Features

- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Programmability
- Isolated 1-8V/10V PWM/3-Timer-Modes Dimmable
- Adjustable Dimming Curve
- Override Dimming
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OVP, SCP, OTP
- IP66 and UL Dry/Damp Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5 Years Warranty

c UL us LISTED (LED DRIVER) E328335

Description

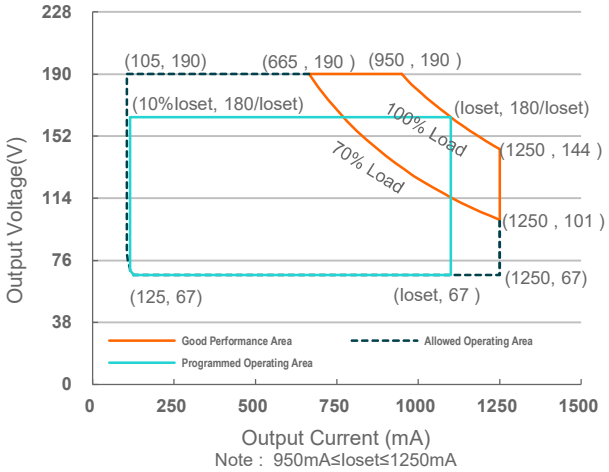
The *EUM-180SxxxDF* series is a 180W, constant-current, programmable IP66 LED driver that operates from 90-305Vac input with excellent power factor. It is created for many lighting applications including high bay, high mast, and roadway, etc. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.

Models

Adjustable Output Current Range(mA)	Full-Power Current Range (mA)(1)	Default Output Current (mA)	Output Voltage Range(Vdc)	Max. Output Power(W)	Typical Efficiency(2)	Typical Power Factor		Model Number(3)
						120Vac	220Vac	
105-1250	950-1250	1050	67-190	180	93.0%	0.99	0.96	EUM-180S125DF

Notes: (1) Output current range with constant power at 180W.
(2) Measured at 100% load and 220Vac input (see below “General Specifications” for details).
(3) Certified input voltage range: 100-277Vac.

I-V Operation Area



Note : 950mA≤Ioset≤1250mA

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	
Input DC Voltage	127 Vdc	-	300 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL 8750; 277Vac/60Hz
Input AC Current	-	1.65 A	-	Measured at 120Vac input, 100%Load and 63°C ambient temperature
	-	0.72 A	-	Measured at 277Vac input, 100%Load and 63°C ambient temperature
Inrush Current(I^2t)	-	-	4.22 A^2s	At 220Vac input, 25°C cold start, duration=848 μs, 10%Ipk-10%Ipk.
PF	0.9	-	-	At 100-277Vac, 50-60Hz, 70%-100% Load (126-180W)
THD	-	-	20%	
THD	-	-	10%	At 220-240Vac, 50-60Hz, 80%-100% Load (144-180W)

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Ioset	-	5%Ioset	At 100% load condition
Output Current Setting(Ioset) Range EUM-180S125DF	105 mA	-	1250 mA	
Output Current Setting Range with Constant Power EUM-180S125DF	950 mA	-	1250 mA	
Total Output Current Ripple (pk-pk)	-	5%Iomax	10%Iomax	At 100% load condition. 20 MHz BW

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Output Current Ripple at < 200 Hz (pk-pk)	-	2%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 EUM-180S125DF	- -	- -	 210 V	
Line Regulation	-	-	±0.5%	Measured at 100% load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	0.5 s	Measured at 120-277Vac input, 65%-100% Load
Temperature Coefficient of Ioset	-	0.03%/°C	-	Case temperature = 0°C ~Tc max

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUM-180S125DF Io=950 mA Io=1250 mA	 89.0% 89.0%	 91.0% 91.0%	 - -	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: EUM-180S125DF Io=950 mA Io=1250 mA	 91.0% 91.0%	 93.0% 93.0%	 - -	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 277 Vac input: EUM-180S125DF Io=950 mA Io=1250 mA	 91.5% 91.5%	 93.5% 93.5%	 - -	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	-	267,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	109,000 Hours	-	Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+80°C	Case temperature for 5 years warranty Humidity: 10%RH to 95%RH
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 95%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	 6.73 × 2.36 × 1.48 171 × 60 × 37.6			With mounting ear 9.47 × 2.36 × 1.48 240.5 × 60 × 37.6
Net Weight	-	785 g	-	

Dimming Specifications

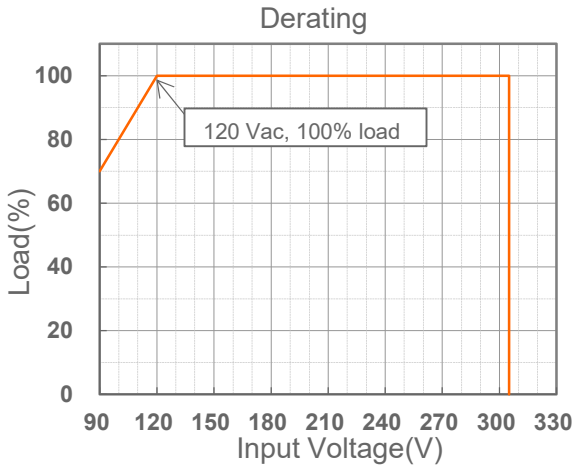
Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+)Pin	200 μA	300 μA	450 μA	Vdim(+) = 0 V
Dimming Output Range	10%Ioset	-	Ioset	950 mA ≤ Ioset ≤ 1250 mA
	105 mA	-	Ioset	105 mA ≤ Ioset ＜ 950 mA
Recommended Dimming Range for 1-8V	1 V	-	8 V	Default 1-8V dimming mode with positive logic.
PWM_in High Level	-	10V	-	
PWM_in Low Level	-	0V	-	
PWM_in Frequency Range	200 Hz	-	2 KHz	
PWM_in Duty Cycle	0%	-	100%	

Safety &EMC Compliance

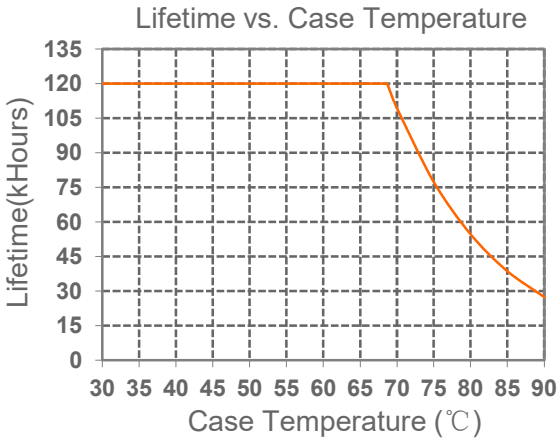
Safety Category	Standard
UL/CUL	UL 8750,CAN/CSA-C22.2 No. 250.13
EMI Standards	**Notes**
FCC Part 15(1)	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired Operation.

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.

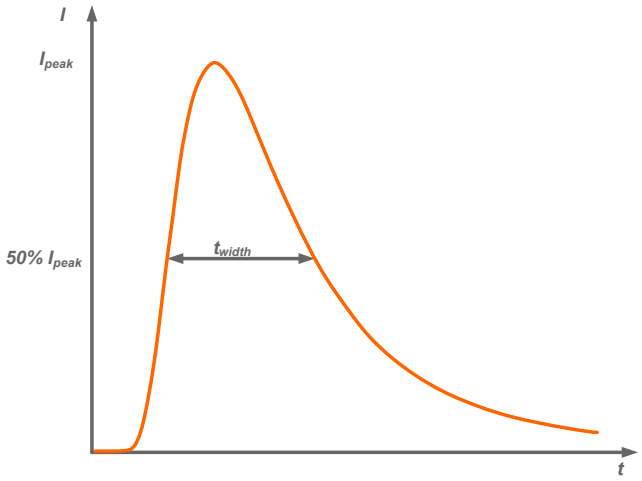
Derating



Lifetime vs. Case Temperature



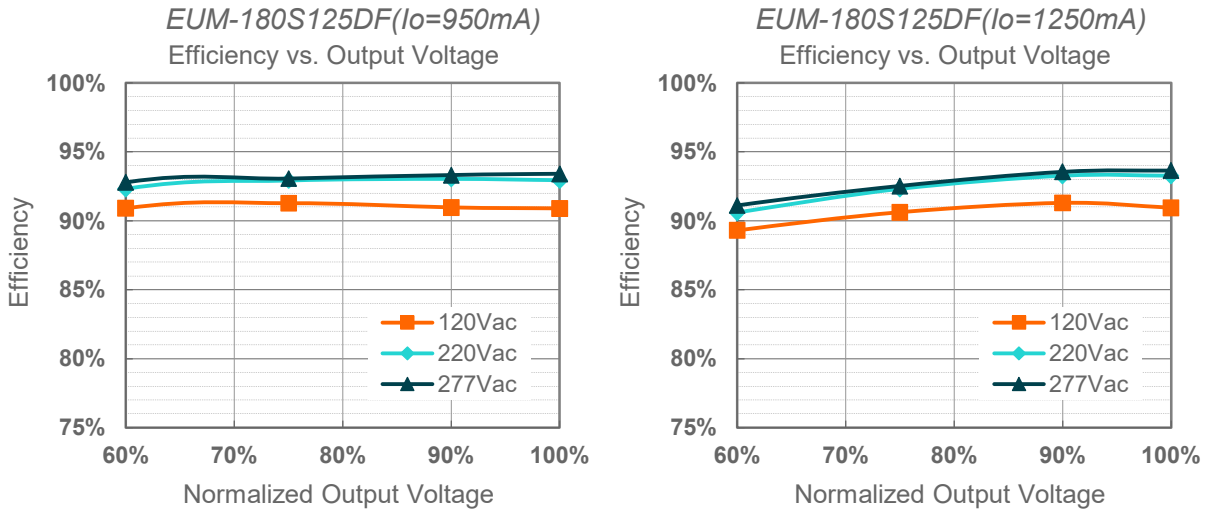
Inrush Current Waveform



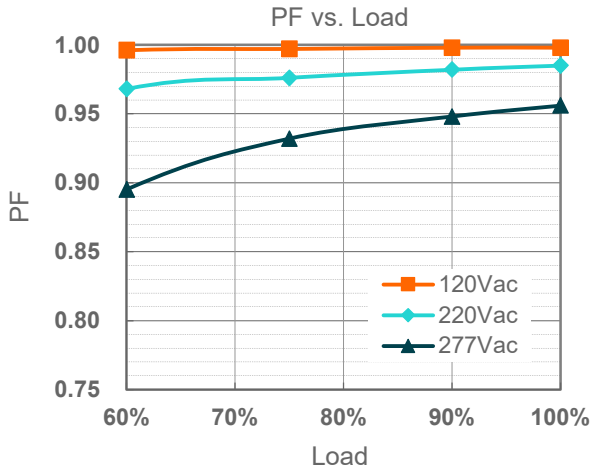
Input AC Voltage	I_{peak}	t_{width} (@ 50% Ipeak)
120Vac	40.4A	352μs
220Vac	81.5A	336μs
277Vac	106A	328μs

MCB	Tripping Curves	B	B	B	B	C	C	C	C
	Rated Current	10A	16A	20A	25A	10A	16A	20A	25A
The Number of LED Driver can be Configured	120Vac	3	5	7	9	4	6	8	10
	220Vac	2	4	5	7	4	7	9	12
	277Vac	2	3	4	5	3	5	7	9

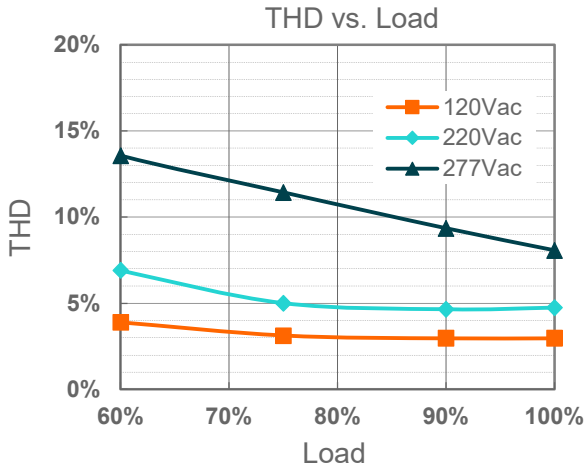
Efficiency vs. Load



Power Factor



Total Harmonic Distortion



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

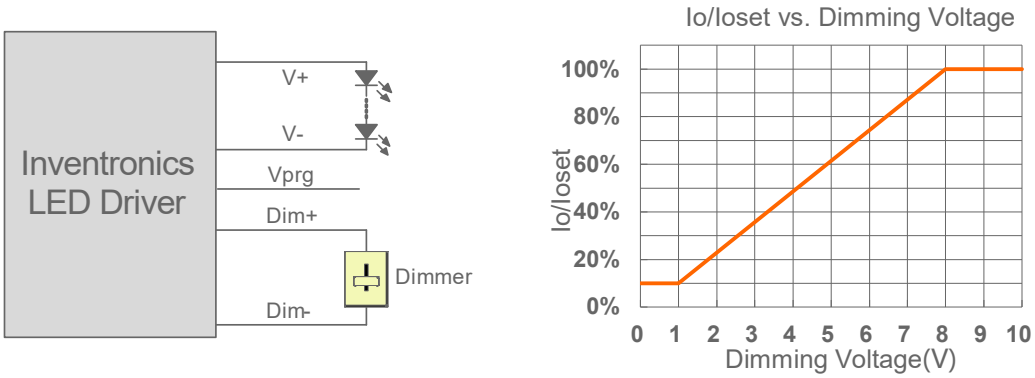
Protection Functions

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
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 Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

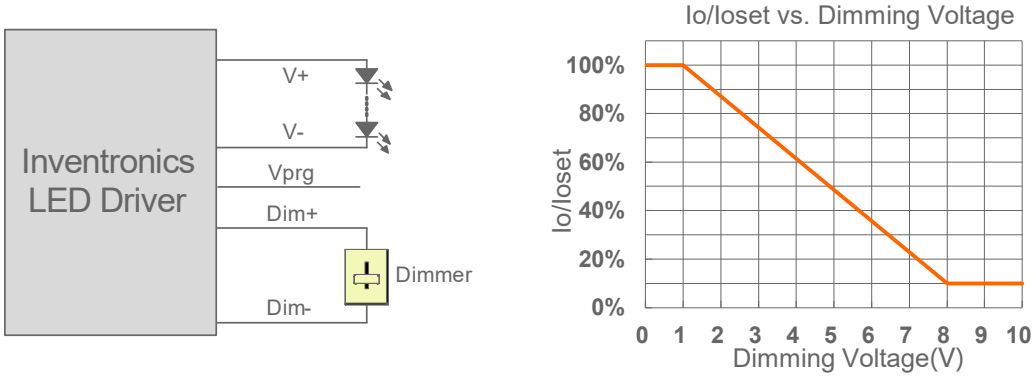
Dimming

● 1-8V Dimming

The recommended implementation of the dimming control is provided below.



Implementation 1: Positive logic



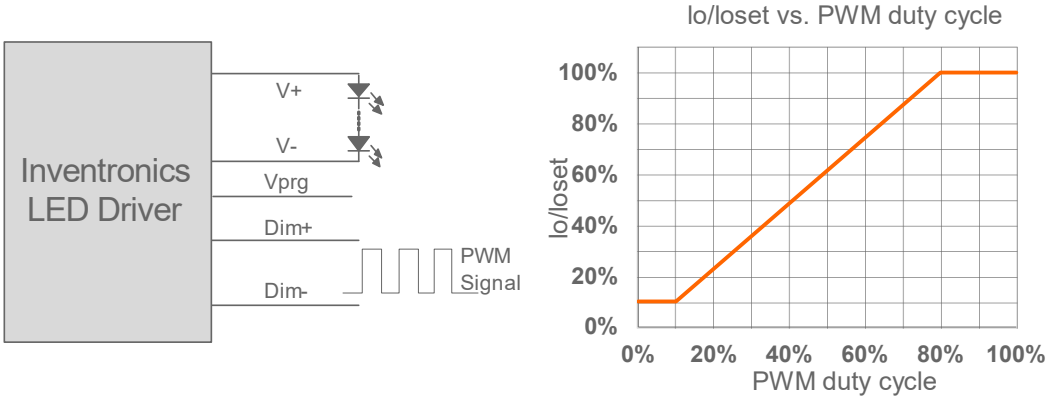
Implementation 2: Negative logic

Notes:

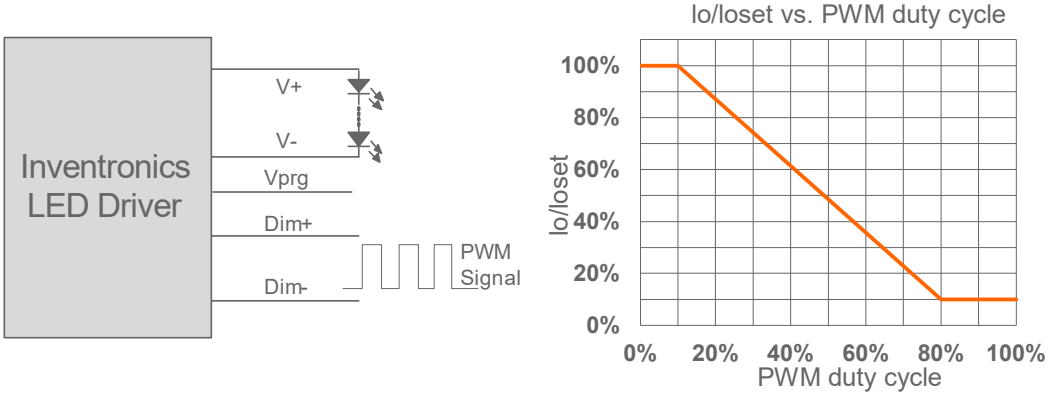
1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. The dimmer can also be replaced by an active 1-8V voltage source signal or passive components like zener.
3. When 1-8V negative logic dimming mode and Dim+ is open, the driver will output minimum current.

10V PWM Dimming

The recommended implementation of the dimming control is provided below.



Implementation 3: Positive logic



Implementation 4: Negative logic

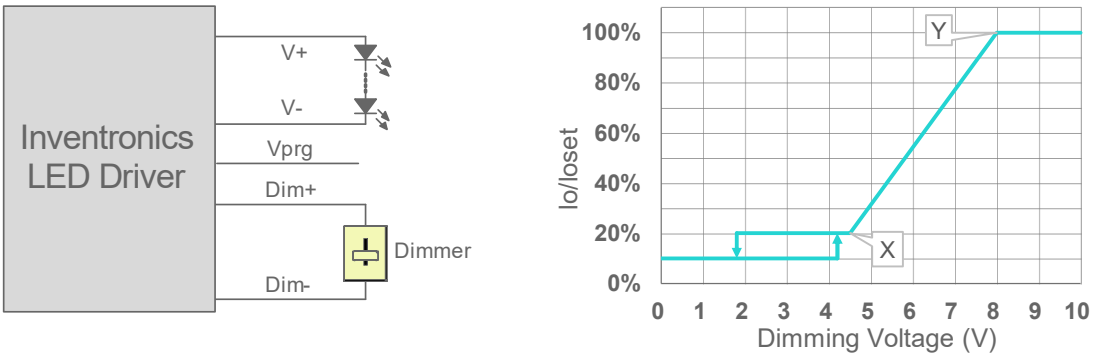
Notes:

1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. When 10V PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

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

Adjustable Dimming Curve

1-8V dimming curve can be set as corresponding dimming voltage by Inventronics Multi Programmer. Take the positive logic dimming mode as an example, the recommended implementation of the dimming control is provided below.



Implementation 5: Positive logic

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 1-8V voltage source signal or passive components like zener.
3. When dimming voltage X point is set to be smaller than Y point, the dimming curve is positive logic; conversely, when X point is set to be bigger than Y point, the dimming curve is negative logic.
4. For best dimming accuracy, the difference between X point and Y point is advised more than 4V.
5. Dimming off voltage Adjustable.

Time Dimming

Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

- **Self Adapting-Midnight**: Automatically adjusts the dimming curve based on the on-time of past two days (if difference <15 minutes), assuming that the center point of the dimming curve is midnight local time.
- **Self Adapting-Percentage**: Automatically adjusts the on-time of each step by a constant percentage = (actual on-time for the past 2 days if difference <15 min) / (programmed on-time from the dimming curve).
- **Traditional Timer**: Follows the programmed timing curve after power on with no changes.
- **Override Timer**: When the integrated timer is enabled, it is possible to override the dimming mode from 'Timer' into '1-8V' by applying a voltage of 1-8V between DIM+ and DIM-. Once a voltage ⩽ 10.5 Vdc is detected the output current will coincide with the dimming voltage. By opening the DIM+ and DIM- circuitry, the LED driver will switch again to timer mode. During override, our product continues to count while the timer is being overridden. Once the override is removed, the output current returns to the same point in its timer cycle.

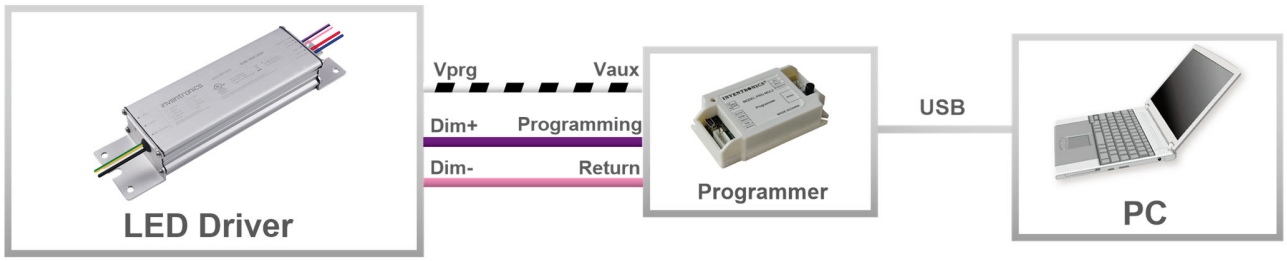
Output Lumen Compensation

Output Lumen Compensation (OLC) may be used to maintain constant light output over the life of the LEDs by driving them at a reduced current when new, then gradually increasing the drive current over time to counteract LED lumen degradation.

End Of Life

End-of-Life (EOL) is providing a visual notification to a user that the LED module has reached the end of manufacturer-specified life and that the replacement is recommended. Once active, an indication is given at each power-up of the driver, which the driver indicates this through a lower light output during the first 1 minute before normal operation is continued.

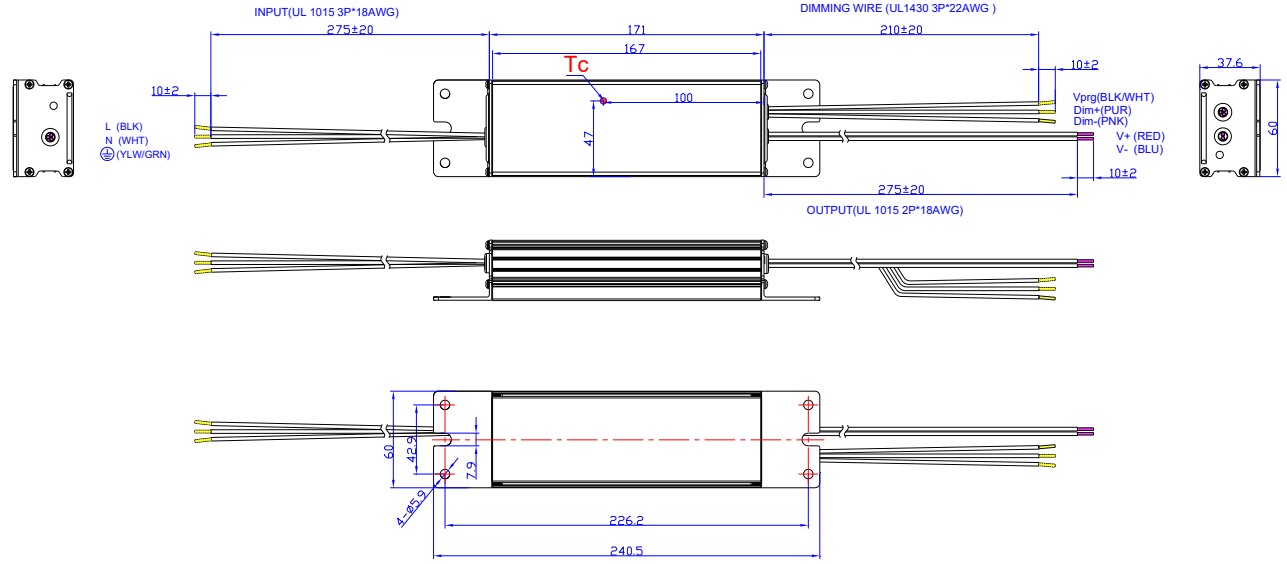
Programming Connection Diagram



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

- **Please refer to PRG-MUL2 (Programmer) datasheet for details.**

Mechanical Outline



PROJ:

Unspecified tolerance:±1

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.

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

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2025-08-01	A	Datasheet Release	/	/
2025-08-20	B	Models	/	Updated
		Output Specifications	/	Updated
		General Specifications	/	Updated
		Efficiency vs. Load	/	Updated