Features

- 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 Timer Modes)
- Dim-to-Off with Standby Power ≤ 0.5 W
- Always-on Auxiliary Power: 12Vdc, 200mA (Transient Peak Current up to 400mA)
- Output Lumen Compensation
- Input Surge Protection: 6kV line-line, 10kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location
- Class 2 & SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location
- Class P, UL Listed Versions Available (See Note 6)
- 7 Years Warranty

Description

The *EUD-075SxxxDT* series is a 75W, constant-current, programmable 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.

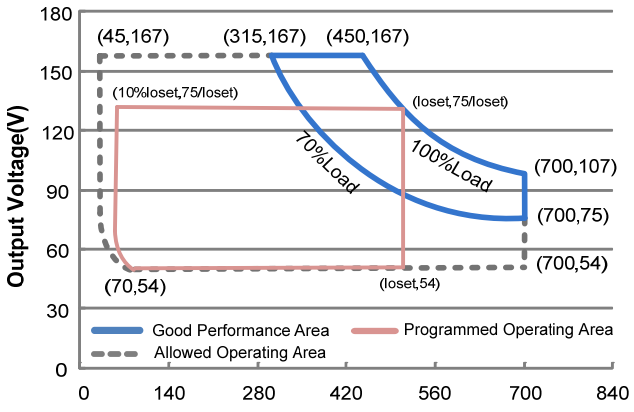
Models

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	
45-700mA	450-700mA	530 mA	90~305 Vac/ 127~300 Vdc	54~167Vdc	75 W	91.0%	0.99	0.96	EUD-075S070DT
70-1050mA	700-1050mA	700 mA	90~305 Vac/ 127~300 Vdc	36~107Vdc	75 W	91.0%	0.99	0.96	EUD-075S105DT(4)
119-1750mA	1190-1750mA	1400 mA	90~305 Vac/ 127~300 Vdc	22 ~ 63Vdc	75 W	90.5%	0.99	0.96	EUD-075S175DT(4)
140-1800mA	1400-1800mA	1400 mA	90~305 Vac/ 127~300 Vdc	22 ~ 54Vdc	75 W	90.5%	0.99	0.96	EUD-075S180DT(5)
192-2800mA	1920-2800mA	2100 mA	90~305 Vac/ 127~300 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) Certified input voltage range: UL, FCC 100-277Vac or 127-300Vdc; otherwise 100-240Vac or 127-250Vdc (except KS)
(3) Measured at full load and 220Vac input (see below "General Specifications" for details).
(4) SELV Output.
(5) Class 2 & SELV Output.
(6) Standard part UL Type TL. For UL Listed Class P models add suffix -00C0.

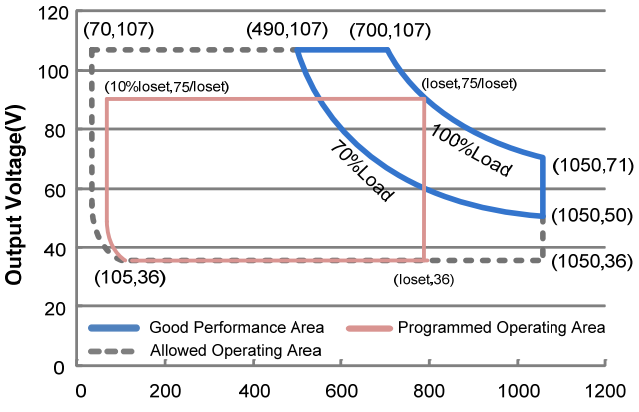
I-V Operating Area

EUD-075S070DT



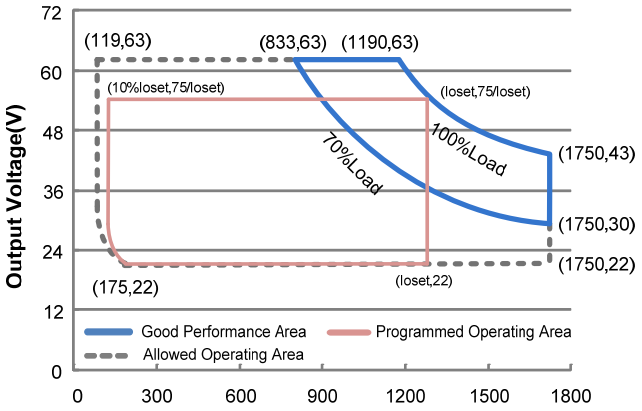
Note: 450mA≤Ioset≤700mA

EUD-075S105DT



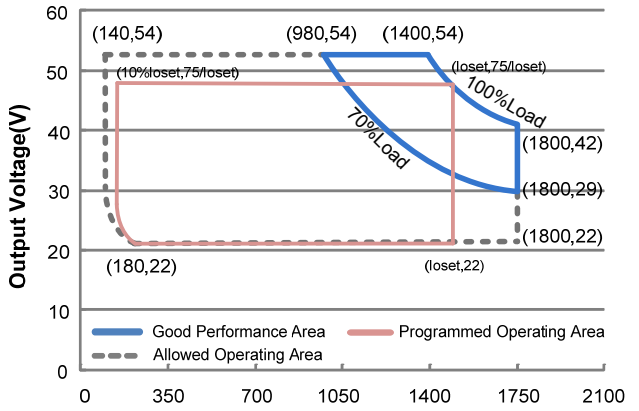
Note: 700mA≤Ioset≤1050mA

EUD-075S175DT



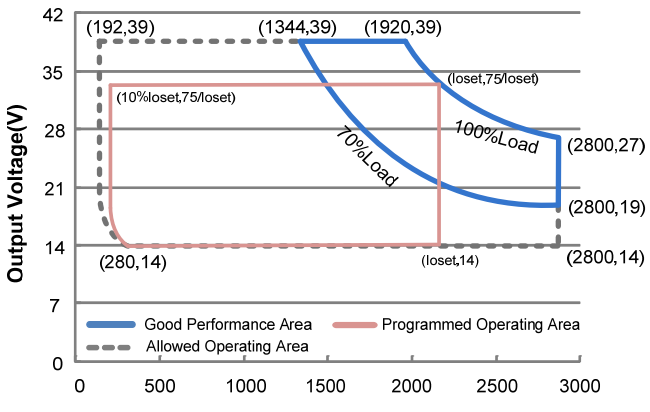
Note: 1190mA≤Ioset≤1750mA

EUD-075S180DT



Note: 1400mA≤Ioset≤1800mA

EUD-075S280DT



Note: 1920mA≤Ioset≤2800mA

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

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127~300 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	-	-	1.02 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, 50-60Hz, 70%-100% Load (52.5-75W)
THD	-	-	20%	
THD	-	-	10%	At 220-240Vac, 50-60Hz, 75%-100% Load (56.25-75W)

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-075S180DT	140 mA	-	1800 mA	
EUD-075S280DT	192 mA	-	2800 mA	
Output Current Setting Range with Constant Power				
EUD-075S070DT	450 mA	-	700 mA	
EUD-075S105DT	700 mA	-	1050 mA	
EUD-075S175DT	1190 mA	-	1750 mA	
EUD-075S180DT	1400 mA	-	1800 mA	
EUD-075S280DT	1920 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	-	-	190 V	
EUD-075S105DT	-	-	120 V	
EUD-075S175DT	-	-	71 V	
EUD-075S180DT	-	-	59 V	
EUD-075S280DT	-	-	45 V	
Line Regulation	-	-	±0.5%	Measured at full load
Load Regulation	-	-	±1.5%	

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Turn-on Delay Time	-	-	1.0 s	Measured at 120Vac input, 70%-100% Load
	-	-	0.5 s	Measured at 220Vac input, 70%-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−"
12V Auxiliary Output Transient Peak Current	-	-	400 mA	400mA peak for a maximum duration of 300ms in a 2s period during which time the average should not exceed 200mA.

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	86.5%	88.5%	-	
Io= 700 mA	86.5%	88.5%	-	
EUD-075S105DT				
Io= 700 mA	86.5%	88.5%	-	
Io=1050 mA	86.0%	88.0%	-	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
EUD-075S175DT				
Io=1190 mA	86.5%	88.5%	-	
Io=1750 mA	86.0%	88.0%	-	
EUD-075S180DT				
Io=1400 mA	86.5%	88.5%	-	
Io=1800 mA	86.0%	88.0%	-	
EUD-075S280DT				
Io=1920 mA	86.0%	88.0%	-	
Io=2800 mA	85.0%	87.0%	-	
Efficiency at 220 Vac input:				
EUD-075S070DT				
Io= 450 mA	89.0%	91.0%	-	
Io= 700 mA	88.5%	90.5%	-	
EUD-075S105DT				
Io= 700 mA	89.0%	91.0%	-	
Io=1050 mA	88.5%	90.5%	-	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
EUD-075S175DT				
Io=1190 mA	88.5%	90.5%	-	
Io=1750 mA	88.0%	90.0%	-	
EUD-075S180DT				
Io=1400 mA	88.5%	90.5%	-	
Io=1800 mA	88.0%	90.0%	-	
EUD-075S280DT				
Io=1920 mA	87.5%	89.5%	-	
Io=2800 mA	87.0%	89.0%	-	

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
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-075S180DT Io=1400 mA Io=1800 mA EUD-075S280DT Io=1920 mA Io=2800 mA	 89.0% 89.0% 89.0% 89.0% 89.0% 88.0% 89.0% 88.0% 88.0% 87.0%	 91.0% 91.0% 91.0% 91.0% 91.0% 90.0% 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	-	+75°C	Case temperature for 7 years warranty. *Please see Inventronics Warranty Statement for complete details.*
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-075S180DT EUD-075S280DT	10%Ioset	-	Ioset	450mA ⩽ Ioset ⩽ 700mA 700mA ⩽ Ioset ⩽ 1050mA 1190mA ⩽ Ioset ⩽ 1750mA 1400mA ⩽ Ioset ⩽ 1800mA 1920mA ⩽ Ioset ⩽ 2800mA
	EUD-075S070DT EUD-075S105DT EUD-075S175DT EUD-075S180DT EUD-075S280DT	45mA 70mA 119mA 140mA 192mA	-	Ioset	45mA ⩽ Ioset < 450mA 70mA ⩽ Ioset < 700mA 119mA ⩽ Ioset < 1190mA 140mA ⩽ Ioset < 1400mA 192mA ⩽ Ioset < 1920mA

Dimming Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
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	UL 8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, 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
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

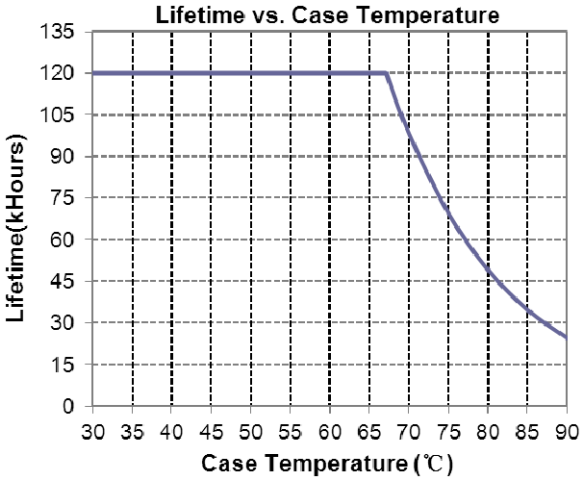
Safety & EMC Compliance (Continued)

EMS Standards	Notes
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

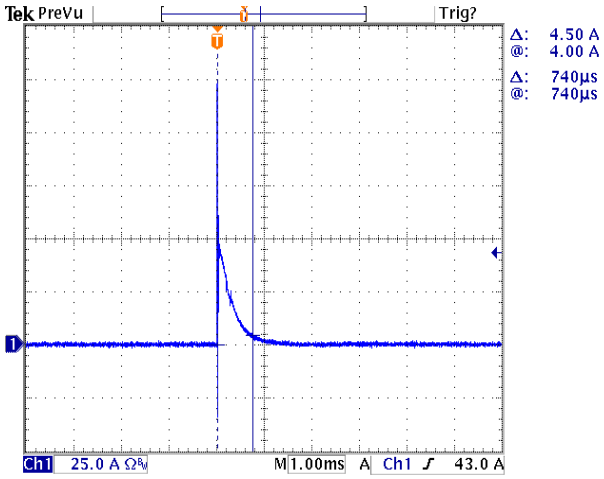
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(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

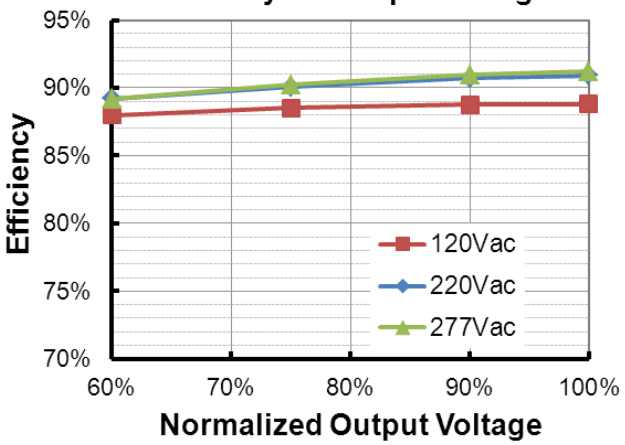


Inrush Current Waveform

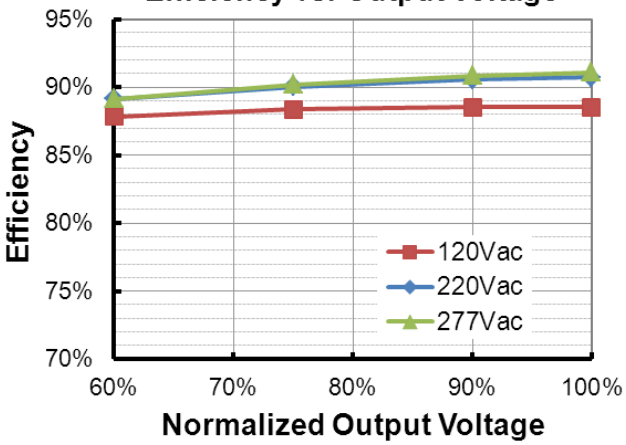


Efficiency vs. Load

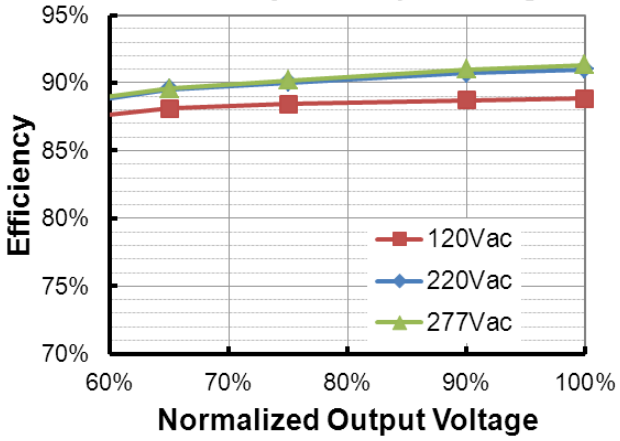
EUD-075S070DT(Io=450mA)



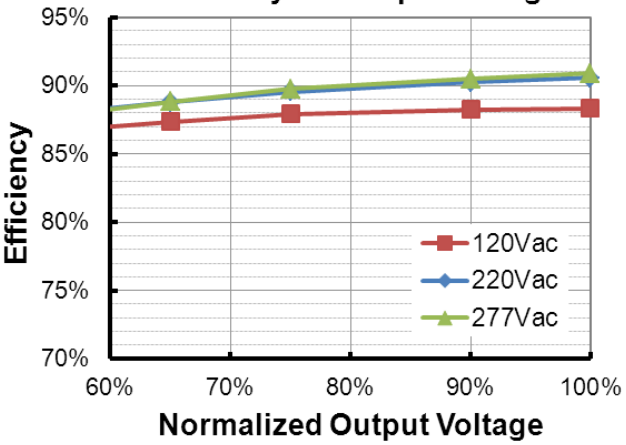
EUD-075S070DT(Io=700mA)



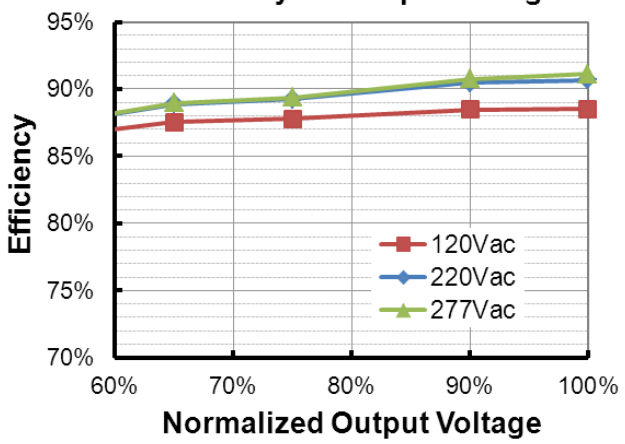
EUD-075S105DT(Io=700mA)



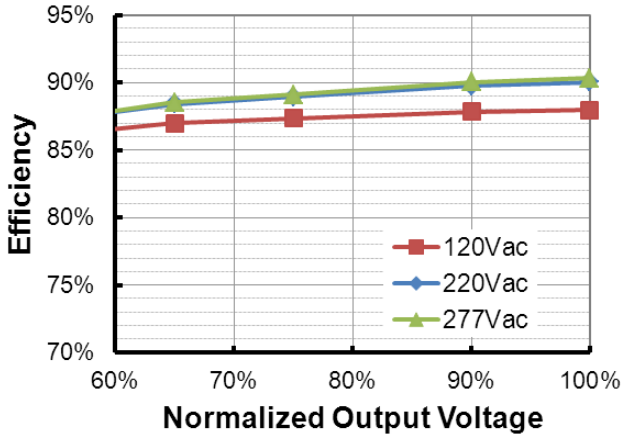
EUD-075S105DT(Io=1050mA)



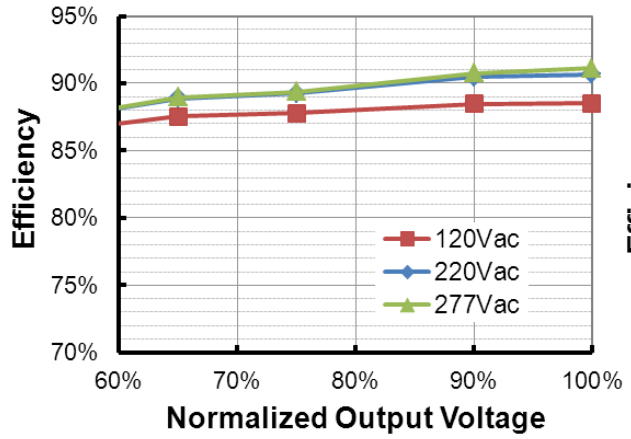
EUD-075S175DT(Io=1190mA)



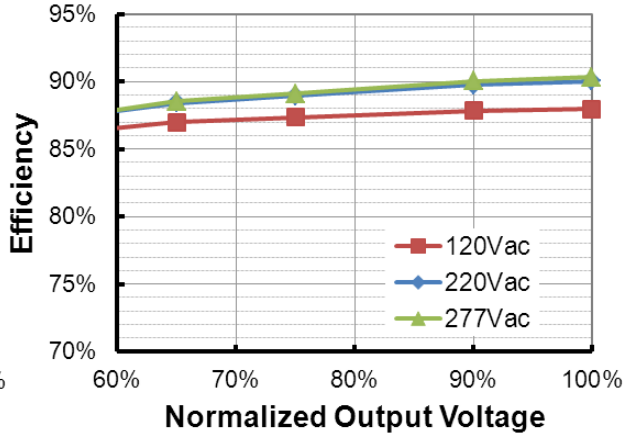
EUD-075S175DT(Io=1750mA)



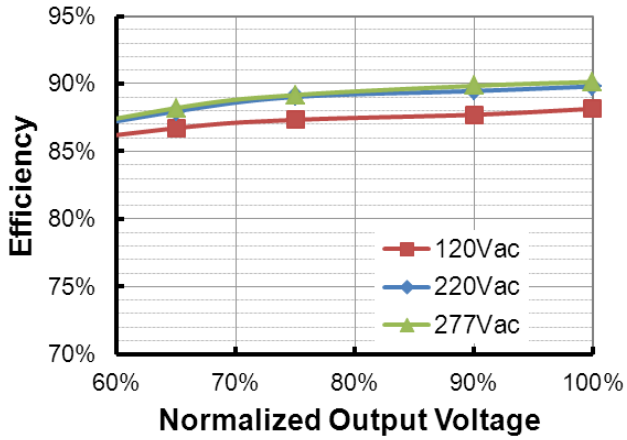
EUD-075S180DT(Io=1400mA)



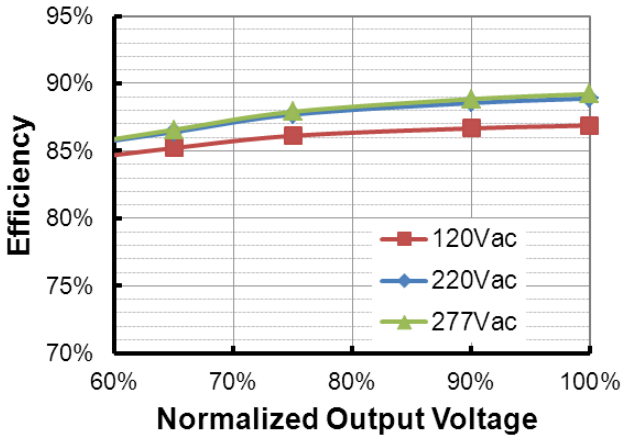
EUD-075S180DT(Io=1800mA)



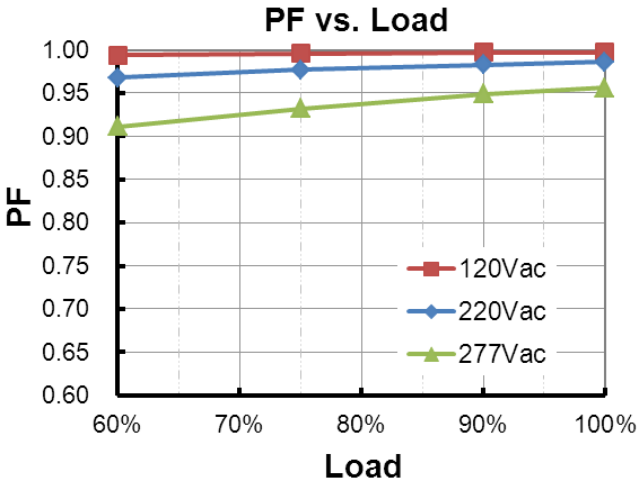
EUD-075S280DT(Io=1920mA)



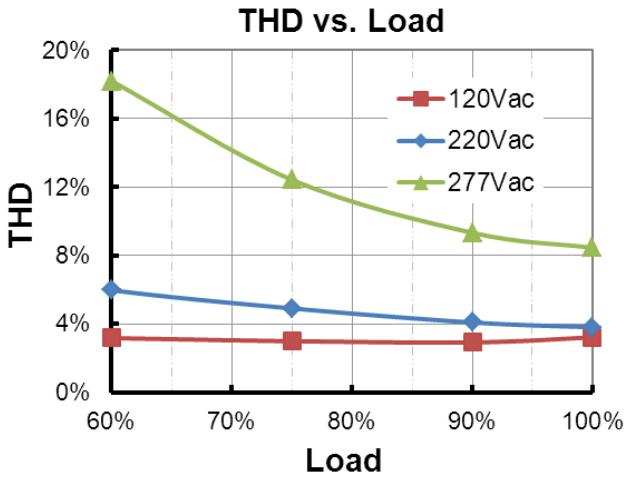
EUD-075S280DT(Io=2800mA)



Power Factor



Total Harmonic Distortion



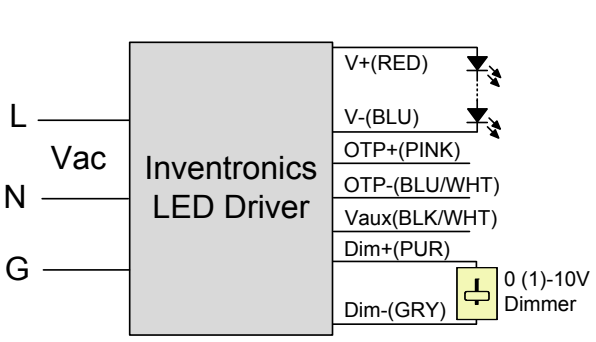
Protection Functions

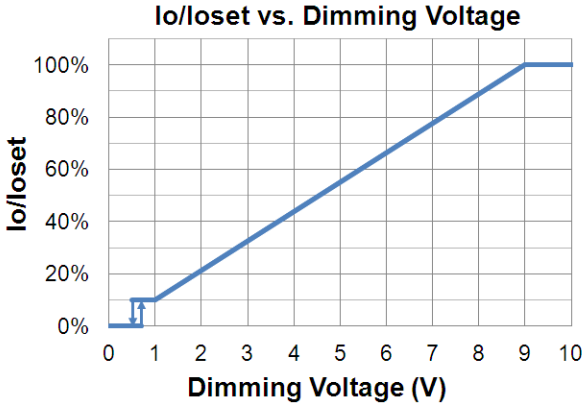
Parameter		Min.	Typ.	Max.	Notes
External Thermal Protection NTC	R1	-	7.81 kOhm	-	When R_NTC falls below R1, External Thermal Protection is triggered, reducing output current until R2 is reached.
	R2	-	4.16 kOhm	-	When R_NTC is less than R2, output current is reduced to the programmed "Protection Current Floor."
	Protection Current Floor	10%Ioset	60%Ioset	100%Ioset	10%Ioset>Iomin (default setting is 60%)
		Iomin	60%Ioset	100%Ioset	10%Ioset≤Iomin (default setting is 60%)
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.



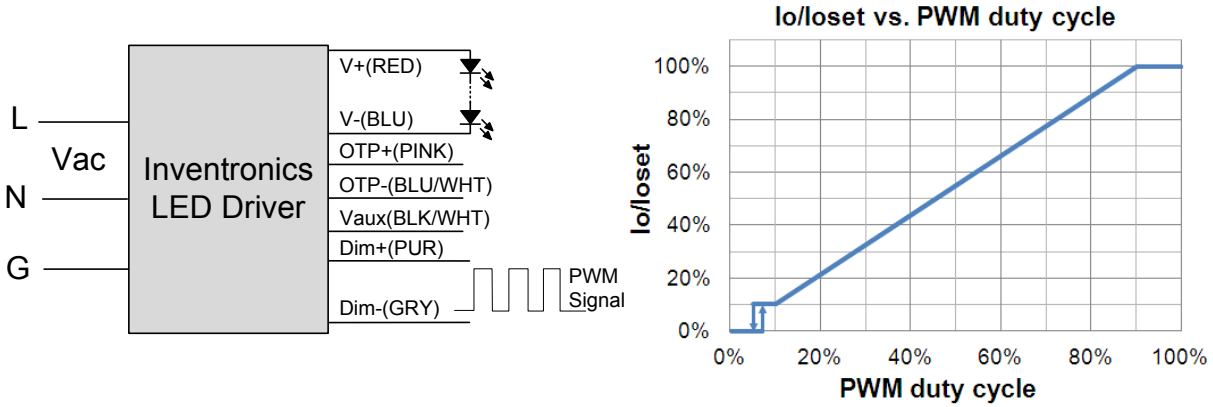


Implementation 1: DC Input

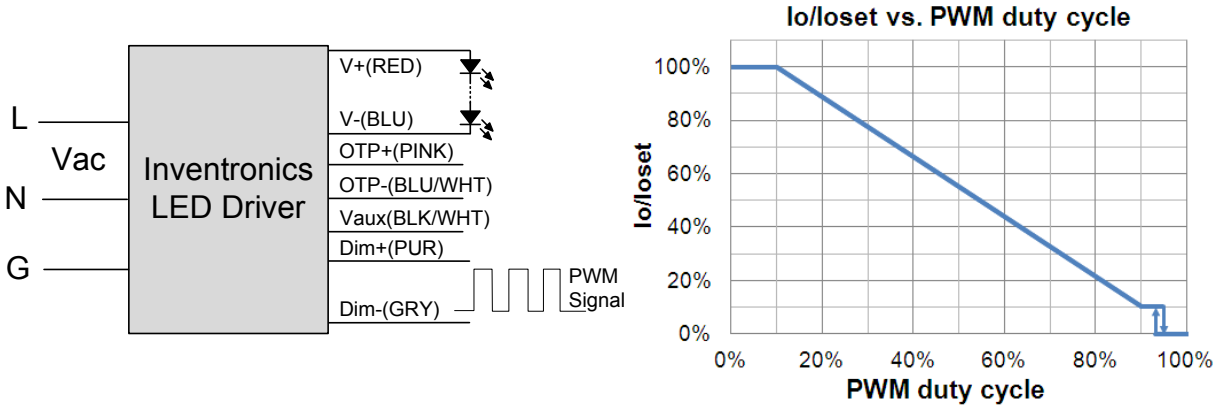
Notes:

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**

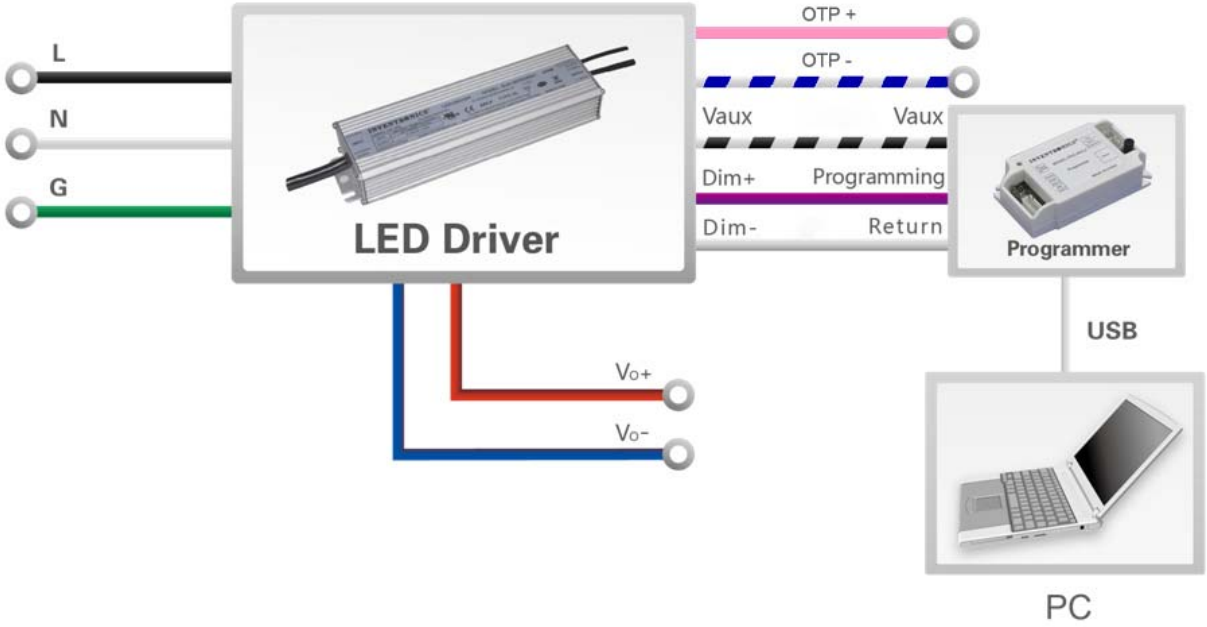
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

- **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.

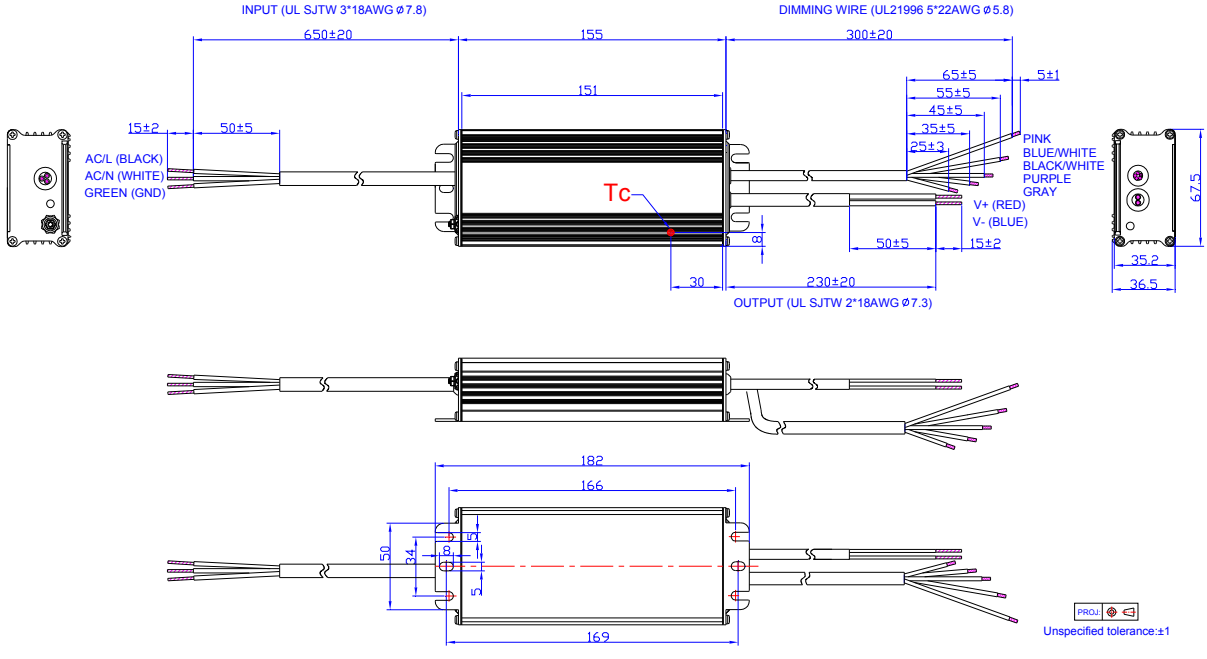
Programming Connection Diagram



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

- **Please refer to PRG-MUL2 (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.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2016-06-06	A	Datasheets Release	/	/
2017-04-19	B	Features	/	Updated
		Models	EUD-075S180DT	Added
		I-V Operating Area	EUD-075S180DT	Added
		Output Specifications	Output Current Setting(Ioset) Range	Updated
		Output Specifications	Output Current Setting Range with Constant Power	Updated
		Output Specifications	No Load Output Voltage	Updated
		Output Specifications	Temperature Coefficient of Ioset	Updated
		General Specifications	Efficiency at 120 Vac input:	Updated
		General Specifications	Efficiency at 220 Vac input:	Updated
		General Specifications	Efficiency at 277 Vac input:	Updated
		Dimming Specifications	Dimming Output Range	Updated
		Safety & EMC Compliance	/	Updated
		Efficiency vs. Load	EUD-075S180DT	Added
		Mechanical Outline	/	Updated
2017-10-27	C	Features	Always-on Auxiliary Power	Added
		Features	Class P, UL Listed Versions Available (See Note 6)	Added
		Features	7 Years Warranty	Added
		Models	(6) Standard part UL Type TL. For UL Listed Class P models add suffix -00C0.	Added
		Input Specifications	PF/THD	Updated
		Output Specifications	12V Auxiliary Output Transient Peak Current	Added
		Operating Case Temperature for Warranty Tc_w	/	Updated