



# SPECIFICATION FOR APPROVAL

CUSTOMER: \_\_\_\_\_

DESCRIPTION: I.T.E. POWER SUPPLY REV: (A2)

MODEL NO: HK-AP-050A120-CP PART NO: HKSC-170074

DESIGNED NO: 170074-0207 DATE: NOV.29th.2018

| CUSTOMER APPROVED SIGNATURES |  |  | VENDOR APPROVED SIGNATURES  |   |   |
|------------------------------|--|--|---|---|---|
|                              |  |  |  |  |  |

Ideal Power, 14 Larks Way, Tree Beech Enterprise Park, Gunn, Barnstaple, Devon, England EX32 7NZ

Web: [www.idealpower.co.uk](http://www.idealpower.co.uk) email: [sales@idealpower.co.uk](mailto:sales@idealpower.co.uk) TEL +44 (0) 845 2603400 Fax +44 (0) 845 2603401

**SPECIFICATION CHANGE HISTORY**

|                 |                         |  |                    |
|-----------------|-------------------------|--|--------------------|
| <b>CUSTOMER</b> |                         | <b>PART NO</b>   | <b>HKSC-170074</b> |
| <b>MODEL NO</b> | <b>HK-AP-050A120-CP</b> | <b>REV</b>   | <b>(A2)</b>        |
| <b>REV</b>      | <b>DATE</b>             | <b>DESCRIPTION</b>                                     | <b>REMARKS</b>     |
| A0              | 17.02.07                | 新發行承認書.(New issue)                                     | 羅珍珍                |
| A1              | 17.03.21                | 更新EMC.(Update EMC standard)                            | 羅珍珍                |
| A2              | 18.11.29                | 追加CCC, PSE安規及更新銘板. (Add CCC,PSE on the label marking.) | 羅珍珍                |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |
|                 |                         |  |                    |

|                         |                           |                   |
|-------------------------|---------------------------|-------------------|
| <b>SAFETY APPROVAL:</b> | <b>ENGINEER APPROVAL:</b> |                   |
|                         | <b>ELECTRICAL</b>         | <b>STRUCTURAL</b> |
| 毛源龍                     | 江雄軍                       | 陳銘                |

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 1 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## CONTENTS

1. INTRODUCTION
2. INPUT REQUIREMENTS
3. OUTPUT REQUIREMENTS
4. EFFICIENCY
5. LINE REGULATION
6. HOLD UP TIME
7. TURN ON TIME
8. TEMPERATURE COEFFICIENT
9. DIELECTRIC STRENGTH (Hi-Pot) TEST
10. INSULATION RESISTANCE
11. PROTECTION
12. ENVIRONMENTAL CONDITIONS
13. EMI/ EMC
14. RELIABILITY AND QUALITY CONTROL
15. SAFETY
16. OVERALL DRAWING
17. PACKING
18. MARKING

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 2 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 1.0 INTRODUCTION

This document specifies a switching power supply with a output of +5V, and electronic process. The switching power supply will provide power for technology equipments including electrical business equipment. The adaptor meets the requirement of lead free and RoHS.

## 2.0 INPUT REQUIREMENTS

2.1 Input Voltage Range: 100(-10%)VAC to 240(+10%)VAC

2.2 Input Frequency Range: 47 Hz to 63 Hz

2.3 Input Power Consumption at no-load : 0.1W Max

2.4 Input In-rush Current: 50A Max

Test condition will be tested after No load operating for 30min then measure it.

2.5 Input Current: 0.2A Max

## 3.0 OUTPUT REQUIREMENTS

3.1 Output Voltage: +5V

3.2 Output Regulation: 4.75-5.25V

3.3 Output Load Range: 0-1.2A

3.4 Output Ripple & Noise: 300mV Max @20MHz bandwidth with 10UF/50V capacitance and 104/50V ceramic capacitor.

4.0 EFFICIENCY:  $\geq 75.00\%$  @ average of 25/50/75/100% loads 115V&230VAC input

Test condition will be tested after full load operating for 30min then measure it.

5.0 LINE REGULATION:  $\pm 2\%$  maximum

6.0 HOLD UP TIME: 10ms Min at 110VAC full load.

7.0 TURN ON TIME: 2S Max at 110VAC full load.



|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 3 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

8.0 TEMPERATURE COEFFICIENT: 0.05%/°C

9.0 DIELECTRIC STRENGTH (Hi-Pot) TEST

Primary to Secondary : AC 3.0 KVrms, 4mA, 1 minute for type, 2 second for production test.

10.0 INSULATION RESISTANCE

Primary to secondary: 50M OHM to 500VDC.

11.0 PROTECTION

11.1 Input Protection

The switching power supply has a 10 ohm fusing resistor to protect itself.

11.2 Output Protection

11.2.1 Output Current:

Overload conditions shall decrease the output voltage. Removal of an output overload shall provide automatic recovery for the output voltage.

11.2.2 Short Circuit Protection: Auto Recovery.



|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 4 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 12.0 ENVIRONMENTAL CONDITIONS

The switching power supply can withstand the following environmental conditions:

12.1 Storage Temperature:-20°C ~ +70°C

Relative Humidity: 10% ~ 95%

12.2 Operation Temperature:0°C~40°C

Relative Humidity: 10%~95%

## 13.0 EMI / EMC

The switching power supply has approved by the following standards:

|                                |                              |
|--------------------------------|------------------------------|
| FCC PART 15 Class B            | AS/NZS CISPR 32:2015         |
| EN55032:2015                   | AS/NZS CISPR 14.1:2013       |
| EN55014-1:2006+A1:2009+A2:2011 | AS/NZS CISPR 14.2:2015       |
| EN55014-2:2015                 | AS/NZS CISPR 22:2009+A1:2010 |
| EN55022:2010                   | AS/NZS CISPR 24.1:2013       |
| EN55024:2010+A1:2015           | AS/NZS 61000.3.2:2013        |
| EN61000-3-2:2014               | AS/NZS 61000.3.3:2012        |
| EN61000-3-3:2013               | GB17625.1-2012; GB 9254-2008 |
|                                | J55022(H22)                  |

## 14.0 RELIABILITY AND QUALITY CONTROL

### 14.1 Burn-in

The burn-in test will be performed at least 2 hours at 40 centigrade degrees under full load condition.

### 14.2 MTBF

When the operation is complying with this specification, the switching power supply's MTBF will be 50,000 hours at 25 centigrade degrees.

## 15.0 SAFETY

The switching power supply has approved by the following standards:

|  |                      |
|--|----------------------|
| UL 60950-1, 2nd Edition,2014-10-14           |                      |
| CSA C22.2 NO.60950-1-07, 2nd Edition,2014-10 |                      |
| EN60950-1:2006+A11+A1+A12+A2                 | BS EN60950-1:2006+A2 |
| AS/NZS 60950.1:2015                          | GB4943.1-2011        |
|  | J60950-1(H27)        |



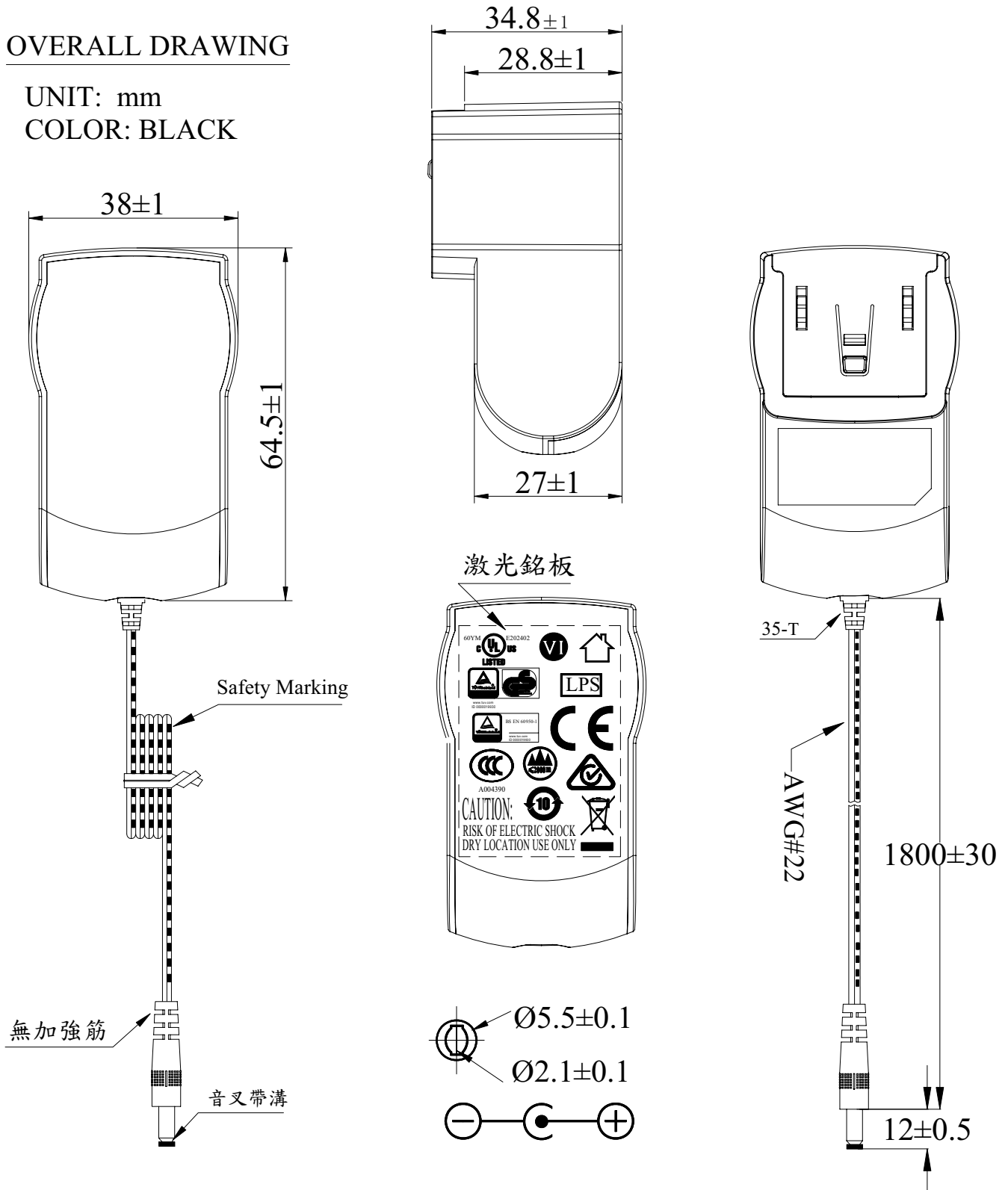
# IDEALPOWER

experts in power conversion

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 5 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 16. OVERALL DRAWING

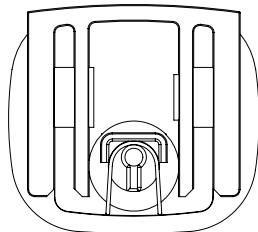
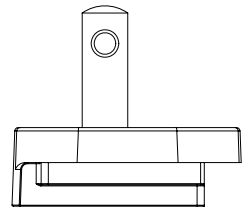
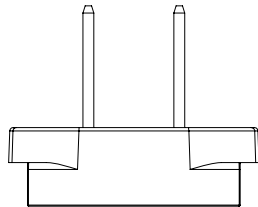
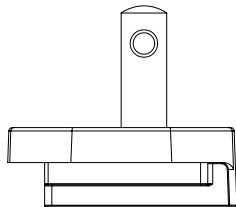
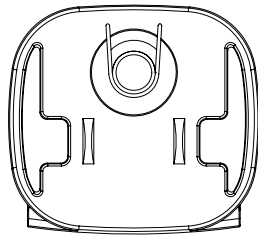
UNIT: mm  
COLOR: BLACK





|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 6 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

UNIT: mm



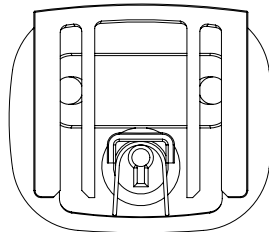
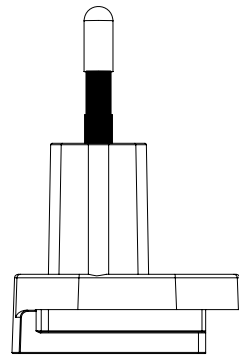
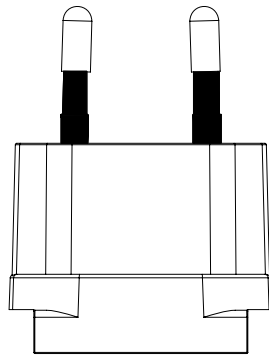
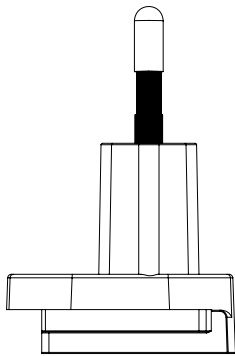
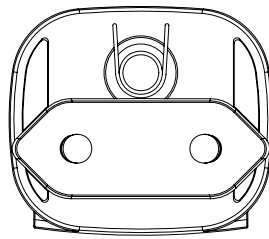
UL





|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 7 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

UNIT: mm

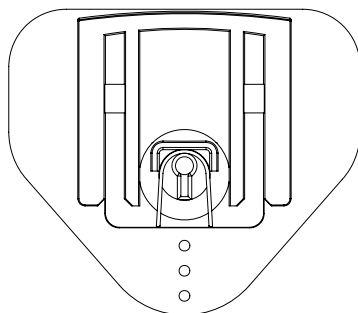
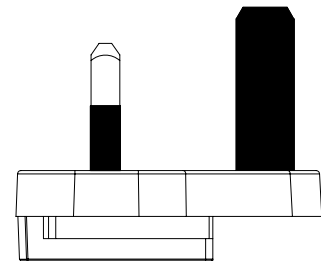
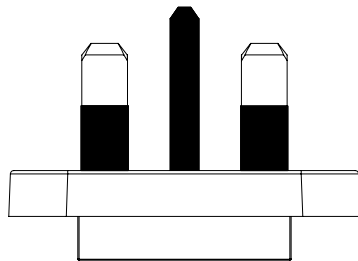
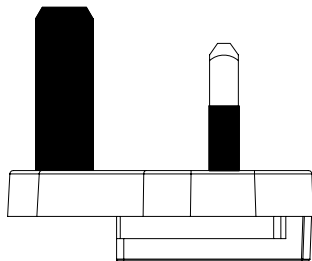
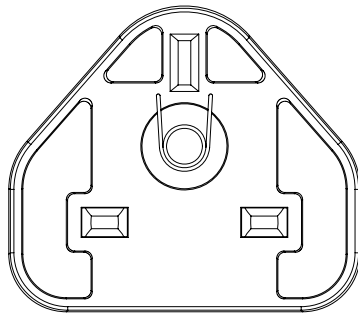


TUV



|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 8 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

UNIT: mm



UK

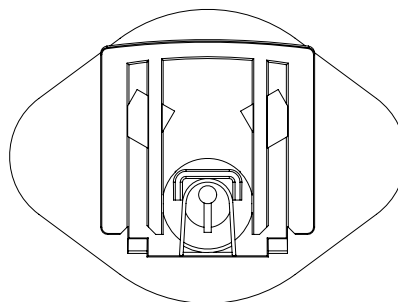
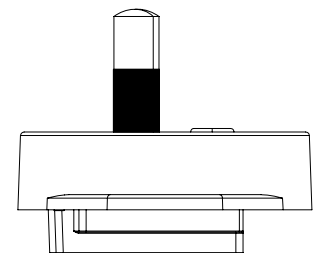
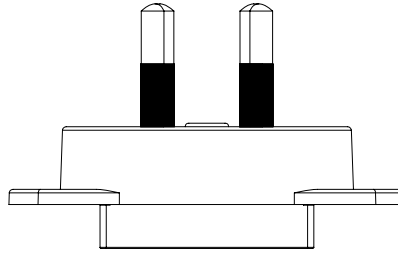
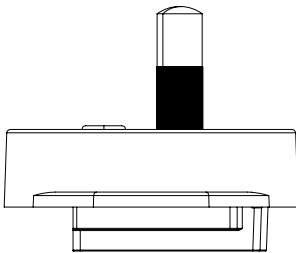
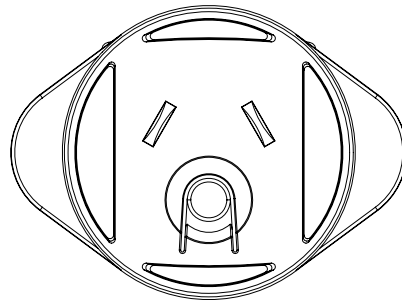


# IDEALPOWER

experts in power conversion

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 9 OF 14    |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

UNIT: mm



## SAA



# IDEALPOWER

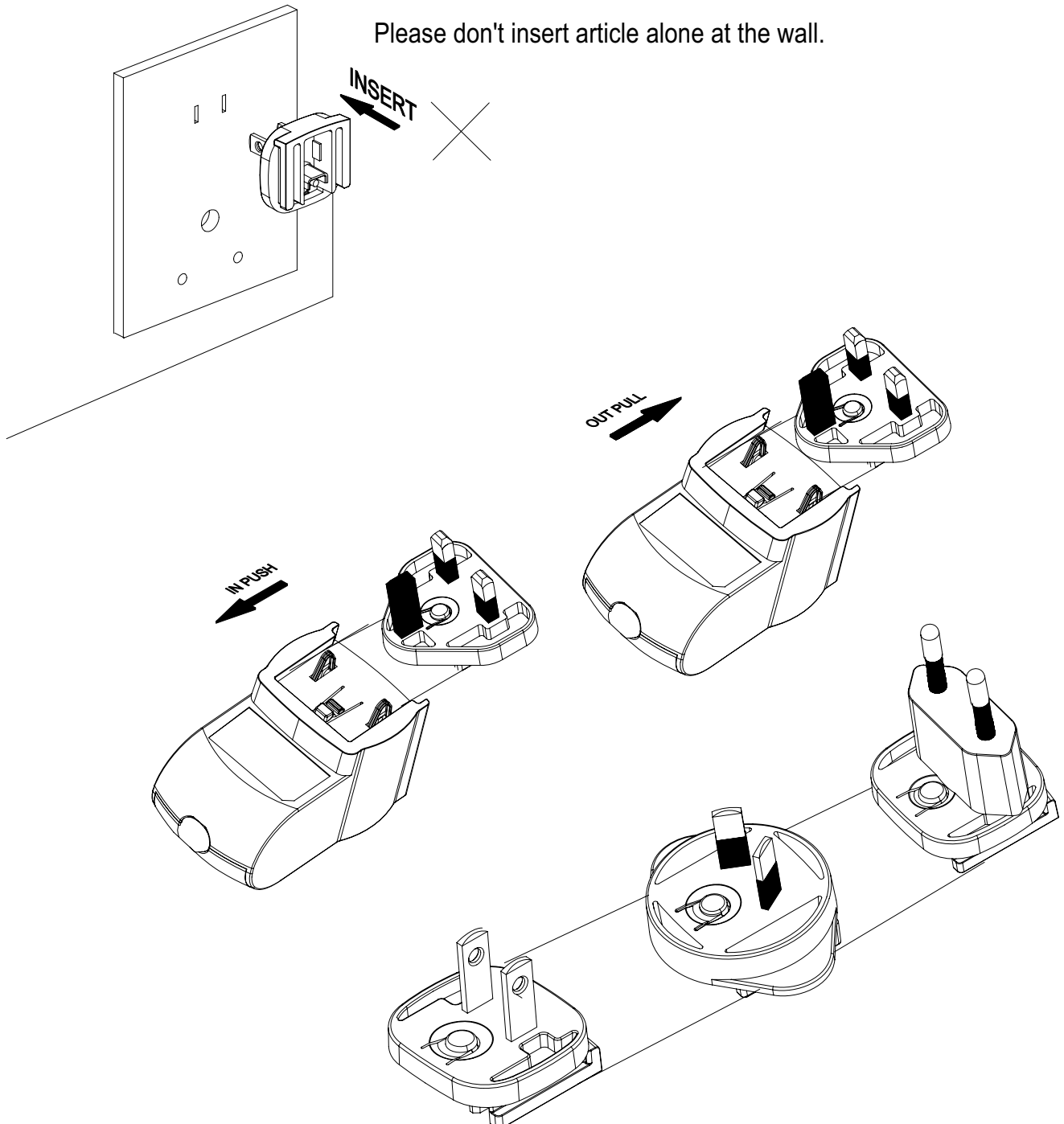
experts in power conversion

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 10 OF 14   |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

UNIT: mm

## WARNING!

Please don't insert article alone at the wall.





|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 11 OF 14   |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 17. PACKING

### 17.1 Inner Box

UNIT: mm

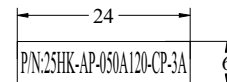
■ BOX (■ Normal BOX □ Corrugated BOX)

Length: 82

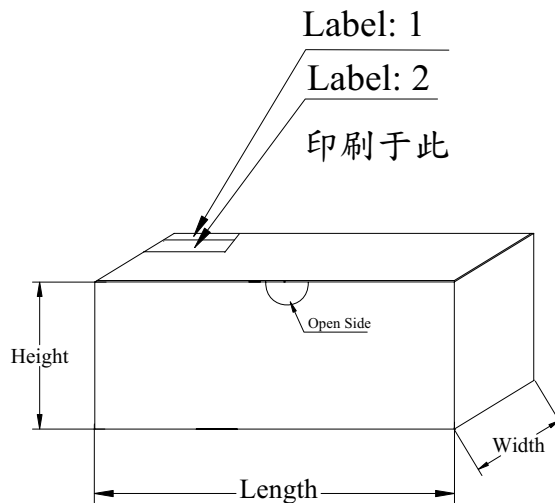
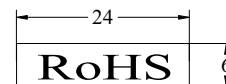
Width: 85

Height: 55

Label: 1



Label: 2



### NOTICE:

Its probably different from the white box of the sample and the figure dimension.  
The white box is used to pack during product.

注意: 樣品使用的小白盒尺寸可能與此圖面尺寸不同, 此圖面尺寸是用于生產時的包裝.



# IDEALPOWER

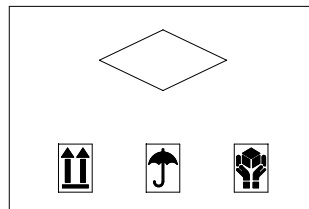
experts in power conversion

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 12 OF 14   |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 17. PACKING

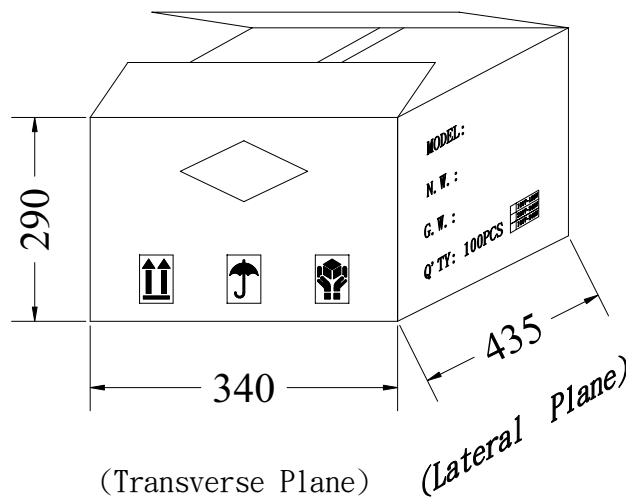
### 17.2 Carton

UNIT: mm



MODEL :  
N. W. :  
G. W. :  
Q' TY: 100PCS

|  |           |
|--|-----------|
|  | 100V-120V |
|  | 200V-240V |
|  | 100V-240V |





# IDEALPOWER

experts in power conversion

|               |                     |              |            |
|---------------|---------------------|--------------|------------|
| MODEL NO. :   | HK-AP-050A120-CP    | PAGE NO. :   | 13 OF 14   |
| PART NO. :    | HKSC-170074         | ISSUED DATE: | 2018.11.29 |
| DESCRIPTION : | I.T.E. POWER SUPPLY | REV:         | (A2)       |

## 18. MARKING

100# CPC 壓花底+上光 NAME-PLATE:WHITE CHARACTERS BLACK BACKGROUND.

UNIT: mm

|       |   |               |   |   |
|-------|---|---------------|---|---|
| M     | M | Y             | Y | C |
|       |   |               |   |   |
| month |   | year          |   |   |
|       |   | made in China |   |   |
|       |   | by Hon-kwang  |   |   |

