

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 ² t)	-	-	0.015 A ² 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 _{omax}	-	100%I _{omax}	
Recommended Dimming Input Range	0 V	-	10 V	

Safety & EMC Compliance

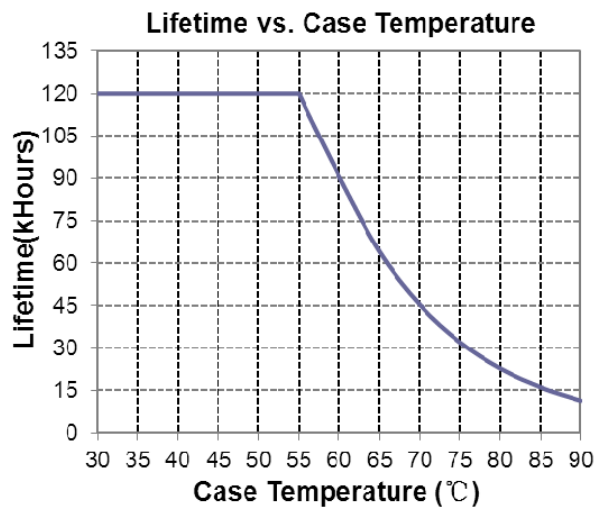
Safety Category	Standard
UL/CUL	UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 ⁽¹⁾ /CISPR15	Conducted Emission Test & Radiated Emission
EN 61000-3-2	Harmonic Current Emissions Class C
EN 61000-3-3	Voltage Fluctuations & Flicker
FCC Part 15 ⁽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 Level 3, Criteria A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS Level 3, Criteria A

Safety & EMC Compliance (Continued)

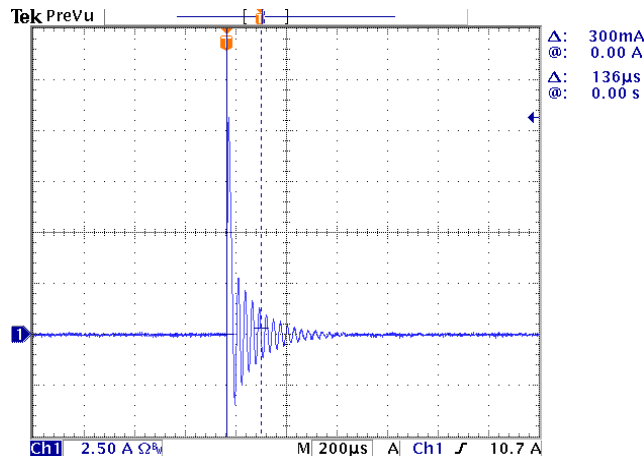
EMS Standards	Notes
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Line to Line 1 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS Level 3, Criteria A
EN 61000-4-8	Power Frequency Magnetic Field Test 3A/m , Criteria A
EN 61000-4-11	Voltage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

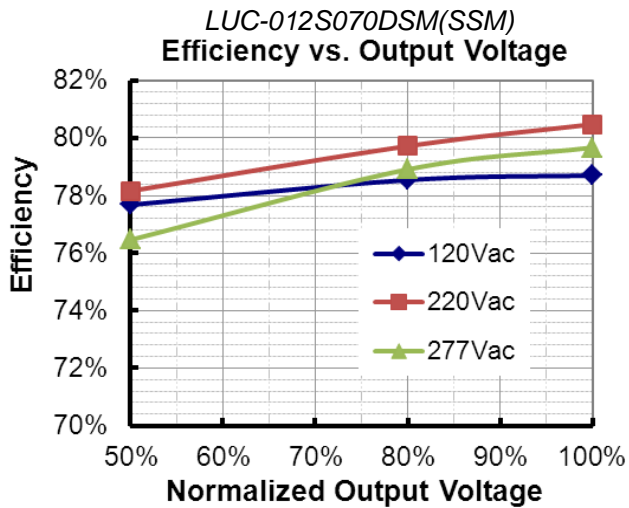
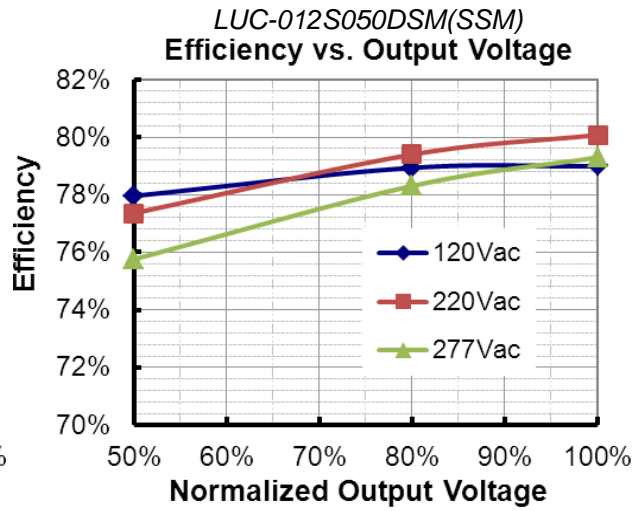
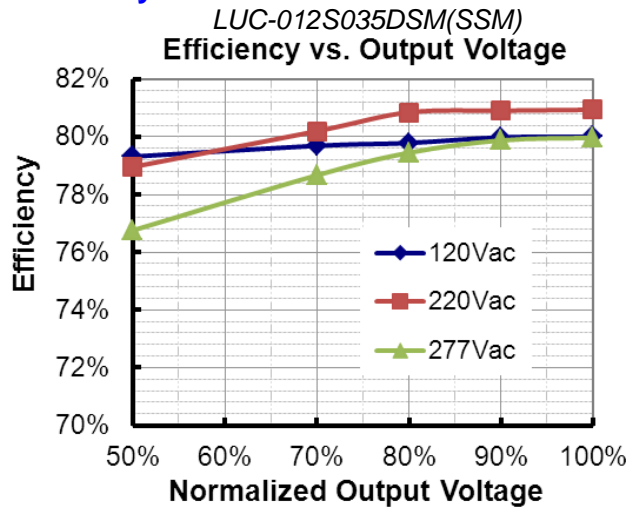
Lifetime vs. Case Temperature



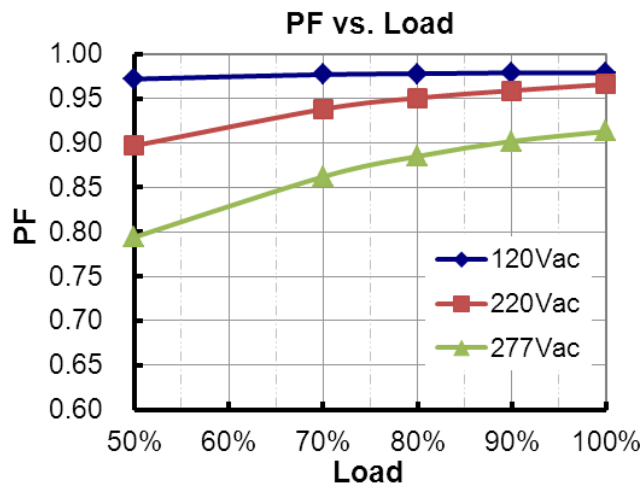
Inrush Current Waveform



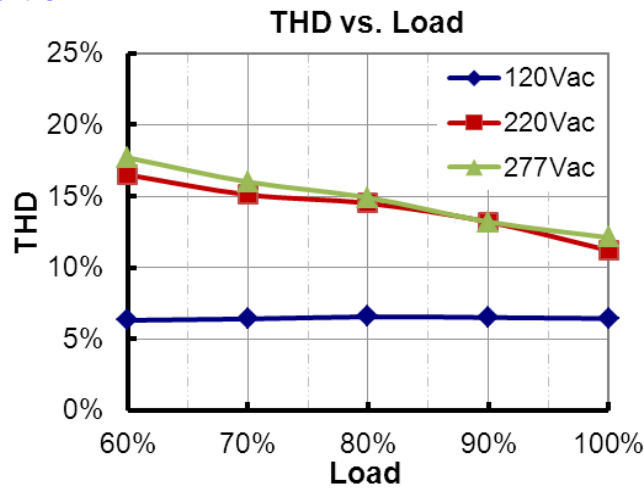
Efficiency vs. Load



Power Factor



Total Harmonic Distortion



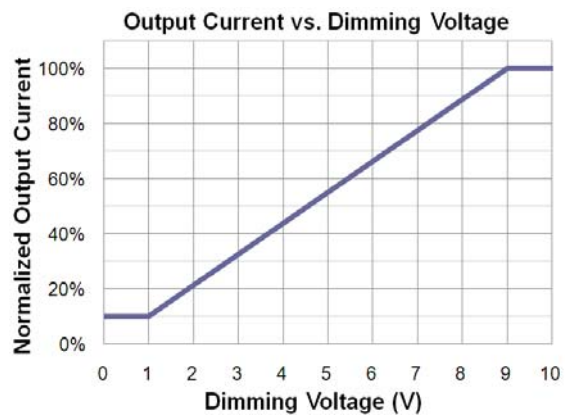
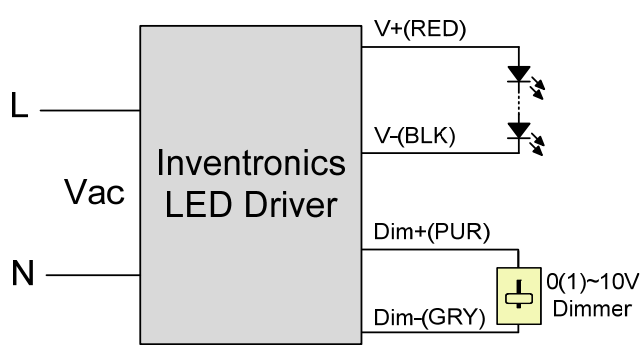
Protection Functions

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

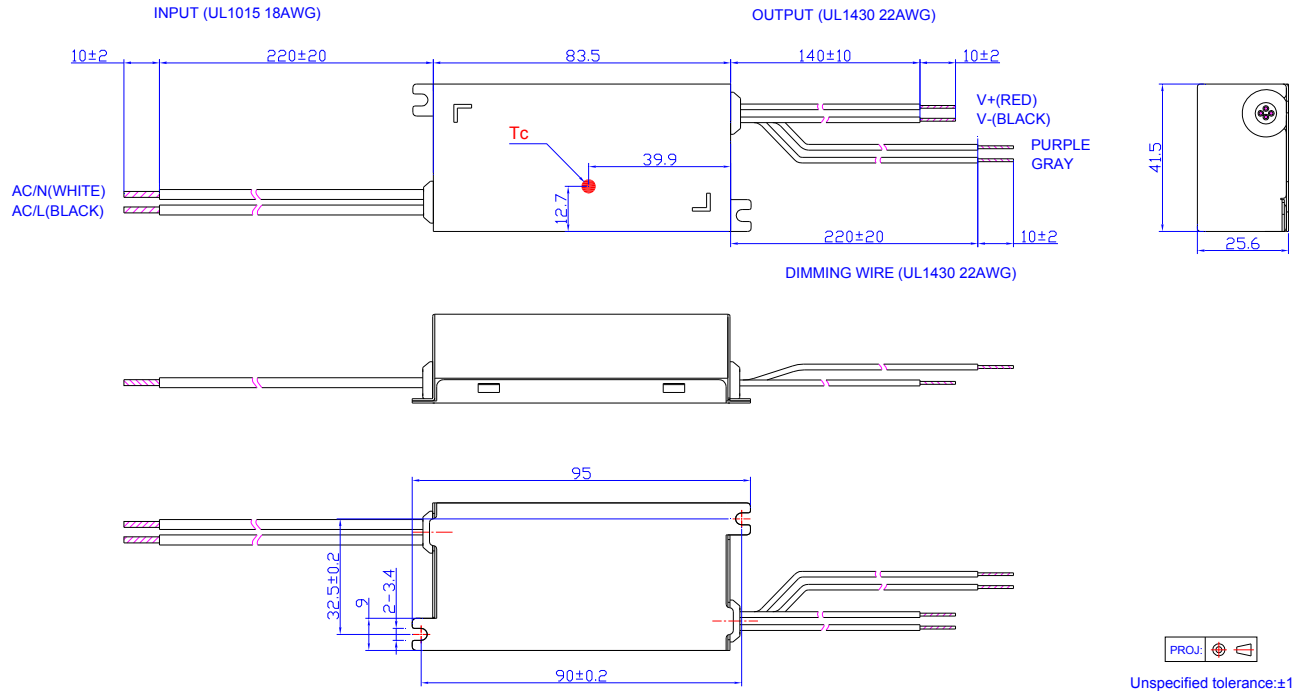
The dimmer control may be operated from either a dimmer or from an input signal of 0 - 10 Vdc. The recommended implementation is provided below.



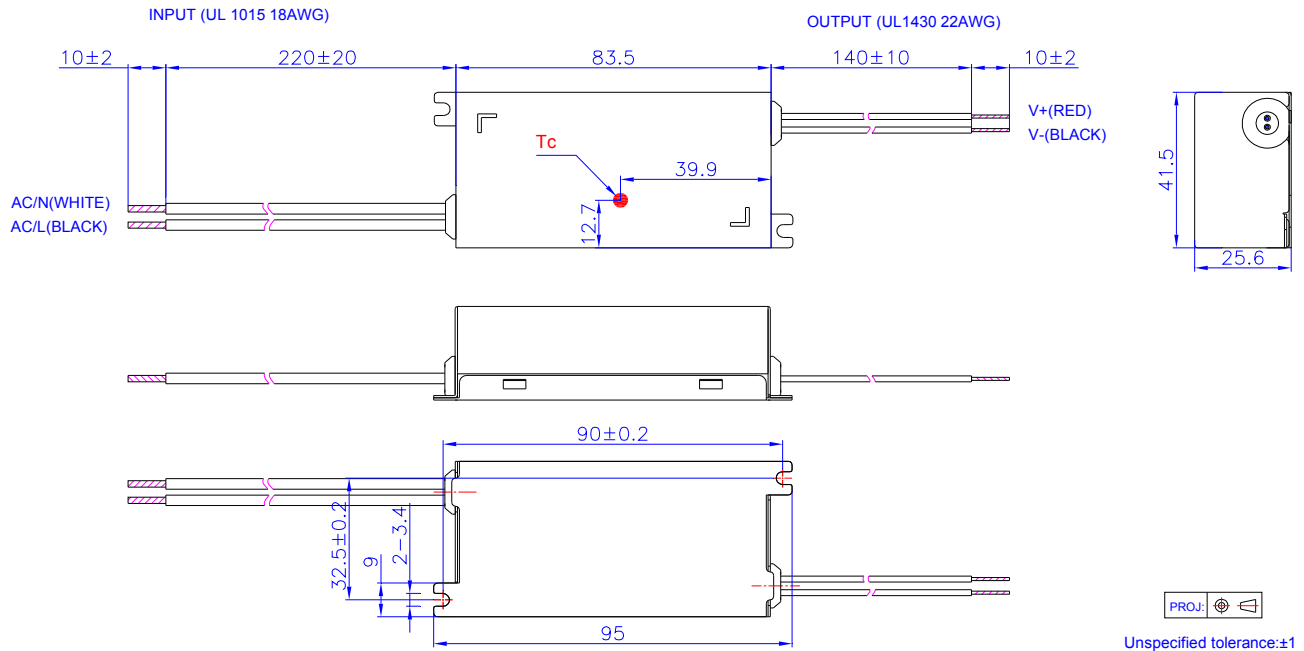
Note: If 0-10V dimming is not used, Dim + can be open.

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 ² 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 ² t)	0.001 A ² s	0.015 A ² 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