

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-025S105DTE series is a 25W, constant-current, programmable IP20 LED driver that operates from 90-305 Vac input with excellent power factor. Created for dimmable panel lights and down lights, it provides tight tolerance at 10% output, 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

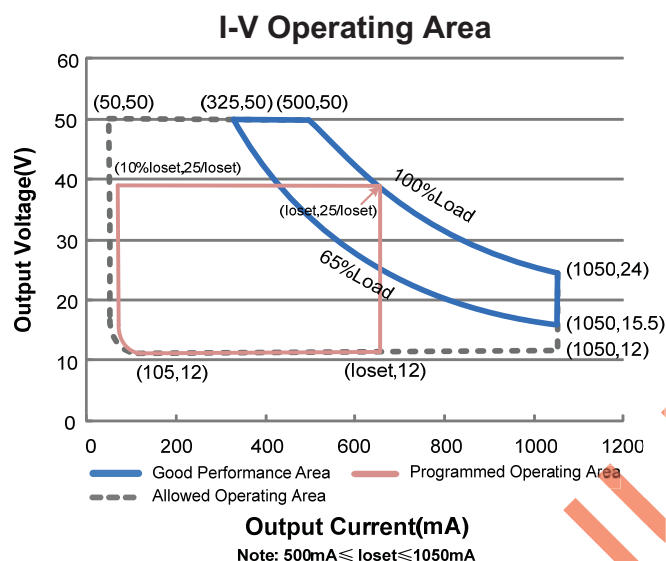
Adjustable Output Current Range	Full-Power Current Range(1)	Default Output Current	Input Voltage Range(2)	Output Voltage Range	Max. Output Power	Typical Efficiency (3)	Power Factor		Model Number
							120Vac	220Vac	
50-1050 mA	500-1050 mA	1050 mA	90~305 Vac 127~250 Vdc	12~50 Vdc	25 W	87.0%	0.99	0.96	LUG-025S105DTE ⁽⁴⁾

Notes: (1) Output current range with constant power at 25W.

(2) UL, FCC certified input voltage range: 100-277Vac or 127-250Vdc; other certified input voltage range except UL & FCC: 100-240Vac, or 127-250Vdc (except KS).

(3) Measured at full load and 220Vac input (see below "General Specifications" for details).

(4) Class 2 & SELV output.



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	-	-	0.35 A	Measured at full load and 100 Vac input.
	-	-	0.20 A	Measured at full load and 220 Vac input.
Inrush Current(I ² t)	-	-	0.1 A ² s	At 220Vac input, 25°C Cold Start, Duration= 224 μs, 10%l _{pk} -10%l _{pk} . See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-277Vac, 50-60Hz, 65%-100%load (16.5-25W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%loset	-	5%loset	At full load condition
Output Current Setting(loset) Range				
LUG-025S105DTE	200 mA	-	1050 mA	
Output Current Setting Range with Constant Power				
LUG-025S105DTE	500 mA	-	1050 mA	
Total Output Current Ripple (pk-pk)	-	10%lomax	20%lomax	At full load condition. 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	1%lomax	-	At full load condition. Only this component of ripple is associated with visible flicker.

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Startup Overshoot Current	-	-	10%I _o max	At full load condition
No Load Output Voltage LUG-025S105DTE	-	-	59 V	
Line Regulation	-	-	±2%	Measured at full load
Load Regulation	-	-	±5%	
Turn-on Delay Time	-	-	0.75 s	Measured at 120Vac input, 65%-100%load
	-	-	0.50 s	Measured at 220Vac input, 65%-100%load
Temperature Coefficient of I _o set	-	0.06%/°C	-	Case temperature = 0°C~T _c 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-025S105DTE I _o =500 mA I _o =1050 mA	85.0% 82.0%	87.0% 84.0%	- -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 220 Vac input: LUG-025S105DTE I _o =500 mA I _o =1050 mA	85.0% 82.0%	87.0% 84.0%	- -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 277 Vac input: LUG-025S105DTE I _o =500 mA I _o =1050 mA	84.0% 81.0%	86.0% 83.0%	- -	Measured at full load and steady-state temperature in 25°C ambient.
MTBF	-	206,000 hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	85,000 hours	-	Measured at 120Vac input, 80%Load and 75°C case temperature; See lifetime vs. T _c curve for the details
Operating Case Temperature for Safety T _c s	-30°C	-	+90°C	
Operating Case Temperature for Warranty T _c low	-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 × 2.20 × 0.98 125.5 × 56.0 × 25.0			
Net Weight	-	210 g	-	

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

Dimming Specifications

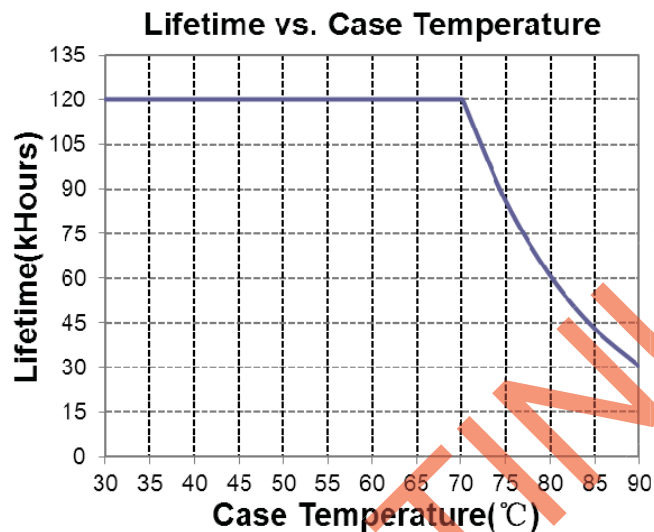
Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+) Pin	200 μ A	300 μ A	450 μ A	Vdim(+) = 0 V
Dimming Output Range	10%loset	-	loset	500 mA $\leq$ loiset $\leq$ 1050 mA
	50mA	-	loiset	200 mA $\leq$ loiset < 500 mA
Minimum Output Current	9%loset	10%loset	11%loset	500 mA $\leq$ loiset $\leq$ 1050 mA

Safety & EMC Compliance

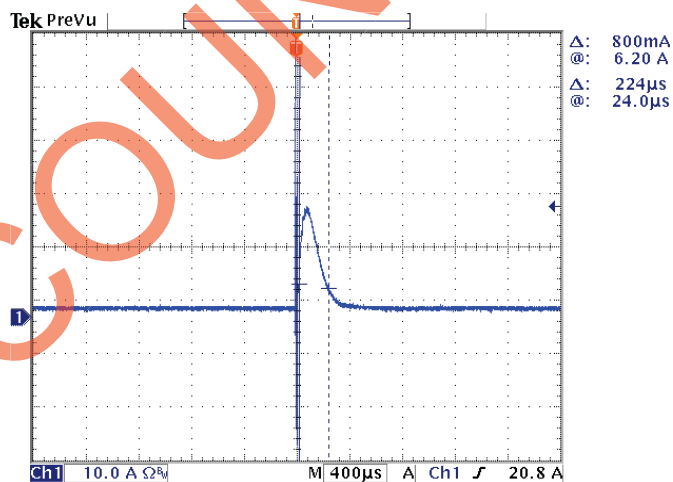
Safety Category	Standard
UL/CUL	UL 8750, UL1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 ⁽¹⁾	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions Class C
EN 61000-3-3	Voltage fluctuations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

Lifetime vs. Case Temperature



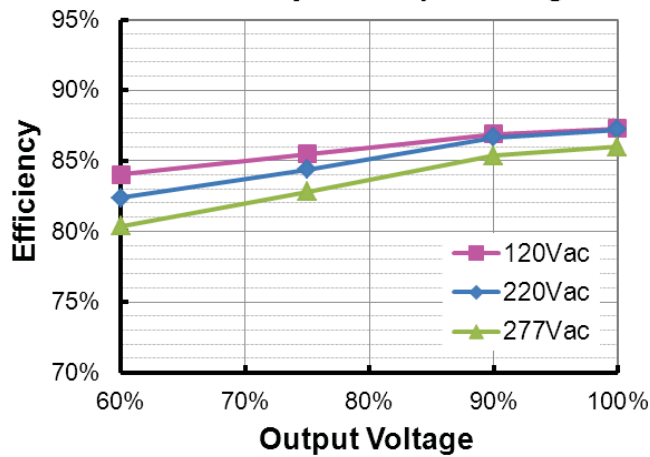
Inrush Current Waveform



Efficiency vs. Load

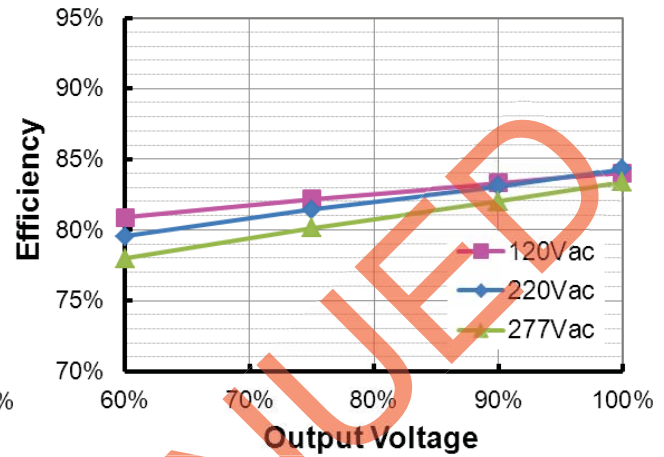
LUG-025S105DTE($I_o=500mA$)

Efficiency vs. Output Voltage



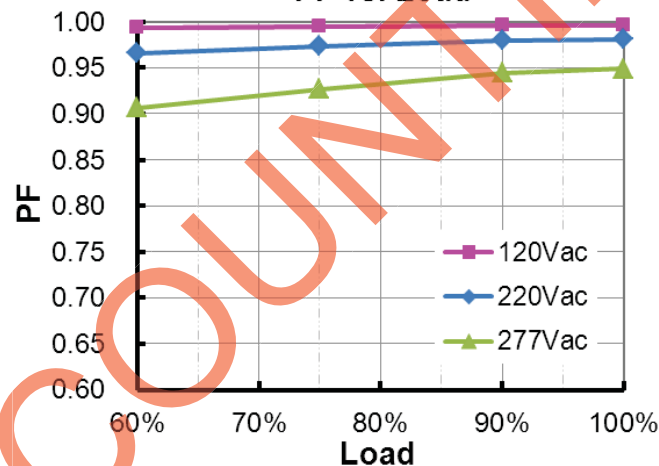
LUG-025S105DTE($I_o=1050mA$)

Efficiency vs. Output Voltage



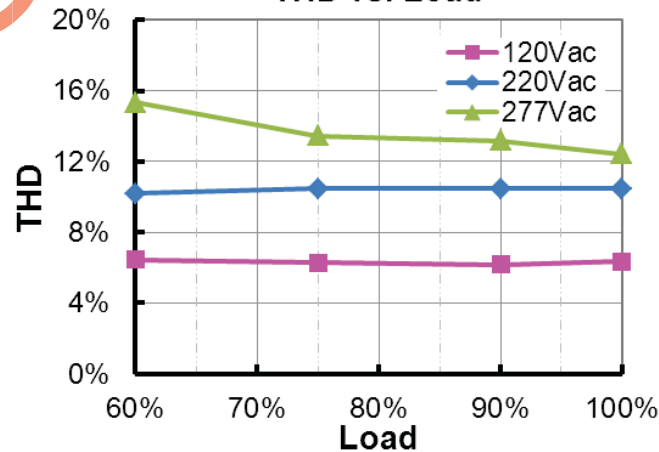
Power Factor

PF vs. Load



Total Harmonic Distortion

THD vs. Load



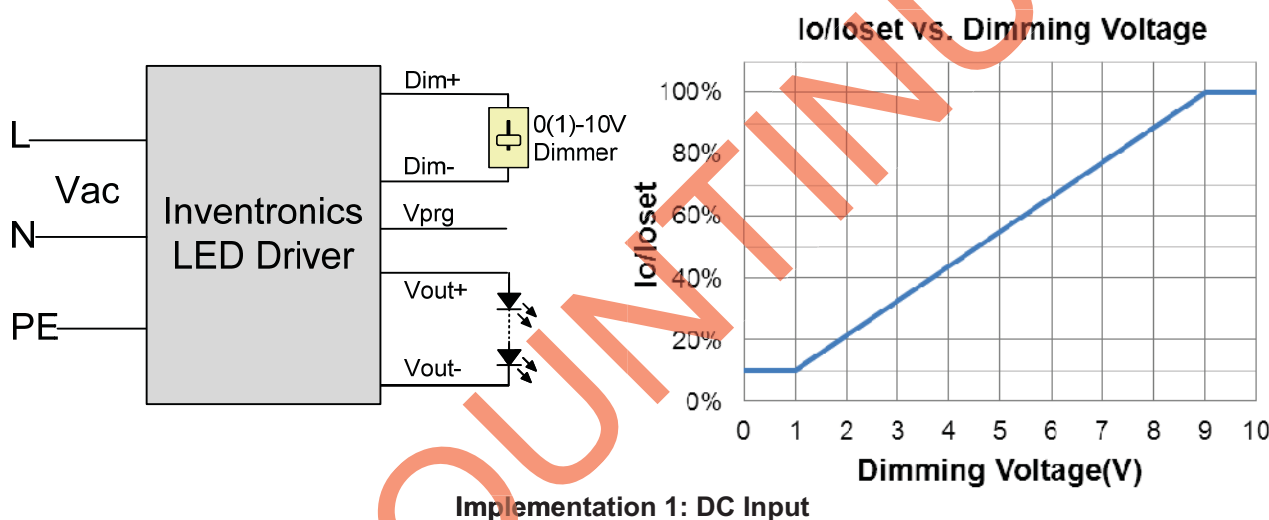
Protection Functions

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	Decreases output current, returning to normal after over temperature is removed.

Dimming

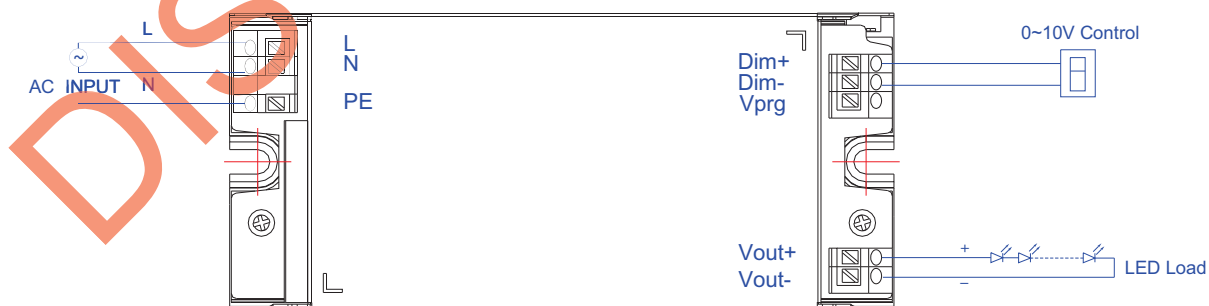
● 0-10V Dimming

The recommended implementation of the dimming control is provided below.

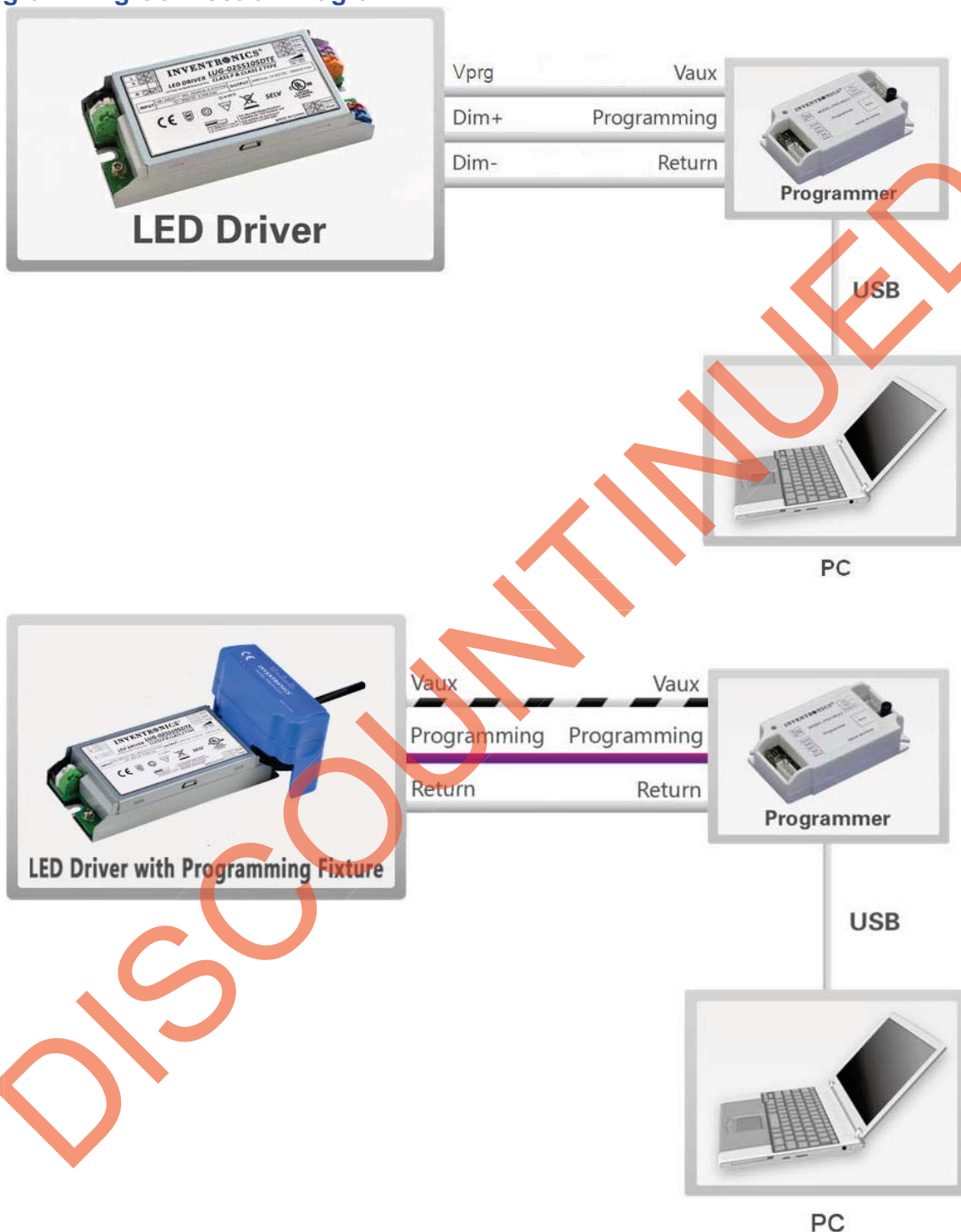


Note: The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.

Wire Connection Diagram



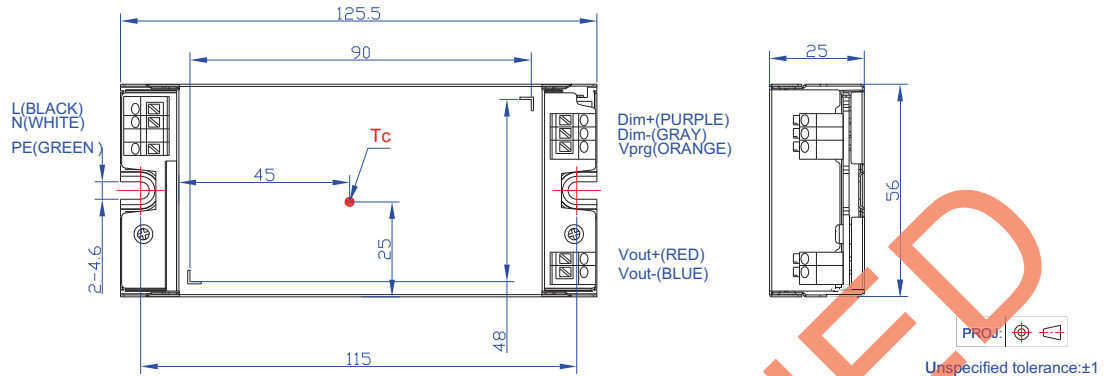
Programming Connection Diagram



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
2017-08-07	A	Datasheet Release	/	/
2018-03-05	B	Programming Connection Diagram	/	Updated
2018-11-02	C	Note of Dimming Specifications - Minimum Output Current	$350\text{mA} \leq I_{\text{Oset}} \leq 1050\text{mA}$	$500\text{mA} \leq I_{\text{Oset}} \leq 1050\text{mA}$
		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.