



IKANO International Co., Ltd.

APPROVAL SHEET

納入仕様書

APPROVED SHEET NO.:

REVISION: A0

COMPANY NAME: IKANO

CUSTOMER MODEL NO.: SPU65-104S IKA

SINPRO MODEL NO.: SPU65-104S.3C-P01W001-U1B040-08V00 (L6)

BOM NO.:

DESCRIPTION: SWITCHING POWER SUPPLY

ENG. P/N : SPS-14375-01

DATE: 2018/05/10

FIRST SAMPLE SENT: 2018/05/10

DATA FROM: SINPRO ELECTRONICS CO., LTD.

REMARK:

1. This document is very important for Sinpro's manufacturing record and shipping purpose. The person who receives this document has to check the details of this document, including the information on the specifications. If there is no disagreement, then the form has to be signed and sent back to Sinpro within **30 days** before productions. If it is not signed or returned, then Sinpro will assume that the customer agrees to the pilot run and will begin production.
2. The customer will be responsible for handling the form and no changes are allowed on the specifications. A new document will need to be drafted if the customer wants to change the specifications.
3. We, Sinpro, the manufacturer reserve the right of changing internal components (appearance or color) for continued product improvement.

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2 INTRODUCTIONS

2.1 Scope

2.1.1 This document is for Sinpro's manufacturing and shipping purpose. The document details the electrical, mechanical and environmental specifications of a switching power supply.

2.1.2 This document will describe the packing methods used in mass production. If a small number is produced in an order or insufficient quantities in one carton, then our standard packing methods will be used instead.

2.2 Description

This specification establishes the requirements for:

2.2.1 The products operates at 90-264Vac or 90-260Vac input voltage without the need of a selector voltage.

2.2.2 The products of AC/DC switching power supplies are capable of delivering the maximum of continuous output power and operating temperature, They are enclosed in a 94V-1 min rated case with an IEC320/C14, C8, C6 inlet to mate with interchangeable cord for world-wide use or open frame version use for different test equipment and applications.

2.2.3 For optional output connector can be selected based on customer's needs.

2.2.4 All models meet the latest EMC requirement and safety standards, and they are ideally suited for us in Medical, ITE or others applications.

2.2.5 All outputs are floating, It can be connected externally for positive or negative output.

2.2.6 All models are convection cooled.

2.2.7 100% burn in test at full rated load by monitoring all test conditions.

2.2.8 Compliant with RoHS requirements and lead free soldering process.

2.2.9 3 year warranty.

2.3 Special Request

Customer shall inform the manufacturer of any special conditions on customer's equipment. For example, if it is likely to be used in a capacity load, for charging purposes, peak load, high inrush current and input voltage , all of which are not contained in our datasheet . All of the test parameters and conditions should be based on this approval sheet.

2.3.1 If the product is certified by CEC requirements, the calculated value of efficiency should be based on safety standards to perform the testing after 30 minutes of full load. Therefore, it is completely normal that the spontaneously measured value is lower than expected.

3 ELECTRICAL CHARACTERISTICS

3.1 Input Characteristics

3.1.1 Working Input Voltage Range:

Universal input : 100-240VAC

Operating input : 90-264VAC

3.1.2 Input frequency range:

The input frequency is between 47-63Hz

3.1.3 No load input current and watts:

3.1.3.1 The Input AC current @230V without output load =< 90mA

3.1.3.2 True RMS input power @230V without load at the output =< 0.21W

3.1.4 Input Current:

The input AC Current @100V with rated output load =< 1.9A

3.1.5 Inrush current:

The inrush current will not exceed 72A at 240VAC input for a cold start at 25°C

3.2 Output Characteristics

3.2.1 Output Range:

Output Voltage	LOAD RANGE				Load Regulation	Ripple & Noise(max)
	Min.	Half	Typ.	Max.		
+8 VDC	0A	4.68A	8.12A	9.37A	± 5 %	80 mVp-p

3.2.2 Line regulation:

The line regulation is less than 1% while measuring at rated load and 10% of input voltage changing as per above 3.1.1.

3.2.3 Ripple Test condition:

3.2.3.1 All voltage measured at the output connector, which should connect with a 47uF capacitor.

3.2.3.2 The ripple is measured from peak to peak with a bandwidth-limit of 20MHz (By passed at an additional 0.1uF ceramic disk capacitor).

3.2.4 No Load Regulation:

No Load should be tested at ambient temperature of 0 °C to +70°C and rely on the voltage regulation +/-5%

3.2.5 Continuous output power:

65W max in ambient temperature under 0°C to +40°C

3.3 General Features

3.3.1 Average Efficiency:

The efficiency is minimum at least 88% while measuring at nominal line and 25%,50%,75%,100% of the rated load (testing after 30 minutes of full load).

3.3.2 Turn On Delay

During turn on and turn off, no output voltage shall exceed its nominal voltage by

more than 10% and no output shall change its polarity with respect to its return line. All Output shall reach their Steady state values within 2 seconds of turn on.

3.3.3 Hold-up time:

The hold-up time is longer than 12mS at nominal line (110VAC) input at rated load, which is measured from the end of the last charging pulse to when the main output drops down to 95% output voltage.

3.3.4 Rise Time

Then rising time is less than 100mS at nominal line (220VAC) at rated load.

3.3.5 Overshoot

Any overshoot at turn on or turn off shall be less than 10% of the maximum output voltage.

3.4 Protection

3.4.1 Overvoltage protection:

Overvoltage protection is available on output, if the output voltage reaches an overvoltage condition shall be set at 112% to 132% for its protecting point and then the output will auto recovery at once after removing the abnormal circuit.

3.4.2 Short circuit protection

With input at high line voltage (264VAC) and output terminals short circuit, there shall be no risk of fire and no live parts shall become accessible. The output shall be able to sustain a short circuit for 120 minutes without damage. The output will auto recovery at once after removing the circuit.

3.4.3 Overload protection:

The output will auto recovery at once after removing the circuit while setting at 110% to 150% of the maximum load.

3.5 Insulation

3.5.1 Dielectric strength:

3.5.1.1 From input line and neutral to output should be 4242VDC for 60 seconds (trip current 10mA).

3.5.1.2 From input line and neutral to ground should be 2121VDC for 60 seconds (trip current 10mA).

3.5.1.3 Insulation resistance: It must be more than 50MΩ.

3.5.2 Leakage current:

The leakage current flowing from input to output or any external accessible parts will be less than 0.75mA for any allowable value of universal input.

3.5.3 Class of equipment :

Class I

3.5.4 Circuit Topology :

Fixed-frequency, Flyback circuit.

4 MECHANICAL CHARACTERISTICS

4.1 Input & Output Connections

4.1.1 Input connector :

IEC-320-C14 inlet

4.1.2 Output Connector assignment:

Please see attachment.

4.2 Construction

4.2.1 Desktop enclosure plastic case shown as attachment.

4.2.2 Marking:

It will appear on an appropriate position, which will show model number, input/output rating and other relevant description.

4.2.3 Weight:

450-700gs approximate.

5 SAFETY & ELECTROMAGNETIC COMPATIBILITY REQUIREMENTS

5.1 Safety Requirements

The switching power supplies comply with the following safety and electromagnetic compatibility approvals:

5.1.1 Meet safety approval UL and C-UL based on UL.60950-1 and C.S.A C22.2

5.1.2 Meet EN60950-1 standards.

5.1.3 Meet CE declaration of conformity.

5.1.4 Meet safety approval IEC60950-1 with CB Certificate

5.2 Emission Requirements

Radiated and conducted electromagnetic interference from the adapter not exceed the limits of:

5.2.1 Meet FCC part 15 and class B Verified

5.2.2 Meet European Standard EN 55032 CLASS B requirement

5.2.3 Meet CISPR-22 CLASS B

5.3 Immunity Requirements

The Power supply is in accordance with the immunity requirements specified by:

5.3.1 Meet EN55024. Inside the EN55024 there are the compliance to following standard

5.3.2 Meet EN61000-3-2.EN61000-3-3

5.3.3 Meet IEC 61000-4-2~IEC 61000-4-6 ; IEC 61000-4-8 ; IEC 61000-4-11

6 ENVIRONMENT CONDITIONS

6.1 MTBF

MTBF(theoretical) at 25°C ambient temp and nominal load, according to MIL-HDBK-217F: 100,000hrs above.

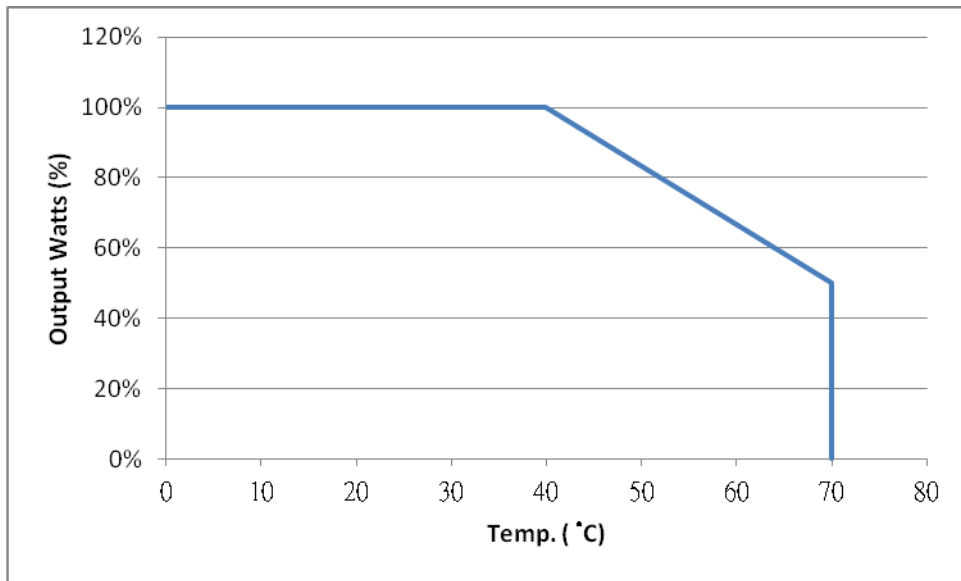
6.2 Operating Temperatures & Humidity Conditions

The Power supply must be able to withstand the following environment

6.2.1 Operating conditions:

6.2.1.1 Operating Temperatures: 0°C to +70°C

6.2.1.2 Derate linearly from 100% load at 40°C to 50% load at 70°C



6.2.2 Relative Humidity (without condensation): 0% to 95%

6.3 Storage Conditions

6.3.1 Temperatures: -40°C to +85°C

6.3.2 Relative humidity (without condensation): 0% to 95%

6.4 Thermal Shock

The Power supply shall be fully operational and meet all electrical specifications after being subjected to the following thermal shock testing:

- 40°C to 30 minutes
- 25°C to 30 minutes
- +60°C to 30 minutes
- +25°C to 30 minutes

The Total transfer time from the specified low to the specified high (or reverse) shall not exceed 5 minutes.

7 Packing Method

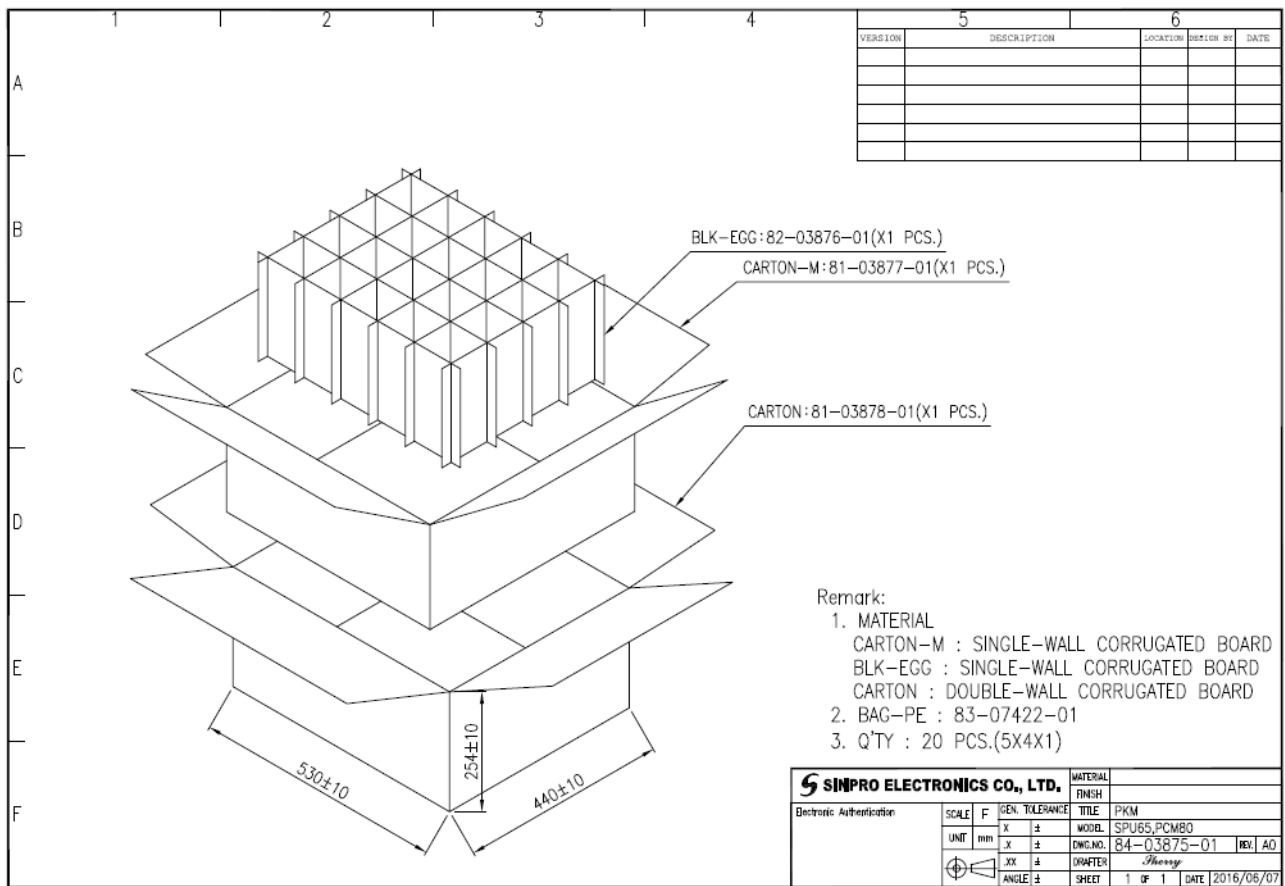
7.1 Packing Description

This document will describe the packing methods used if this product is mass produced. If a small number is produced in an order or insufficient quantities in one carton, then we will be using our standard packing methods instead.

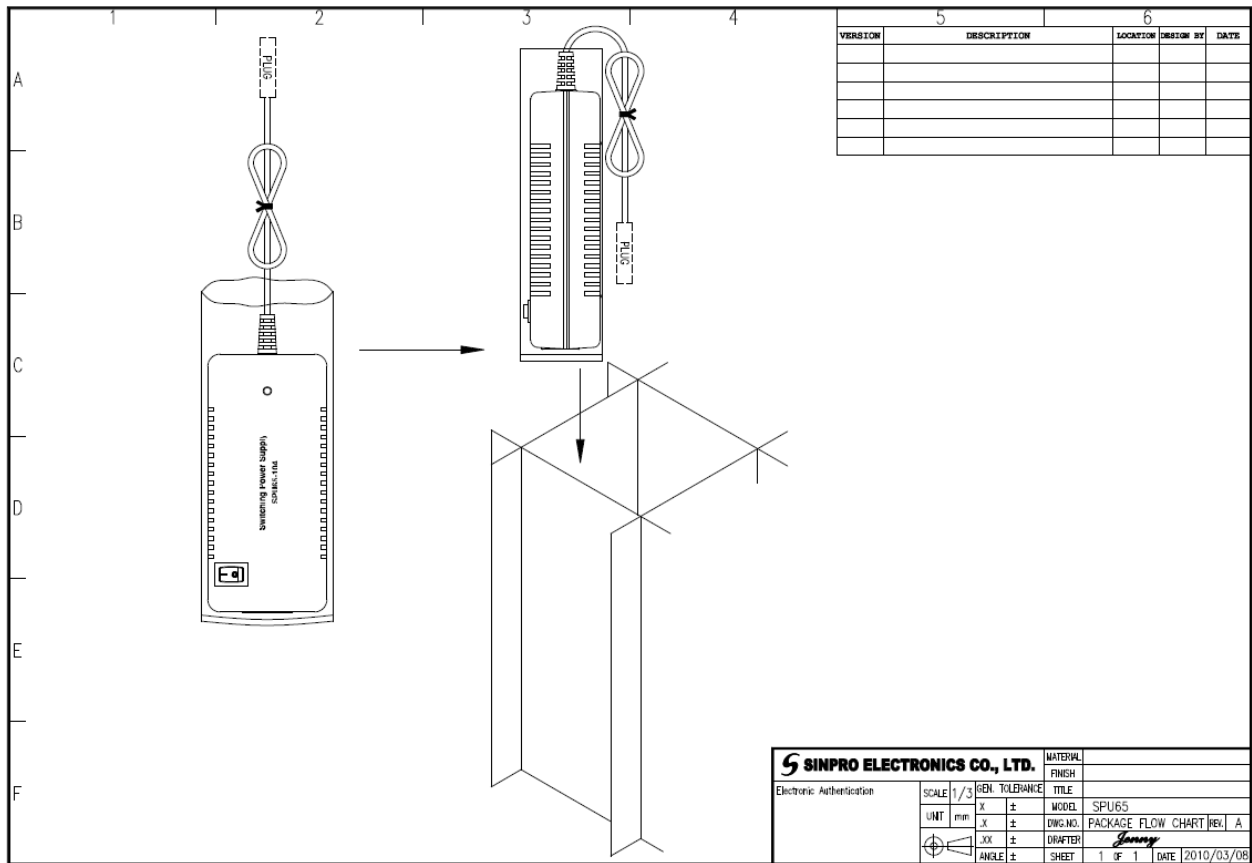
7.1.1 Any special request on the packing method, we will follow with your specification.

7.1.2 Any changes on packing quantity or method requested by the buyer before shipment which is different from the following drawing will be the buyer's responsibility.

7.2 Package Carton

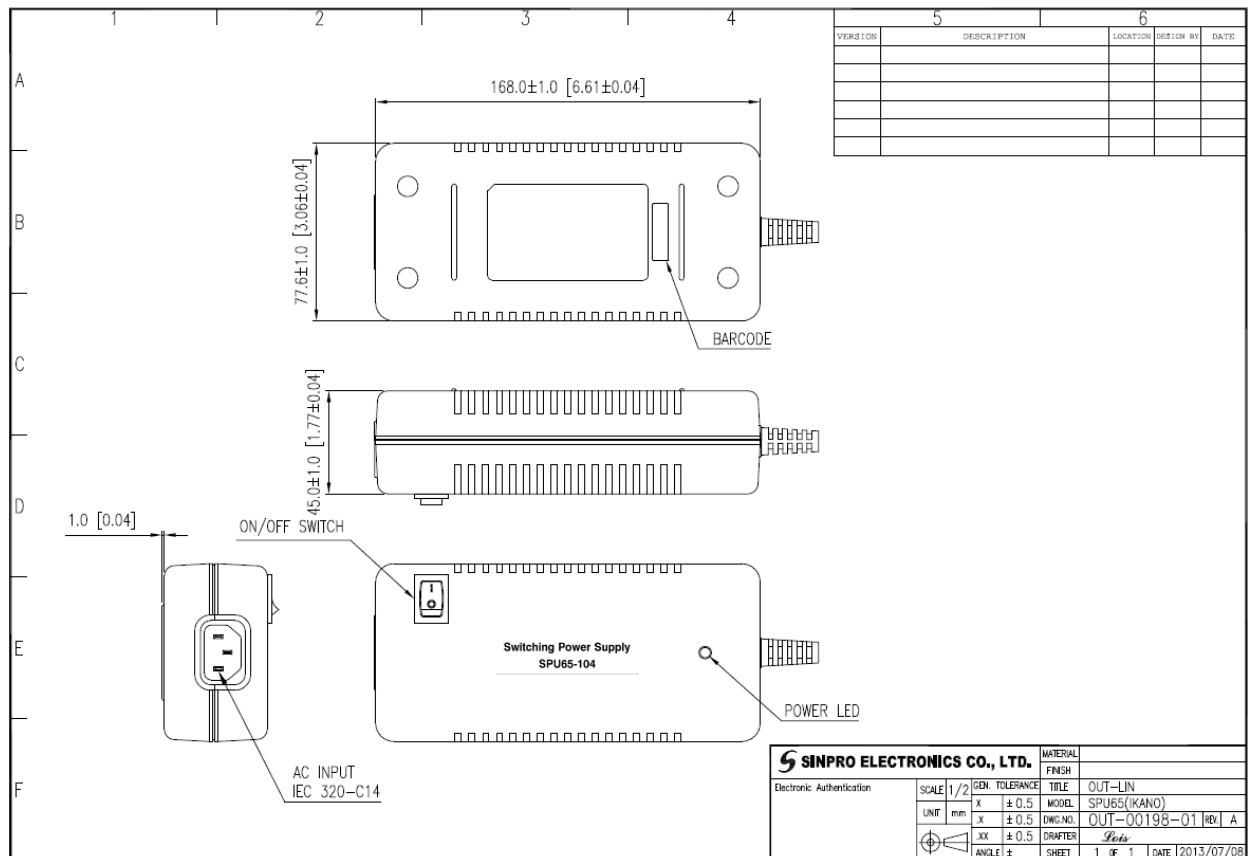


7.3 Package Flow Chart

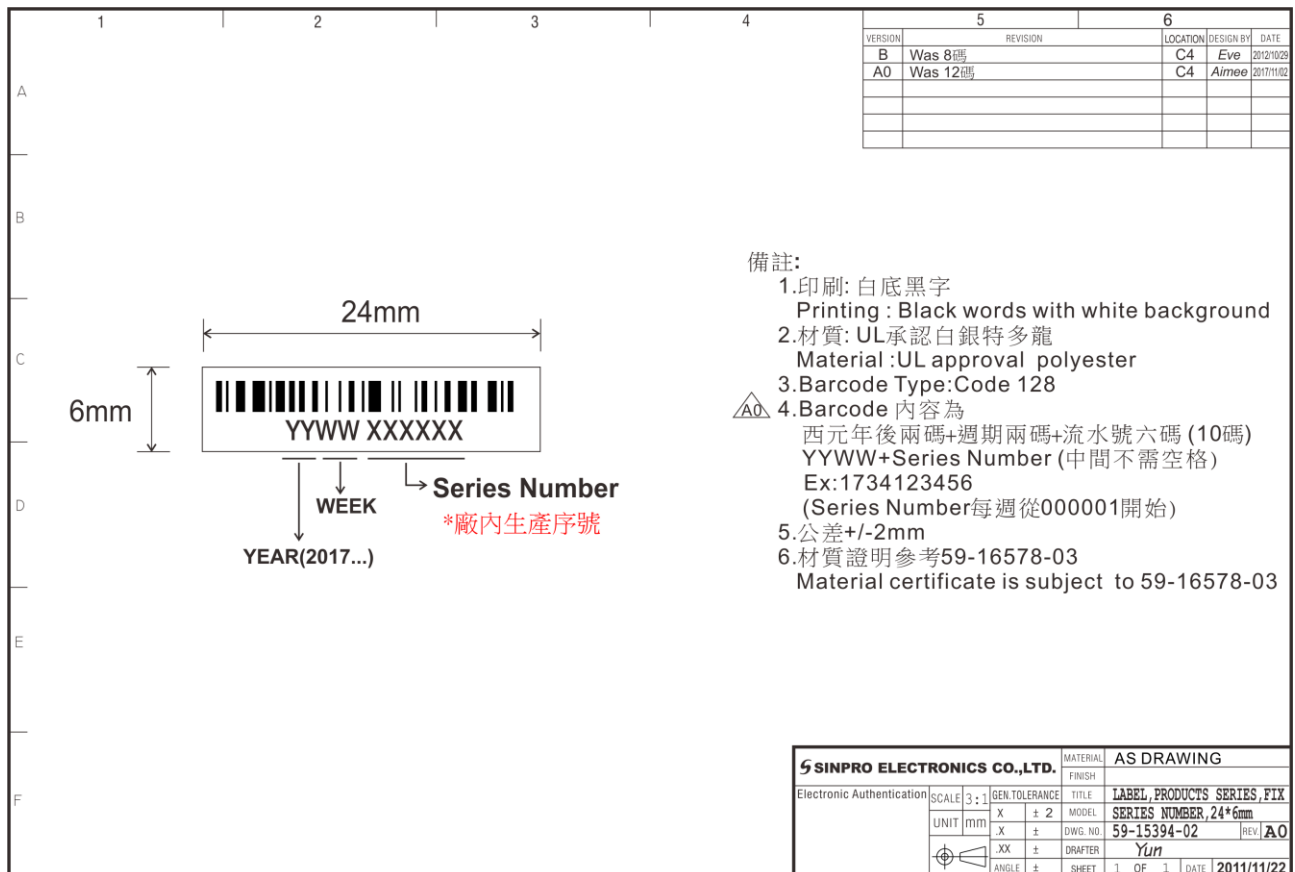
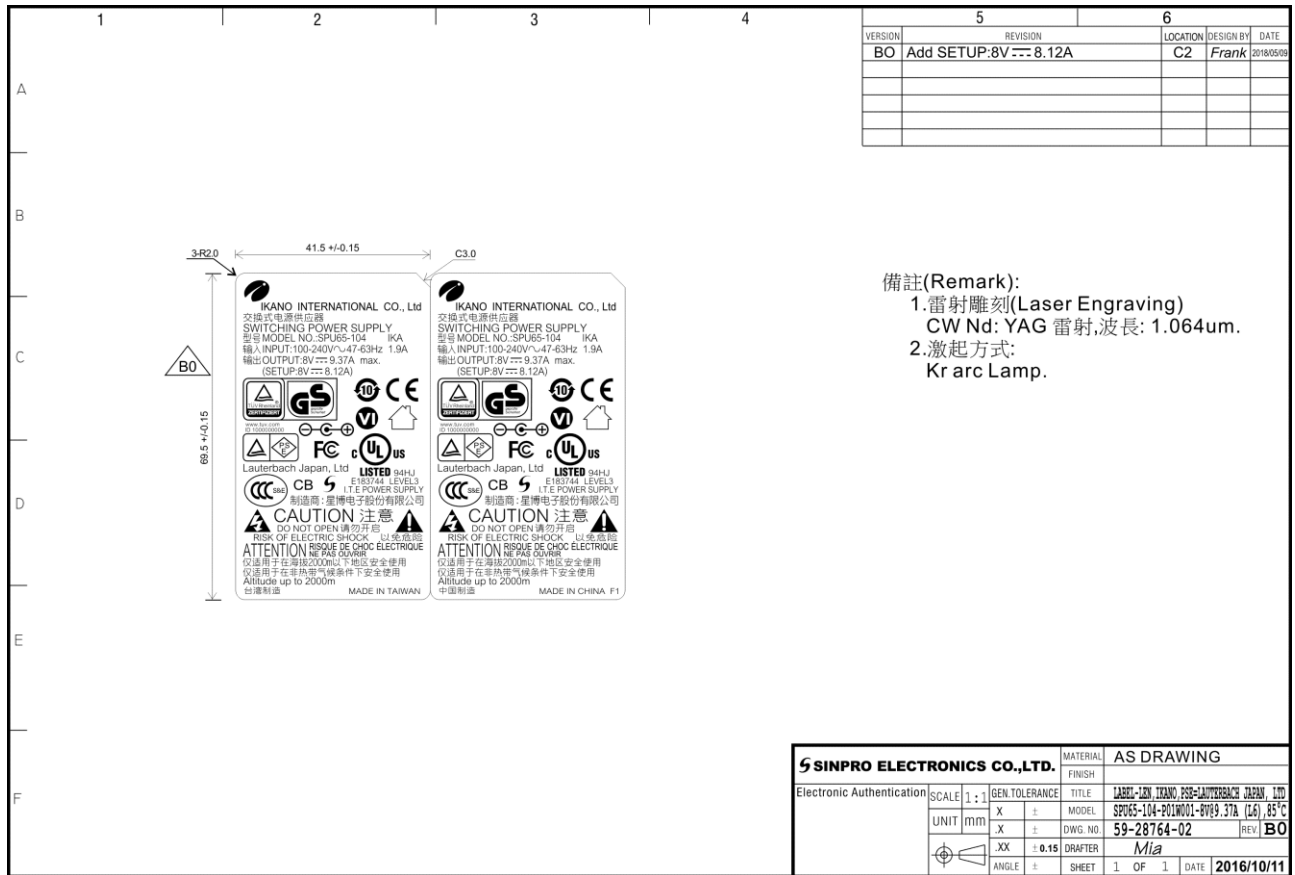


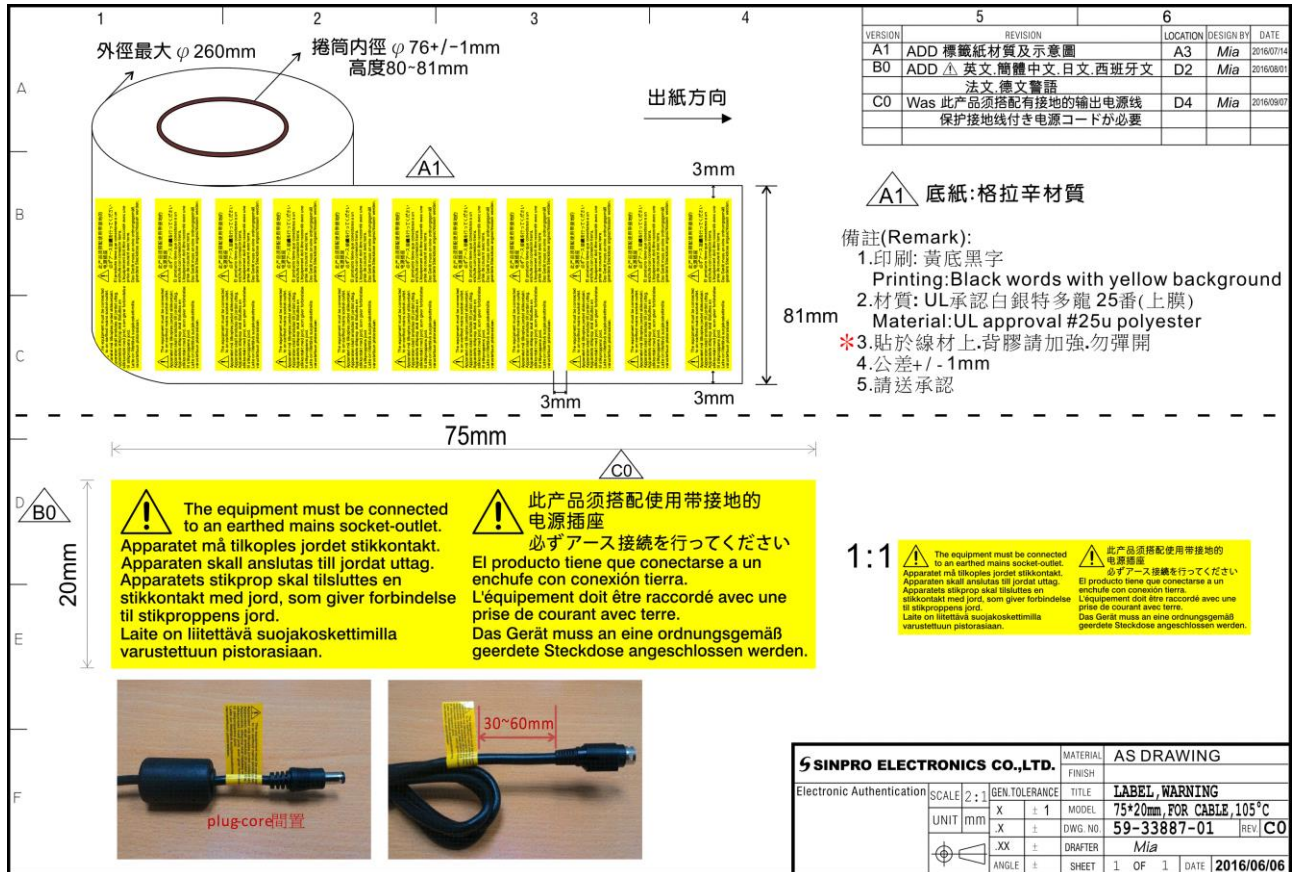
8 Outline

Dimensions are shown in inches or mm, The Output Cable please see "Output Cable Drawing"

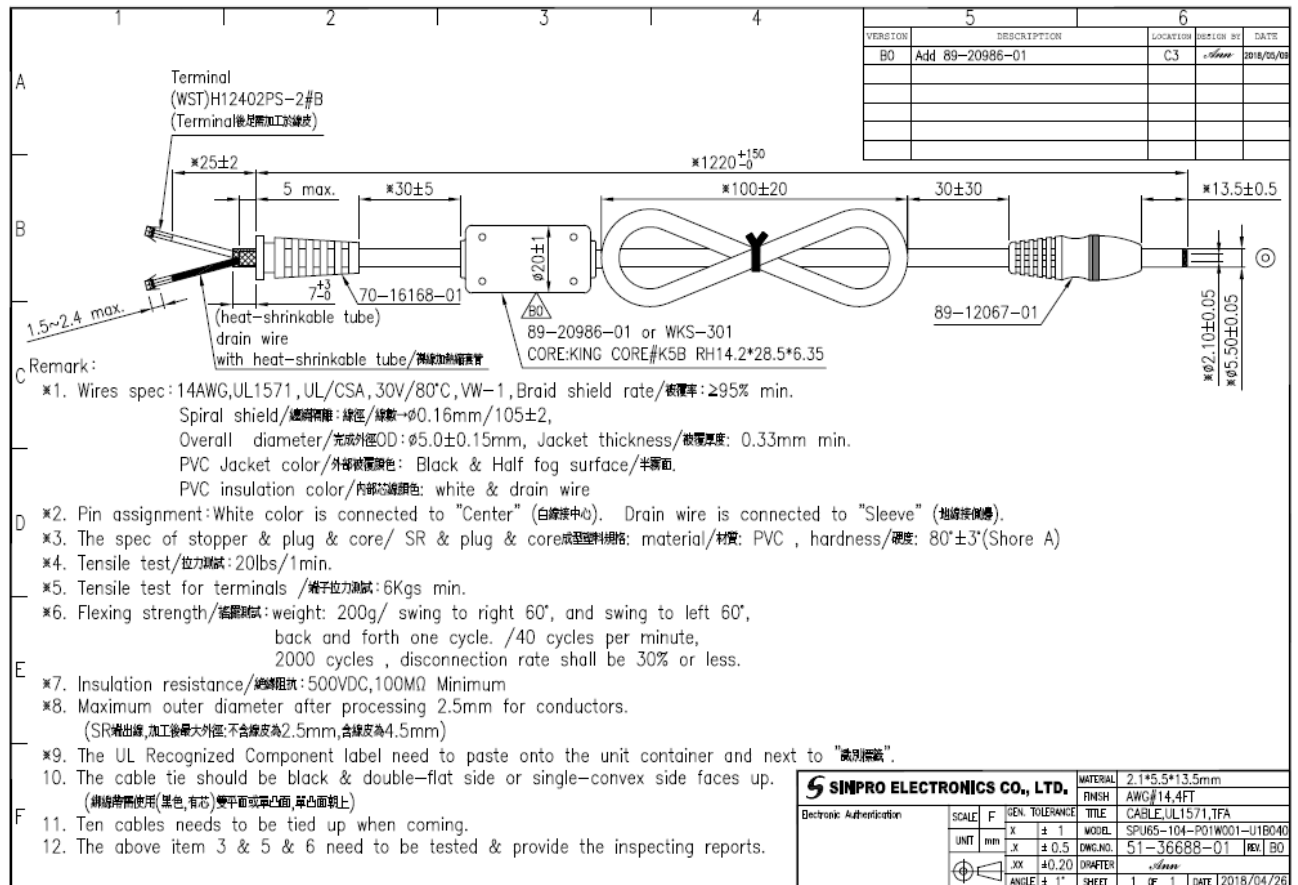


9 Label Drawing





10 Output Cable Drawing



11 Manual Drawing

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A	<div style="text-align: center; margin-bottom: 10px;">90mm</div> <div style="background-color: #90EE90; padding: 5px; border: 1px solid black;"> <p style="text-align: center; margin: 0;">IMPORTANT SAFETY INSTRUCTIONS</p> <p style="text-align: center; margin: 0;">THIS PRODUCT IS INTENDED FOR INDOOR USE ONLY</p> <p style="font-size: 8px; margin: 0;">When using an electrical appliance, basic safety precautions should always be followed, including the following. Read all instructions before using power supplies.</p> <p style="font-size: 8px; margin: 0;">DANGER - To reduce the risk of electric shock, a power supply should never be left unattended when plugged in. Always unplug this power supply from the electric outlet immediately after using.</p> <p style="font-size: 8px; margin: 0;">WARNING - To reduce the risk of burns, fire, electric shock, or injury to persons:</p> <p style="font-size: 8px; margin: 0;">1. Do not allow to be used as a toy. Pay close attention when this power supply is used by or near children.</p> <p style="font-size: 8px; margin: 0;">2. Use this power supply only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as contained in this manual.</p> <p style="font-size: 8px; margin: 0;">3. Never operate this power supply if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or fallen into water. In such cases, return the appliance to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.</p> <p style="font-size: 8px; margin: 0;">4. Never drop or insert any object into any openings.</p> <p style="font-size: 8px; margin: 0;">5. Do not use outdoors.</p> <p style="font-size: 8px; margin: 0;">6. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.</p> <p style="font-size: 8px; margin: 0;">7. The socket-outlet should be installed near the power supply and should be easily accessible.</p> </div> <div style="text-align: center; margin-top: 10px;">50mm</div>			正面	<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <th>VERSION</th> <th>REVISION</th> <th>LOCATION</th> <th>DESIGN BY</th> <th>DATE</th> </tr> <tr> <td>D</td> <td>Was PANTONE 359</td> <td>C5</td> <td>Rola</td> <td>2011/07/27</td> </tr> <tr> <td>A0</td> <td>ADD Sinpro Electronics Co., Ltd. & ADDRESS</td> <td>D2</td> <td>Mia</td> <td>2016/01/03</td> </tr> <tr> <td>B0</td> <td>Was S&T 11363-2006</td> <td>D2</td> <td>Mia</td> <td>2016/06/03</td> </tr> <tr> <td>C0</td> <td>ADD 臺灣RoHS「限用物質含有情況之標示資訊請至官網 www.sinpro.com 最新消息或文件下載區查詢」</td> <td>E2</td> <td>Kobe</td> <td>2017/10/02</td> </tr> </table>	VERSION	REVISION	LOCATION	DESIGN BY	DATE	D	Was PANTONE 359	C5	Rola	2011/07/27	A0	ADD Sinpro Electronics Co., Ltd. & ADDRESS	D2	Mia	2016/01/03	B0	Was S&T 11363-2006	D2	Mia	2016/06/03	C0	ADD 臺灣RoHS「限用物質含有情況之標示資訊請至官網 www.sinpro.com 最新消息或文件下載區查詢」	E2	Kobe	2017/10/02																						
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B				<p>備註</p> <p>1.印刷:綠底黑字(雙面印刷)</p> <div style="background-color: #90EE90; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> PANTONE 360C <p>印刷時請參照實際PANTONE色卡,勿用螢幕顯色</p> <p>2.材質:銅版紙 220g/m² 亮面(不上膜)</p> <p>3.公差+/- 1mm</p> <p>4.請送承認</p>																																																
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8. Do not unplug by pulling on cord. To unplug, pull on the plug, not on the cord.

9. Manufacturer can be contacted: Sinpro Electronics Co., Ltd.
No.5, Yuanxi St., PE.PZ, Pingtung City, Pingtung County 90093, Taiwan

10. 依「電器電子產品有害物質限制使用管理办法」, 我所生产之电器电子产品依上述条文于产品说明书上, 以「标示」及「说明」, 告知消费者及用户。

1. 标示说明: 本产品环保使用期限为「10」

2. 产品中有害物质的名称及含量

零件名称	有害物质				
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)
电源本体	X	○	○	○	○

本表格依据S&T 11364的规定编制

○表示该有害物质在该零件所有基材材料中的含量均在GB/T 26572规定的限量要求以下。

X表示该有害物质至少在该零件的某一均质材料中的含量超出GB/T 26572规定的限量要求。

11. 臺灣RoHS「限用物質含有情況之標示資訊請至官網 www.sinpro.com 最新消息或文件下載區查詢」