

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: EUM-150S105DG-UC01

CUSTOMER MODEL NO./客户产品型号: _____

SAMPLE DATE/送样日期: _____

CUSTOMER AUTHORIZED SIGNATURE/客户承认签核		

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Revision History/变更履历表

Rev.	Date	Revision Description	Reviser	Customer Approval	Approval Date
V1.0	2020.02.21	First Release./第一次发行	Shelly Kuang		
V2.0	2020.07.01	1.Update Mechanical 2D Drawing /2D机 构图更新; 2. Update label drawing/标签图纸更新;	Shelly Kuang		

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1. Scope / 简述

The power supply described here is a 150W Dimming Control programmable AC/DC CC LED driver with (700-1050mA) single output. This unit is designed to meet the relevant safety and EMC regulations. The power supply shall meet the RoHS requirement.

此款为150W单路输出(700-1050mA)带调光控制可编程恒功率电源。设计符合安规及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	100-240/277Vac
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	162.2W _{Typ.} @ 220Vac
Input current / 输入电流	0.737A _{Typ.} @ 220Vac
Power Factor / 功率因数	0.96 _{Typ.} @ 220Vac, 50-60Hz, 100%load.
THD / 总谐波失真	≤10% @ 220-240Vac, 50-60Hz, 75%-100%load (112.5-150W)

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 330Vac for 60 seconds.

电源可承受最大输入电压330Vac，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）

3.55 A²s max. @ 220Vac input, 25°C cold start, duration=220 μs, 10%Ipk-10%Ipk.

3.55 A²s max. @ 220Vac, 25°C（冷机启动），10%Ipk -10%Ipk，持续时间=220 μs。

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

88.5% min. (90.5% typ.) Measured at full load, 120Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2% lower, if measured immediately after startup.

88.5% min.（典型值90.5%）@ 120Vac，满载，25°C环温，电源热机后。冷机启动时

效率降低约2%。

90.5% min. (92.5% typ.) Measured at full load, 220Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2% lower, if measured immediately after startup.

90.5% min. (典型值92.5%) @ 220Vac, 满载, 25°C 环温, 电源热机后。冷机启动时效率降低约2%。

91% min. (93% typ.) Measured at full load, 277Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2% lower, if measured immediately after startup.

91% min. (典型值93%) @ 277Vac, 满载, 25°C 环温, 电源热机后。冷机启动时效率降低约2%。

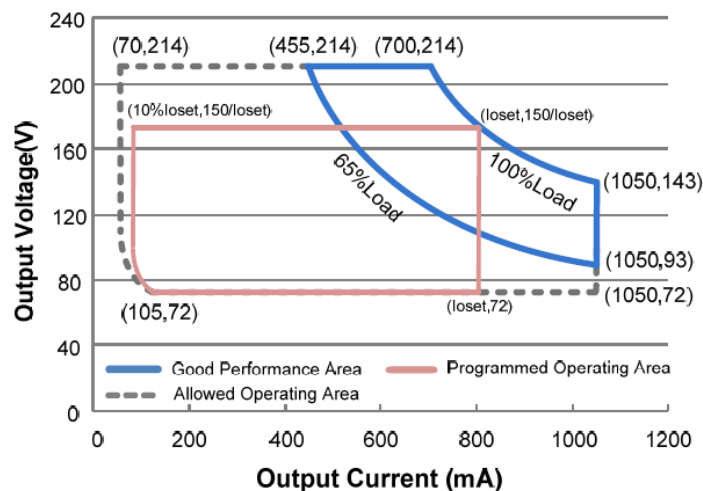
Note: All the above specifications are tested at 25°C ambient temperature unless otherwise stated.
注：以上所有规格都是 25°C 环温测试, 除非另有说明。

3. Output Characteristics /输出特性

3.1. Output Conditions/输出条件

Number of output channel/输出路数	1
Default Output Current /出厂默认电流	700mA±5%
Default Output voltage range /出厂默认电压范围	72-214V
Full power adjustable output current /满功率可调整输出电流范围	700-1050mA
Output voltage at no load/空载电压	240V max.
Rated output power/额定功率	150W max.

3.2. I-V Operation Area/ I-V 工作区域



Note: 700mA ≤ I_o ≤ 1050mA

3.3. Ripple & Noise(pk-pk) /纹波&噪声(pk-pk)

Total Output Current Ripple $\leq 10\%I_{omax}$. @ 100%load. (measured at 20MHz bandwidth and the output is paralleled with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor).

总输出电流纹波 $\leq 10\%I_{omax}$. @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)。

3.4. Line regulation/线性调整率

The line regulation is less than 0.5% when the line voltage changing from minimum input voltage to maximum input voltage @ 100%load.

$\leq 0.5\%$ @从最小输入电压变化为最大输入电压满载测试。

3.5. Load regulation/负载调整率

The load regulation is less than 1.5% when output load changing from minimum output load to maximum output load.

$\leq 1.5\%$ @从最小输出负载变化为最大输出负载。

3.6. Turn on delay time/开机延迟时间

Less than 500mS at input voltage 120-277Vac and 65%-100% load.

$\leq 500mS$ @输入电压120-277Vac & 65%-100%负载。

Note: All the above specifications are tested at 25°C ambient temperature unless otherwise stated.

注：以上所有规格都是 25°C 环温测试, 除非另有说明。

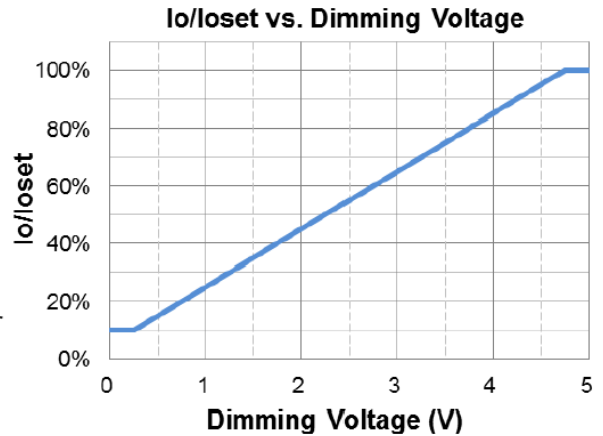
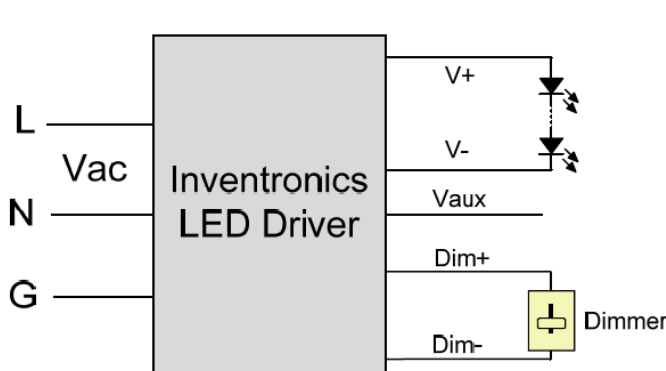
4. Dimming Control /调光控制

Parameter/参数	Min./最小	Typ./典型	Max./最大	Notes/备注
Absolute Maximum Voltage on the Vdim (+) Pin/ 1-5V/1-10V线上最大电压	-20 V	-	20 V	
Source Current on Vdim (+)Pin/ 1-5V/1-10V线上输出电流	200 uA	300 uA	450 uA	Vdim(+) = 0 V
Dimming Output Range/调光输出范围	10%loset	-	loset	700 mA \leq loiset \leq 1050 mA
	70 mA	-	loiset	70 mA \leq loiset < 700 mA
Recommended Dimming Range for 1-5V/ 1-5V 推荐调光输入	0.25 V	-	4.75 V	Dimming mode set to 1-5V in PC interface/ 1-5V调光需通过PC界面设置

Parameter/参数	Min./最小	Typ./典型	Max./最大	Notes/备注
Recommended Dimming Range for 1-10V/ 1-10V 推荐调光输入	1 V	-	9 V	Default 1-10V dimming mode with positive logic./ 调光缺省设置是正逻辑1-10V调光模式
PWM_in High Level/ PWM高电平	-	10V	-	
PWM_in Low Level/ PWM 低电平	-	0V	-	
PWM_in Frequency Range/ PWM 频率范围	200 Hz	-	2 KHz	
PWM_in Duty Cycle/ PWM 占空比	0%	-	100%	

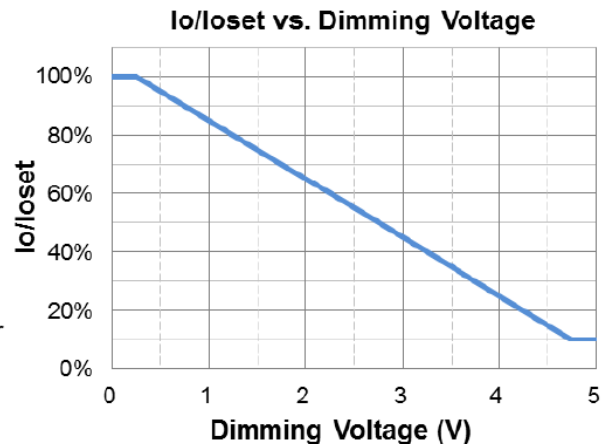
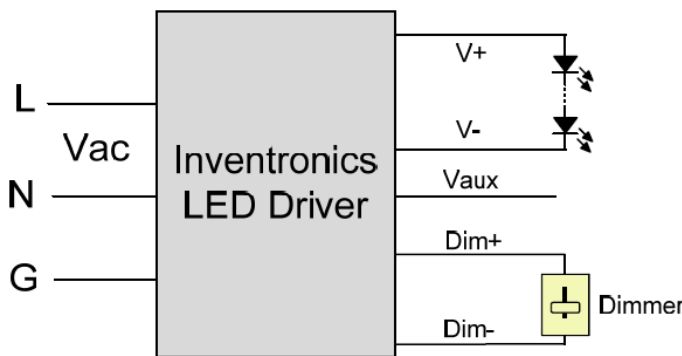
Note: All the above specifications are tested at 25°C ambient temperature unless otherwise stated.
注：以上所有规格都是 25°C 环温测试, 除非另有说明。

4.1. 1-5V dimming/1-5V 调光



Implementation 1: Positive logic

示意图 1: 正逻辑



Implementation 2: Negative logic

示意图 2: 负逻辑

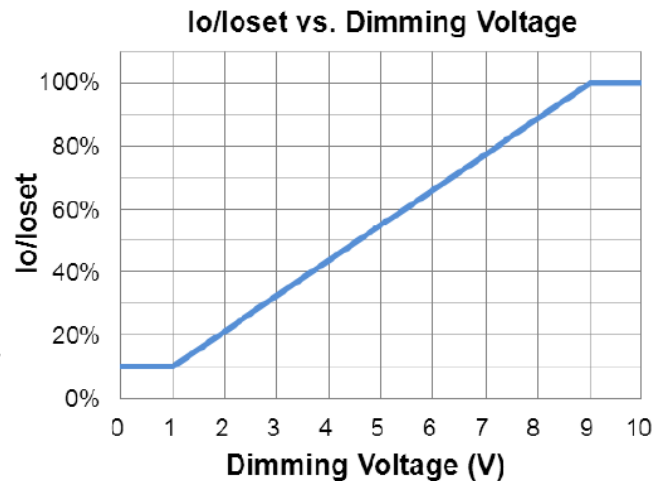
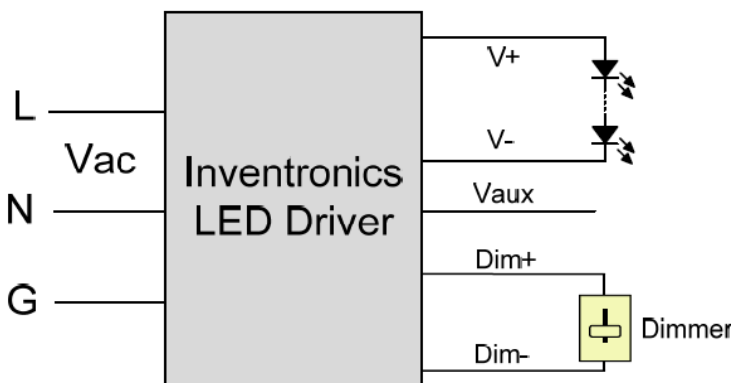
Notes:

1. The dimmer can also be replaced by an active 1-5V voltage source signal or passive components like resistors and zener.
2. If 1-5V dimming is not used, Dim + should be open.
3. When 1-5V negative logic dimming mode and Dim+ is open, the driver will output maximum current.

注:

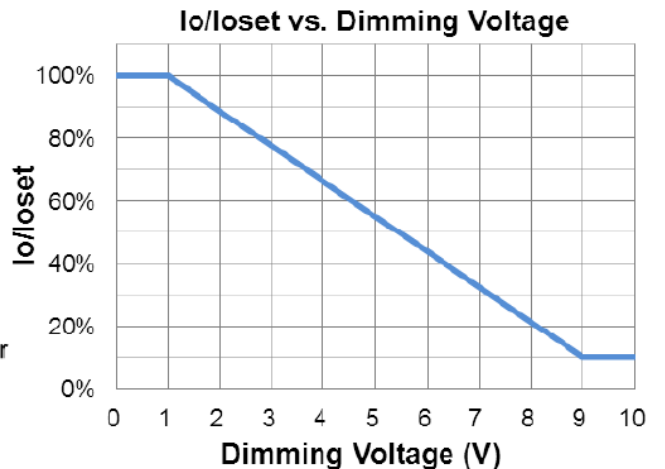
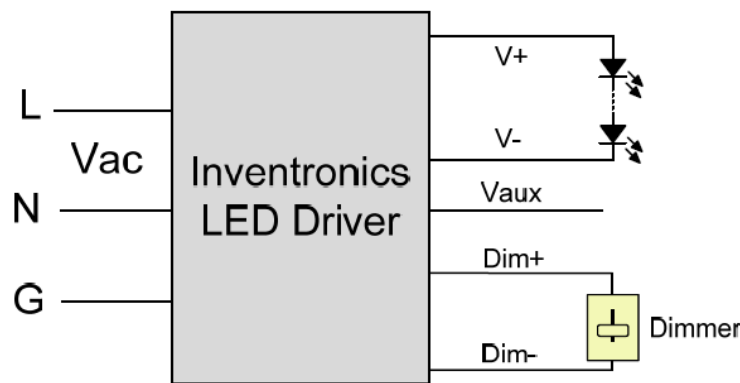
1. 可用1-5V 电压信号源或者无源元件，比如电阻或者稳压管，来替代调光器。
2. 不能将调光地线Dim-连接到输出线V-或者V+上，否则驱动器无法正常工作。
3. 调光功能不使用时，Dim+线可悬空。

4.2. 1-10V Dimming/1-10V 调光



Implementation 3: Positive logic

示意图 3: 正逻辑



Implementation 4: Negative logic

示意图 4: 负逻辑

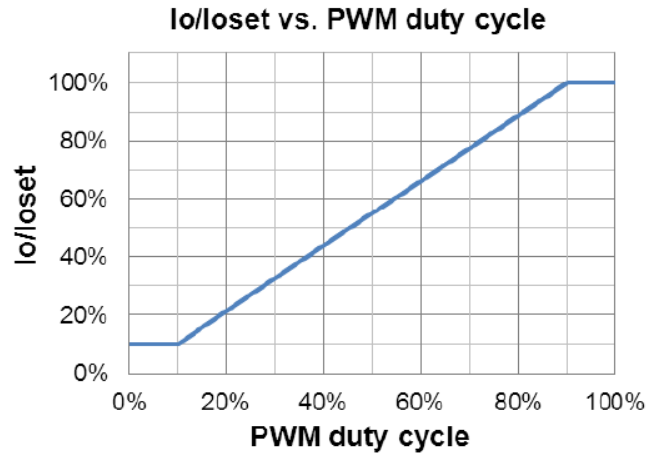
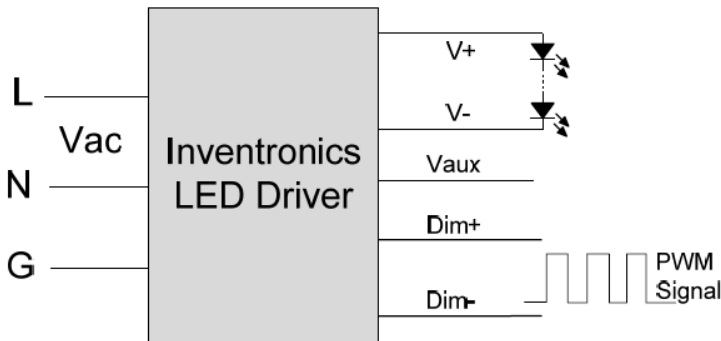
Notes:

1. The dimmer can also be replaced by an active 1-10V voltage source signal or passive components like resistors and zener.
2. If 1-10V dimming is not used, Dim + should be open.
3. When 1-10V negative logic dimming mode and Dim+ is open, the driver will output minimum current.

注:

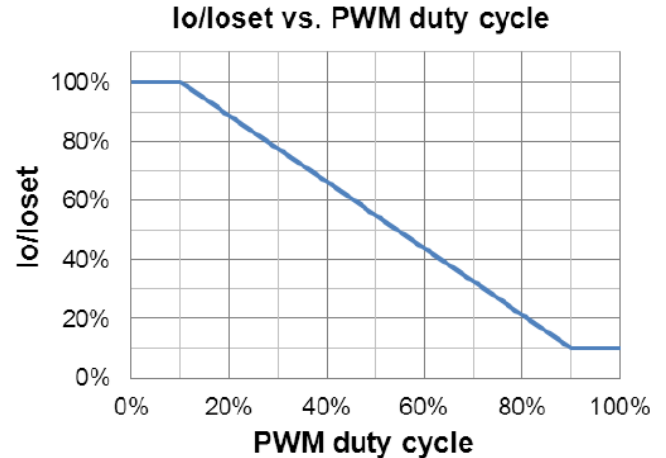
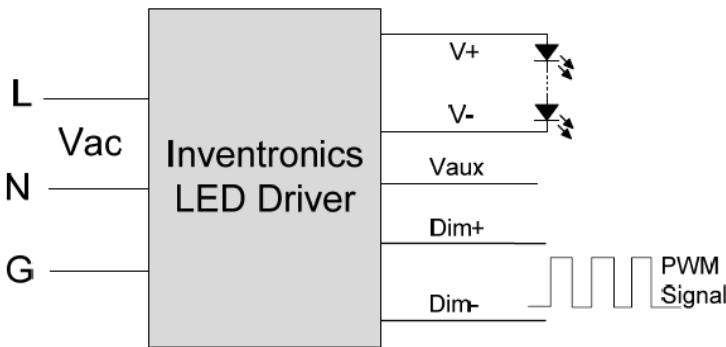
1. 可用1-10V 电压信号源或者无源元件，比如电阻或者稳压管，来替代调光器。
2. 不能将调光地线Dim-连接到输出线V-或者V+上，否则驱动器无法正常工作。
3. 调光功能不使用时，Dim+线可悬空。

4.3. 10V PWM Dimming/10V PWM 调光



Implementation 5: Positive logic

示意图 5: 正逻辑



Implementation 6: Negative logic

示意图 6: 负逻辑

Notes:

1. If PWM dimming is not used, Dim + should be open.
2. When PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

注:

1. 调光功能不使用时，Dim+线可悬空。
2. 当调光方式为 PWM 负逻辑调光，且调光线 Dim+悬空时，驱动器输出最小电流。

4.4. Time Dimming/时控调光

Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

时控调光控制包括三种模式：它们是自适应-中点对齐、自适应-百分比和传统定时。

- **Self Adapting-Midnight:** Automatically adjusts the dimming curve based on the on-time of past two days (if difference <15 minutes), assuming that the center point of the dimming curve is midnight local time.

自适应-中点对齐：假定调光曲线的中点是当地的午夜时间，那么调光器会自动根据过去两天每天的工作总时长来调整工作曲线（误差在 15 分钟内）

- **Self Adapting-Percentage:** Automatically adjusts the on-time of each step by a constant percentage $= (\text{actual on-time for the past 2 days if difference} < 15 \text{ min}) / (\text{programmed on-time from the dimming curve})$.

自适应-百分比：根据过去两天的工作时间（误差在 15 分钟内），根据比例自动调节工作时间（按照初始化时间和有效工作时间按比例增加或减少）

- **Traditional Timer:** Follows the programmed timing curve after power on with no changes.

传统定时：电源开启后根据设置的调光曲线工作

4.5. Output Lumen Compensation/光衰补偿

Output Lumen Compensation (OLC) may be used to maintain constant light output over the life of the LEDs by driving them at a reduced current when new, then gradually increasing the drive current over time to counteract LED lumen degradation.

光衰补偿功能主要用于维持 LED 的恒流明输出。在整个 LED 的寿命周期内，通过逐渐增加 LED 的驱动电流，以抵消 LED 长期工作造成的光衰，从而保证 LED 恒定的光通量输出。

5. Protection /电源保护功能

5.1. Over Voltage Protection /过压保护

Limits output voltage at no load and in case the normal voltage limit fails.

输出电压会限制在规定范围内。

5.2. Short Circuit Protection /短路保护

Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.

自恢复模式。短路时，产品无损伤。短路解除时，可自动恢复

5.3. Over Temperature Protection /过温保护

Decreases output current, returning to normal after over temperature is removed.

降电流模式。过温解除时，电流自动恢复。

6. Safety and EMC Compliance/安规及 EMC 标准

6.1. Safety Standards/安规标准

Safety category/安规	Standards/标准
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13
ENEC & CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
CCC	GB 19510.1, GB 19510.14
EAC	ГОСТ Р МЭК 61347-1, ГОСТ IEC 61347-2-13

6.2. EMI Standards/ EMI 标准

EMI Standards	Notes
EN 55015/GB 17743	Conducted emission Test & Radiated emission Test
EN 61000-3-2/GB 17625.1	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 device 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: Differential Mode 6 kV, Common Mode 10 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. Performance Standard/性能标准

Performance	Notes
EN 62384	DC or AC supplied electronic control gear for LED modules – performance requirements

6.5. 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)。
- 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)。

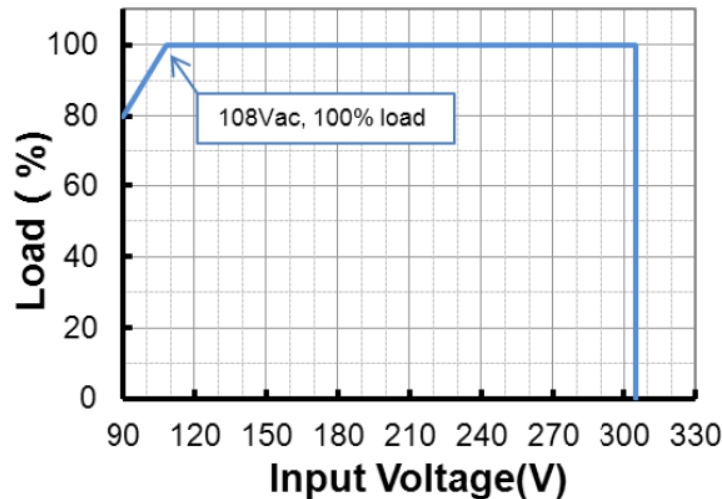
6.6. Leakage Current/漏电流

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

6.7. Ground Resistance/接地阻抗

0.1Ω max. 32A, 3S.

7. Derating Curve/降额曲线



8. Environmental /环境要求

Condition/条件	Minimum/最小	Maximum/最大	Note/备注
Operating Case Temperature for Safety /安规壳温	-40℃	+90℃	/

Condition/条件	Minimum/最小	Maximum/最大	Note/备注
Operating Case Temperature for Warranty/质保壳温	-40°C	+80°C	/
Storage Temperature /储藏温度	-40°C	+85°C	Humidity: 5%RH to 100%RH/湿度: 5%RH to 100%RH

9. Reliability /可靠性

9.1. MTBF Qualification/平均间隔故障时间估算

The typical MTBF shall be 333,000 hours at 220Vac input, 80%Load and 25°C Ambient Temperature (MIL-HDBK-217F).

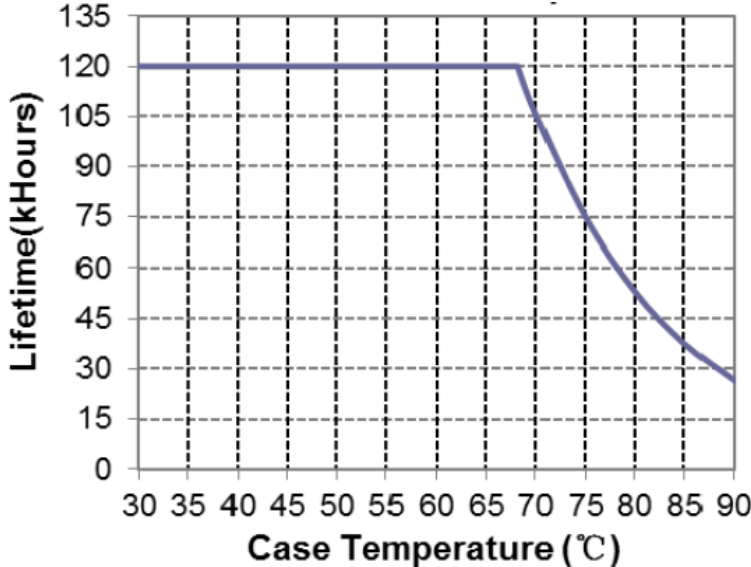
典型值 333,000 小时 @220Vac ,80%负载, 25°C 环温。

9.2. Life/寿命

The typical Life shall be 106,000 hours at 220Vac input, 80%Load; Case temperature=70°C @ Tc point. See life time vs. Tc curve for the details.

典型值 106,000 小时 @220Vac ,80%负载, 70°C 壳温。

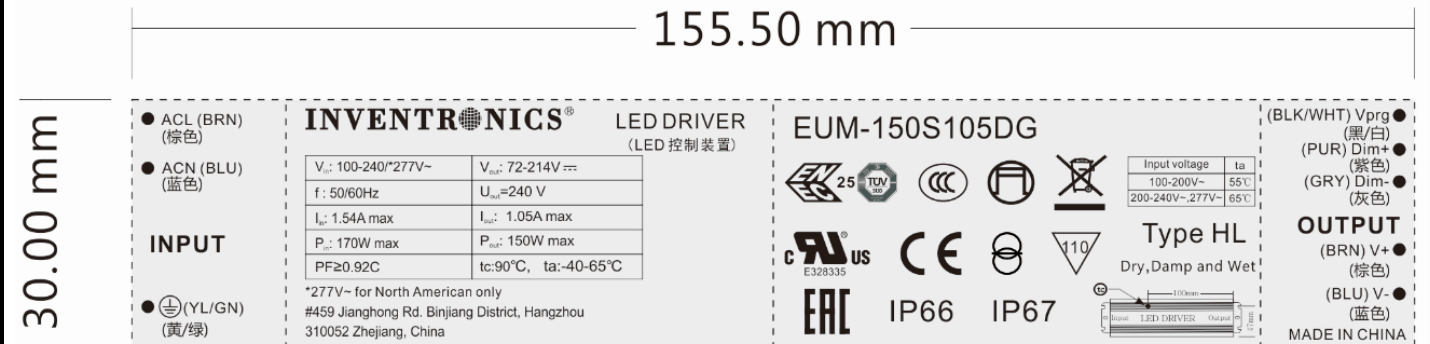
Life Time vs. Case Temperature Curve/寿命 vs.壳温曲线:



10. Waterproof /防水等级

The PSU come up to IP66&IP67 standards.

11. Label Drawing/标签图纸



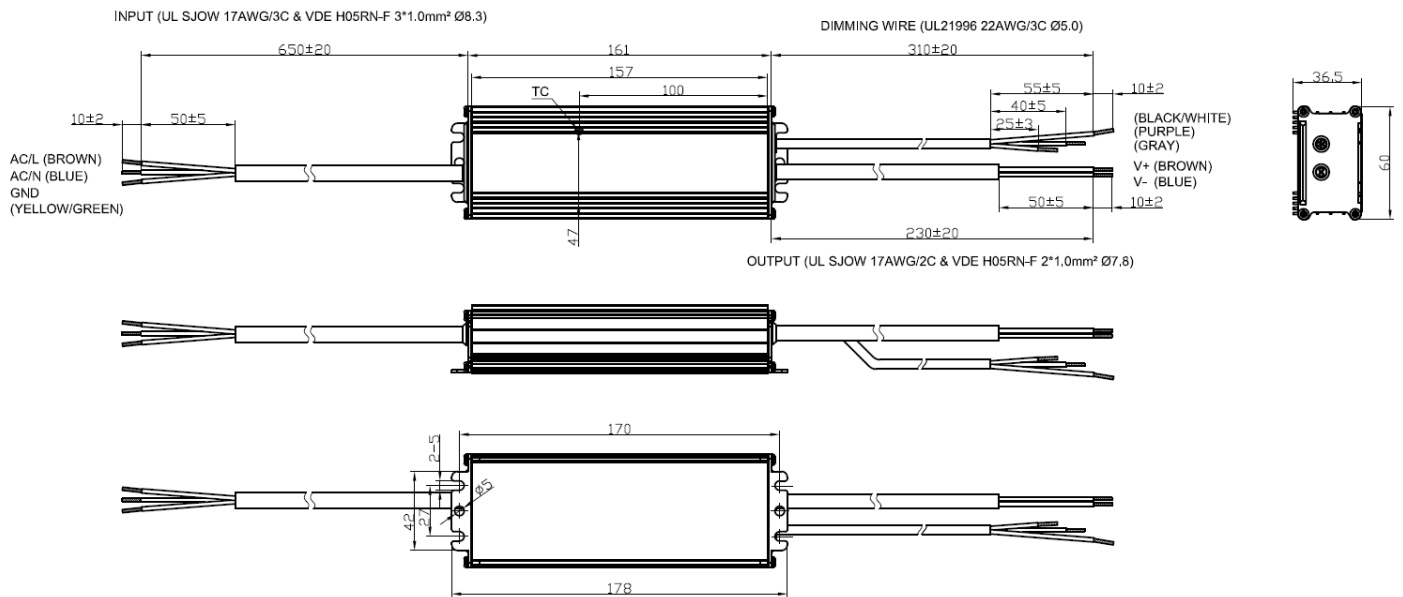
The Small label/小标签:

EUM-150S105DG-UC01
Configuration:N/A
Initial Current: 700mA
Firmware:XXXXXX

Notes: The information of label for constant power product may follow the software upgrading.
注：小标签信息可能随软件版本升级而变更。

12. Mechanical 2D Drawing /2D 机构图

Enclosure material/材质要求	AL6063
Typical Dimension (L x W x H)/参考尺寸	6.34 × 2.36 × 1.44 Inch/英寸 161 × 60 × 36.5 mm/毫米
Typical Net Weight/参考净重	735g
Color/颜色	Silver/银色



PROJ:

Unspecified tolerance: ±1

13. Package Drawing/包装外观图

Typical Carton Dimension (L x W x H)/参考包材尺寸	490 x 300 x 305 mm
Pulp Tray/纸浆托盘	5pcs/carton
Shield Board/平卡	5pcs/carton
LED Drivers/LED驱动器	25pcs/carton

