

# PHILIPS

## Xitanium

### LED driver



## Datasheet

### Xitanium non-iso DALI dimmable & programmable (TD21 SimpleSet)

Xitanium 90W 0.15-0.5A 300V TD21 S 230V

9290 016 94906

Xitanium non-isolated DALI drivers are ideal for High Voltage (HV) linear systems and 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 our drivers is based on in-depth electronics knowledge and extensive testing.

Finally, application-oriented operating windows offer the flexibility required to provide the stable lumen output and light quality levels that lighting specifiers and architects demand.

#### Benefits

- SimpleSet configuration interface (NFC)
- High quality of light
- High reliability
- Future-proof flexibility
- Flicker and noise free dimming due to amplitude modulation dimming (AM)

#### Features

- Configurable operating windows (AOC) via DALI and SimpleSet interface or with LEDset
- Adjustable Light Output (ALO)
- Constant Light Output (CLO)
- Corridor Mode (CM)
- Dimming supported during DC operation (DCemDim)
- Touch & Dim (TD)
- OEM Write Protection (OWP)
- Memory Bank 1 Extension / Luminaire Data (DALI part 251)
- Energy Reporting (DALI part 252)
- Diagnostics & Maintenance (DALI part 253)

#### Application

- Offices
- Healthcare
- Education
- Indoor parking areas
- Retail: supermarkets, shopping malls

## 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	0.44	A	@ max output power @ rated input voltage
Rated input power	97	W	@ max output power @ rated input voltage
Power factor	0.99		@ max output power @ rated input voltage
Total harmonic distortion	5	%	@ max output power @ rated input voltage
Efficiency	94	%	@ rated output power @ rated input voltage @ max. U <sub>out</sub>
Rated input voltage DC range	186...250	V <sub>dc</sub>	Nominal range
Rated input current DC range	0.52	A <sub>dc</sub>	Nominal range
Input voltage AC range	198...264	V <sub>ac</sub>	Operational range
Input frequency AC range	47.5...63	Hz	Operational range
Input voltage DC range	168...275	V <sub>dc</sub>	Operational range
Standby Power	0.25	W	
Isolation input to output	No		

## Electrical output data

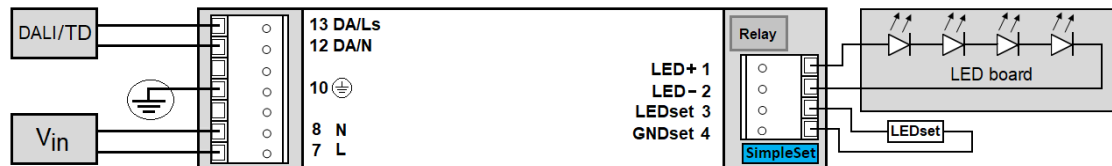
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	100...300	V <sub>dc</sub>	
Output voltage max.	330	V	Maximum output voltage (rms)
Output current	0.15...0.5	A	
Output current min dimming	4	mA	
Output current tolerance ±	5	%	
Output current ripple LF	≤ 4	%	Ripple = peak / average, < 3kHz
Output P <sub>st</sub> <sup>LM</sup>	≤ 1		
Output SVM	≤ 0.4		
Output power	25...90	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	%	With AOC > 150mA 1% dimming possible; AOC < 150mA min. physical current = 4mA
Isolation controls input to output	Basic		acc. IEC61347-1

## Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm <sup>2</sup> / AWG	WAGO744, solid wire
Input wire strip length	8...9	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm <sup>2</sup> / AWG	WAGO744, solid wire
Output wire strip length	8...9	mm	
Maximum cable length	2	m	Total length of wiring including LED module, one way. For longer wiring please double check EMI behavior of luminaire.

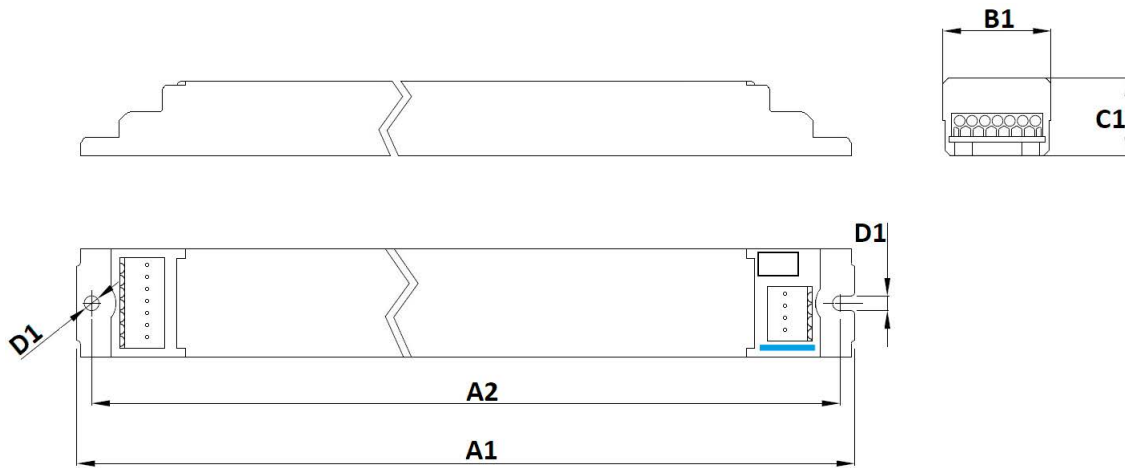


## Insulation

Insulation per IEC61347-1	Input	Output+LEDset	DALI	Housing
Input		Non	Basic	Basic
Output+LEDset	Non		Basic	Basic
DALI	Basic	Basic		Basic
Housing	Basic	Basic	Basic	

## Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	280	mm	
Mounting hole distance (A2)	270	mm	
Width (B1)	30	mm	
Height (C1)	21	mm	
Mounting hole diameter (D1)	4.1	mm	
Weight	180	gram	



## Logistical data

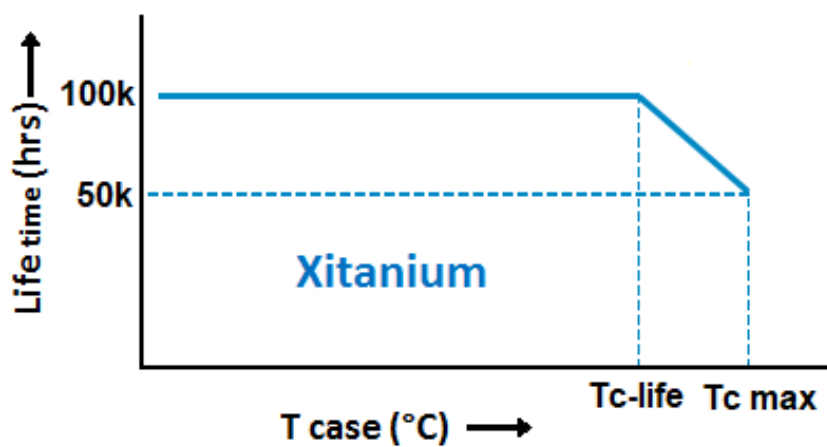
Specification item	Value
Product name	Xitanium 90W 0.15-0.5A 300V TD21 S 230V
EOC	871951427858500
Logistic code 12NC	9290 016 94906
EAN1 (GTIN)	8719514278585
EAN3 (box)	8719514278592
Pieces per box	24

## Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25...+50	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	75	°C	lifetime 50khrs;
Tcase-life	65	°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	-25...+85	°C	
Relative humidity	5...95	%	Non-condensing

## Programmable features

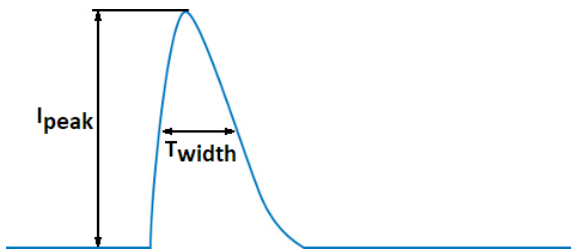
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	LEDset, Programmable, SimpleSet	150 mA	Power down the driver before program via SimpleSet (NFC), programming in on-state is not guaranteed.
NTC on LEDset	Yes		
Adjustable Light Output (ALO)	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
DALI 102	Yes	—	Programmable via SimpleSet
DALI 253 M	Yes	—	
Touch & Dim (TD)	Yes	ON	
Corridor Mode	Yes	OFF	Default: T1=55s, T2=12s, T3=30min
Min Dim Level	Yes	1 %	
DC emergency (DCemDim)	Yes	ON	Default 15%, EOFx range = 1 .. 100% (EOFx = DCemDIM level)
DALI control supported at DC operation	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
Luminaire Info (DALI part 251)	Yes	—	

## 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		per IEC60598
Output Overvoltage Detection	Yes		
Energy metering (DALI part 252)	Yes		
Diagnostics	Yes		

## Inrush current

Specification item	Value	Unit	Condition
Inrush current	25	A	Input voltage 230V
Inrush peak width	230	μs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A type B	≤ 20	pcs	Indicative value



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

## 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

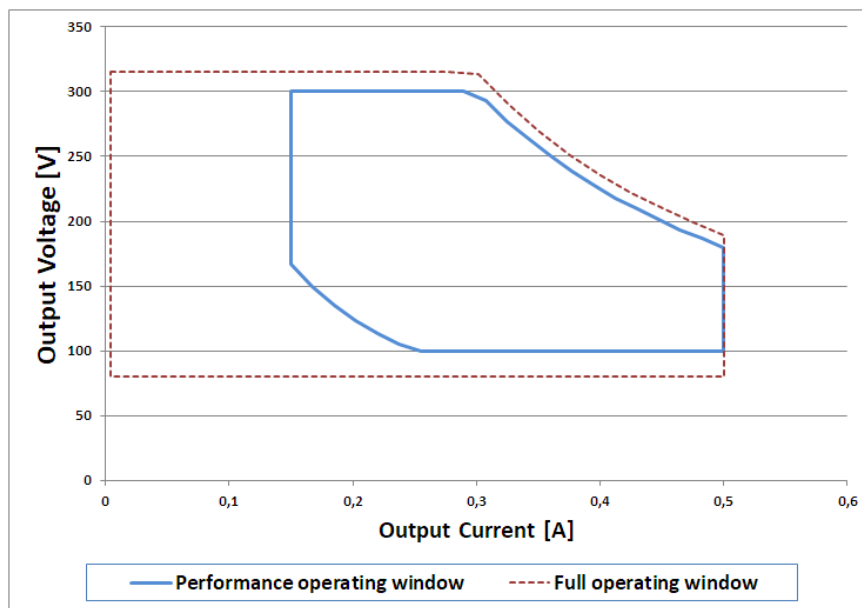
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us
Control surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge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

## Application Info

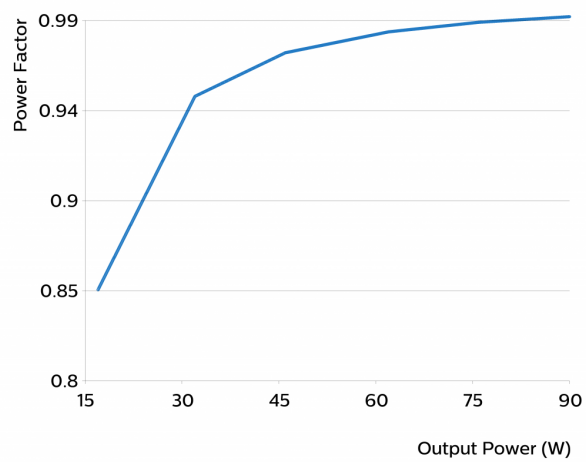
Specification item	Value
Approval marks	CCC / CE / DALI 2 / EAC / EL / ENEC / RCM / UA
Ingress Protection classification (IP)	20
Noise and hum dB(A)	20
Application	Indoor Linear
Mounting Type	Built-in

## Graphs

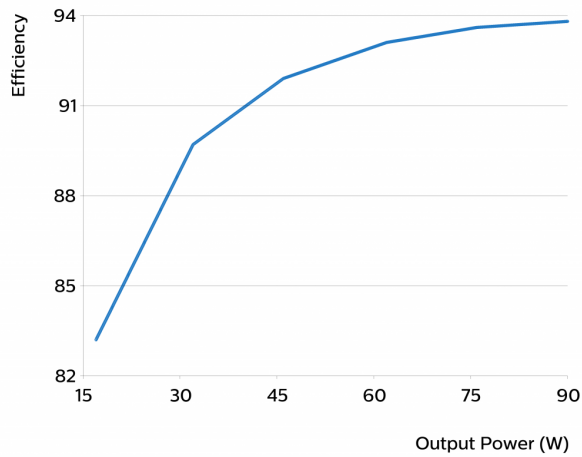
### Operating window



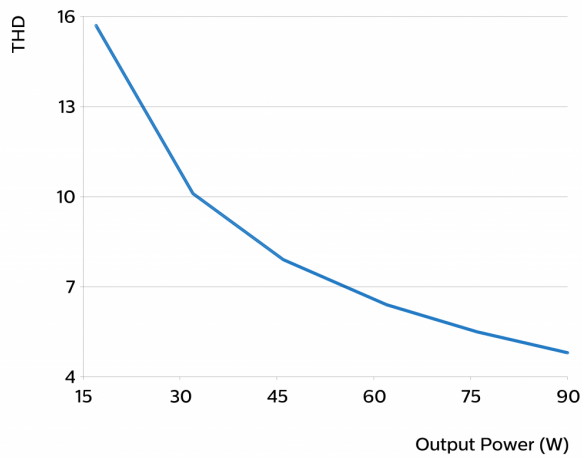
### Power factor versus output power



## Efficiency versus output power



## THD versus output power



## Notes

Caution: It is not safe to touch the PCB (tracks) around the relay when the driver is powered on.



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