

## Features

- 0 -10V Dimmable (Compatible with Passive Dimmers)
- Constant Current Output
- High Efficiency
- Active Power Factor Correction
- All-Around Protection: OLP, SCP and Open Lamp Protection
- Class 2 & SELV Output



## Description

The LUC-012SxxxDSM(SSM) series operates from a 90 ~ 305 Vac input range. They are designed to be highly efficient and reliable. Features include open lamp, short circuit and over load protections.

## Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor (2)	Model Number(3)
350 mA	90 ~ 305 Vac	17 ~ 34 Vdc	12 W	81%	0.94	LUC-012S035DSM(SSM)
500 mA	90 ~ 305 Vac	12 ~ 24 Vdc	12 W	80%	0.94	LUC-012S050DSM(SSM)
700 mA	90 ~ 305 Vac	9 ~ 17 Vdc	12 W	80%	0.94	LUC-012S070DSM(SSM)

**Notes:** (1) UL, FCC certified input voltage range: 100-277Vac; other certified input voltage range except UL, FCC: 100-240Vac.

(2) Measured at a 220 Vac input with a full load.

(3) Class 2 output.

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.18 A	Measured at full load and 120 Vac input
Inrush Current(I <sup>2</sup> t)	-	-	0.015 A <sup>2</sup> s	At 220Vac input, 25°C cold start, duration= 136 μs, 10%lpk-10%lpk. See Inrush Current Waveform for the details.
Power Factor	0.90	-	-	At 100-277Vac, 100%load
THD	-	-	20%	At 100-277Vac, 75%-100%load (9~12W)

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	
Output Current Ripple	-	-	30%Io	At full load condition.
No Load Output Voltage: Io = 350 mA Io = 500 mA Io = 700 mA	- - -	- - -	38V 28V 21V	
Startup Overshoot Current	-	-	10%Io	At full load condition.
Line Regulation	-	-	± 1.0%	Measured at 100~277Vac input, 100%load
Load Regulation	-	-	± 3.0%	Measured at 100~277Vac input
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 of Iomax	-	0.03%/°C	-	Case temperature = 0°C ~Tc max

**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: Io = 350 mA Io = 500 mA Io = 700 mA	79% 78% 78%	80% 79% 79%	- - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 220 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA	80% 79% 79%	81% 80% 80%	- - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 277 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA	79% 78% 78%	80% 79% 79%	- - -	Measured at full load and steady-state temperature in 25°C ambient.
No Load Power Dissipation	-	-	3 W	
MTBF	-	459,300 Hours	-	Measured at 120Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	90,000 Hours	-	Measured at 120Vac input, 80%load; Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-20 °C	-	+85 °C	
Operating Case Temperature for Warranty Tc_w	-20 °C	-	+70 °C	Humidity: 10% RH to 90% RH, No Condensation
Storage Temperature	-30 °C	-	+85 °C	Humidity: 5% RH to 90% RH, No Condensation

## General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Dimensions Inches (L × W × H) Millimeters (L × W × H)	3.29 × 1.64 × 1.01 83.5 × 41.5 × 25.6			
Net Weight	-	160 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 0~10V Wire	-2 V	-	15 V	
0~10V Wire Current Sourcing Capability	0 μA	200 μA	250 μA	
Dimming Output Range	10%I <sub>omax</sub>	-	100%I <sub>omax</sub>	
Recommended Dimming Input Range	0 V	-	10 V	

## Safety & EMC Compliance

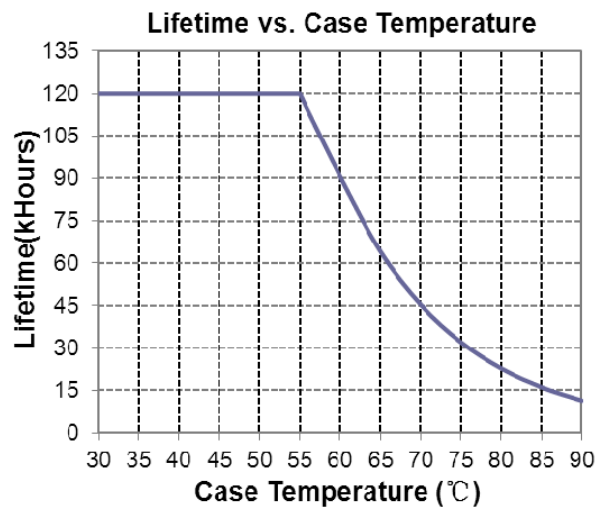
Safety Category	Standard
UL/CUL	UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 <sup>(1)</sup> /CISPR15	Conducted Emission Test & Radiated Emission
EN 61000-3-2	Harmonic Current Emissions Class C
EN 61000-3-3	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 Level 3, Criteria A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS Level 3, Criteria A

## Safety & EMC Compliance (Continued)

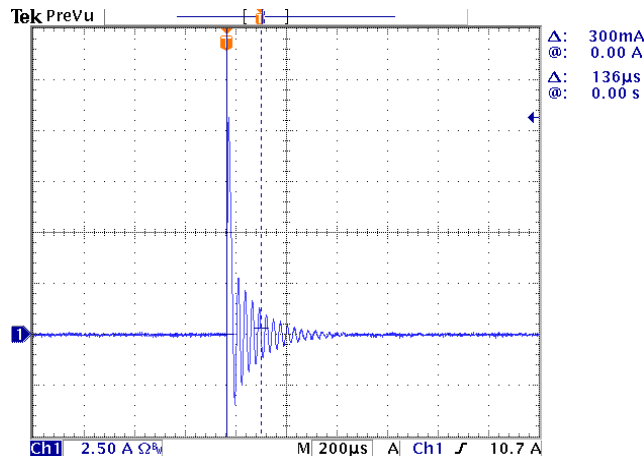
EMS Standards	Notes
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Line to Line 1 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS Level 3, Criteria A
EN 61000-4-8	Power Frequency Magnetic Field Test 3A/m , Criteria A
EN 61000-4-11	Voltage Dips Criteria B
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.

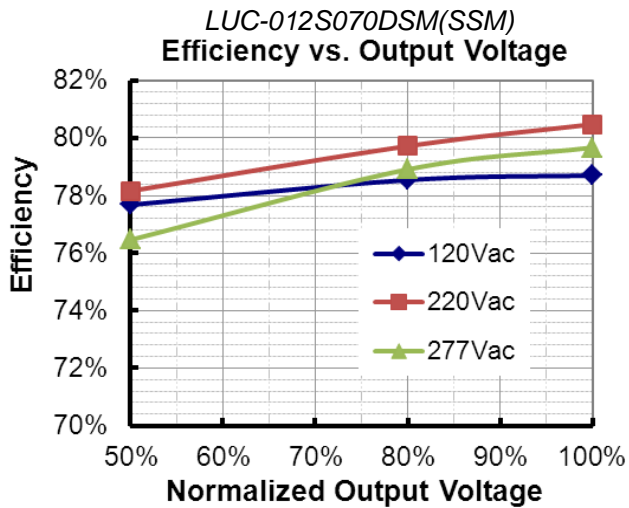
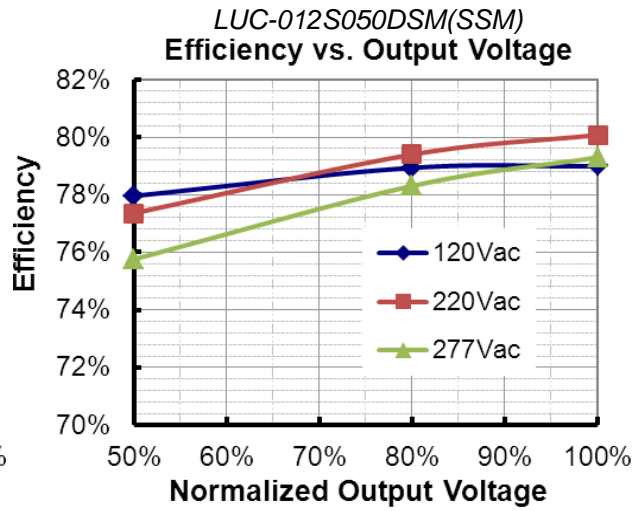
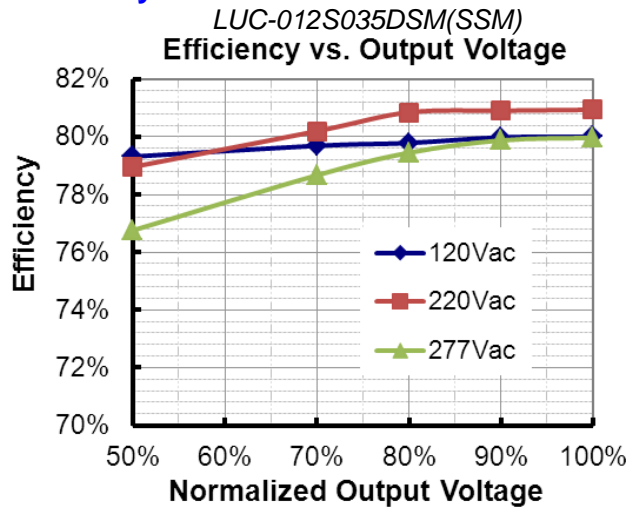
## Lifetime vs. Case Temperature



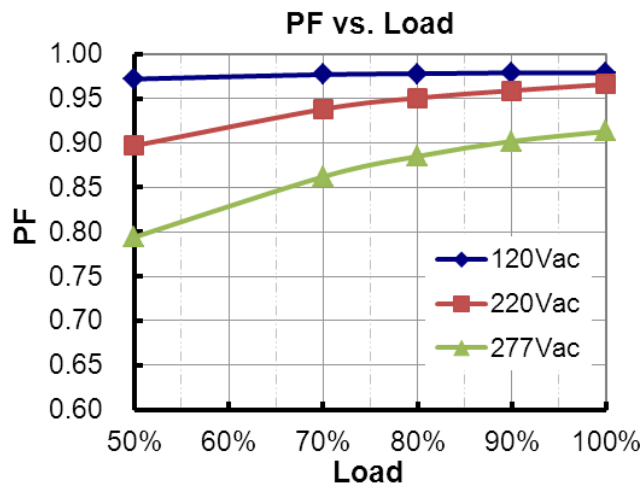
## Inrush Current Waveform



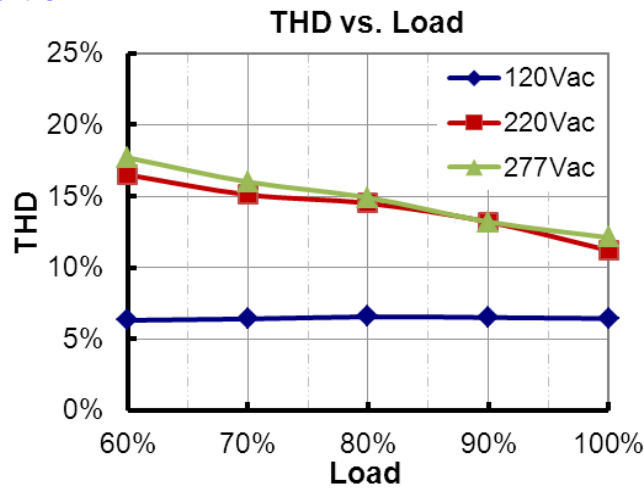
## Efficiency vs. Load



## Power Factor



## Total Harmonic Distortion



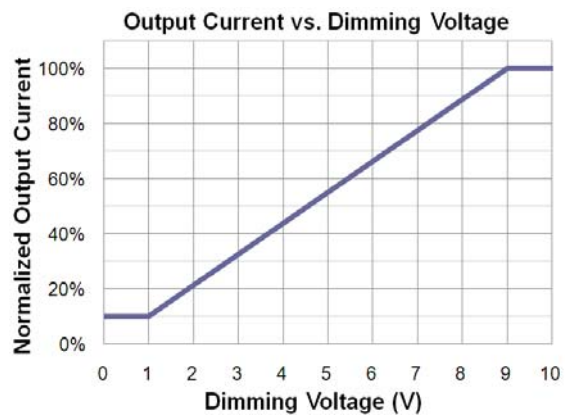
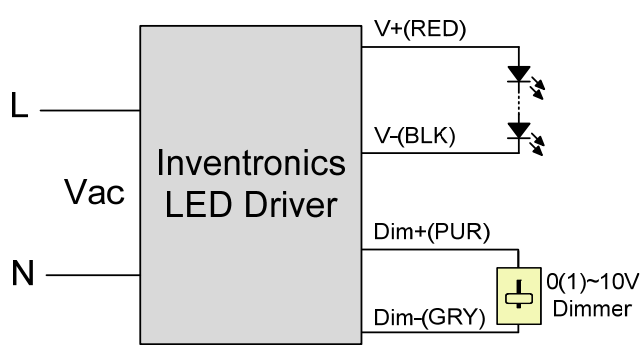
## Protection Functions

Parameter	Notes
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.

## Dimming

### ● 0-10V Dimming

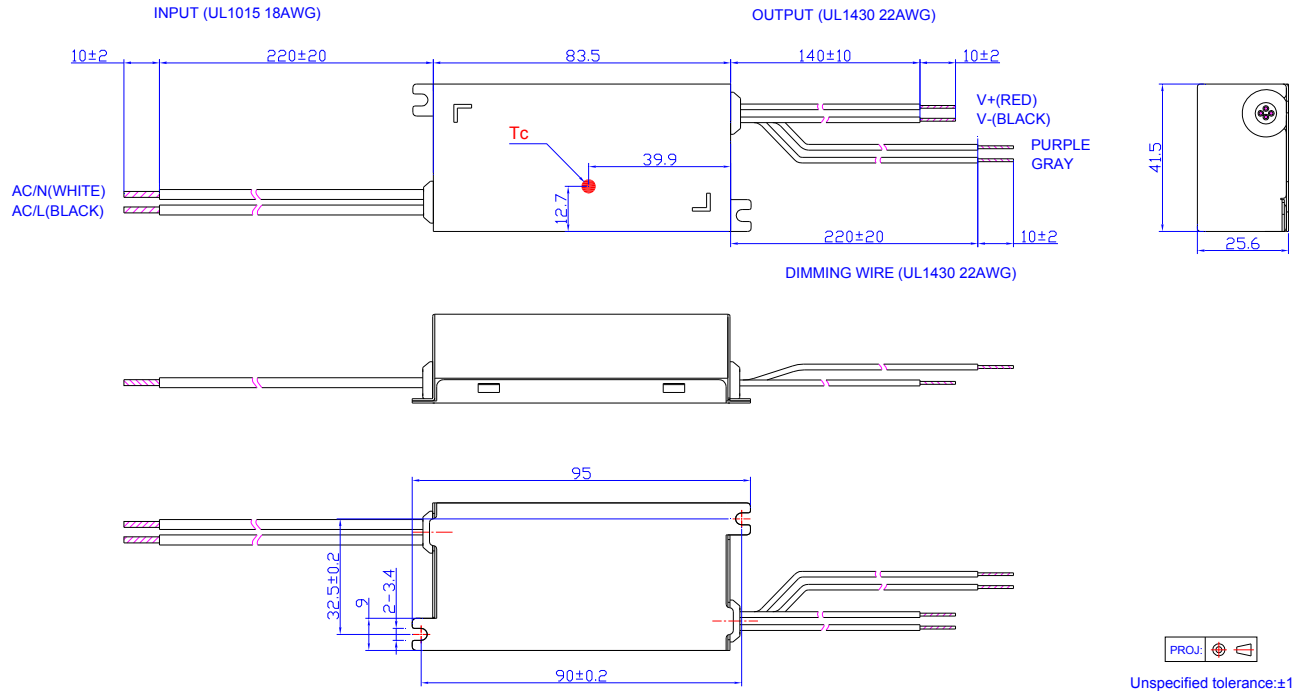
The dimmer control may be operated from either a dimmer or from an input signal of 0 - 10 Vdc. The recommended implementation is provided below.



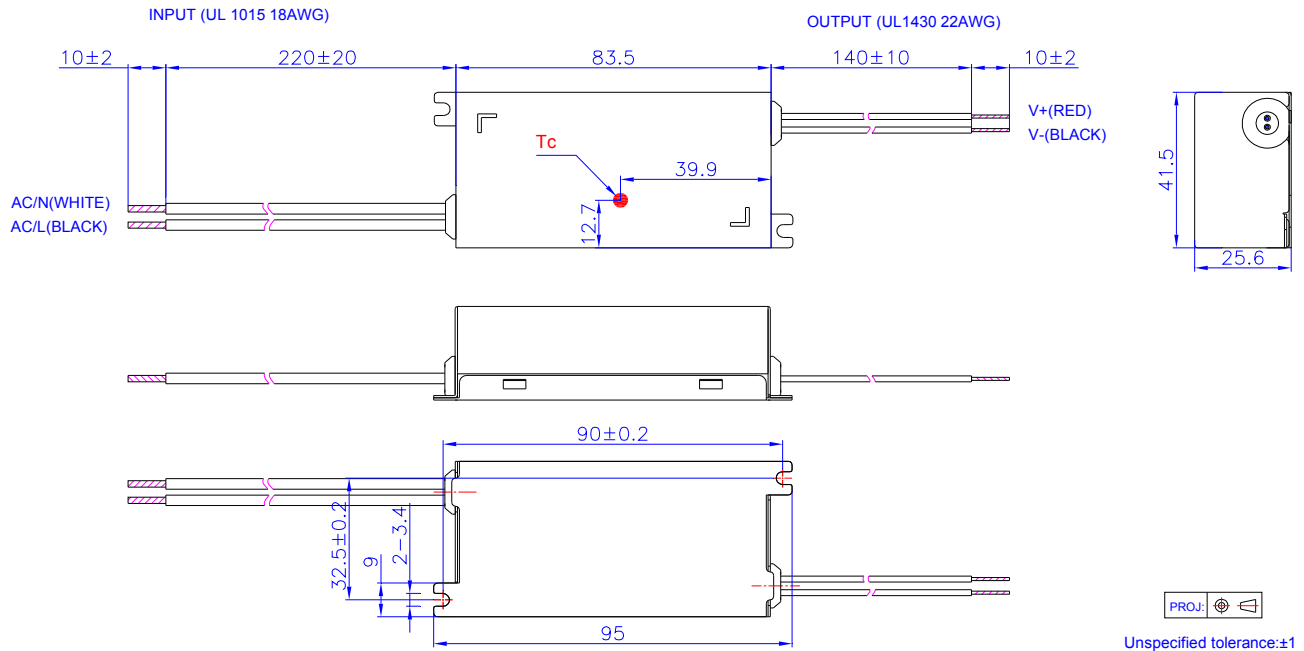
**Note:** If 0-10V dimming is not used, Dim + can be open.

## Mechanical Outline

### LUC-012SxxxDSM



### LUC-012xxxSSM



## 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
2011-9-29	A	Datasheets Release	/	/
2011-10-11	B	Derating Curve, Life time, PF, EFF Curve	/	Update
2011-12-27	C	Derating Curve	/	Update
2012-6-14	D	Startup Overshoot Current	20%	10%
2012-7-17	E	Max. Case Temperature	/	Updated
2012-8-29	F	Inrush Current(I <sup>2</sup> t)	/	Added
		Min. PF	/	Added
		Max. THD	/	Added
		Temperature co-efficient	/	Added
		Typical lifetime and MTBF	/	Added
2013-02-20	G	Efficiency @220Vac	/	1% lower
		Efficiency @277Vac	/	2% lower
		Efficiency & PF Curve of other models	/	Added
		THD Curve of all the models	/	Added
2013-11-29	H	Mechanical Outline	/	Updated
2014-02-26	I	PF	0.9 Min At 100-277Vac, 90%-100%load	0.9 Min At 100-277Vac, 100%load
2015-07-14	J	Leakage Current	/	Updated
		Inrush Current(I <sup>2</sup> t)	0.001 A <sup>2</sup> s	0.015 A <sup>2</sup> s
		Turn-on Delay Time at 220 Vac	/	Added
		Lifetime	63,500 Hours	90,000 Hours
		Warranty Tc	/	Added
		Environmental Specifications	/	Deleted
		Net Weight	170g	150g
		0~10V Wire Current Sourcing Capability Max.	200 uA	250 uA
		Lifetime vs. Case Temperature Curve	/	Updated
		Inrush Current Waveform	/	Added
		THD Curve	/	Updated
2017-07-14	K	CB certificate	/	Added
		PSE certificate	/	Added



## Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2017-07-14	K	KS certificate	/	Added
		Notes of Line Regulation and Load Regulation	/	Updated
		Turn-on Delay Time at 120Vac	Max.=1.0 s	Max.=0.75 s
		Net Weight	150 g	160 g
		Note of EMI Standard	/	Added
		Dimensions	Inches (L × W × H) 3.29 × 1.64 × 0.98 Millimeters (L × W × H) 83.5 × 41.5 × 25.0	3.29 × 1.64 × 1.01 83.5 × 41.5 × 25.6
		Mechanical Outline	/	Updated