PHILIPS

Xitanium

LED driver

Datasheet

Xitanium Outdoor LED Drivers Independent 1-10V

Xi LP 40W 0.3-1.05A S1 230V I150

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 flexibility 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
- Long lifetime and high survival rate
- Energy savings through high efficiency
- Balanced configurable feature set covering the most common applications
- Superior thermal management
- 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

August 2021

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	202...254	V_{ac}	Performance range
Rated input voltage	230	V_{ac}	
Rated input frequency range	47...63	Hz	Performance range
Rated input current	0.2	A	@ rated output power @ rated input voltage
Max. input current	0.21	A	@ rated output power @ minimum performance input voltage
Rated input power	46	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	87	%	@ rated output power @ rated input voltage @ max. Uout
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	21...57	V_{dc}	
Output voltage max	100	V	Peak voltage at open load
Output current	0.07...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}	≤ 0.07		In entire operating window
Output SVM	≤ 0.07		In entire operating window
Output power	2...40	W	

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	1-10	V	Default: 1-10V. Optional: reversed 1-10V, reversed 0-5V
Dimming range	10...100	%	
Galvanic Isolation	Basic		

Logistical data

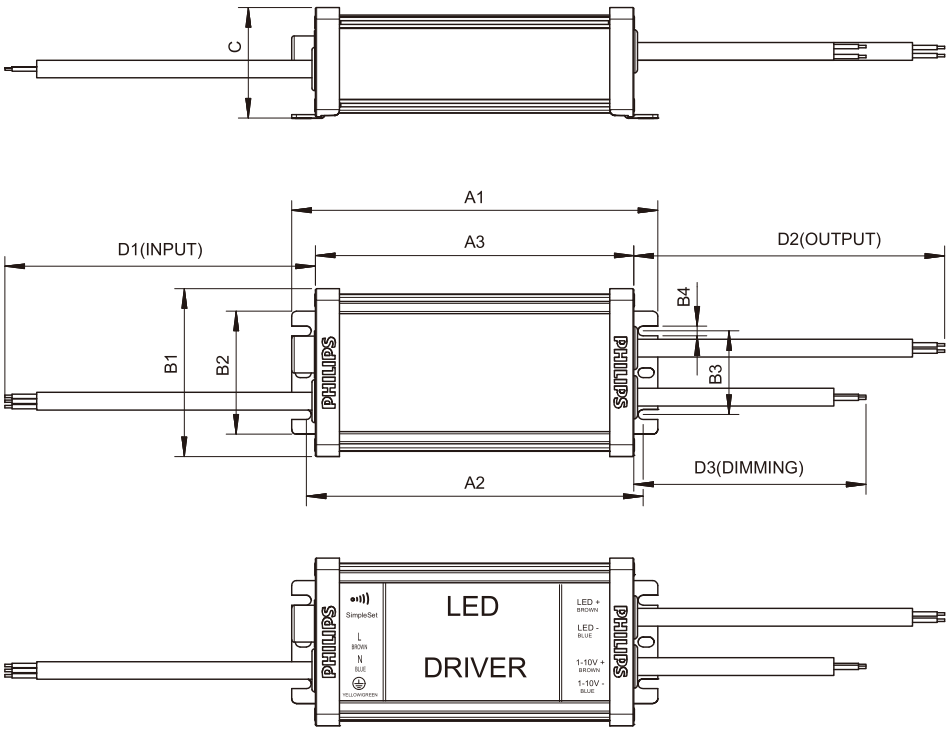
Specification item	Value
Product name	Xi LP 40W 0.3-1.05A S1 230V I150
Logistic code 12NC	9290 021 03380
Pieces per box	16

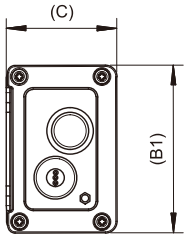
Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	1	mm^2	3 x 1.0mm^2 stranded wires, waterproof cable
Output wire cross-section	1	mm^2	2 x 1.0mm^2 stranded wires, waterproof cable
Dimming wire cross-section	1	mm^2	2 x 1.0mm^2 stranded wires, waterproof cable
Maximum cable length	350	mm	Total length of wiring including LED module, one way

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	150	mm	
Length (A2)	138	mm	
Length (A3)	130	mm	
Width (B1)	68.2	mm	
Width (B2)	50	mm	
Fixing hole distance (B3)	34	mm	
Fixing hole distance (B4)	4	mm	
Height (C)	45	mm	
Input cable length (D1)	450	mm	
Output cable length (D2)	350	mm	
Control cable length (D3)	300	mm	
Weight	645	gram	





Data Sheet	
Item	Dimensions
A1	150 +0.5/-2.5
A2	138 +0.5/-2.5
A3	130 +0.5/-2.5
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	350 +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
Tcase-max	80	°C	Maximum temperature measured at T_{case}-point
Tcase-life	70	°C	Measured at T_{case}-point
Maximum housing temperature	90	°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	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)		See Design-in guide	Default output current: = 700 mA
Constant Lumen Over Lifetime (CLO)	Yes		
Diagnostics	Yes		
Dynadimmer	Yes		

Features

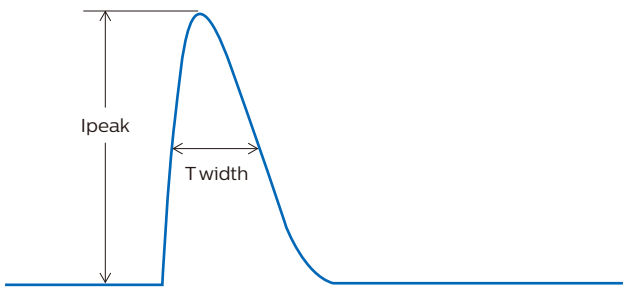
Specification item	Value	Remark	Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with protection class	I		per IEC60598
Over temperature protection driver	Yes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

Certificates and Standards

Specification item	Value
Approval Marks	CB / CCC / CE / ENEC
Ingress Protection Rating	IP66/67

Inrush current

Specification item	Value	Unit	Condition
Inrush Current I_{peak}	48.7	A	Input voltage 230V
Inrush Current T_{width}	110	µs	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A Type B	≤ 22	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

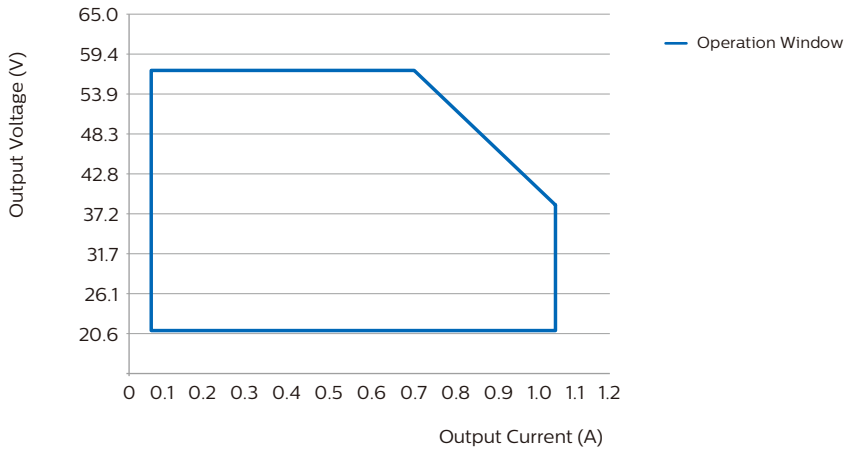
Specification item	Value	Unit	Condition
Typical touch current (ins. Class II)	0.7	mA peak	Acc. IEC61347-1. LED module contribution not included

Surge immunity

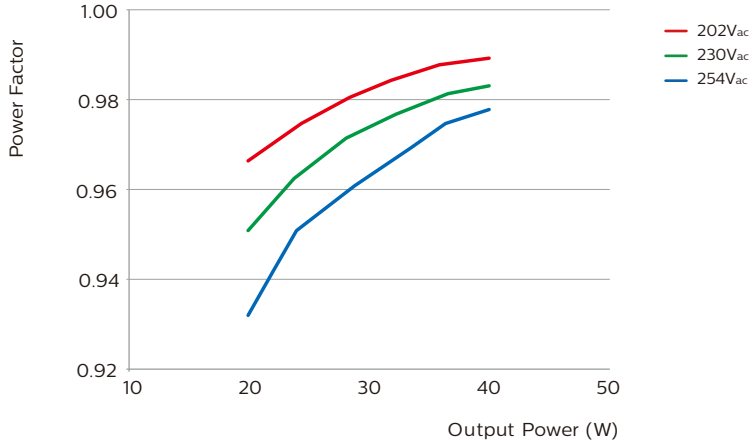
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Graphs

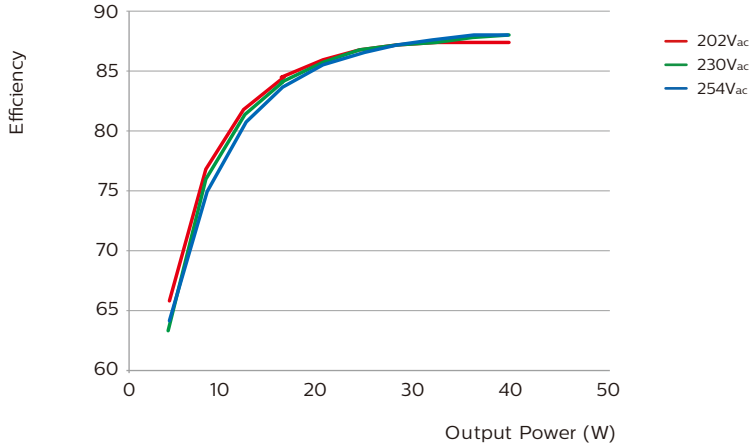
Operating window



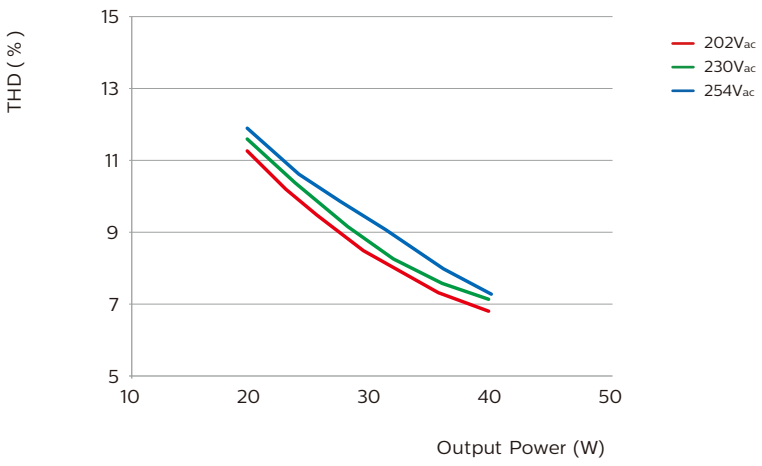
Power factor versus output power



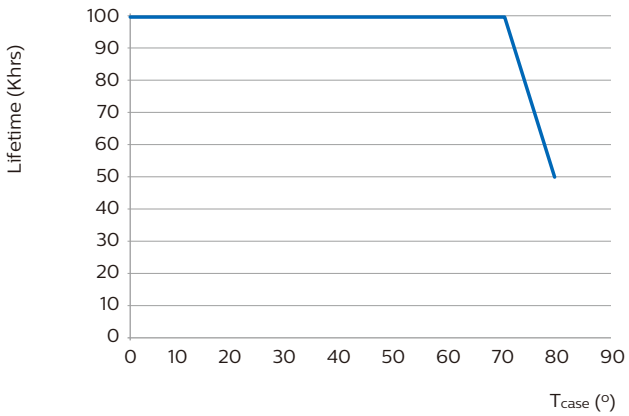
Efficiency versus output power



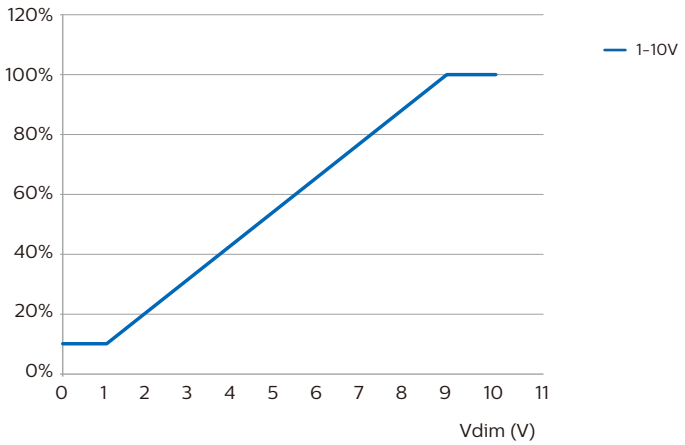
THD versus output power



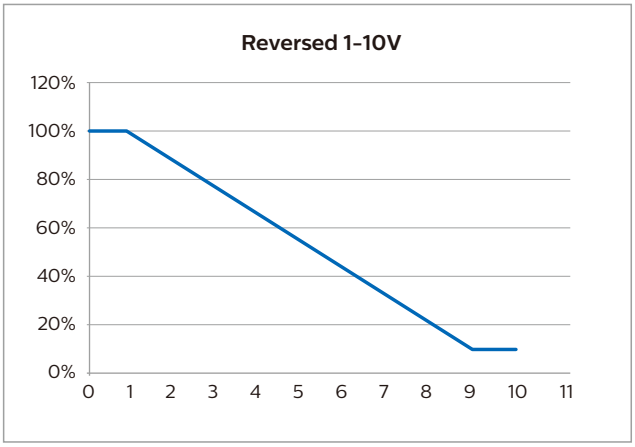
Lifetime vs Tcase

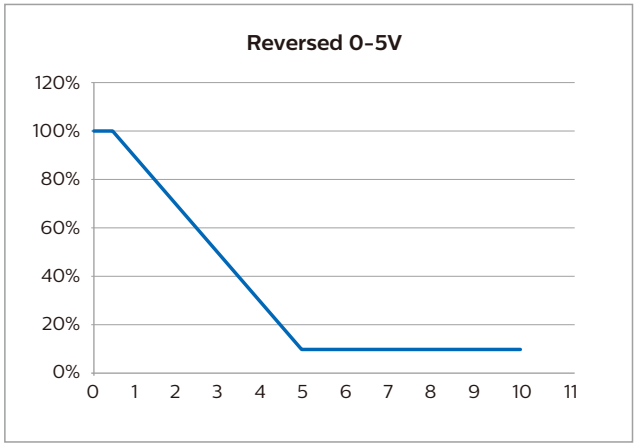


Dimming Curve



Reversed





Note:

1. During reverse dimming mode, when the Dim+ /Dim- is open, the driver will be at maximum output current.
2. During reverse dimming mode, there is a hysteresis of 2V between 10V and 12V to keep previous status unchanged when dim voltage is above the linear dimming range

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