PHILIPS

Xitanium

LED driver

Datasheet

Xitanium Xtreme LED Drivers Dimmable (1-10V) Independent

Xitanium 150W 0.70A 1-10V 230V I220

LED-based light sources are an excellent solution for outdoor environments. They are long-lasting and require low maintenance. However, to get the best out of the LEDs, these light sources require highly reliable and efficient LED Drivers. Philips Xitanium Dimmable (1-10V) LED Xtreme Drivers for Outdoor and Industry applications are specifically designed to deliver reliable performance and protection while meeting the strict performance, approbation and application requirements.

Benefits

- Reliable
- Robust design
- Long lifetime
- Superior surge protection
- 5 years warranty
- Waterproof performance
- Proven robustness & reliability secure the lowest luminaire maintenance over time
- Extreme compact size, suitable for a wide range of luminaires
- Easy to design-in based on good thermal management and extra EMI margin

Features

- Proven robust and reliable electronic driver design
- Achieving highest efficiencies based on advanced technology
- Long lifetime
- Solid surge protection
- DC operation for industry applications (150W)
- Suitable for Insulation Class I and Class II luminaires
- CE, ENEC, and CB certified

Application

- Road and Street Lighting
- Tunnel Lighting
- Area and Flood Lighting
- High-bay lighting

June 2016

Electrical input data

Specification item	Value	Unit	Condition
Nominal input voltage	220…240	V_{ac}	performance range
Nominal input frequency	50…60	Hz	
Nominal input current	0.72	A	@230V @ full load
Max. input current	0.82	A	@ minimum input voltage AC
Input voltage	230	V_{ac}	
Nominal input power	165	W	@230V @ full load
Power factor	≥ 0.99		@ full load. See graph.
Total harmonic distortion	≤ 5	%	@ full load. See graph.
Efficiency	92	%	@230V @ full load
Nominal input voltage DC	186…250	V_{dc}	
Nominal input current DC	0.54	A	Input voltage 230 V_{dc}, full load
Input voltage AC	198…264	V_{ac}	Operational range
Input frequency AC	45…66	Hz	Maximum permissible range
Input voltage DC	168…275	V_{dc}	Maximum permissible range
Isolation Input to Output	Double		

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	100…214	V_{dc}	
Output voltage max.	320	V	Peak voltage at open load
Output current	0.7	A	Full output current setting
Output current min dimming	70	mA	
Output current tolerance	± 5	%	
Output current ripple LF	≤ 4	%	Ripple = peak / average
Output current ripple HF	≤ 15	%	
Output power	7…150	W	Full output

Electrical data controls input

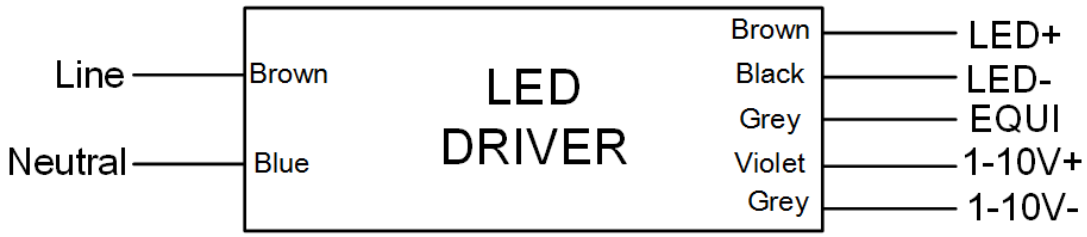
Specification item	Value	Unit	Condition
Control method	1..10V		Amplitude dimming
Dimming range	10…100	%	1-8V dimming curve

Logistical data

Specification item	Value
Product name	Xitanium 150W 0.70A 1-10V 230V I220
Order code	871869659604300
Logistic code 12NC	9290 014 05806
EAN3	
Pieces per box	10

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.33…0.75	mm^2	stranded wire
	18…22	AWG	stranded wire
Input wire strip length	7.5…8.5	mm	
Output wire cross-section	0.33…0.75	mm^2	stranded wire
	18…22	AWG	stranded wire
Output wire strip length	7.5…8.5	mm	
Maximum cable length	2000	mm	Total length of wiring including LED module, one way

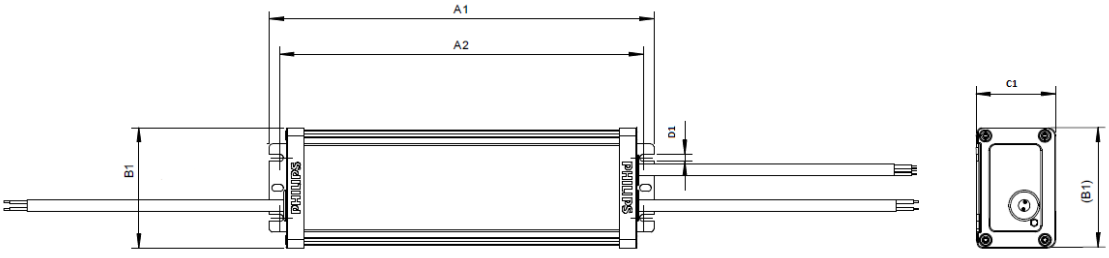


Insulation

Insulation	Mains	LED	1-10V	EQUI
Mains		Double	Basic	Double
LED	Double		Double	Basic
1-10V	Basic	Double		Double
EQUI	Double	Basic	Double	

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	220	mm	
Width (B1)	68.2	mm	
Height (C1)	45	mm	
Fixing hole diameter (D1)	4	mm	
Fixing hole distance (A2)	207	mm	
Weight	910	gram	



Operational temperatures and humidity

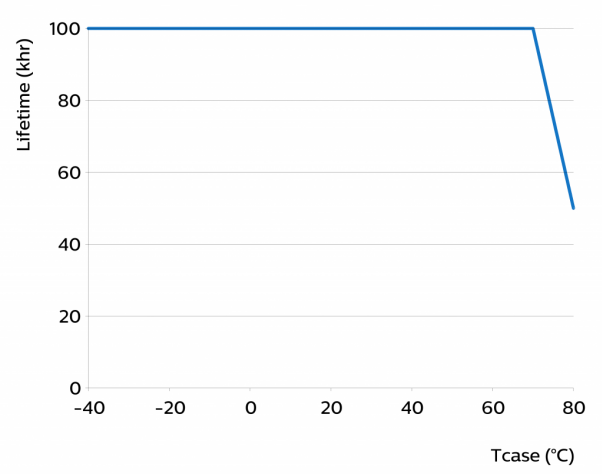
Specification item	Value	Unit	Condition
Ambient temperature	-40…+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded.
Starting Ambient temperature	-40…+55	°C	
Tcase-max	80	°C	Maximum temperature measured at T_{case}-point
Tcase-life	70	°C	Measured at T_{case}-point
Maximum housing temperature	120	°C	In case of a failure
Relative humidity	10…90	%	Non-condensing

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40…+80	°C	
Relative humidity	5…95	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	100,000	hours	Measured temperature at T_{case}-point is T_{case}-life. Maximum failures = 10%



Programmable features

Specification item	Value	Remark	Condition
Set output current (AOC)	No	See Design-in guide.	Default output current: ≤ 700 mA

Features

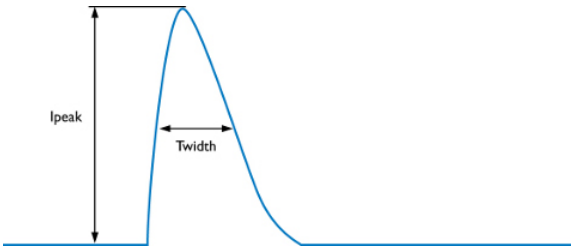
Specification item	Value	Remark	Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with protection class	I and II		per IEC60598
Over temperature protection driver	Yes		Automatic recovery

Certificates and standards

Specification item	Value
Approval marks	CB / CE / ENEC
Ingress Protection classification	67

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak}	34	A	Input voltage 230V
Inrush current T_{width}	475	µs	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A type B	≤ 8	pcs	



MCB	Rating	Relative number of LED drivers
B	10A	63%
B	13A	81%
B	16A	100% (stated in datasheet)
B	20A	125%
B	25A	156%
C	10A	104%
C	13A	135%
C	16A	170%
C	20A	208%
C	25A	260%

Driver touch current

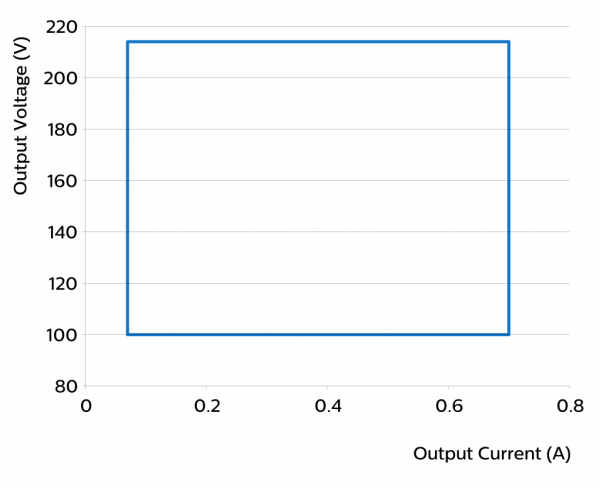
Specification item	Value	Unit	Condition
Typical touch current	0.45	mA peak	Acc. IEC61347-1. LED module contribution not included

Surge immunity

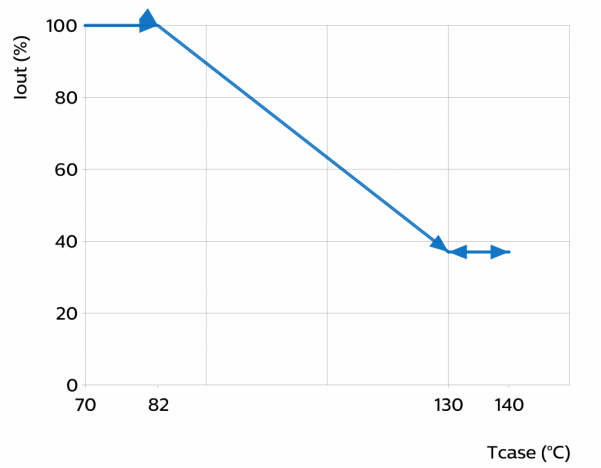
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	8	kV	Acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.5	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	2.5	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Graphs

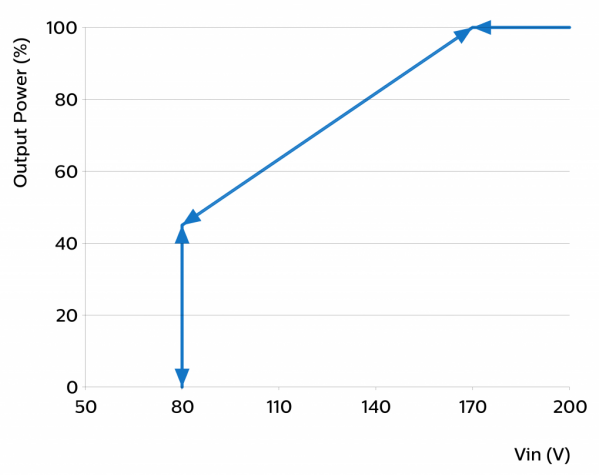
Operating window



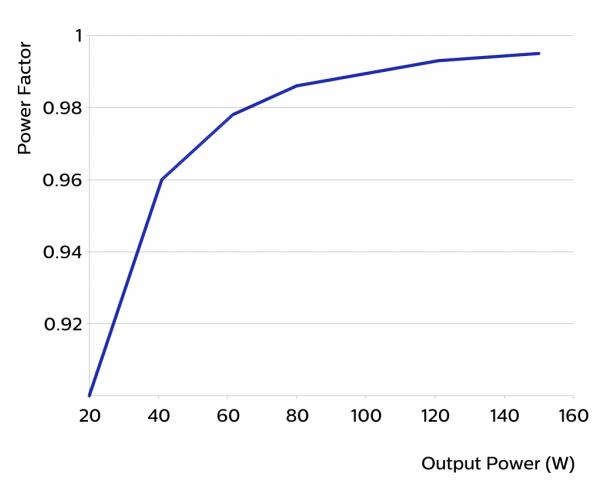
Iout versus Tcase



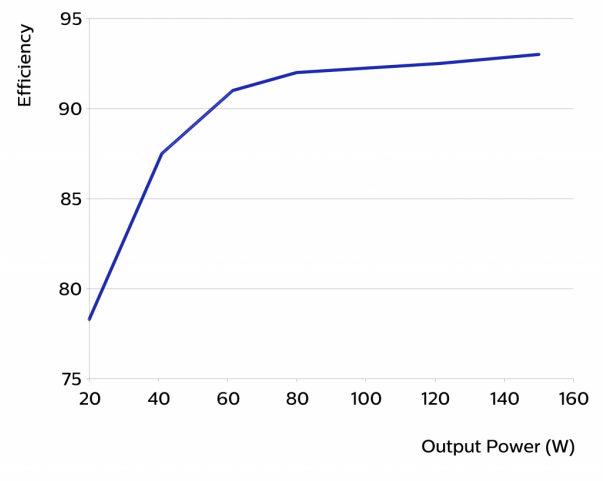
Pout versus Vmains



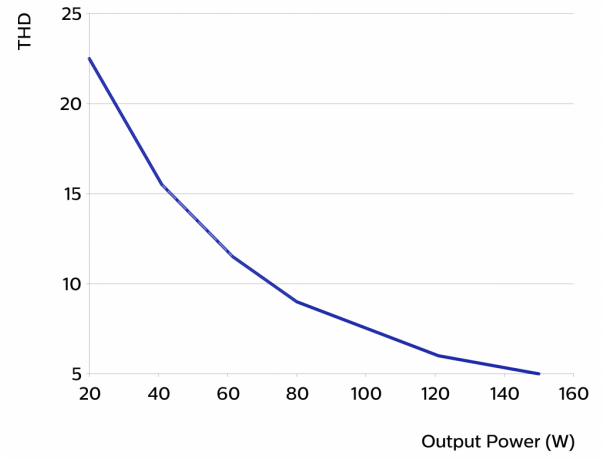
Power factor versus output power



Efficiency versus output power



THD versus output power



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