Xitanium

Datasheet

# LED drivers – mini and extreme small

Xitanium 20W/m 0.15-0.5A 54V I TD 230V
9290 034 23406



### Enabling future-proof LED technology

Xitanium LED drivers are designed to operate LED solutions for general lighting applications. Reliability is enhanced by features that protect the connected LED module, e.g. hot wiring, reduced ripple current and thermal derating. Most drivers feature central DC operation. In the coming years LEDs will continue to increase in efficiency, creating challenges for OEMs. With Xitanium LED drivers, flexibility in luminaire design is assured thanks to an adjustable output current. Application-oriented operating windows offer stable lumen output and light quality levels that specifiers and architects demand. The adjustable output current also enables operation of various LED PCB solutions from different manufacturers.

## Benefits

- High reliability underpinned by 5 year warranty
- Future-proof flexibility - application-oriented operating windows enable LED generation and complexity management
- Compatibility - can also be used for other manufacturers' modules or OEMs' own PCB designs

## Application

- Retail

## Features

- Operating windows - Output current can be adjusted via the Philips MultiOne configurator ('TD' drivers) or with a resistor outside the driver
- Multiple versions - DALI dimmable & programmable, trailing-edge dimmable, fixed-current/fixed-output trailing-edge dimmable, fixed-output, and fixed-current/fixed-output
- Wide range of power ratings
- Choice of housing designs -linear housing for tracks in '3 in 1' in design, conventional HID housings for down and Spotlighting and WH housing for independent use with strain relief and loop through

## Logistical data

| Specification item | Value |
|---|---|
| Product name | Xitanium 20W/m 0.15-0.5A 54V I TD 230V |
| EOC | 871951448626300 |
| Logistic code 12NC | 9290 034 23406 |
| EAN1 (GTIN) | 8719514486263 |
| EAN3 (box) | 8719514486270 |
| Pieces per box | 36 |
| Weight | 120 gram |

## Electrical input data

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Rated input voltage range | 220...240 | $V_{ac}$ | Performance range |
| Rated input voltage | 230 | $V_{ac}$ | |
| Rated input frequency | 50...60 | Hz | Performance range |
| Rated input current | 0.11 | A | @ full output power @ rated input voltage |
| Max. input current | 0.13 | A | @ rated output power @ minimum performance input voltage |
| Rated input power | 23.0 | W | @ full output power @ rated input voltage |
| Power factor performance range | ≥ 0.90 C | | @ rated output power @ rated input voltage@ rated output power @ rated input voltage |
| Total harmonic distortion | 20 | % | @ rated output power @ rated input voltage |
| Efficiency | 90.0 | % | @ full output power @ rated input voltage |
| Rated input voltage DC | 186...250 | $V_{dc}$ | Performance range. About different DC input forms, please refer to Design in Guide. |
| Rated input current DC | ≤ 0.23 | $A_{dc}$ | Performance range |
| Input voltage AC | 198...264 | $V_{ac}$ | Operational range |
| Input frequency AC | 45...66 | Hz | Operational range |
| Input voltage DC | 168...275 | $V_{dc}$ | Operational range. About different DC input forms, please refer to Design in Guide. |
| Standby Power (no load) | 0.5 | W | |
| Isolation input to output | SELV | | |

## Electrical output data

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Regulation method | Constant Current | | |
| Output voltage | 5...54 | $V_{dc}$ | |
| Output voltage max. | 60 | V | Maximum output voltage (rms) |
| Output current | 150...500 | mA | |
| Output current min programmable | 150 | mA | |
| Min output current | 3.5 | mA | |
| Output current tolerance ± | 5 | % | @full load |
| Output current ripple LF | ≤ 4 | % | Ripple = peak / average, < 3kHz |
| Output $P_{st}^{LM}$ | ≤ 0.3 | | |
| Output SVM | ≤ 0.1 | | |
| Output power | 0.0...20.0 | W | |
| Minimum performance output power | 5 | W | Power factor > 0.9 and THD < 20% |

## Control interfaces

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Control method | DALI, TD | | See design-in guide at www.philips.com/oem for more controllability details. |
| Dimming range | 1...100 | % | Default range |
| Isolation controls input to output | Reinforced | | acc. IEC61347-1 |
| Supported DALI parts | 207, 251, 252, 253 | | Check website: https://www.dali-alliance.org/dali/standards.html for details. |

## Wiring and Connections

| Specification item | Value | Unit | Type |
|---|---|---|---|
| Input wire cross-section | 0.75...1.5 / 18...16 | mm² / AWG | solid / stranded wire |
| Input wire strip length | 8...9 | mm | |
| Output wire cross-section | 0.5...1.5 / 20...16 | mm² / AWG | solid / stranded wire |
| Output wire strip length | 8...9 | mm | |
| Control wire cross-section | 0.75...1.5 / 18...16 | mm² / AWG | solid / stranded wire |
| Control wire strip length | 8...9 | mm | |
| Maximum cable length | 2 | m | Total length of wiring including LED module, one way |

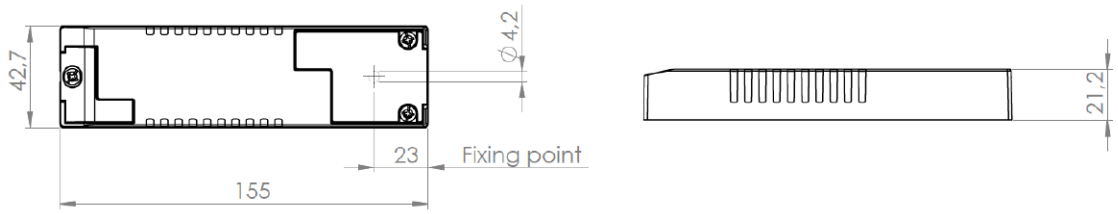



## Isolation

| Insulation per IEC61347-1 | Mains | LED | DALI |
|---|---|---|---|
| Mains | - | SELV | Basic |
| LED | SELV | - | Reinforced |
| DALI | Basic | Reinforced | - |

## Dimensions and weight

| Specification item | Value | Unit | Tolerance (mm) |
|---|---|---|---|
| Length (A1) | 155 | mm | |
| Width (B1) | 42.7 | mm | |
| Height (C1) | 21.2 | mm | |
| Mounting hole diameter (D1) | 4.2 | mm | |
| Weight | 120 | gram | |

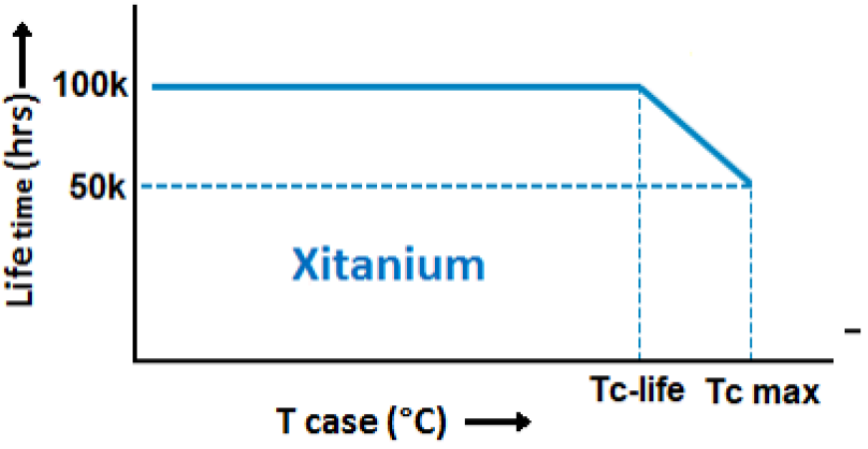



## Operational temperatures and humidity

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Ambient temperature | -20...+50 | °C | Higher ambient temperature allowed as long as Tcase-max is not exceeded |
| Tcase-max | 80 | °C | Maximum temperature measured at $T_{case}$-point |
| Tcase-life | 80 | °C | Measured at $T_{case}$-point |
| Maximum housing temperature | 110 | °C | In case of a failure, inherent by design |
| Relative humidity | 10...90 | % | Non-condensing |

## Lifetime

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




Maximum failures = 10%

| Temperature [°C] | Lifetime | Unit | Condition |
|---|---|---|---|
| 80 | 50000 | hr | Temperature measured @Tc point |
| 75 | >50000 | hr | |
| 70 | >50000 | hr | |

## Storage temperature and humidity

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Ambient temperature | -25...+85 | °C | |
| Relative humidity | 5...95 | % | Non-condensing |

## Programmable features

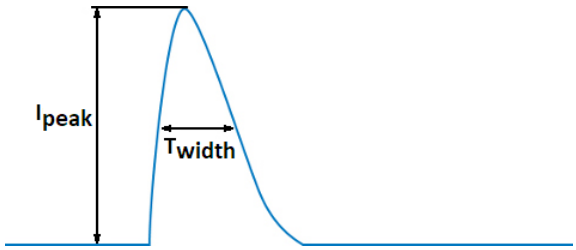
| Specification item | Available | Default setting | Condition |
|---|---|---|---|
| Set Adjustable Output Current (AOC) | Programmable, SimpleSet | 150 mA | |
| Adjustable Light Output (ALO) | Yes | OFF | |
| Constant Light Output (CLO) | Yes | OFF | |
| Touch & Dim (TD) | Yes | ON | |
| Corridor Mode | Yes | OFF | Default: T1=55s, T2=12s, T3=30min |
| DC emergency (DCemDim) | No | | Light output is 100% |
| OEM Write Protection (OWP) | Yes | OFF | |
| Luminaire Info (DALI part 251) | Yes | | |
| Luminaire maintenance (DALI part 253) | 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 |
| Hot wiring | No | |
| Suitable for fixtures with protection class | I and II | per IEC60598 |
| Energy metering (DALI part 252) | Yes | |
| Diagnostics (DALI part 253) | Yes | |

## Inrush current

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Inrush current | 6.7 | A | Input voltage 230V |
| Inrush peak width | 27 | µs | Input voltage 230V, measured at 50% height |
| Drivers / MCB 16A type B @230V AC | ≤ 34 | pcs | Input voltage 230V |




Please refer to the driver design in guide if you use other MCB-types.

If several mini circuit breakers are used directly side-by-side (without distance pieces

a correction factor of 80% has to be applied to the rated current

## Driver touch current / protective conductor current / earth leakage current

| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Typical Touch Current (ins. Class II) | 0.7 | mA peak | Acc. IEC61347-1. LED module contribution not included |

## Surge immunity

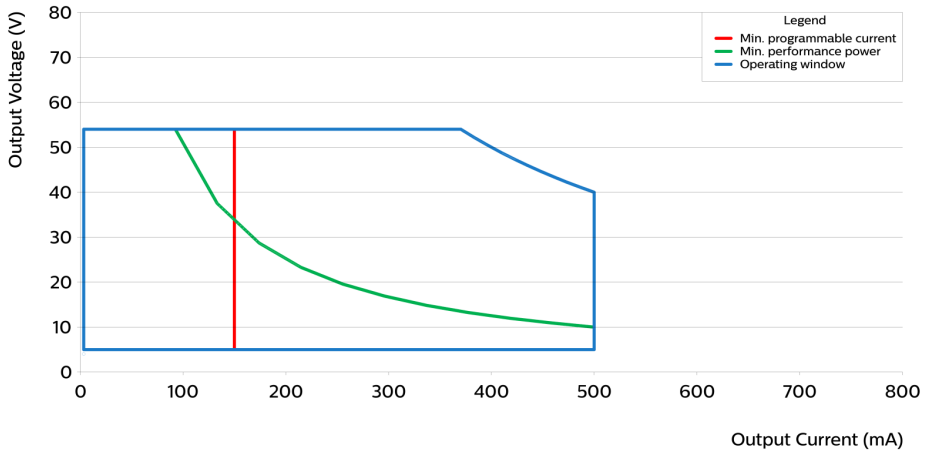
| Specification item | Value | Unit | Condition |
|---|---|---|---|
| Mains surge immunity (diff. mode) | 1 | kV | Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us |
| Mains surge immunity (comm. mode) | 2 | kV | Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us |
| Control surge immunity (diff. mode) | 1 | kV | Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us |
| Control surge immunity (comm. mode) | 2 | kV | Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us |

## Application Info (Approbation)

| Specification item | Value |
|---|---|
| Approval marks and Certifications | BIS / CCC / CE / DALI 2 / EAC / EL / ENEC / RCM / SELV / UKCA |
| Ingress Protection classification (IP) | 20 |
| Application | Indoor Point |
| Mounting Type | Independent |

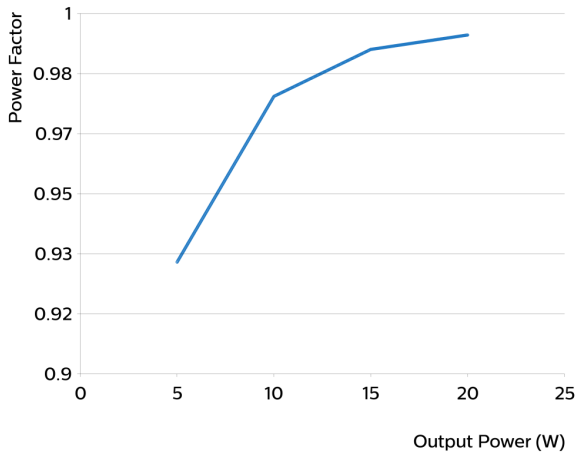
## Graphs

## Operating window

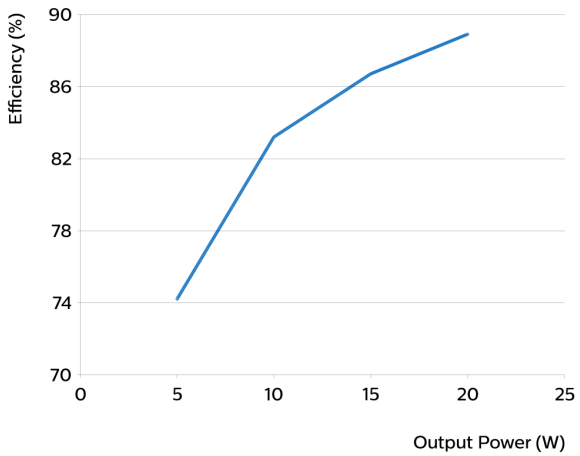



| Type | Output current (mA) | Min. output voltage (V) | Max. output voltage (V) | Max. output power (W) |
|---|---|---|---|---|
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 150 | 5 | 54 | 8.1 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 200 | 5 | 54 | 10.8 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 250 | 5 | 54 | 13.5 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 300 | 5 | 54 | 16.2 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 350 | 5 | 54 | 18.9 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 400 | 5 | 50 | 20 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 450 | 5 | 44 | 20 |
| Xitanium 20W/m 0.15-0.5A 54V I TD 230V | 500 | 5 | 40 | 20 |

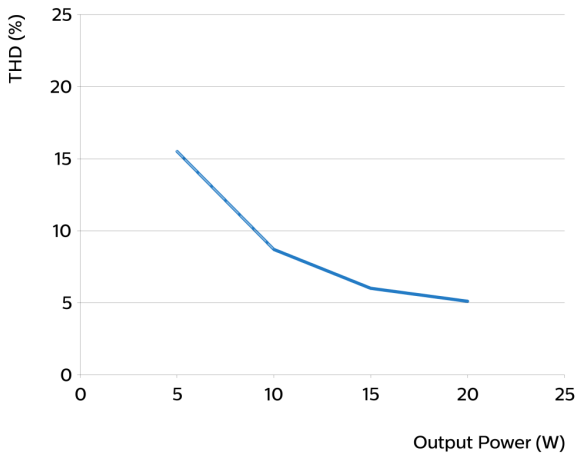
## Power factor versus output power



## Efficiency versus output power




## THD versus output power




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