

## Features

- Low THD, 10% Max up to 240 Vac
- Compact Metal Case with Excellent Thermal Performance
- Isolated 0-10V Dimmable
- Input Surge Protection: DM 4kV, CM 6kV
- High Reliability & Long Lifetime: 93,000 hrs. at 75°C Case Temperature
- Suitable for Built-in Use and Class I Luminaires
- IUVP & IOVP
- 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-040SxxxDTM000x series is a 40W, constant-current IP66 LED driver that operates from 90-305 Vac 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) | Typical Power Factor |        | Model Number(3)                   |
|----------------|-------------------------------|----------------------|-------------------|------------------------|----------------------|--------|-----------------------------------|
|                |                               |                      |                   |                        | 120Vac               | 220Vac |                                   |
| 500 mA         | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 40 ~ 80 Vdc          | 40 W              | 87%                    | 0.99                 | 0.96   | EUC-040S070DTM0004                |
| 700 mA         | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 32 ~ 57 Vdc          | 40 W              | 86%                    | 0.99                 | 0.96   | EUC-040S070DTM                    |
| 860 mA         | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 23 ~ 45 Vdc          | 39 W              | 86%                    | 0.99                 | 0.96   | EUC-040S110DTM0005 <sup>(4)</sup> |
| 1050 mA        | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 21 ~ 38 Vdc          | 40 W              | 85%                    | 0.99                 | 0.96   | EUC-040S110DTM0001 <sup>(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 100% load and 220 Vac input.

(3) SELV output.

(4) Class 2 output.

## Input Specifications

| Parameter                        | Min.    | Typ. | Max.                  | Notes  |
|----------------------------------|---------|------|-----------------------|--|
| Input AC Voltage                 | 90 Vac  | -    | 305 Vac               |  |
| Input DC Voltage                 | 127 Vdc | -    | 300 Vdc               |  |
| Input Frequency                  | 47 Hz   | -    | 63 Hz                 |  |
| Leakage Current                  | -       | -    | 0.75 MIU              | UL 8750; 277Vac/ 60Hz  |
|                                  | -       | -    | 0.70 mA               | IEC 60598-1; 240Vac/ 60Hz  |
| Input AC Current                 | -       | -    | 0.55 A                | Measured at 100% load and 120 Vac input.   |
|                                  | -       | -    | 0.30 A                | Measured at 100% load and 220 Vac input.   |
| Inrush Current(I <sup>2</sup> t) | -       | -    | 0.01 A <sup>2</sup> s | At 220Vac input, 25°C cold start, duration= 36 μs, 10%I <sub>pk</sub> -10%I <sub>pk</sub> . See Inrush Current Waveform for the details. |
| Power Factor                     | 0.90    | -    | -                     | 120-277Vac, 50~60Hz, 75%-100%Load (30~40W)   |
| THD                              | -       | -    | 15%                   |  |
| THD                              | -       | -    | 10%                   | 200-240Vac, 50~60Hz, 75%-100%Load (30~40W)   |

## Output Specifications

| Parameter                                    | Min.  | Typ.     | Max.  | Notes                                     |
|--|-------|----------|-------|---|
| Output Current Tolerance                     | -8%lo | -        | 8%lo  | At 100% load condition                    |
| Total Output Current Ripple (pk-avg)         | -     | 50%lo    | 75%lo | At 100% load condition                    |
| Startup Overshoot Current                    | -     | 5%lo     | 10%lo | At 100% load condition                    |
| No Load Output Voltage                       |       |          |       |   |
| EUC-040S070DTM0004                           | -     | -        | 100 V |   |
| EUC-040S070DTM                               | -     | -        | 100 V |   |
| EUC-040S110DTM0005                           | -     | -        | 60 V  |   |
| EUC-040S110DTM0001                           | -     | -        | 60 V  |   |
| Line Regulation                              | -     | -        | ±5.0% | Measured at 100% 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-G and typical measured at 220Vac unless otherwise stated.

## General Specifications

| Parameter  | Min.                               | Typ.                             | Max.             | Notes  |
|--|------------------------------------|----------------------------------|------------------|--|
| Efficiency at 120 Vac input:<br>EUC-040S070DTM0004<br>EUC-040S070DTM<br>EUC-040S110DTM0005<br>EUC-040S110DTM0001 | 84.0%<br>83.0%<br>83.0%<br>82.0%   | 85.0%<br>84.0%<br>84.0%<br>83.0% | -<br>-<br>-<br>- | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.) |
| Efficiency at 220 Vac input:<br>EUC-040S070DTM0004<br>EUC-040S070DTM<br>EUC-040S110DTM0005<br>EUC-040S110DTM0001 | 86.0%<br>85.0%<br>85.0%<br>84.0%   | 87.0%<br>86.0%<br>86.0%<br>85.0% | -<br>-<br>-<br>- | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.) |
| Efficiency at 277 Vac input:<br>EUC-040S070DTM0004<br>EUC-040S070DTM<br>EUC-040S110DTM0005<br>EUC-040S110DTM0001 | 86.0%<br>85.0%<br>85.0%<br>84.0%   | 87.0%<br>86.0%<br>86.0%<br>85.0% | -<br>-<br>-<br>- | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.) |
| MTBF   | -                                  | 546,000 Hours                    | -                | Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)   |
| Lifetime   | -                                  | 93,000 Hours                     | -                | Measured at 120Vac input, 80%Load and 75°C case temperature; See lifetime vs. Tc curve for the details   |
| Operating Case Temperature for Safety Tc_s   | -40 °C                             | -                                | +90 °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<br>Inches (L x W x H)<br>Millimeters (L x W x H)  | 3.46 x 2.52 x 1.26<br>88 x 64 x 32 |                                  |                  | With mounting ear<br>4.13 x 2.52 x 1.26<br>105 x 64 x 32   |
| Net Weight   | -                                  | 375 g                            | -                |  |

**Note:** All specifications are tested by Cree XLamp XP-G unless otherwise stated.

## Dimming Specifications

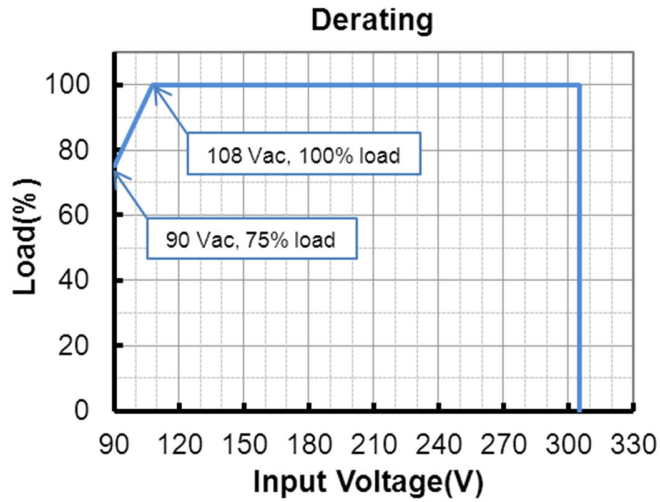
| Parameter                                       | Min.     | Typ.   | Max.      | Notes |
|---|----------|--------|-----------|-------|
| Absolute Maximum Voltage on the 0~10V Input Pin | -20 V    | -      | 20 V      |       |
| Source Current on 0~10V Input Pin               | 0 μA     | 200 μA | 250 μA    |       |
| Dimming Output Range                            | 10%Iomax | -      | 100%Iomax |       |
| Recommended Dimming Input Range                 | 0 V      | -      | 10 V      |       |

## Safety & EMC Compliance

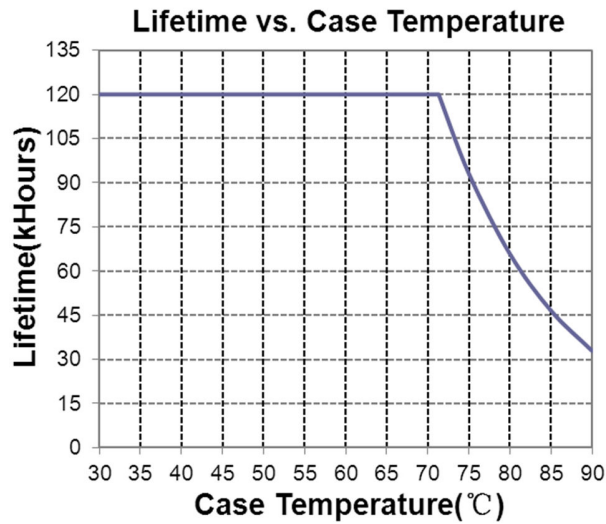
| Safety Category             | Standard  |
|-----------------------------|---|
| UL/CUL                      | UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91   |
| CE                          | EN 61347-1, EN61347-2-13  |
| KS                          | KS C 7655   |
| EMI Standards               | Notes   |
| EN IEC 55015 <sup>(1)</sup> | Conducted emission Test & Radiated emission Test  |
| EN IEC 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: Differential Mode 4 kV, Common Mode 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 IEC 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.

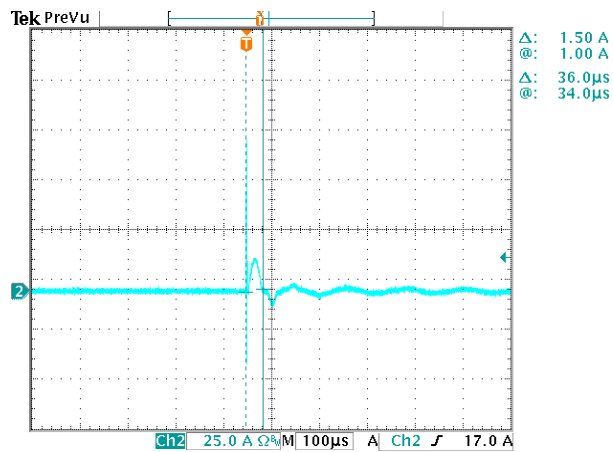
## Derating



## Lifetime vs. Case Temperature

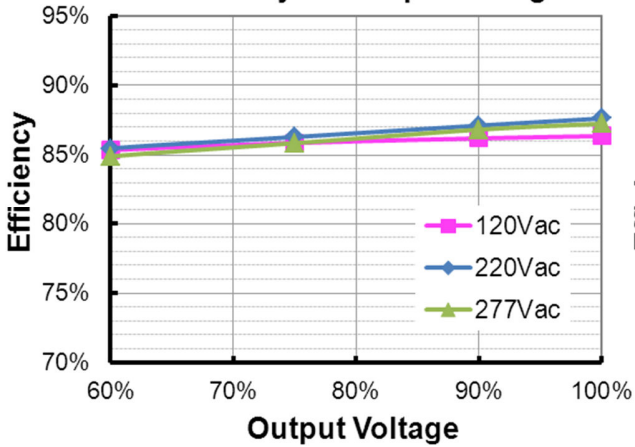


## Inrush Current Waveform

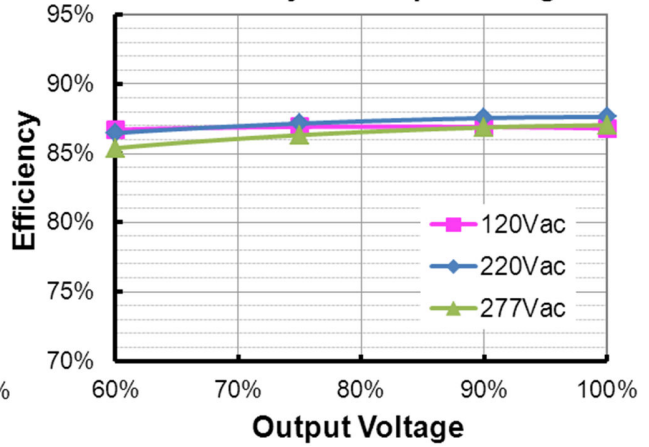


## Efficiency vs. Load

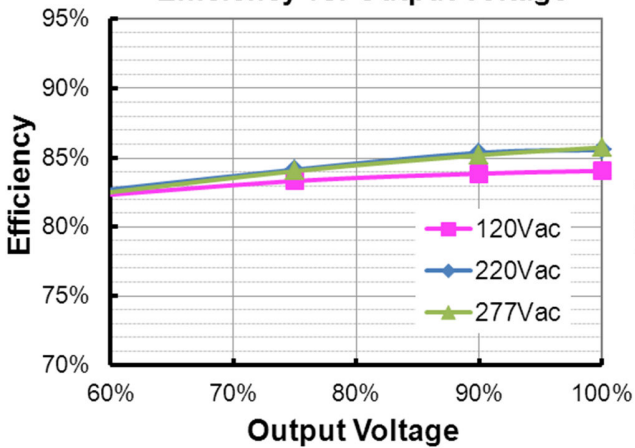
EUC-040S070DTM( $I_o=700mA$ )  
Efficiency vs. Output Voltage



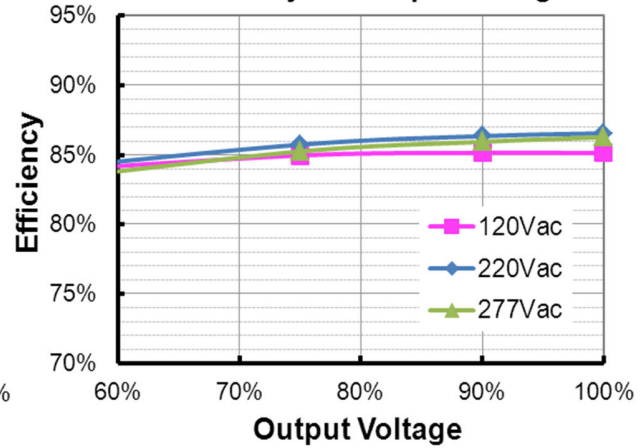
EUC-040S070DTM0004( $I_o=500mA$ )  
Efficiency vs. Output Voltage



EUC-040S110DTM0001( $I_o=1050mA$ )  
Efficiency vs. Output Voltage

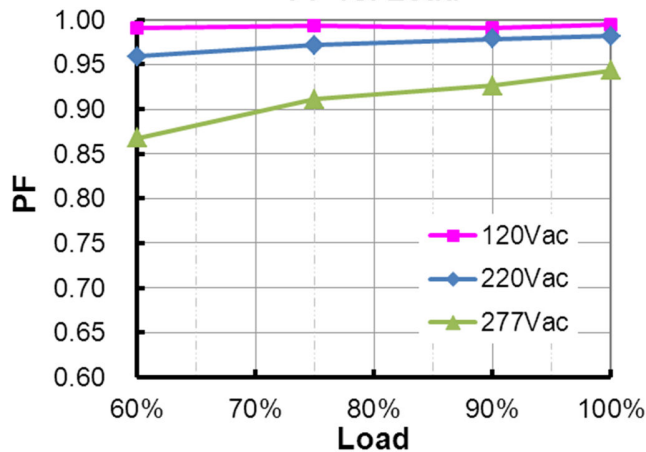


EUC-040S110DTM0005( $I_o=860mA$ )  
Efficiency vs. Output Voltage

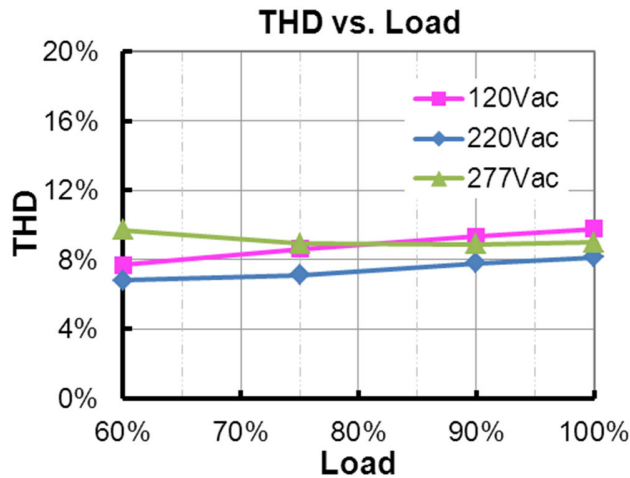


## Power Factor

PF vs. Load



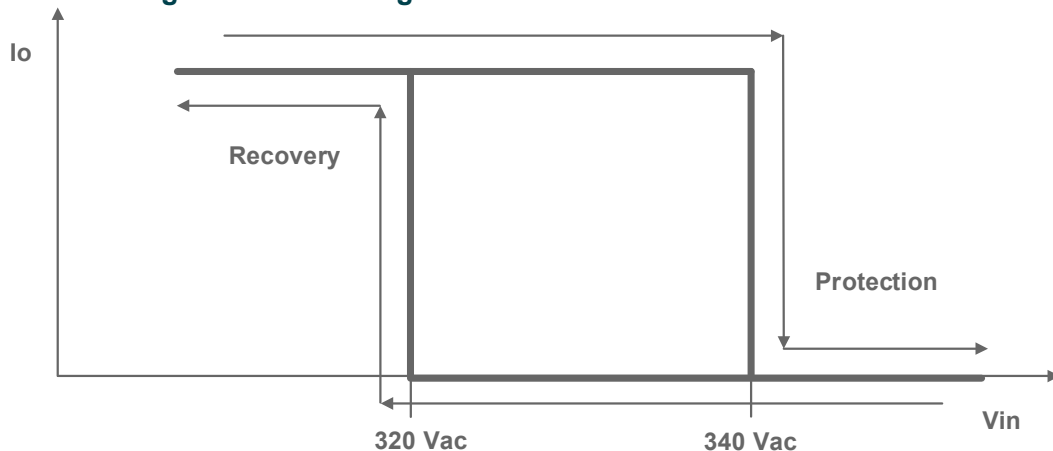
## Total Harmonic Distortion



## 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 $83\pm 10V$ . And the driver will restart when the input voltage exceeds $88\pm 10V$ .              |         |         |   |
| Input Over Voltage Protection  | Input Protection Voltage   | 330 Vac   | 340 Vac | 350 Vac | Turn off the output when the input voltage exceeds protection voltage.                      |
|                                | 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 |   |

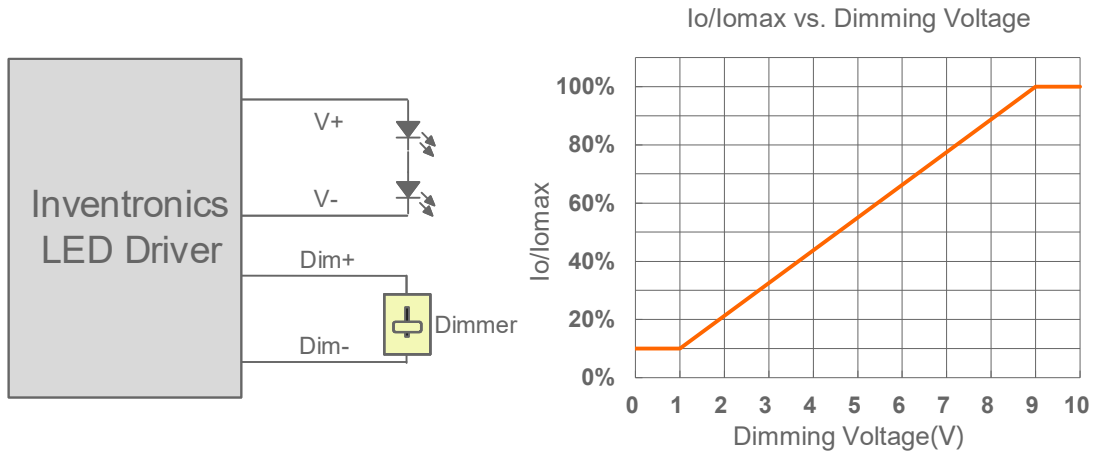
### ● Input Over Voltage Protection Diagram



## Dimming

### ● 0-10V Dimming

The recommended implementation is provided below.

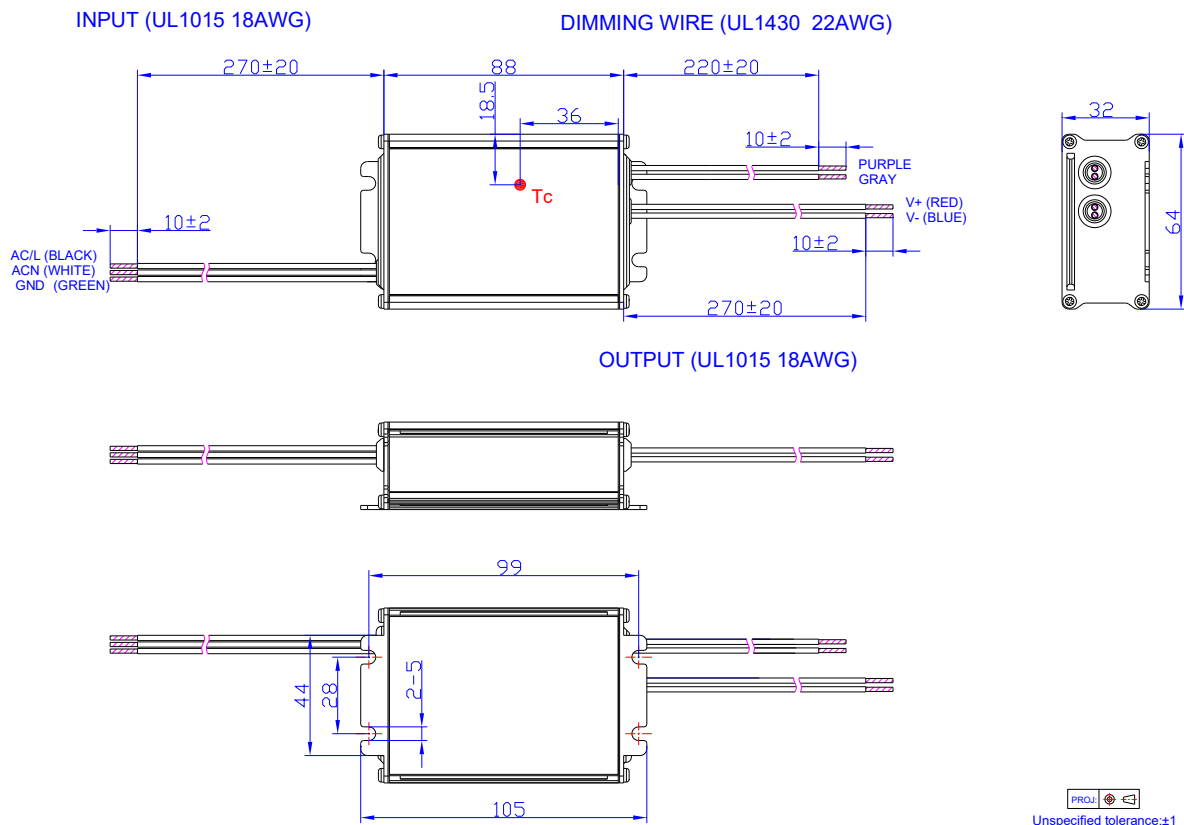


### Implementation 1: DC Input

#### Notes:

1. Do not connect Dim- to the output V- or V+, otherwise the driver will not work properly.
2. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like zener.

## Mechanical Outline



## RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

## Revision History

| Change Date | Rev. | Description of Change  |               |               |
|-------------|------|--|---------------|---------------|
|             |      | Item   | From          | To            |
| 2016-12-30  | A    | Datasheet Release  | /             | /             |
| 2017-03-09  | B    | Features   | /             | Updated       |
|             |      | Models - EUC-040S110DTM0001 & EUC-040S110DTM0005                         | /             | Added         |
|             |      | General Specifications - MTBF  | 732,000 Hours | 546,000 Hours |
|             |      | Dimming Specifications - Absolute Maximum Voltage on the 0~10V Input Pin | Min.= -20V    | Min.=0V       |
|             |      | Power Factor Curve   | /             | Updated       |
|             |      | Dimming - 0-10V Dimming - Implementation 2: External Resistor            | /             | Deleted       |
| 2017-04-21  | C    | EUC-040S105DTM0004   | /             | Deleted       |
|             |      | EUC-040S105DTM   | /             | Deleted       |
| 2017-08-29  | D    | Features   | /             | Updated       |
|             |      | Description  | /             | Updated       |
|             |      | Input Voltage Range(Vac)   | 108 ~ 305 Vac | 90 ~ 305 Vac  |
|             |      | Dimming Specifications - Absolute Maximum Voltage on the 0~10V Input Pin | Min.=0V       | Min.= -20V    |
|             |      | Derating Curve   | /             | Added         |
| 2026-04-15  | E    | Format   | /             | Updated       |
|             |      | Product photograph   | /             | Updated       |
|             |      | Safety & EMC Compliance  | /             | Updated       |
|             |      | RoHS Compliance  | /             | Updated       |