

PHILIPS

Xitanium

LED driver



Datasheet

Xitanium Outdoor LED Drivers Independent 1-10V

Xi LP 220W 0.3-1.05A S1 TWE I230

Philips Xitanium Lite Programmable LED drivers are value engineered to deliver a carefully selected feature set and high-end performance, making it a preferred choice for many outdoor applications. The portfolio offers high reliability with a customizable operating window, enabling differentiation in LED lighting designs via system tuning and being prepared for LED efficacy upgrades.

In this product family Philips introduces new drivers in a stretched form factor with a balanced feature set, which offer high value for both OEM customers and end-users. The products can replace the existing programmable outdoor LED drivers and will bring significant improvement in programming, assembly into a luminaire and electrical performance. One of the key features is SimpleSet®, an easy and fast way to configure the driver without the need to power the driver.

Benefits

- Ultimate robustness, offering peace of mind and lower maintenance costs
- Energy savings through high efficiency and via a choice of dimming options
- Balanced configurable feature set covering the most common applications
- Consistent waterproof performance through the lifecycle
- Easy to design-in, configure and install for Class I applications

Features

- SimpleSet®, wireless configuration interface
- High surge protection
- Long lifetime and robust protection against moisture, vibration and temperature
- Configurable operating windows (AOC)
- External control interface (1-10V) available
- Digital Configuration Interface (DCI) via MultiOne Interface
- Autonomous or Fixed time based (FTBD) dimming via integrated 5-step DynaDimmer
- Programmable Constant Light Output (CLO)
- Integrated Driver Temperature protection

Application

- Residential areas
- Road and street lighting
- Area and flood lighting
- Tunnel lighting
- High-bay lighting

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	110...277	V _{ac}	
Rated input voltage	220	V _{ac}	
Rated input frequency range	47...63	Hz	Performance range
Rated input current	0.9	A	@ rated output power @ rated input voltage
Max. input current	2.12	A	@ rated output power @ minimum performance input voltage
Rated input power	242	W	@ rated output power @ rated input voltage
Power factor	≥ 0.95		@ rated output power @ rated input voltage
Total harmonic distortion	≤ 10	%	@ rated output power @ rated input voltage
Efficiency	93	%	@ rated output power @ rated input voltage @ max. U _{out}
Input voltage AC range	99...305	V _{ac}	Performance range
Input frequency AC range	45...66	Hz	Operational range
Isolation Input to Output	Basic		

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	104...314	V _{dc}	
Output voltage max	500	V	Peak voltage at open load
Output current	0.3...1.05	A	Full output current setting
Output current min programmable	300	mA	
Output current min dimming	70	mA	
Output current tolerance	± 5	%	
Output current ripple LF	≤ 4	%	Ripple = peak/average @ ≤ 1KHz
Output current ripple HF	≤ 15	%	
Output P _{st} ^{LM}	≤ 0.06		In entire operating window
Output SVM	≤ 0.07		In entire operating window
Output power	7.28...220	W	Full output

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	1-10V		
Dimming range	10...100	%	Default range
Galvanic Isolation	Basic		

Logistical data

Specification item	Value
Product name	Xi LP 220W 0.3-1.05A S1 TWE I230
Logistic code 12NC	9290 014 24880

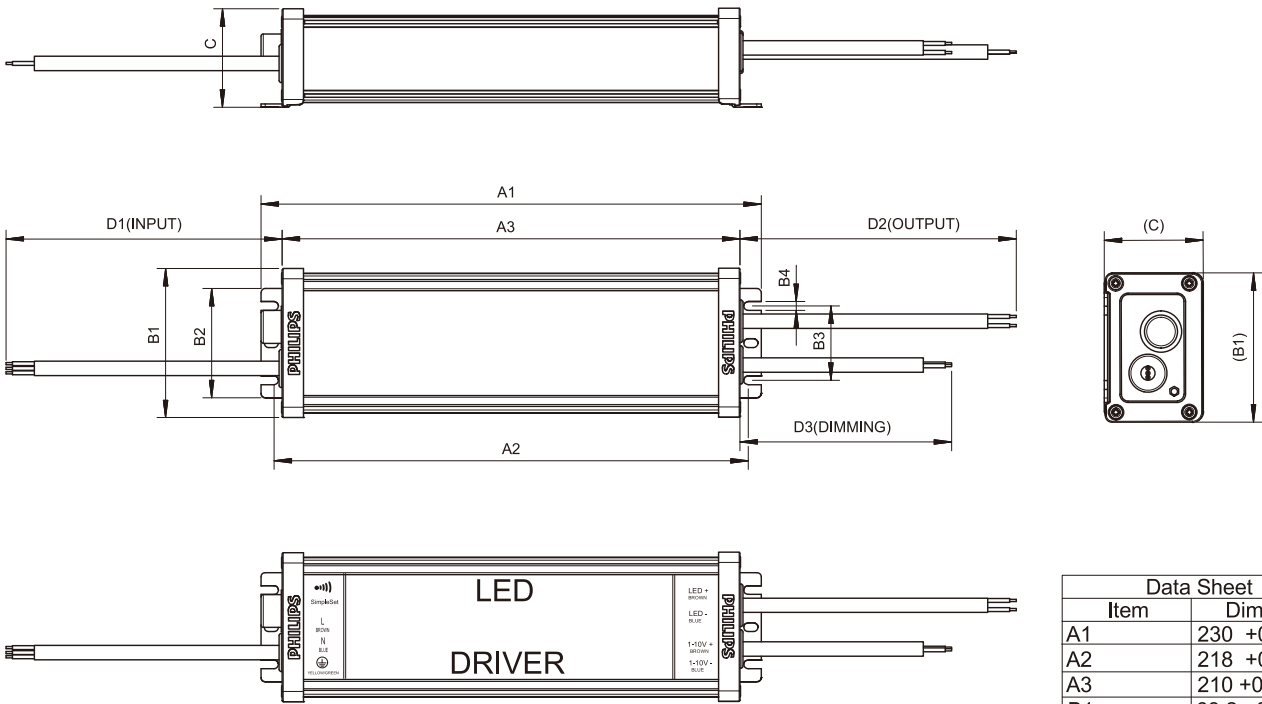
Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	1.04	mm ²	Waterproof cable
Output wire cross-section	1.04	mm ²	Waterproof cable
Dimming wire cross-section	1.04	mm ²	Waterproof cable

For UL, 1-10V dimming is Class 2 Circuit, Suitable for Class 2 or Class 1 wiring.

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	230	mm	
Width (B1)	68.2	mm	
Width (B2)	50	mm	
Height (C1)	45	mm	
Fixing hole distance (B4)	4	mm	
Fixing hole distance (A2)	218	mm	
Input cable length (D1)	450	mm	
Output cable length (D2)	450	mm	
Control cable length (D3)	300	mm	
Weight	1100	gram	



Data Sheet	
Item	Dimensions
A1	230 +0/-2.5
A2	218 +0.5/-2
A3	210 +0.5/-2
B1	68.2 +0.5/-0.5
B2	50 +0.3/-0.3
B3	34 +0.3/-0.3
B4	4 +0.3/-0.3
C	45 +0.5/-0.5
D1	450 +30/-30
D2	450 +30/-30
D3	300 +30/-30

Operational temperatures and humidity

Specification item	Value	Unit	Condition
* Ambient Temperature	-40 ... +55	°C	Higher ambient temperature allowed as long as T _{case} -max is not exceeded
T _{case} -max	85	°C	Maximum temperature measured at T _{case} -point
T _{case} -life	85	°C	Measured at T _{case} -point
Maximum housing temperature	90	°C	In case of a failure
Relative humidity	10...90	%	Non-condensing

* Ta: -40...+48°C @ Vin = 110-120V

Ta: -40...+50°C @ Vin=120-202V

Ta: -40...+55°C @ Vin = 202-277V

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25...+80	°C	
Relative humidity	5 ... 95	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	50,000	hours	Measured temperature at T _{case} -point is T _{case} -max. Maximum failures = 10%

Programmable features

Specification item	Value	Remark	Condition
Set output current (AOC)	SimpleSet	See Design-in guide	Default output current: = 1000 mA
Constant Lumen Over Lifetime (CLO)	Yes		
Diagnostics	Yes		
Dynadimmer	Yes		

Features

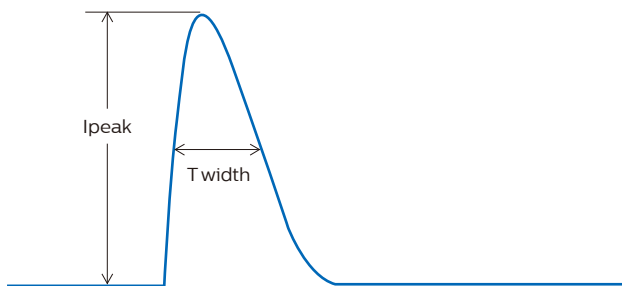
Specification item	Value	Remark	Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Over temperature protection driver	Yes		Automatic recovering
Overheating protection	Yes		Automatic recovering
Input over-voltage	Yes		320 Vac @ 48 hrs 350 Vac @ 2hrs

Certificates and Standards

Specification item	Value
Approval Marks	CE / ENEC
Ingress Protection Rating	IP66 / IP67

Inrush current

Specification item	Value	Unit	Condition
Inrush Current I_{peak}	88.5	A	Input voltage 230V
Inrush Current T_{width}	220	μs	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A Type B	5	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 / protective conductor current

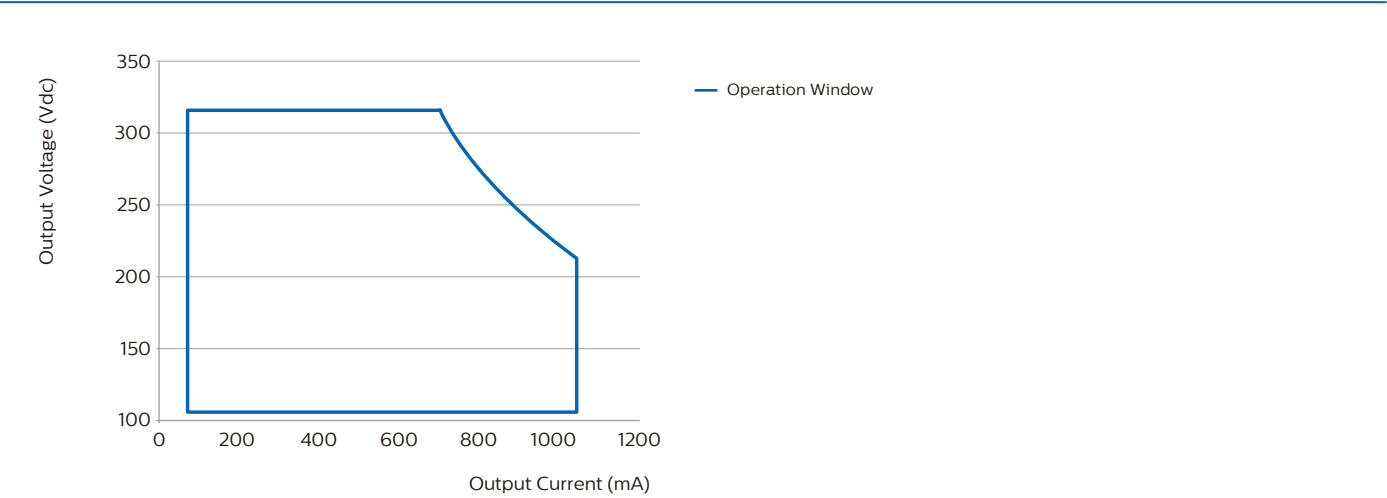
Specification item	Value	Unit	Condition
Typical protective conductor current (ins. Class I)	< 0.6	mA rms	Acc. IEC61347-1. LED module contribution not included
Leakage current of dimming terminals	0.010	mA rms	UL 8750

Surge immunity

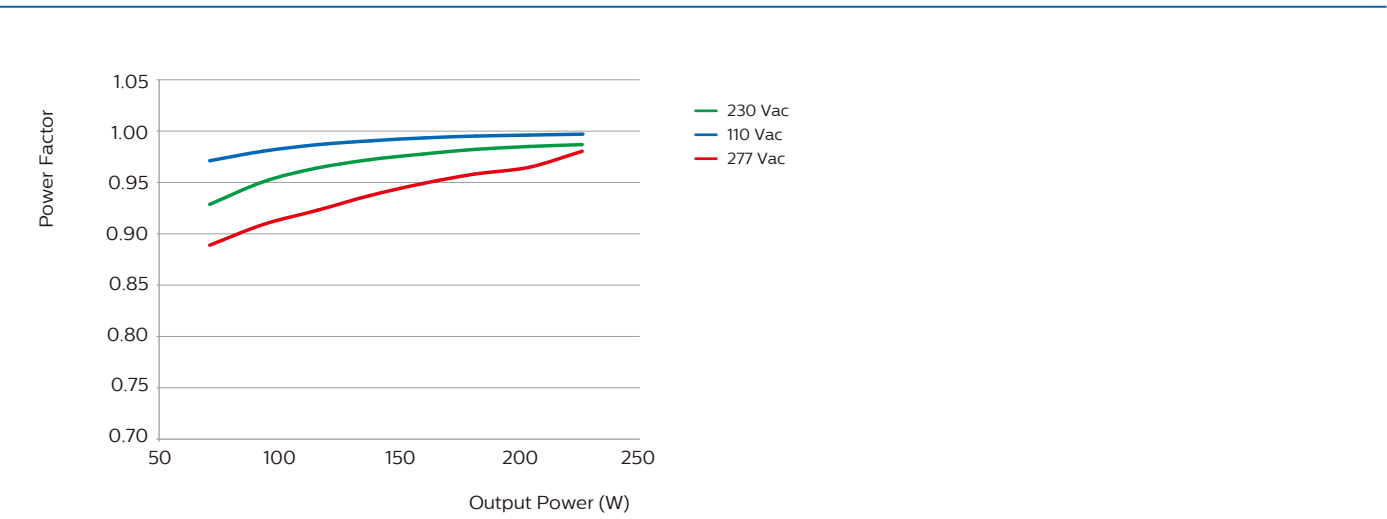
Specification item	Value	Unit	Condition
Mains surge immunity (di $\bar{t}$. mode)	6	kV	L-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N - GND acc. EN61547 12 Ohm, 1.2/50us, 8/20us
Control surge immunity (di $\bar{t}$. mode)	0.5	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	6	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Graphs

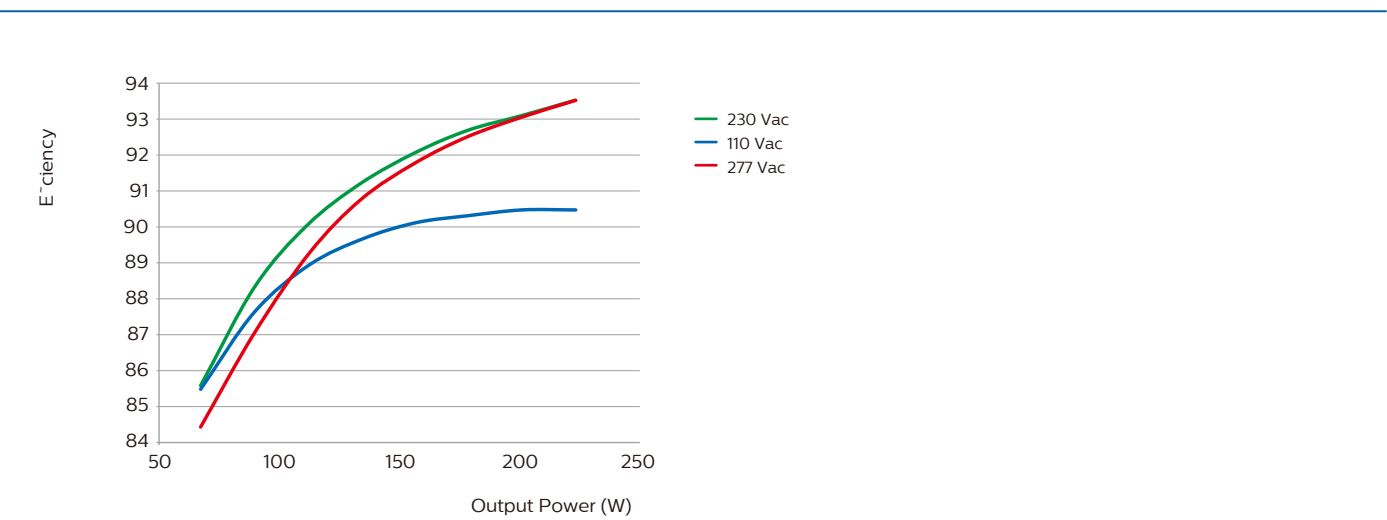
Operating window



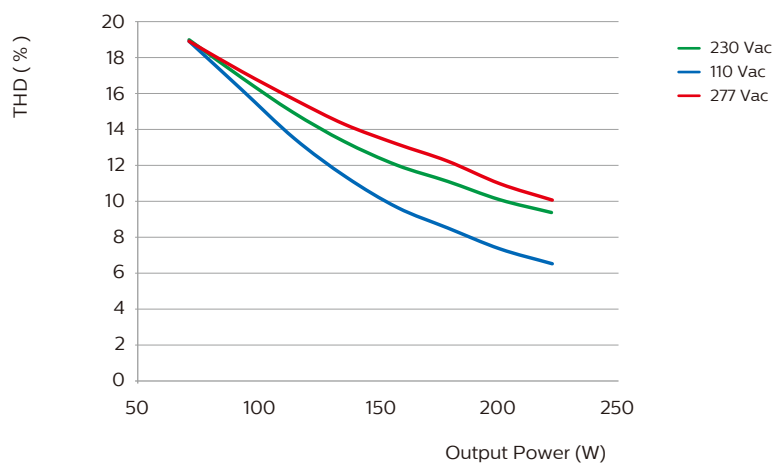
Power factor versus output power



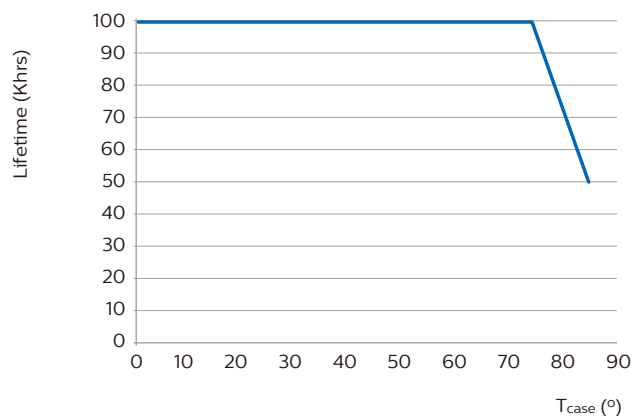
Efficiency versus output power



THD versus output power



Lifetime vs Tcase



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