Features

- Full Power at Wide Output Current Range (Constant Power)
- Flicker-Free
- Isolated 0-10V Dimmable
- Tight Tolerance at Low Dimming Levels
- Suitable for Class I and Class II Luminaires
- Suitable for Built-in Use
- Class 2 & SELV output
- UL Class P Type
- 5 Years Warranty

Description

The *LUG-040SxxxDTE* series is a 40W, constant-power, programmable IP20 LED driver that operates from 90-305Vac input with excellent power factor. It is created for many lighting applications including panel and down lights, it provides good dimming accuracy at low dimming levels, the high efficiency and metal case of this driver enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against over voltage, short circuit, and over temperature.

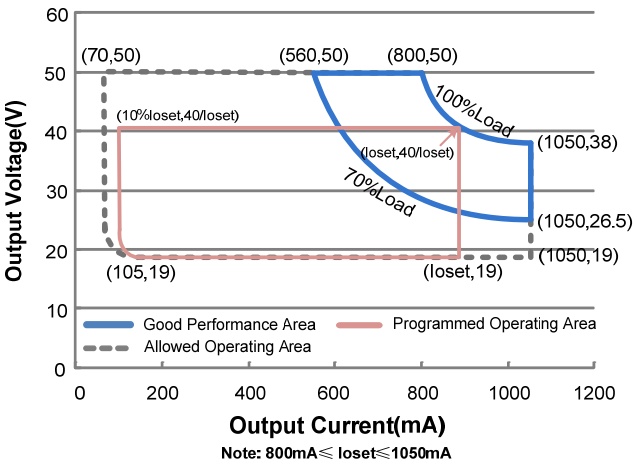
Models

Adjustable Output Current Range	Full-Power Current Range(1)	Default Output Current	Input Voltage Range(2)	Output Voltage Range	Max. Output Power	Typical Efficiency (3)	Power Factor		Model Number (4)
							120Vac	220Vac	
240-1050 mA	800-1050 mA	1050 mA	90~305 Vac 127~250 Vdc	19 ~ 50 Vdc	40 W	88.5%	0.99	0.96	LUG-040S105DTE
315-1500 mA	1050-1500 mA	1400 mA	90~305 Vac 127~250 Vdc	13 ~ 38 Vdc	40 W	87.5%	0.99	0.96	LUG-040S150DTE

Notes: (1) Output current range with constant power at 40W.
(2) UL, FCC certified input voltage range: 100-277 Vac or 127-250 Vdc; other certified input voltage range except UL & FCC: 100-240 Vac, or 127-250 Vdc (except KS).
(3) Measured at 100% load and 220Vac input (see below “General Specifications” for details).
(4) Class 2 & SELV Output.

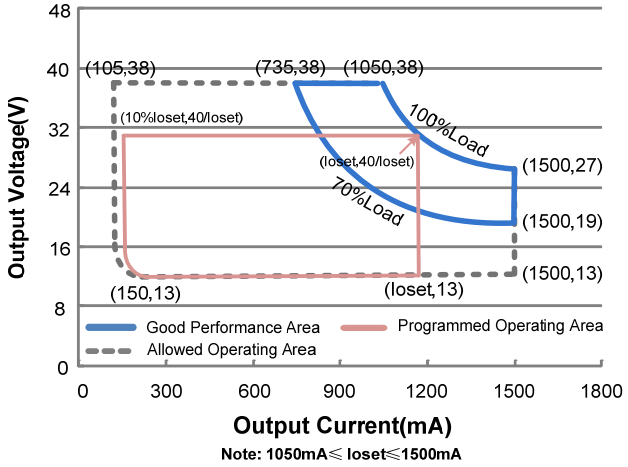
I-V Operating Area

LUG-040S105DTE



Note: 800mA≤ Ioset≤1050mA

LUG-040S150DTE



Note: 1050mA≤ Ioset≤1500mA

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127~250 Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.41 A	Measured at 100% load and 120 Vac input.
	-	-	0.23 A	Measured at 100% load and 220 Vac input.
Inrush Current(I^2t)	-	-	0.016 A^2s	At 220Vac input, 25°C cold start, duration=1.48 μs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.9	-	-	At 100-277Vac, 50-60Hz, 70%-100%load (28-40W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Ioset	-	5%Ioset	At 100% load condition
Output Current Setting(Ioset) Range LUG-040S105DTE LUG-040S150DTE	 240 mA 315 mA	 - -	 1050 mA 1500 mA	
Output Current Setting Range with Constant Power LUG-040S105DTE LUG-040S150DTE	 800 mA 1050 mA	 - -	 1050 mA 1500 mA	

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Total Output Current Ripple (pk-pk)	-	10%Iomax	20%Iomax	At 100% load condition. 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	1%Iomax	-	At 100% load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%Iomax	At 100% load condition
No Load Output Voltage LUG-040S105DTE LUG-040S150DTE	- -	- -	59.5 V 48 V	
Line Regulation	-	-	±1%	Measured at 100% load
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	-	0.5 s	Measured at 120Vac input, 70%-100%load
	-	-	0.5 s	Measured at 220Vac input, 70%-100%load
Temperature Coefficient of Ioset	-	0.06%/°C	-	Case temperature = 0°C~Tc max

Note: All specifications are typical at 25°C unless otherwise stated.

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: LUG-040S105DTE Io=800 mA Io=1050 mA LUG-040S150DTE Io=1050 mA Io=1500 mA	 85.0% 83.5% 84.0% 82.0%	 87.0% 85.5% 86.0% 84.0%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 220 Vac input: LUG-040S105DTE Io=800 mA Io=1050 mA LUG-040S150DTE Io=1050 mA Io=1500 mA	 86.5% 85.0% 85.5% 83.5%	 88.5% 87.0% 87.5% 85.5%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 277 Vac input: LUG-040S105DTE Io=800 mA Io=1050 mA LUG-040S150DTE Io=1050 mA Io=1500 mA	 86.5% 85.0% 85.5% 83.5%	 88.5% 87.0% 87.5% 85.5%	 - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	338,000 hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	64,000 hours	-	Measured at 120Vac input, 80%Load and 75°C case temperature; See lifetime vs. Tc curve for the details

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Operating Case Temperature for Safety Tc_s	-30 °C	-	+85 °C	
Operating Case Temperature for Warranty Tc_w	-30 °C	-	+75 °C	Case temperature for 5 years warranty. Humidity: 10% RH to 90% RH; No Condensation
Storage Temperature	-30 °C	-	+85 °C	Humidity: 5% RH to 95% RH; No Condensation
Dimensions Inches (L × W × H) Millimeters (L × W ×H)	4.94 x 2.40 x 1.26 125.5 x 61 x 32			
Net Weight	-	210 g	-	

Note: All specifications are 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		200 uA	300 uA	450 uA	Vdim(+) = 0 V
Dimming Output Range	LUG-040S105DTE LUG-040S150DTE	10%Ioset	-	Ioset	800 mA ≤ Ioset ≤ 1050 mA 1050 mA ≤ Ioset ≤ 1500 mA
	LUG-040S105DTE LUG-040S150DTE	70 mA 105 mA	-	Ioset	240 mA ≤ Ioset ＜ 800 mA 315 mA ≤ Ioset ＜ 1050 mA
Minimum Output Current	LUG-040S105DTE LUG-040S150DTE	9%Ioset	10%Ioset	11%Ioset	700 mA ≤ Ioset ≤ 1050 mA 1050 mA ≤ Ioset ≤ 1500 mA

Note: All specifications are typical at 25°C unless stated otherwise.

Safety & EMC Compliance

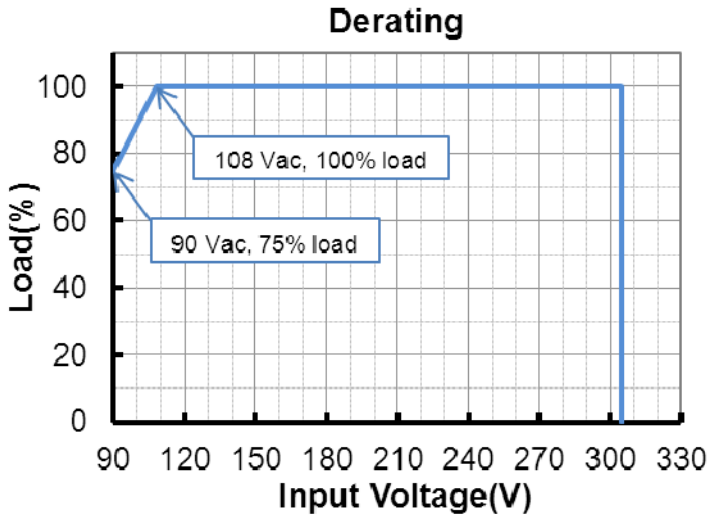
Safety Category	Standard
UL/CUL	UL 8750,UL1310,CAN/CSA-C22.2 No. 250.13,CAN/CSA-C22.2 No. 223-M91
CE	EN61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	**Notes**
EN 55015(1)	Conducted emission Test &Radiated emission Test
EN 61000-3-2	Harmonic current emissions Class C
EN 61000-3-3	Voltage Fluctuations & Flicker

Safety & EMC Compliance (Continued)

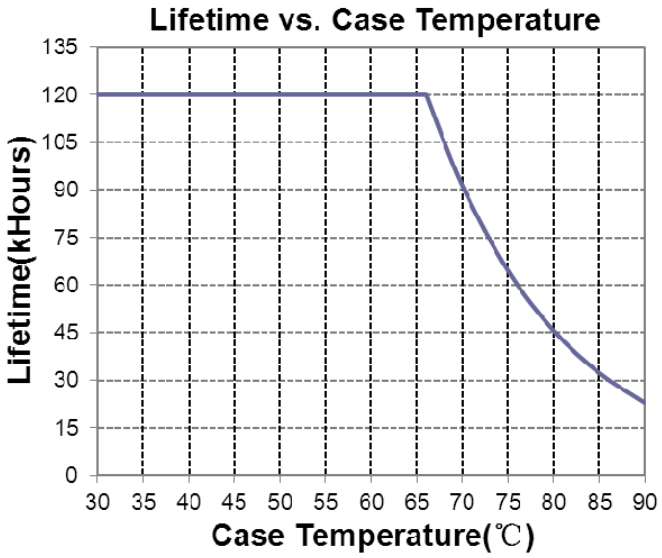
EMI Standards	Notes
FCC Part 15(1)	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may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

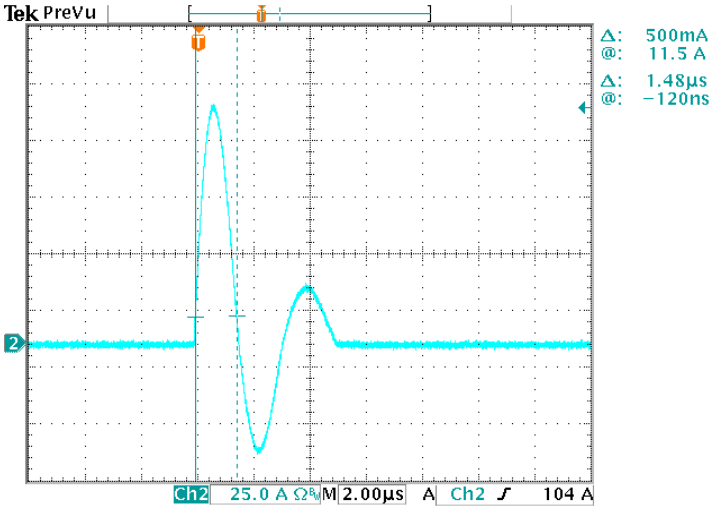
Derating



Lifetime vs. Case Temperature

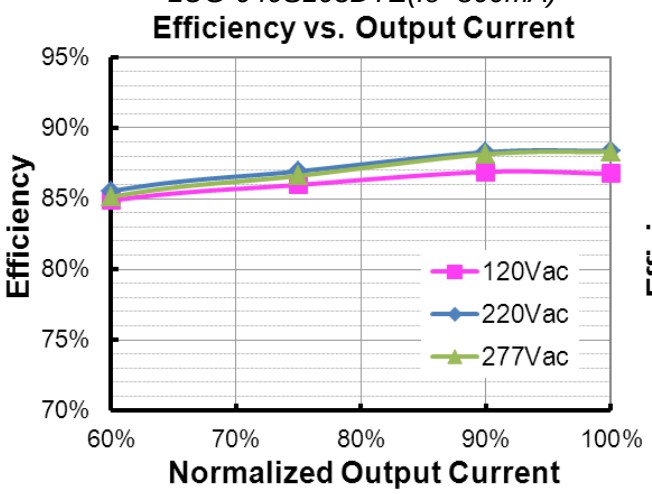


Inrush Current Waveform

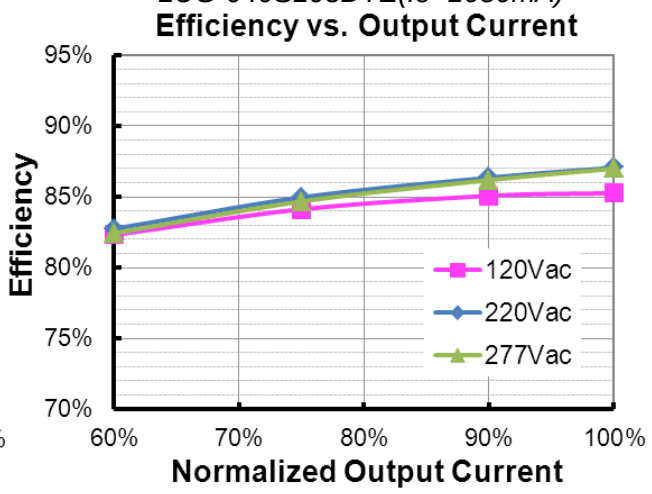


Efficiency vs. Load

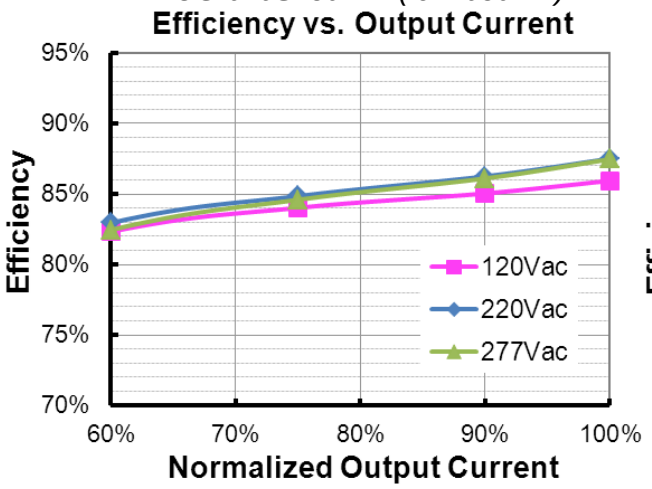
LUG-040S105DTE(Io=800mA)



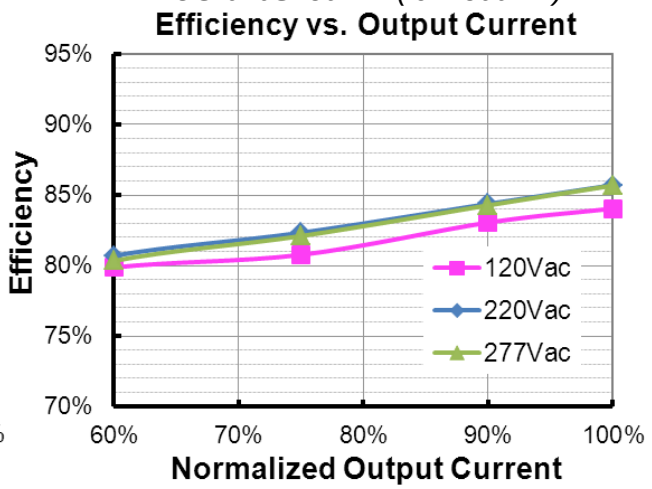
LUG-040S105DTE(Io=1050mA)



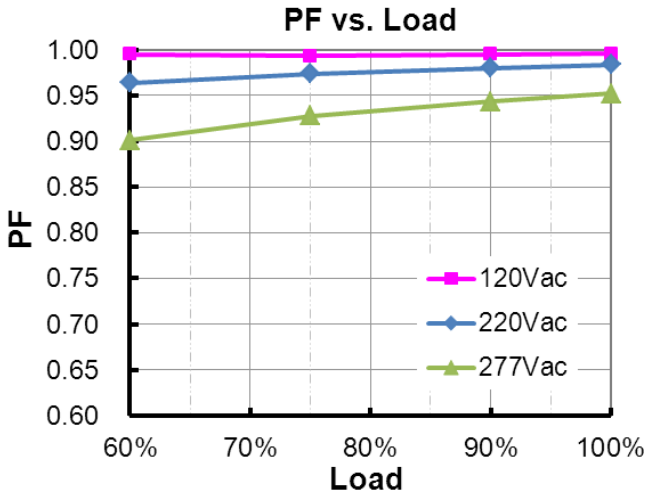
LUG-040S150DTE(Io=1050mA)



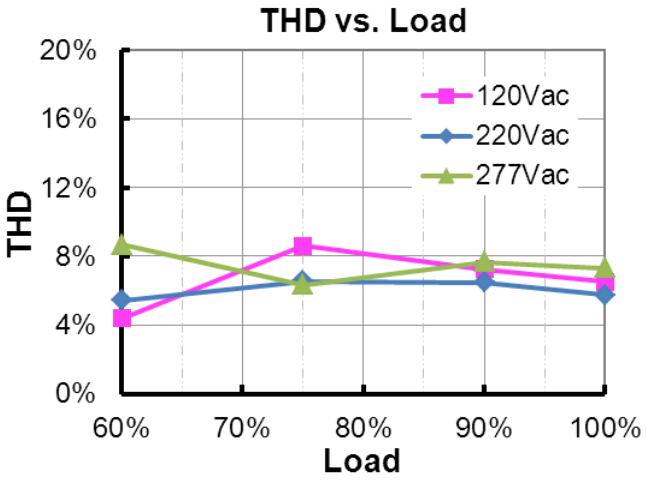
LUG-040S150DTE(Io=1500mA)



Power Factor



Total Harmonic Distortion



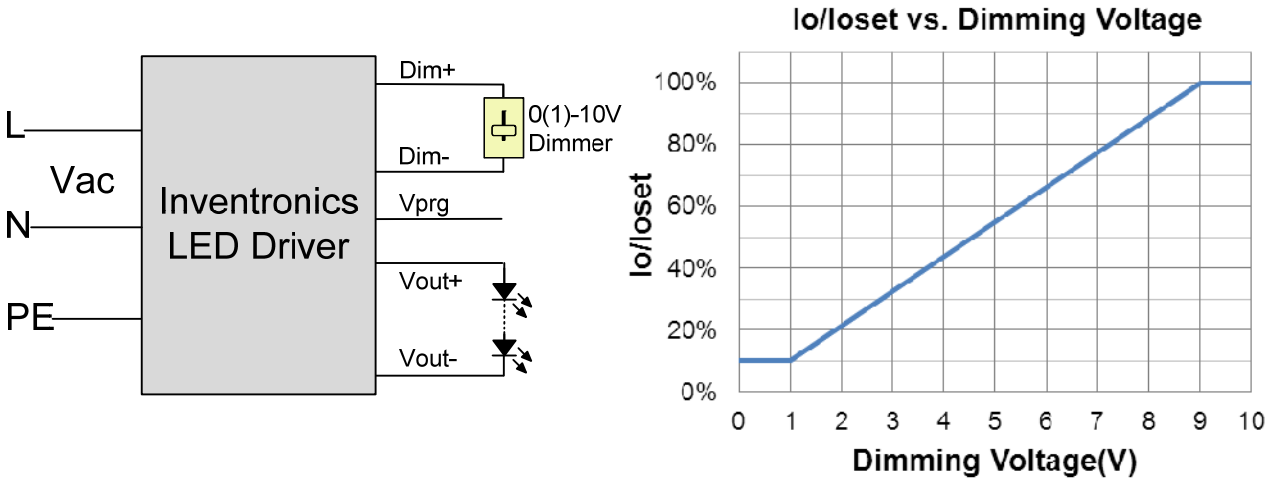
Protection Functions

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 will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Temperature Protection	No output current, returning to normal after over temperature is removed.

Dimming

- **0-10V Dimming**

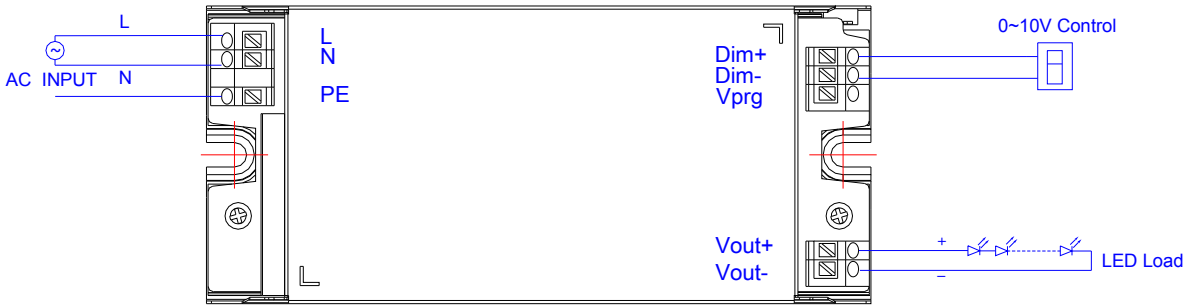
The recommended implementation of the dimming control is provided below.



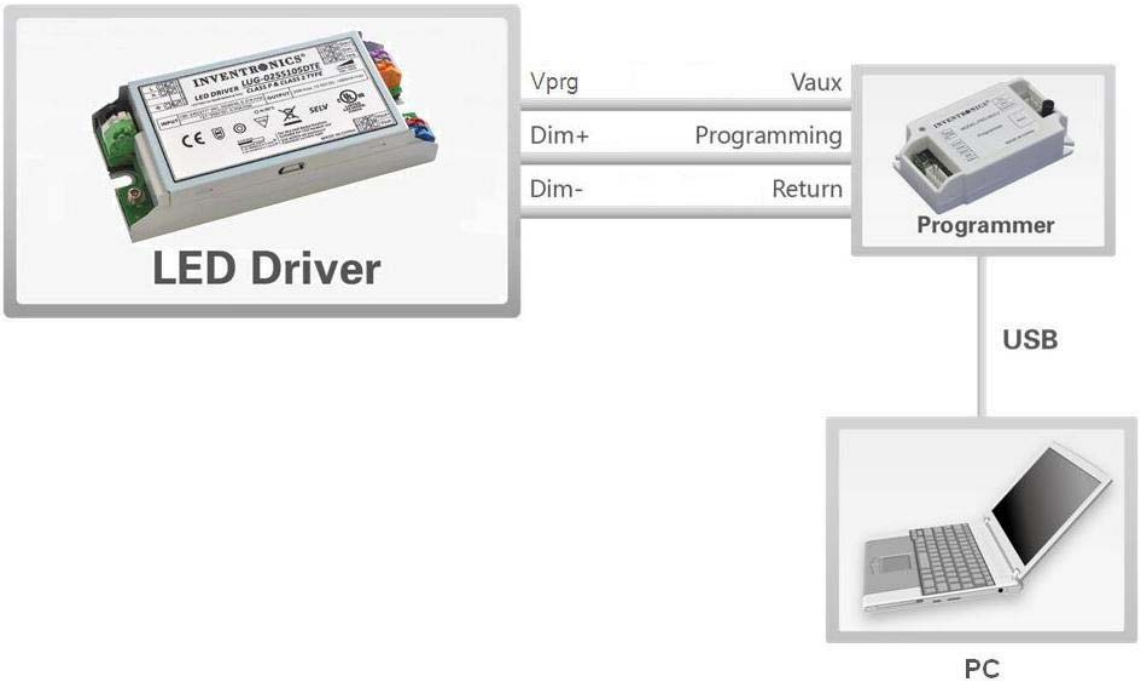
Implementation 1: DC Input

Note: The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.

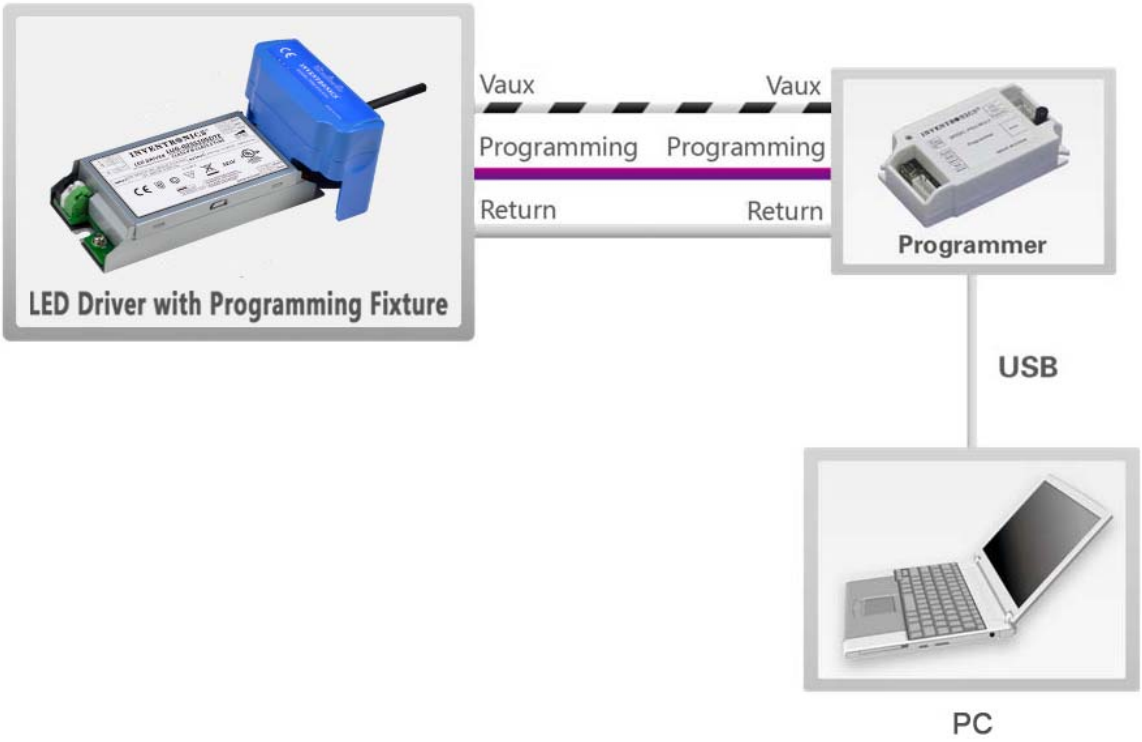
Wire Connection Diagram



Programming Connection Diagram



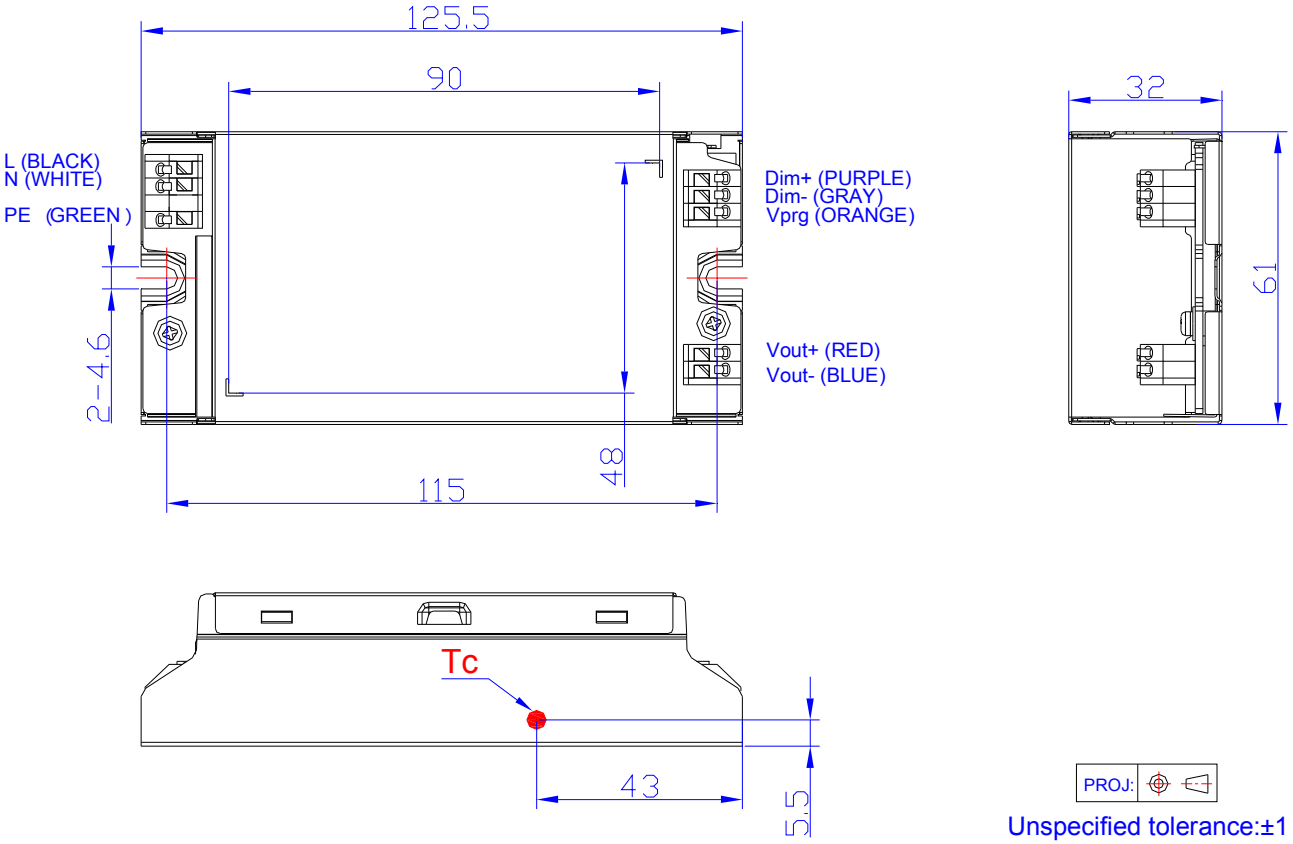
www.inventronics-co.com Tel: 86-571-56565800 Fax: 86-571-86601139 sales@inventronics-co.com



Note: The driver does not need to be powered on during the programming process.

- **Please refer to PRG-MUL2 (Programmer) and PRG-FIX-E01 (Programming Fixture) datasheet for details.**

Mechanical Outline



RoHS Compliance

Our products comply with the European Directive 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
2018-06-21	A	Datasheet Release	/	/
2018-11-02	B	Note of Dimming Specifications - Minimum Output Current	700mA≤Ioset≤1050mA 1050mA≤Ioset≤1500mA	Added
		Note of 0-10V Dimming	The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like zener.	The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2019-02-21	C	Product photo	/	Updated
		Features	Isolated 0-10V Dimming Control	Isolated 0-10V Dimmable
		Net Weight	280 g	210 g