PHILIPS

Xitanium

LED driver

Datasheet

Xitanium LED drivers – DALI SELV

Xitanium 20W R 0.15-0.5A 54V TD/I

9290 028 01106

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

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 application oriented flexible housing designs

Application

- Retail
- Office

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 range	50…60	Hz	Performance range
Rated input current	0.11	A	@ rated output power @ rated input voltage
Rated input power	23	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	88	%	@ rated output power @ rated input voltage
Rated input voltage DC range	186…250	V_{dc}	Performance range
Rated input current DC range	≤ 0.13	A_{dc}	Performance range
Input voltage AC range	198…264	V_{ac}	Safety operational range
Input frequency AC range	45…66	Hz	Safety operational range
Input voltage DC range	168…275	V_{dc}	Safety operational range
Standby Power	0.5	W	
Isolation input to output	SELV		

Electrical output data

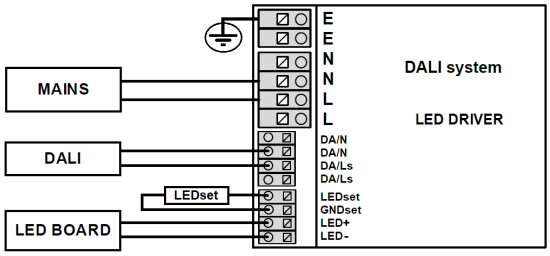
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	24…54	V_{dc}	
Output voltage max.	60	V	Maximum output voltage (rms)
Output current	0.15…0.5	A	Full output operating window
Output current min programmable	150	mA	
Output current min dimming	7.5	mA	
Output current tolerance	± 8	%	
Output current ripple LF	≤ 4	%	Ripple = peak / average, < 3kHz
Output P_{st}^{LM}	≤ 1		
Output SVM	≤ 0.5		
Output power	6.5…20	W	

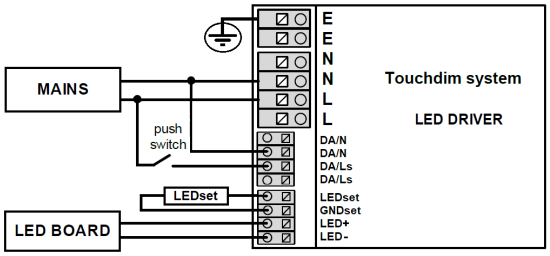
Electrical data controls input

Specification item	Value	Unit	Condition
Control method	DALI, Touch & Dim (TD)		
Dimming range	5…100	%	Default range
Isolation controls input to output	Basic		acc. IEC61347-1

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.75…2.5 / 18…13	mm^2 / AWG	WAGO804 (Loop Through), solid / stranded wire
Input wire strip length	10…11	mm	
Output wire cross-section	0.5…1.5 / 20…16	mm^2 / AWG	WAGO250 (pitch 3.5 mm), solid / stranded wire
Output wire strip length	8…9	mm	
Control wire cross-section	0.5…1.5 / 20…16	mm^2 / AWG	WAGO250 (pitch 3.5 mm), solid / stranded wire
Control wire strip length	8…9	mm	
Maximum cable length	2	m	Total length of wiring including LED module, one way



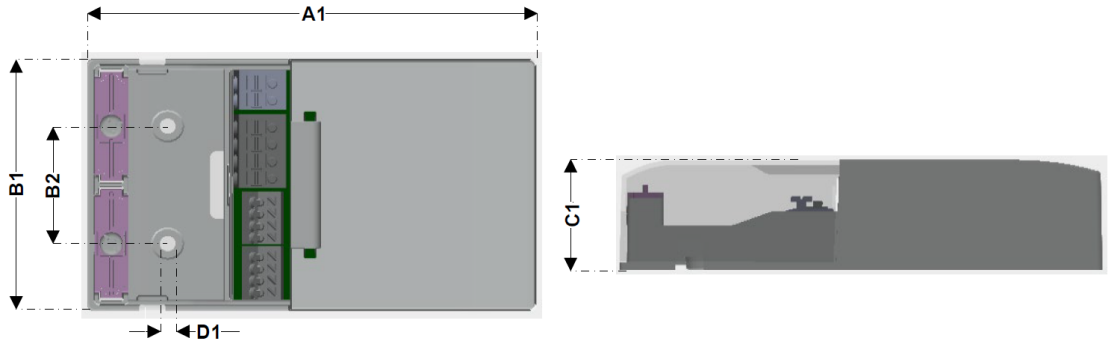


Insulation

Insulation per IEC61347-1	Input	Output	DALI	LEDset
Input		SELV	Basic	Reinforced
Output	SELV		Basic	Reinforced
DALI	Basic	Basic		Reinforced
LEDset	Reinforced	Reinforced	Basic	

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	127.6	mm	
Width (B1)	74	mm	
Width (B2)	34.5	mm	
Height (C1)	30	mm	
Mounting hole diameter (D1)	4.1	mm	
Weight	150	gram	
Housing color	White (RAL 9016)		



Logistical data

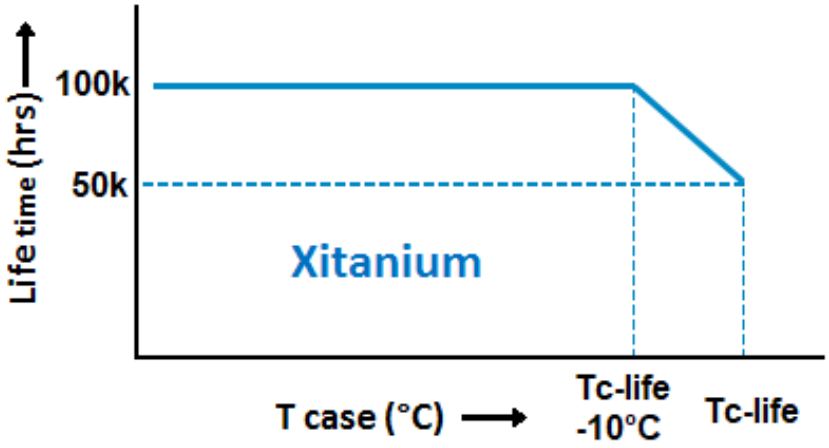
Specification item	Value
Product name	Xitanium 20W R 0.15-0.5A 54V TD/I
EOC	871951425106900
Logistic code 12NC	9290 028 01106
EAN1 (GTIN)	8719514251069
EAN3	8719514251076
Pieces per box	18

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	70	°C	Maximum temperature measured at T_{case}-point
Tcase-life	60	°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%



Storage temperature and humidity

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

Programmable features

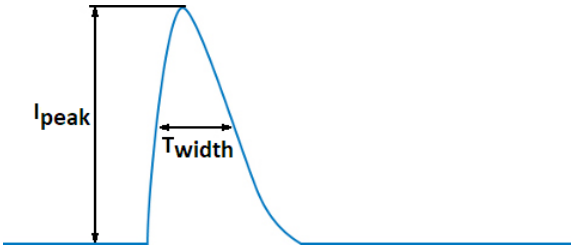
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	LEDset, Programmable	150 mA	
Constant Light Output (CLO)	No		
Adjustable Light Output (ALO)	No		
Touch & Dim (TD)	Yes	ON	
Min dim level	No		
DC emergency (DCemDim)	No		
Dimming support at DC operating	No		
Corridor mode	Yes	OFF	Default: Default: T1=55s, T2=12s, T3=30min
OEM Write Protection (OWP)	Yes	OFF	
Luminaire Info	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 and II		per IEC60598

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak}	6.7	A	Input voltage 230V
Inrush current T_{width}	27	µs	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A type B	≤ 40	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)	0.75	mA peak	Acc. IEC61347-1. LED module contribution not included

Surge immunity

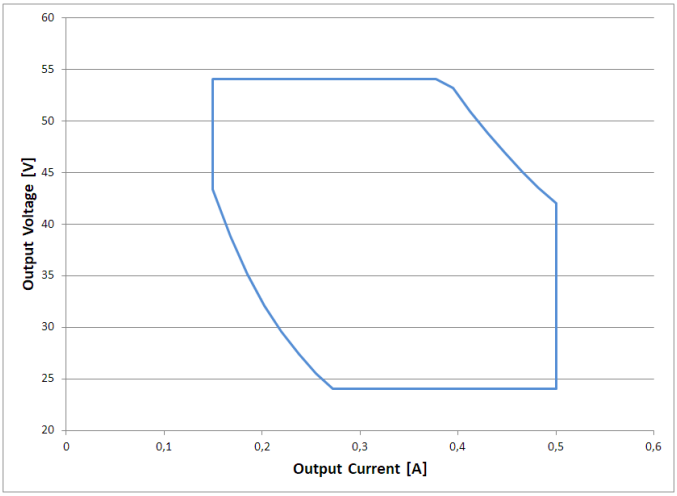
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	L- N Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	L/N - PE Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us
Control surge immunity (diff. mode)	1	kV	DALI/TD - DALI-TD Acc. IEC61000-4-5. 2 Ohm,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

Application Info

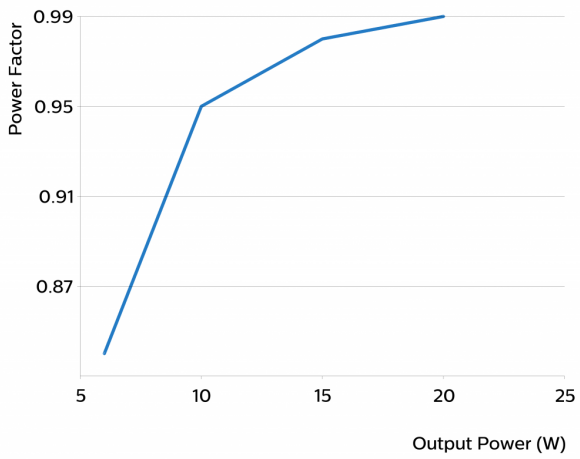
Specification item	Value
Approval marks	CE / DALI 2 / EAC / EL / ENEC / SELV
Ingress Protection classification (IP)	20
Noise and hum dB(A)	20

Graphs

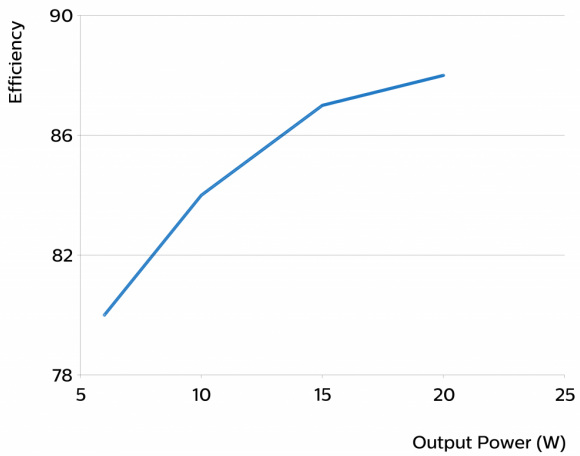
Operating window



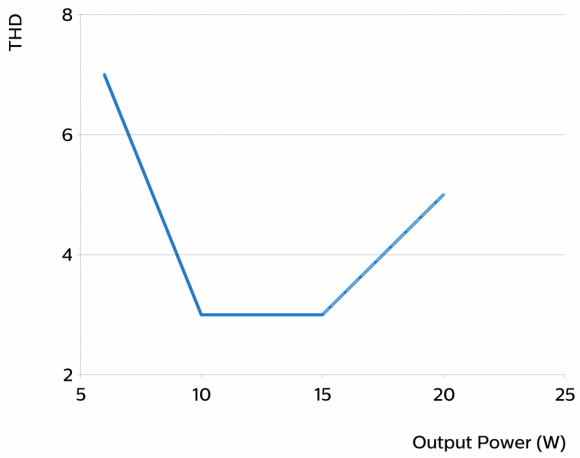
Power factor versus output power



Efficiency versus output power



THD versus output power



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