Features

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

Description

The *LUC-024SxxxDSP(SSP)* series operates from a 90 ~ 305 Vac input range. They are designed to be highly efficient and reliable. Features include over voltage, short circuit and open lamp protections.

Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Typical Power Factor (2)	Model Number(6)
350 mA	90 ~ 305 Vac	36~72 Vdc	25 W	86 %	0.94	LUC-024S035DSP(SSP)(3)
500 mA	90 ~ 305 Vac	24~48 Vdc	24 W	86 %	0.94	LUC-024S050DSP(SSP)(4)
700 mA	90 ~ 305 Vac	18~36 Vdc	25 W	85 %	0.94	LUC-024S070DSP(SSP)(5)
1050 mA	90 ~ 305 Vac	12~24 Vdc	25 W	84 %	0.94	LUC-024S105DSP(SSP)(5)

Notes: (1) Certified input voltage range: UL, FCC 100-277Vac; otherwise: 100-240Vac.
(2) Measured in 220 Vac input at 100% load.
(3) Non-Class 2.
(4) Class 2 (USR), Non-Class 2 (CNR).
(5) Class 2 (USR & CNR).
(6) For built-in double insulation models add suffix 00K0.

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	-	-	0.32 A	Measured at 100% load and 100 Vac input
	-	-	0.16 A	Measured at 100% load and 220 Vac input
Inrush Current(I^2t)	-	-	0.19 A^2s	At 220Vac input, 25℃ cold start, duration=152 μs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Power Factor	0.90	-	-	At 100-277Vac, 50-60Hz, 75%-100%load (18-24W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	
Output Current Ripple	-	30%Io	50%Io	At 100% load condition.
No Load Output Voltage Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	 - - - -	 - - - -	 80 V 55 V 42 V 30 V	
Startup Overshoot Current	-	-	10%Io	At 100% load condition.
Line Regulation	-	-	±1%	Measured at 100% load.
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.4 s	0.75 s	Measured at 100% load and 120Vac input.
	-	0.4 s	0.6 s	Measured at 100% load and 220Vac input.
Temperature Coefficient of Iomax	-	0.03%/°C	-	Case temperature = 0°C~Tc max.
12V Auxiliary Output Voltage	10.5 V	12 V	12.5 V	
12V Auxiliary Output Source Current	-	-	60 mA	60%load~100% load, return terminal is “Dim-”
	-	-	5 mA	50%load~60% load, return terminal is “Dim-”

Note: All specifications are tested by PWH01NKT-120-B2C unless otherwise stated.

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	 84% 84% 83% 82%	 85% 85% 84% 83%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient
Efficiency at 220 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	 85% 85% 84% 83%	 86% 86% 85% 84%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 277 Vac input: Io = 350 mA Io = 500 mA Io = 700 mA Io = 1050 mA	 84% 84% 83% 82%	 85% 85% 84% 83%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient
No Load Power Dissipation	-	-	1 W	
MTBF	-	290,900 Hours	-	Measured at 120Vac input, 80%load and 25℃ ambient temperature (MIL-HDBK-217F)
Lifetime	-	100,000 Hours	-	Measured at 120Vac input, 80%load and 60℃ case temperature, see lifetime vs. Tc for more details
Operating Case Temperature for Safety Tc_s	-20 ℃	-	+90 ℃	
Operating Case Temperature for Warranty Tc_w	-20 ℃	-	+70 ℃	Humidity: 10% RH to 90% RH; No condensation
Storage Temperature	-20 ℃	-	+85 ℃	Humidity: 5% RH to 95% RH; No condensation
Dimensions Inches (L × W × H) Millimeters (L × W × H)	 4.72 × 1.65 × 1.20 120 × 42 × 30.5			
Net Weight	-	200 g	-	

Note: All specifications are tested by PWH01NKT-120-B2C unless otherwise stated.

Dimming Specifications

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

Safety & EMC Compliance

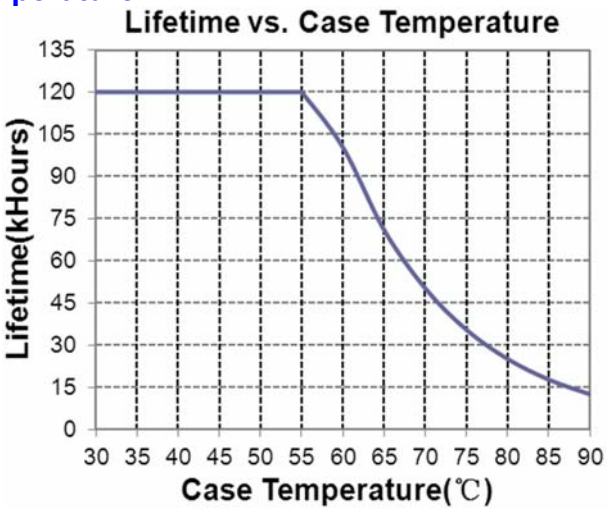
Safety Category	Standard
UL/CUL	UL 8750,UL 1310,CAN/CSA-C22.2 No. 250.13-12,CAN/CSA-C22.2 No. 223-M91
CE & TUV	EN 61347-1, EN 61347-2-13
PSE	J61347-1, J61347-2-13
CB	IEC 61347-1, IEC 61347-2-13

Safety & EMC Compliance (Continued)

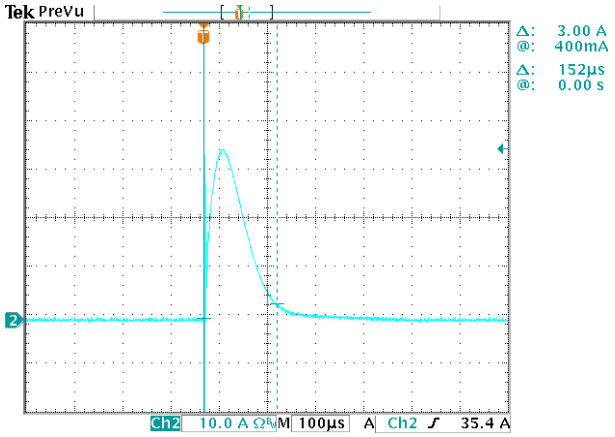
Safety Category	Standard
EAC	ГОСТ Р МЭК 61347-1, ГОСТ IEC 61347-2-13
KS	KS C 7655
EMI Standards	**Notes**
J55015, EN5015(1)	Conducted Emission Test & Radiated Emission Test
EN 61000-3-2	Harmonic Current Emissions Class C
EN 61000-3-3	Voltage Fluctuations & Flicker
FCC Part 15(1)	ANSI C63.4 Class B
	This 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, 4kV 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 1 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

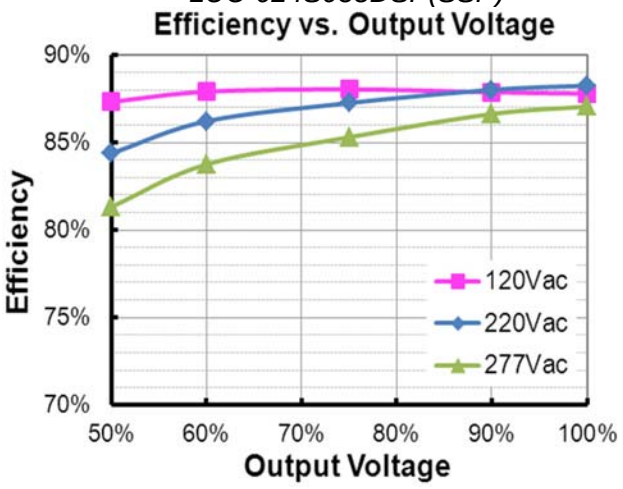


Inrush Current Waveform

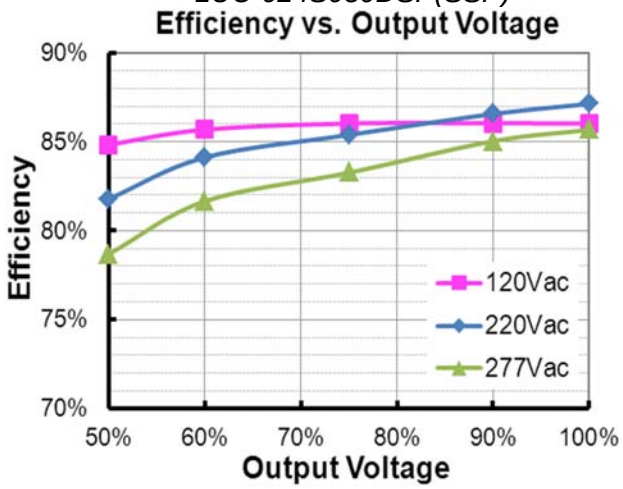


Efficiency vs. Load

LUC-024S035DSP(SSP)



LUC-024S050DSP(SSP)



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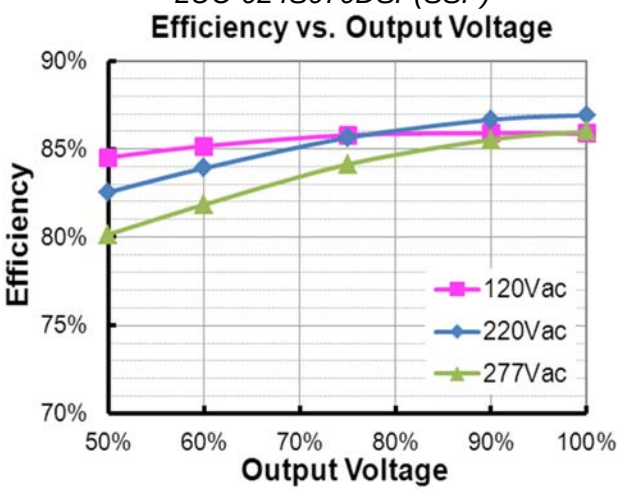
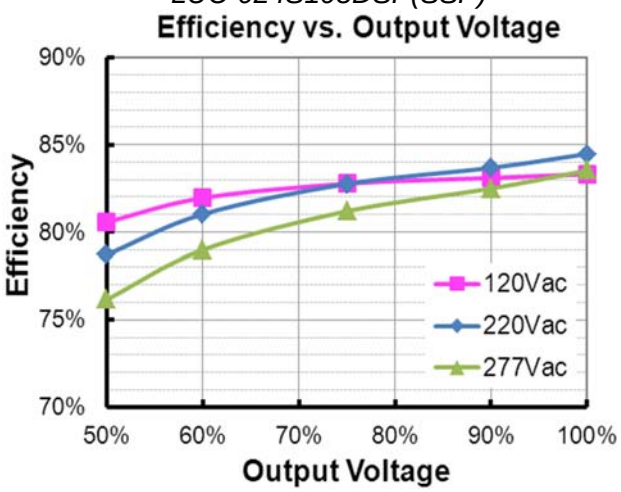
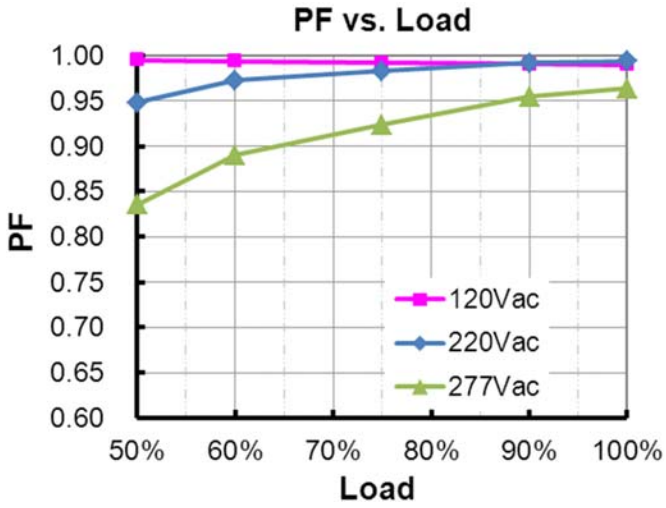


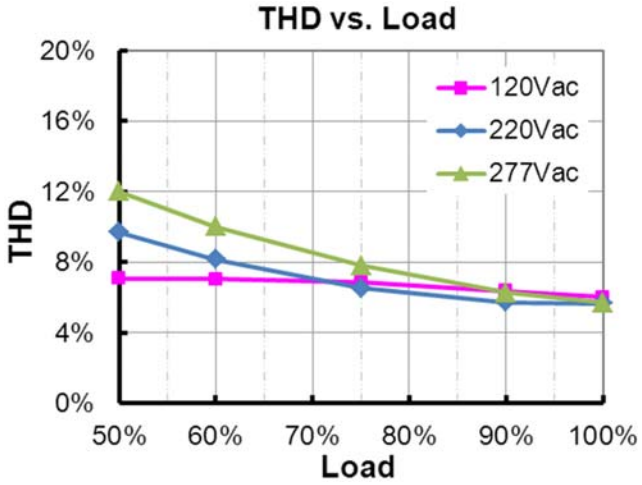
LUC-024S105DSP(SSP)



Power Factor



Total Harmonic Distortion



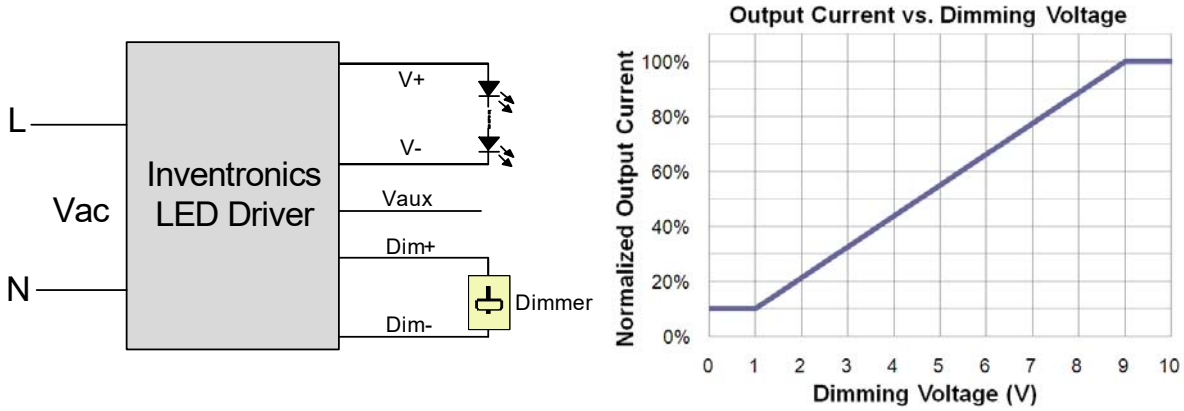
Protection Functions

Parameter	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.

Dimming

- **0-10V Dimming**

The recommended implementation of the dimming control is provided below



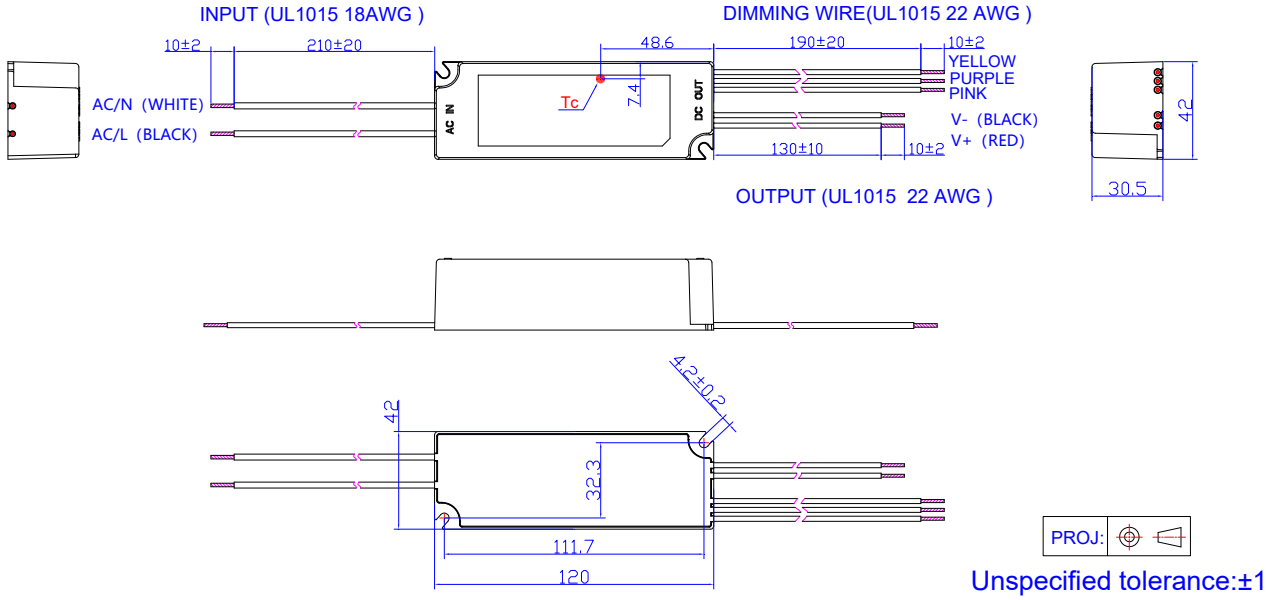
Implementation 1: DC Input

Notes:

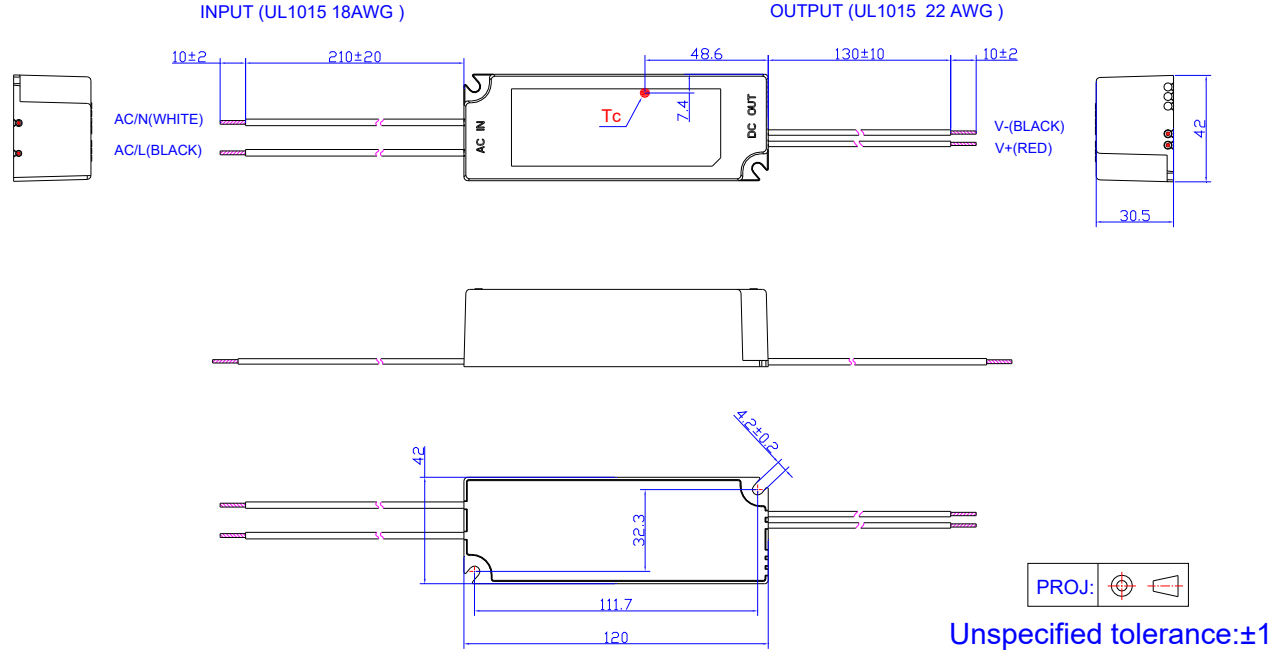
1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like zener.

Mechanical Outline

LUC-024SxxxDSP

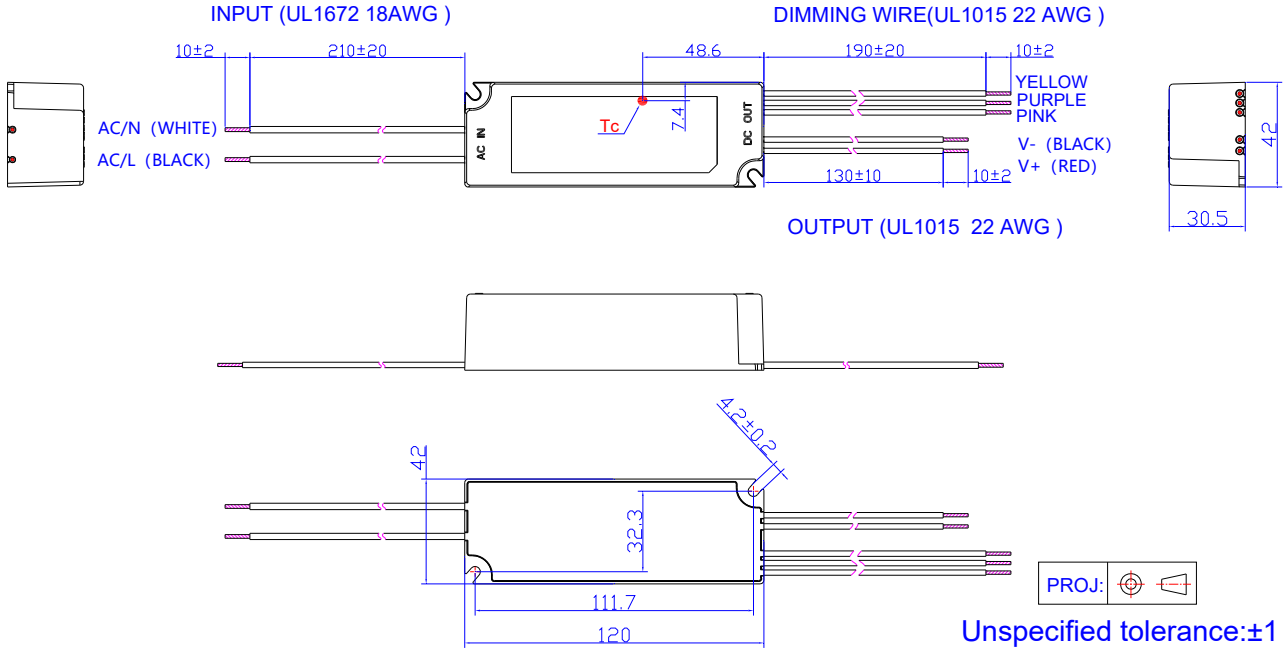


LUC-024SxxxSSP



Unspecified tolerance:±1

LUC-024SxxxDSP00K0



Unspecified tolerance:±1

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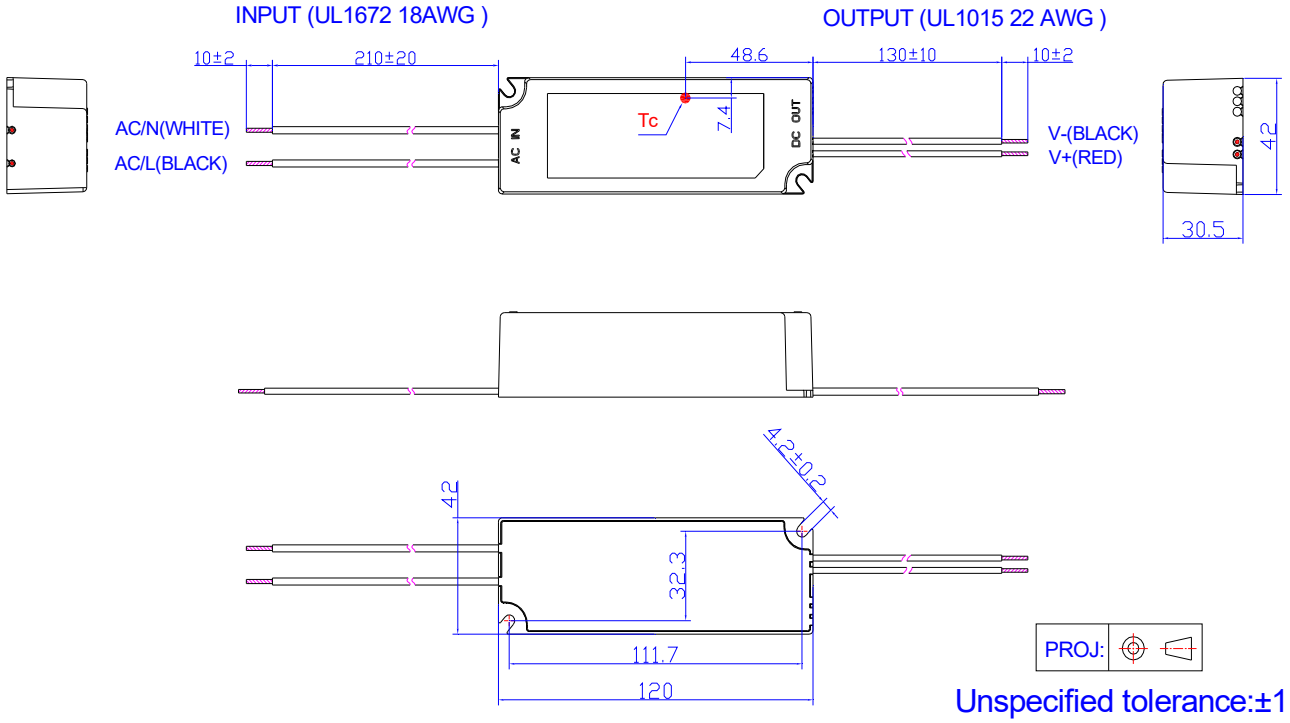
LUC-024SxxxSSP00K0



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
2012-04-01	A	Datasheet Released	/	/
2012-07-17	B	Max Case Temperature 90 ℃	/	Added
		Product Picture	/	Updated
		Mechanical Outline	/	Corrected
		12 V output voltage (Vaux) Min	11.5 V	10.5 V
2012-08-02	C	Details of No Load Voltage	/	Added
		Details of OVP	/	Added
2012-8-30	D	Inrush Current(I2t)	/	Added
		Min PF	/	Added
		Max THD	/	Added
		Temperature co-efficient	/	Added
2013-08-22	E	Min output voltage	60% Vomax	50%Vomax
		Dimming control-12 V source current	/	Corrected
		0~10V Wire Current Sourcing Capability	/	Updated
2015-08-11	F	Dimming Specifications-0~10V Wire Current Sourcing Capability Max.	210 uA	250 uA
		Inrush Current(I^2t)	0.11 A^2s Max.	0.19 A^2s Max.
		Inrush Current Waveform	/	Added
		Efficiency vs. Load Curve	/	Updated
		Power Factor Curve	/	Updated
		Total Harmonic Distortion Curve		Added
		Operating Case Temperature for Warranty Tc_w	/	Added
		Environmental Specifications	/	Deleted
		Lifetime	60,200	100,000
		Lifetime vs. Case Temperature Curve	/	Updated
		Double Insulation	/	Added
		Leakage Current	/	Updated
		Turn-on Delay Time at 220 Vac	/	Added
2017-07-07	G	KS Certificate	/	Added

Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2017-07-07	G	Turn-on Delay Time at 120Vac	Max.=1.0 s	Max.=0.75 s
		Turn-on Delay Time at 220Vac	Max.=0.8 s	Max.=0.6 s
		Net Weight	190 g	200 g
		Note of EMI Standard	/	Added
2021-03-26	H	EAC logo	/	Added
		Double insulation logo	/	Added
		Models - Notes: (6) For double insulation models add suffix 00K0.	/	Added
		Note of Output Specifications and General Specifications	/	Updated
		Humidity	/	Updated
		Safety & EMC Compliance - Safety Category - TUV & EAC	/	Added
		Dimming	/	Updated
		Mechanical Outline - LUC-024SxxxDSP00K0 & LUC-024SxxxSSP00K0	/	Added
		RoHS Compliance	/	Updated
2022-02-25	I	Product Photograph	/	Updated
		Safety & EMC Compliance	/	Updated
		Mechanical Outline	/	Updated