

PHILIPS

Xitanium

LED driver



Datasheet

Xitanium Industrial 650Vdc LED driver

Xitanium 100W 0.1-0.4A 375V SR 650Vdc

9290 039 11906

Philips first 650Vdc industrial LED driver.

The Xitanium range is built 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 industrial DC system is enhanced as our drivers offer specific features that protect the connected LED module, including reduced ripple current and thermal de-rating. Xitanium SR drivers are sensor ready, making them perfect for use in building management systems. You can power and interface with sensors directly from the driver without the need for additional modules, devices, or power packs. The versatile and scalable DALI-2 open standard digital interface is used via a simple 2-wire connection to the sensor, so that you can confidently design flexible lighting, and incorporate your preferred sensors and networks, without worrying about potential incompatibilities. 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.

NOTE: By factory default the SR bus power supply (SR PSU) is enabled, and ready to be used with an external control device. If installing the driver in a DALI system, please make sure to disable the SR PSU on individual driver level before installation in a system

Benefits

- High quality of light
- High reliability
- Sensor Ready concept
- Integrated power supply to power sensors and wireless radios directly from the driver
- Accurate integrated power metering for use in building management systems
- Certified per DIIA intra-luminaire standard D4i

Features

- High efficiency
- Wide operating window
- Suitable for 650Vdc power grid
- Integrated Bus Power Supply for sensors and radios (DALI part 250)
- SimpleSet configuration interface (NFC)
- Configurable operating windows (AOC)
- Constant Light Output (CLO)
- Adjustable Light Output (ALO)
- OEM Write Protection (OWP)
- Memory Bank 1 Extension / Luminaire Data (DALI part 251)
- Energy reporting (DALI part 252)
- Diagnostics & Maintenance (DALI part 253)
- Suitable for Class I luminaires

Application

- Industrial 650 Vdc Power Systems

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	620...750	Vdc	Performance range
Rated input voltage	650	Vdc	
Input voltage range	400...800	Vdc	Operational range
Emergency range	400...620	Vdc	Operational range
Start-up voltage	485	Vdc	
Shut-down voltage	400	Vdc	
Rated input current	0.18	A	@ rated output power @ rated input voltage
Rated input current during emergency mode	0.19	A	@ set output level
Rated input power	105	W	@ rated output power @ rated input voltage
Standby power (no load)	< 0.5	W	
Efficiency	95	%	@ maximum output power @ rated input voltage @ max. I _{out}
Isolation input to output	No		

Electrical output data

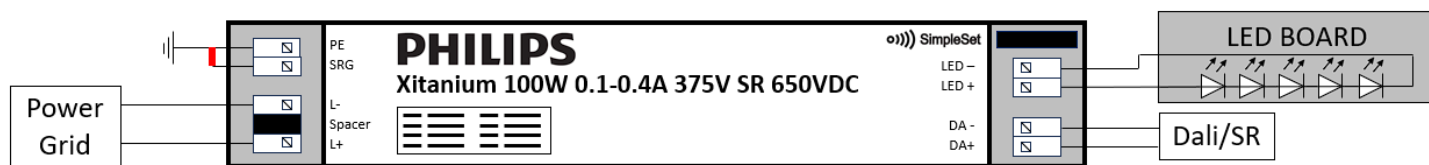
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	100...375	Vdc	
Output voltage max.	420	Vdc	Maximum output voltage (rms)
Output current	0.1...0.4	A	
Output current tolerance ±	3	%	Within performance window
Output current ripple	≤ 4	%	Ripple = peak / average, < 3kHz
Output current min programmable	100	mA	
Output current min dimming	5	mA	
Output P _{st} ^{LM}	≤ 1		In performance operating window
Output SVM	≤ 0.4		In performance operating window
Output power	20...100	W	

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	DALI, SR		DALI Parts: 101, 102, 207, 250, 251, 252, 253. See design-in guide at www.philips.com/oem for more controllability details.
Dimming range	5...100	%	Physical minimum current during dimming = 5mA
Isolation controls input to output	Double		According IEC61347-1
SR output voltage max.	22.5	V	
SR guaranteed current	52	mA	
SR maximum current	60	mA	

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO250, solid wire
Input wire strip length	9...10	mm	
Maximum input cable length	3	m	
PE and Output wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO250, solid wire
PE and Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO250, solid wire
Control wire strip length	8.5...9.5	mm	
Maximum output cable length	6	m	Total length of wiring including LED module, complete loop



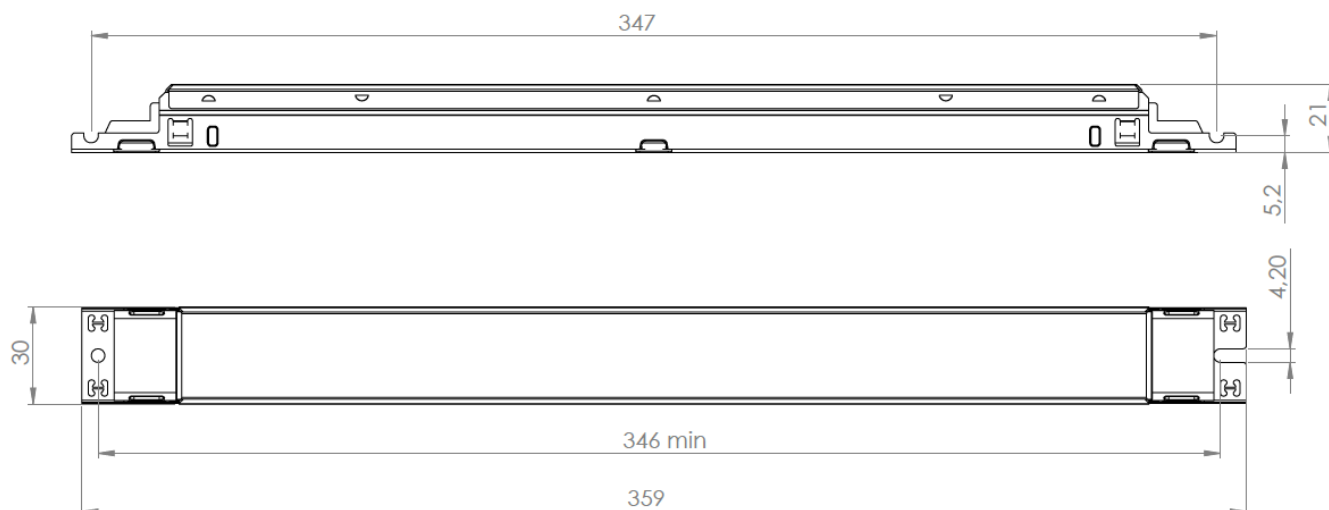
Warning: the red-highlighted connection between SRG and PE terminals **must** be established permanently in the application for surge immunity reasons. This connection is only to be removed temporarily during dielectric strength testing and to be removed permanently in case an external SPD is added.

Insulation

Insulation per IEC61347-1	Input	SR-interface	Output	Housing	PE
Input		Double	No	Basic	Basic
SR-interface	Double		Double	Basic	Basic
Output	No	Double		Basic	Basic
Housing	Basic	Basic	Basic		No
PE	Basic	Basic	Basic	No	

Dimensions and weight

Specification item	Value	Unit
Length (A1)	360	mm
Mounting hole distance (A2)	346	mm
Width (B1)	30	mm
Height (C1)	21	mm
Mounting hole diameter (D1)	4.1	mm
Weight	265	gram



Logistical data

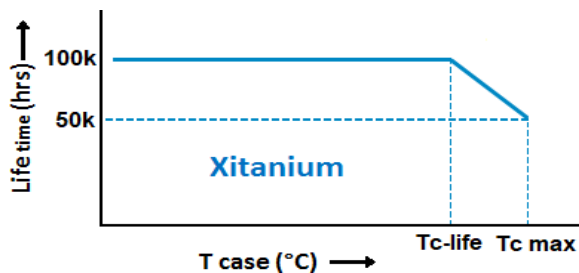
Specification item	Value
Product name	Xitanium 100W 0.1-0.4A 375V SR 650Vdc
EOC	872016936991700
Logistic code 12NC	9290 039 11906
EAN1 (GTIN)	8720169369917
EAN3 (box)	8720169369924
Pieces per box	10

Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-30...+60	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	90	°C	Lifetime 50khrs;
Tcase-life	75	°C	Lifetime 100khrs; measured at T _c -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

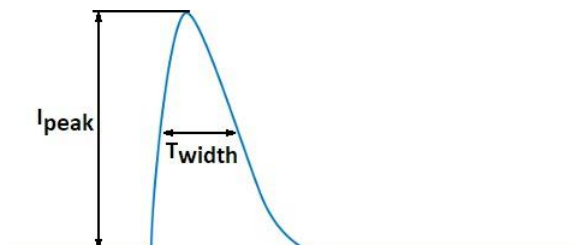
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	100 mA	
Adjustable Light Output (ALO)	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
DALI 102	Yes	—	Programmable via SimpleSet
Min Dim Level	Yes	5 %	
OEM Write Protection (OWP)	Yes	OFF	
SR PSU (DALI part 250)	Yes	ON	Disable SR PSU before mounting drivers in inter-luminaire wired DALI network.
Touch & Dim (TD)	No		
Luminaire Info (DALI part 251)	Yes	—	

Features

Specification item	Value	Condition
Open load protection	Yes	Automatic recovering / 5 times retry
Short circuit protection	Yes	Automatic recovering
Overpower protection	Yes	Automatic recovering
Hot wiring	No	
Output Overvoltage Detection	Yes	
Suitable for fixtures with protection class I		per IEC60598
Energy metering (DALI part 252)	Yes	Accuracy 4%
Diagnostics (DALI part 253)	Yes	

Inrush current

Specification item	Value	Unit	Condition
Inrush current – cold start	4	A	Input voltage 650Vdc
Inrush peak width – cold start	700	μs	Input voltage 650Vdc, measured at 50% height
Inrush current – warm start	9	A	Input voltage 650Vdc
Inrush peak width – warm start	400	μs	Input voltage 650Vdc, measured at 50% height
Drivers / CB 16A type B	≤ 22	pcs	Indicative value for 1kVdc, type B circuit breaker



Please refer to the driver design in guide if you use other circuit breaker 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

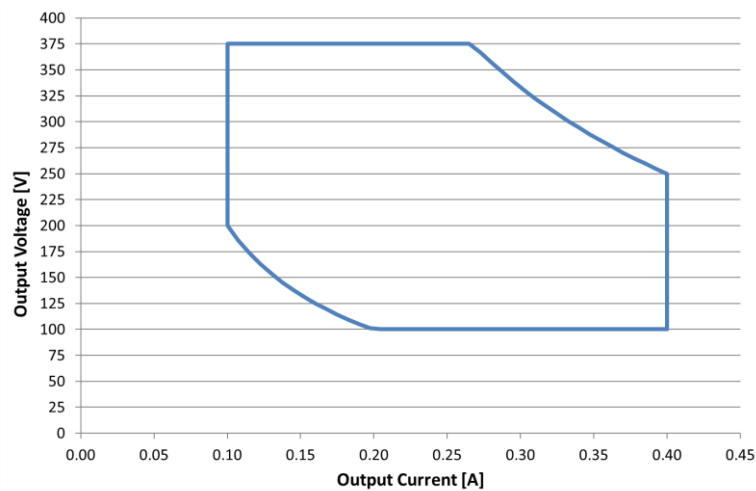
Surge immunity

Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	2	kV	2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	4	kV	1.2/50us, 8/20us
Control surge immunity (diff. mode)	0.8	kV	12 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	2	kV	12 Ohm, 1.2/50us, 8/20us

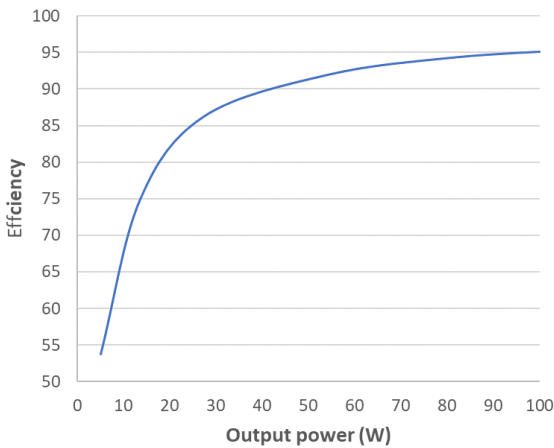
Application Info

Specification item	Value
Approval marks	CE / D4i / DALI-2 / ENEC / SR / WEEE
Ingress Protection classification (IP)	20
Application	Indoor Linear
Mounting Type	Built-in

Operating window



Efficiency versus output power



Notes

Voltage Range Explanation

In the voltage range from 400V to 620V, the driver will work in emergency mode and will continue at the power set by the end-user.
In the range from 620 to 750V, the driver will run in its performance range.
In the range from 750V to 800V, the driver will operate, but outside performance.

Standby Power max 0.5W (No load on SR), max 1W (250mW load on SR).

Link to Open Direct Current Alliance:

<https://odca.zvei.org/resources/publications/updated-system-description-for-dc-industrie2>



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