

# PHILIPS

## Xitanium

### LED driver



## Datasheet

### Xitanium Xtreme LED Drivers Dimmable (1-10V)

Xitanium 150W 0.70A 1-10V 230V S240 sXt

9290 014 05506

LED-based light sources are an excellent solution for outdoor environments. They are long-lasting and require low maintenance. However, to get the best out of the LEDs, these light sources require highly reliable and efficient LED Drivers. Philips Xitanium Dimmable (1-10V) LED Xtreme Drivers for Outdoor and Industry applications are specifically designed to deliver reliable performance and protection while meeting the strict performance, approbation and application requirements.

#### Benefits

- Reliable
- Robust design
- Long lifetime
- Superior surge protection
- 5 years warranty
- Waterproof performance
- Proven robustness & reliability secure the lowest luminaire maintenance over time
- Extreme compact size, suitable for a wide range of luminaires
- Easy to design-in based on good thermal management and extra EMI margin

#### Features

- Proven robust and reliable electronic driver design
- Achieving highest efficiencies based on advanced technology
- Long lifetime
- Solid surge protection
- DC operation for industry applications (150W)
- Suitable for Insulation Class I and Class II luminaires
- CE, ENEC, and CB certified

#### Application

- Road and Street Lighting
- Tunnel Lighting
- Area and Flood Lighting
- High-bay lighting

## Electrical input data

| Specification item           | Value     | Unit            | Condition  |
|------------------------------|-----------|-----------------|--|
| Rated input voltage range    | 220...240 | V <sub>ac</sub> | Performance range  |
| Rated input voltage          | 230       | V <sub>ac</sub> |  |
| Rated input frequency range  | 50...60   | Hz              | Performance range  |
| Rated input current          | 0.72      | A               | @ rated output power @ rated input voltage               |
| Max. input current           | 0.82      | A               | @ rated output power @ minimum performance input voltage |
| Rated input power            | 165       | W               | @ rated output power @ rated input voltage               |
| Power factor                 | 0.99      |                 | @ rated output power @ rated input voltage               |
| Total harmonic distortion    | 7         | %               | @ rated output power @ rated input voltage               |
| Efficiency                   | 92        | %               | @ rated output power @ rated input voltage               |
| Rated input voltage DC range | 186...250 | V <sub>dc</sub> | Performance range  |
| Input voltage AC range       | 198...264 | V <sub>ac</sub> | Operational range  |
| Input frequency AC range     | 45...66   | Hz              | Operational range  |
| Input voltage DC range       | 168...275 | V <sub>dc</sub> | Operational range  |
| Isolation input to output    | Double    |                 |  |

## Electrical output data

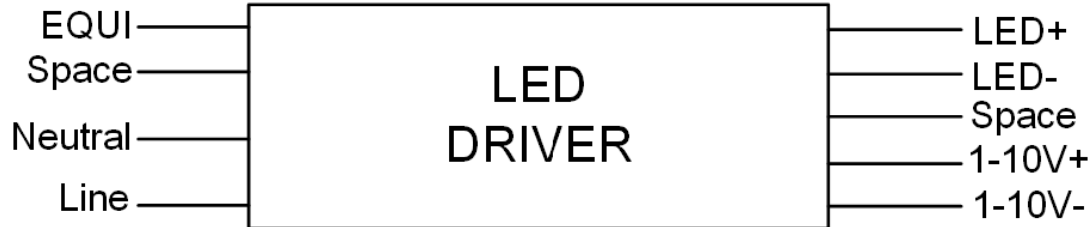
| Specification item         | Value            | Unit            | Condition                       |
|----------------------------|------------------|-----------------|---------------------------------|
| Regulation method          | Constant Current |                 |                                 |
| Output voltage             | 100...214        | V <sub>dc</sub> |                                 |
| Output voltage max.        | 320              | V               | Maximum output voltage (rms)    |
| Output current             | 0.7              | A               |                                 |
| Output current min dimming | 70               | mA              |                                 |
| Output current tolerance ± | 5                | %               |                                 |
| Output current ripple LF   | ≤ 4              | %               | Ripple = peak / average, < 3kHz |
| Output current ripple HF   | ≤ 15             | %               |                                 |
| Output power               | 7...150          | W               |                                 |

## Electrical data controls input

| Specification item                 | Value    | Unit | Condition          |
|------------------------------------|----------|------|--------------------|
| Control method                     | 1-10V    |      | Amplitude dimming  |
| Dimming range                      | 10...100 | %    | 1-8V dimming curve |
| Isolation controls input to output | Double   |      | acc. IEC61347-1    |

## Wiring and Connections

| Specification item        | Value               | Unit                  | Type   |
|---------------------------|---------------------|-----------------------|--|
| Input wire cross-section  | 0.5...2.5 / 20...14 | mm <sup>2</sup> / AWG | WAGO804, solid / stranded wire                       |
| Input wire strip length   | 10...11             | mm                    |  |
| Output wire cross-section | 0.5...1.5 / 20...16 | mm <sup>2</sup> / AWG | WAGO250 (pitch 3.5 mm), solid / stranded wire        |
| Output wire strip length  | 8.5...9.5           | mm                    |  |
| Maximum cable length      | 1.5                 | m                     | Total length of wiring including LED module, one way |

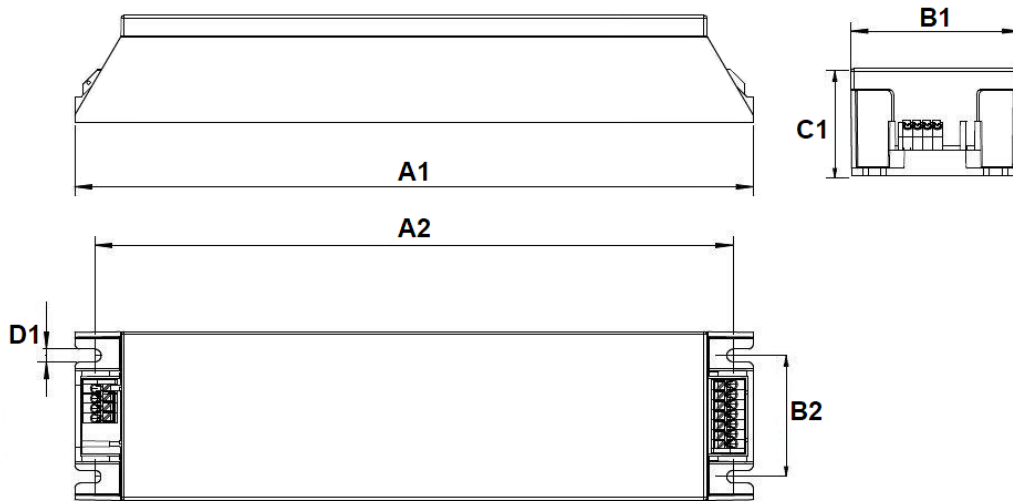


## Insulation

| Insulation per IEC61347-1 | Mains  | LED    | 1-10V  | EQUI   |
|---------------------------|--------|--------|--------|--------|
| Mains                     |        | Double | Double | Double |
| LED                       | Double |        | Double | Basic  |
| 1-10V                     | Double | Double |        | Basic  |
| EQUI                      | Double | Basic  | Basic  |        |

## Dimensions and weight

| Specification item          | Value | Unit | Tolerance (mm) |
|-----------------------------|-------|------|----------------|
| Length (A1)                 | 240   | mm   |                |
| Mounting hole distance (A2) | 226   | mm   |                |
| Width (B1)                  | 59.7  | mm   |                |
| Width (B2)                  | 42.9  | mm   |                |
| Height (C1)                 | 37.8  | mm   |                |
| Mounting hole diameter (D1) | 4.5   | mm   |                |
| Weight                      | 710   | gram |                |



## Logistical data

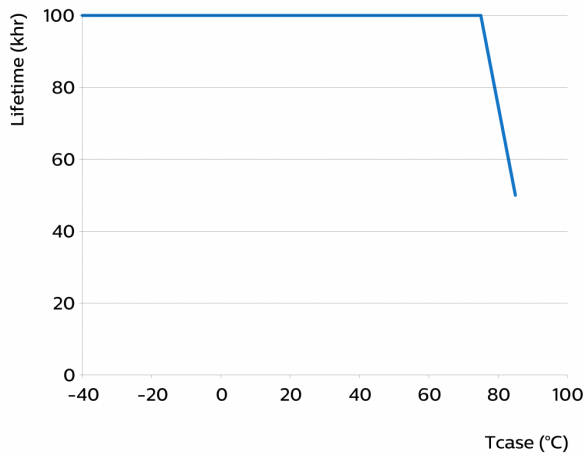
| Specification item | Value                                   |
|--------------------|---|
| Product name       | Xitanium 150W 0.70A 1-10V 230V S240 sXt |
| EOC                | 871869664623600                         |
| Logistic code 12NC | 9290 014 05506                          |
| EAN1 (GTIN)        | 8718696646236                           |
| EAN3 (box)         | 8718696646243                           |
| Pieces per box     | 10                                      |

## 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 |
| Starting Ambient temperature | -40...+55 | °C   |   |
| Tcase-max                    | 85        | °C   | Maximum temperature measured at Tcase-point                             |
| Tcase-life                   | 75        | °C   | Measured at Tcase-point   |
| Maximum housing temperature  | 130       | °C   | In case of a failure, inherent by design                                |
| Relative humidity            | 10...90   | %    | Non-condensing  |

## Lifetime

| Specification item | Value   | Unit  | Condition   |
|--------------------|---------|-------|---|
| Driver lifetime    | 100,000 | hours | Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10% |



## Storage temperature and humidity

| Specification item  | Value     | Unit | Condition      |
|---------------------|-----------|------|----------------|
| Ambient temperature | -40...+80 | °C   |                |
| Relative humidity   | 5...95    | %    | Non-condensing |

## Programmable features

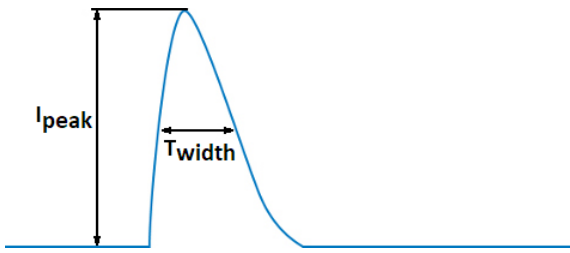
| Specification item                  | Available | Default setting | Condition |
|-------------------------------------|-----------|-----------------|-----------|
| Set Adjustable Output Current (AOC) | No        | 700 mA          |           |

## Features

| Specification item                          | Value    | Condition            |
|---|----------|----------------------|
| Open load protection                        | Yes      | Automatic recovering |
| Short circuit protection                    | Yes      | Automatic recovering |
| Over power protection                       | Yes      | Automatic recovering |
| Hot wiring                                  | No       |                      |
| Suitable for fixtures with protection class | I and II | per IEC60598         |
| Overtemperature protection                  | Yes      | Automatic recovering |

## Inrush current

| Specification item         | Value    | Unit    | Condition                                      |
|----------------------------|----------|---------|--|
| Inrush current $I_{peak}$  | 34       | A       | Input voltage 230V                             |
| Inrush current $T_{width}$ | 475      | $\mu$ s | Input voltage 230V, measured at 50% $I_{peak}$ |
| Drivers / MCB 16A type B   | $\leq 8$ | pcs     | Indicative value                               |



| MCB | Rating | Relative number of LED drivers |
|-----|--------|--------------------------------|
| B   | 4A     | 25%                            |
| B   | 6A     | 40%                            |
| B   | 10A    | 63%                            |
| B   | 13A    | 81%                            |
| B   | 16A    | 100% (stated in datasheet)     |
| B   | 20A    | 125%                           |
| B   | 25A    | 156%                           |
| B   | 32A    | 200%                           |
| B   | 40A    | 250%                           |
| C   | 4A     | 42%                            |
| C   | 6A     | 63%                            |
| C   | 10A    | 104%                           |
| C   | 13A    | 135%                           |
| C   | 16A    | 170%                           |
| C   | 20A    | 208%                           |
| C   | 25A    | 260%                           |
| C   | 32A    | 340%                           |
| C   | 40A    | 415%                           |

## Driver touch current / protective conductor current

| Specification item                    | Value | Unit    | Condition   |
|---------------------------------------|-------|---------|---|
| Typical Touch Current (ins. Class II) | 0.45  | mA peak | Acc. IEC61347-1. LED module contribution not included |

## Surge immunity

| Specification item                  | Value | Unit | Condition                                   |
|-------------------------------------|-------|------|---|
| Mains surge immunity (diff. mode)   | 6     | kV   | Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us  |
| Mains surge immunity (comm. mode)   | 8     | kV   | Acc. IEC61000-4-5. 12 Ohm 1.2/50us, 8/20us  |
| Control surge immunity (diff. mode) | 0.5   | kV   | Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us  |
| Control surge immunity (comm. mode) | 2.5   | kV   | Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us |

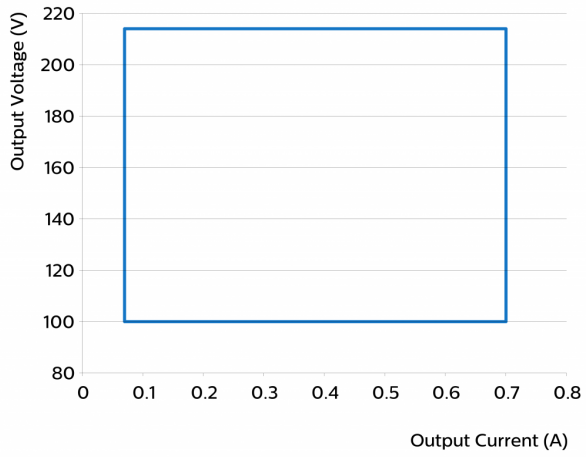
## Application Info

| Specification item                     | Value  |
|--|--|
| Approval marks                         | 130 / CB / CE / Double-insulated Built-In / EAC / EL / ENEC / UA |
| Ingress Protection classification (IP) | 20   |
| Application                            | Outdoor  |
| Mounting Type                          | Built-in   |

## Graphs

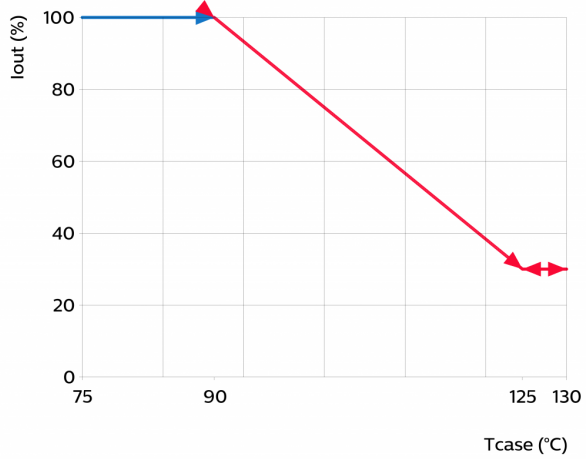
### Operating window

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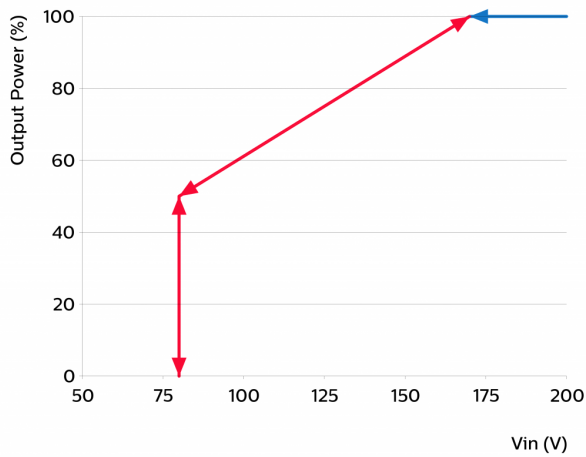
### Thermal Guard

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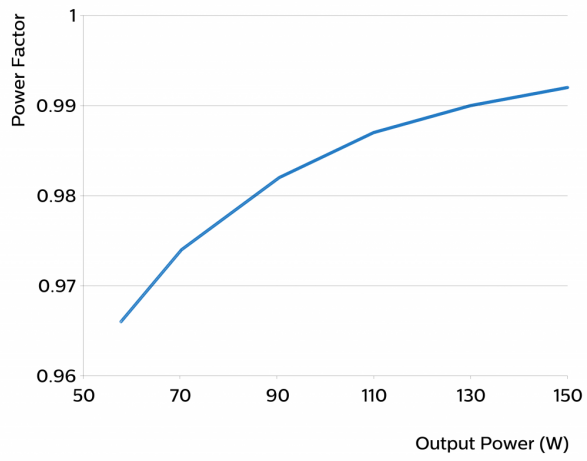
### Mains Guard

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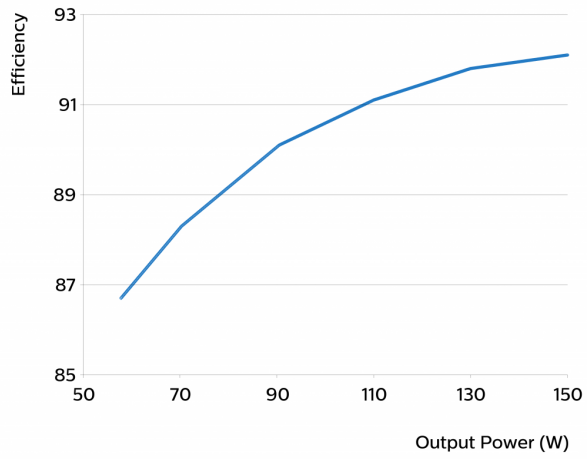
### Power factor versus output power

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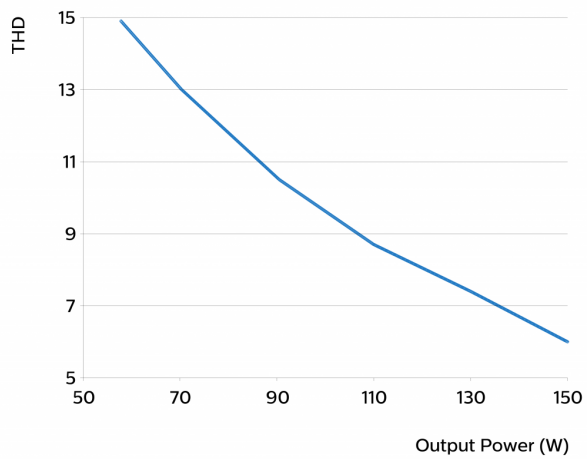
### Efficiency versus output power

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### THD versus output power

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