PHILIPS

Xitanium

LED driver

Datasheet

Xitanium FULL Prog LED Xtreme drivers

Xi FP 150W 0.2-0.7A SNLDAE 230V S240 sXt

9290 021 28606

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 CO_2 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 compact 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.

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 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

- High surge protection (CM/DM)
- Long lifetime and robust protection against moisture, vibration and temperature
- Configurable operating windows (AOC)
- Multiple control interfaces: DALI, AmpDim, 1-step and 3-step LineSwitch
- Autonomous dimming via integrated DynaDimmer
- Adjustable thermal protection for driver (DTL) and LED module (MTP)
- Constant Light Output (CLO)
- Adjustable Start-up Time (AST)
- Adjustable Light Output (ALO)
- End-Of-Life indicator (EOL)
- Communication through mains via coded commands
- Compliant per DALI Part 251/252/253 (select models)

Application

- Road and street lighting
- Area lighting
- Tunnel lighting
- Industrial lighting

April 2023

Logistical data

Specification item	Value
Product name	Xi FP 150W 0.2-0.7A SNLDAE 230V S240 sXt
EOC	871869970575600
Logistic code 12NC	9290 021 28606
EAN1 (GTIN)	8718699705756
EAN3 (box)	8718699705763
Pieces per box	10

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	0.7	A	@ rated output power @ rated input voltage
Max. input current	0.8	A	@ rated output power @ minimum performance input voltage
Rated input power	163	W	@ rated output power @ rated input voltage
Minimum Power factor	0.99		@ rated output power @ rated input voltage
Total harmonic distortion	6.5	%	@ rated output power @ rated input voltage
Efficiency	92	%	@ rated output power @ rated input voltage @ max. Uout
Rated input voltage DC range	186…250	V_{dc}	Performance range, no external DC-rated fuse required
Rated input current DC range	0.6	A_{dc}	Performance range
Input voltage AC range	80…264	V_{ac}	Safety operational range, see MainsGuard graph
Input frequency AC range	45…66	Hz	Safety operational range
Input voltage DC range	168…275	V_{dc}	Safety operational range
Standby Power (no load)	0.45	W	
Isolation input to output	Double		

Electrical output data

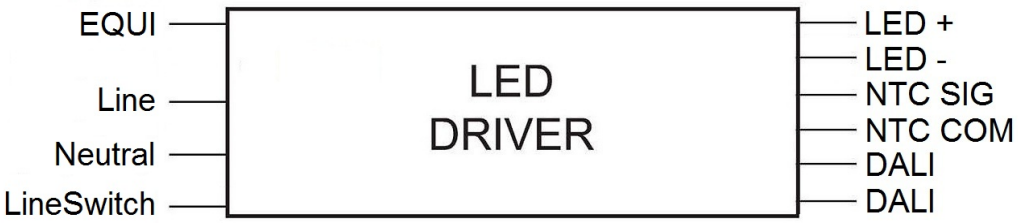
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	90…283	V_{dc}	
Output voltage max.	340	V	Maximum voltage at open load
Output current	0.053…0.7	A	
Output current min programmable	200	mA	
Min output current	53	mA	
Output current tolerance ±	3	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average @ < 3kHz
Output current ripple HF	≤ 4	%	
Output P_{st}^{LM}	≤ 0.35		In entire operating window
Output SVM	≤ 0.07		In entire operating window
Output power	4.5…150	W	

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	AmpDim, Coded Mains, DALI, Dynadimmer, LineSwitch 3-step, LineSwitch single-step		Output current amplitude dimming. Please refer to design-in guide at www.philips.com/oem for more controllability details.
Dimming range	10…100	%	For latest DALI certification status please visit www.digitalilluminationinterface.org/products; LineSwitch: Vlow: < 160Vac Vhigh: 170 … 264Vac
Isolation controls input to output	Double		acc. IEC61347-1

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.2…1.5 / 24…16	mm^2 / AWG	solid / stranded wire
Input wire strip length	8.5…9.5	mm	
Output wire cross-section	0.2…1.5 / 24…16	mm^2 / AWG	solid / stranded wire
Output wire strip length	8.5…9.5	mm	
Control wire cross-section	0.2…1.5 / 24…16	mm^2 / AWG	solid / stranded wire
Control wire strip length	8.5…9.5	mm	
Maximum cable length	2.5	m	CISPR15: between driver and LED module
Maximum NTC output cable length	0.6	m	

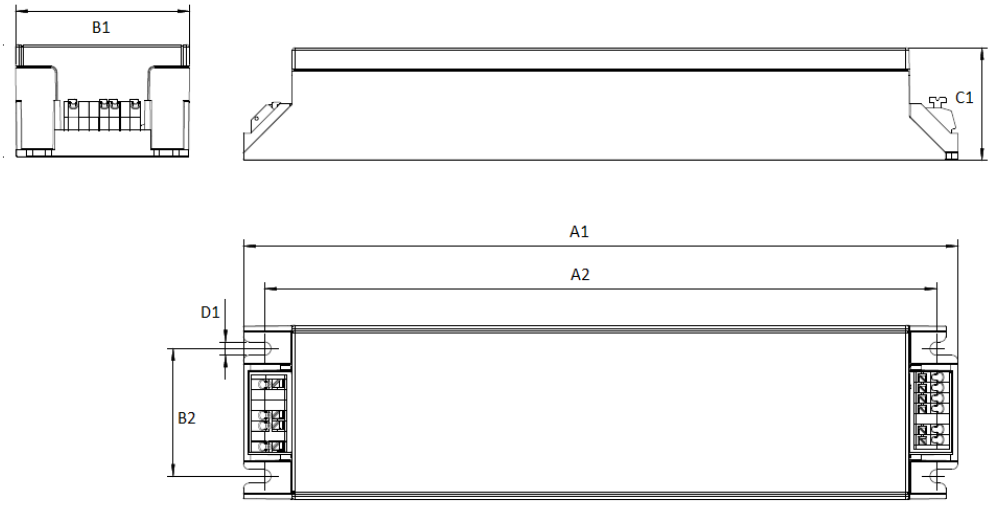


Isolation

Insulation per IEC61347-1	Mains + LineSwitch	EQUI	LED + NTC	DALI
Mains + LineSwitch	-	Double	Double	Basic
EQUI	Double	-	Basic	Double
LED + NTC	Double	Basic	-	Double
DALI	Basic	Double	Double	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	240.5	mm	
Mounting hole distance (A2)	226.2	mm	
Width (B1)	58.6	mm	
Width (B2)	42.9	mm	
Height (C1)	37.8	mm	
Mounting hole diameter (D1)	4.5	mm	
Weight	700	gram	

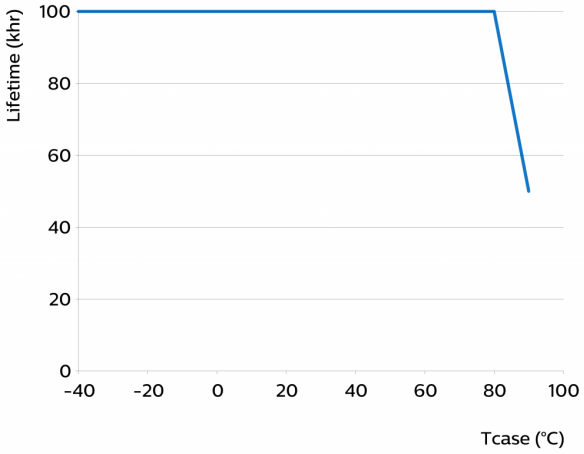


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40…+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	90	°C	Maximum temperature measured at T_{case}-point
Tcase-life	80	°C	Measured at T_{case}-point
Maximum housing temperature	130	°C	In case of a failure, inherent by design
Relative humidity	10…90	%	Non-condensing

Lifetime

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



Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40…+85	°C	
Relative humidity	5…95	%	Non-condensing

Programmable features

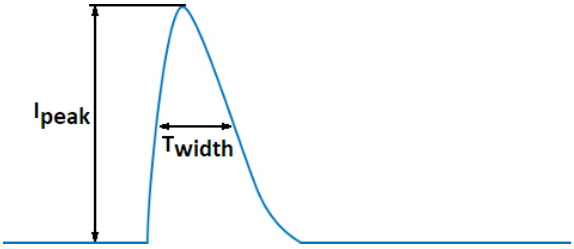
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Driver Temperature Limit (DTL)	Yes	ON	
Adjustable Light Output (ALO)	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
Adjustable Start-up Time (AST)	Yes	1 s	
Integrated Dynadimmer	Yes	OFF	5-step, light turn-off possible
LineSwitch single-step	Yes	ON	
LineSwitch 3-step	Yes	OFF	
AmpDim	Yes	OFF	
Min Dim Level	Yes	10 %	
DC emergency (DCemDim)	Yes	ON	Default: AOC = 15%. EOFx = 10 … 60%. No external DC rated fuse required. Internal fuse rating: T6.3A 250VAC/DC.
End Of Life indicator (EOL)	Yes	OFF	
Coded Mains	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
Diagnostics	Yes	—	

Features

Specification item	Value		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
Overtemperature protection	Yes		

Inrush current

Specification item	Value	Unit	Condition
Inrush current	67	A	Input voltage 230V
Inrush peak width	210	µs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A type B	≤ 8	pcs	Indicative value at 230V



Please refer to the driver design in guide if you use other MCB-types.

If several mini circuit breakers are used directly side-by-side (without distance pieces) a correction factor of 80% has to be applied to the rated current

Driver touch current / protective conductor current / earth leakage current

Specification item	Value	Unit	Condition
Typical Touch Current (ins. Class II)	0.3	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	0.18	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

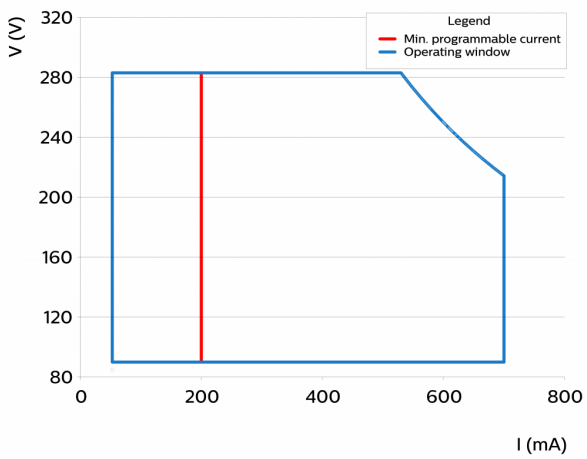
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N, Ls-L, Ls-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N/Ls - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.9	kV	DALI - DALI, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	6	kV	DALI - EQUI acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	8	kV	DALI - L/N/Ls acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Application Info

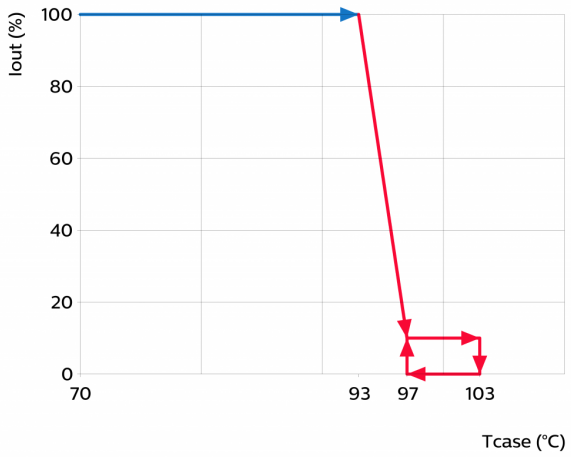
Specification item	Value
Approval marks and Certifications	CCC / CE / DALI 2 / Double-insulated Built-In / EAC / EL / ENEC / RCM / TISI / UA / UKCA / WEEE
Ingress Protection classification (IP)	20
Application	Outdoor
Mounting Type	Built-in

Graphs

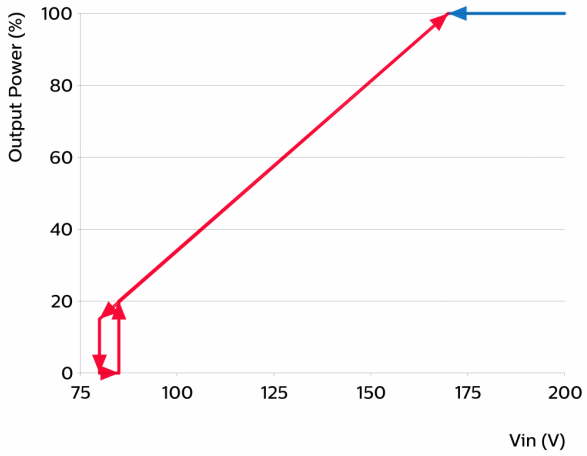
Operating window



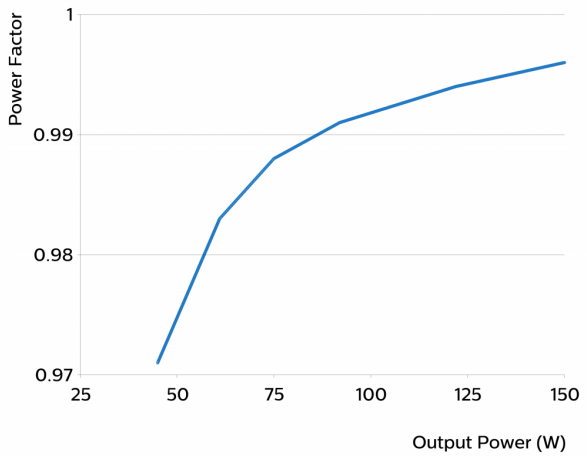
Thermal Guard



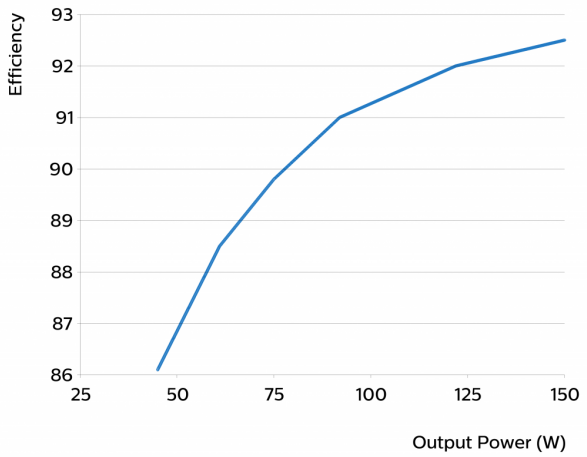
Mains Guard



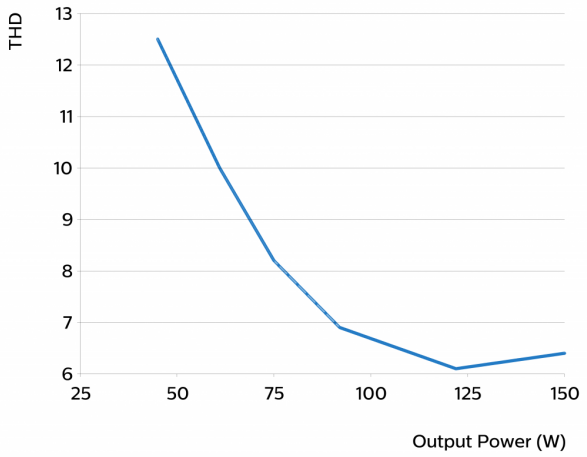
Power factor versus output power



Efficiency versus output power



THD versus output power



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