Features

- Ultra High Efficiency (Up to 91.0%)
- Full Power at Wide Output Current Range (Constant Power)
- Thermal Sensing and Protection for LED Module
- 0-10V/PWM/Timer Dimmable (3 Ways of Timers)
- Dim-to-Off with Standby Power ≤ 0.5 W
- Output Lumen Compensation
- Input Surge Protection: 6kV line-line, 10kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp Location
- Class 2 & SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location

Description

The *EUD-075SxxxDT* series is a 75W, constant-current, programmable outdoor LED driver that operates from 90-305 Vac input with excellent power factor. Created for low bay, tunnel and street lights, it provides a dim-to-off mode with low standby power. 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

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	
45-700mA	450-700mA	530 mA	90~305 Vac/ 100~300 Vdc	54~167Vdc	75 W	91.0%	0.99	0.96	EUD-075S070DT
70-1050mA	700-1050mA	700 mA	90~305 Vac/ 100~300 Vdc	36~107Vdc	75 W	91.0%	0.99	0.96	EUD-075S105DT(4)
119-1750mA	1190-1750mA	1400 mA	90~305 Vac/ 100~300 Vdc	22 ~ 63Vdc	75 W	90.5%	0.99	0.96	EUD-075S175DT(4)
192-2800mA	1920-2800mA	2100 mA	90~305 Vac/ 100~300 Vdc	14 ~ 39Vdc	75 W	89.5%	0.99	0.96	EUD-075S280DT(5)

Notes: (1) Output current range with constant power at 75W

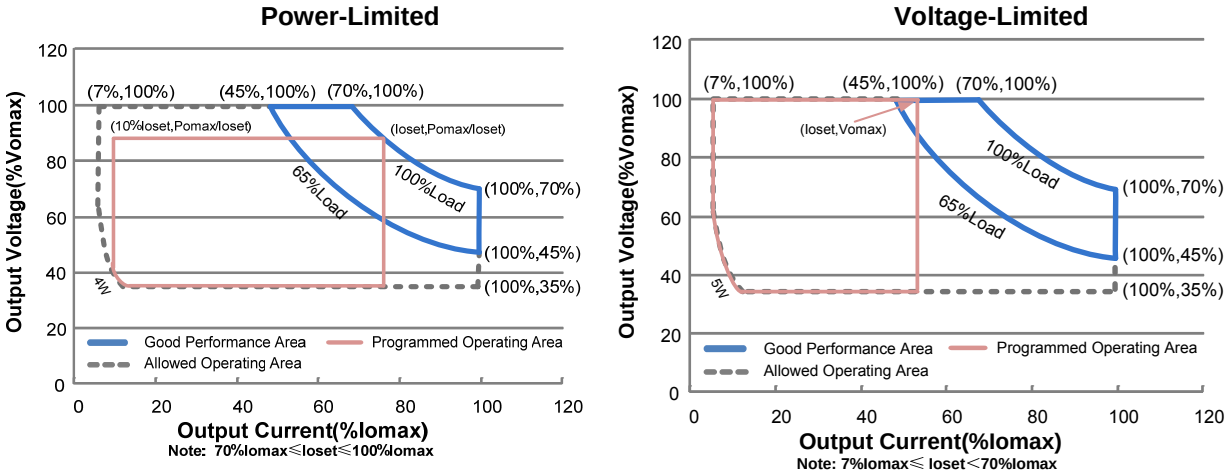
(2) UL, FCC certified input voltage range: 100-277Vac or 100-300Vdc; other certified input voltage range except UL & FCC: 100-240Vac or 100-250Vdc (except KS).

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

(4) SELV Output.

(5) Class 2 & SELV Output.

I-V Operating Area



Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	100-300Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	1.05 A	Measured at full load and 100 Vac input.
	-	-	0.48 A	Measured at full load and 220 Vac input.
Inrush Current(I^2t)	-	-	1.03 A^2s	At 220Vac input, 25°C cold start, duration=740 μs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-277Vac, 65%-100% Load (49-75W)
THD	-	-	20%	
THD	-	-	10%	At 220-240Vac, 50-60Hz, 75%-100% Load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Ioset	-	5%Ioset	At full load condition
Output Current Setting(Ioset) Range				
EUD-075S070DT	45 mA	-	700 mA	
EUD-075S105DT	70 mA	-	1050 mA	
EUD-075S175DT	119 mA	-	1750 mA	
EUD-075S280DT	192 mA	-	2800 mA	

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Output Current Setting Range with Constant Power EUD-075S070DT EUD-075S105DT EUD-075S175DT EUD-075S280DT	 450 mA 700 mA 1190 mA 1920 mA	 - - - -	 700 mA 1050 mA 1750 mA 2800 mA	
Total Output Current Ripple (pk-pk)	-	5%Iomax	10%Iomax	At full load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	1%Iomax	-	At full load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%Iomax	At full load condition
No Load Output Voltage EUD-075S070DT EUD-075S105DT EUD-075S175DT EUD-075S280DT	 - - - -	 - - - -	 190 V 120 V 71 V 45 V	
Line Regulation	-	-	±0.5%	Measured at full load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	1.0 s	Measured at 120Vac input, 65%-100% Load
	-	-	0.5 s	Measured at 220Vac input, 65%-100% Load
Temperature Coefficient of Ioset	-	-	0.03%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	10.8 V	12 V	13.2 V	
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is “Dim−“

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

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUD-075S070DT Io= 450 mA Io= 700 mA EUD-075S105DT Io= 700 mA Io=1050 mA EUD-075S175DT Io=1190 mA Io=1750 mA EUD-075S280DT Io=1920 mA Io=2800 mA	 86.5% 86.5% 86.5% 86.0% 86.5% 86.0% 86.0% 85.0%	 88.5% 88.5% 88.5% 88.0% 88.5% 88.0% 88.0% 87.0%	 - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 220 Vac input: EUD-075S070DT Io= 450 mA Io= 700 mA EUD-075S105DT Io= 700 mA Io=1050 mA EUD-075S175DT Io=1190 mA Io=1750 mA EUD-075S280DT Io=1920 mA Io=2800 mA	 89.0% 88.5% 89.0% 88.5% 88.5% 88.0% 87.5% 87.0%	 91.0% 90.5% 91.0% 90.5% 90.5% 90.0% 89.5% 89.0%	 - - - - - - - -	Measured at full 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: EUD-075S070DT Io= 450 mA Io= 700 mA EUD-075S105DT Io= 700 mA Io=1050 mA EUD-075S175DT Io=1190 mA Io=1750 mA EUD-075S280DT Io=1920 mA Io=2800 mA	 89.0% 89.0% 89.0% 89.0% 89.0% 88.0% 88.0% 87.0%	 91.0% 91.0% 91.0% 91.0% 91.0% 90.0% 90.0% 89.0%	 - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Standby power	-	-	0.5 W	Measured at 230Vac/50Hz; Dimming off
MTBF	-	219,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	98,000 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	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	6.10 × 2.66 × 1.44 155 × 67.5 × 36.5			With mounting ear 7.17 × 2.66 × 1.44 182 × 67.5 × 36.5
Net Weight	-	820 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	EUD-075S070DT EUD-075S105DT EUD-075S175DT EUD-075S280DT	10%Ioset	-	Ioset	450mA ⩽ Ioset ⩽ 700mA 700mA ⩽ Ioset ⩽ 1050mA 1190mA ⩽ Ioset ⩽ 1750mA 1920mA ⩽ Ioset ⩽ 2800mA
	EUD-075S070DT EUD-075S105DT EUD-075S175DT EUD-075S280DT	45mA 70mA 119mA 192mA	-	Ioset	45mA ⩽ Ioset < 450mA 70mA ⩽ Ioset < 700mA 119mA ⩽ Ioset < 1190mA 192mA ⩽ Ioset < 1920mA
Recommended Dimming Input Range		0 V	-	10 V	Default 0-10V dimming mode.
Dim off Voltage		0.35 V	0.5 V	0.65 V	
Dim on Voltage		0.55 V	0.7 V	0.85 V	
Hysteresis		-	0.2 V	-	
PWM_in High Level		3 V	-	10 V	Dimming mode set to PWM in PC interface.
PWM_in Low Level		-0.3 V	-	0.6 V	
PWM_in Frequency Range		200 Hz	-	3 KHz	
PWM_in Duty Cycle		1%	-	99%	
PWM Dimming off (Positive Logic)		2%	5%	8%	
PWM Dimming on (Positive Logic)		4%	7%	10%	
PWM Dimming off (Negative Logic)		92%	95%	98%	
PWM Dimming on (Negative Logic)		90%	93%	96%	
Hysteresis		-	2%	-	

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

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13-12
CE	EN 61347-1, EN61347-2-13
EMI Standards	**Notes**
EN 55015(1)	Conducted emission Test &Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker

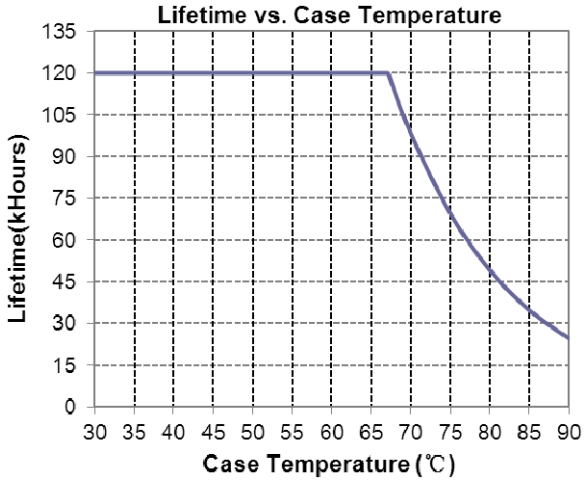
Safety & EMC Compliance (Continued)

EMI Standards	Notes
FCC Part 15(1)	ANSI C63.4:2009 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 6 kV, line to earth 10 kV(2)
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.

(2)To perform electric strength (hi-pot) testing, the “GDT ground disconnect” (nut and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

Lifetime vs. Case Temperature



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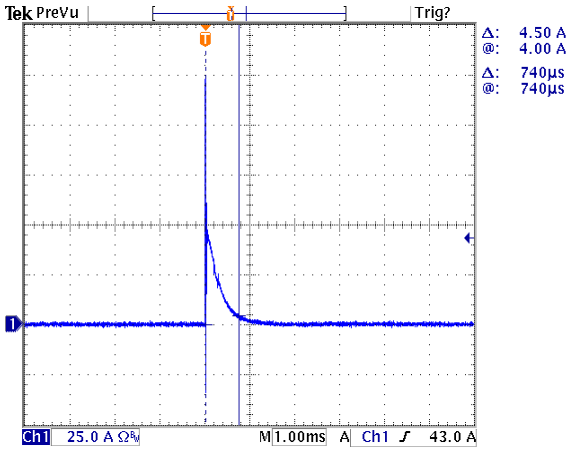
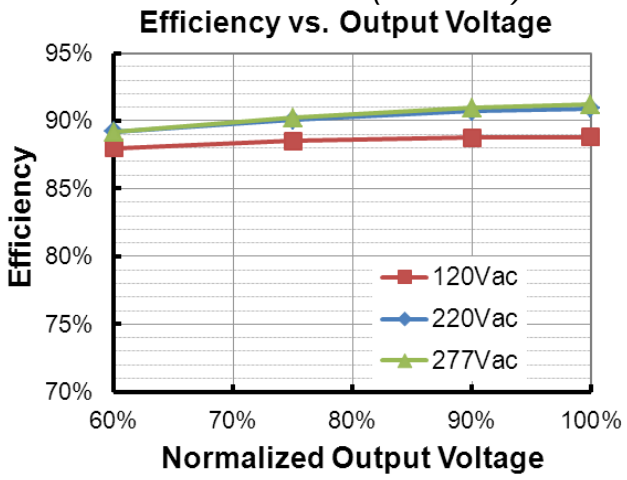
Inrush Current Waveform

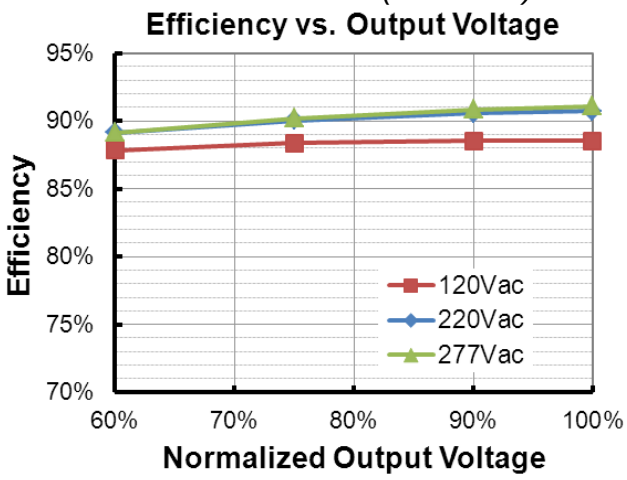


Efficiency vs. Load

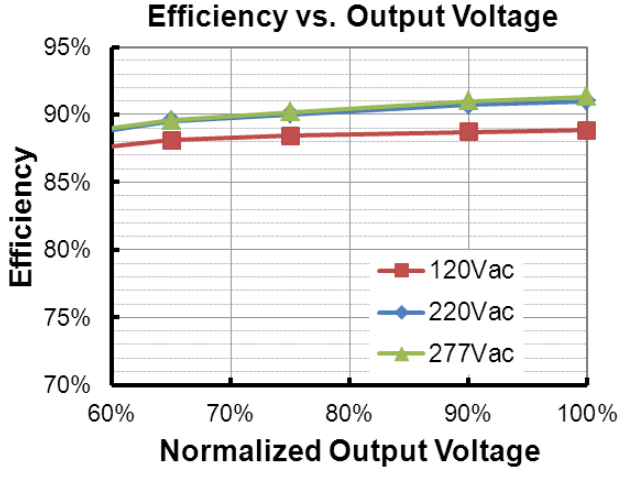
EUD-075S070DT(Io=450mA)



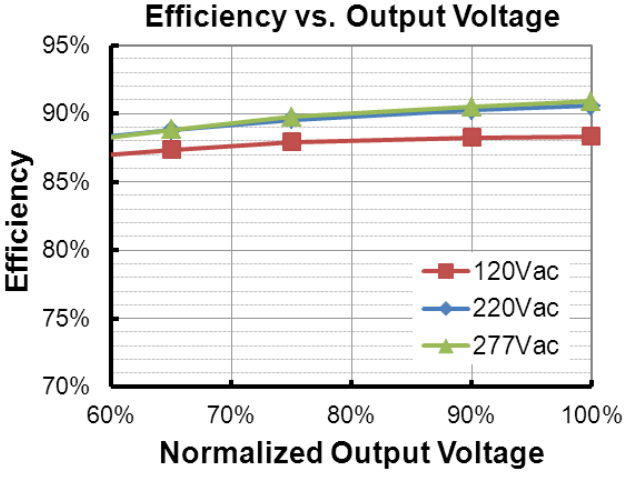
EUD-075S070DT(Io=700mA)



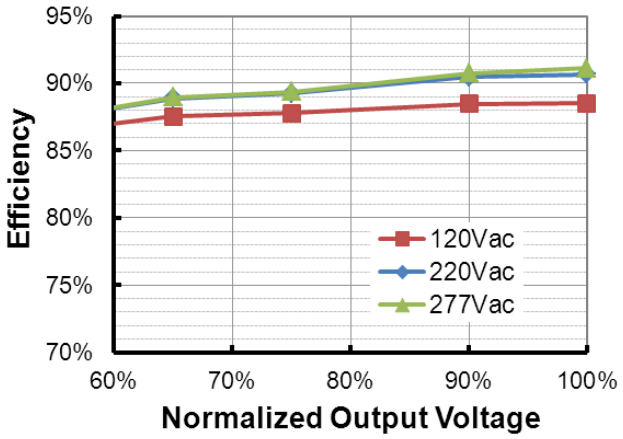
EUD-075S105DT(Io=700mA)



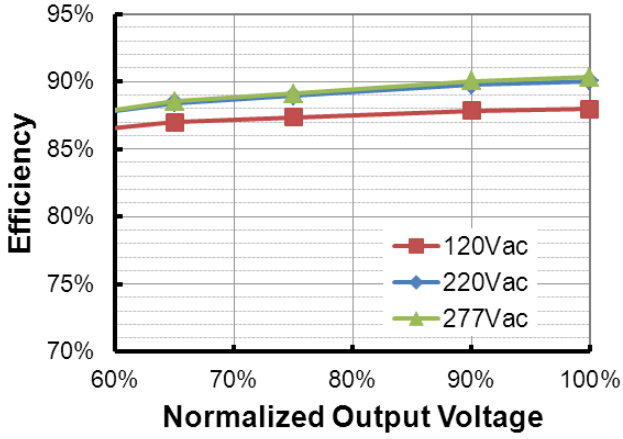
EUD-075S105DT(Io=1050mA)



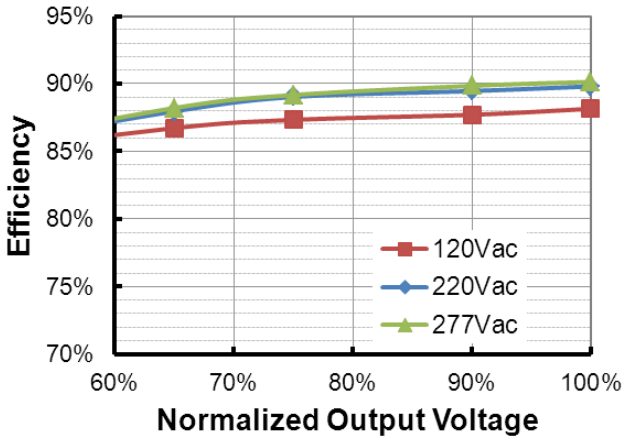
EUD-075S175DT(Io=1190mA)



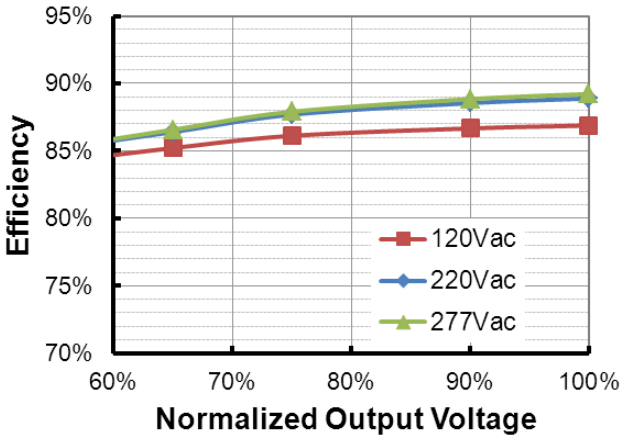
EUD-075S175DT(Io=1750mA)



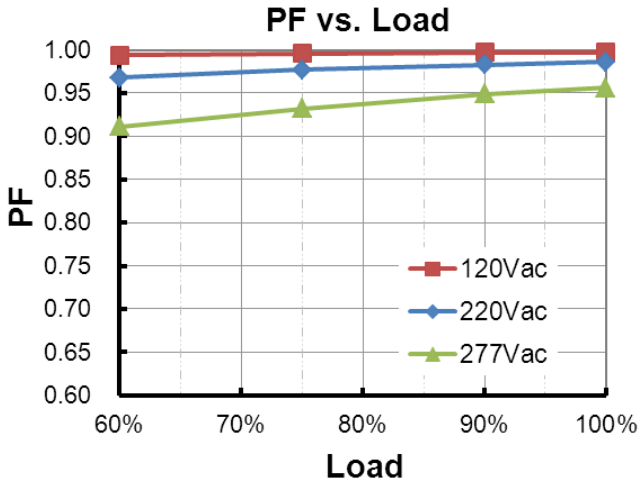
EUD-075S280DT(Io=1920mA)



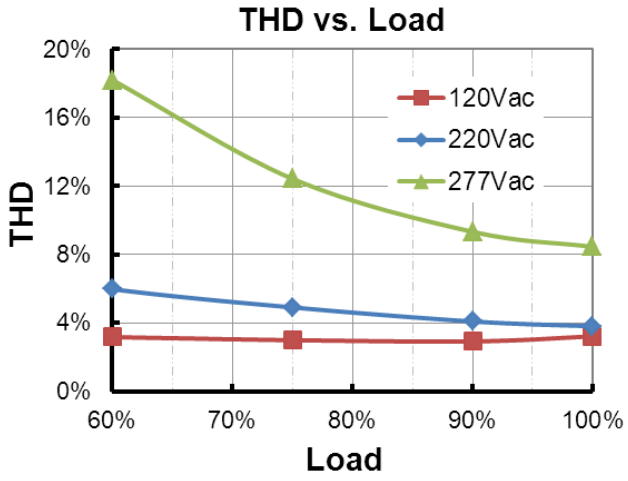
EUD-075S280DT(Io=2800mA)



Power Factor



Total Harmonic Distortion



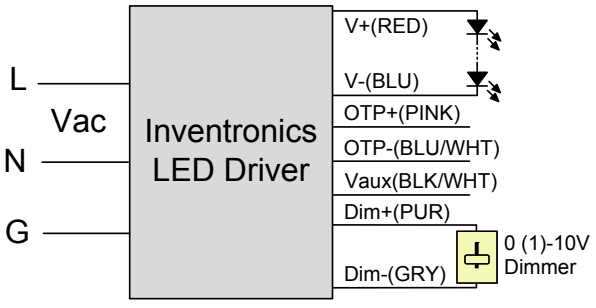
Protection Functions

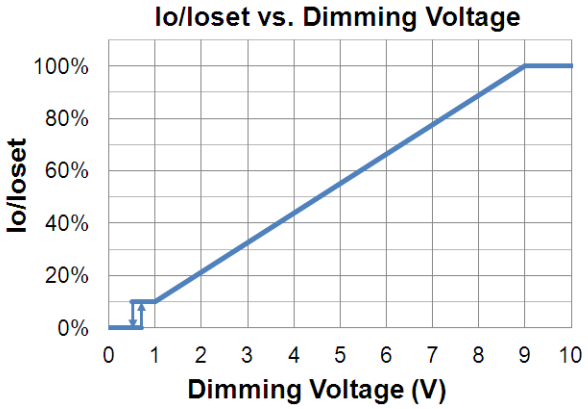
Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

Dimming

- **0-10V Dimming**

The recommended implementation of the dimming control is provided below.



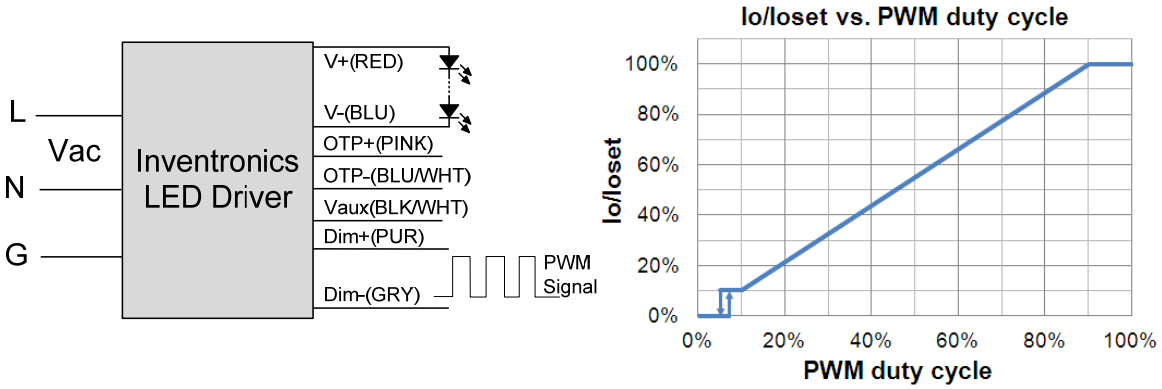


Implementation 1: DC Input

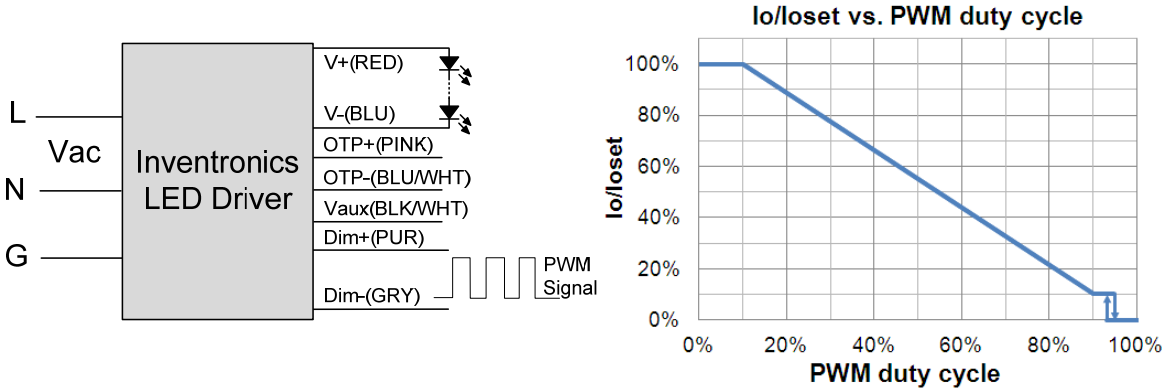
Notes:

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

- **PWM Dimming**



Implementation 2: Positive logic



Implementation 3: Negative logic

- **Time Dimming**

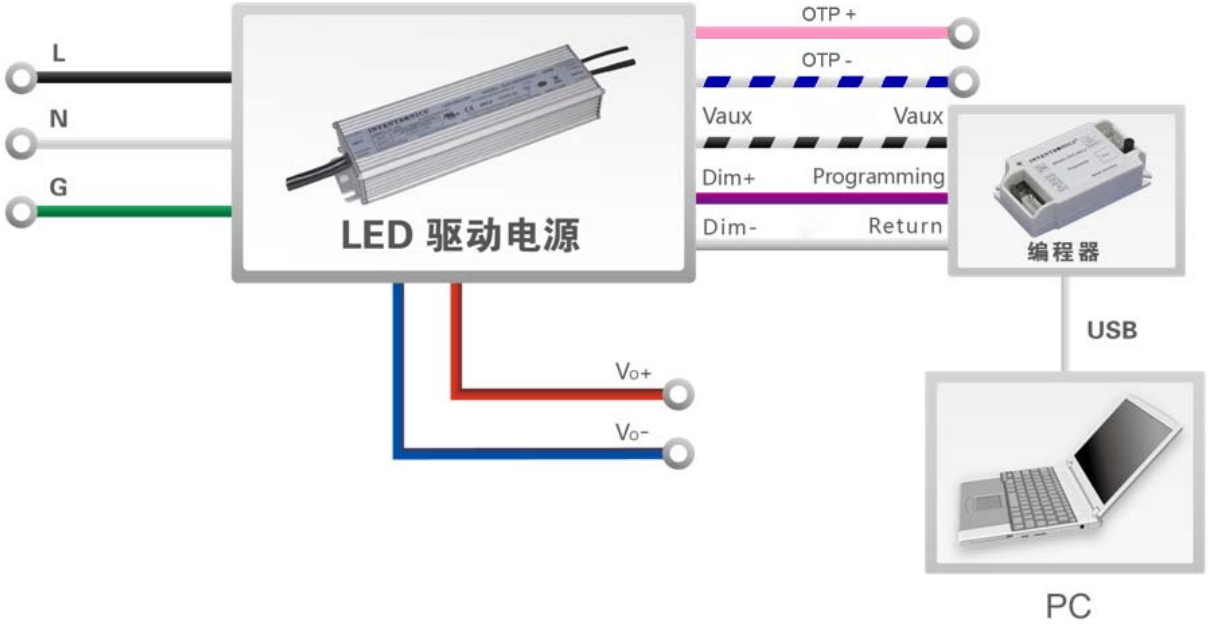
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

- **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.

- **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.

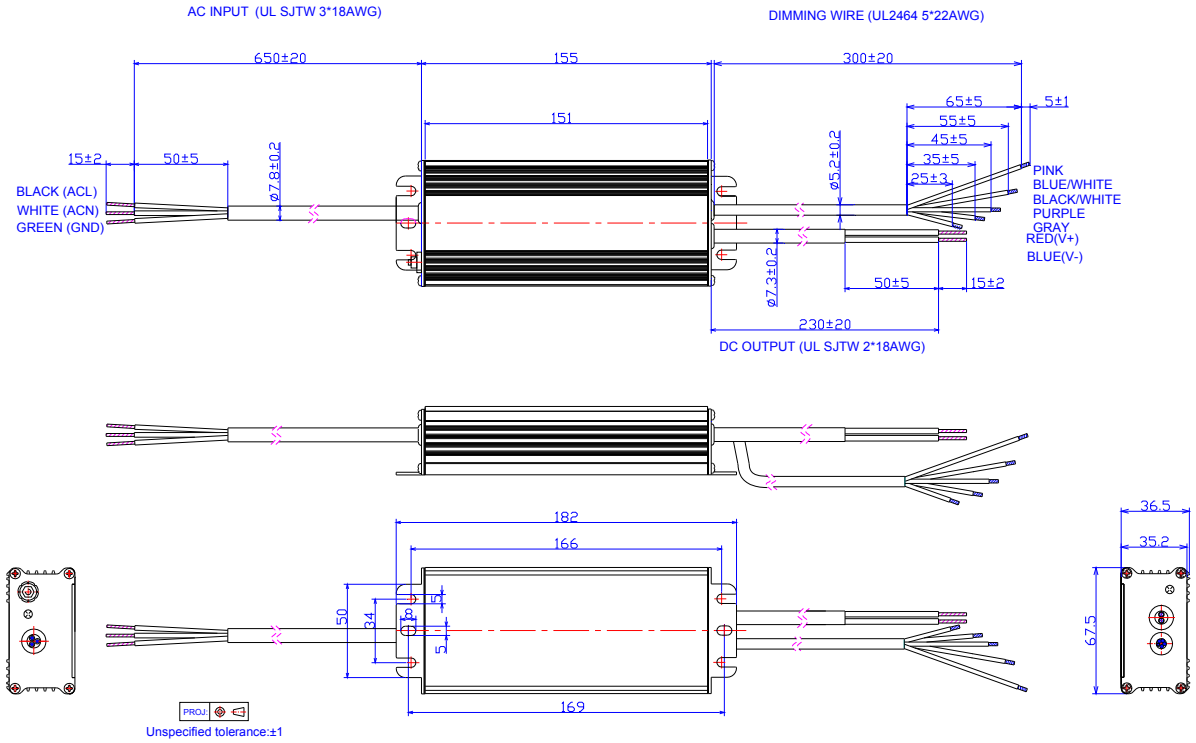
Programming Connection Diagram



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

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

Mechanical Outline



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.