

# PHILIPS

## Xitanium

### LED driver



## Datasheet

### Xitanium non-isolated DALI dimmable & programmable iXt

Xitanium 100W 0.15-0.5A 300V iXt TD 230V

9290 016 85606

**Xitanium non-isolated DALI drivers stand on three pillars: quality of light, reliability and flexibility.**

By using Xitanium LED drivers in your luminaires, you can be sure to offer your customers high quality of light without visual flicker and stroboscopic effects. The reliability of your complete lighting system is enhanced as our Industry Xtreme drivers offer longer lifetime, high surge specifications and a wide ambient temperature range.

Finally, application-oriented operating windows offer the flexibility required to provide the stable lumen output and light quality levels that are required in demanding industrial applications.

#### Benefits

- High quality of light
- High reliability
- Future-proof flexibility
- Fast and easy wireless programming with SimpleSet
- Flicker and noise free dimming due to amplitude modulation dimming (AM)

#### Features

- High efficiency
- Wide operating windows - output current can be adjusted via the Philips MultiOne software, SimpleSet (NFC) or LEDset (resistor)
- Reduced ripple current
- Industry Xtreme (iXt) drivers offer longer life time, higher surge specifications and a wide T-ambient range

#### Application

- Offices
- Retail: supermarkets, shopping malls
- Indoor industry applications: warehouses, distribution centers, cold storage, manufacturing

## Electrical input data

| Specification item           | Value       | Unit            | Condition                                                |
|------------------------------|-------------|-----------------|----------------------------------------------------------|
| Rated input voltage range    | 220...240   | V <sub>ac</sub> | Nominal range                                            |
| Rated input voltage          | 230         | V <sub>ac</sub> |                                                          |
| Rated input frequency range  | 50...60     | Hz              | Nominal range                                            |
| Rated input current          | 0.49        | A               | @ rated output power @ minimum performance input voltage |
| Rated input power            | 107         | W               | @ rated output power @ rated input voltage               |
| Power factor                 | 0.9         |                 | @ rated output power @ rated input voltage               |
| Total harmonic distortion    | 20          | %               | @ rated output power @ rated input voltage               |
| Efficiency                   | 95          | %               | @ rated output power @ rated input voltage               |
| Rated input voltage DC range | 186...250   | V <sub>dc</sub> | Nominal range                                            |
| Rated input current DC range | 0.59...0.43 | A <sub>dc</sub> | Nominal 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                                        |
| Standby Power                | 0.3         | W               |                                                          |
| Isolation input to output    | No          |                 |                                                          |

## Electrical output data

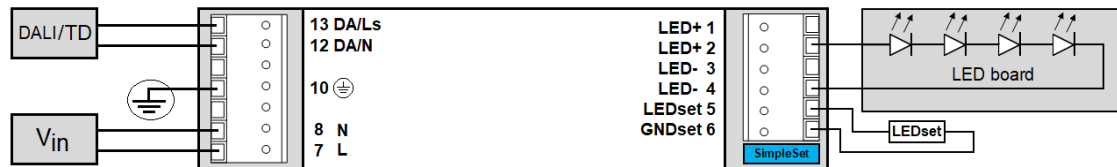
| Specification item                   | Value            | Unit            | Condition                       |
|--------------------------------------|------------------|-----------------|---------------------------------|
| Regulation method                    | Constant Current |                 |                                 |
| Output voltage                       | 100...300        | V <sub>dc</sub> |                                 |
| Output voltage max.                  | 330              | V               | Maximum output voltage (rms)    |
| Output current                       | 0.15...0.5       | A               |                                 |
| Output current min programmable      | 150              | mA              |                                 |
| Output current min dimming           | 3.3              | mA              |                                 |
| Output current tolerance             | ± 5              | %               |                                 |
| Output current ripple LF             | ≤ 4              | %               | Ripple = peak / average, < 3kHz |
| Output P <sub>st</sub> <sup>LM</sup> | ≤ 1              |                 |                                 |
| Output SVM                           | ≤ 0.4            |                 |                                 |
| Output power                         | 28...100         | W               |                                 |

## Electrical data controls input

| Specification item                 | Value                                 | Unit | Condition                                           |
|------------------------------------|---------------------------------------|------|-----------------------------------------------------|
| Control method                     | Corridor Mode, DALI, Touch & Dim (TD) |      | DALI Parts: 101, 102, 207, 251, 252, 253            |
| Dimming range                      | 1...100                               | %    | lower-25°C and higher+50°C dimming to be set to 10% |
| Isolation controls input to output | Basic                                 |      | acc. IEC61347-1                                     |

## Wiring and Connections

| Specification item        | Value     | Unit            | Condition                                            |
|---------------------------|-----------|-----------------|------------------------------------------------------|
| Input wire cross-section  | 0.5...1.5 | mm <sup>2</sup> | WAGO744, solid wire                                  |
|                           | 16...20   | AWG             | WAGO744, solid wire                                  |
| Input wire strip length   | 8...9     | mm              |                                                      |
| Output wire cross-section | 0.5...1.5 | mm <sup>2</sup> | WAGO744, solid wire                                  |
|                           | 16...20   | AWG             | WAGO744, solid wire                                  |
| Output wire strip length  | 8...9     | mm              |                                                      |
| Maximum cable length      | 2000      | mm              | Total length of wiring including LED module, one way |

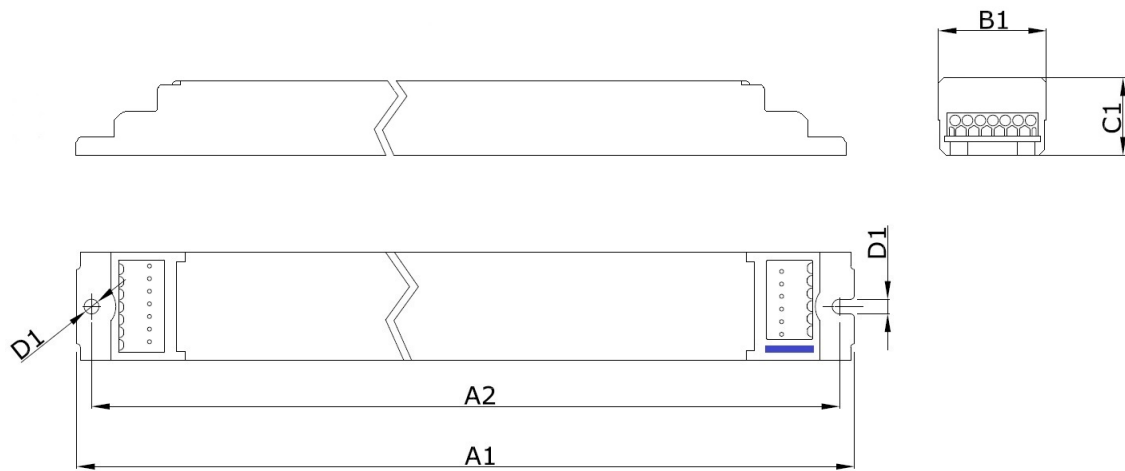


## Insulation

| Insulation per IEC61347-1 | Input | Output | DALI  | Housing |
|---------------------------|-------|--------|-------|---------|
| Input                     |       | Non    | Basic | Basic   |
| Output                    | Non   |        | Basic | Basic   |
| DALI                      | Basic | Basic  |       | Basic   |
| Housing                   | Basic | Basic  | Basic |         |

## Dimensions and weight

| Specification item        | Value | Unit | Condition |
|---------------------------|-------|------|-----------|
| Length (A1)               | 360   | mm   |           |
| Width (B1)                | 30    | mm   |           |
| Height (C1)               | 21    | mm   |           |
| Fixing hole diameter (D1) | 4.1   | mm   |           |
| Fixing hole distance (A2) | 350   | mm   |           |
| Weight                    | 285   | gram |           |



## Logistical data

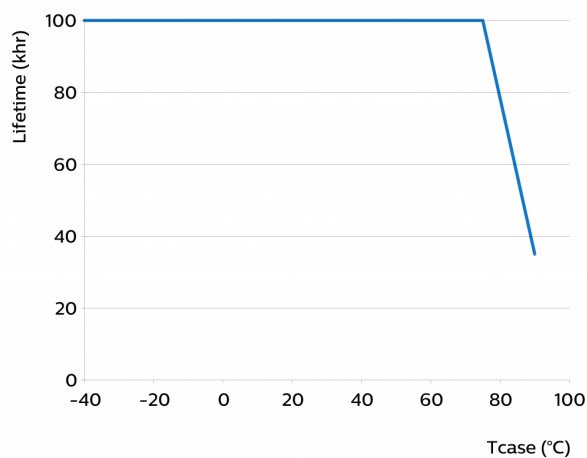
| Specification item | Value                                    |
|--------------------|------------------------------------------|
| Product name       | Xitanium 100W 0.15-0.5A 300V iXt TD 230V |
| EOC                | 871869968856100                          |
| Logistic code 12NC | 9290 016 85606                           |
| EAN1 (GTIN)        | 8718699688561                            |
| EAN3               | 8718699688578                            |
| Pieces per box     | 24                                       |

## Operational temperatures and humidity

| Specification item          | Value     | Unit | Condition                                                                                                                   |
|-----------------------------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature         | -40...+60 | °C   | Higher ambient temperature allowed as long as Tcase-max is not exceeded. Below -30°C DALI performance cannot be guaranteed. |
| Tcase-max                   | 90        | °C   | lifetime 35khrs;                                                                                                            |
| Tcase-life                  | 75        | °C   | lifetime 100khrs; Measured at T <sub>c</sub> -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        | 100,000   | hours    | Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10% |
| Mains switching cycles | > 100,000 | switches | See Design-in guide for detailed explanation                              |



## Storage temperature and humidity

| Specification item  | Value     | Unit | Condition      |
|---------------------|-----------|------|----------------|
| Ambient temperature | -40...+85 | °C   |                |
| Relative humidity   | 5...95    | %    | Non-condensing |

## Programmable features

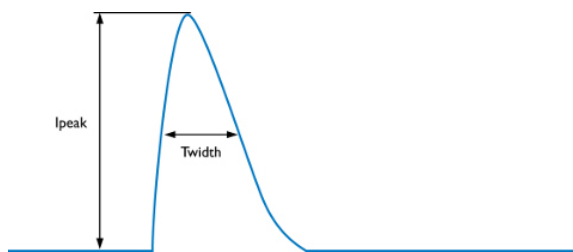
| Specification item                  | Available                       | Default setting | Condition                         |
|-------------------------------------|---------------------------------|-----------------|-----------------------------------|
| Set Adjustable Output Current (AOC) | LEDset, Programmable, SimpleSet | 150 mA          |                                   |
| NTC on LEDset                       | Yes                             | OFF             |                                   |
| Constant Lumen Over Lifetime (CLO)  | Yes                             | OFF             |                                   |
| Adjustable Light Output (ALO)       | Yes                             | OFF             |                                   |
| Touch & Dim (TD)                    | Yes                             | ON              |                                   |
| Minimum dim level                   | Yes                             | 1 %             |                                   |
| DC emergency dimming (DCemDim)      | Yes                             | ON              | Current output decreased to 15%   |
| Corridor mode                       | Yes                             | ON              | Default: T1=55s, T2=12s, T3=30min |
| OEM OverWrite Protection (OWP)      | Yes                             | OFF             |                                   |
| Luminaire Info                      | Yes                             |                 |                                   |

## Features

| Specification item                          | Value | Remark | 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     |        | per IEC60598         |
| Output Overvoltage Detection                | Yes   |        |                      |
| Energy metering                             | Yes   |        |                      |
| Diagnostics                                 | Yes   |        |                      |

## Inrush current

| Specification item         | Value     | Unit    | Condition                                      |
|----------------------------|-----------|---------|------------------------------------------------|
| Inrush current $I_{peak}$  | 4.5       | A       | Input voltage 230V                             |
| Inrush current $T_{width}$ | 1000      | $\mu s$ | Input voltage 230V, measured at 50% $I_{peak}$ |
| Drivers / MCB 16A type B   | $\leq 24$ | 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 Protective Conductor Current (ins. Class I) | 0.5   | mA rms | Acc. IEC60598-1. LED module contribution not included |

## Surge immunity

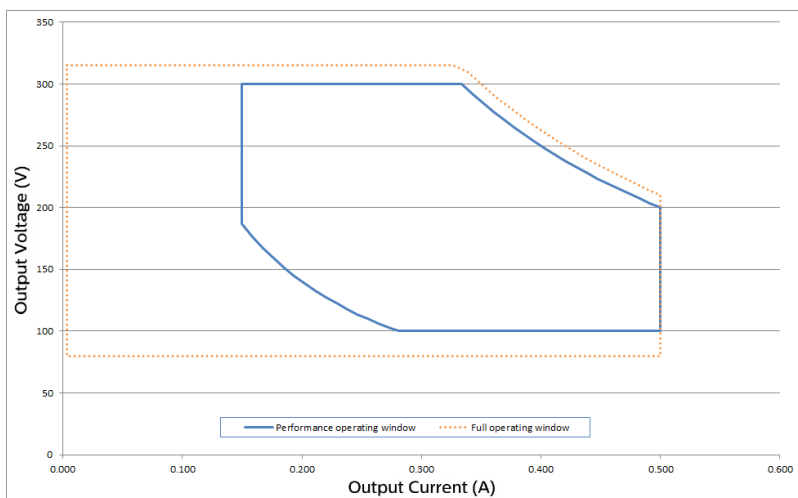
| Specification item                  | Value | Unit | Condition                                   |
|-------------------------------------|-------|------|---------------------------------------------|
| Mains surge immunity (diff. mode)   | 2     | kV   | Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us 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

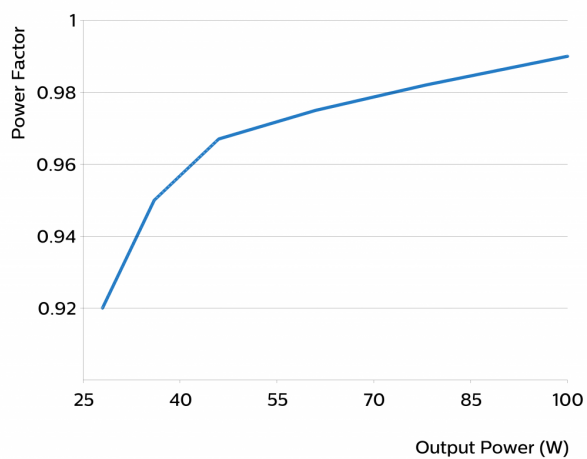
| Specification item                     | Value                                          |
|----------------------------------------|------------------------------------------------|
| Approval marks                         | BIS / CCC / CE / DALI 2 / EAC / EL / ENEC / UA |
| Ingress Protection classification (IP) | 20                                             |

## Graphs

### Operating window

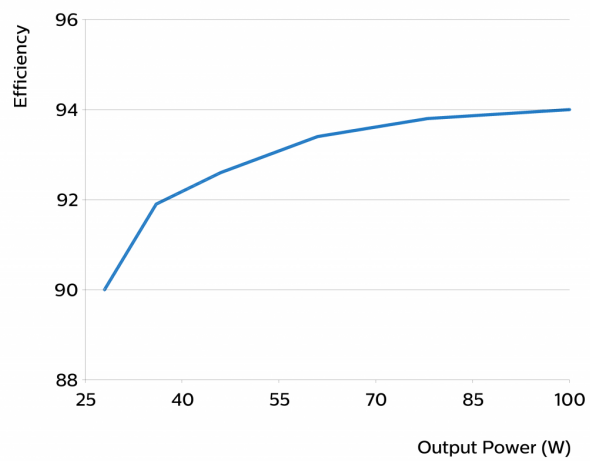


### Power factor versus output power



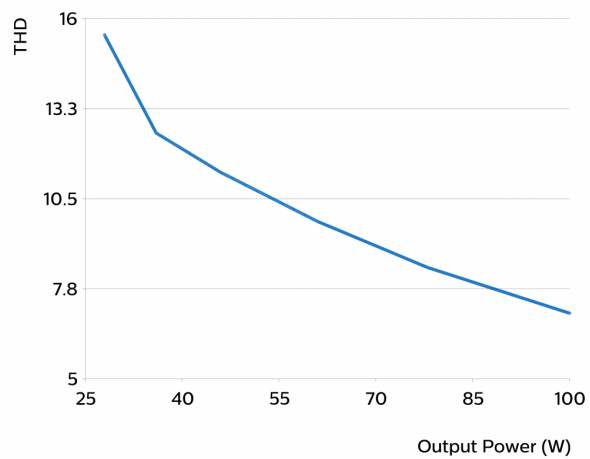
## Efficiency versus output power

---



## THD versus output power

---



## Notes

---

This product includes software licensed under terms that require Philips Lighting Holding B.V. to display the following notice:

ASF: Release ASF-3.32

The Atmel® Software Framework (ASF, [www.atmel.com/asf](http://www.atmel.com/asf)) is a compilation of embedded software for Atmel flash MCUs: megaAVR®, AVR XMEGA®, AVR UC3 and SAM devices. It has been designed to help develop and glue together the different components of a software design. It can easily integrate into an operating system (OS) or run as a stand-alone product.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of Atmel may not be used to endorse or promote products derived from this software without specific prior written permission.
4. This software may only be redistributed and used in connection with an Atmel microcontroller product.

THIS SOFTWARE IS PROVIDED BY ATMEL "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT ARE EXPRESSLY AND SPECIFICALLY DISCLAIMED. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



©2020 Signify Holding, IBRS 10461, 5600 VB, NL. All rights reserved.

The information provided herein is subject to change without notice. Signify does not give any representation or warranty as to the accuracy or completeness of the information included herein and shall not be liable for any action in reliance thereon. The information presented in this document is not intended as any commercial offer and does not form part of any quotation or contract, unless otherwise agreed by Signify.

Philips and the Philips Shield Emblem are registered trademarks of Koninklijke Philips N.V. All other trademarks are owned by Signify Holding or their respective owners.

Date of release: January 28, 2020 v4

[www.philips.com/oem](http://www.philips.com/oem)