)*6mm | K=K | 5/100 |
| 9520033501 | 2. 數量:5*5*4=100PCS | | |
| 9560025001 | 3. 外箱:555(L)*255(W)*344(H)mm | K=K | 1/100 |
| 9560025101 | 4. 六刀卡:541(L)*73(W)*6mm(邊分) | K=K | 24/100 |
| 9540008801 | 5. 六刀卡:241(L)*73(W)*6mm(邊分) | K=K | 24/100 |
| | 6. 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. | | |
| | 7. 成品裝入環保PE袋后再對折袋口.側立裝入蜂巢內,方向須統一. | | |
| | 8. 外箱標注為外徑尺寸. | | |
| | 9. 上述所有材料須符合環保ROHS標準. | | |

阿達特科技股份有限公司
Adapter Technology Co., Ltd.

DRAWING NO. PIS12W00006		APPROVAL 1 BY		
UNIT	MODEL NO. ATS012S-W美規	APPROVAL 2 BY		
mm	FILE NO. ADT-0570	CHECKED BY(ENGINEER)	Sun	2021/12/04
SCALE	REV. B	SHEET	1/1	DRAWN BY
				Moon
Apply for sales		Apply for engineer		Use the sales