INVENTRONICS
Inventronics (Hangzhou) , Inc.
英飞特电子（杭州）股份有限公司

浙江省杭州市滨江区江虹路 459 号
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http://www.inventronics-co.com

# 英飞特电子 (杭州) 股份有限公司
# 客户承认书

## SPECIFICATION FOR APPROVAL

**CUSTOMER/客户：** UNICOBA ENERGIA S.A.

**CUSTOMER P.N./客户物料号：**

**MODEL NO./产品型号：** EUC-060S105DTMUC01

**CUSTOMER MODEL NO./客户产品型号：**

**SAMPLE DATE/送样日期：**

| CUSTOMER AUTHORIZED SIGNATURE/客户承认签核 | | |
|---|---|---|
| | | |

**Please return to us one copy of "SPECIFICATION FOR APPROVAL" with your approved signature.**
客户确认签字，盖章后请回传一份承认书给我司.

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| **Prepared By :**<br>拟 制： | | **Checked By :**<br>审 核： | | **Approved By :**<br>批 准： | |

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# Revision History/变更履历表

| Rev. | Date | Revision Description | Reviser | Customer Approval | Approval Date |
|---|---|---|---|---|---|
| V1.0 | 2017.09.01 | First Release./第一次发行 | Anna Xiao | | |
| V2.0 | 2018.01.24 | Update the Mechanical 2D Drawing /更新2D机构图 | Anna Xiao | | |
| V3.0 | 2018.08.09 | 1、Update Surge/浪涌更新<br>2、Update Environmental/环境要求更新<br>3、Update Label/标签更新 | Shelly Kuang | | |
| V4.0 | 2018.12.10 | 1、Update Label/标签更新<br>2、Update Environmental/环境要求更新 | Shelly Kuang | | |
| V5.0 | 2019.01.29 | 1、Update Label/标签更新<br>2、Update Environmental/环境要求更新 | Shelly Kuang | | |
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# 1. Scope /简述

The power supply described here is a 60W Dimming Control AC/DC CC LED driver with (800mA/37-75V) 1*outputs. This unit is designed to meet the relevant safety and EMC regulations. The power supply shall meet the RoHS requirement.

此款为60W单路输出(800mA/37-75V)带调光控制恒流电源。设计符合安规和EMC标准。此款电源符合RoHS要求。

# 2. Input Characteristics /输入特性

## 2.1. Input Conditions/输入条件

| | |
|---|---|
| Rated input voltage /额定输入电压 | 120-240/277Vac |
| Operating range/输入电压范围 | 90-305Vac |
| Rated input frequency /额定输入频率 | 50/60Hz (+/-3Hz) |
| Input power/输入功率 | 67.4$W_{Typ.}$@220Vac |
| Input current/输入电流 | 0.306$A_{Typ.}$@220Vac |
| Power Factor/功率因数 | 0.96 Typ. @ 220Vac,100%load(60W) |
| THD/总谐波失真 | ≤10%@120-240Vac,75%-100%load(45-60W) |

## 2.2. Line Voltage Surge and Brownout/输入电压浪涌和掉电

Surge/浪涌

With the PSU operating at minimum and maximum load, the power supply shall survive at the input surge voltage of 380Vac for 60 seconds.

电源可承受最大输入电压380Vac，60秒不损坏。

AC Line Brownout /AC 输入电压掉电

The PSU shall not be damaged under 90Vac input voltage in short using time.

输入电压短时低于90Vac时，电源不损坏。

## 2.3. Inrush Current(Cold Start) /浪涌电流（冷启动）

0.26 $A^2s$ max. @ 220Vac input, 25℃ cold start, duration=236us, 10%Ipk-10%Ipk.

0.26 $A^2s$ max. @ 220Vac，25℃（冷机启动），10%Ipk -10%Ipk，持续时间=236us。

## 2.4. Power Efficiency(Normal) /效率（额定输入）

85% min. (87% typ.)Measured at full load, 120Vac input, 25℃ ambient temperature, after the unit is thermally stabilized.

85% min.（典型值87%）@ 120Vac，满载，25℃环温，电源热机后。

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87% min. (89% typ.)Measured at full load, 220Vac input, 25℃ ambient temperature, after the unit is thermally stabilized.
87% min.（典型值89%）@ 220Vac，满载，25℃环温，电源热机后。

87% min. (89% typ.)Measured at full load, 277Vac input, 25℃ ambient temperature, after the unit is thermally stabilized.
87% min.（典型值89%）@ 277Vac，满载，25℃环温，电源热机后。

Note: All the above specifications are tested at 25℃ambient temperature unless otherwise stated.
注：以上所有规格都是 25℃环温测试, 除非另有说明。

## 3. Output Characteristics /输出特性

### 3.1. Output Conditions/输出条件

| | |
|---|---|
| Number of output channel/输出路数 | 1 |
| Rated output current/额定输出电流 | 800mA±8% |
| Output voltage range/输出电压范围 | 37-75V |
| Output voltage at no load/空载电压 | 100V max. |
| Rated output power/额定功率 | 60W max. |

### 3.2. Ripple & Noise(pk-avg) /纹波&噪声(pk-avg)

75%Io max. @100%load (measured at 20MHz bandwidth and the output is paralleled with a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor).
75%Io max. @满载测试(测试时示波器设置为 20M 带宽，输出端并联一个 0.1uF 的陶瓷电容和一个 10uF 的电解电容)。

### 3.3. Line regulation/线性调整率

The line regulation is less than 5% when the line voltage changing from minimum input voltage to maximum input voltage@100%load.
≤5% @从最小输入电压变化为最大输入电压满载测试。

### 3.4. Load regulation/负载调整率

The load regulation is less than 5% when output load changing from minimum output load to maximum output load.
≤5% @从最小输出负载变化为最大输出负载。

### 3.5. Turn on delay time/开机延迟时间

Less than 2000mS at 120-277Vac input voltage and 75%-100%load.
≤2000mS @输入电压 120-277Vac&75%-100%负载。

Note: All the above specifications are tested at 25℃ambient temperature unless otherwise stated.
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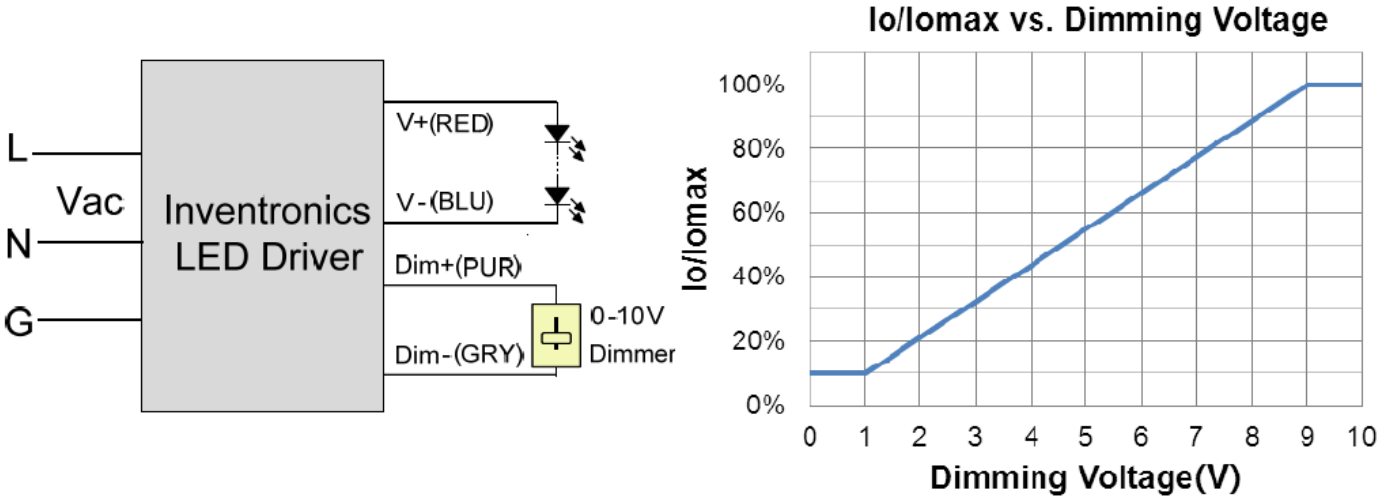
## 4. Dimming Control(On secondary side) /调光控制

| Parameter/参数 | Min./最小 | Typ./典型 | Max./最大 | Notes/备注 |
|---|---|---|---|---|
| Absolute maximum voltage On the 0-10V input pin /0~10V 线上最大电压 | 0V | | 20V | |
| Source current on 0~10V input pin/0~10V线上电流 | 0uA | 200uA | 250uA | |
| Dimming Output Range/调光输出范围 | 10%Iomax | | 100%Iomax | |
| Recommended Dimming Input Range./推荐调光输入范围 | 0V | | 10V | |

Note: All the above specifications are tested at 25℃ambient temperature unless otherwise stated.
注：以上所有规格都是 25℃环温测试,除非另有说明。

### 4.1. 0-10V Dimming/0-10V 调光




**Implementation 1: DC Input**
示意图1：DC 输入

**Notes:**
1. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2. Do not connect Dim− to the output V− or V+, otherwise the driver will not work properly.
3. If 0-10V dimming is not used, Dim + should be open.

注：
1. 可用有源0-10V电压源信号或者无源元件，比如电阻或者稳压管，来替代调光器。
2. 不能将调光地线Dim-连接到输出线V-或者V+上，否则驱动器无法正常工作。
3. 调光功能不使用时，Dim+线可悬空。

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## 5. Protection /电源保护功能

### 5.1. Over Voltage Protection /过压保护

The unit will go into OVP protection when the OVP trigger voltage exceeds OVP point. Limits output voltage at no load and in case the normal voltage limit fails.

产品过压时，电源会启动 OVP 保护功能。输出电压会限制在规定范围内。

### 5.2. Over Temperature Protection /过温保护

The power supply shall go into thermal protection as the internal temperature of the unit exceeds internal limitation. The output shall be auto recovery when the temperature becomes normal.

电源内部实际温度超过内部限定温度时会启动过温保护。温度正常时，输出自动恢复。

### 5.3. Short Circuit Protection /短路保护

When the output is shorted, and the power supply shall not be damaged, and shall be recovered after the fault condition is removed.

短路时，产品无损伤。短路解除后，可自动恢复。

### 5.4. Input Under Voltage Protection/输入欠压保护

Auto Recovery. Turn off the output when the input voltage falls below 80±10V. And the driver will restart when the input voltage exceeds 85±10V.

自恢复模式。输入电压低于 80±10V，输出关断；输入电压高于 85±10V，驱动器重启。

### 5.5. Input Over Voltage Protection/输入过压保护

Turn off the output when the input voltage reach protection voltage around 340±10Vac. Auto Recovery. The driver will restart when the input voltage falls around 320V±20V.

输入电压高于保护电压 340±10Vac，输出关断。输入电压低于 320±20Vac，驱动器重启。

## 6. Safety and EMC Compliance 安规及 EMC 标准

### 6.1. Safety Standards/安规标准

| Safety category/安规 | Country/国家 | Standard/标准 |
|---|---|---|
| CE | Europe | EN61347-1, EN61347-2-13 |
| UL /CUL | USA & Canada | UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91 |

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### 6.2. EMI Standards/ EMI 标准

| EMI Standards/EMI标准 | Notes/备注 |
|---|---|
| EN 55015 | Conducted emission Test & Radiated emission Test |
| EN 61000-3-2 | Harmonic current emissions |
| EN 61000-3-3 | Voltage fluctuations & flicker |
| FCC Part 15 | ANSI C63.4 Class B |
| | This device complies with Part 15 of the FCC Rules.Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2)this devise must accept any interference received,including interference that may cause undesired Operation. |

### 6.3. EMS Standards/ EMS 标准

| EMS Standards | Notes |
|---|---|
| EN 61000-4-2 | Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge |
| EN 61000-4-3 | Radio-Frequency Electromagnetic Field Susceptibility Test-RS |
| EN 61000-4-4 | Electrical Fast Transient / Burst-EFT |
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV |
| EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS. |
| EN 61000-4-8 | Power Frequency Magnetic Field Test. |
| EN 61000-4-11 | Voltage Dips. |
| EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

### 6.4. Dielectric Strength (Hi-pot)/介电耐压强度（高压）

a) Input-Output:3000Vac/10mA/60s is guaranteed( In the process of manufacturing testing time for 1s.).
输入-输出:3000Vac/10mA/60s(生产时高压测试时间:1s)。

b) Input-Earth:1875Vac/5mA/60s is guaranteed( In the process of manufacturing testing time for 1s.).
输入-地:1875Vac/5mA/60s(生产时高压测试时间:1s)。

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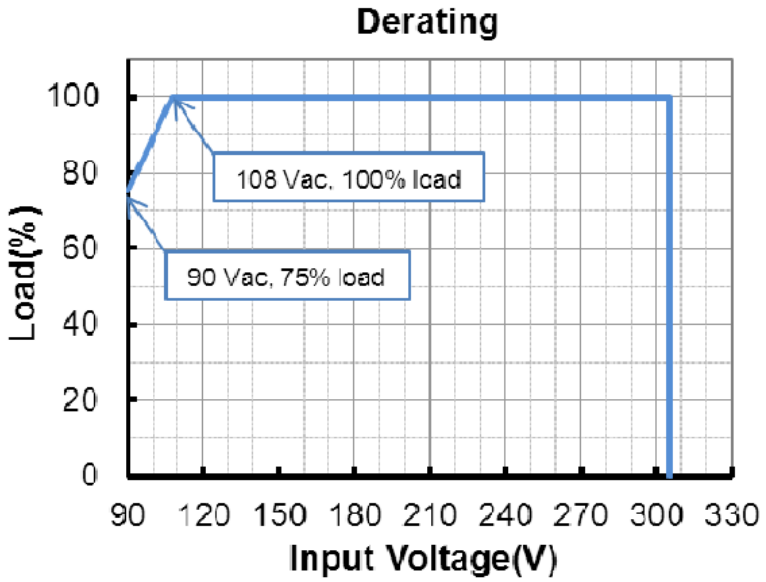
c) Output- Earth:1500Vac/10mA/60s is guaranteed( In the process of manufacturing testing time for 1s.).
输出-地:1500Vac/10mA/60s(生产时高压测试时间:1s)。

### 6.5. Leakage Current/漏电流

0.75MIU max. @277Vac/60Hz. (Reliable connection of the earth/产品需可靠接地).

## 7. Derating Curve/降额曲线




## 8. Environmental /环境要求

### 8.1. Temperature/温度

| Condition/条件 | Minimum/最小 | Maximum/最大 | Note/备注 |
|---|---|---|---|
| Operating Case Temperature for Safety /安规壳温 | -40℃ | +88℃ | / |
| Operating Temperature /工作温度 | -40℃ | +55℃ | @120-277Vac |
| Operating Case Temperature for Warranty/质保壳温 | -40℃ | +75℃ | / |
| Storage Temperature /储藏温度 | -40℃ | +85℃ | / |

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### 8.2. Humidity/湿度

| Condition/条件 | Minimum/最小 | Maximum/最大 | Unit/单位 |
|---|---|---|---|
| Operating Humidity /工作湿度 | 10% | 100% | RH |
| Storage Humidity /储藏湿度 | 5% | 100% | RH |

## 9. Reliability /可靠性

### 9.1. Burn-in/老化

The power supply unit shall undergo a minimum of 4 Hours burn-in test at 45℃ ±5℃ at full load.

产品至少要在 45℃±5℃的环境及满载条件下老化 4 小时。

### 9.2. MTBF Qualification/平均间隔故障时间估算

The typical MTBF shall be 475,000 hours at 220Vac input, 80%Load and 25°C Ambient Temperature (MIL-HDBK-217F).

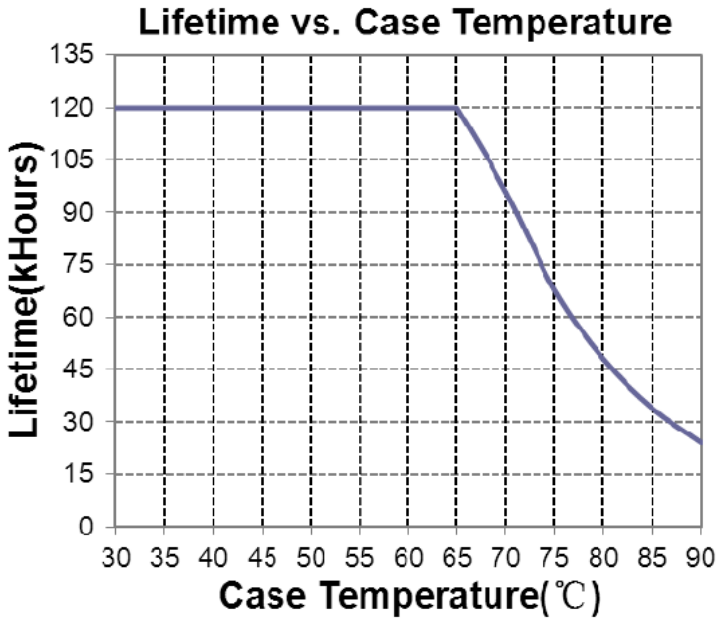
典型值 475,000 小时@220Vac ,80%负载，25℃环温。

### 9.3. Life/寿命

The typical Life shall be 95,900 hours at 120Vac input, 80%Load; Case temperature=70℃@ Tc point. See life time vs. Tc curve for the details.

典型值 95,900 小时@120Vac ,80%负载，70℃壳温。

Life Time vs. Case Temperature Curve/寿命 vs.壳温曲线:



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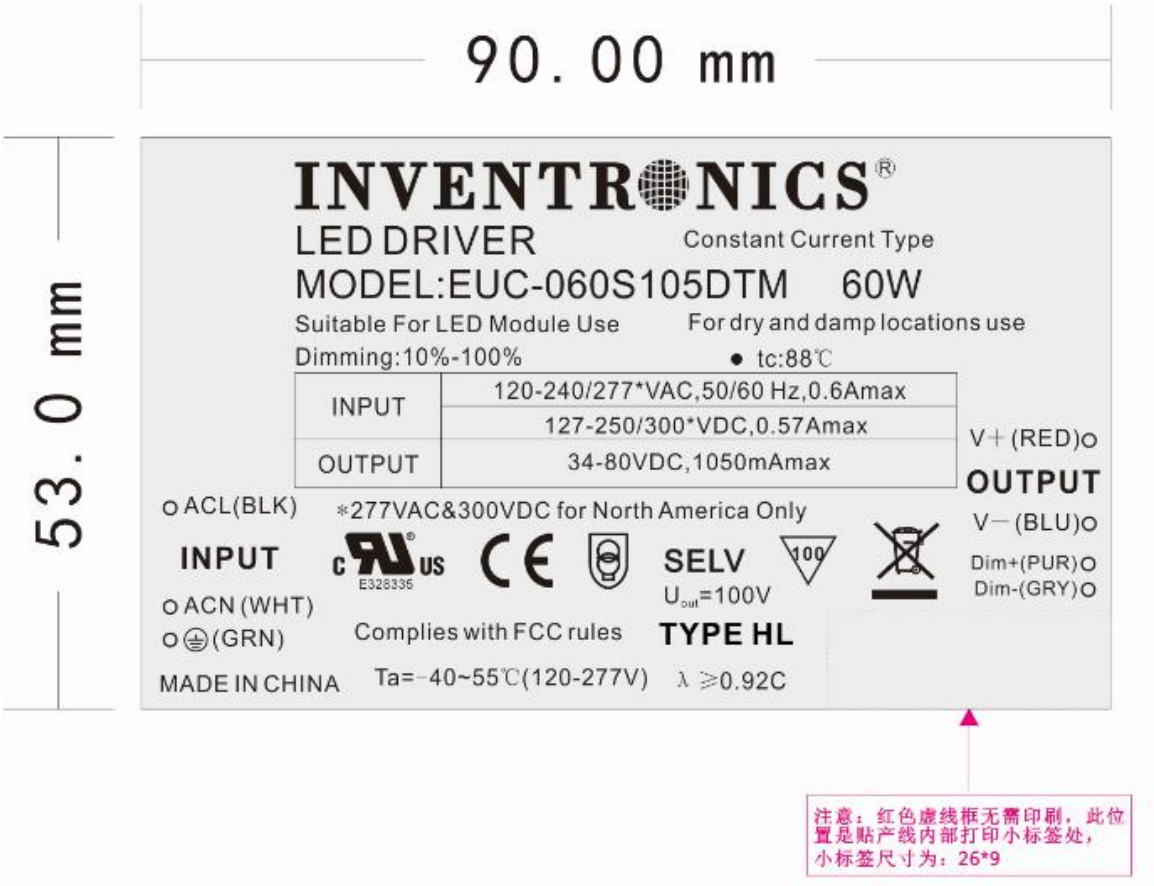
## 10. Waterproof /防水等级

The PSU come up to IP66 standard.

## 11. Label Drawing/标签图纸




The Small label/小标签：

| |
|---|
| EUC-060S105DTMUC01 |
| Output current：800mA |
| Output voltage range：37-75V |

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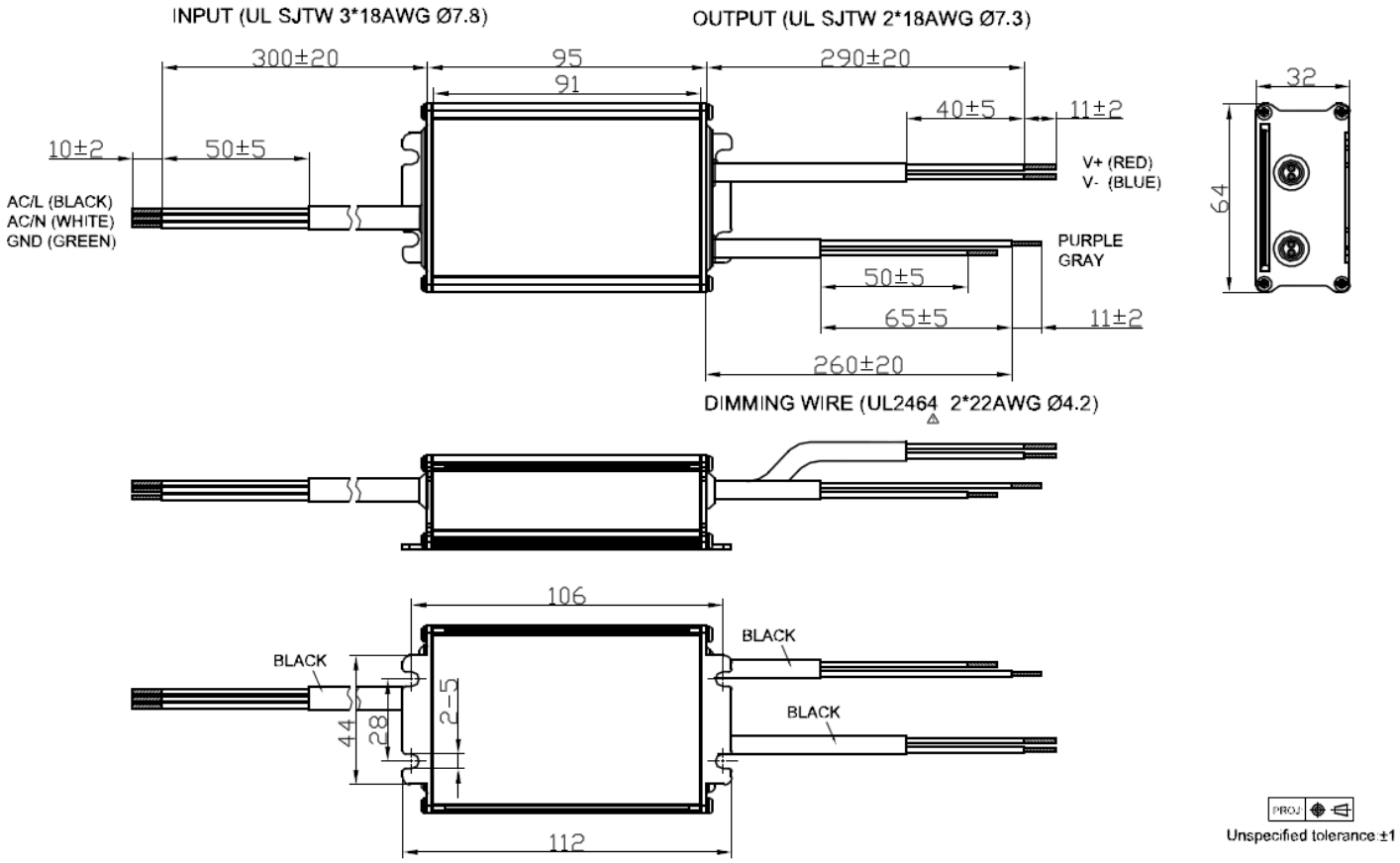
## 12. Mechanical 2D Drawing /2D 机构图

| | |
|---|---|
| Typical Dimension (L x W x H)/参考尺寸 | 3.74 x 2.52 x 1.26 Inch/英寸<br>95 × 64 × 32mm/毫米 |
| Typical Net Weight/参考净重 | 410g |



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## 13. Package Drawing/包装外观图

| | |
|---|---|
| Typical Carton Dimension (L x W x H)/参考包材尺寸 | 500 x 370 x 335 mm |
| Pulp Tray /纸浆托盘 | 6pcs/carton |
| Shield Board /平卡 | 6pcs/carton |
| LED Drivers/LED驱动器 | 54pcs/carton |