

# PHILIPS

## Xitanium

### LED driver



## Datasheet

# Xitanium FULL Prog LED Xtreme drivers

Xi FP 40W 0.2-0.7A SNLDAE 230V S175 sXt

9290 009 89206

### 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<sub>2</sub> 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 insulation Class I and Class II applications
- Energy savings through high efficiency and via multiple dimming options

### Features

- High surge immunity (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, on select models) and LED 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
- Tunnel lighting
- Industrial lighting

## Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	202...254	V <sub>ac</sub>	Performance range
Rated input voltage	230	V <sub>ac</sub>	
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	0.99		@ rated output power @ rated input voltage
Total harmonic distortion	7	%	@ rated output power @ rated input voltage
Efficiency	90	%	@ rated output power @ rated input voltage
Rated input voltage DC range	186...250	V <sub>dc</sub>	Performance range
Rated input current DC range	≤ 0.15	A <sub>dc</sub>	Performance range
Input voltage AC range	80...264	V <sub>ac</sub>	Safety operational range, see MainsGuard graph
Input frequency AC range	45...66	Hz	Safety operational range
Input voltage DC range	168...275	V <sub>dc</sub>	Safety operational range
Standby Power	0.5	W	
Isolation input to output	SELV		

## Electrical output data

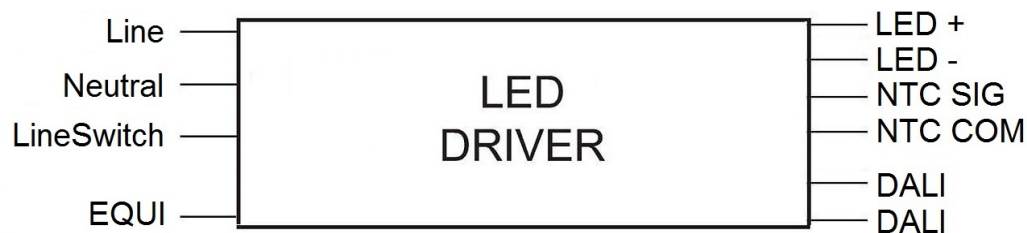
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	25...77	V <sub>dc</sub>	
Output voltage max.	100	V	
Output current	0.053...0.7	A	
Output current min programmable	200	mA	
Output current min dimming	53	mA	
Output current tolerance	± 3	%	
Output current ripple LF	≤ 4	%	Ripple = peak / average @ < 3kHz
Output current ripple HF	≤ 20	%	
Output P <sub>st</sub> <sup>LM</sup>	≤ 0.04		
Output SVM	≤ 0.07		
Output power	1.4...40	W	

## Electrical data controls input

Specification item	Value	Unit	Condition
Control method	AmpDim, DALI, Dynadimmer, LineSwitch 3-step, LineSwitch single-step		Output current amplitude dimming
Dimming range	10...100	%	Default range
Isolation controls input to output	Double		

## Wiring and Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.2...1.5	mm <sup>2</sup>	WAGO250 (3.5 mm), solid / stranded wire
	16...24	AWG	WAGO250 (3.5 mm), solid / stranded wire
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.2...1.5	mm <sup>2</sup>	WAGO250 (3.5 mm), solid / stranded wire
	16...24	AWG	WAGO250 (3.5 mm), solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.2...1.5	mm <sup>2</sup>	WAGO250 (3.5 mm), solid / stranded wire
	16...24	AWG	WAGO250 (3.5 mm), solid / stranded wire
Control wire strip length	8.5...9.5	mm	
Maximum cable length	2500	mm	CISPR15: between driver and LED module
Maximum NTC output cable length	0.6	m	

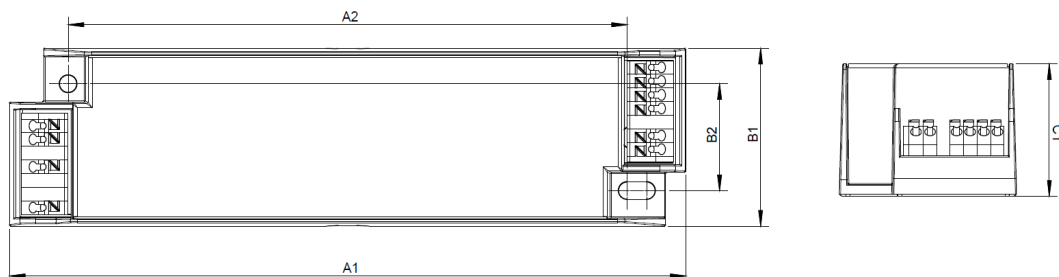


## Insulation

Insulation	Mains + LineSwitch	EQUI	LED + NTC	DALI
Mains + LineSwitch		Double	SELV	Basic
EQUI	Double		Basic	Double
LED + NTC	SELV	Basic		Double
DALI	Basic	Double	Double	

## Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	175	mm	
Width (B1)	46	mm	
Width (B2)	27.35	mm	
Height (C1)	34	mm	
Fixing hole diameter (D1)	4.5	mm	
Fixing hole distance (A2)	144	mm	
Weight	175	gram	



## Logistical data

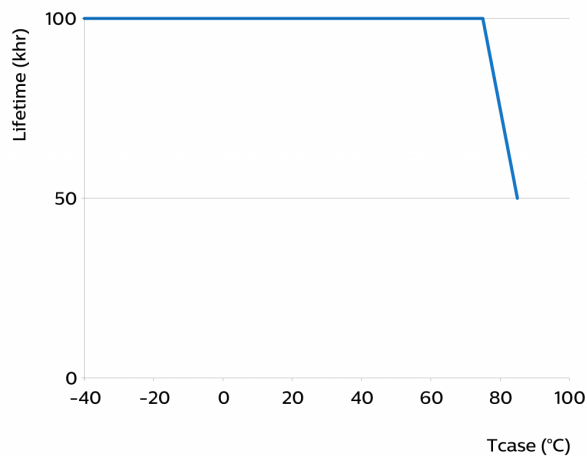
Specification item	Value
Product name	Xi FP 40W 0.2-0.7A SNLDAE 230V S175 sXt
EOC	871869652661300
Logistic code 12NC	9290 009 89206
Pieces per box	20

## 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	85	°C	Maximum temperature measured at T <sub>case</sub> -point
Tcase-life	75	°C	Measured at T <sub>case</sub> -point
Maximum housing temperature	120	°C	In case of a failure
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	
Constant Lumen Over Lifetime (CLO)	Yes	OFF	
Adjustable Light Output (ALO)	Yes	OFF	
Adjustable Start-up Time (AST)	Yes	1000 ms	
Integrated Dynadimmer	Yes	OFF	5-step, light turn-off possible
LineSwitch single-step	Yes	ON	
LineSwitch 3-step	Yes	OFF	
AmpDim	Yes	OFF	
Minimum dim level	Yes	10 %	
DC emergency dimming (DCemDim)	Yes	ON	Default: AOC = 15%. EOFx = 10 ... 60%. No external DC rated fuse required
End of life indicator (EOL)	Yes	OFF	

## 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 and II		per IEC60598
Over temperature protection driver	Yes		Automatic recovering
Overheating protection	Yes		Automatic recovering
Diagnostics	Yes		

## Inrush current

Specification item	Value	Unit	Condition
Inrush current $I_{peak}$	21	A	Input voltage 230V
Inrush current $T_{width}$	225	$\mu$ s	Input voltage 230V, measured at 50% $I_{peak}$
Drivers / MCB 16A type B	$\leq 26$	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)	0.34	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical protective conductor current (ins. Class I)	0.25	mA rms	Acc. IEC61347-1. LED module contribution not included

## Surge immunity

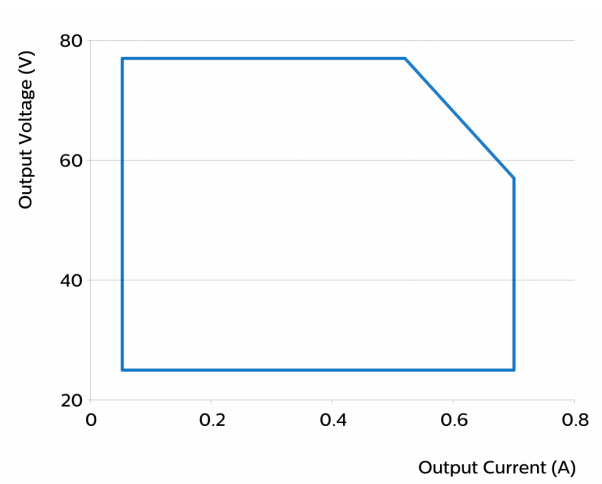
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N, Ls-L, Ls-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N/Ls - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us, 8/20us
Control surge immunity (diff. mode)	0.9	kV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

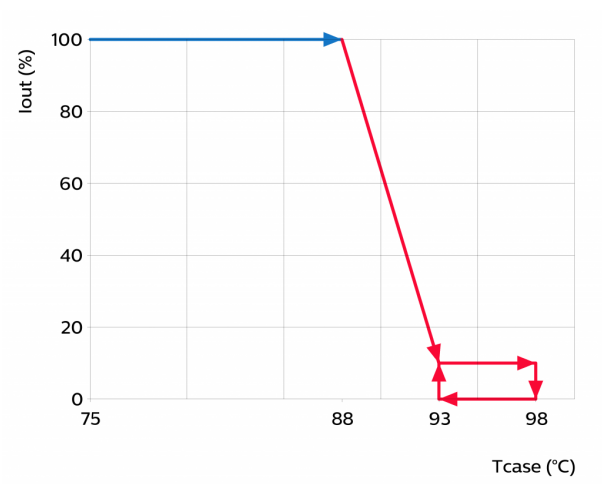
Specification item	Value
Approval marks	CCC / CE / DALI 2 / Double-insulated / ENEC / SELV / VDE-EMV / VDE-S
Ingress Protection classification (IP)	20

Graphs

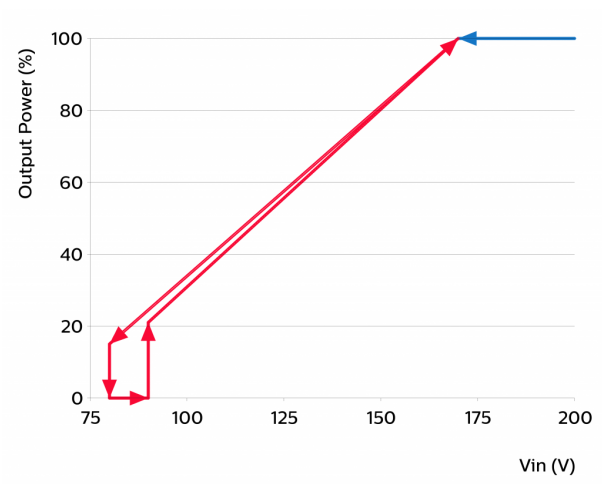
Operating window



Thermal Guard

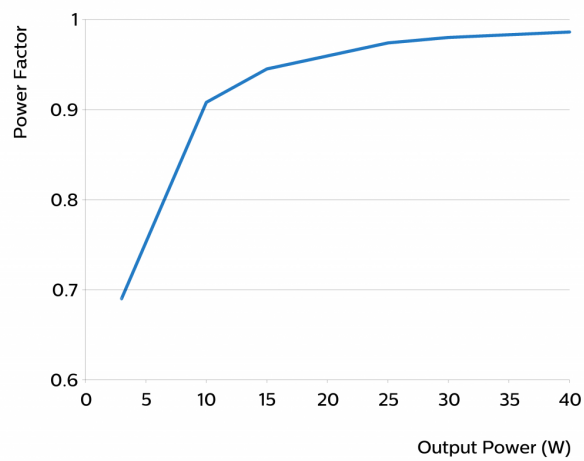


Mains Guard



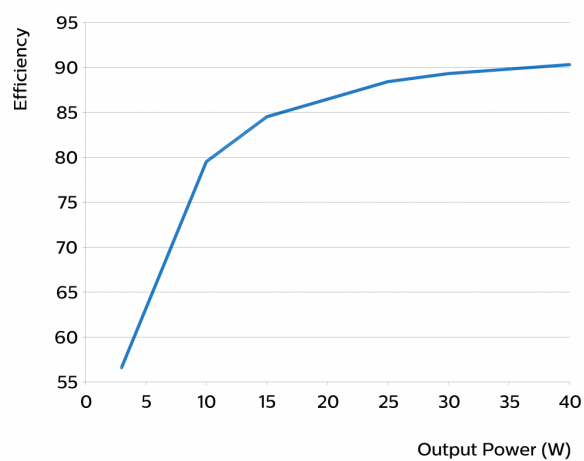
### Power factor versus output power

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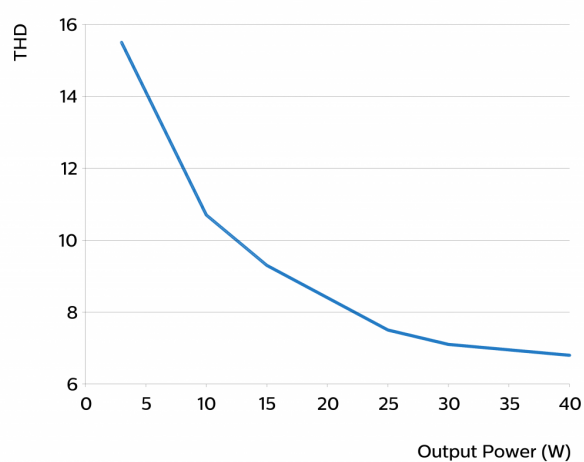
### Efficiency versus output power

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### THD versus output power

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