



Specification for Approval

Customer : 株式会社アコン

Part name : AC ADAPTER

Description : 48.0 Volts / 1.25 Amps

Model no. : ATS060T-W480U (Level VI)

Customer P / N :

Product P / N : ATS060TW480UD12201

Issued date : 29 - Jun. - 2022

Version : A1

Issued stamp :

Customer's approval signature

ADAPTER TECHNOLOGY CO., LTD.

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

(Philippines) : ADAPTER TECHNOLOGY CO.,LTD.



60.0 W
Switching Power Adapter
SPECIFICATION

Model no. : **ATS060T-W480U (Level VI)**

Description : **48.0 Volts / 1.25 Amps**

Part no. : **ATS060TW480UD12201**

Version : **A1**

Date : **29 - Jun. - 2022**

Approved	Reviewed	Checked	Prepared	Sales



Adapter Technology Co., Ltd.

■ **Approval documents / spec. revised records**

■ Customer : 株式会社アコン

■ Model no : ATS060T-W480U

■ Original documents content : Spec. 10 pages , Attachment 3 pages

Revised records No.	Date	Description (Before / After)	Page(s) revised	Revised by (Adapter/Customer)	Version
1	Jun./29/2022	Issue	--	Jeff	A1



1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz input , without any slide switch
- ◆ **Output** : 48.0 V / 0 ~ 1.25 A
- ◆ **Case dimension** : 95 (L) * 35.5 (W) * 54.4 (H) mm ± 1 mm
- ◆ **Efficiency** : Eff_(av) ≥ 88%
Eff ≥ 79%@10% load
- ◆ **Safety** : UL / CUL / PSE / BSMI / CB
- ◆ **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 DoE Level VI/ ErP (Lot 7) / GEMS / NRCan.

2. Input :

2.1 Voltage	Universal 100 ~ 240 Vac , single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	1.5 A Max
2.4 Inrush current	80 A max. / 230 Vac (cold start at 25°C , full load) (ac source chroma 6530)
2.5 Efficiency	Eff _(av) ≥ 88% (at 115 Vac & 230 Vac) Eff ≥ 79%@10% load
2.6 Power consumption	Pi ≤ 0.21 W (at 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	48.0 V ± 5%
	Current	1.25 A max.
	Regulation	45.6 V min. ~ 48.0 V typ. ~ 50.4 V max.
	Ripple & Noise	480 mV _{p-p} max.
	Total power	60.0 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)	Vout * 180% max. shut down
4.2 Short circuit protection (SCP)	Autorecovery
4.3 Over current protection (OCP)	Iout * 180% max. Autorecovery

5. Safety requirement :

5.1. Dielectric strength : Cut off current 10 mA

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

(1)	Primary to secondary	10 MΩ for 500 Vdc
-----	----------------------	-------------------

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)

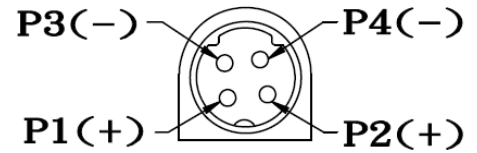
Operating	20% ~ 80% RH
Storage	10% ~ 90% RH

6.3 Cooling : By natural air

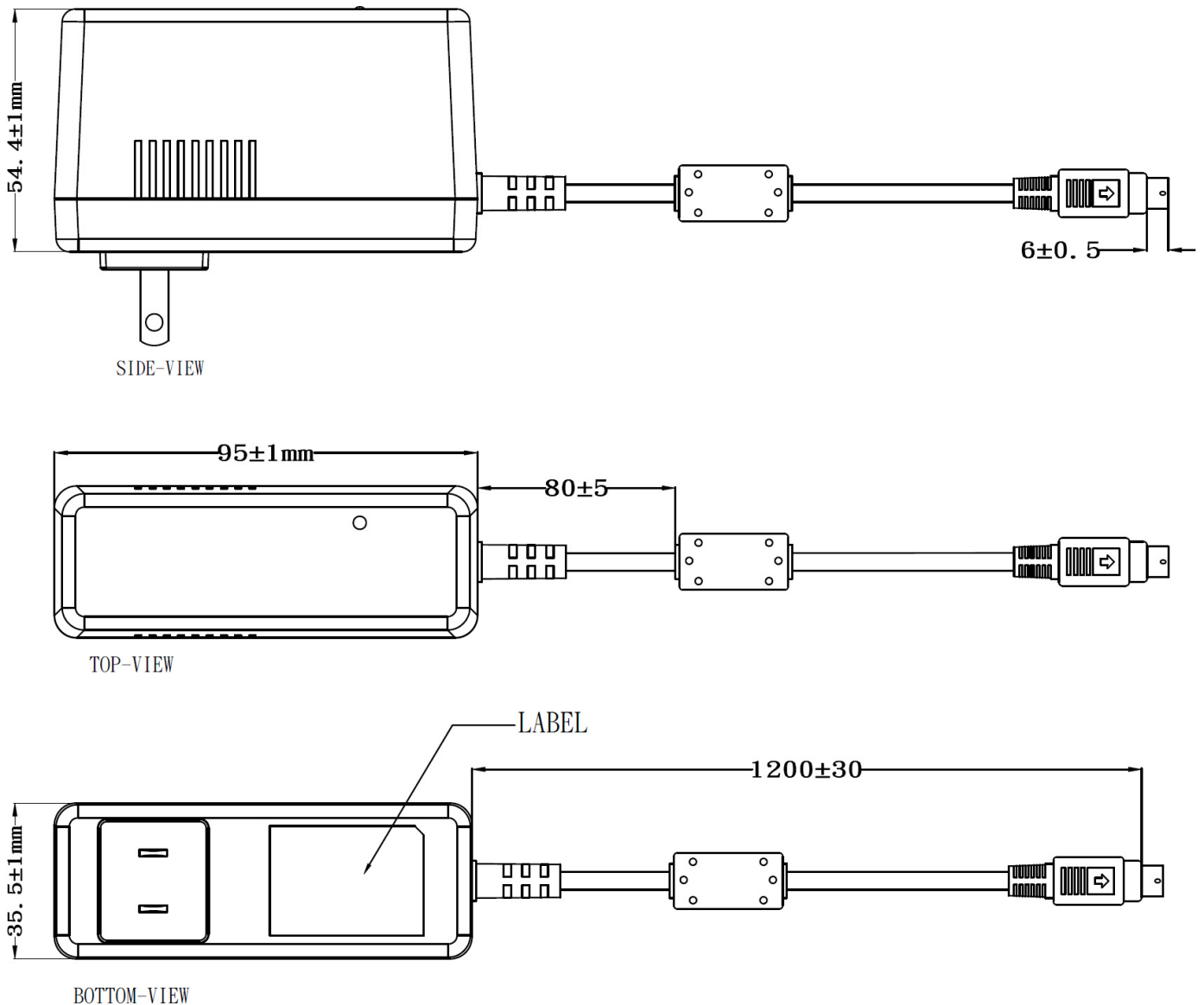
7. M.T.B.F. : 300,000 Hrs. (calculated hours at 25°C , by Telcordia SR-332)

8. Mechanical :

- 8.1 Weight :275 g Ref.
- 8.2 Cable type : Black UL 1185 20 AWG
(wire + plug)
Plug : 4PIN DIN
- 8.3 Cable length : 1200 mm
- 8.4 Case dimension : 95(L) * 35.5 (W) * 54.4 (H) mm \pm 1 mm
- 8.5 Material flammability : UL 94V-0
- 8.6 External appearance : As drawing below (scale \rightarrow mm)



Output cable plug pin assignment



9. Label :

- 9.1 Label materials : Metalized polyester label (silver gloss)
- 9.2 Color : Black background with silver printing
- 9.3 Label dimension : 34.3 (L) * 24.3 (W) +/- 0.1 mm
- 9.4 Label thickness : 75#

100%



"XXX"

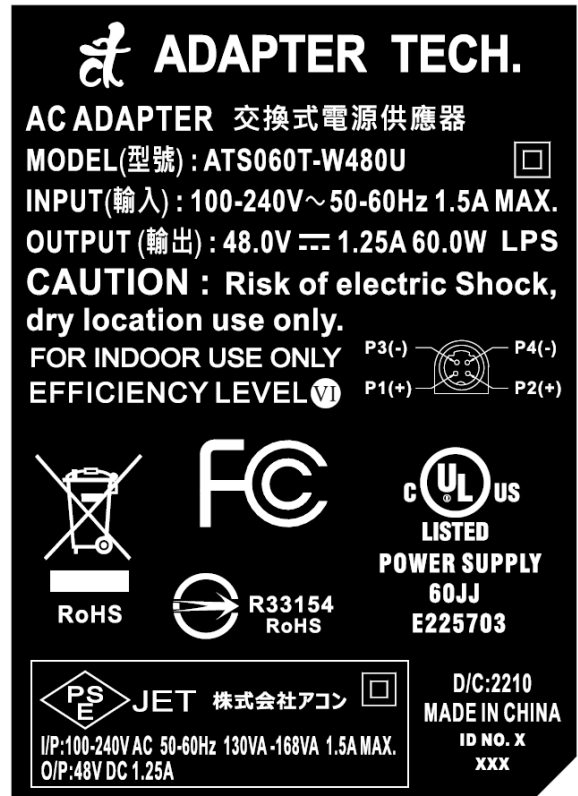
Label supplier's code.
It is accurate that the number of words depends on the real finished product.

ID NO. "X"

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

Label part no.:9443125160

300%



A. Line regulation test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90 Vac / 50% Load	45.6 V ~ 50.4 V	48.38 V	48.17 V	48.27 V
115 Vac / 50% Load	45.6 V ~ 50.4 V	48.37 V	48.17 V	48.27 V
132 Vac / 50% Load	45.6 V ~ 50.4 V	48.38 V	48.17 V	48.27 V
180 Vac / 50% Load	45.6 V ~ 50.4 V	48.36 V	48.17 V	48.27 V
230 Vac / 50% Load	45.6 V ~ 50.4 V	48.35 V	48.17 V	48.27 V
264 Vac / 50% Load	45.6 V ~ 50.4 V	48.35 V	48.17 V	48.27 V

B. Efficiency test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	88% min.	91.77%	91.62%	91.79%
230 Vac	88% min.	91.43%	91.23%	91.47%
230 Vac@10% load	79% min	84.11%	84%	84.13%

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

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	45.6 V ~ 50.4 V	48.47 V	48.32 V	48.39 V
115 Vac / 50% Load	45.6 V ~ 50.4 V	48.38 V	48.17 V	48.27 V
115 Vac / 100% Load	45.6 V ~ 50.4 V	48.27 V	48.06 V	48.16 V
230 Vac / 0% Load	45.6 V ~ 50.4 V	48.47 V	48.32 V	48.39 V
230 Vac / 50% Load	45.6 V ~ 50.4 V	48.35 V	48.17 V	48.27 V
230 Vac / 100% Load	45.6 V ~ 50.4 V	48.25 V	48.06 V	48.16 V

D. Ripple & Noise test

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100% Load	480 mV _{p-p} max.	59.3 mV _{p-p}	64.6 mV _{p-p}	51.2 mV _{p-p}
230 Vac / 100% Load	480 mV _{p-p} max.	35.7 mV _{p-p}	39.6 mV _{p-p}	34.3 mV _{p-p}



E. Inrush current

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 100% Load	80 A max.	61 A	63 A	65 A

F. Over voltage protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100% Load	Vout*180 % max.	118%	118%	118%
230 Vac / 100% Load	Vout*180 % max.	118%	118%	118%

G. Over current protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100% Load	Iout*180% max.	131%	133%	133%
230 Vac / 100% Load	Iout*180% max.	130%	132%	132%

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
230 Vac / 0% Load	≤ 0.21 W	0.08 W	0.08 W	0.08 W



Efficiency Test Report

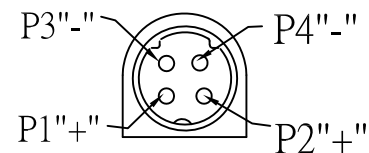
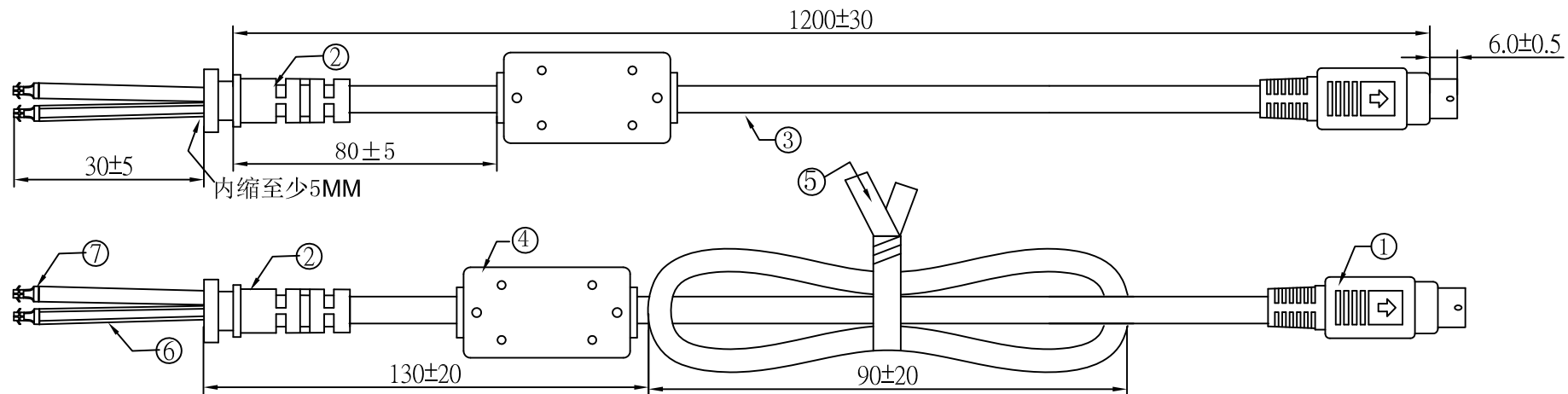
- A. Model Number : ATS060T-W480U (48V/1.25A)
- B. DC Power Cord : UL1185 , 20AWG , 1.2M
- C. Average Efficiency :
- Erp (LOT 7) 88.0% Min.
 - DoE Level VI 88.0% Min.
 - GEMS Level VI 88.0% Min.
 - CoC Tier 2 89.0% Min.
 - CoC Tier 2 (10% Load) 79.0% Min.
- D. NO Load Power Consumption :
- Erp (LOT 7) 0.21W Max.
 - DoE Level VI 0.21W Max.
 - GEMS Level VI 0.21W Max.
 - CoC Tier 2 0.15W Max.
- E. Testing Dequpment :
- a. AC Power Source : " Chroma " 6600
 - b. Electronic Load : " PRODIGIT " 3311F
 - c. Power Meter : " YOKOGAWA " WT-210
 - d. Digital Meter : " ITALLA " HT326
- F. AC Input Voltage : 115Vac/60Hz

	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	10%* I ₀	0%* I ₀
Rms Output Current(mA)	1250mA	938mA	625mA	313mA	125mA	0mA
Rms Output Voltage(V)	48.26V	48.32V	48.37V	48.43V	48.45V	48.48V
Active Output Power(W)	60.33W	45.33W	30.23W	15.16W	6.06W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	1.130A	0.898A	0.605A	0.322A	0.178A	0.012A
Rms Input Power(W)	66.48W	49.44W	32.94W	16.32W	6.99W	0.07W
Total Harmonic Distortion of the input current	156.4A%	174.7A%	198.9A%	222.8A%	259.9A%	35.5A%
True Power Factor	0.512	0.482	0.474	0.439	0.342	0.054
Power Consumed by UUT(W)	6.15W	4.11W	2.71W	1.16W	0.93W	0.07W
Efficiency	90.75%	91.68%	91.78%	92.88%	86.64%	*
Average Efficiency	91.77%				86.64%	*

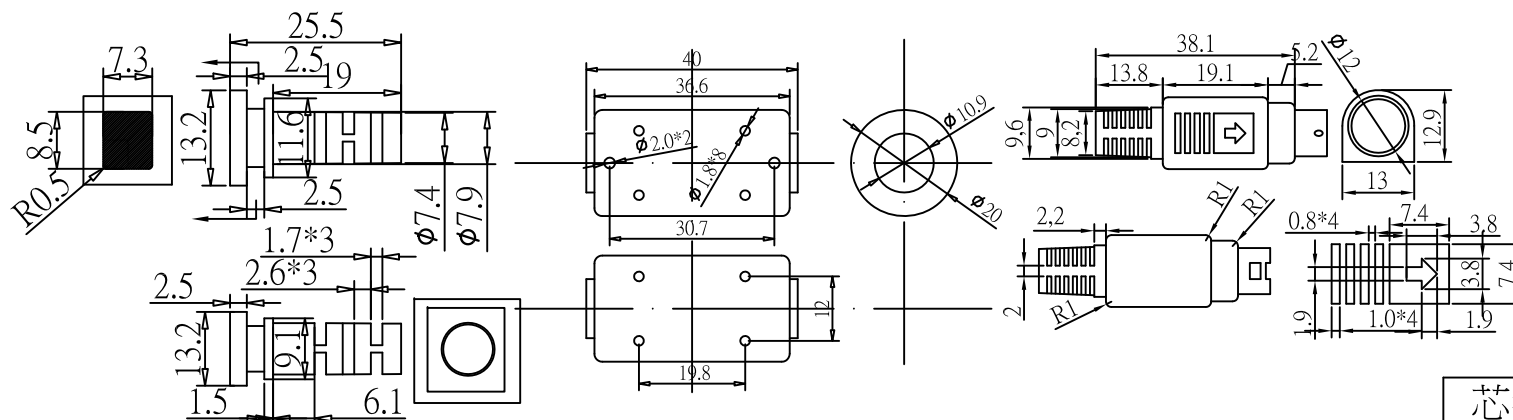
- G. AC Input Voltage : 230Vac/50Hz

	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	10%* I ₀	0%* I ₀
Rms Output Current(mA)	1250mA	938mA	625mA	313mA	125mA	0mA
Rms Output Voltage(V)	48.25V	48.29V	48.35V	48.42V	48.45V	48.48V
Active Output Power(W)	60.31W	45.29W	30.22W	15.15W	6.06W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.599A	0.467A	0.325A	0.176A	0.136A	0.023A
Rms Input Power(W)	65.30W	49.62W	33.27W	16.66W	7.20W	0.08W
Total Harmonic Distortion of the input current	237.2A%	240.7A%	236.8A%	239.1A%	203.4A%	34.4A%
True Power Factor	0.472	0.460	0.444	0.409	0.237	0.015
Power Consumed by UUT(W)	4.99W	4.33W	3.05W	1.51W	1.14W	0.08W
Efficiency	92.40%	91.33%	90.90%	91.10%	84.11%	*
Average Efficiency	91.43%				84.11%	*

Tester : jeff.Huang



正面圖



注意:此圖面所需材料符合"ROHS"標準

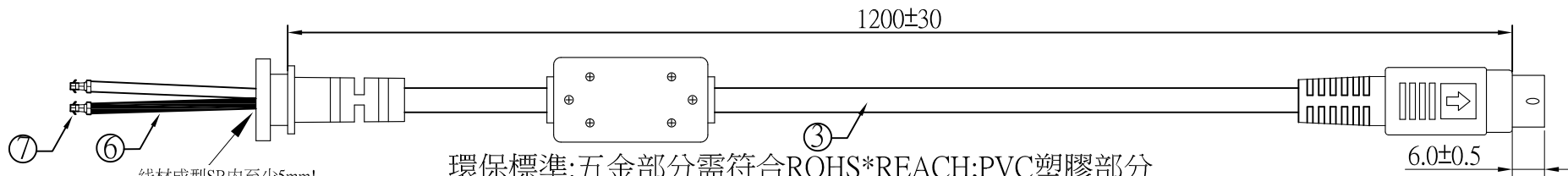
芯線	白色芯線	隔離線
PIN	P1,P2"+	P3,P4"-

- ① 4PIN 粗針成型式,外模P-180号模(二次成型)小網尾,单箭頭,用料PVC60P黑色
- ② SR-310號模(包胶),用料PVC75P黑色,吊重:1米/20磅/60秒
- ③ UL 1185 20AWG(0.16*26)单芯隔离线(0.12*45) BK亮 OD:3.0裁線長度:1260+10-0
- ④ 鐵芯:14.2*28.5*6.35,外模SR-118號模,用料PVC60P黑色
- ⑤ PE无鐵芯紮帶10CM黑色
- ⑥ 热缩套管 ϕ 1.0*36
- ⑦ 1.8双钩机板端*2PCS(P1815-A)
- ⑧ 單位:MM

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

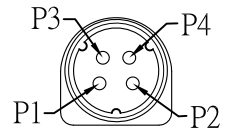
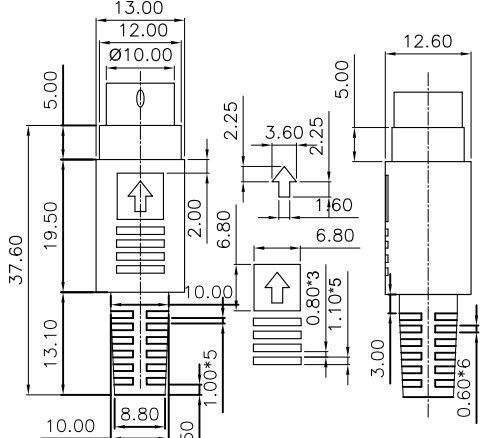
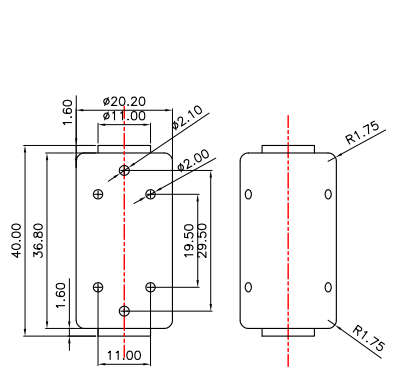
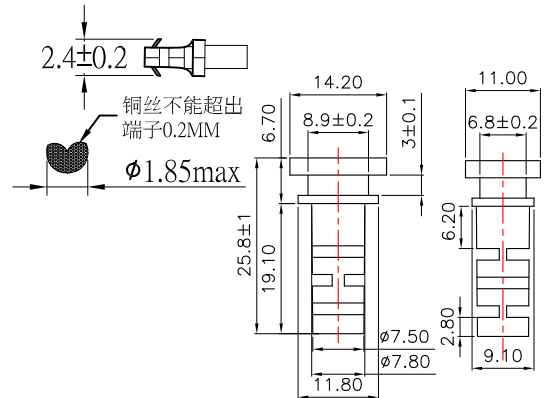
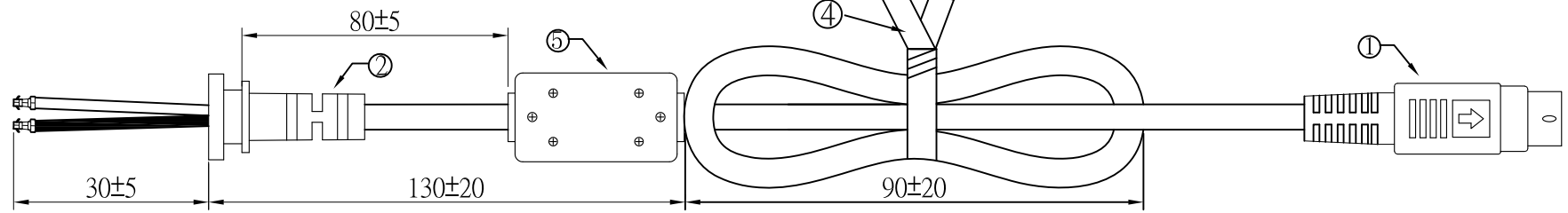
料號	X44R10B120101		
客戶	阿達特	制圖	陶胜英
頁數	01	審核	
		批准	
泰岳電子有限公司			
圖號	ADT-7114	日期	2022/06/28

01	新出	2022/06/28
版次	變更內容	日期



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

线材成型SR内至少5mm!



正面图

PIN	P1/P2	P3/P4
线材	芯线"+"	隔离线"-"

- ⑨ 注意:此款线材的隔离线为加粗!
- ① 4PIN粗针公头成型式,外模P-111(泰岳P-180)号模/小网尾(两次成型),外模用PVC 60P黑色胶粒成型
- ② SR-202號模(泰岳SR-310),用PVC 75P黑色膠粒成型 吊重:1米/20磅/60秒
- ③ UL 1185 20AWG(0.16*26)*1C+隔离线(0.12*45) 黑亮面 OD:3.0 裁線長度:1250+10-0
- ④ PET无鐵芯紮帶10CM黑色
- ⑤ 铁芯规格:14. 2*28. 5*6. 35, 外模T-011號模(泰岳SR-118), 用PVC 60P黑色膠粒成型
- ⑥ 黑色热缩套管 ϕ 1.0*32*1PCS
- ⑦ ϕ 1.8双钩基板端子*2PCS
- 摇摆测试标准:吊重200g,左右60度,每分钟40次,至少2000次
- 絕緣阻抗:20M Ω 導通阻抗:1.5 Ω MAX
- 單位:mm

長度(mm)	公差(mm)
2以下	±0.15
2-5	±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	新出	吳青喜	2022-06-27

GD 東莞市廣多貿易有限公司
 廣東省東莞市大朗鎮新馬路新馬路19號A1棟3樓
 TEL:0769-83019738 83019739 FAX:0769-83201033

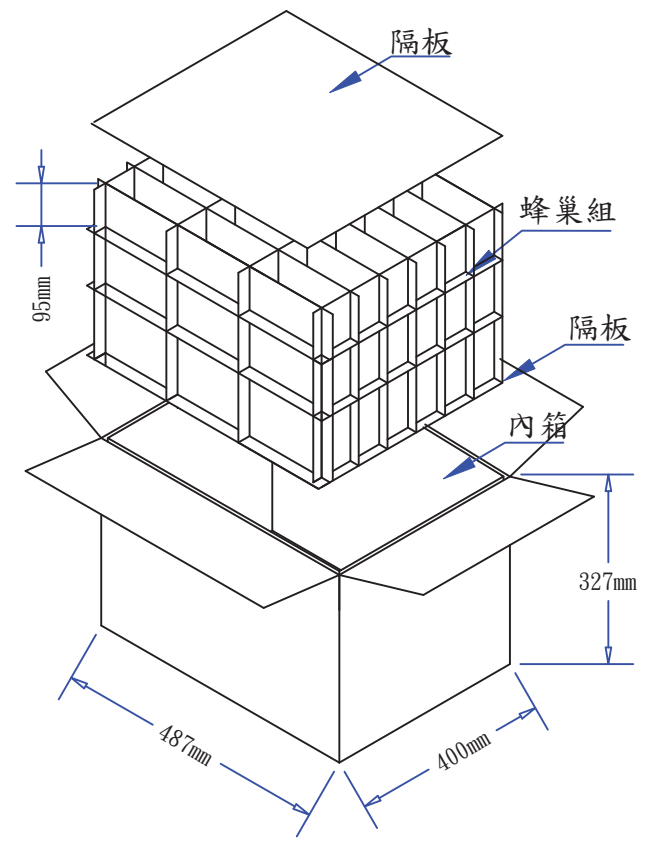
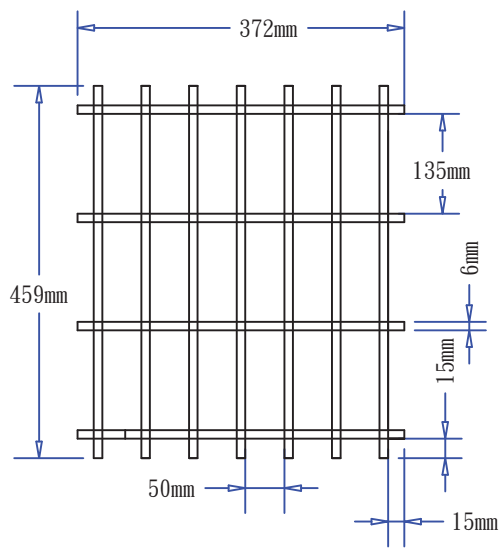
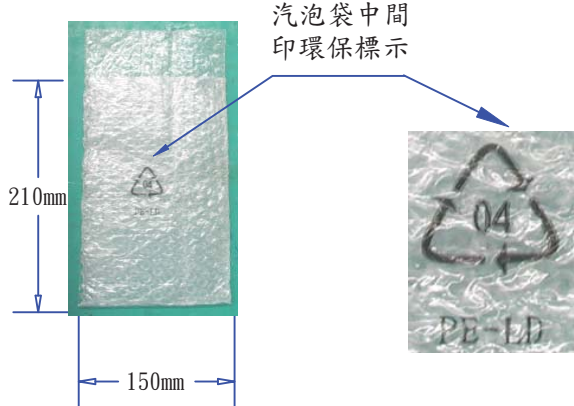
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客戶	阿達特	制圖	吳青喜
廣多版本	A	頁數	01/01
客戶版本	01	審核	
圖號	ADT-Q2499	日期	2022-06-27



示意圖
(圖面僅供參考)

- 用膠帶封口
- 無需膠帶封口

REVISIONS				
SHOW	REV	DESCRIPTION	DATE	APPROVED
△	A	初版制作	20/10/30	Sun



PIS60W00007 包裝 (FOR ATS060T-W/歐規)(K=K)-環保氣泡袋-內箱-邊分-54

- | | | | |
|-------------------|---|------------|-------|
| <u>9550037701</u> | 1. 隔板: 459(L)*372(W)*6mm | K=K | 4/54 |
| | 2. 數量: 3*6*3=54PCS | | |
| <u>9520045501</u> | 3. 內箱: 473(L)*386(W)*309(H)mm | K=K (無上下蓋) | 1/54 |
| <u>9520045601</u> | 4. 外箱: 487(L)*400(W)*327(H)mm | K=K | 1/54 |
| <u>9560035401</u> | 5. 4刀卡: 459(L)*95(W)*6mm(邊分) | K=K | 21/54 |
| <u>9560035501</u> | 6. 7刀卡: 372(L)*95(W)*6mm(邊分) | K=K | 12/54 |
| <u>9540000901</u> | 7. 環保汽泡袋: 210*150*47mm 無色透明, 短邊單端開口, 長邊中間位置印環保標誌. 1/1 | | |
| | 8. 將線材放在產品插頭上裝入環保氣泡袋中, 再將插頭朝上放入蜂巢內, 方向須統一. 如圖所示(圖面僅供參考) | | |
| | 9. 外箱標注為外徑尺寸; 上述物品須完全符合環保ROHS標準. | | |



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

DRAWING NO. PIS60W00007		APPROVAL 1 BY		
UNIT	MODEL NO. ATS060T-W/歐規(轉規)	APPROVAL 2 BY		
mm	FILE NO. ADT-0707	CHECKED BY(ENGINEER)	Sun	2020/10/30
SCALE	REV. A	SHEET 1/1	DRAWN BY	Moon
				2020/10/30
Apply for sales		Apply for engineer		Use the sales
				Use the engineer



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 : 34.3 (L)*24.3 (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.

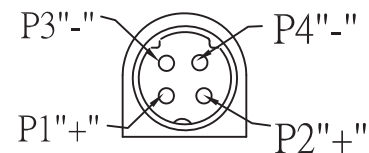
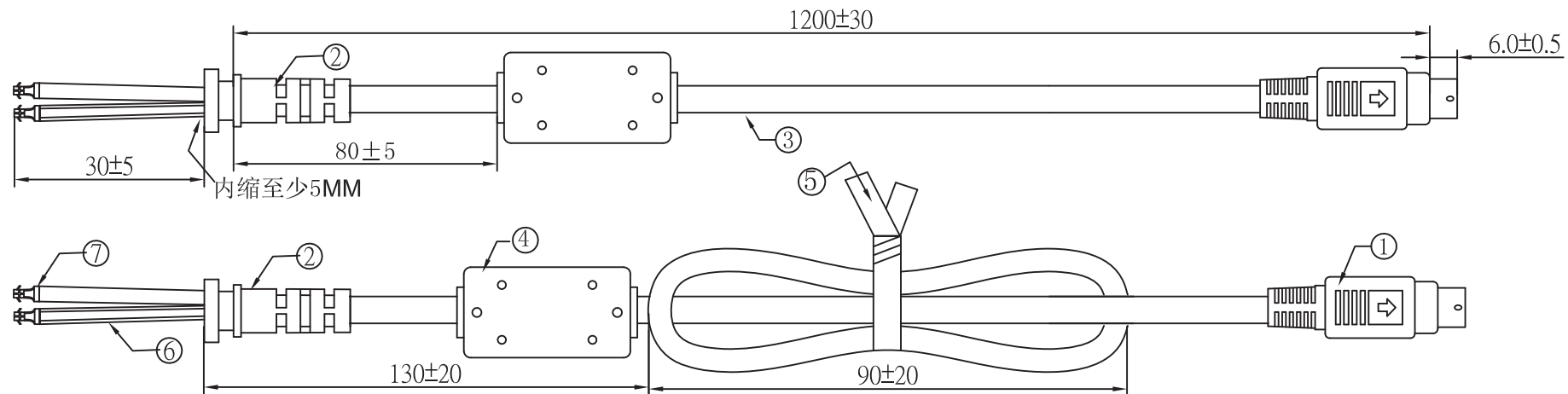
It is accurate that the number of words depends on the real finished product.

300%

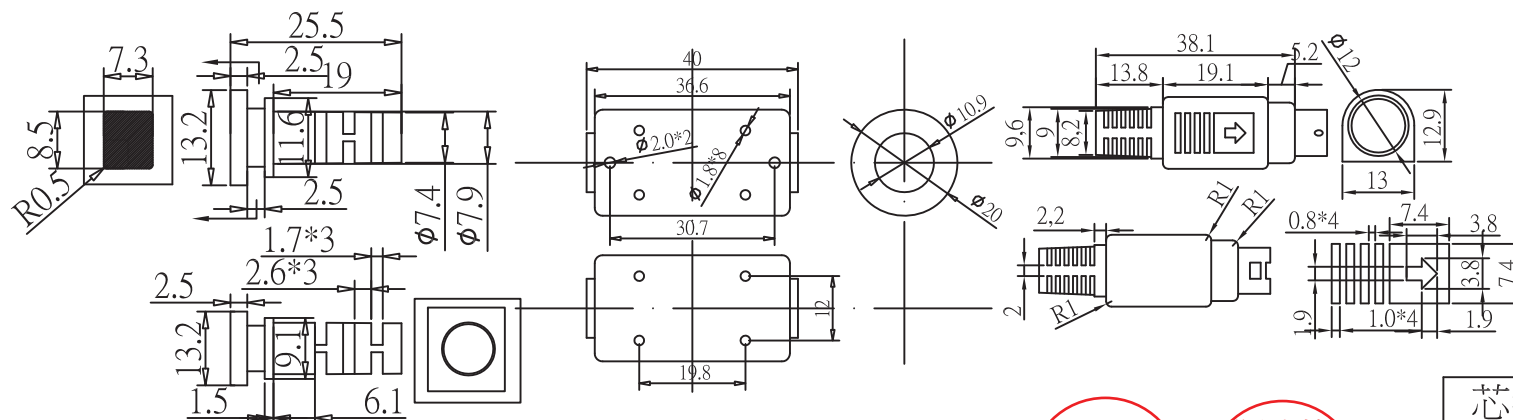


Label part no.:9443125160





正面圖



注意:此圖面所需材料符合"ROHS"標準

- ① 4PIN 粗針成型式,外模P-180号模(二次成型)小網尾,单箭頭,用料PVC60P黑色
- ② SR-310號模(包胶),用料PVC75P黑色,吊重:1米/20磅/60秒
- ③ UL 1185 20AWG(0.16*26)单芯隔离线(0.12*45) BK亮 OD:3.0裁線長度:1260+10-0
- ④ 鐵芯:14.2*28.5*6.35,外模SR-118號模,用料PVC60P黑色
- ⑤ PE无鐵芯紮帶10CM黑色
- ⑥ 热缩套管 ϕ 1.0*36
- ⑦ 1.8双钩机板端*2PCS(P1815-A)
- ⑧ 單位:MM

Adapter Tech.
2022.06.29
Steven Liao

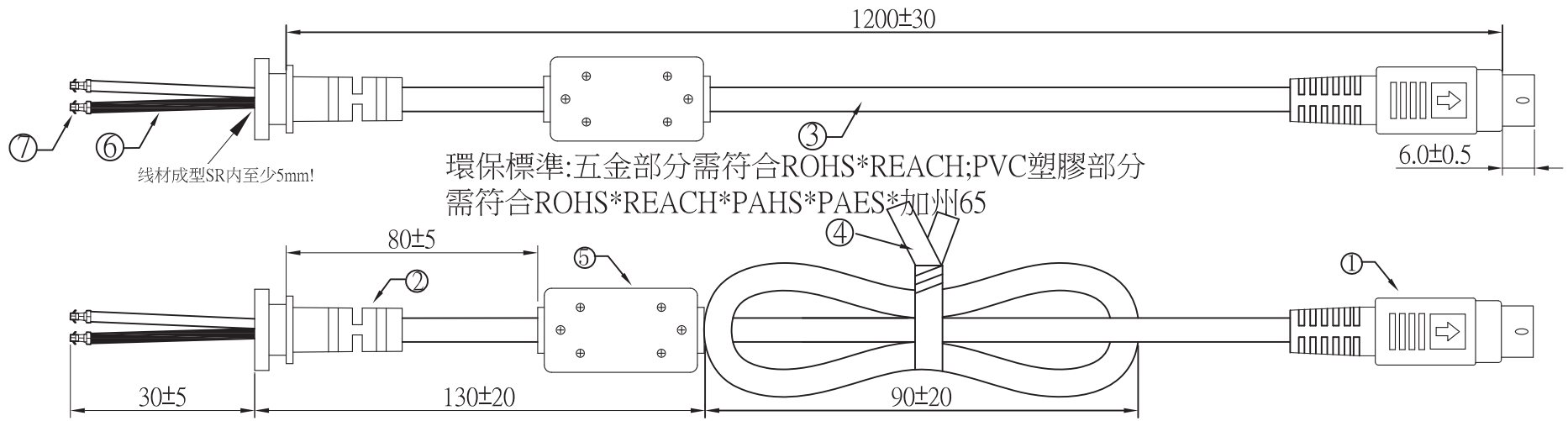
阿達特
2022.06.29
黃翔宇

芯線	白色芯線	隔離線
PIN	P1,P2"+	P3,P4"-

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

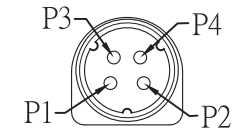
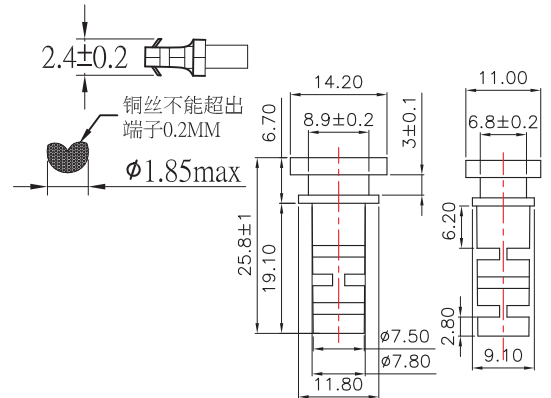
料號	X44R10B120101		
客戶	阿達特	制圖	陶胜英
頁數	01	審核	
		批準	
泰岳電子有限公司			
圖號	ADT-7114	日期	2022/06/28

01	新出	2022/06/28
版次	變更內容	日期



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

线材成型SR内至少5mm!



正面图

PIN	P1/P2	P3/P4
线材	芯线"+"	隔离线"-"

- ⑦ 注意:此款线材的隔离线为加粗!
- ① 4PIN粗针公头成型式,外模P-111(泰岳P-180)号模/小网尾(两次成型),外模用PVC 60P黑色胶粒成型
- ② SR-202號模(泰岳SR-310),用PVC 75P黑色膠粒成型 吊重:1米/20磅/60秒
- ③ UL 1185 20AWG(0.16*26)*1C+隔离线(0.12*45) 黑亮面 OD:3.0 裁線長度:1250+10-0
- ④ PET无鐵芯紮帶10CM黑色
- ⑤ 铁芯规格:14. 2*28. 5*6. 35, 外模T-011號模(泰岳SR-118), 用PVC 60P黑色膠粒成型
- ⑥ 黑色热缩套管 ϕ 1.0*32*1PCS
- ⑦ ϕ 1.8双钩基板端子*2PCS
 摇摆测试标准:吊重200g,左右60度,每分钟40次,至少2000次
 絕緣阻抗:20M Ω 導通阻抗:1.5 Ω MAX
 單位:mm

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一般尺寸公差表	長度(mm)	公差(mm)
	2以下	±0.15
	2-5	±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	新出	吳青喜	2022-06-27

GD 東莞市廣多貿易有限公司
 廣東省東莞市大朗鎮新馬蓮新馬路19號A1棟3樓
 TEL:0769-83019738 83019739 FAX:0769-83201033

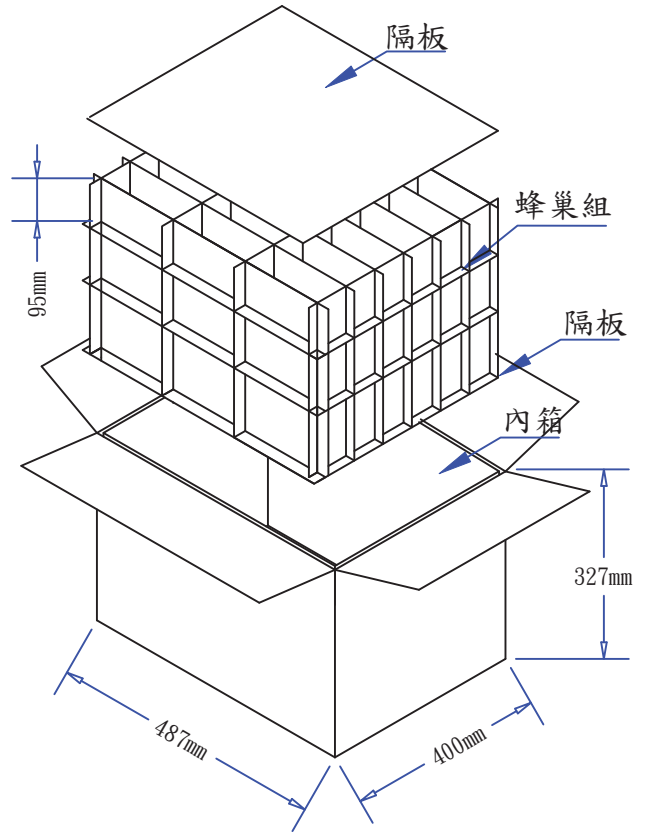
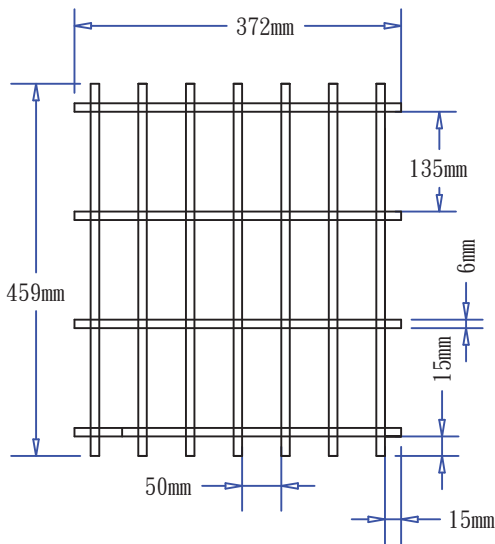
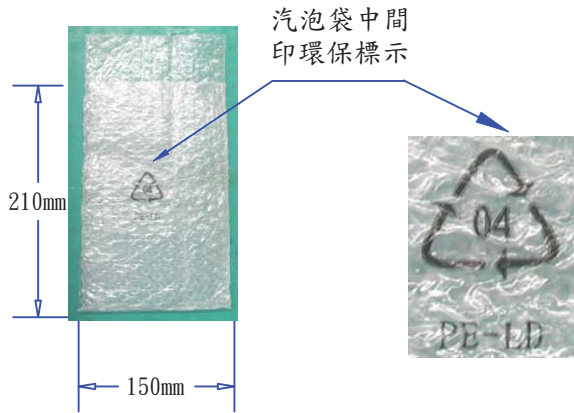
料號	X44R10B120101		
客戶	阿達特	制圖	吳青喜
廣多版本	A	頁數	01/01
客戶版本	01	審核	
圖號	ADT-Q2499	日期	2022-06-27



示意圖
(圖面僅供參考)

- 用膠帶封口
- 無需膠帶封口

REVISIONS				
SHOW	REV	DESCRIPTION	DATE	APPROVED
△	A	初版制作	20/10/30	Sun



PIS60W00007 包裝 (FOR ATS060T-W/歐規)(K=K)-環保氣泡袋-內箱-邊分-54

- | | | | |
|-------------------|---|------------|-------|
| <u>9550037701</u> | 1. 隔板: 459(L)*372(W)*6mm | K=K | 4/54 |
| | 2. 數量: 3*6*3=54PCS | | |
| <u>9520045501</u> | 3. 內箱: 473(L)*386(W)*309(H)mm | K=K (無上下蓋) | 1/54 |
| <u>9520045601</u> | 4. 外箱: 487(L)*400(W)*327(H)mm | K=K | 1/54 |
| <u>9560035401</u> | 5. 4刀卡: 459(L)*95(W)*6mm(邊分) | K=K | 21/54 |
| <u>9560035501</u> | 6. 7刀卡: 372(L)*95(W)*6mm(邊分) | K=K | 12/54 |
| <u>9540000901</u> | 7. 環保汽泡袋: 210*150*47mm 無色透明, 短邊單端開口, 長邊中間位置印環保標誌. 1/1 | | |

8. 將線材放在產品插頭上裝入環保氣泡袋中, 再將插頭朝上放入蜂巢內, 方向須統一。如圖所示(圖面僅供參考)
9. 外箱標注為外徑尺寸; 上述物品須完全符合環保ROHS標準。



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

DRAWING NO. PIS60W00007		APPROVAL 1 BY		
UNIT	MODEL NO. ATS060T-W/歐規(轉規)	APPROVAL 2 BY		
mm	FILE NO. ADT-0707	CHECKED BY(ENGINEER)	Sun	2020/10/30
SCALE	REV. A	SHEET 1/1	DRAWN BY	Moon
				2020/10/30
Apply for sales		Apply for engineer		Use the sales