PHILIPS

Xitanium

LED driver

Datasheet

Xitanium Outdoor LED Drivers Dimmable (1-10V)

Xitanium Dim 250W 0.70A 1-10V 230V Q

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 Outdoor drivers are specifically designed to deliver reliable performance and protection while meeting the strict performance, approbation and application requirements.

Benefits

Reliability

- Robust design; capable of withstanding harsh outdoor conditions.
- Long lifetime and high survival rate.
- Superior surge immunity, enabling use in rigorous outdoor application.
- Backed by 5 year warranty from a company you can trust.

Affordable

- Component integration in advanced IC enables cost effective design.
- Proven robustness & reliability to secure the lowest luminaire maintenance vosts over time.

Easy to design-in

- Extreme compact size. fitting with varied luminaires.
- Easy to design-in based on the good thermal management and extra EMI margin

Features

- Proven robustness and reliable electronic driver design.
- Achieving highest efficiencies based on advance technology.
- Long lifetime
- High surge immunity
- Suitable for Insulation Class I luminaires (built-in use only).
- ENEC, CB, CE and CCC certified.

Applications

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

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Electrical Input Data

Specification item	Value	Unit	Condition
Rated input voltage range	202...254	Vac	Performance range
Rated input voltage	230	Vac	
Input voltage range	85...305	Vac	Safety operational range
Rated input frequency range	47...63	Hz	Performance range
Input frequency range	45...66	Hz	Safety operational range
Rated input current range	1.15	A	@ rated input voltage @ rated output power
Maximum input current	1.32	A	@ minimum performance input voltage @ rated output power
Rated input power	265	W	@ rated input voltage @ rated output power
Power factor	0.97		@ rated input voltage @ rated output power
Total Harmonic Distortion (THD)	6	%	@ rated input voltage @ rated output power
Efficiency	94.5	%	@ rated input voltage @ rated output power

Electrical Output Data

Specification item	Value	Unit	Condition
Regulation method	Constant current		
Output voltage	178...357	V_{dc}	
Output voltage max	550	V_{dc}	Peak voltage at open load
Output current	700	mA	
Output current tolerance	±5	%	At max. output current
Output current ripple LF	5	%	Ripple = peak / average, @<1kHz
Rated output power	250	W	
Galvanic insulation mains input - LED output	Basic insulation		

Electrical Data Control Input

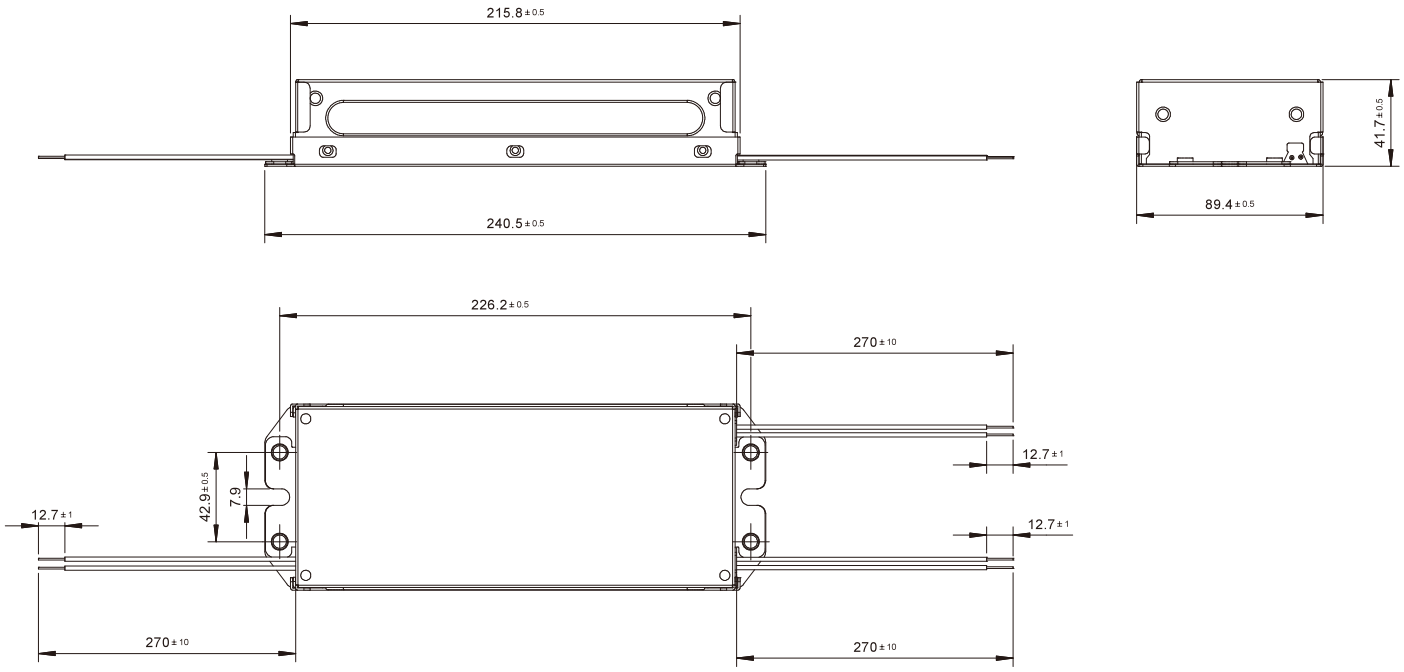
Specification item	Value	Unit	Condition
Control method	1-10	V	Output current amplitude dimming, 1-10V acc. IEC60929
Dimming range	10...100		
Galvanic insulation input - LED output	Basic insulation		

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross section	0.75	mm²	2-wire; 600V/105°C rating
Output wire cross section	0.75	mm²	2-wire; 600V/105°C rating
Input & output wire length	27 ± 3	cm	
Control wire cross section	0.75	mm²	2-wire; 600V/105°C rating
Control wire length	27 ± 3	cm	

Dimensions

Specification item	Value	Unit	Condition
Length overall	240.5	mm	
Width overall	89.4	mm	
Height overall	42	mm	
Mounting holes distance	226.2	mm	
Mounting holes width	43	mm	
Mounting holes size	4	mm	For M4 with max head diameter of 10mm
Weight	1300	g	



Insulation

	Mains	LED	Chassis
Mains		Basic	Basic
LED	Basic		Basic
Chassis	Basic	Basic	

Warning: driver chassis must be connected to Protective Earth!

Operational Temperature and Humidity

Specification item	Value	Unit	Condition
Ambient temperature / RH	-40...+55 / 10...90	°C / %	
Tcase-max	90	°C	Measured at Tcase point
Tcase-life	80	°C	Measured at Tcase point

Storage Temperature and Humidity

Specification item	Value	Unit	Condition
Ambient temperature / RH	-40...+55 / 5...95	°C / %	Non condensing

Lifetime

Specification item	Value	Unit	Condition
Lifetime	100,000	Hours	Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10%

Logistical Data

Specification item	Value
Product name	Xitanium Dim 250W 0.7A 1-10V 230V Q
Logistics code 12NC	9290 008 38508
Pieces per box	9

Programmable features

Specification item	Value	Remark	Condition
Adjustable Output Current (AOC)	N/A	Fixed output current = 700mA	See Design-In Guide
LED Module Temperature Derating (MTP)	N/A		
Constant Lumen Output (CLO)	N/A		
DC Emergency Dimming (DCEmDIM)	N/A		
Corridor Mode	N/A		
Energy Metering	N/A		
Diagnostics	N/A		

Features

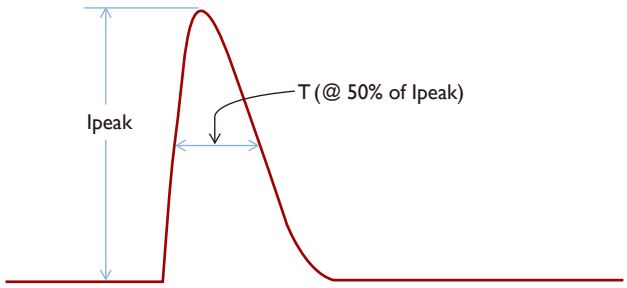
Specification item	Value	Remark	Condition
Open -circuit protection	Yes		
Short-circuit protection	Yes		Automatic recovering
Over Power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with Insulation Class	Class I		Per IEC60598
Input overvoltage withstand	Yes		320Vac @ max. 48hrs 350Vac @ max. 2hrs

Certificates and Standards

Specification item	Value
Approval marks	CE / CCC / ENEC / CB
Ingress Protection rating	IP20, driver is for built-in use only

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak}	38	A	@ 230Vac
Inrush current T_{width}	625	µs	@ 230Vac, measured at 50% I_{peak}
Drivers / MCB 16A type B	≤ 6	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%**
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%

Protective conductor current

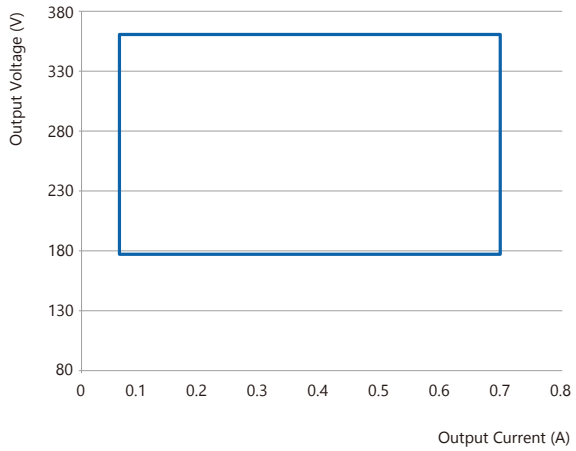
Specification item	Value	Unit	Condition
Typical current (ins. Class I)	≤0.5	mA_{rms}	LED module contribution not included

Surge immunity

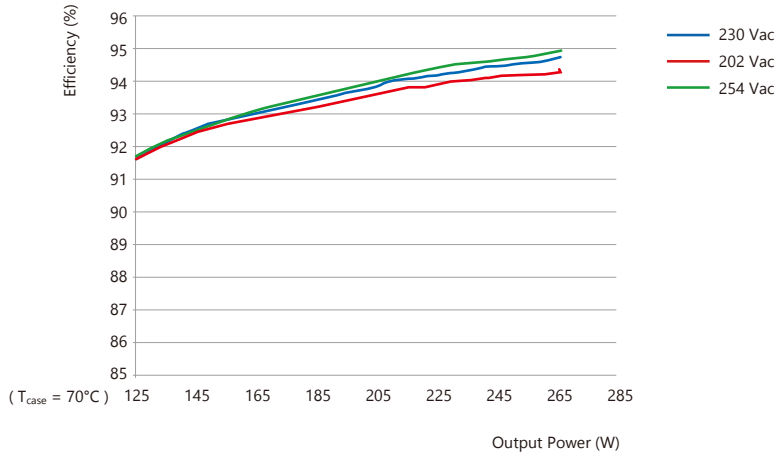
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5, 2 Ohm 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	6	kV	L/N - housing acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us

Graphs

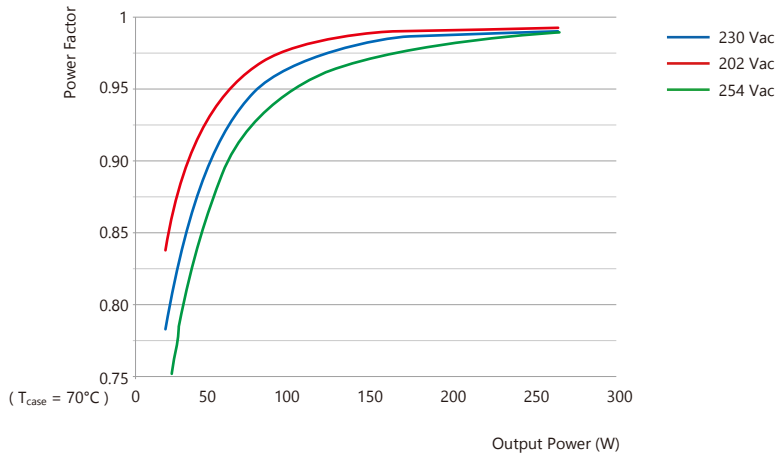
Operating window



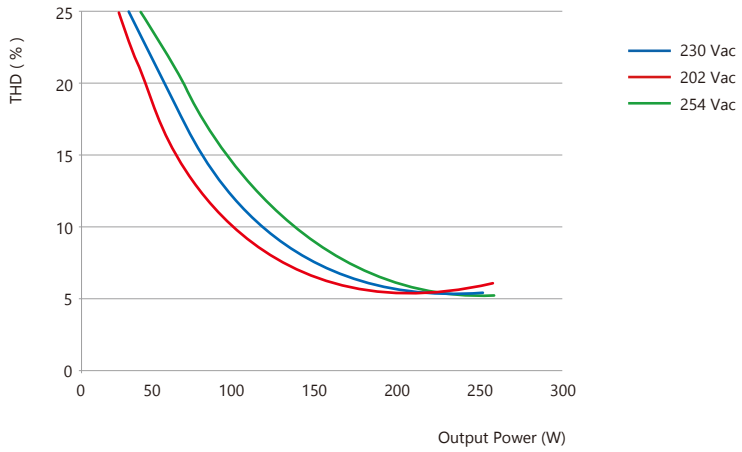
Efficiency versus output power



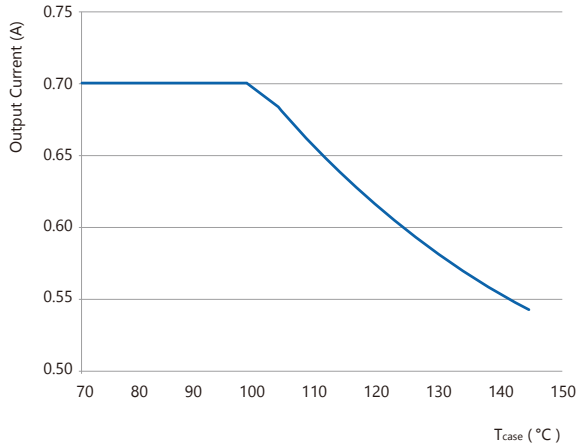
Power factor versus output power



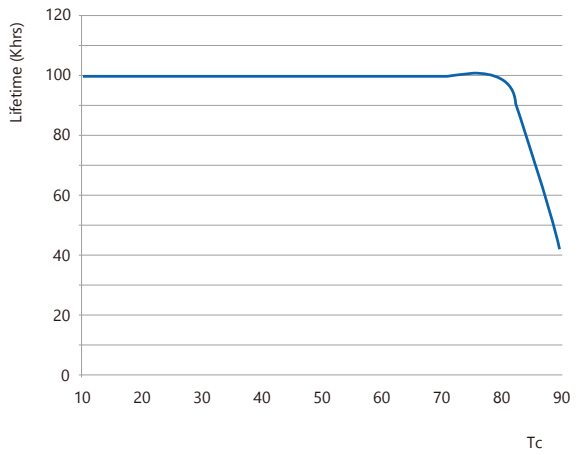
Total Harmonic Distortion THD (Tcase = 70°C)



Output current vs Tcase (ThermalGuard)

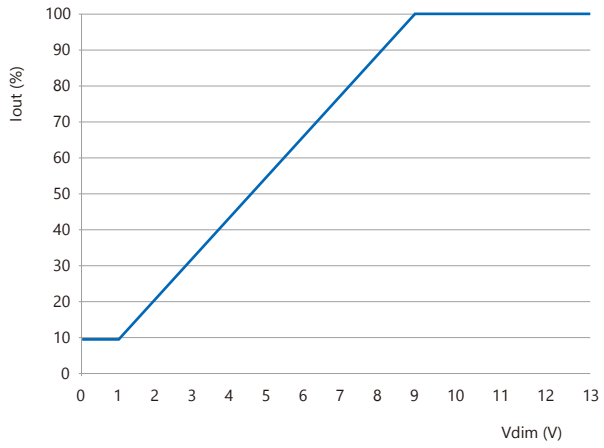


Lifetime vs Tcase

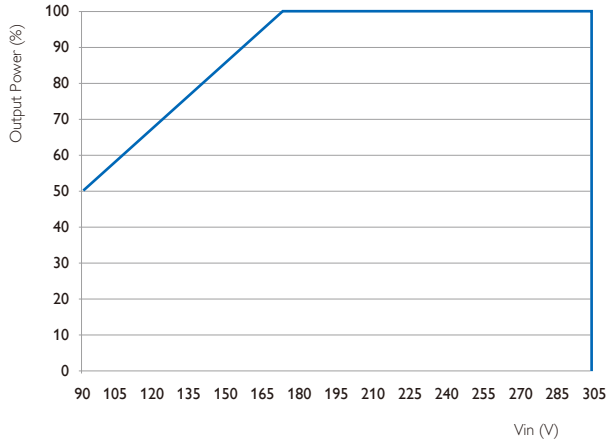


- Failure rate information based upon MTTF modeling: 90% survival at end of life @ Tcase<=90°C
- Failure rate information based upon field call rate data: <0.01% per 1khr @ Tcase<=90°C

1-10V dimming curve



Pout vs input voltage (MainsGuard)



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