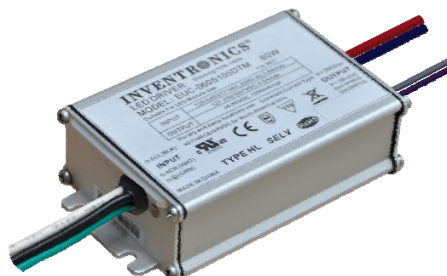


## Features

- Low THD, 10% Max up to 240 Vac
- Compact Metal Case with Excellent Thermal Performance
- Isolated 0-10V Dimmable
- Input Surge Protection: 4kV line-line, 6kV line-earth
- High Reliability & Long Lifetime: 95,900 hrs. at 70°C Case Temperature
- Suitable for Built-in Use and Class I Luminaires
- Input UVP and Input OVP
- Waterproof(IP66) and UL Dry / Damp Location
- Class 2 & SELV Output
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5 Years Warranty



## Description

The EUC-060SxxxDTM000x series is a 60W, constant-current IP66 LED driver that operates from 90-305Vac input with excellent power factor and THD feature. It is created for low bay, tunnel and street lights. The high efficiency of these drivers and compact metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input under voltage, input over voltage, output over voltage, short circuit, and over temperature.

## Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
500 mA	90 ~ 305 Vac 127 ~ 300 Vdc	60 ~ 120 Vdc	60W	90%	0.99	0.96	EUC-060S070DTM0004
700 mA	90 ~ 305 Vac 127 ~ 300 Vdc	48 ~ 86 Vdc	60W	89%	0.99	0.96	EUC-060S070DTM
860 mA	90 ~ 305 Vac 127 ~ 300 Vdc	35 ~ 70 Vdc	60W	89%	0.99	0.96	EUC-060S105DTM0004 <sup>(3)</sup>
1050 mA	90 ~ 305 Vac 127 ~ 300 Vdc	34 ~ 57 Vdc	60W	89%	0.99	0.96	EUC-060S105DTM <sup>(3)</sup>
1200 mA	90 ~ 305 Vac 127 ~ 300 Vdc	25 ~ 50 Vdc	60W	89%	0.99	0.96	EUC-060S180DTM0006 <sup>(3)(4)</sup>
1400 mA	90 ~ 305 Vac 127 ~ 300 Vdc	21 ~ 43 Vdc	60W	88%	0.99	0.96	EUC-060S180DTM0004 <sup>(3)(4)</sup>
1800 mA	90 ~ 305 Vac 127 ~ 300 Vdc	20 ~ 33 Vdc	60W	87%	0.99	0.96	EUC-060S180DTM <sup>(3)(4)</sup>

**Notes:** (1) UL, FCC certified input voltage range: 120-277Vac/127-300Vdc; other certified input voltage range except UL & FCC: 120-240Vac/127-250Vdc.

(2) Measured at full load and 220 Vac input.

(3) SELV output.

(4) Class 2 output.

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127 ~ 300 Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.66 A	Measured at full load and 120 Vac input.
	-	-	0.35 A	Measured at full load and 220 Vac input.
Inrush Current( $I^2t$ )	-	-	0.26 A <sup>2</sup> s	At 220Vac input, 25°C cold start, duration= 236 $\mu$ S, 10%l <sub>pk</sub> -10%l <sub>pk</sub> . See Inrush Current Waveform for the details.
Power Factor	0.90	-	-	120-277Vac, 75%-100%Load(45~60W)
THD	-	-	15%	
THD	-	-	10%	120-240Vac, 75%-100%Load(45~60W)

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-8%lo	-	8%lo	At full load condition
Total Output Current Ripple (pk-avg)	-	50%lo	75%lo	At full load condition
Startup Overshoot Current	-	5%lo	10%lo	At full load condition
No Load Output Voltage	-	-	-	
EUC-060S070DTM0004	-	-	160V	
EUC-060S070DTM	-	-	160V	
EUC-060S105DTM0004	-	-	100V	
EUC-060S105DTM	-	-	100V	
EUC-060S180DTM0006	-	-	60V	
EUC-060S180DTM0004	-	-	60V	
EUC-060S180DTM	-	-	60V	
Line Regulation	-	-	±5.0%	Measured at full load
Load Regulation	-	-	±5.0%	
Turn-on Delay Time	-	1.5 s	2.0 s	Measured at 120Vac input, 75%-100% Load
	-	1.0 s	1.5 s	Measured at 220Vac input. 75%-100% Load
Temperature Coefficient of I <sub>omax</sub>	-	0.06%/°C	-	Case temperature = 0°C ~T <sub>c</sub> max

**Note:** All specifications are tested by Cree XLamp XP-G2 and typical measured at 220Vac and 25°C unless otherwise stated.

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUC-060S070DTM0004 EUC-060S070DTM EUC-060S105DTM0004 EUC-060S105DTM EUC-060S180DTM0006 EUC-060S180DTM0004 EUC-060S180DTM	86.0% 85.0% 85.0% 85.0% 85.0% 84.0% 84.0%	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 220 Vac input: EUC-060S070DTM0004 EUC-060S070DTM EUC-060S105DTM0004 EUC-060S105DTM EUC-060S180DTM0006 EUC-060S180DTM0004 EUC-060S180DTM	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	90.0% 89.0% 89.0% 89.0% 89.0% 88.0% 87.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 277 Vac input: EUC-060S070DTM0004 EUC-060S070DTM EUC-060S105DTM0004 EUC-060S105DTM EUC-060S180DTM0006 EUC-060S180DTM0004 EUC-060S180DTM	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	90.0% 89.0% 89.0% 89.0% 89.0% 88.0% 87.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
MTBF	-	475,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	95,900 Hours	-	Measured at 120Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40 °C	-	+88 °C	
Operating Case Temperature for Warranty Tc_w	-40 °C	-	+75 °C	Case temperature for 5 years warranty. Humidity: 10% RH to 100% RH.
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	3.74 x 2.52 x 1.26 95 x 64 x 32			With mounting ear 4.41 x 2.52 x 1.26 112 x 64 x 32
Net Weight	-	410 g	-	

**Note:** All specifications are tested by Cree XLamp XP-G2 and typical at 25°C unless otherwise stated.

## Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the 0~10V Input Pin	0 V	-	20 V	
Source Current on 0~10V Input Pin	0 μA	200 μA	250 μA	

## Dimming Specifications (Continued)

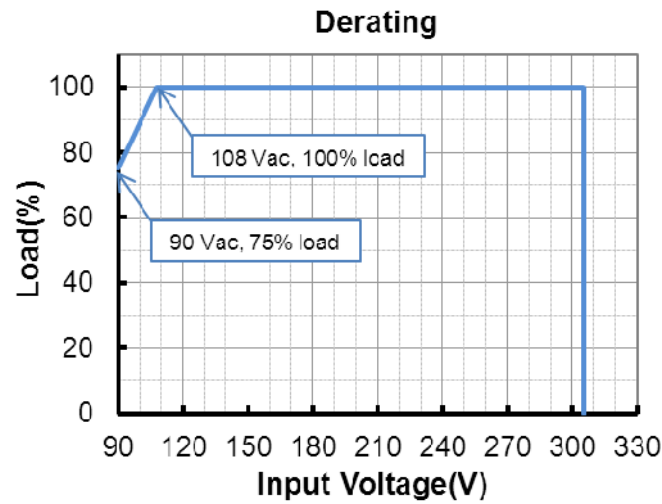
Parameter	Min.	Typ.	Max.	Notes
Dimming Output Range	10%I <sub>omax</sub>	-	100%I <sub>omax</sub>	
Recommended Dimming Input Range	0 V	-	10 V	

## Safety & EMC Compliance

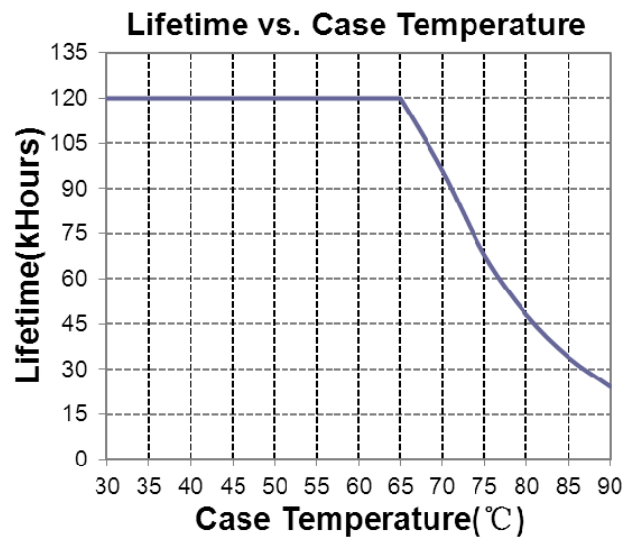
Safety Category	Standard
UL/CUL	UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15 <sup>(1)</sup>	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.
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

**Note:** (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

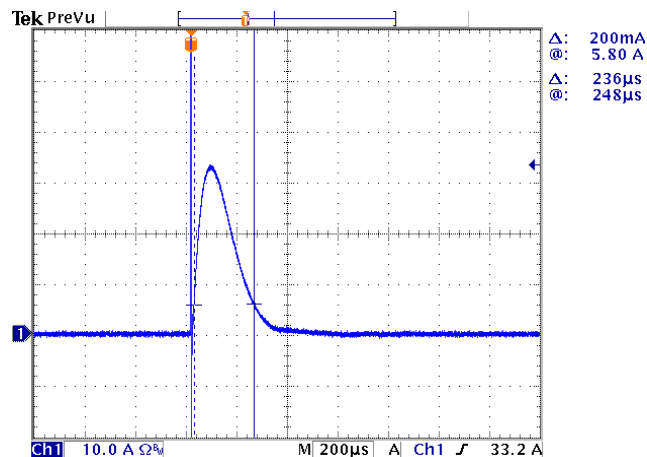
## Derating



## Lifetime vs. Case Temperature



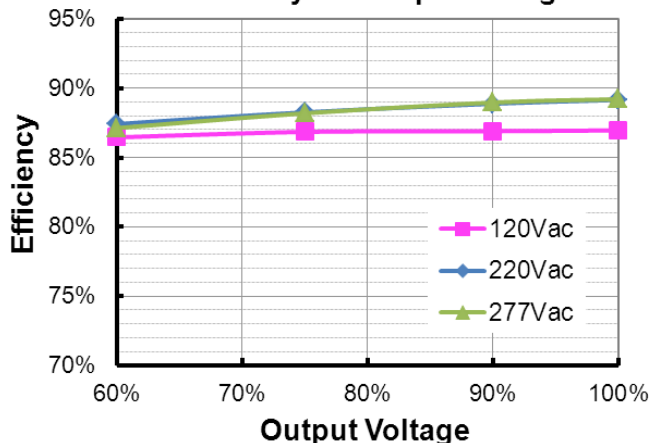
## Inrush Current Waveform



## Efficiency vs. Load

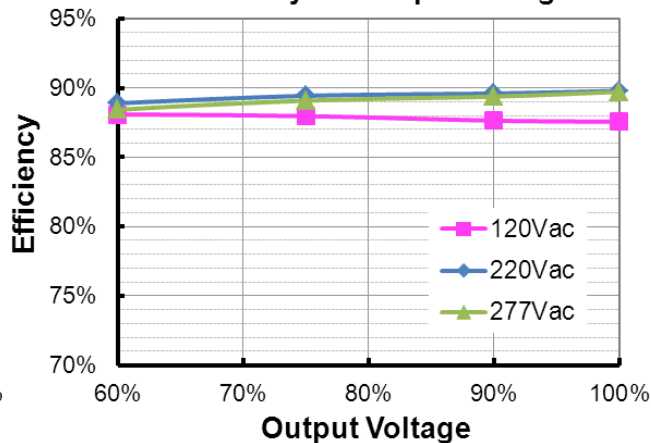
*EUC-060S070DTM*( $I_o=700mA$ )

**Efficiency vs. Output Voltage**



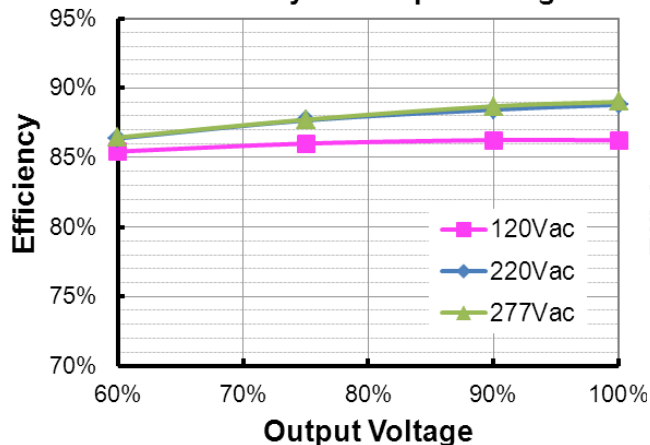
*EUC-060S070DTM0004*( $I_o=500mA$ )

**Efficiency vs. Output Voltage**



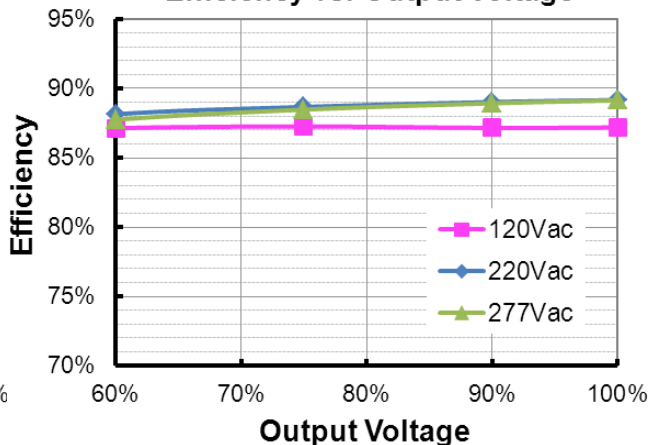
*EUC-060S105DTM*( $I_o=1050mA$ )

**Efficiency vs. Output Voltage**



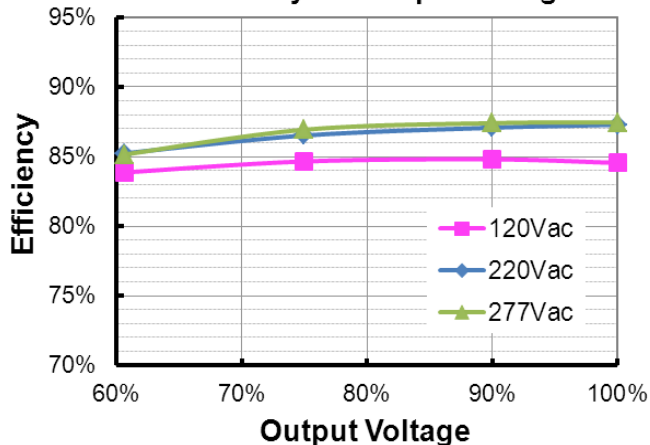
*EUC-060S105DTM0004*( $I_o=860mA$ )

**Efficiency vs. Output Voltage**



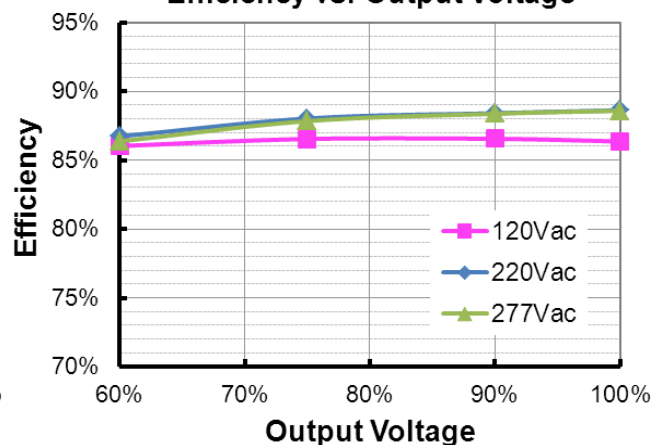
*EUC-060S180DTM*( $I_o=1800mA$ )

**Efficiency vs. Output Voltage**



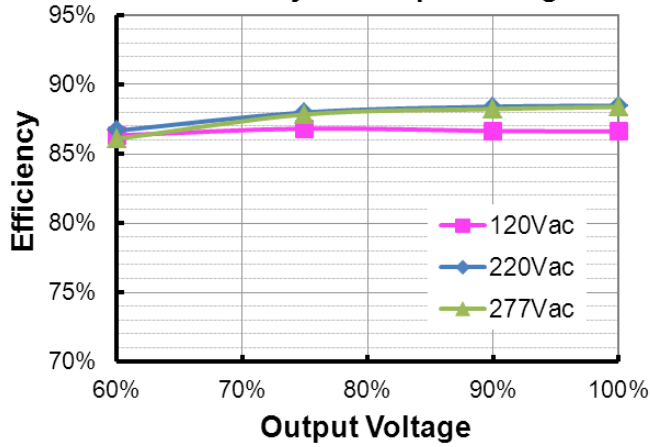
*EUC-060S180DTM0004*( $I_o=1400mA$ )

**Efficiency vs. Output Voltage**



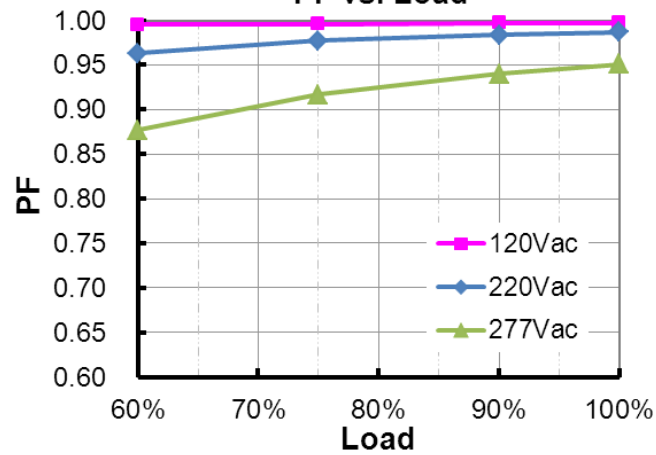
EUC-060S180DTM0006( $I_o=1200\text{mA}$ )

Efficiency vs. Output Voltage



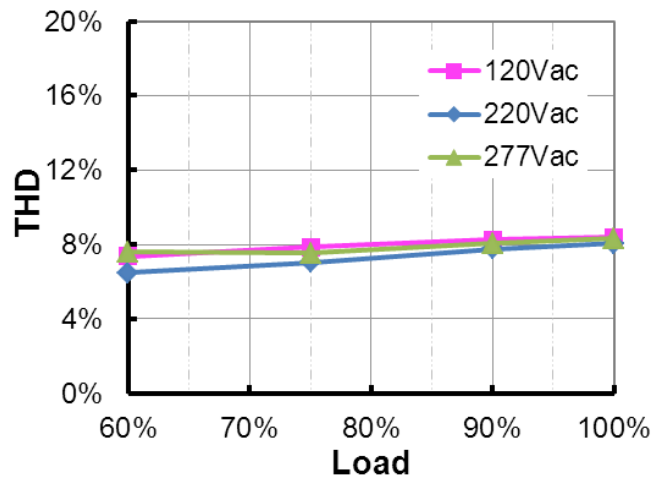
## Power Factor

PF vs. Load



## Total Harmonic Distortion

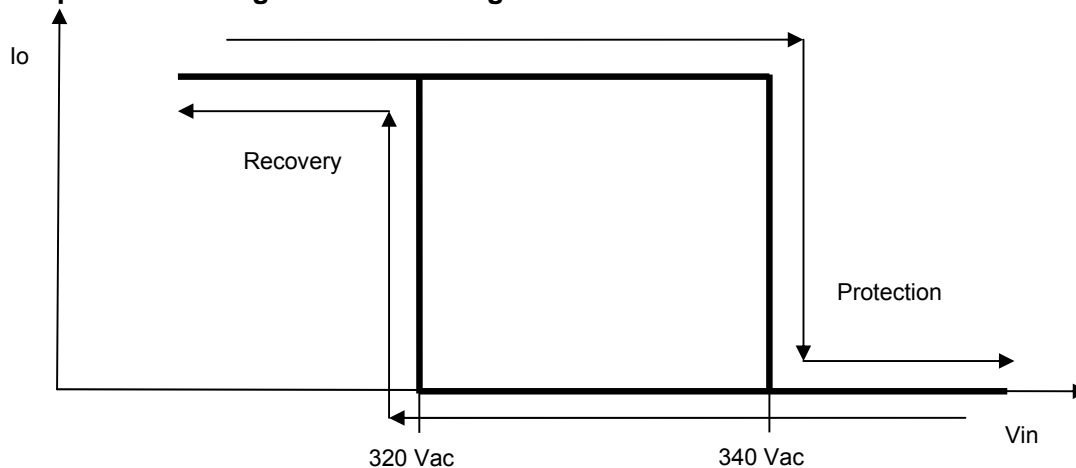
THD vs. Load



## Protection Functions

Parameter		Min.	Typ.	Max.	Notes
Over Voltage Protection		Limits output voltage at no load and in case the normal voltage limit fails.			
Short Circuit Protection		Auto Recovery. No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			
Over Temperature Protection		Decreases output current. Returning to normal after over temperature is removed.			
Input Under Voltage Protection		Auto Recovery. Turn off the output when the input voltage falls below $80 \pm 10V$ . And the driver will restart when the input voltage exceeds $85 \pm 10V$ .			
Input Over Voltage Protection	Input Protection Voltage	330 Vac	340 Vac	350 Vac	Turn off the output when the input voltage exceeds protection voltage.
	Input Recovery Voltage	300 Vac	320 Vac	340 Vac	Auto Recovery. The driver will restart when the input voltage falls below recovery voltage.
	Max. of Input Over Voltage	-	-	380 Vac	

### ● Input Over Voltage Protection Diagram

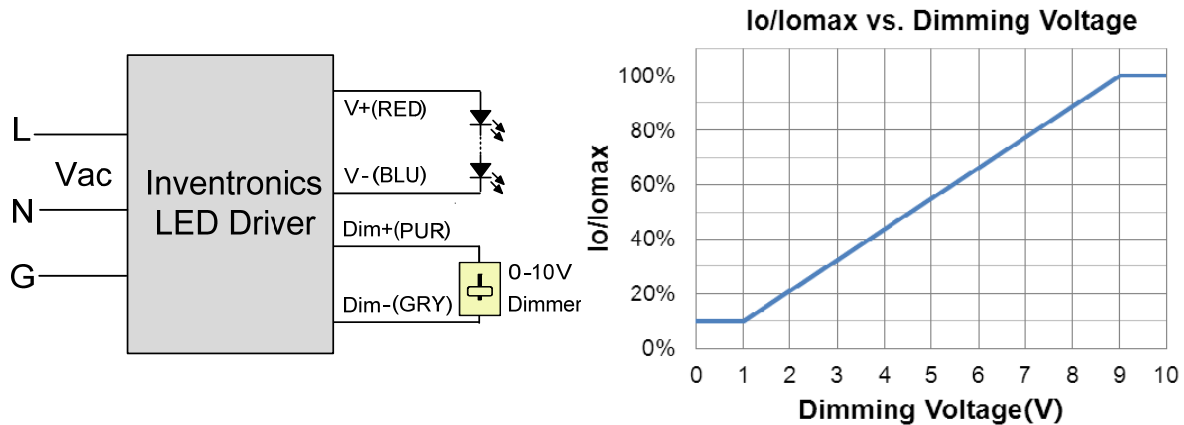


## Dimming

### ● 0-10V Dimming

The recommended implementation is provided below.



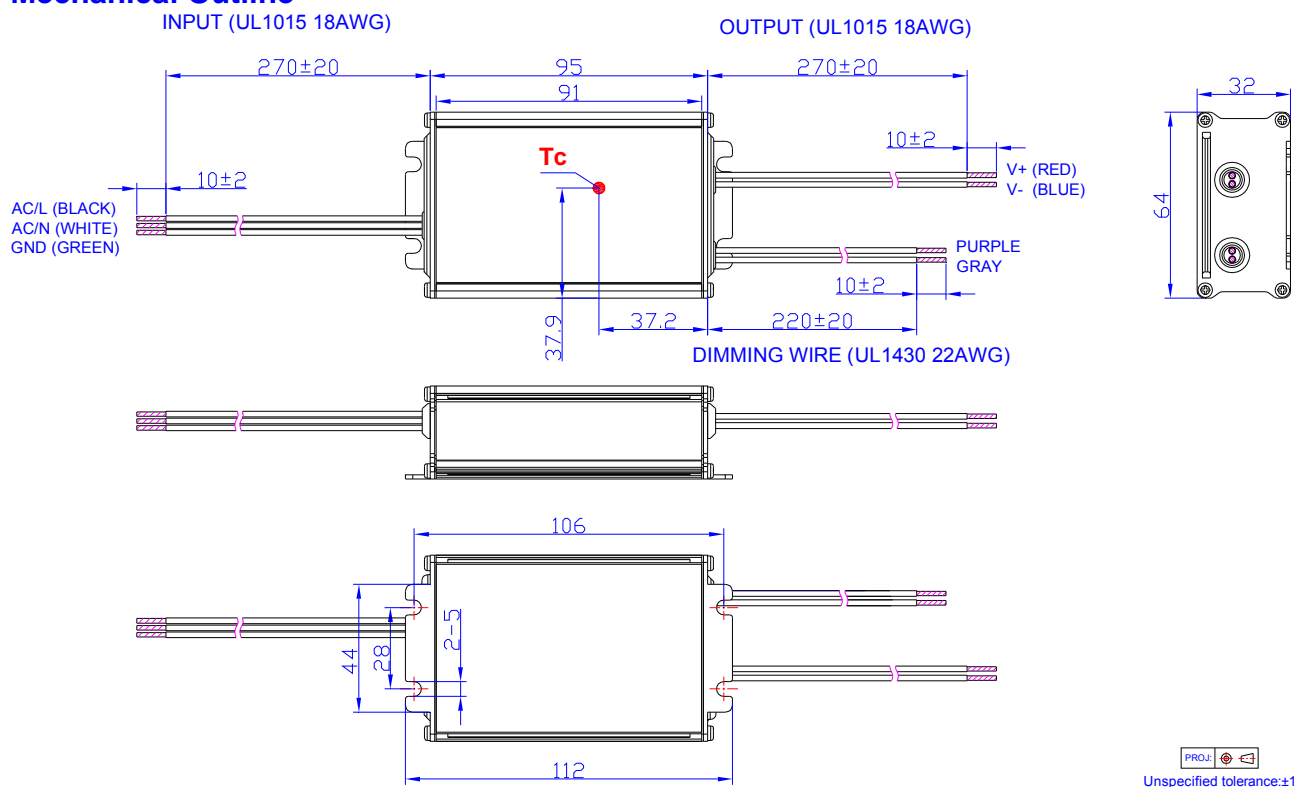


### Implementation 1: DC Input

**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.

## Mechanical Outline



## RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

## Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2017-03-06	A	Datasheet Release	/	/