

Features

- Ultra High Efficiency (Up to 93.5%)
- Full Power at Wide Output Current Range (Constant Power)
- 0-10V/10V PWM Dimmable (DV models)
3 Timer Modes Dimmable (TV models)
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OVP, SCP, OTP
- IP67
- SELV Output
- 5 Years Warranty



Description

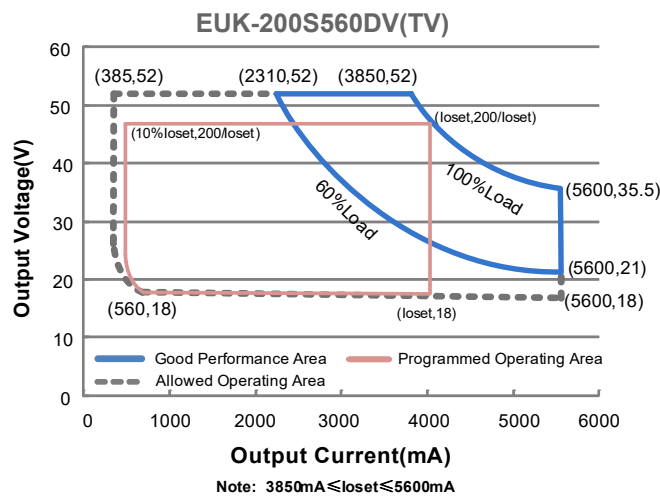
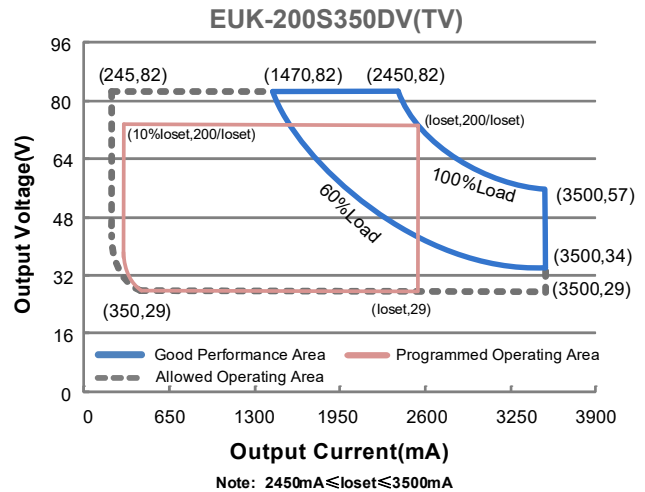
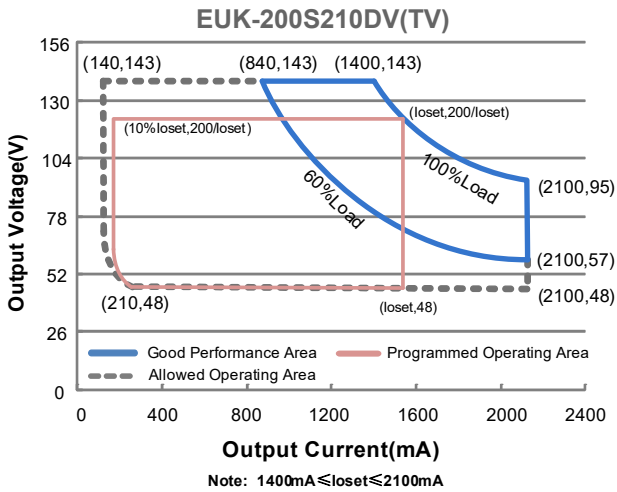
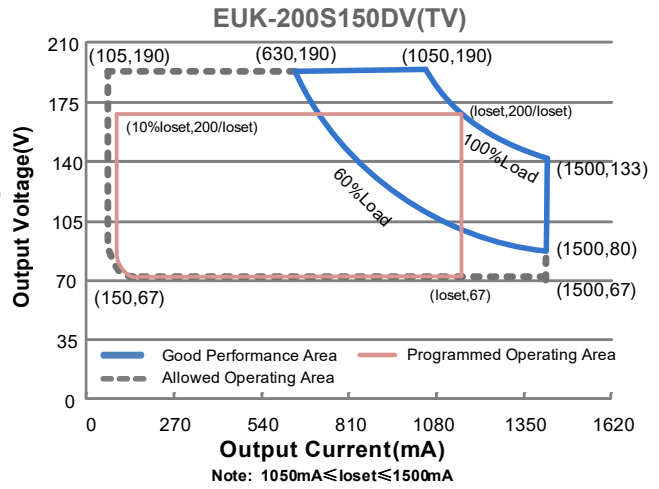
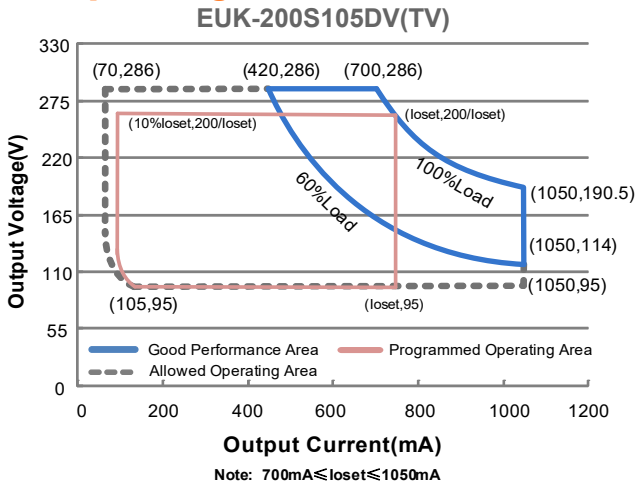
The EUK-200SxxxDV(TV) series is a 200W, constant-current, programmable IP67 LED driver that operates from 90-305 Vac input with excellent power factor. It is created for many lighting applications including high bay, high mast, sports and roadway. The high efficiency of these drivers and compact metal 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⁾⁽⁵⁾ |
|--------------------------------------|--|-----------------------------|----------------------------|-----------------------|-----------------------------------|----------------------|--------|----------------------------------|
| | | | | | | 120Vac | 220Vac | |
| 70-1050 | 700-1050 | 700 | 95-286 | 200 | 93.5% | 0.99 | 0.96 | EUK-200S105DV(TV) |
| 105-1500 | 1050-1500 | 1050 | 67-190 | 200 | 93.5% | 0.99 | 0.96 | EUK-200S150DV(TV) |
| 140-2100 | 1400-2100 | 1400 | 48-143 | 200 | 93.0% | 0.99 | 0.96 | EUK-200S210DV(TV) |
| 245-3500 | 2450-3500 | 2800 | 29-82 | 200 | 93.0% | 0.99 | 0.96 | EUK-200S350DV(TV) ⁽⁴⁾ |
| 385-5600 | 3850-5600 | 4900 | 18-52 | 200 | 92.0% | 0.99 | 0.96 | EUK-200S560DV(TV) ⁽⁴⁾ |

- 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 PSE, KS and BIS)
 (4) SELV Output.
 (5) For BIS models add suffix -3000.

I-V Operating 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, grounding effectively |
| Input AC Current | - | - | 2.15 A | Measured at 100% load and 120 Vac input. |
| | - | - | 1.1 A | Measured at 100% load and 220 Vac input. |
| Inrush Current(I ² t) | - | - | 1.95 A ² s | At 220Vac input, 25°C cold start, duration=1.40ms, 10%I _{pk} -10%I _{pk} . See Inrush Current Waveform for the details. |
| PF | 0.9 | - | - | At 100-240Vac, 50-60Hz, 60%-100% Load (120-200W) |
| THD | - | - | 20% | |
| 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 | 100% load |
| Output Current Setting(loset) Range | | | | |
| EUK-200S105DV(TV) | 70 mA | - | 1050 mA | |
| EUK-200S150DV(TV) | 105 mA | - | 1500 mA | |
| EUK-200S210DV(TV) | 140 mA | - | 2100 mA | |
| EUK-200S350DV(TV) | 245 mA | - | 3500 mA | |
| EUK-200S560DV(TV) | 385 mA | - | 5600 mA | |
| Output Current Setting Range with Constant Power | | | | |
| EUK-200S105DV(TV) | 700 mA | - | 1050 mA | |
| EUK-200S150DV(TV) | 1050 mA | - | 1500 mA | |
| EUK-200S210DV(TV) | 1400 mA | - | 2100 mA | |
| EUK-200S350DV(TV) | 2450 mA | - | 3500 mA | |
| EUK-200S560DV(TV) | 3850 mA | - | 5600 mA | |
| Total Output Current Ripple (pk-pk) | - | 5%I _{omax} | 10%I _{omax} | 100% load. 20 MHz BW |
| Output Current Ripple at < 200 Hz (pk-pk) | - | 2%I _{omax} | - | 100% load. |
| Startup Overshoot Current | - | - | 10%I _{omax} | 100% load |
| No Load Output Voltage | | | | |
| EUK-200S105DV(TV) | - | - | 320 V | |
| EUK-200S150DV(TV) | - | - | 220 V | |
| EUK-200S210DV(TV) | - | - | 160 V | |
| EUK-200S350DV(TV) | - | - | 100 V | |
| EUK-200S560DV(TV) | - | - | 60 V | |
| Line Regulation | - | - | ±0.5% | 100% load |
| Load Regulation | - | - | ±1.5% | |

Output Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|---|------|----------|-------|--|
| 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 I _o set | - | 0.03%/°C | - | Case temperature = 0°C ~T _c max |

General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|------------------------------|-------|-------|------|--|
| Efficiency at 120 Vac input: | | | | |
| EUK-200S105DV(TV) | | | | |
| I _o = 700 mA | 88.5% | 90.5% | - | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| I _o =1050 mA | 86.0% | 88.0% | - | |
| EUK-200S150DV(TV) | | | | |
| I _o =1050 mA | 88.0% | 90.0% | - | |
| I _o =1500 mA | 86.0% | 88.0% | - | |
| EUK-200S210DV(TV) | | | | |
| I _o =1400 mA | 88.0% | 90.0% | - | |
| I _o =2100 mA | 85.5% | 87.5% | - | |
| EUK-200S350DV(TV) | | | | |
| I _o =2450 mA | 87.5% | 89.5% | - | |
| I _o =3500 mA | 85.0% | 87.0% | - | |
| EUK-200S560DV(TV) | | | | |
| I _o =3850 mA | 87.0% | 89.0% | - | |
| I _o =5600 mA | 84.5% | 86.5% | - | |
| Efficiency at 220 Vac input: | | | | |
| EUK-200S105DV(TV) | | | | |
| I _o = 700 mA | 91.5% | 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.) |
| I _o =1050 mA | 90.0% | 92.0% | - | |
| EUK-200S150DV(TV) | | | | |
| I _o =1050 mA | 91.5% | 93.5% | - | |
| I _o =1500 mA | 89.5% | 91.5% | - | |
| EUK-200S210DV(TV) | | | | |
| I _o =1400 mA | 91.0% | 93.0% | - | |
| I _o =2100 mA | 88.5% | 90.5% | - | |
| EUK-200S350DV(TV) | | | | |
| I _o =2450 mA | 91.0% | 93.0% | - | |
| I _o =3500 mA | 88.5% | 90.5% | - | |
| EUK-200S560DV(TV) | | | | |
| I _o =3850 mA | 90.0% | 92.0% | - | |
| I _o =5600 mA | 88.0% | 90.0% | - | |

General Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes | |
|---|---|----------------|--------|--|--|
| Efficiency at 277 Vac input: EUK-200S105DV(TV) I _o = 700 mA I _o =1050 mA | 92.0% 90.5% | 94.0% 92.5% | - - | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) | |
| EUK-200S150DV(TV) I _o =1050 mA I _o =1500 mA | 92.0% 90.0% | 94.0% 92.0% | - - | | |
| EUK-200S210DV(TV) I _o =1400 mA I _o =2100 mA | 91.5% 89.0% | 93.5% 91.0% | - - | | |
| EUK-200S350DV(TV) I _o =2450 mA I _o =3500 mA | 91.5% 89.0% | 93.5% 91.0% | - - | | |
| EUK-200S560DV(TV) I _o =3850 mA I _o =5600 mA | 90.5% 88.0% | 92.5% 90.0% | - - | | |
| MTBF | - | 329,000 Hours | - | | Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Lifetime | - | 85,000 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 T _{c_s} | -40°C | - | +90°C | | |
| Operating Case Temperature for Warranty T _{c_w} | -40°C | - | +75°C | | Case temperature for 5 years warranty |
| Storage Temperature | -40°C | - | +85°C | | Humidity: 5%RH to 100%RH |
| Dimensions Inches (L × W × H) Millimeters (L × W × H) | 7.95 × 2.66 × 1.56 202 × 67.5 × 39.7 | | | With mounting ear 8.70 × 2.66 × 1.56 221 × 67.5 × 39.7 | |
| Net Weight | - | 1100 g | - | | |

Dimming Specifications

| Parameter | Min. | Typ. | Max. | Notes | |
|-----------|--|--------|--------|--------|---------------|
| DV Models | 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 |
| | Recommended Dimming Range for 0-10V | 0 V | - | 10 V | |
| | PWM_in High Level | - | 10V | - | |
| | PWM_in Low Level | - | 0V | - | |
| | PWM_in Frequency Range | 200 Hz | - | 2 KHz | |
| | PWM_in Duty Cycle | 0% | - | 100% | |

Dimming Specifications (Continued)

| Parameter | | Min. | Typ. | Max. | Notes |
|----------------------|---|---|------|------------|--|
| TV Models | Dimming Level | 10% | - | 100% | Default is Traditional Timer. Dimming mode set to Self-Adapting-Midnight or Self Adapting-Percentage in PC interface. |
| | Hold Time | 0 Hours | - | 18 Hours | |
| | Fade Time | 0 Minutes | - | 60 Minutes | |
| | Dimming Step | 1 | - | 6 | |
| Dimming Output Range | EUK-200S105DV(TV) EUK-200S150DV(TV) EUK-200S210DV(TV) EUK-200S350DV(TV) EUK-200S560DV(TV) | 10%loset | - | loset | 700 mA ≤ loset ≤ 1050 mA 1050 mA ≤ loset ≤ 1500 mA 1400 mA ≤ loset ≤ 2100 mA 2450 mA ≤ loset ≤ 3500 mA 3850 mA ≤ loset ≤ 5600 mA |
| | EUK-200S105DV(TV) EUK-200S150DV(TV) EUK-200S210DV(TV) EUK-200S350DV(TV) EUK-200S560DV(TV) | 70 mA 105 mA 140 mA 245 mA 385 mA | - | loset | 70 mA ≤ loset < 700 mA 105 mA ≤ loset < 1050 mA 140 mA ≤ loset < 1400 mA 245 mA ≤ loset < 2450 mA 385 mA ≤ loset < 3850 mA |

Safety & EMC Compliance

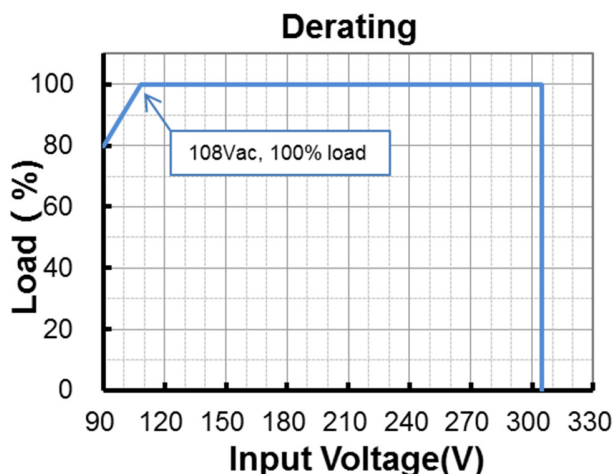
| Safety Category | Standard |
|-----------------------------|--|
| CE | EN 61347-1, EN 61347-2-13 |
| CB | IEC 61347-1, IEC 61347-2-13 |
| PSE | J 61347-1, J 61347-2-13 |
| KS | KS C 7655 |
| BIS | IS 15885(Part2/Sec13) |
| EMI Standards | Notes |
| EN IEC 55015 ⁽¹⁾ | Conducted emission Test & Radiated 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 |
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: Differential Mode 6 kV, Common Mode 10 kV ⁽²⁾ |

Safety & EMC Compliance (Continued)

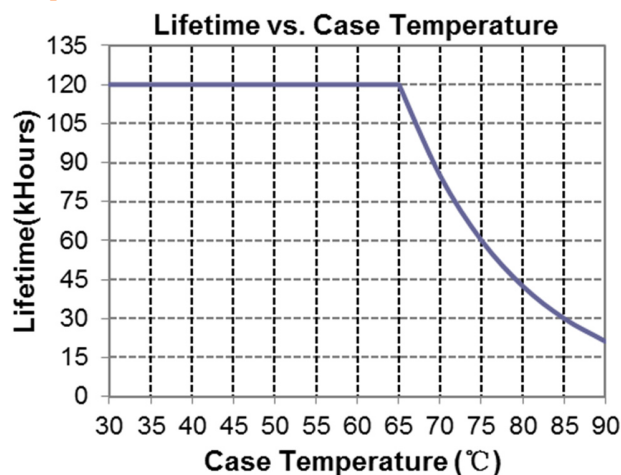
| EMS Standards | Notes |
|---------------|---|
| EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS |
| EN 61000-4-8 | Power Frequency Magnetic Field Test |
| EN 61000-4-11 | Voltage Dips |
| EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

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.

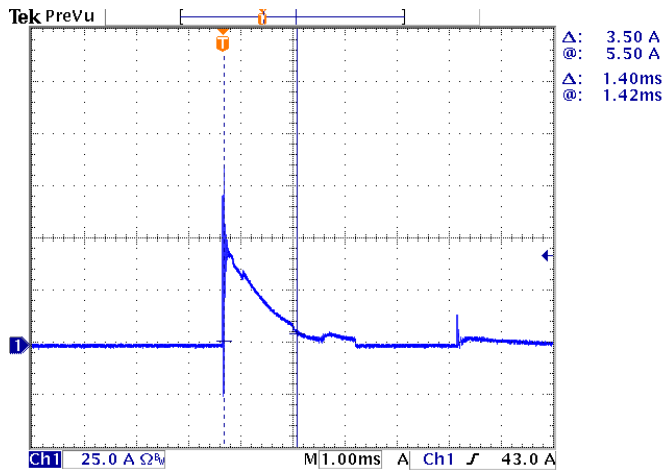
Derating



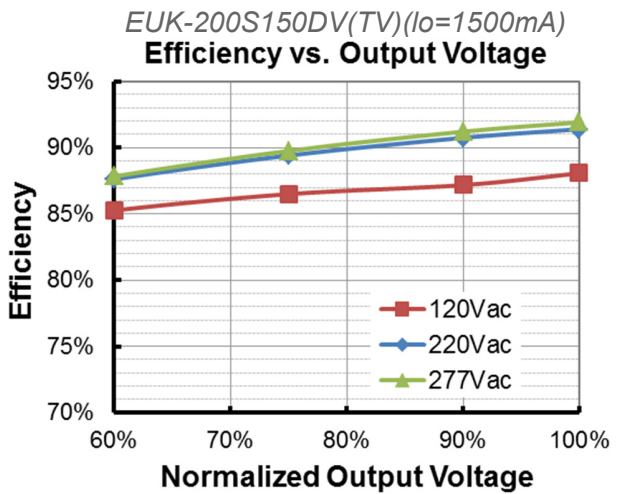
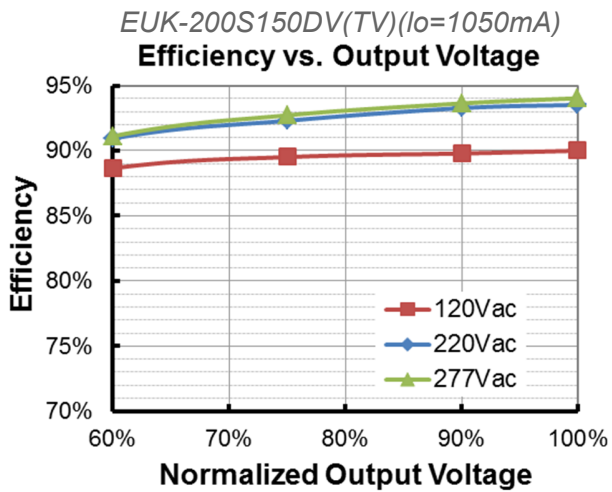
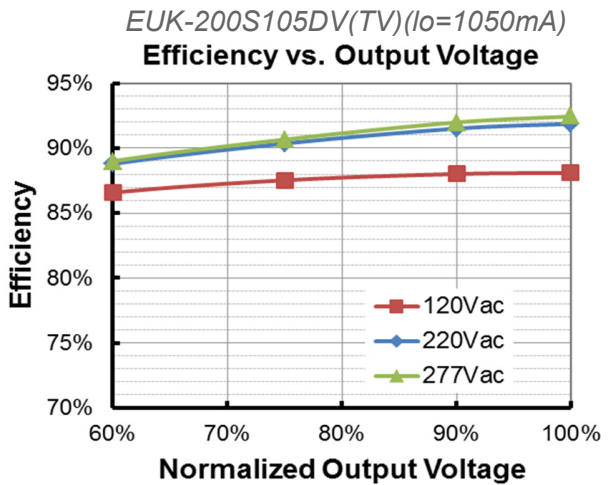
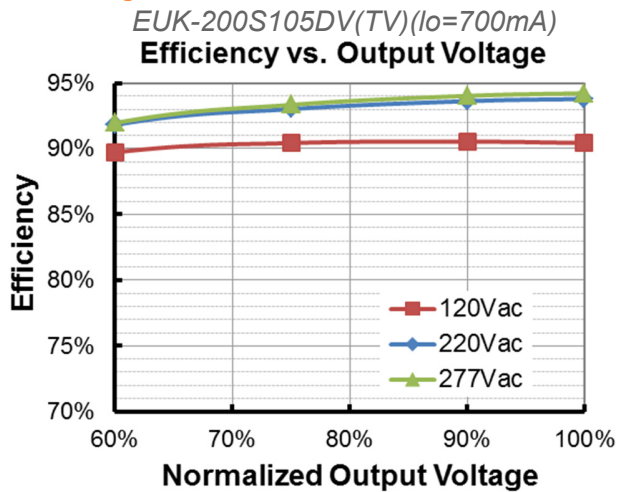
Lifetime vs. Case Temperature

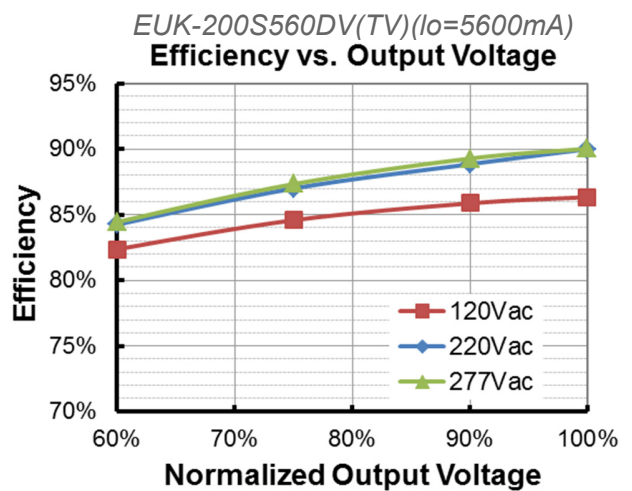
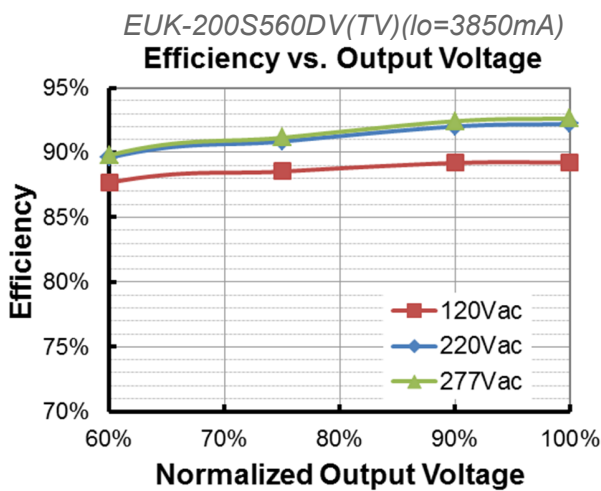
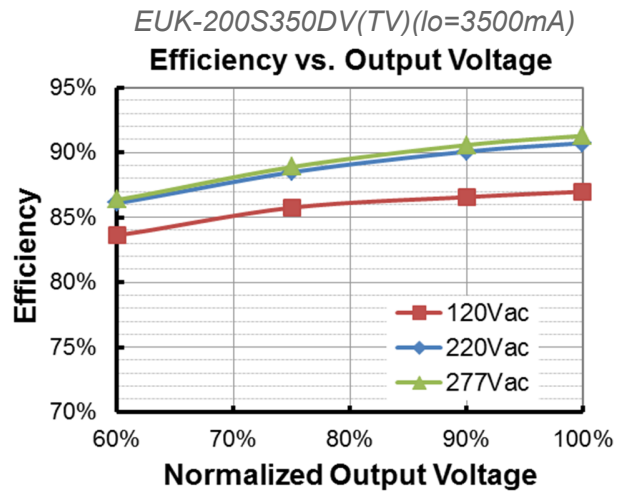
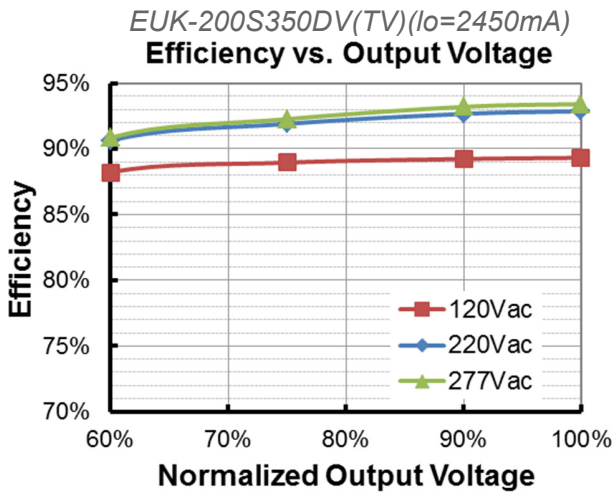
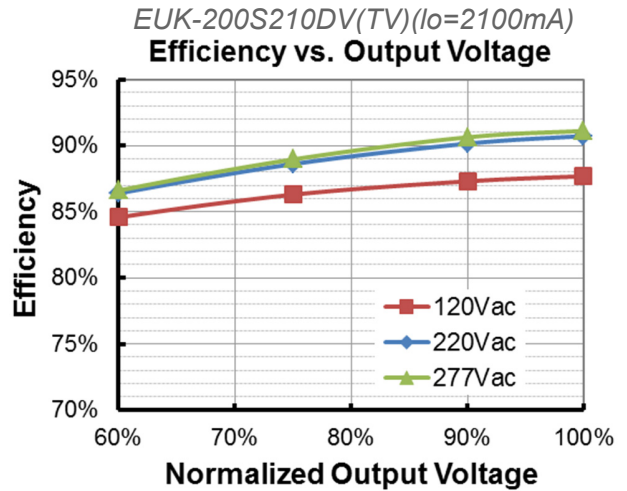
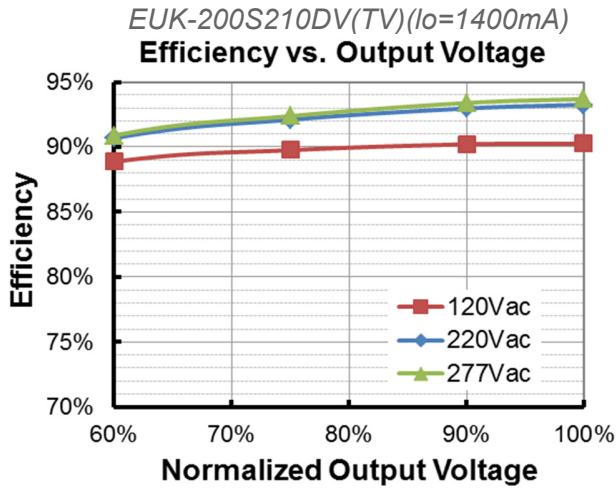


Inrush Current Waveform

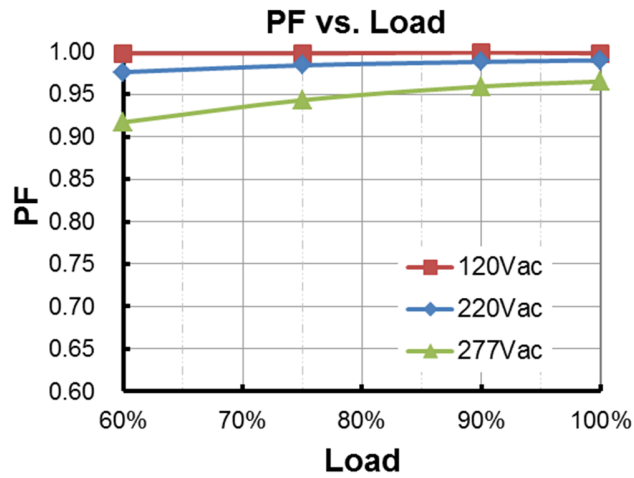


Efficiency vs. Load

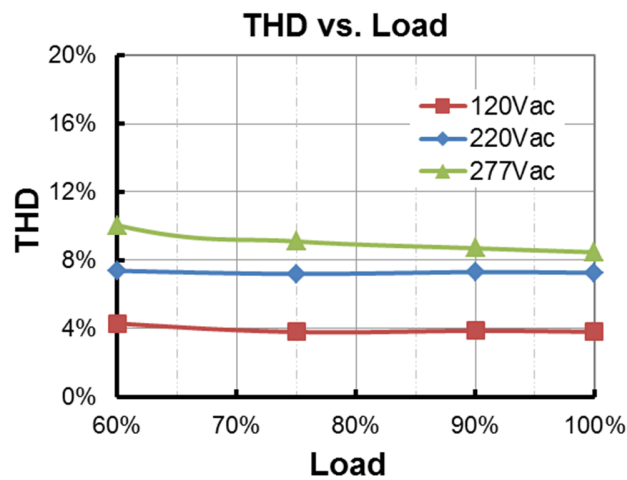




Power Factor



Total Harmonic Distortion



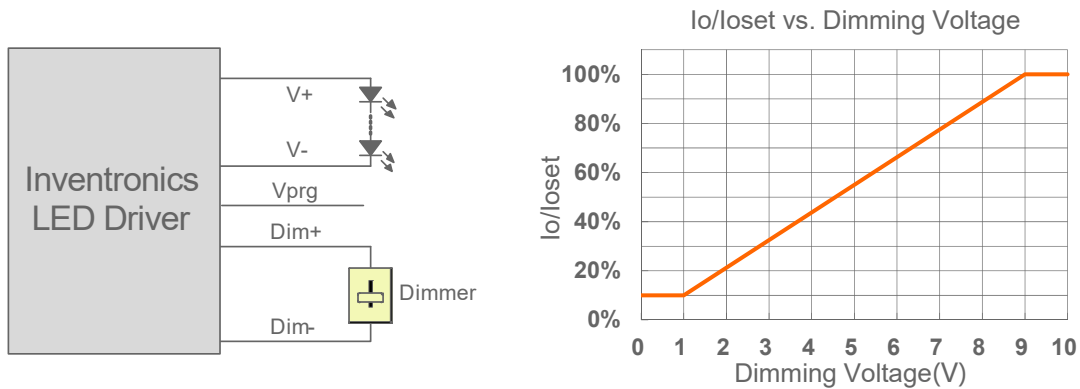
Protection Functions

| 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

● 0-10V Dimming (Only DV models)

The recommended implementation of the dimming control is provided below.



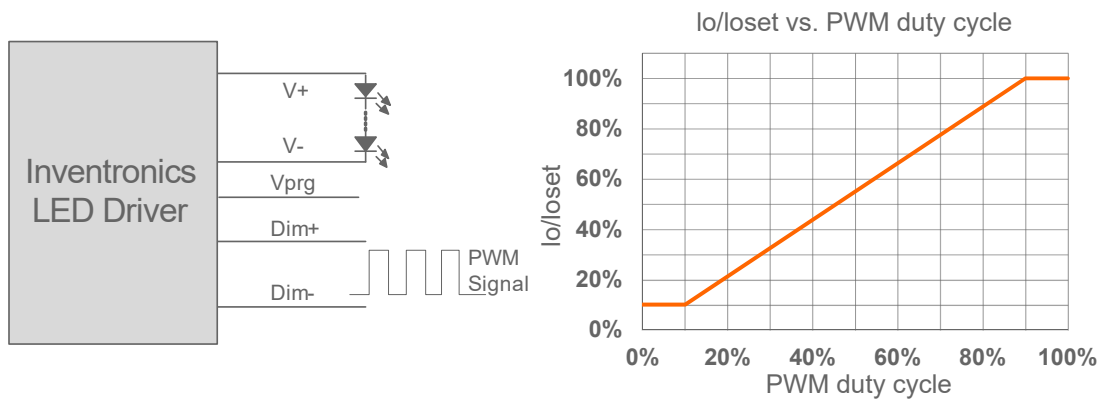
Implementation 1: Positive logic

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 0-10V voltage source signal or passive components like zener.

● 10V PWM Dimming (Only DV models)

The recommended implementation of the dimming control is provided below.



Implementation 2: Positive logic

Note: Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.

● Time Dimming (Only TV models)

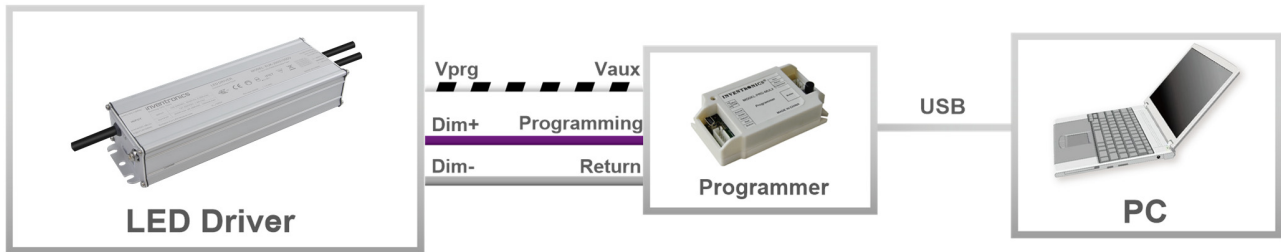
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

- **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 (Only TV models)

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

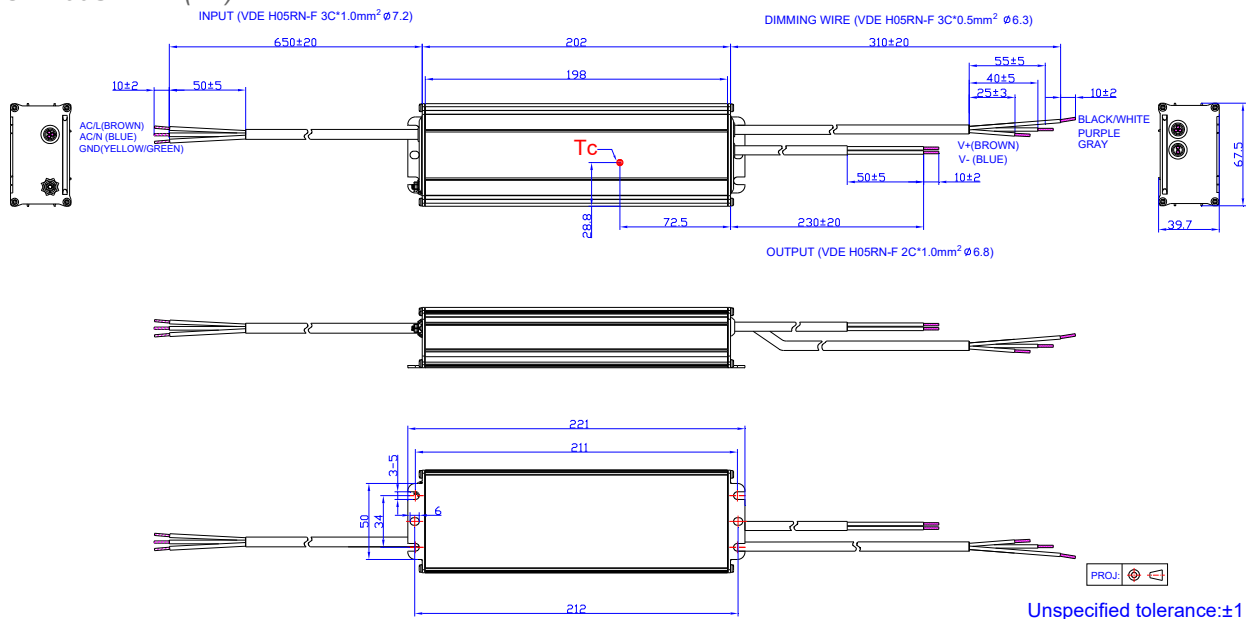


Note: The driver does not need to be powered on during the programming process.

- Please refer to [PRG-MUL2](#) (Programmer) datasheet for details.

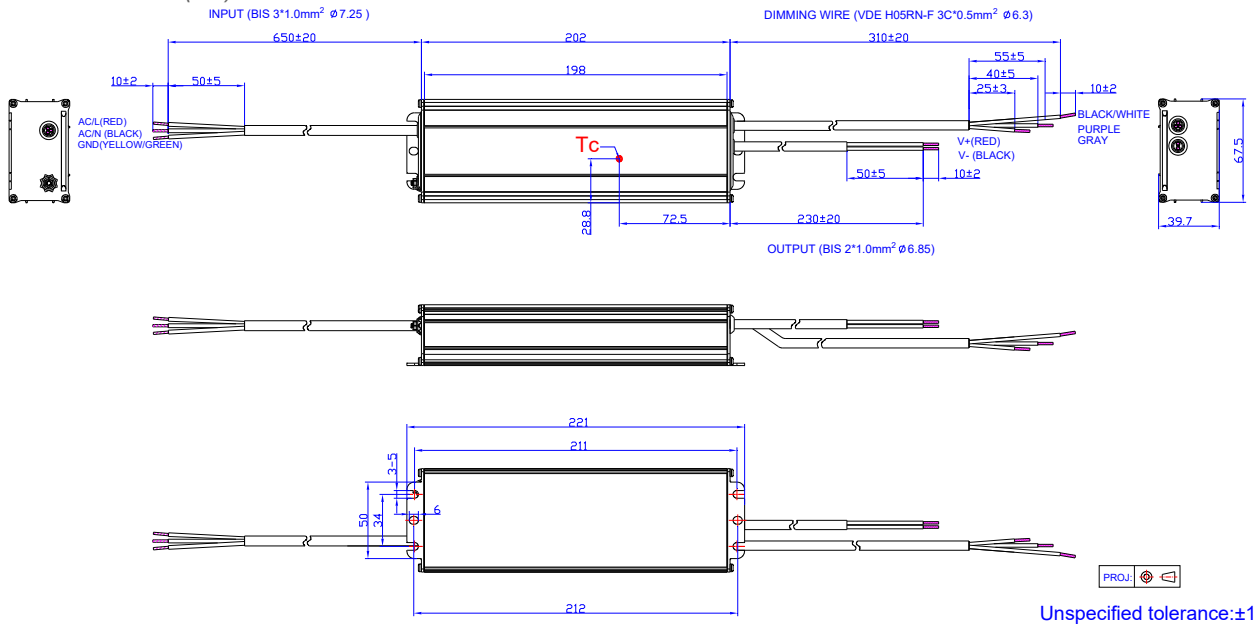
Mechanical Outline

EUK-200SxxxDV(TV)



Unspecified tolerance:±1

EUK-200SxxxDV(TV)-3000



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 |
| 2017-09-19 | A | Datasheets Release | / | / |
| 2017-11-30 | B | Features | 3 Timer Modes Dimmable (TT models) | Updated |
| | | Models | EUK-200SxxxTV | Added |
| | | I-V Operation Area | EUK-200SxxxTV | Added |
| | | Output Current Setting(losset) Range | EUK-200SxxxTV | Added |
| | | Output Current Setting Range with Constant Power | EUK-200SxxxTV | Added |
| | | No Load Output Voltage | EUK-200SxxxTV | Added |
| | | Efficiency at 120 Vac input | EUK-200SxxxTV | Added |
| | | Efficiency at 220 Vac input | EUK-200SxxxTV | Added |
| | | Efficiency at 277 Vac input | EUK-200SxxxTV | Added |
| | | Dimming Specification | TV Models | Added |
| | | Efficiency vs. Load | EUK-200SxxxTV | Added |
| | | Dimming | / | Updated |
| 2018-05-30 | C | EAC | / | Added |
| | | Description | / | Updated |
| | | Mechanical Outline | / | Updated |
| 2023-08-24 | D | Product Photograph | / | Updated |
| | | TUV logo | / | Deleted |
| | | Independent logo | / | Added |
| | | CCC logo | / | Updated |
| | | Features | / | Updated |
| | | Models | Notes(5) | Added |
| | | Safety &EMC Compliance | / | Updated |
| | | Dimming | / | Updated |
| | | Programming Connection Diagram | / | Updated |
| Mechanical Outline | EUK-200SxxxDV(TV)-3000 | Added | | |
| | | RoHS Compliance | / | Updated |

Revision History (Continued)

| Change Date | Rev. | Description of Change | | |
|-------------|------|------------------------|----------|---------|
| | | Item | From | To |
| 2024-05-14 | E | Product Photograph | / | Updated |
| | | EAC logo | / | Deleted |
| | | Safety &EMC Compliance | EAC | Deleted |
| 2024-08-14 | F | Format | / | Updated |
| | | ENEC/CCC logo | / | Deleted |
| | | Safety &EMC Compliance | ENEC/CCC | Deleted |