PHILIPS

Xitanium

LED driver

Datasheet

Xitanium FULL Prog LED Xtreme drivers

Xi FP 22W 0.3-1.0A SNLDAE 230V S175 sXt

Xitanium FULL Prog LED Xtreme drivers

Philips Xitanium Full Programmable LED drivers are specifically designed to deliver the highest performance, protection and configurability. The portfolio offers both central and standalone dimming protocols further increasing the energy savings and CO2 reductions achieved with LED lighting. The Xtreme technology ensures maximum robustness and protection combined with a very long lifetime.

In this product family Philips introduces new drivers in a stretched form factor with state-of-the-art features, 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 in a production environment, without the need to power the driver.

Benefits

- Ultimate robustness, offering peace of mind and lower maintenance costs
- Fully programmable LED-drivers designed for the new digital and connected lighting world
- Extended diagnostics via SimpleSet® and MultiOne
- Easy to design-in, configure and install for Class I and Class II applications
- Energy savings through high efficiency and via multiple dimming options

Features

- SimpleSet®, wireless configuration interface
- High surge protection (CM/DM)
- Long lifetime and robust protection against moisture, vibration and temperature
- Configurable operating windows (AOC)
- Multiple control interfaces: DALI, LineSwitch, AmpDim
- Autonomous dimming via integrated DynaDimmer
- Suitable for central DC operation (DCemDim)
- Thermal protection for driver and for module (MTP)
- Constant Light Output (CLO)
- Adjustable Start-up Time (AST)
- Adjustable Light Output (ALO)
- End-Of-Life indicator (EOL)

Application

- Road and street lighting
- Area lighting
- Industrial lighting

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	220 ... 240	Vac	Performance
Input voltage range	(170) 198 ... 264	Vac	Operational (AmpDim enabled)
Rated input voltage range	186 ... 250	Vdc	Performance
Input voltage range	165 ... 275	Vdc	Operational
Rated input frequency range	50 ... 60	Hz	Performance
Input frequency range	45 ... 66	Hz	Operational
Rated input current range	0.12 ... 0.11	A	Full load
Max. input current	0.09	Adc	DC operation
Rated input power	26	W	230Vac, full load
Power factor	≥ 0.99		230Vac, full load. See graph
Total harmonic distortion	≤ 8	%	230Vac, full load. See graph
Efficiency	86	%	230Vac, full load. See graph
Standby power	< 0.5	W	DALI standby, Dynadimmer with output switched OFF

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	8 ... 32	Vdc	See graph
Output voltage max.	50	V	Peak voltage at open load
Programmable output current	300 ... 1050	mA	
Output current min dimming	70	mA	
Output current tolerance	± 3	%	
Output current ripple LF	≤ 4	%	Ripple = peak / average, 70Hz … 1kHz
Output current ripple HF	≤ 20	%	Ripple = peak / average, > 1kHz
Output power range	0.7 ... 22	W	

Electrical data controls input

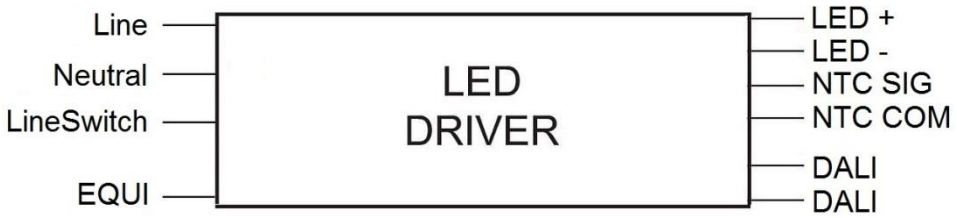
Specification item	Value	Unit	Condition
Control method	DALI, Dynadimmer, LineSwitch, AmpDim		DALI acc. IEC62386-101, -102 Ed. 2.0
Dimming range	7 ...100%	%	Output current amplitude dimming

Logistical data

Specification item	Value
Product name	Xi FP 22W 0.3-1.0A SNLDAE 230V S175 sXt
Order code	8718696526590
Logistic code 12NC	9290 009 91206
EAN3	8718696526606
Pieces per box	20

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.2...1.5	mm^2	Push-in at 45° angle, solid and stranded wire
	24...16	AWG	
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.2...1.5	mm^2	Push-in at 45° angle, solid and stranded wire
	24...16	AWG	
Output wire strip length	8.5...9.5	mm	
Maximum NTC output cable length	0.6	m	
Maximum output cable length	2.5	m	CISPR15: between driver and LED module

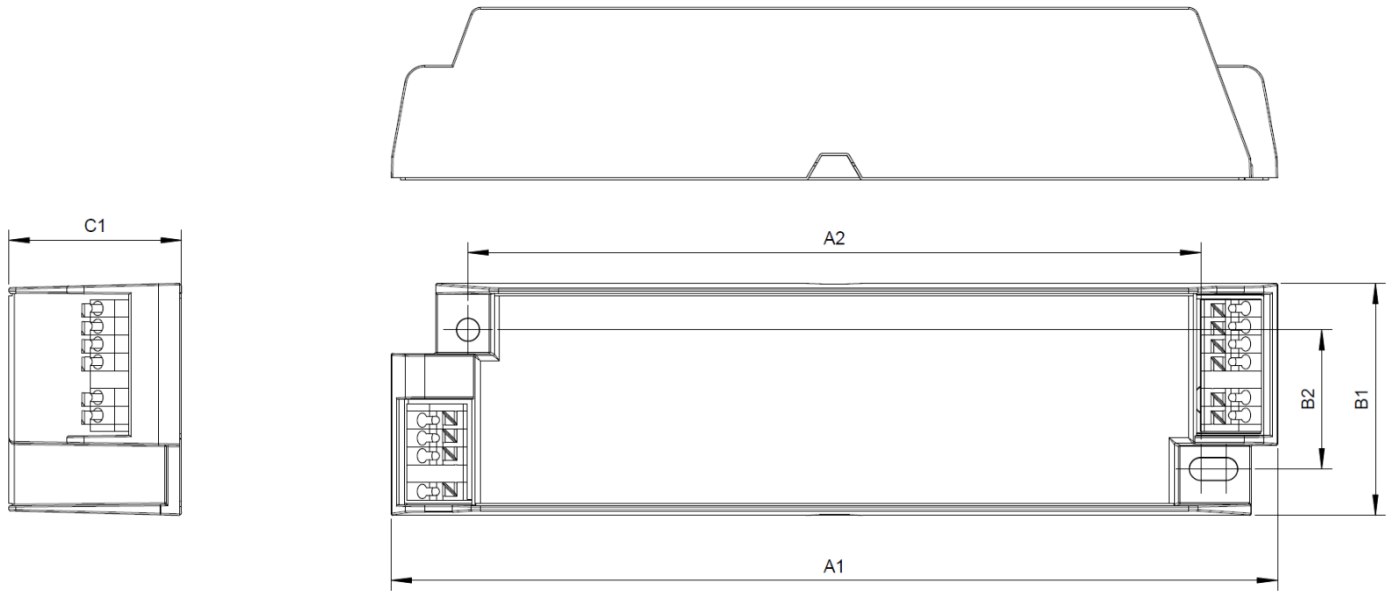


Insulation

Insulation	Mains	EQUI	LED + NTC	LineSwitch	DALI
Mains	N/A	Double	SELV	None	Basic
EQUI	Double	N/A	Basic	Double	Double
LED + NTC	SELV	Basic	N/A	SELV	SELV
LineSwitch	None	Double	SELV	N/A	Basic
DALI	Basic	Double	SELV	Basic	N/A

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	175 ± 0.1	mm	
Width (B1)	46 ± 0.5	mm	
Height (C1)	34 ± 0.4	mm	
Fixing hole diameter	4.5	mm	Mounting screw: M4. Max. torque: 1.5Nm
Fixing hole distance (A2)	144 ± 0.2	mm	
Fixing hole distance (B2)	27.35 ± 0.2		
Weight	165	gram	



Operational temperatures and humidity

Specification item	Value	Unit	Condition
Driver ambient temperature	-40...+55	°C	At nominal output power. Higher ambient temperature allowed as long as Tcase-max is not exceeded.
Tcase-min	-30	°C	Min. steady-state Tcase
Tcase-max	+85	°C	Max. steady-state Tcase
Tcase-life	-30...+75	°C	For nominal driver lifetime
Maximum housing temperature	120	°C	In case of failure
Relative humidity	10...90	%	Non-condensing
Ingress Protection	20		Suggested luminaire IP: ≥ IP54
Noise and hum	24	dB	Typical

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-30...+80	°C	
Relative humidity	10...90	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	100,000	hours	Tcase ≤ Tcase-life. See graph. Maximum failures = 10%

Programmable features

Specification item	Value	Remark	Default setting
Adjustable Output Current (AOC)	SimpleSet	See Design-in guide	700mA
DALI	Yes	Do not connect to mains voltage	Enabled
LineSwitch	Yes	V_{low}: < 160Vac V_{high}: 170 ... 264Vac	Enabled, 100% light output at V_{low}
Constant Lumen Over Lifetime (CLO)	Yes	Range: 0 ... 120,000hrs	Disabled
Diagnostics	Yes	Extended options	Enabled
Integrated Dynadimmer	Yes	Incl. output OFF	Disabled, override possible by DALI and LineSwitch
Mains amplitude dimming (AmpDim)	Yes	Range: 170 ... 250Vac	Disabled
Adjustable Light Output (ALO)	Yes	Range: 0 ... 100%	Disabled
Ajustable Startup Time (AST)	Yes	Range: 0.7 ... 30s	1s
End Of Life (EOL)	Yes	Range: 500 ... 127,500hrs	Disabled
Module Temperature Protection (MTP)	Yes	NTC types: Murata: 10kOhm, NCP18XH103J03RB Vishay: 15kOhm, 2381 615 54153 Murata: 15kOhm, NCP15XW153E03RC	Enabled
DC emergency dimming (DCemDim)	Yes	Polarity-indifferent	Enabled, AOC level = 15% of programmed AOC.

Features

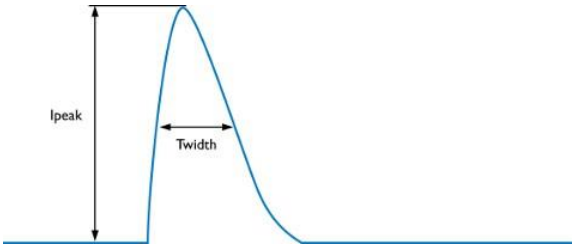
Specification item	Value	Remark	Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Overheating protection	Yes		Automatic recovering. See graph. Dimming starting at Tcase = 88°C Shutdown at Tcase = 97°C Resuming at Tcase =75°C
Hot wiring	No		
Suitable for luminaire insulation class	I and II		Per IEC60598

Certificates and standards

Specification item	Value
Approval marks	CE / ENEC / CB. Pending: VDE-S / VDE-EMV / CCC

Inrush current

Specification item	Value	Unit	Condition
Inrush current Ipeak	15	A	Input voltage 230Vac
Inrush current Twidth	360	µs	Input voltage 230Vac, measured at 50% Ipeak
Typical number of drivers	Max. 23	pcs	MCB 16A B type, mains impedance 200mΩ + 400µH



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

Driver touch current

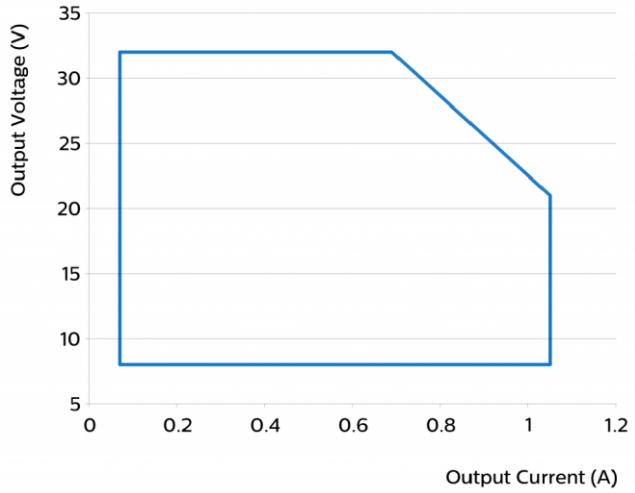
Specification item	Value	Unit	Condition
Typical touch current	0.34 / 0.41	mA peak	Acc. IEC61347-1 at 230Vac 50/60Hz LED module contribution not included

Surge immunity

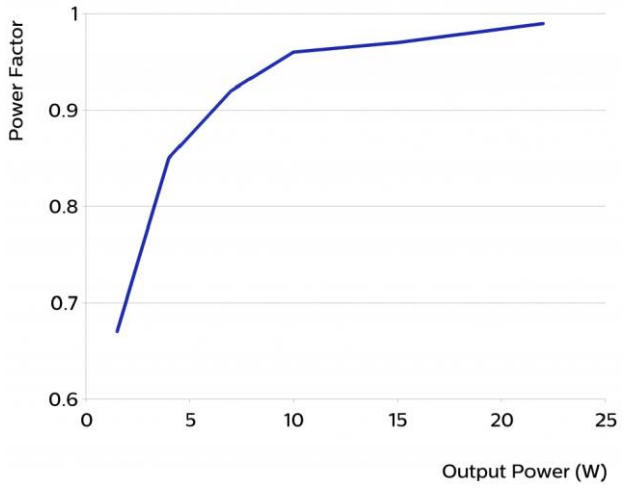
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	8	kV	L/N – GND acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us
LineSwitch surge immunity (diff. mode)	6	kV	Ls-L, Ls-N acc. IEC61000-4-5. 2 Ohm 1.2/50us, 8/20us
LineSwitch surge immunity (comm. mode)	8	kV	Ls – GND acc. IEC61000-4-5. 12 Ohm 1.2/50us, 8/20us
DALI surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
DALI surge immunity (comm. mode)	2.5	kV	DALI – GND acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Graphs

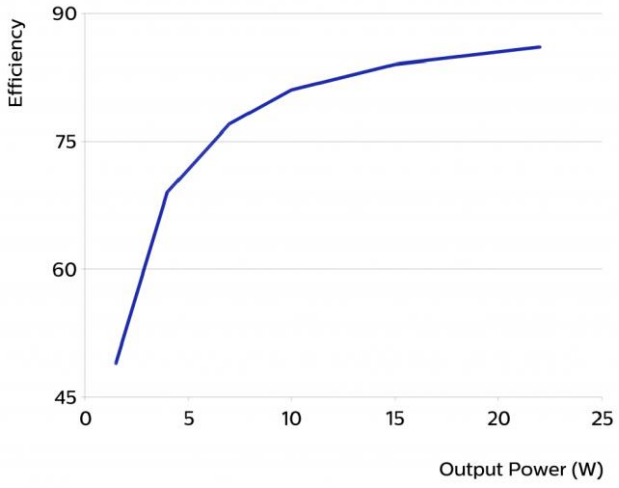
Operating window



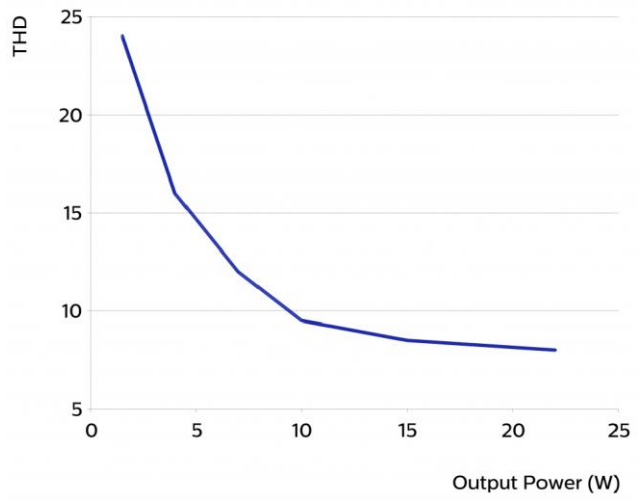
Power factor versus output power



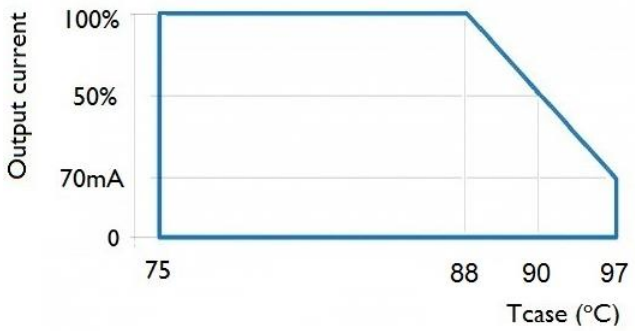
Efficiency versus output power



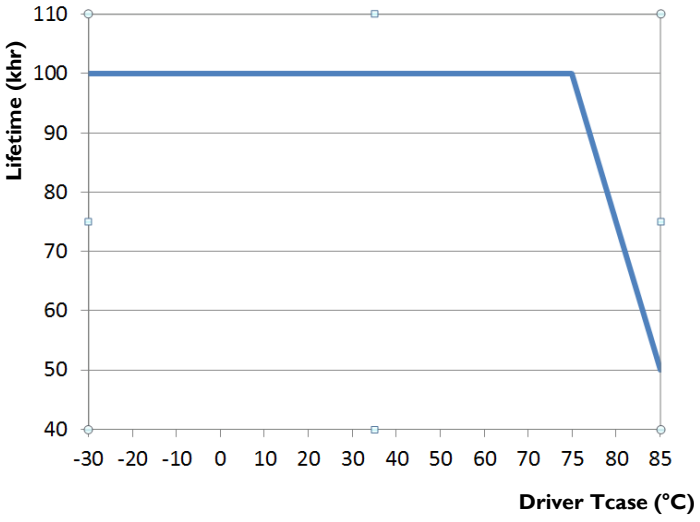
THD versus output power



Driver output current versus driver case temperature Tcase



Driver lifetime versus driver case temperature Tcase



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