## Features

- High Efficiency (Up to 89%)
- Constant Output Current
- 0-10V Dimmable
- All-Around Protection: OVP, SCP ,OTP
- Waterproof (IP66) and UL Dry & Damp Location
- Class 2 & SELV Output
- Suitable for Built-in Use

## Description

The *LUC-042SxxxDSP(SSP)* series is a 42W, constant-current IP66 LED driver that operates from 90-305 Vac input with excellent power factor. They are created for down lights and panel lights etc. The high efficiency of these drivers enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against 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 (2) | Model Number |
|---|---|---|---|---|---|---|
| 700 mA | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 28~56 Vdc | 39 W | 89% | 0.95 | LUC-042S070DSP(SSP)(4) |
| 1400 mA | 90 ~ 305 Vac<br>127 ~ 300 Vdc | 15~30 Vdc | 42 W | 89% | 0.95 | LUC-042S140DSP(SSP)(3)(4) |

**Notes:** (1) UL, FCC certified input voltage range: 100~277Vac/ 127~300Vdc; other certified input voltage range except UL & FCC: 100~240Vac/127~250Vdc (except CCC).
(2) Measured at full load and 220 Vac input.
(3) Certificates have got UL, FCC, CE.
(4) Class 2 & SELV Output.

## Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Input Voltage | 90 V | - | 305 V | 127-300Vdc |
| Input Frequency | 47 Hz | - | 63 Hz | |
| Leakage Current | - | - | 0.75 MIU | UL8750; 277Vac/ 60Hz |
| | - | - | 0.70 mA | IEC60598-1; 240Vac/ 60Hz |
| Input AC Current | - | - | 0.6 A | Measured at full load and 100 Vac input. |
| | - | - | 0.3 A | Measured at full load and 220 Vac input. |
| Inrush Current($I^2t$) | - | - | 0.003 $A^2s$ | At 220Vac input 25°C Cold Start. Duration=28.8 μs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details. |
| Power Factor | 0.90 | - | - | At 100-277 Vac, 75%-100%Load (31.5~42W) |

## Input Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| THD | - | - | 20% | At 100-277 Vac, 75%-100%Load (31.5~42W) |

## Output Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Output Current Range | -5%Io | - | 5%Io | |
| Total Output voltage Ripple (pk-pk) | - | - | 4 V | At full load condition. 20 MHz BW |
| Output Current Overshoot / Undershoot | - | - | 10%Io | At full load condition. |
| No Load Output Voltage<br>LUC-042S070DSP(SSP)<br>LUC-042S140DSP(SSP) | <br>-<br>- | <br>-<br>- | <br>59.9 V<br>35.0 V | |
| Line Regulation | - | - | ±1 % | Measured at full load. |
| Load Regulation | - | - | ±3 % | |
| Turn-on Delay Time | - | 0.4 s | 0.75 s | Measured at 120Vac input, 75%-100%Load |
| | - | 0.3 s | 0.5 s | Measured at 220Vac input, 75%-100%Load |
| Temperature Coefficient | - | 0.03%/°C | - | Case temperature = 0°C ~Tc max |
| 12V Auxiliary Output Voltage | 10.8 V | 12 V | 13.2 V | |
| 12V Auxiliary Output Source Current | 0 mA | - | 20 mA | Return terminal is “Dim−“ |

**Note:** All specifications are tested by YW-PWH01 and typical at 25°C unless otherwise stated.

## General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Efficiency at 120 Vac input:<br>LUC-042S070DSP(SSP)<br>LUC-042S140DSP(SSP) | <br>86%<br>85% | <br>88%<br>87% | <br>-<br>- | Measured at full load and steady-state temperature in 25℃ ambient;<br>(Efficiency will be about 1.0% lower if measured immediately after startup.) |
| Efficiency at 220 Vac input:<br>LUC-042S070DSP(SSP)<br>LUC-042S140DSP(SSP) | <br>87%<br>87% | <br>89%<br>89% | <br>-<br>- | Measured at full load and steady-state temperature in 25℃ ambient;<br>(Efficiency will be about 1.0% lower if measured immediately after startup.) |
| Efficiency at 277 Vac input:<br>LUC-042S070DSP(SSP)<br>LUC-042S140DSP(SSP) | <br>87%<br>87% | <br>89%<br>89% | <br>-<br>- | Measured at full load and steady-state temperature in 25℃ ambient;<br>(Efficiency will be about 1.0% lower if measured immediately after startup.) |
| No Load Power Dissipation | - | - | 6 W | |
| MTBF | - | 270,000 Hours | - | Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |

## General Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Lifetime | - | 67,000 Hours | - | Measured at 120Vac input, 80%Load and 70°C Case temperature. See life time vs. Tc curve for the details |
| Operating Case Temperature for Safety Tc_s | -40°C | - | +89°C | |
| Operating Case Temperature for Warranty Tc_w | -40°C | - | +75°C | Humidity: 10% RH to 100% RH. |
| Storage Temperature | -40°C | - | +85°C | Humidity: 5% RH to 100% RH |
| Dimensions<br>Inches (L × W × H)<br>Millimeters (L × W × H) | 3.74 × 2.76 × 1.26<br>95 × 70 × 32 | | | |
| Net Weight | - | 385 g | - | |

**Note:** All specifications are tested by YW-PWH01 and typical at 25°C unless otherwise stated.

## Dimming Specifications

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

## Safety & EMC Compliance

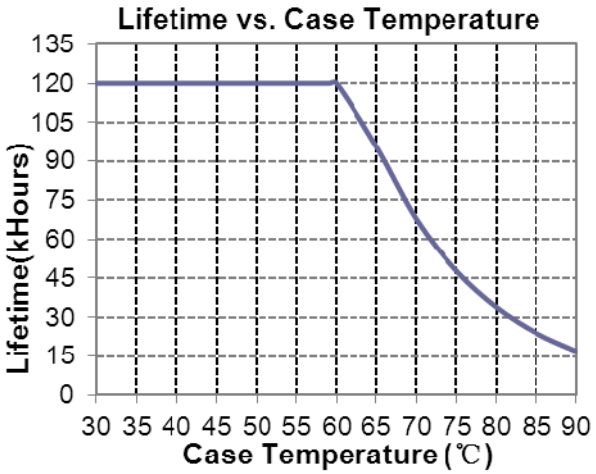
| Safety Category | Standard |
|---|---|
| UL/CUL | UL 8750,UL1310,CAN/CSA-C22.2 No. 250.13,CAN/CSA-C22.2 No. 223-M91 |
| CE | EN 61347-1, EN61347-2-13 |
| CCC | GB 19510.1, GB 19510.14 |
| KS | KS C 7655 |
| **EMI Standards** | **Notes** |
| EN 55015(1) | Conducted emission Test & Radiated emission Test |
| EN 55015(1)/GB 17743 | Harmonic Current Emissions |
| EN 61000-3-2/GB 17625.1 | Voltage Fluctuations & Flicker |

## Safety & EMC Compliance (Continued)

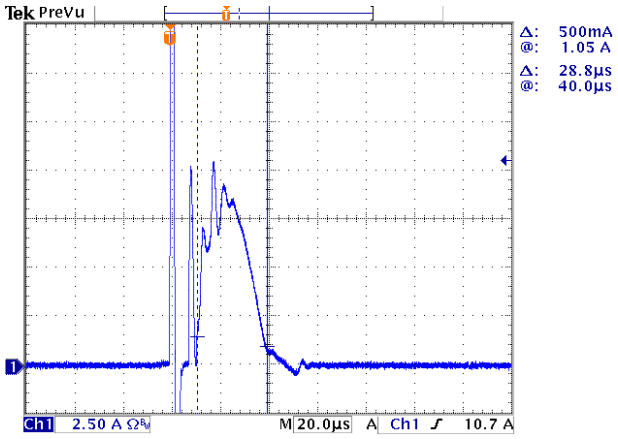
| EMI Standards | Notes |
|---|---|
| FCC Part 15(1) | ANSI C63.4 Class B |
| | This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including 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 2 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.

## Lifetime vs. Case Temperature

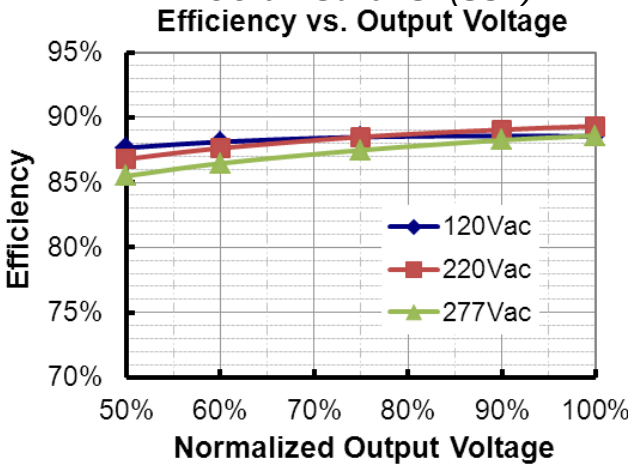


## Inrush Current Waveform

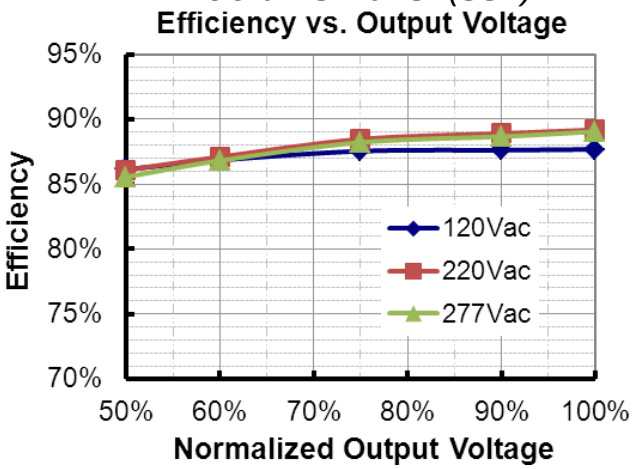



## Efficiency vs. Load

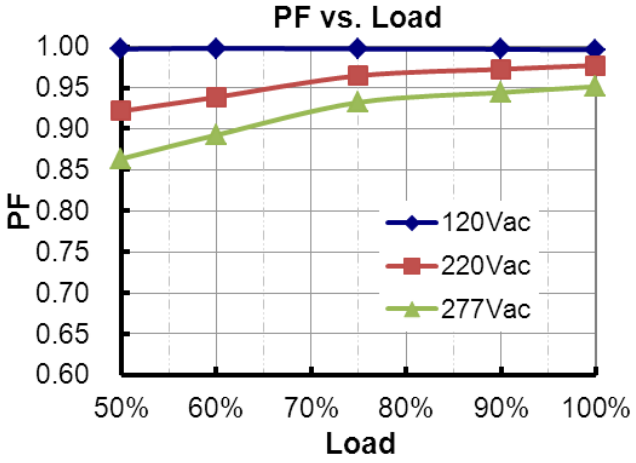
*LUC-042S070DSP(SSP)*



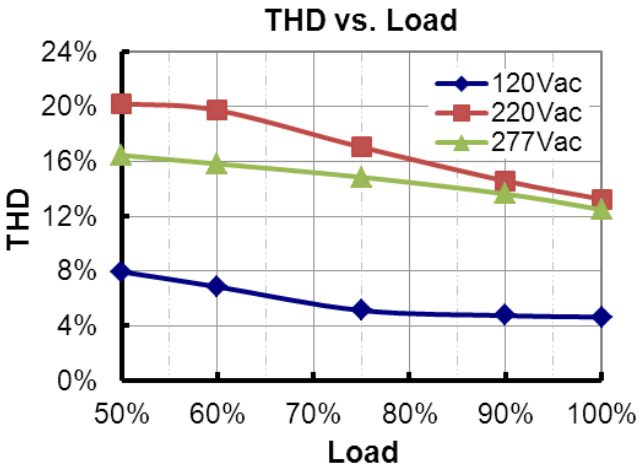

*LUC-042S140DSP(SSP)*




## Power Factor



## Total Harmonic Distortion



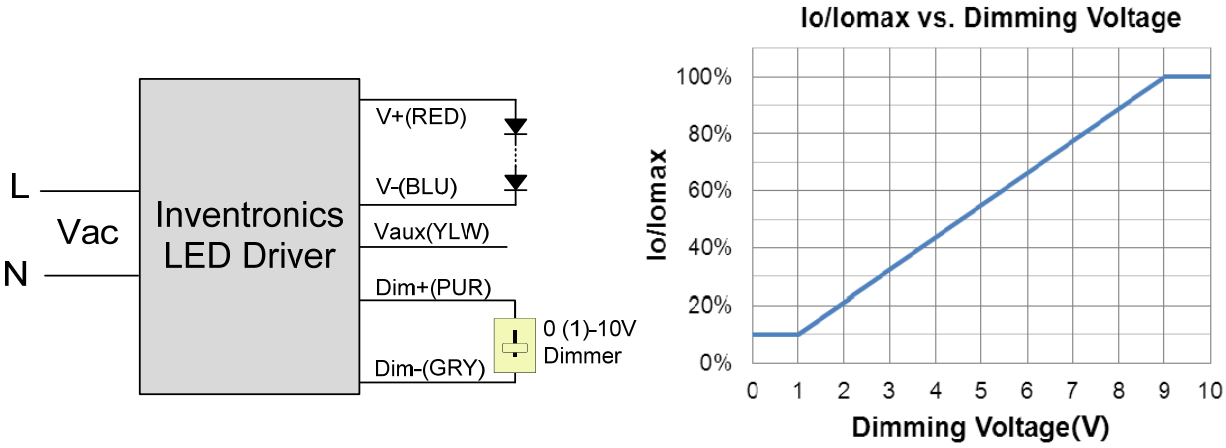

## Protection Functions

| Parameter | Notes |
|---|---|
| Over Temperature Protection | Auto Recovery. Returning to normal after over temperature is removed. |
| 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 Voltage Protection | Limits output voltage at no load and in case the normal voltage limit fails. |

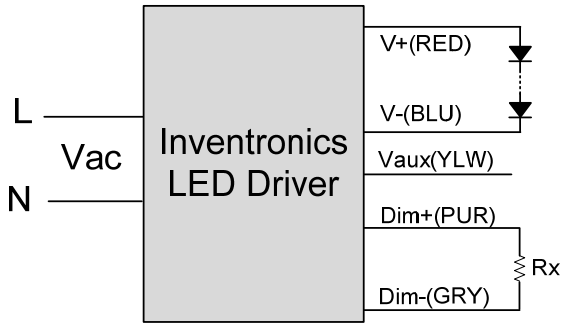
## Dimming

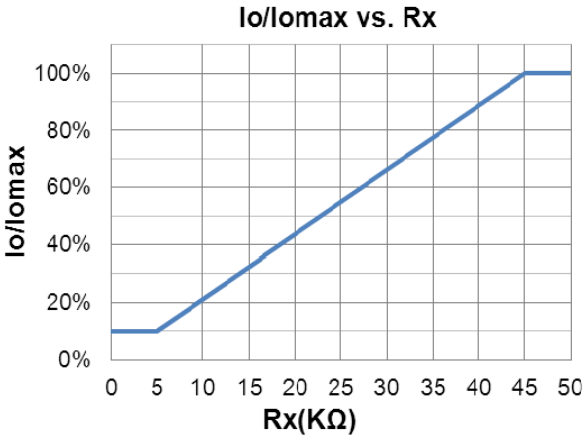
- **0-10V Dimming**

The recommended implementation of the dimming control is provided below.




**Implementation 1: DC Input**



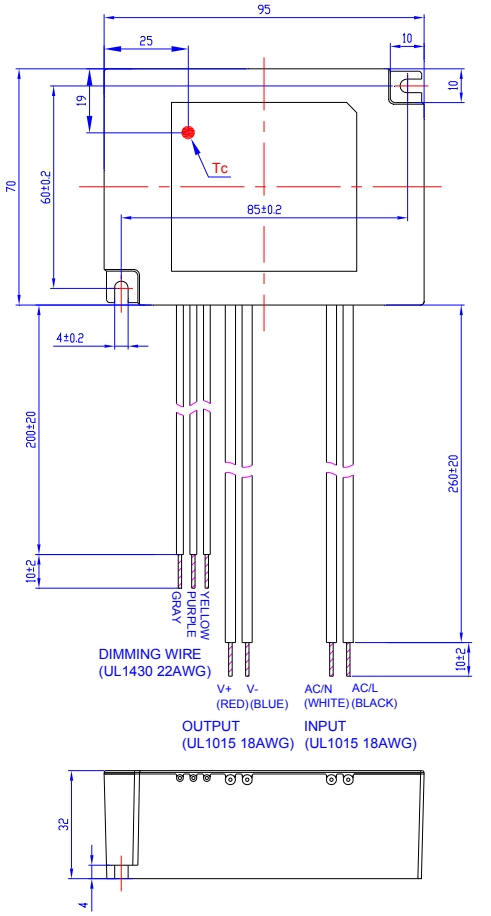

**Implementation 2: External Resistor**

**Notes:**

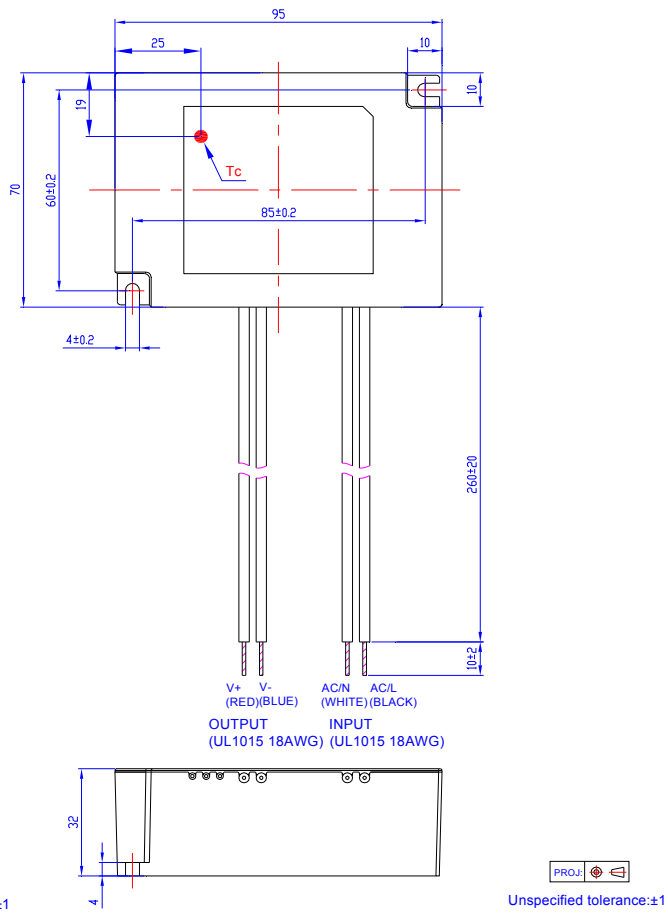
1. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
3. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

## Mechanical Outline

*LUC-042SxxxDSP*




*LUC-042SxxxSSP*



## 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 |
| 2013-08-15 | A | Datasheet Release | / | / |
| 2015-05-05 | B | Model LUC-042S140DSP(SSP) | / | Added |
| 2016-08-02 | C | Turn-on Delay Time at 120Vac | Max.=1.0 s | Max.=0.75 s |
| | | Lifetime | 120,000Hours at Tc =60°C | 67,000Hours at Tc=70°C |
| | | Net Weight | 350 g | 385 g |
| | | KS Certificate Regulation | / | Added |
| | | Note of EMI Standard | / | Added |
| 2017-07-07 | D | Mechanical Outline-Tc | / | Added |