



a seacomp company

## SPECIFICATION FOR APPROVAL

<b>MODEL NUMBER</b>	HDP12-MD05024U
<b>PART NUMBER</b>	HDP12-MD-WUSB-4
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE
<b>CUSTOMER / PROJECT CODE</b>	MED-02
<b>REVISION</b>	A1 (Preliminary)
<b>DATE</b>	August 27, 2018

<b>CUSTOMER APPROVAL</b>	<b>DATE</b>
<b>SEACOMP ENGINEERING APPROVAL</b>	<b>DATE</b>

---

HDP Power – a SEACOMP company  
2546 Gateway Road  
Carlsbad, California 92009

Tel: 1.760.438.9600  
Email: sales@seacomp.com  
Website: www.hdp-power.com

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	1 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## Contents

Contents	1
Revision History	2
1 Scope	3
2 Quality Requirements	3
2.1 Product Specific Quality Requirements	3
2.2 General Quality Requirements	5
3 Electrical Characteristics	7
3.1 Input	7
3.2 Output	7
3.3 Cable & Connector	8
4 Cosmetic	9
4.1 Surface Definitions	9
4.2 Inspection Conditions	9
4.3 Cosmetic Defect Definitions	10
4.3 Size / Weight	12
4.4 Assembly Drawing	13
5 Electromagnetic Compatibility	14
6 Labeling	15
6.1 Labeling the Device	15
6.2 Label Drawing	15
7 Packaging	16
7.1 Drawing	16
7.2 Packaging Test	17
8 Warranty	17



<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	2 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## Revision History

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	3 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 1 Scope

The device is a 12-watt AC to DC adapter designed to provide a constant power source for electrical products. This adapter is certified for both medical and informational technology equipment (ITE) applications.

## 2 Quality Requirements

### 2.1 Product Specific Quality Requirements

#### 2.1.1 Mechanical / Electrical Requirements

##### 2.1.1.1 Paint and Print Test

In accordance with EN 60068-2-70

The printings have to withstand the testing procedures without any restrictions.

Test liquid	Mineral oils (example: Baby oil)
Wiping cycles	1,000
Contact pressure	1N $\pm 0.2$ N

##### 2.1.1.2 Mechanical and Electrical Reliability

All electrical contacts and mechanically moving parts have to withstand a stress test of at least 3,000 simulated connecting cycles without any damage. After the test, the device must have 100% functionality. Connectors must comply with the manufacturer's requirements or relevant standards at minimum.

##### 2.1.1.3 Cable Tension and Flex

All cable joints and strain relief points have to pass the following:

Static load: 5Kg / 1 min at 0 degree and at 90 degree angles

Flex test: +/- 60 degree bending angle 250gm at 20cycle / minute with a minimum speed of 1000 cycles.

##### 2.1.1.4 Drop Test

This test requires the device to be dropped from a height of 1 meter onto a concrete floor. The drop should cover all surfaces including the 2 edges and all 4 corners. After the test, the device should have 100% functionality. There should not be any cracks, breaks or damage to any surface or have any loose internal components. Additionally, the ultrasonic weld joint should still be intact with minimum 80% coverage.

##### 2.1.1.5 Enclosure Crush Test

This test applies a uniformly distributed weight of 250 Newtons on all surfaces for 5 seconds per surface. There should be no physical damage or effect on the products performance (i.e. operating folding AC blade, easy insertion of international adapters, snug USB connector fit).

##### 2.1.1.6 Cable Burn Test (to be tested by safety lab)

In accordance with DIN 75200

Burn down speed max. 50 mm/min

UL rated cable with UL file is an acceptable replacement for this test. Cable to be VW-1 rated.

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	4 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 2.1.2 Climate Requirements

### 2.1.2.1 Temperature Range

Full Functionality	0°C up to +45°C
Storage Temperature	-20°C up to +85°C

### 2.1.2.2 Thermal Shock (operational)

Low Temperature	0°C (AC/DC)
High Temperature	50°C (AC/DC)
T / t	15°C/min
Cycle Duration	1 hour
Number of Cycles	10
Mode of Operation	Minimum 75% full load
Requirement	100% functionality after test, without any damages or physical change

### 2.1.2.3 Thermal Aging

Temperature	-20°C and +85°C
Duration	96 hours at each temperature
Mode of Operation	Power off
Requirement	100% functionality after test, without any damages or physical change

### 2.1.2.4 Humidity (non-condensing)

Temperature	+45°C
Humidity	95%
Duration	96 hours
Mode of Operation	Power up no load
Requirement	100% functionality after test, without any damages or physical change

### 2.1.2.5 Humidity (condensing)

Upper Temperature	+45°C
Lower Temperature	+25°C
Humidity	95%
Test Cycle	5°C / max ramp rate
Duration	96 hours
Number of cycles	6
Mode of Operation	Non Operational
Requirement	100% functionality after test, without any damages or physical change

### 2.1.2.7 Salt Spray

Follow ASTM B117 standard with the possible exceptions listed below.

Temperature	35°C + 1.1 / - 1.7°C
Salt Solution	5% +/- 1 Salt solution (NaCl) in Distilled or D1193 Type IV water
PH	6.5 - 7.2
Fog Rate	1m - 2 mL / hr / 80sq.cm
Duration	24 hours

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	5 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 2.2 General Quality Requirements

### 2.2.1 Product Related Requirements

#### 2.2.1.1 General Appearance

Follows cosmetic requirements listed in Section 4 of this specification.

#### 2.2.1.2 Emissions

The device must not produce any nuisance or unhealthy smell. A certificate must be made available proving the use of harmless materials.

#### 2.2.1.3 Product Safety

The product has to comply with the relevant requirements listed in IEC 60950 (ITE) and IEC 60601 (medical).

Normal usage of the product must not result in any danger. In particular, any broken component parts, including electric components, may not result in any risk or danger of injury to the user. This is to be proven by a risk analysis during the product's development phase. Any potential hazard has to be indicated clearly in the user manual.

During normal use at an ambient temperature of 25°C, the housing (made of synthetic material) may warm up by 50K. Therefore, the maximum temperature of the parts could be as high as 75°C.

Individual "Hot Spots" (maximum size of 2 cm<sup>2</sup>) is acceptable if they are not located in the grip area. A warm up by 60K is acceptable in these "Hot Spots." Therefore, the maximum temperature of these parts could be 85°C.

For both normal use and "Hot Spot" instances, the housing must not exceed the maximum temperature of the applied synthetic.

When using tantalum capacitors, the effects of a potential explosion must be reduced to prevent any hazard to the user's health.

Protective actions against confusing the poles of the electric connectors have to be taken for any internal parts or connectors with specific polarity.

Transportation, storage, and operation of the adapter must not create any hazard, personal injury or any material damage. This is guaranteed through the controllable quality of workmanship and material used.

It must be guaranteed that after contact with natural oils, the housing material's performance does not result in any dangerous situations to the customer.

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	6 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

#### 2.2.1.4 Recycling and Environmental Compatibility

Must comply with RoHS and REACH.

Quality Level, (AQL)

In accordance with DIN ISO 2859 Part 1

General test-level	II
Critical defects	AQL 0
Major defects	AQL 0.4
Minor defects	AQL 0.65

### 2.2.2 Supplier Related Requirements

#### 2.2.2.1 Demonstration of Quality

The supplier is obliged to maintain a quality assurance system which covers R&D and production specific items. This system must meet the requirements of ISO 9000-2008. A quality assurance plan (QA plan) is required for a project-specific proof of quality-assuring measures. The plan should be made available and presented upon request.

For the development phase, the QA plan needs to define milestones as proof of the reliability prognoses. The development results and the release by the customer need to also be included in this plan.

For the production phase, the QA plan has to focus on the detailed verification of all the planned QA steps from component procurement to delivery. Any acceptance or error criteria to be applied to the QA plan must meet the process capability index as defined in this specification.

#### 2.2.2.2 Process Assurance

The quality capability has to be proven by a process capability of  $Cpk > 1.33$  and must be documented by a continuous monitoring of the production process. Parameters relevant for this process capability will be marked separately in the product's construction documents.

#### 2.2.2.3 Reliability

The probability of failure and the return of devices for repair must be less than 1% per year. The failure rates have to be predicted using MTBF calculations. The MTBF calculations have to be proven and available to the customer upon request.

A minimum of 50k MTBF must be achieved under nominal load and 25°C ambient temperature.

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	7 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 3 Electrical Characteristics

### 3.1 Input

- 3.1.1 Input Voltage Nominal: 120/220 VAC
- 3.1.2 Input Voltage Range: 90 ~ 264 VAC
- 3.1.3 Input Frequency Range: 50 / 60Hz (47 ~ 63 Hz)
- 3.1.4 Inrush Current: 50A peak at 240AC input < 200us
- 3.1.5 Maximum Input Current: 0.35A measured at 12 Watts  
Vin = 100VAC & 2.4A load
- 3.1.6 Efficiency: CEC-VI
- 3.1.7 Turn-on Time: < 2s
- 3.1.8 Input Fuse: 2A / 250VAC standard blow
- 3.1.9 AC Input Receptacle Type: Folding US AC blades
- 3.1.10 Isolation Voltage: Meet IEC 60950, IEC 60601
- 3.1.11 AC Leakage Current: .15mA measured 264V & 63Hz
- 3.1.12 Dielectric withstands Voltage: 3000VAC 60sec or 4242VDC 60 sec with no breakdown;  
Earth leakage at 110% of rated voltage should be < 10mA
- 3.1.13 Input Power (No Load): < 0.1W

### 3.2 Output

- 3.2.1 DC Output: 5.0 VDC
- 3.2.2 Output Current: 2.4A
- 3.2.3 Load Regulation: 4.75-5.25 VDC
- 3.2.4 Ripple and Noise: 120mVp-p
- 3.2.5 Turn-on Overshoot: < 10%
- 3.2.6 Over-current Protection: 3A max
- 3.2.7 Short Circuit Protection: Protected for continuous short circuit
- 3.2.8 Reset After Shutdown: Yes
- 3.2.9 Thermal Stability Time: 30 min
- 3.2.10 Peak Load Duration: Indefinite (OCP will prevent overload)

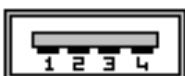
<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	8 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

### 3.3 Cable & Connector

USB-A Connector with Bridge configuration: D+/D- shorted.



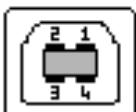
4 Pin Male "A" Connector on the cable



4 Pin Female "A" Connector on the computer



4 Pin "B" Male Connector on cable



4 Pin "B" Female Connector on computer

Pin	Name	Description	Color
1	VCC	+5 VDC	Red
2	D-	Data -	White
3	D+	Data +	Green
4	GND	Ground	Black

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	9 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 4 Cosmetic

### 4.1 Surface Definitions

Level A is the primary surface. For example, the front face of the adapter.

Level B is a secondary surface that may be viewed periodically by the end user, but is not in direct view during normal use. For example, the Cable (AC and DC), the sides of the housing, and the back of the housing.

Level C surfaces are not visible by the end user. For example, the inaccessible inside surfaces of the product.

### 4.2 Inspection Conditions

4.2.1 Inspection Method: Light source: Cool white fluorescent lamp 750 – 1000Lux

4.2.2 Viewing Distance: 30cm

4.2.3 Viewing Angle: 0 – 90 Degrees

4.2.4 Part Rotation Angle During Inspection:

Vertical Rotation Angle 180 Degrees

Horizontal Rotation Angle 360 Degrees

4.2.5 Viewing Time:

5 seconds total for all surfaces

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	10 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

### 4.3 Cosmetic Defect Definitions

Defect	Level A	Level B	Level C
Scratches, Dents, and Burrs (see Note 1)	Single defect not exceeding total surface area 5.50 mm <sup>2</sup>	Two defects not exceeding total surface area 11 mm <sup>2</sup>	Accept if it does not affect fit or function
Hairline Scratches, Gate Blush/Trim, Stress	Use 25% Contrast Standard to accept or reject for visible hairline scratches with depth of < 0.1 mm (total surface area not to exceed limits set in surface scratch below)		
Surface Scratches, Scuffs (see Note 1)	Single defect not exceeding total surface area of 5.7 mm <sup>2</sup>	Two defects not exceeding total surface area 25 mm <sup>2</sup>	Accept if it does not affect fit or function
Chips, Nicks, Cracks or Broken Features	Not Allowed		
Flash, Burrs, Sink Marks (see Note 2)	Not Allowed	Less than 0.5mm	Accept if it does not affect fit or function
Discoloration	Follow color samples		
Parting Lines	See diagram		
General Stains (not permanent)	Not allowed		
Rust	Not allowed		
Printing	No missing text or mistakes allowed. All letters should be visible. Refer to approved sample.		

**Note 1:**

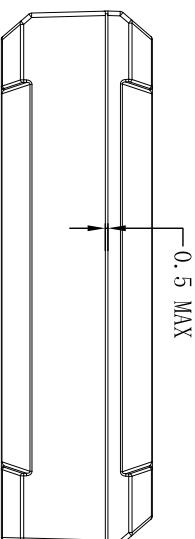
Area called out in these fields are calculated based on limit samples. The values are calculated based on average area covered by the features.

**Note 2:**

DC over-mold flash marks have to be signed off on samples and provided as acceptable limits.

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	11 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

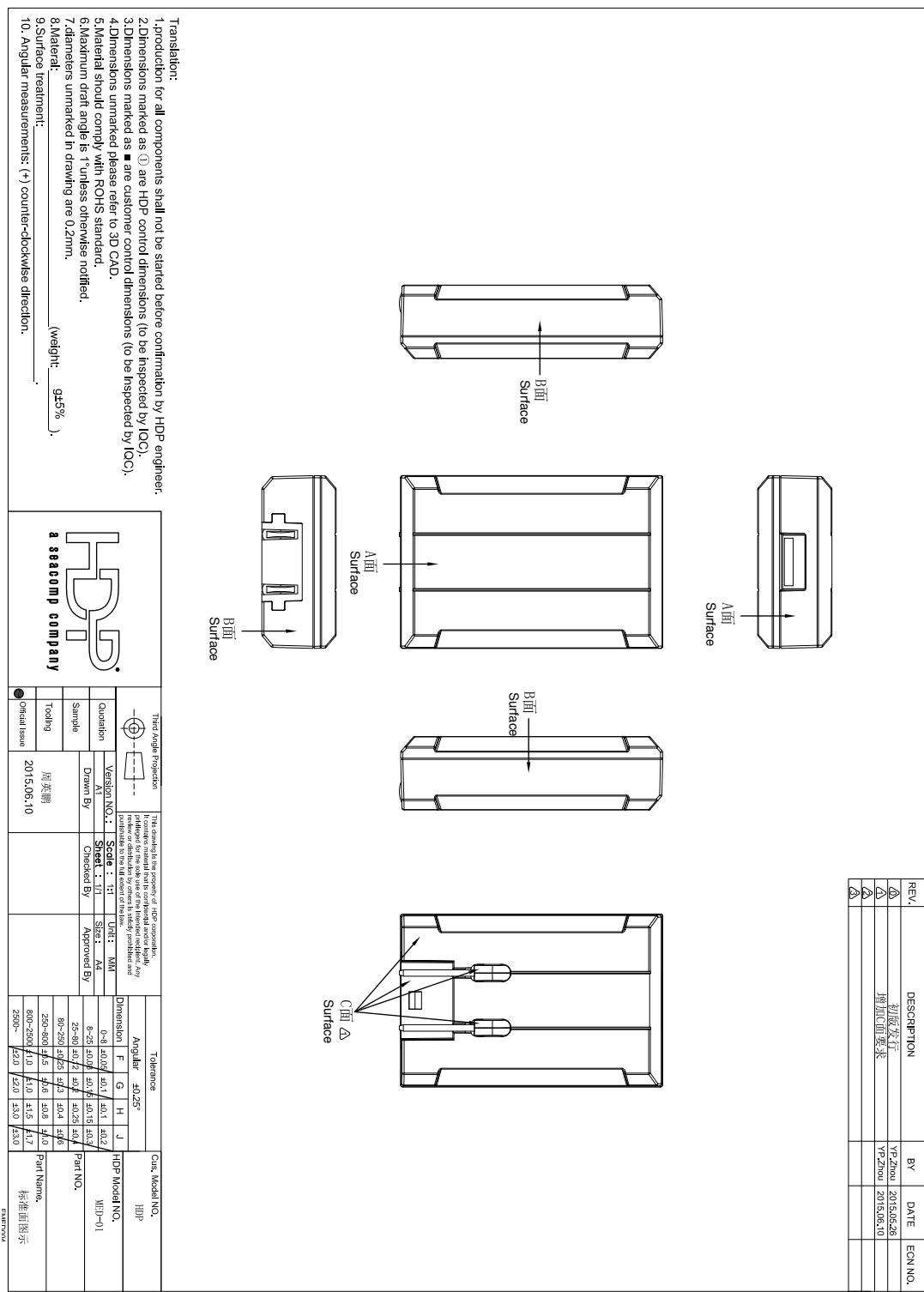
## Parting Line

<p>Translation: 1. Production for all components shall not be started before confirmation by HDP engineer. 2. Dimensions marked as ① are HDP control dimensions (to be inspected by IQC). 3. Dimensions marked as ② are customer control dimensions (to be inspected by IQC). 4. Dimensions unmarked please refer to 3D CAD. 5. Material should comply with ROHS standard. 6. Maximum draft angle is 1° unless otherwise notified. 7. Diameters unmarked in drawing are 0.2mm. 8. Material: 9. Surface treatment: (weight: <u>95%</u>).</p>	 a seacomp company	<p style="text-align: center;">Tolerance Gap from side A to B 0.4mm</p> 																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;">   a seacomp company </td> <td colspan="2" style="width: 60%; text-align: center; padding: 5px;"> <p>Third Angle Projection</p> <p>This drawing is the property of HDP corporation. It is to be used only for the manufacture of HDP products. It is the property of HDP corporation and is loaned to the customer. It is to be returned to HDP corporation when no longer required or is to be destroyed. Any reproduction or distribution by others is strictly prohibited and is a violation of law.</p> </td> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;"> <p>Tolerance</p> <p>Angular <math>\pm 0.25^\circ</math></p> <p>Cus. Model No. HDP-111P</p> </td> </tr> <tr> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;"> <p>Quotation No. 11</p> <p>Version No. A0</p> <p>Drawn By</p> <p>Sample</p> <p>Tooling</p> </td> <td colspan="2" style="width: 60%; text-align: center; padding: 5px;"> <p>Scale : 1:1</p> <p>Sheet : 1/1</p> <p>Checked By</p> <p>Approved By</p> <p>8-23 40/30 30/35 40/45 40/40 25-50 40/25 40/35 40/40 40/45 40/40 250-300 40/5 40/5 40/5 40/4 40/6 40/8 40/10 40/12 40/14 40/16 40/18 40/20 40/22 40/24 40/26 40/28 40/30 40/32 40/34 40/36 40/38 40/40 40/42 40/44 40/46 40/48 40/50 40/52 40/54 40/56 40/58 40/60 40/62 40/64 40/66 40/68 40/70 40/72 40/74 40/76 40/78 40/80 40/82 40/84 40/86 40/88 40/90 40/92 40/94 40/96 40/98 40/100</p> </td> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;"> <p>Dimension F G H J</p> <p>0-8 <math>\pm 0.05</math> <math>\pm 0.1</math> <math>\pm 0.2</math></p> <p>8-23 <math>\pm 0.05</math> <math>\pm 0.15</math> <math>\pm 0.3</math></p> <p>25-50 <math>\pm 0.1</math> <math>\pm 0.25</math> <math>\pm 0.4</math></p> <p>Part NO.</p> <p>Part Name,</p> <p>美工线图示</p> </td> </tr> <tr> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;"> <p>Official Issue</p> </td> <td colspan="2" style="width: 60%; text-align: center; padding: 5px;"> <p>HDP Model NO. HDP-111P</p> <p>MDP-01</p> </td> <td colspan="2" style="width: 20%; text-align: center; padding: 5px;"> <p>Material:</p> <p>2015.05.26</p> </td> </tr> </table>			 a seacomp company		<p>Third Angle Projection</p> <p>This drawing is the property of HDP corporation. It is to be used only for the manufacture of HDP products. It is the property of HDP corporation and is loaned to the customer. It is to be returned to HDP corporation when no longer required or is to be destroyed. Any reproduction or distribution by others is strictly prohibited and is a violation of law.</p>		<p>Tolerance</p> <p>Angular <math>\pm 0.25^\circ</math></p> <p>Cus. Model No. HDP-111P</p>		<p>Quotation No. 11</p> <p>Version No. A0</p> <p>Drawn By</p> <p>Sample</p> <p>Tooling</p>		<p>Scale : 1:1</p> <p>Sheet : 1/1</p> <p>Checked By</p> <p>Approved By</p> <p>8-23 40/30 30/35 40/45 40/40 25-50 40/25 40/35 40/40 40/45 40/40 250-300 40/5 40/5 40/5 40/4 40/6 40/8 40/10 40/12 40/14 40/16 40/18 40/20 40/22 40/24 40/26 40/28 40/30 40/32 40/34 40/36 40/38 40/40 40/42 40/44 40/46 40/48 40/50 40/52 40/54 40/56 40/58 40/60 40/62 40/64 40/66 40/68 40/70 40/72 40/74 40/76 40/78 40/80 40/82 40/84 40/86 40/88 40/90 40/92 40/94 40/96 40/98 40/100</p>		<p>Dimension F G H J</p> <p>0-8 <math>\pm 0.05</math> <math>\pm 0.1</math> <math>\pm 0.2</math></p> <p>8-23 <math>\pm 0.05</math> <math>\pm 0.15</math> <math>\pm 0.3</math></p> <p>25-50 <math>\pm 0.1</math> <math>\pm 0.25</math> <math>\pm 0.4</math></p> <p>Part NO.</p> <p>Part Name,</p> <p>美工线图示</p>		<p>Official Issue</p>		<p>HDP Model NO. HDP-111P</p> <p>MDP-01</p>		<p>Material:</p> <p>2015.05.26</p>	
 a seacomp company		<p>Third Angle Projection</p> <p>This drawing is the property of HDP corporation. It is to be used only for the manufacture of HDP products. It is the property of HDP corporation and is loaned to the customer. It is to be returned to HDP corporation when no longer required or is to be destroyed. Any reproduction or distribution by others is strictly prohibited and is a violation of law.</p>		<p>Tolerance</p> <p>Angular <math>\pm 0.25^\circ</math></p> <p>Cus. Model No. HDP-111P</p>																
<p>Quotation No. 11</p> <p>Version No. A0</p> <p>Drawn By</p> <p>Sample</p> <p>Tooling</p>		<p>Scale : 1:1</p> <p>Sheet : 1/1</p> <p>Checked By</p> <p>Approved By</p> <p>8-23 40/30 30/35 40/45 40/40 25-50 40/25 40/35 40/40 40/45 40/40 250-300 40/5 40/5 40/5 40/4 40/6 40/8 40/10 40/12 40/14 40/16 40/18 40/20 40/22 40/24 40/26 40/28 40/30 40/32 40/34 40/36 40/38 40/40 40/42 40/44 40/46 40/48 40/50 40/52 40/54 40/56 40/58 40/60 40/62 40/64 40/66 40/68 40/70 40/72 40/74 40/76 40/78 40/80 40/82 40/84 40/86 40/88 40/90 40/92 40/94 40/96 40/98 40/100</p>		<p>Dimension F G H J</p> <p>0-8 <math>\pm 0.05</math> <math>\pm 0.1</math> <math>\pm 0.2</math></p> <p>8-23 <math>\pm 0.05</math> <math>\pm 0.15</math> <math>\pm 0.3</math></p> <p>25-50 <math>\pm 0.1</math> <math>\pm 0.25</math> <math>\pm 0.4</math></p> <p>Part NO.</p> <p>Part Name,</p> <p>美工线图示</p>																
<p>Official Issue</p>		<p>HDP Model NO. HDP-111P</p> <p>MDP-01</p>		<p>Material:</p> <p>2015.05.26</p>																

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	12 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

### 4.3 Size / Weight

Product size should be 41.75W X 60.25L X 18.45H mm. Product weight is 45gm (weight and size including bracket).



MODEL NUMBER	HDP12-MD05024U	PAGE	13 of 17
PART NUMBER	HDP12-MD-WUSB-4	REVISION	A1 (Pre)
DESCRIPTION	I.T.E. & MEDICAL POWER SUPPLY WHITE	DATE	Aug 27, 2018

## 4.4 Assembly Drawing

REV.	DESCRIPTION	BY	DATE	ECN NO.
●	初版發行	肖志強	2018.02.24	
●				
●				
●				

Translation(注記):

1. production for all components shall not be started before confirmation by HDP engineer.  
(所有零部件都需经迈普工程师确认后方可生产。)

2. Dimensions marked as **○** are HDP control dimensions and must comply to Cpm-1.33 to be Inspected by IQC;  
(有○"标记的尺寸为重要管制尺寸,其Cpm必须≥1.33 (IQC必检))

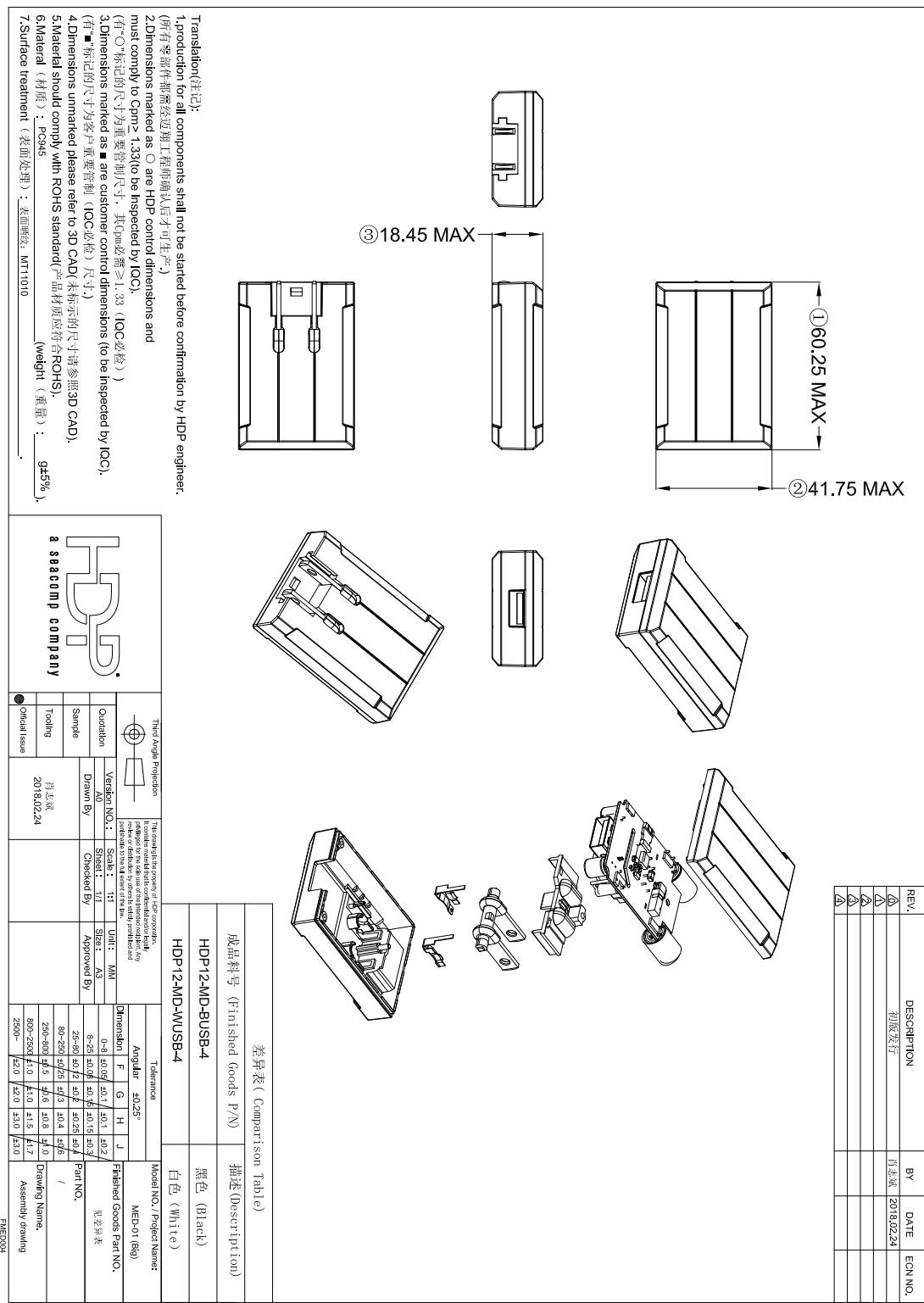
3. Dimensions marked as **■** are customer control dimensions (to be inspected by IQC).  
(有■"标记的尺寸为客户提供重要管制 (IQC必检) 尺寸)

4. Dimensions unmarked please refer to 3D CAD(未标示的尺寸请参照3D CAD)。

5. Material should comply with ROHS standard(材料应符合ROHS)。

6. Material : PC945

7. Surface treatment (表面处理) : 表面喷粉, MT11010 (weight (重量) : 9±5%)



Comparison Table (Comparison Table)

成品料号 (Finished Goods P/N)	描述 (Description)
HDP12-MD-WUSB-4	黑色 (Black)
	白色 (White)

Bill of Materials (Bill of Materials)

Quotation	Version NO. : A0	Drawn By	Checked By	Approved By	Model NO./Project Name: MHD-01 (B9)
					Dimensions : F G H J
					0-8 ±0.05 ±0.1 ±0.2
					8-25 ±0.05 ±0.1 ±0.2
					25-60 ±0.12 ±0.2 ±0.25 ±0.3
					Part NO. /
					80-250 ±0.25 ±0.3 ±0.4 ±0.6
					250-300 ±0.5 ±0.8 ±1.0 ±1.7
					300-350 ±0.5 ±0.8 ±1.0 ±1.7
					Drawing Name: Assembly drawing
					2500- ±2.0 ±2.0 ±3.0 ±4.0
					Official Issue

Parts List (Parts List)

Part No.	Description	Quantity
1	壳体	1
2	PCB	1
3	线缆	1
4	螺丝	1
5	开关	1
6	指示灯	1
7	端子	1
8	接线端子	1
9	线缆	1
10	螺丝	1
11	线缆	1
12	螺丝	1
13	线缆	1
14	螺丝	1
15	线缆	1
16	螺丝	1
17	线缆	1
18	螺丝	1
19	线缆	1
20	螺丝	1
21	线缆	1
22	螺丝	1
23	线缆	1
24	螺丝	1
25	线缆	1
26	螺丝	1
27	线缆	1
28	螺丝	1
29	线缆	1
30	螺丝	1
31	线缆	1
32	螺丝	1
33	线缆	1
34	螺丝	1
35	线缆	1
36	螺丝	1
37	线缆	1
38	螺丝	1
39	线缆	1
40	螺丝	1
41	线缆	1
42	螺丝	1
43	线缆	1
44	螺丝	1
45	线缆	1
46	螺丝	1
47	线缆	1
48	螺丝	1
49	线缆	1
50	螺丝	1
51	线缆	1
52	螺丝	1
53	线缆	1
54	螺丝	1
55	线缆	1
56	螺丝	1
57	线缆	1
58	螺丝	1
59	线缆	1
60	螺丝	1
61	线缆	1
62	螺丝	1
63	线缆	1
64	螺丝	1
65	线缆	1
66	螺丝	1
67	线缆	1
68	螺丝	1
69	线缆	1
70	螺丝	1
71	线缆	1
72	螺丝	1
73	线缆	1
74	螺丝	1
75	线缆	1
76	螺丝	1
77	线缆	1
78	螺丝	1
79	线缆	1
80	螺丝	1
81	线缆	1
82	螺丝	1
83	线缆	1
84	螺丝	1
85	线缆	1
86	螺丝	1
87	线缆	1
88	螺丝	1
89	线缆	1
90	螺丝	1
91	线缆	1
92	螺丝	1
93	线缆	1
94	螺丝	1
95	线缆	1
96	螺丝	1
97	线缆	1
98	螺丝	1
99	线缆	1
100	螺丝	1
101	线缆	1
102	螺丝	1
103	线缆	1
104	螺丝	1
105	线缆	1
106	螺丝	1
107	线缆	1
108	螺丝	1
109	线缆	1
110	螺丝	1
111	线缆	1
112	螺丝	1
113	线缆	1
114	螺丝	1
115	线缆	1
116	螺丝	1
117	线缆	1
118	螺丝	1
119	线缆	1
120	螺丝	1
121	线缆	1
122	螺丝	1
123	线缆	1
124	螺丝	1
125	线缆	1
126	螺丝	1
127	线缆	1
128	螺丝	1
129	线缆	1
130	螺丝	1
131	线缆	1
132	螺丝	1
133	线缆	1
134	螺丝	1
135	线缆	1
136	螺丝	1
137	线缆	1
138	螺丝	1
139	线缆	1
140	螺丝	1
141	线缆	1
142	螺丝	1
143	线缆	1
144	螺丝	1
145	线缆	1
146	螺丝	1
147	线缆	1
148	螺丝	1
149	线缆	1
150	螺丝	1
151	线缆	1
152	螺丝	1
153	线缆	1
154	螺丝	1
155	线缆	1
156	螺丝	1
157	线缆	1
158	螺丝	1
159	线缆	1
160	螺丝	1
161	线缆	1
162	螺丝	1
163	线缆	1
164	螺丝	1
165	线缆	1
166	螺丝	1
167	线缆	1
168	螺丝	1
169	线缆	1
170	螺丝	1
171	线缆	1
172	螺丝	1
173	线缆	1
174	螺丝	1
175	线缆	1
176	螺丝	1
177	线缆	1
178	螺丝	1
179	线缆	1
180	螺丝	1
181	线缆	1
182	螺丝	1
183	线缆	1
184	螺丝	1
185	线缆	1
186	螺丝	1
187	线缆	1
188	螺丝	1
189	线缆	1
190	螺丝	1
191	线缆	1
192	螺丝	1
193	线缆	1
194	螺丝	1
195	线缆	1
196	螺丝	1
197	线缆	1
198	螺丝	1
199	线缆	1
200	螺丝	1
201	线缆	1
202	螺丝	1
203	线缆	1
204	螺丝	1
205	线缆	1
206	螺丝	1
207	线缆	1
208	螺丝	1
209	线缆	1
210	螺丝	1
211	线缆	1
212	螺丝	1
213	线缆	1
214	螺丝	1
215	线缆	1
216	螺丝	1
217	线缆	1
218	螺丝	1
219	线缆	1
220	螺丝	1
221	线缆	1
222	螺丝	1
223	线缆	1
224	螺丝	1
225	线缆	1
226	螺丝	1
227	线缆	1
228	螺丝	1
229	线缆	1
230	螺丝	1
231	线缆	1
232	螺丝	1
233	线缆	1
234	螺丝	1
235	线缆	1
236	螺丝	1
237	线缆	1
238	螺丝	1
239	线缆	1
240	螺丝	1
241	线缆	1
242	螺丝	1
243	线缆	1
244	螺丝	1
245	线缆	1
246	螺丝	1
247	线缆	1
248	螺丝	1
249	线缆	1
250	螺丝	1
251	线缆	1
252	螺丝	1
253	线缆	1
254	螺丝	1
255	线缆	1
256	螺丝	1
257	线缆	1
258	螺丝	1
259	线缆	1
260	螺丝	1
261	线缆	1
262	螺丝	1
263	线缆	1
264	螺丝	1
265	线缆	1
266	螺丝	1
267	线缆	1
268	螺丝	1
269	线缆	1
270	螺丝	1
271	线缆	1
272	螺丝	1
273	线缆	1
274	螺丝	1
275	线缆	1
276	螺丝	1
277	线缆	1
278	螺丝	1
279	线缆	1
280	螺丝	1
281	线缆	1
282	螺丝	1
283	线缆	1
284	螺丝	1
285	线缆	1
286	螺丝	1
287	线缆	1
288	螺丝	1
289	线缆	1
290	螺丝	1
291	线缆	1
292	螺丝	1
293	线缆	1
294	螺丝	1
295	线缆	1
296	螺丝	1
297	线缆	1
298	螺丝	1
299	线缆	1
300	螺丝	1
301	线缆	1
302	螺丝	1
303	线缆	1
304	螺丝	1
305	线缆	1
306	螺丝	1
307	线缆	1
308	螺丝	1
309	线缆	1
310	螺丝	1
311	线缆	1
312	螺丝	1
313	线缆	1
314	螺丝	1
315	线缆	1
316	螺丝	1
317	线缆	1
318	螺丝	1
319	线缆	1
320	螺丝	1
321	线缆	1
322	螺丝	1
323	线缆	1
324	螺丝	1
325	线缆	1
326	螺丝	1
327	线缆	1
328	螺丝	1
329	线缆	1
330	螺丝	1
331	线缆	1
332	螺丝	1
333	线缆	1
334	螺丝	1
335	线缆	1
336	螺丝	1
337	线缆	1
338	螺丝	1
339	线缆	1
340	螺丝	1
341	线缆	1
342	螺丝	1
343	线缆	1
344	螺丝	1
345	线缆	1
346	螺丝	1
347	线缆	1
348	螺丝	1
349	线缆	1
350	螺丝	1
351	线缆	1
352	螺丝	1
353	线缆	1
354	螺丝	1
355	线缆	1
356	螺丝	1
357	线缆	1
358	螺丝	1
359	线缆	1
360	螺丝	1
361	线缆	1
362	螺丝	1
363	线缆	1
364	螺丝	1
365	线缆	1
366	螺丝	1
367	线缆	1
368	螺丝	1
369	线缆	1
370	螺丝	1
371	线缆	1
372	螺丝	1
373	线缆	1
374	螺丝	1
375	线缆	1
376		

<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	14 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 5 Electromagnetic Compatibility

The following tests are required:

Power Conversion Device	EU Reference	Title of Standard	International Reference	Test Level for Heavy Industrial	Test Level for Light Industrial	Test Level for 48 VDC p/s
AC-DC, DC-DC, Power Supplies	EN55022:1998 To be soon updated to EN55022:2006	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement	CISPR22:1997	Class "B" 4dB of margin Class "A" or Class "B" for servers	Class "B" 4dB of margin Class "A" or Class "B" for servers	Class "B" 4dB of margin Class "A" or Class "B" for servers
DC-DC, DC-DC Power Supplies	EN55024:1998 (EN50082-2:1995 updated to EN61000-6-2:2001 for -48 VDC supply)	Information technology equipment – Immunity Characteristics – Limits and methods of measurement	CISPR24:1997			Different tests and limits for DC power supplies
AC-DC, AC-DC Power Supplies	EN61000-3-2:2000 (PFC Power Supplies ONLY if rated greater than 75W)	Electromagnetic Compatibility (EMC) – Part 3: Limits – Section 2: Limits for harmonic current emissions (Equipment input current up to and including 16 A per phase)	IEC 61000-3-2:2000	Must meet Class D requirements	Must meet Class D requirements	N/A
AC-DC, AC-DC Power Supplies	EN61000-3-3:1995 (PFC Power Supplies ONLY)	Electromagnetic Compatibility (EMC) – Part 3: Limits – Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16A	IEC 61000-3-3:1994	Meet specification	Meet specification	N/A
AC-DC, DC-DC, Power Supplies	EN61000-4-2	Electromagnetic Compatibility (EMC) – Part 4: – Section 2: Electrostatic discharge immunity test	IEC 1000-4-2	(+/-) 2, 4, 8, 12 and 15 kV air (+/-) 2, 4, 6, 8 kV contact discharge	(+/-) 2, 4, 8, 12 and 15 kV air (+/-) 2, 4, 6, 8 kV contact discharge	(+/-) 2, 4, 8, 12 and 15 kV air (+/-) 2, 4, 6, 8 kV contact discharge
AC-DC, DC-DC, Power Supplies	EN 61000-4-3 + Israeli Deviations in SI 961 part 6.2	Electromagnetic Compatibility (EMC) – Part 4: – Section 3: Radiated, radio-frequency electromagnetic field, immunity test	IEC 1000-4-3 Basic Standard ENV 50140	10V/m 80-1000MHz, 80% AM 900 +/- 5MHz 50%, 200Hz	3V/m 80-1000MHz, 80% AM 900 +/- 5MHz 50%, 200Hz	10V/m 80-1000MHz, 80% AM 900 +/- 5MHz 50%, 200Hz
AC-DC, DC-DC, Power Supplies	EN 61000-4-4	Electromagnetic Compatibility (EMC) – Part 4: – Section 4: Electrical fast transient/burst immunity test	IEC 1000-4-4	1, 2, 4kV – Power 0.5, 1, and 2kV – Signal	1, 2 kV – Power 0.5, 1 kV – Signal	1, 2 kV – Power 0.5, 1, and 2kV – Signal
AC-DC, DC-DC, Power Supplies	EN 61000-4-5	Electromagnetic Compatibility (EMC) – Part 4: – Section 5: Surge Immunity Test	IEC 1000-4-5	1, 2kV differential 2, 4kV common	0.5, 1 kV diff. 0.5, 1, 2, 2.5 common	0.5, 1kV differential 0.5 1kV common
AC-DC, DC-DC, Power Supplies	EN 61000-4-6 + Israeli Deviations in SI 961 part 6.2	Electromagnetic Compatibility (EMC) – Part 4: – Section 6: Conducted disturbances induced by radio-frequency fields – immunity test	IEC 1000-4-6 Basic Standard ENV 50141	10V/m 80% AM (1kHz)	3 V/m 80% AM (1kHz)	10 V/m 80% AM (1kHz)
AC-DC, DC-DC, Power Supplies	EN 61000-4-8	Electromagnetic Compatibility (EMC) – Part 4: – Section 8: Power-frequency magnetic field immunity test	IEC 1000-4-8	30 A/m (r.m.s.)	1 A/m (r.m.s.)	30 A/m (r.m.s.)
AC-DC, DC-DC, Power Supplies	EN 61000-4-11	Electromagnetic Compatibility (EMC) – Part 4: – Section 11: Voltage dips, short interruptions and voltage variations immunity test	IEC 1000-4-11	30% for 0.5 S >95% for 10mS >95% for 5 S	30% for 0.5 S >95% for 10mS >95% for 5 S	30% for 0.5 S >95% for 10mS >95% for 5 S

Light Industrial: EN55022:1998 (Emission) and EN 61000-6-1:2001 (Immunity)

Heavy Industrial: EN55011 (Emission) and EN 61000-2-2005 (Immunity)

The content of the test report, at a minimum, includes:

- Test object used (development status with serial number/sample name)
- Mode(s) of operation of the test object
- Test result
- Photograph/sketch of the test environment along with listed test conditions
- Applied measurement tools/equipment
- Ambient temperature for ESD-tests. Also include air pressure and air humidity
- Name of Test Engineer
- Date of the test

MODEL NUMBER	HDP12-MD05024U	PAGE	15 of 17
PART NUMBER	HDP12-MD-WUSB-4	REVISION	A1 (Pre)
DESCRIPTION	I.T.E. & MEDICAL POWER SUPPLY WHITE	DATE	Aug 27, 2018

## 6 Labeling

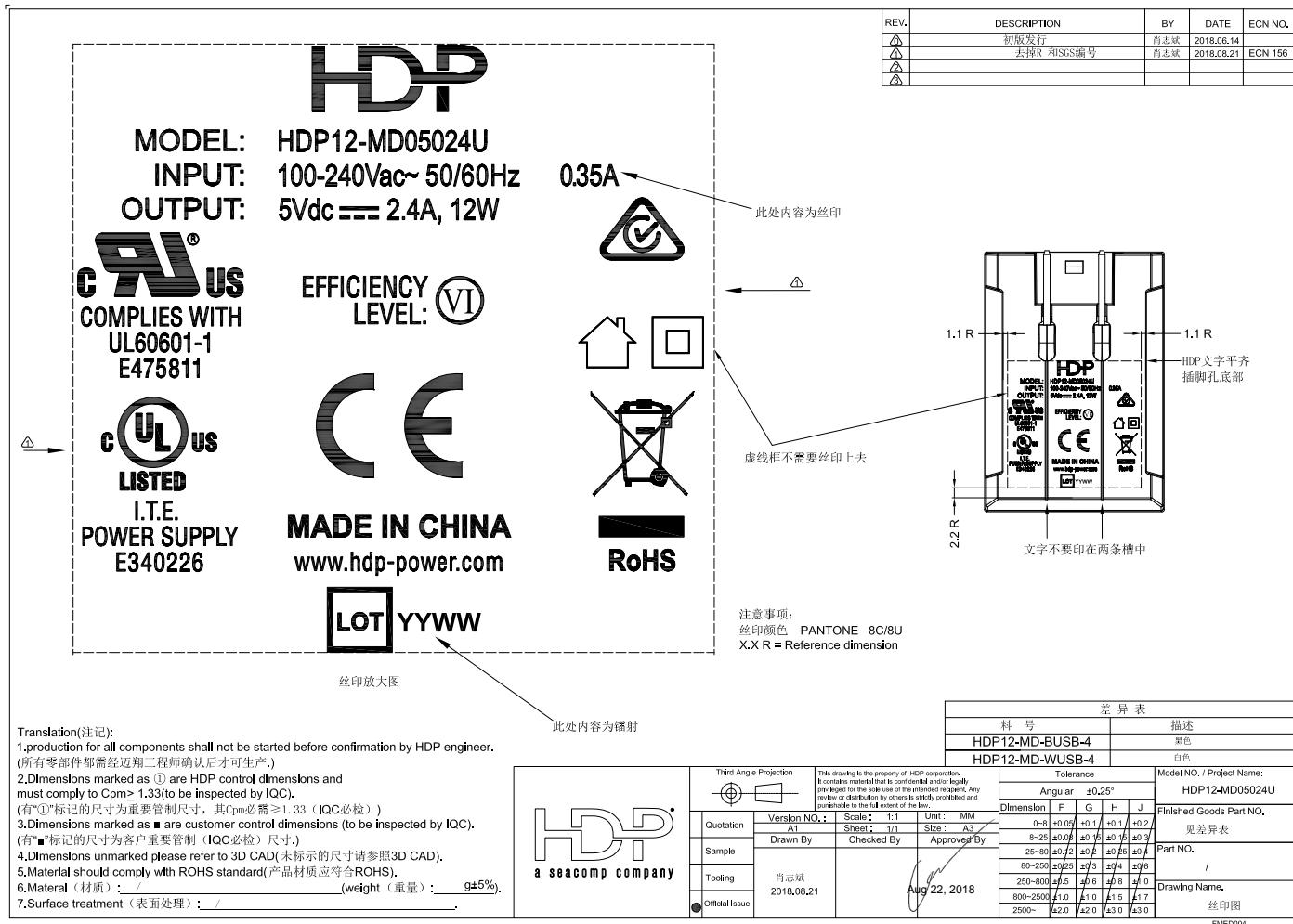
### 6.1 Labeling the Device

The labeling must comply with IEC 60950 and IEC 60601 requirements.

The following information as a minimum must be printed on the adapter:

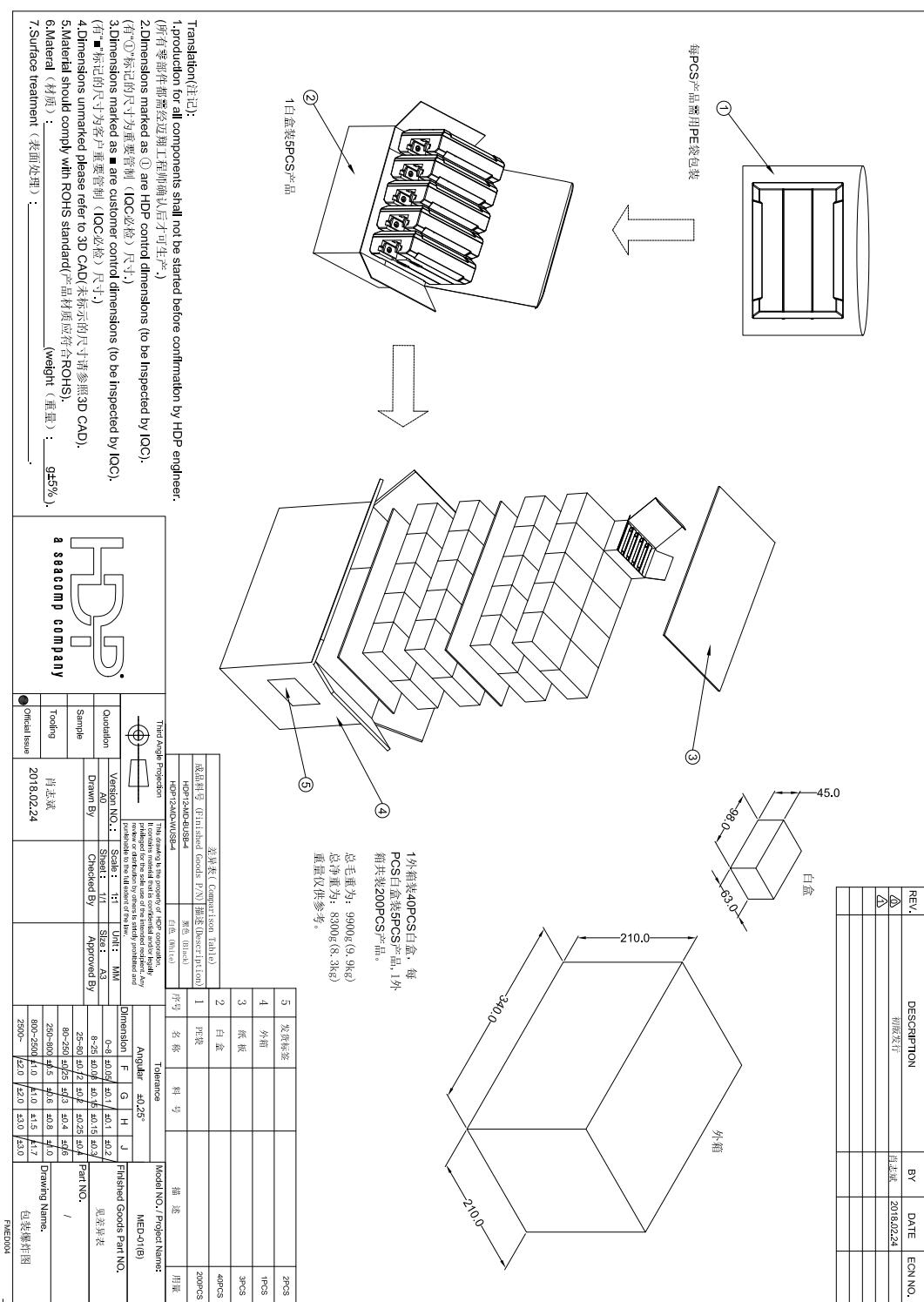
- Input rating
- Output rating
- Made in China
- Model and/or part number
- Production lot or date code

### 6.2 Label Drawing



## 7 Packaging

## 7.1 Drawing



<b>MODEL NUMBER</b>	HDP12-MD05024U	<b>PAGE</b>	17 of 17
<b>PART NUMBER</b>	HDP12-MD-WUSB-4	<b>REVISION</b>	A1 (Pre)
<b>DESCRIPTION</b>	I.T.E. & MEDICAL POWER SUPPLY WHITE	<b>DATE</b>	Aug 27, 2018

## 7.2 Packaging Test

1	Bulk product	<p>Drop package on each side for a total of 10 drops (2 opposite corners, 3 adjacent sides of bottom corner, then all 6 faces) per system on concrete floor from a height of 1.0 meter. This is an operational test.</p> <p>Pass/Fail Criteria:</p> <ol style="list-style-type: none"> <li>1. The systems shall pass Functional Test.</li> <li>2. No visible damage to product and gift box.</li> </ol>
2	Drop test for Packaged Product (gift box, clamshell, etc.)	<p>Drop fully packaged products (in gift box or clamshell) onto a concrete floor from height of 153cm for 10 drops on the six surfaces and four corners.</p> <p>Pass/Fail Criteria:</p> <ol style="list-style-type: none"> <li>1. The systems shall pass Functional Test.</li> <li>2. Paper or PET deformation is acceptable. No damage in product integrity of packaging materials (e.g. sealed edge openings) is allowed.</li> </ol>
3	Sinusoidal Vibration	<p>Test with sine wave that will sweep the frequency from 7 - 500 hertz for construction test; 5 - 70 hertz for packaging test. Displacement &gt;3.15mm. Total test duration time shall be 30 min (10 min per axis). Test shall be performed in three mutually perpendicular axes: Z-axis (vertical), Y-axis (fore-aft), and X-axis (lateral).</p> <p>Pass/Fail Criteria:</p> <p>The UUT and packaging shall withstand the above test procedure without visible damage or performance decline during operation.</p>

## 8 Warranty

One year warranty for defects arising from workmanship and materials per the SEACOMP Warranty, RMA, and Failure Analysis Policy.

**Данный компонент на территории Российской Федерации****Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибуторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ Р В 0015-002 и ЭС РД 009

**Офис по работе с юридическими лицами:**

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru  
moschip.ru\_4

moschip.ru\_6  
moschip.ru\_9