ADVANCE by signify

# LED Driver

Xitanium

XH180C180V144BSF2



Xitanium Long-lasting and low maintenance, LED-based light sources are an excellent solution for all lighting applications. For optimal performance, these solutions require reliable drivers matching the long lifetime of the LEDs. The Advance Xitanium LED outdoor driver portfolio offers a range of products specially designed to operate LED solutions in outdoor applications. These drivers are designed for hard-wired integration into outdoor luminaires for the most rugged applications. They operate to specification under wide temperature and electrical ranges to ensure reliability.

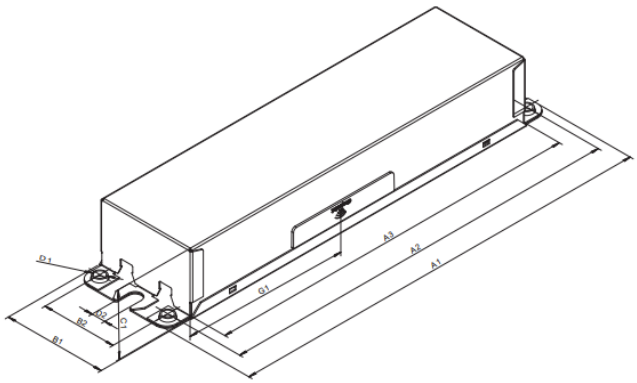
## Specifications

| Input Voltage (Vac) | Output Power (W) | Output Voltage (V) | Output Current (A) | Efficiency @ Max Load | Max Case Temp. (°C) Life/UL | Input Current (A) | Input Power (W) | THD @ Max Load (%) | Power Factor @ Max Load | Surge Protect (Combi Wave, KV) | Dimming | Dimming Range (%) | Min Dimming Current (mA) | Drive Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 347 | 180 | 50-144 | 0.1-1.8 | 92.0 | 85 / 90 | 0.55 | 200 | <10 | >0.95 | 6 | 0-10V | 10-100 | 100 | CC |
| 480 | | | | 92.5 | | 0.4 | 200 | <10 | >0.95 | | | | | |

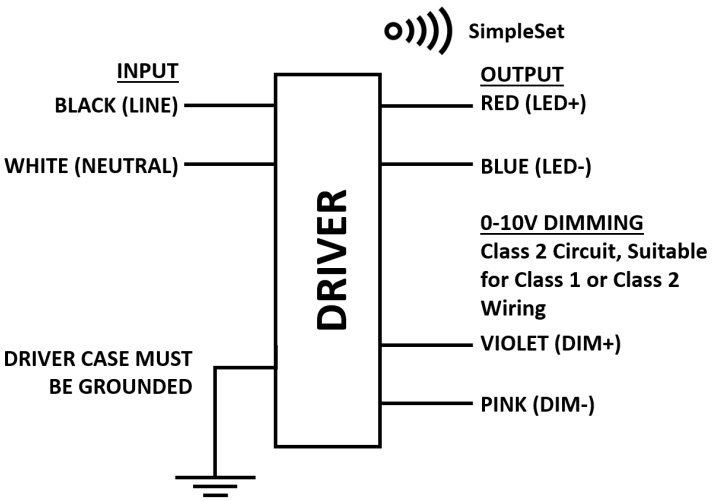
## Enclosure

| Item | In(mm) | Tolerance (mm) |
|---|---|---|
| Overall length (A1) | 9.47(240.5) | +/-0.5 |
| Mounting Length (A2) | 8.91(226.2) | +/-0.5 |
| Case Length (A3) | 8.31(211) | +/-0.5 |
| Case Width (B1) | 2.31(58.6) | +/-0.5 |
| Mounting Width (B2) | 1.69(42.9) | +/-0.5 |
| Case Height (C1) | 1.48(37.6) | +/-0.5 |
| Mounting Hole Diameter (D1) | 0.23(5.9) | +/-0.5 |
| Mounting Hole Diameter (D2) | 0.31(7.9) | +/-0.5 |
| Center of SimpleSet antenna (G1) | 3.77(95.8) | +/-3 |

## Mechanical Diagram




## Wiring Diagram




- Wire Length: 270 mm with 30 mm tolerance.
- Install in accordance with national and local electrical codes.
- The field-wiring leads or push-in terminals shall be fully enclosed.

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### Features

- 50,000+ hour lifetime
- Excellent thermal performance
- 0-10V dimming suitable for UL Class 1 and Class 2 wiring

### Benefits

- Enables long life luminaire designs
- Helps to maximize energy savings and allows application specific light levels
- Allows luminaire designs for ambient environments

### Application

- Area
- Roadway
- Parking garages
- Floodlights
- High-bay, Mid-bay, Low-bay fixtures

## Logistical data

| Specification item | Value |
|---|---|
| Product name | XH180C180V144BSF2 |
| EOC | XH180C180V144BSF2 |
| Logistic code 12NC | 9290 017 83213 |
| Product code | XH180C180V144BSF2M |
| Pieces per box | 10 |
| Weight | 950 gram |

All the specifications are typical and at $T_{ambient}$ = 25°C unless specified otherwise

## Electrical input data

| Specification item | Value | Value | Unit | Condition |
|---|---|---|---|---|
| Rated input voltage range | 312...528 | | $V_{ac}$ | Performance range |
| Rated input voltage | 347 | 480 | $V_{ac}$ | |
| Rated input frequency | 50...60 | 50...60 | Hz | Performance range |
| Rated input current | 0.55 | 0.4 | A | @ rated output power @ rated input voltage |
| Rated input power | 200.0 | 200.0 | W | @ rated output power @ rated input voltage |
| Efficiency | 92.0 | 92.5 | % | @ rated output power @ rated input voltage |

## Electrical output data

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Output voltage | 50...144 | $V_{dc}$ | |
| Output voltage max. | 200 | V | Open Circuit Voltage |
| Output current | 100...1800 | mA | |
| Output current min programmable | 100 | mA | |
| Min output current | 100 | mA | |
| Output current tolerance ± | 5 | % | within performance window |
| Output current ripple LF | ≤ 15 | % | @ max Iout |
| Output current ripple LF | ≤ 4 | % | @ frequency range 60Hz-3KHz |
| Output $P_{st}^{LM}$ | ≤ 1.0 | | Flicker in compliance per NEMA 77 |
| Output SVM | ≤ 1.0 | | Flicker in compliance per NEMA 77 |
| Output power | 5.0...180.0 | W | |
| Minimum performance output power | 60 | W | Power factor > 0.9 and THD < 20% |

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## Control interfaces

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Control method | 0-10V | | |
| Dimming range | 10...100 | % | Default range |
| Dimming Source Current | 0.15 | mA | |
| Maximum Dimming Voltage | 12 | V | |
| Dimming Leakage Current | 0.042 | mA | Max number of driver in parallel, refer to Design-in Guide. |

## Isolation

U = Max. input voltage

| Isolation per UL-8750 | Input | Output | 0-10V | Enclosure |
|---|---|---|---|---|
| Input | - | 2U + 1kVac | 2U + 1kVac | 2U + 1kVac |
| Output | 2U + 1kVac | - | 2U + 1kVac | 500Vac |
| 0-10V | 2U + 1kVac | 2U + 1kVac | - | 2U + 1kVac |
| Enclosure | 2U + 1kVac | 500Vac | 2U + 1kVac | - |

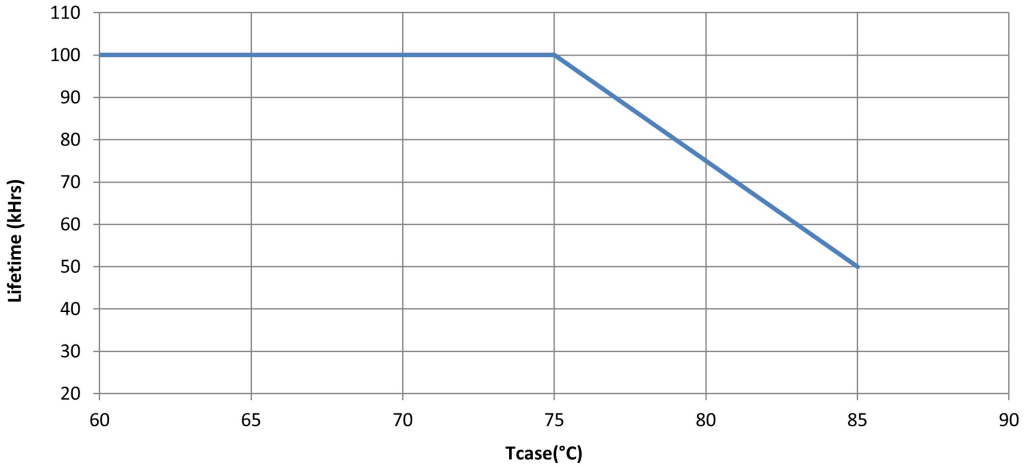
## Operational temperatures and humidity

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Ambient temperature | -40...+55 | °C | Higher ambient temperature allowed as long as Tcase-max is not exceeded |
| Tcase-UL | 90 | °C | Max. temperature measured at $T_{case}$-point |
| Tcase-life | 85 | °C | C10 = 50000 hours measured at $T_c$-point |

## Lifetime

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Driver lifetime | 50,000 | hours | Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10% |

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Maximum failures = 10%

## Programmable features

| Specification item | Available | Default setting | Condition |
|---|---|---|---|
| Set Adjustable Output Current (AOC) | NFC, SimpleSet | 1500 mA | |
| Driver Temperature Limit (DTL) | Yes | | |
| Adjustable Light Output (ALO) | Yes | | |
| Constant Light Output (CLO) | Yes | | |
| 0-10V | Yes | | |
| Dynadimmer | Yes | | |
| Min Dim Level (%) | Yes | | |
| OEM Write Protection (OWP) | Yes | | |

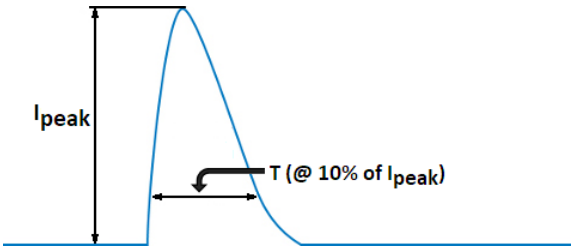
## Non-programmable features

| Specification item | Value | | Condition |
|---|---|---|---|
| Open load protection | Yes | | Automatic recovering |
| Short circuit protection | Yes | | Automatic recovering |
| Over power protection | Yes | | Automatic recovering |
| Overtemperature protection | Yes | | Automatic recovering |

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## Inrush current

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Inrush current | 59.6 | A | Input voltage 347V |
| Inrush current | 82 | A | Input voltage 480V |
| Inrush peak width | 231 | µs | Input voltage 347V, measured at 10% height |
| Inrush peak width | 229 | µs | Input voltage 480V, measured at 10% height |




## Surge immunity

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Mains surge immunity (diff. mode) | 6 | kV | ANSI Surge Type 1.2/50us Combination Wave (w/t 2 ohm) |
| Mains surge immunity (comm. mode) | 6 | kV | ANSI Surge Type 1.2/50us Combination Wave (w/t 2 ohm) |

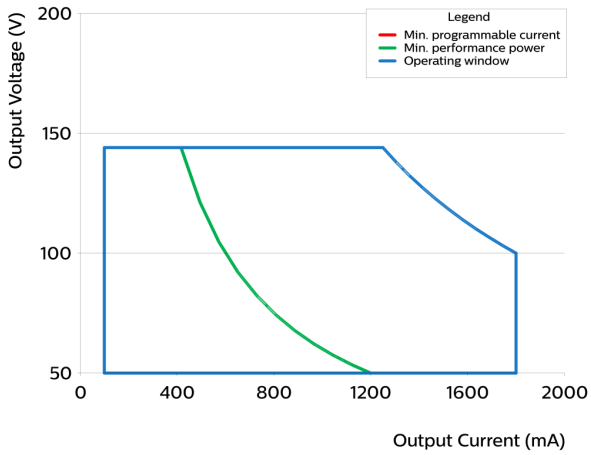
## Approbation

| Specification item | Value |
|---|---|
| Approval Marks / Agency Approbations | NOM / RoHS / UL Class P / UL Listed US & Can |
| Environmental protection rating | UL damp & dry, Type HL |
| Audible Noise | <24dB Class A |

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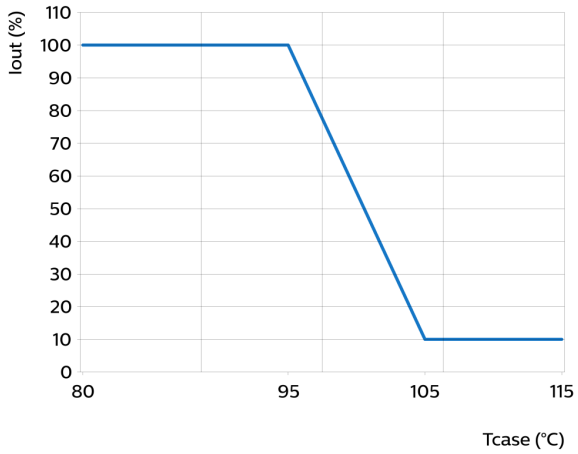
## Graphs

### Operating window




- Factory default output current is 1.5A.
- To get a 100% to 10% dimming range, the output current setting through AOC should be ≥ 1.0A.
- Factory default minimum dimming is 10%. This can be adjusted between 10% and 100% using Advance MultiOne.

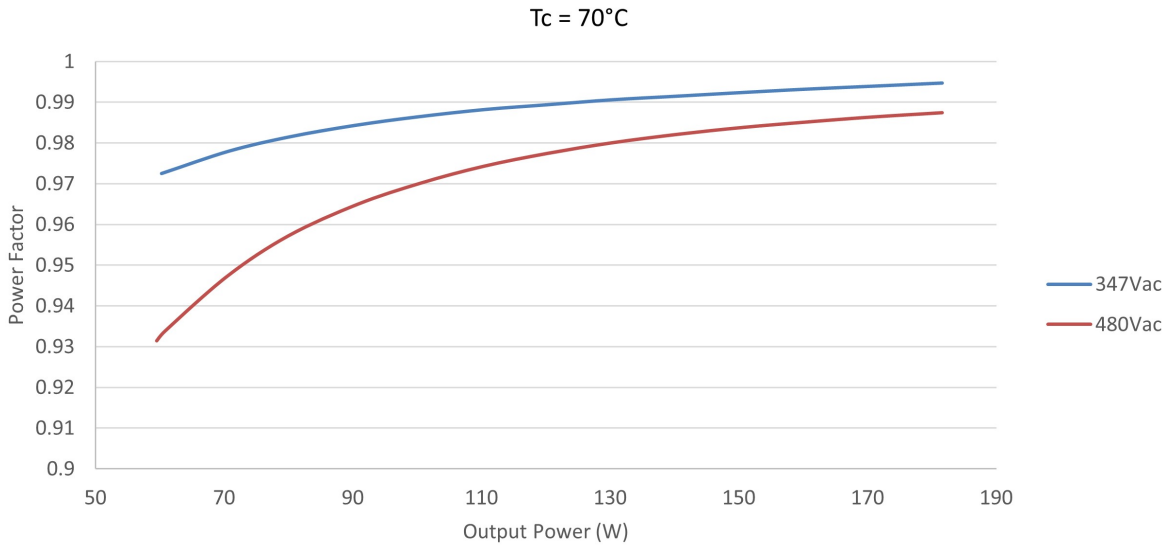
### Over Temperature Protection



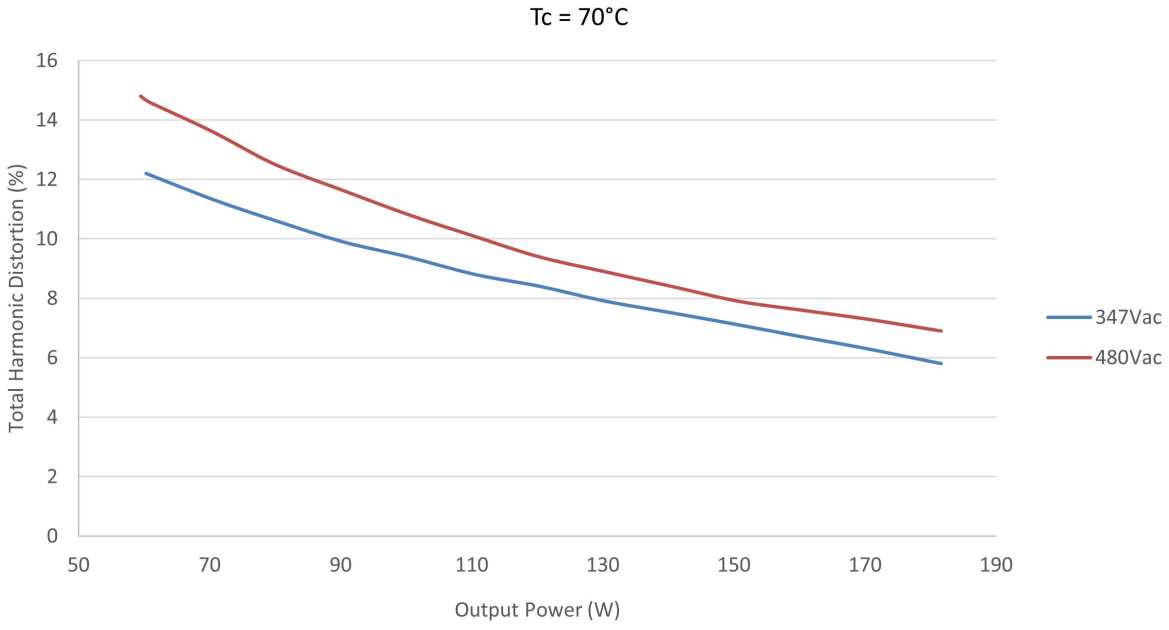

Adjustable via DTL with MultiOne Programming.

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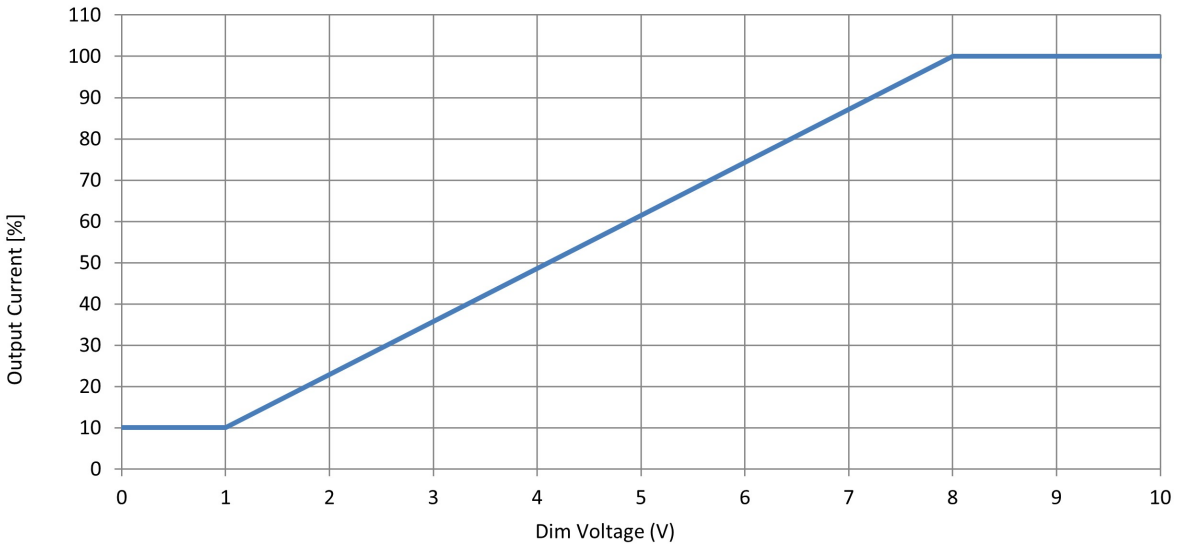
**Power factor versus output power**



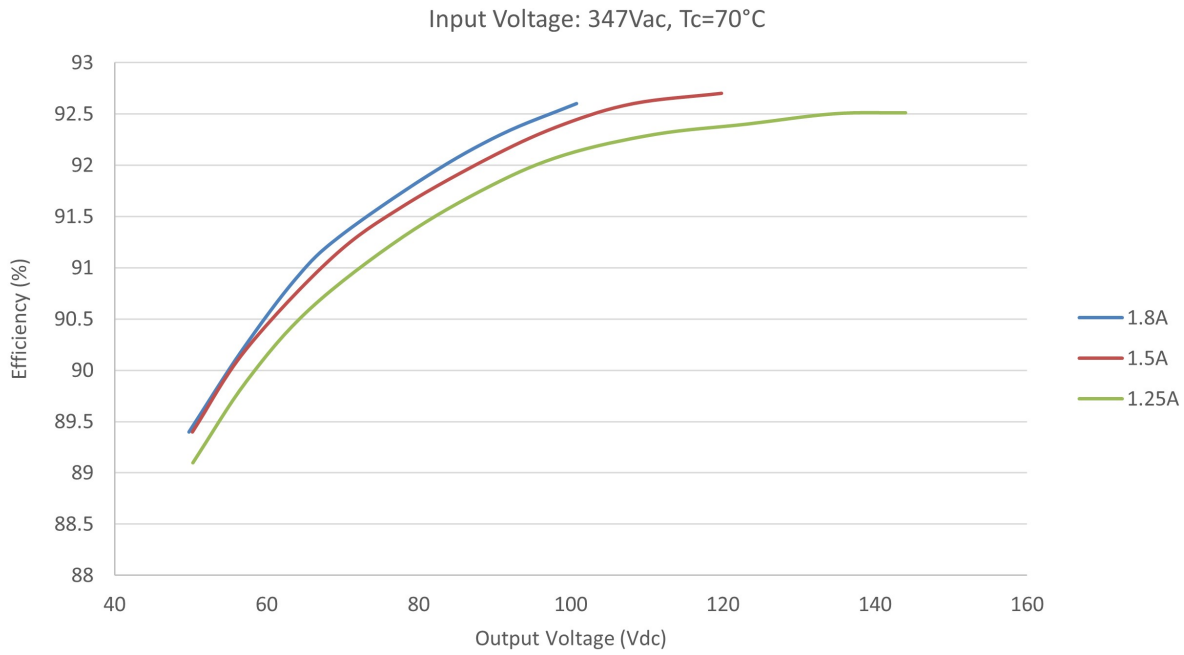

**THD versus output power**

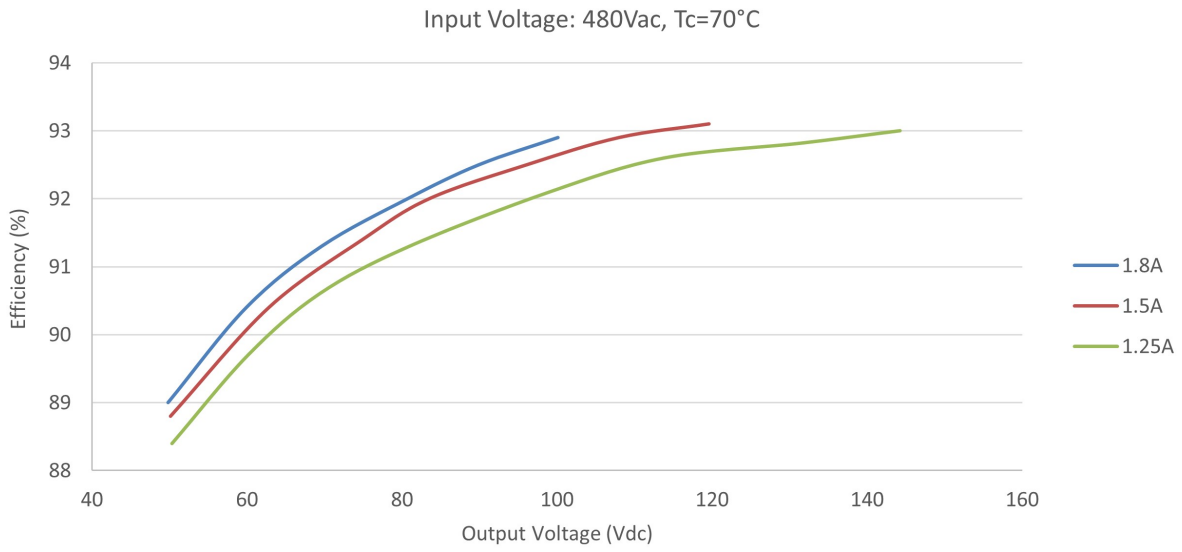


### I_out as function of 0-10V interface




### Efficiency as function of $V_{out}$






## Appendix

### Approved Dimmer List

| Manufacturer | Manufacturer Part Number |
|---|---|
| Lutron | Visit www.lutron.com/ advance for a list of dimmers (Mark VII) that will work with this driver |
| Leviton | IllumaTech IP7 series |
| Philips | Sunrise - SR1200ZTUNV |

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