

Features

- Ultra High Efficiency (Up to 94%)
- Full Power at Wide Output Current Range (Constant Power)
- 0-5V/0-10V/PWM/Timer Dimmable
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OVP, SCP, OTP
- IP67
- SELV Output
- 7 Years Warranty



Description

The EUG-200SxxxDV series is a 200W, constant-current, programmable LED driver that operates from 90-305 Vac input with excellent power factor. It is created for high bay, high mast, arena and roadway lights. 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⁾⁽⁴⁾⁽⁵⁾ |
|--------------------------------------|--|-----------------------------|----------------------------|-----------------------|-----------------------------------|----------------------|--------|-----------------------------------|
| | | | | | | 120Vac | 220Vac | |
| 70-1050 | 700-1050 | 700 | 95-286 | 200 | 94.0% | 0.99 | 0.96 | EUG-200S105DV |
| 140-2100 | 1400-2100 | 1400 | 48-143 | 200 | 94.0% | 0.99 | 0.96 | EUG-200S210DV |
| 245-3500 | 2450-3500 | 2800 | 29-82 | 200 | 93.5% | 0.99 | 0.96 | EUG-200S350DV ⁽⁶⁾ |
| 385-5600 | 3850-5600 | 4900 | 18-52 | 200 | 92.5% | 0.99 | 0.96 | EUG-200S560DV ⁽⁶⁾ |

Notes: (1) Output current range with constant power at 200W.

(2) Measured at 100% load and 220Vac input (see below "General Specifications" for details).

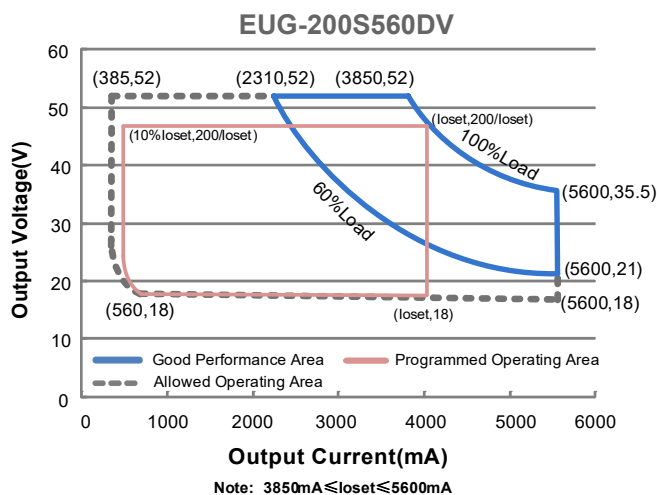
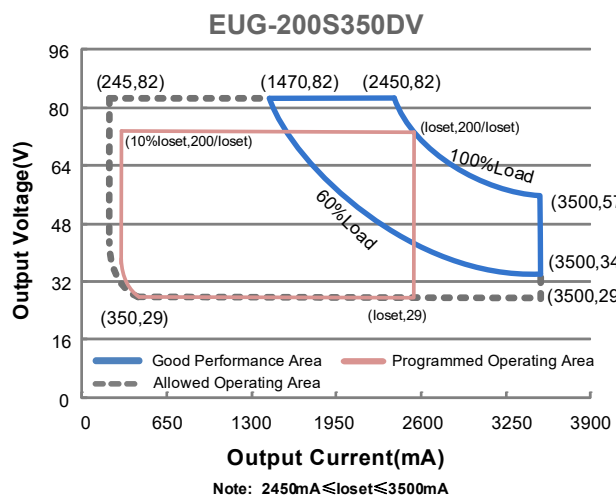
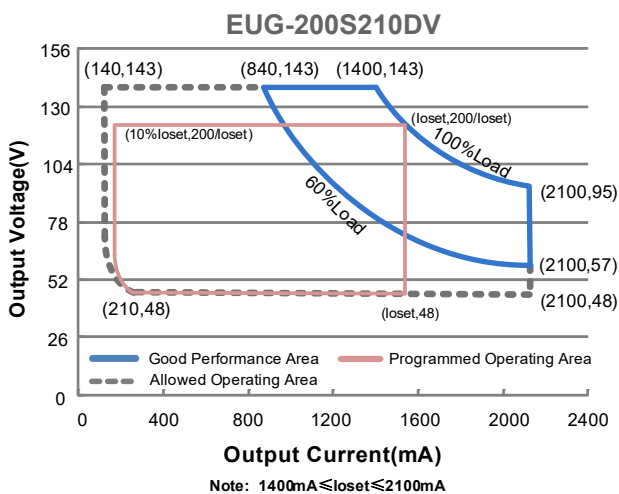
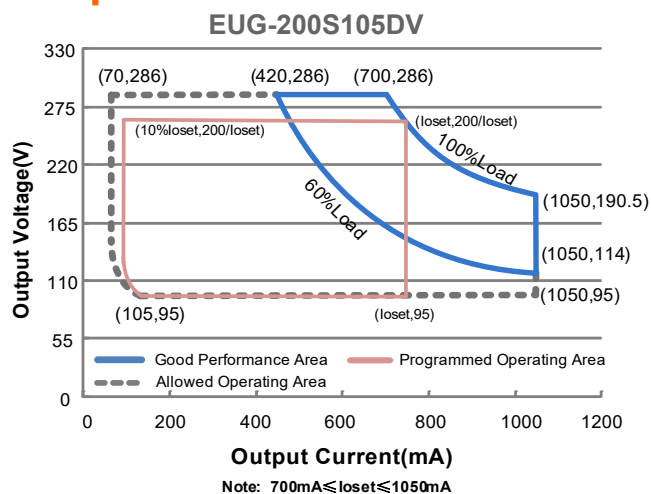
(3) Certified voltage range: 100-240Vac or 127-250Vdc (except KS and BIS).

(4) All the models are certificated to KS, except EUG-200S105DV.

(5) All the models are certificated to SAA, except EUG-200S350DV.

(6) SELV Output.

I-V Operation Area



Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|--------------------------|---------|------|-----------------------|---|
| Input AC Voltage | 90 Vac | - | 305 Vac | |
| Input DC Voltage | 127 Vdc | - | 250 Vdc | |
| Input Frequency | 47 Hz | - | 63 Hz | |
| Leakage Current | - | - | 0.70 mA | IEC 60598-1; 240Vac/60Hz |
| Input AC Current | - | - | 2.64 A | Measured at 100% load and 100 Vac input. |
| | - | - | 1.20 A | Measured at 100% load and 220 Vac input. |
| Inrush Current(I^2t) | - | - | 2.65 A ² s | At 220Vac input, 25°C cold start, duration=1.36 ms, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details. |
| PF | 0.9 | - | - | At 100-240Vac, 50-60Hz, 60%-100% Load (120-200W) |
| THD | - | - | 20% | |

Input Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|-----------|------|------|------|--|
| THD | - | - | 10% | At 220-240Vac, 50-60Hz, 75%-100% Load (150-200W) |

Output Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|--|----------|----------|----------|---|
| Output Current Tolerance | -5%loset | - | 5%loset | At 100% load condition |
| Output Current Setting(loset) Range | | | | |
| EUG-200S105DV | 70 mA | - | 1050 mA | |
| EUG-200S210DV | 140 mA | - | 2100 mA | |
| EUG-200S350DV | 245 mA | - | 3500 mA | |
| EUG-200S560DV | 385 mA | - | 5600 mA | |
| Output Current Setting Range with Constant Power | | | | |
| EUG-200S105DV | 700 mA | - | 1050 mA | |
| EUG-200S210DV | 1400 mA | - | 2100 mA | |
| EUG-200S350DV | 2450 mA | - | 3500 mA | |
| EUG-200S560DV | 3850 mA | - | 5600 mA | |
| Total Output Current Ripple (pk-pk) | - | 5%lomax | 10%lomax | At 100% load condition. 20 MHz BW |
| Output Current Ripple at < 200 Hz (pk-pk) | - | 2%lomax | - | At 100% load condition. Only this component of ripple is associated with visible flicker. |
| Startup Overshoot Current | - | - | 10%lomax | At 100% load condition |
| No Load Output Voltage | | | | |
| EUG-200S105DV | - | - | 330 V | |
| EUG-200S210DV | - | - | 170 V | |
| EUG-200S350DV | - | - | 95 V | |
| EUG-200S560DV | - | - | 60 V | |
| Line Regulation | - | - | ±0.5% | Measured at 100% load |
| Load Regulation | - | - | ±1.5% | |
| Turn-on Delay Time | | | | |
| | - | - | 1.0 s | Measured at 120Vac input, 60%-100% Load |
| | - | - | 0.5 s | Measured at 220Vac input, 60%-100% Load |
| Temperature Coefficient of loset | - | 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 | - | 20 mA | Return terminal is "Dim-" |

General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|--------------------|---------------|-------|---|
| Efficiency at 120 Vac input: EUG-200S105DV | | | | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io= 700mA | 89.0% | 91.0% | - | |
| Io=1050mA | 88.0% | 90.0% | - | |
| EUG-200S210DV | | | | |
| Io=1400mA | 89.5% | 91.5% | - | |
| Io=2100mA | 88.0% | 90.0% | - | |
| EUG-200S350DV | | | | |
| Io=2450mA | 88.5% | 90.5% | - | |
| Io=3500mA | 87.0% | 89.0% | - | |
| EUG-200S560DV | | | | |
| Io=3850mA | 88.0% | 90.0% | - | |
| Io=5600mA | 87.0% | 89.0% | - | |
| Efficiency at 220 Vac input: EUG-200S105DV | | | | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io= 700mA | 92.0% | 94.0% | - | |
| Io=1050mA | 91.0% | 93.0% | - | |
| EUG-200S210DV | | | | |
| Io=1400mA | 92.0% | 94.0% | - | |
| Io=2100mA | 90.5% | 92.5% | - | |
| EUG-200S350DV | | | | |
| Io=2450mA | 91.5% | 93.5% | - | |
| Io=3500mA | 89.5% | 91.5% | - | |
| EUG-200S560DV | | | | |
| Io=3850mA | 90.5% | 92.5% | - | |
| Io=5600mA | 89.5% | 91.5% | - | |
| Efficiency at 277 Vac input: EUG-200S105DV | | | | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| Io= 700mA | 92.5% | 94.5% | - | |
| Io=1050mA | 91.5% | 93.5% | - | |
| EUG-200S210DV | | | | |
| Io=1400mA | 92.5% | 94.5% | - | |
| Io=2100mA | 91.0% | 93.0% | - | |
| EUG-200S350DV | | | | |
| Io=2450mA | 91.5% | 93.5% | - | |
| Io=3500mA | 90.0% | 92.0% | - | |
| EUG-200S560DV | | | | |
| Io=3850mA | 91.0% | 93.0% | - | |
| Io=5600mA | 90.0% | 92.0% | - | |
| MTBF | - | 230,000 Hours | - | Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Lifetime | - | 95,000 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. <i>Please see Inventronics Warranty Statement for complete details.</i> Humidity: 10%RH to 95%RH |
| Storage Temperature | -40°C | - | +85°C | Humidity: 5%RH to 95%RH |
| Dimensions | | | | With mounting ear |
| Inches (L × W × H) | 7.87 × 2.66 × 1.56 | | | 8.70 × 2.66 × 1.56 |
| Millimeters (L × W × H) | 200 × 67.5 × 39.7 | | | 221 × 67.5 × 39.7 |
| Net Weight | - | 1180 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 uA | 300 uA | 450 uA | Vdim(+) = 0 V |
| Dimming Output Range | EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV | 10%loset | - | loset | 700 mA ≤ loset ≤ 1050 mA 1400 mA ≤ loset ≤ 2100 mA 2450 mA ≤ loset ≤ 3500 mA 3850 mA ≤ loset ≤ 5600 mA |
| | EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV | 70 mA 140 mA 245 mA 385 mA | - | loset | 70 mA ≤ loset < 700 mA 140 mA ≤ loset < 1400 mA 245 mA ≤ loset < 2450 mA 385 mA ≤ loset < 3850 mA |
| Recommended Dimming Range for 0-5V | | 0 V | - | 5 V | Dimming mode set to 0-5V in Inventronics programming software. |
| Recommended Dimming Input Range | | 0 V | - | 10 V | Default 0-10V dimming mode with positive logic. |
| PWM_in High Level | | 3 V | - | 10 V | Dimming mode set to PWM in Inventronics programming software . |
| PWM_in Low Level | | -0.3 V | - | 0.6 V | |
| PWM_in Frequency Range | | 200 Hz | - | 2 KHz | |
| PWM_in Duty Cycle | | 1% | - | 99% | |

Safety & EMC Compliance

| Safety Category | Standard |
|---------------------------------------|---|
| CE | EN 61347-1, EN 61347-2-13 |
| CB | IEC 61347-1, IEC 61347-2-13 |
| KC | KC 61347-1, KC 61347-2-13 |
| KS | KS C 7655 |
| BIS | IS 15885(Part2/Sec13) |
| NOM | NOM-058-SCFI |
| SAA | AS/NZS 61347.1, AS/NZS 61347.2.13 |
| EMI Standards | Notes |
| EN IEC 55015/KS C 9815 ⁽¹⁾ | Conducted emission Test & Radiated emission Test |
| EN IEC 61000-3-2 | Harmonic current emissions |
| EN 61000-3-3 | Voltage fluctuations & flicker |
| 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 |

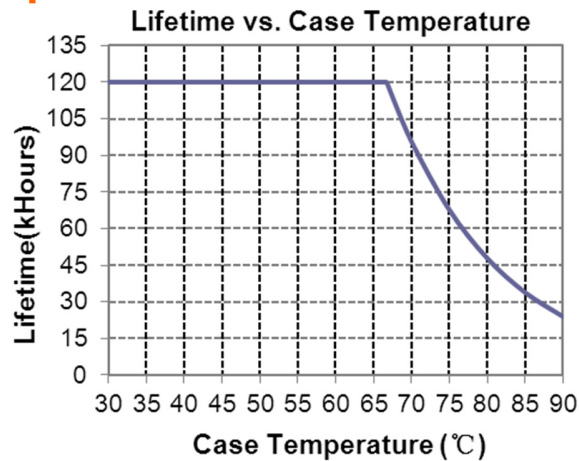
Safety & EMC Compliance (Continued)

| EMS Standards | Notes |
|--------------------|--|
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: Differential Mode 6 kV, Common Mode 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/KS C 9547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

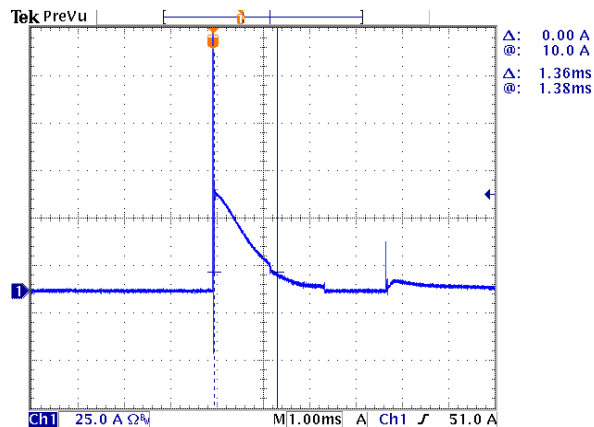
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(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.

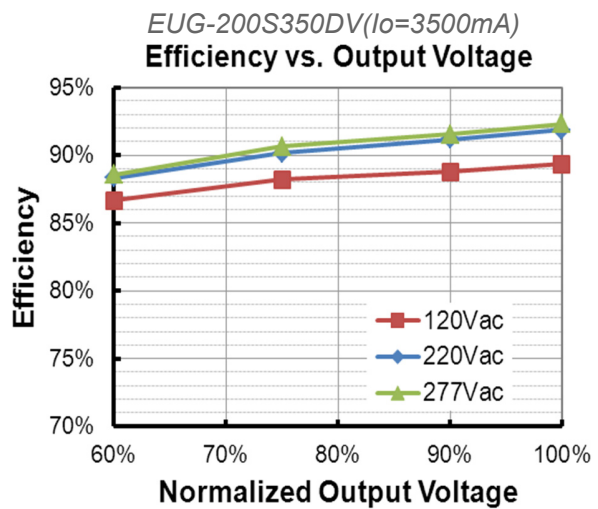
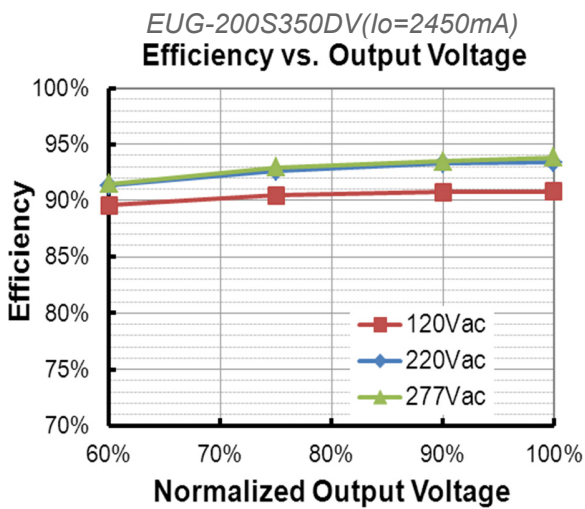
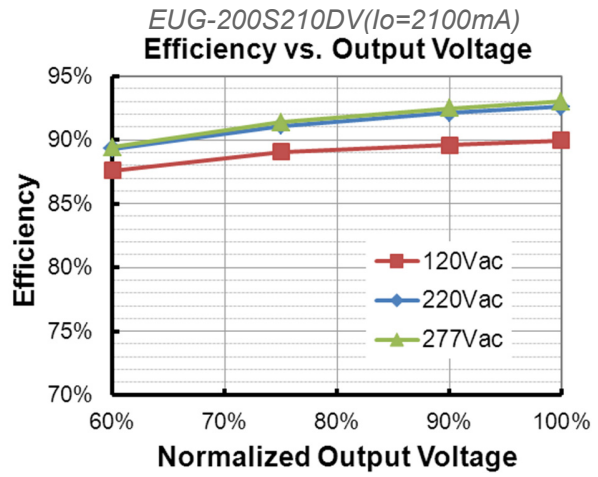
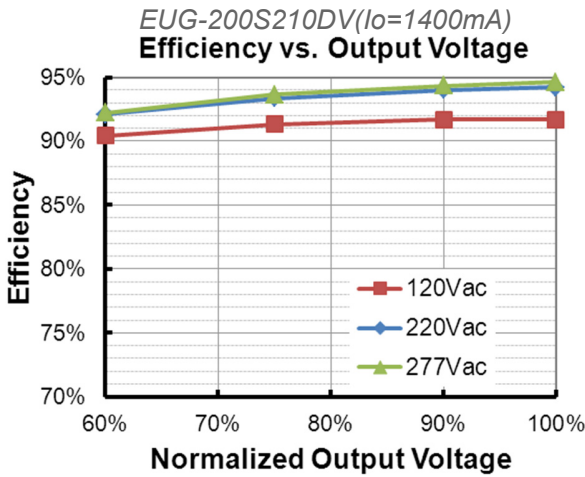
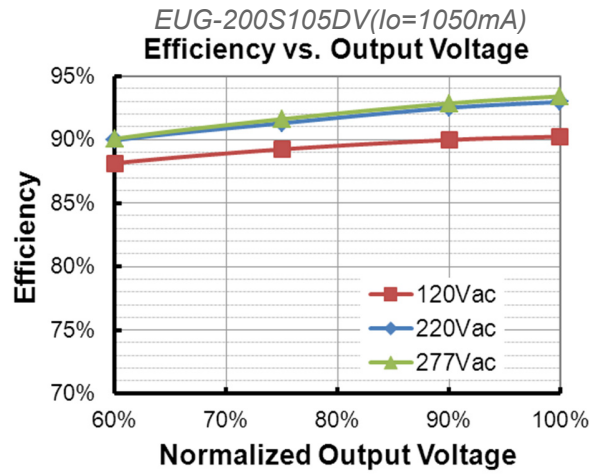
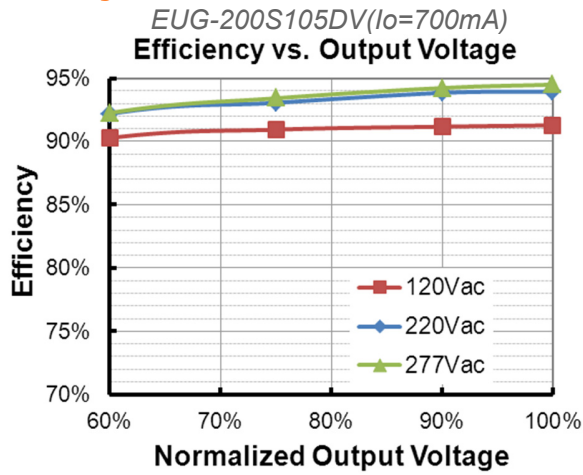
Lifetime vs. Case Temperature

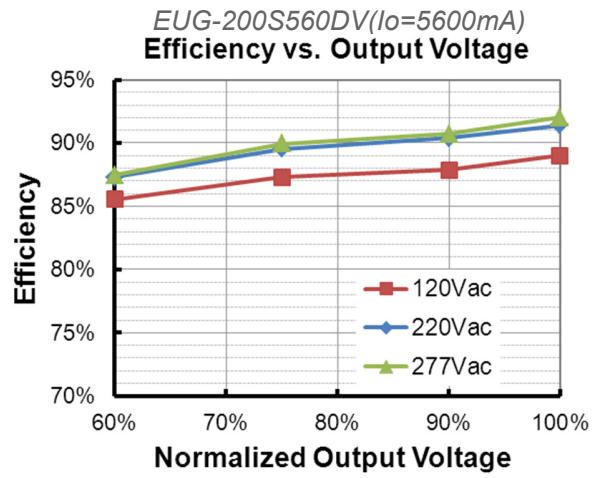
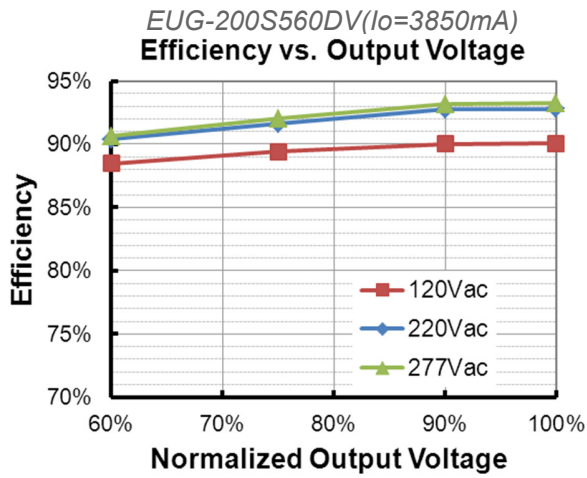


Inrush Current Waveform

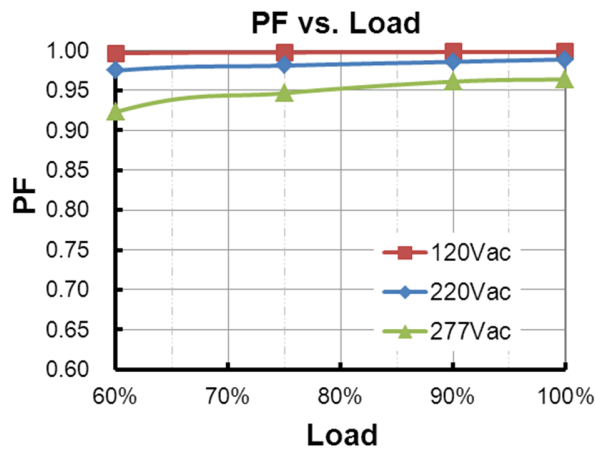


Efficiency vs. Load

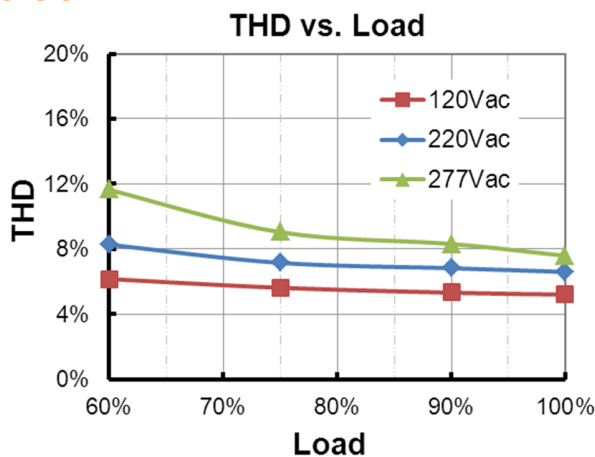




Power Factor



Total Harmonic Distortion



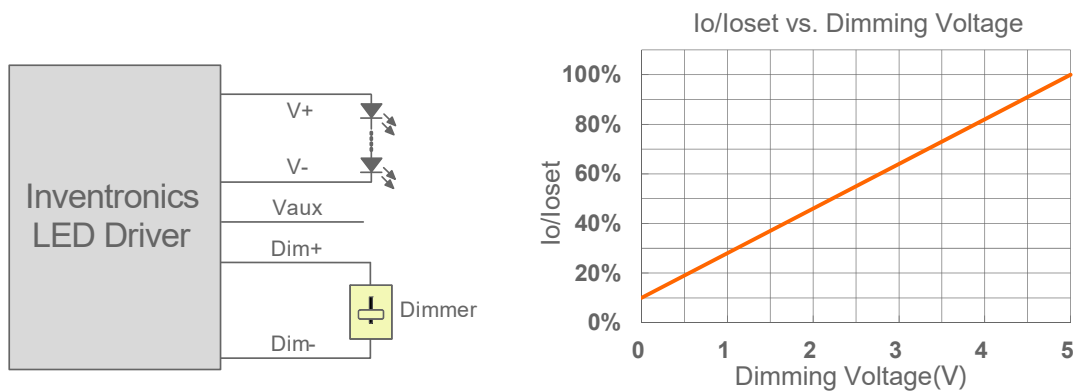
Protection Functions

| 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. |

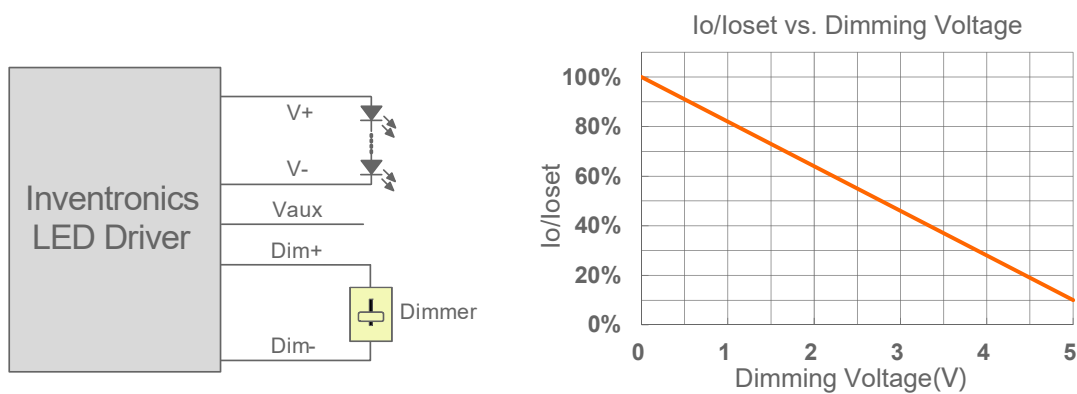
Dimming

● 0-5V Dimming

The recommended implementation of the dimming control is provided below.



Implementation 1: Positive logic



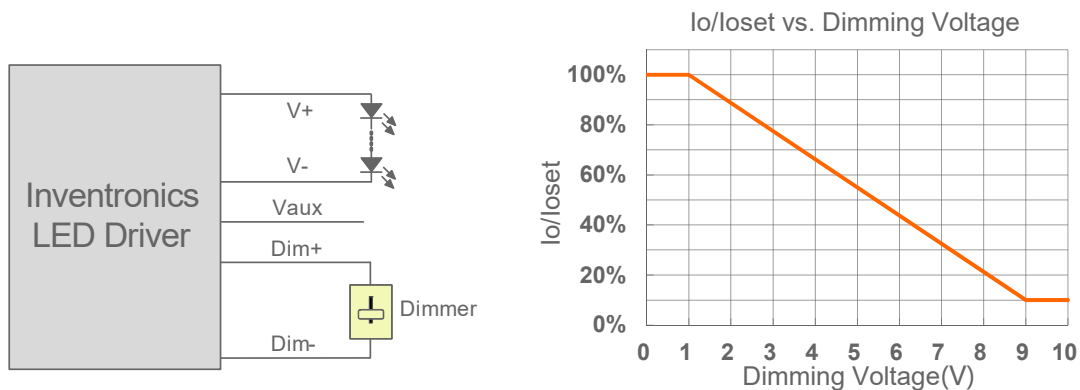
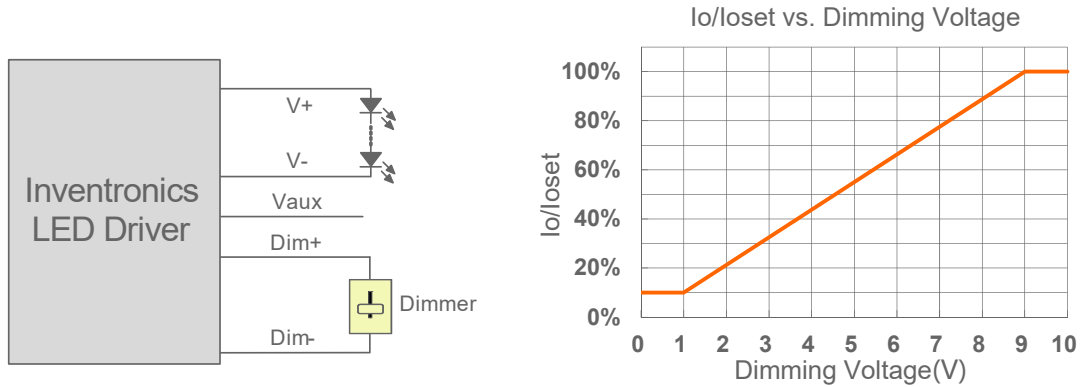
Implementation 2: Negative logic

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 0-5V voltage source signal or passive components like zener.
3. When 0-5V negative logic dimming mode and Dim+ is open, the driver will output maximum current.

● 0-10V Dimming

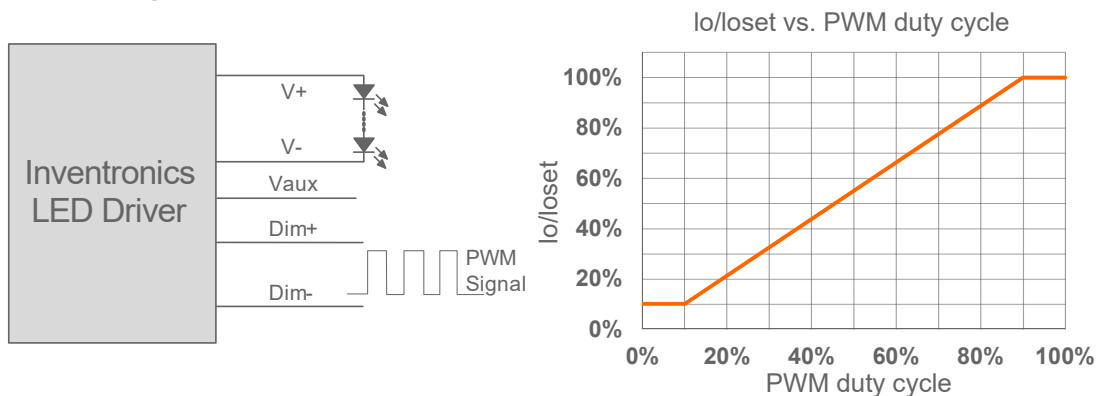
The recommended implementation of the dimming control is provided below.

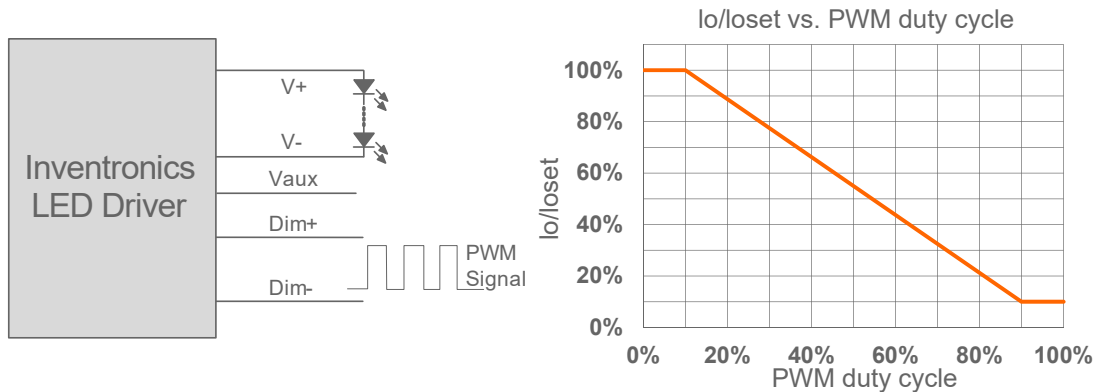


Notes:

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 0-10V voltage source signal or passive components like zener.
3. When 0-10V negative logic dimming mode and Dim+ is open, the driver will output minimum current.

● PWM Dimming





Implementation 6: Negative logic

Notes:

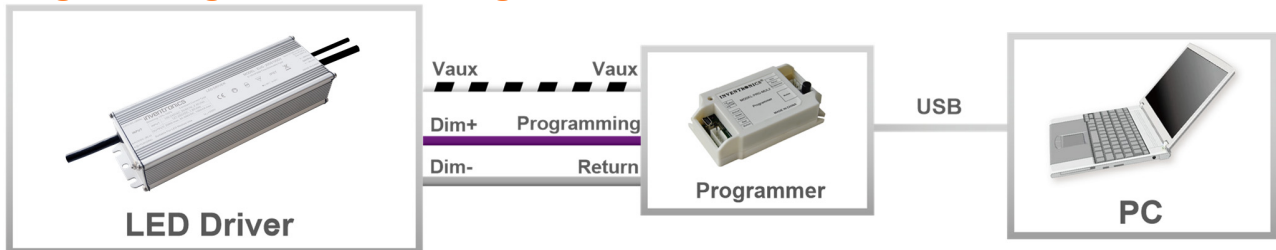
1. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
2. When PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

● Time Dimming

The screenshot shows the 'IraditionalTime' configuration window. It features five 'Light level' sections, each with sliders for Dimming (0% to 100%), Holding Time (0H to 18H), and Fading Time (0 to 60). The 'Final light level' is also configured. On the right, the 'Driver Output Operating Region' graph plots Voltage (V) against Current (A), showing a trapezoidal dimming curve. Below it, a graph shows the dimming percentage over time (H).

Set the timing curve by pulling the sliders.

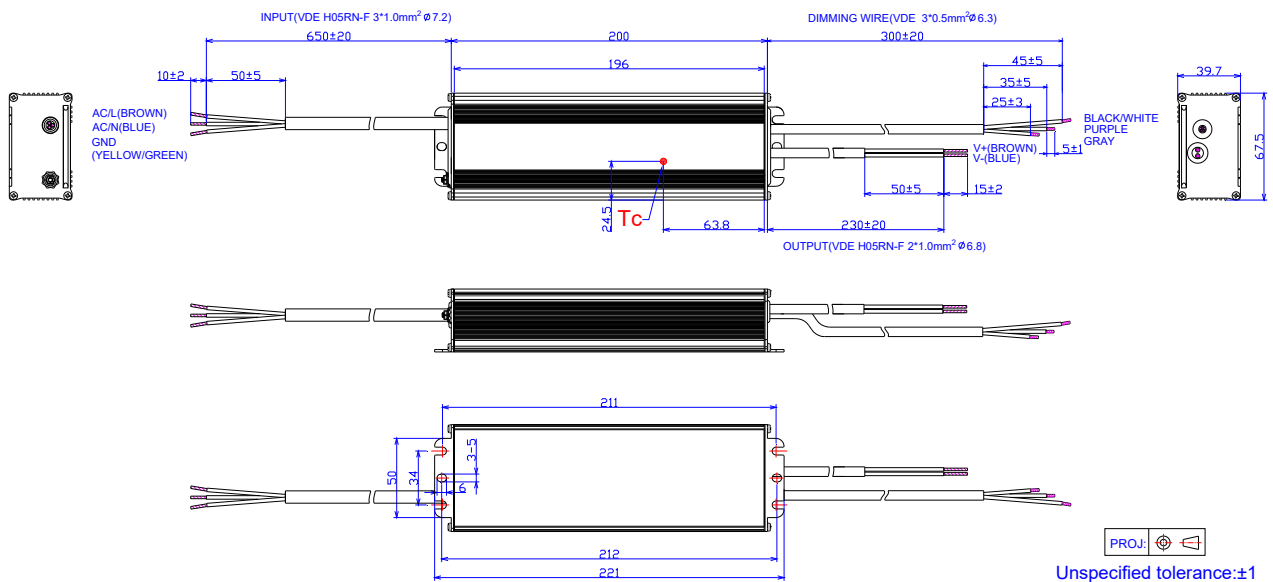
Programming Connection Diagram



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



Note: Waterproof connectors certified to CE are also available for these drivers; please contact Inventronics Sales.

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.

Revision History

| Change Date | Rev. | Description of Change | | |
|-------------|------|--|----------------------------------|---------|
| | | Item | From | To |
| 2016-01-05 | A | Datasheets Release | / | / |
| 2016-04-08 | B | General Specifications | With mounting ear | Added |
| | | General Specifications | Net Weight | Update |
| | | Safety & EMC Compliance | / | Update |
| | | Mechanical Outline | / | Update |
| 2017-07-28 | C | Input Specifications | PF/THD | Updated |
| | | Output Specifications | Temperature Coefficient of Isost | Updated |
| | | General Specifications | Dimensions | Updated |
| | | Safety & EMC Compliance | / | Updated |
| | | Mechanical Outline | / | Updated |
| 2017-10-26 | D | Features | 7 Years Warranty | Added |
| | | Operating Case Temperature for Warranty Tc w | / | Updated |
| 2022-08-27 | E | SAA/KC/KCC/NOM logo | / | Added |
| | | CCC logo | / | Updated |
| | | PSE logo | / | Deleted |
| | | Features | / | Updated |
| | | Models | / | Updated |
| | | Safety & EMC Compliance | / | Updated |
| | | Dimming | / | Updated |
| | | RoHS Compliance | / | Updated |
| 2023-08-28 | F | Product Photograph | / | Updated |
| | | TUV logo | / | Deleted |
| | | Safety & EMC Compliance | / | Updated |
| | | Programming Connection Diagram | / | Updated |
| 2024-05-15 | G | Product Photograph | / | Updated |
| | | ENEC logo | / | Deleted |
| | | Safety & EMC Compliance | / | Updated |
| 2024-08-09 | H | Format | / | Updated |
| | | CCC logo | / | Deleted |
| | | Safety & EMC Compliance | CCC | Deleted |
| | | Mechanical Outline | Note | Updated |