

PHILIPS

Xitanium

LED driver



Datasheet

Xitanium FULL Prog LED Xtreme drivers (DTL)

Xi FP 165W 0.3-1.0A SNLDAE 230V C170 sXt

9290 009 76306

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 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 _{ac}	Performance range
Rated input voltage	230	V _{ac}	
Rated input frequency range	47...63	Hz	Performance range
Rated input current	0.78	A	@ rated output power @ rated input voltage
Max. input current	0.9	A	@ rated output power @ minimum performance input voltage
Rated input power	177	W	@ rated output power @ rated input voltage
Power factor	0.99		@ rated output power @ rated input voltage
Total harmonic distortion	6	%	@ rated output power @ rated input voltage
Efficiency	93	%	@ rated output power @ rated input voltage @ max. U _{out}
Rated input voltage DC range	186...250	V _{dc}	Performance range
Rated input current DC range	0.96	A _{dc}	Performance range
Input voltage AC range	160...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	0.43	W	
Isolation input to output	Double		

Electrical output data

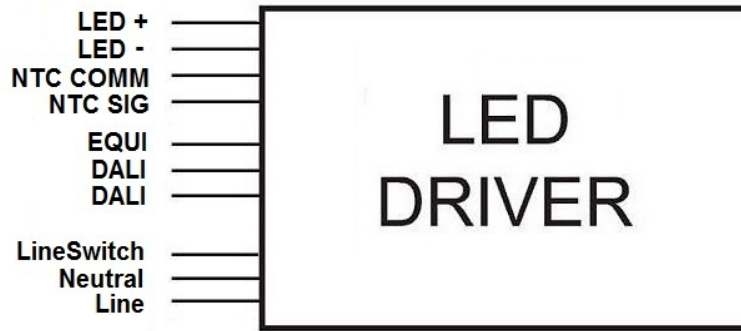
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	80...235	V _{dc}	
Output voltage max.	280	V	Maximum voltage at open load
Output current	0.07...1.05	A	
Output current min programmable	300	mA	
Output current min dimming	70	mA	
Output current tolerance ±	5	%	
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	≤ 0.1		In entire operating window
Output power	10...165	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. 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. Light turn-off not supported by LineSwitch: min. dimming level = 10%.
Isolation controls input to output	Double		acc. IEC61347-1

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...2.5	mm ² / AWG	solid / stranded wire
Input wire strip length	10...11	mm	
Output wire cross-section	0.5...1.5	mm ² / AWG	solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.5...1.5	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	

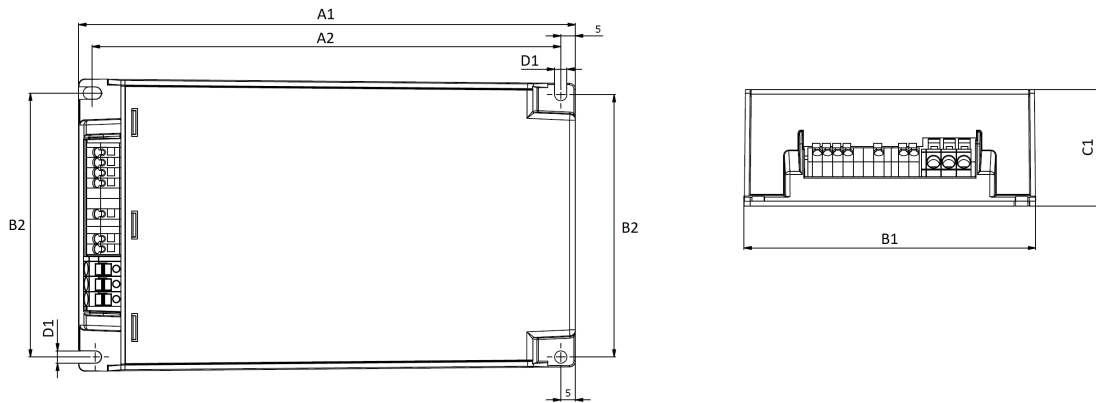


Insulation

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

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	170	mm	
Mounting hole distance (A2)	160	mm	
Width (B1)	100	mm	
Width (B2)	90	mm	
Height (C1)	40	mm	
Mounting hole diameter (D1)	4.2	mm	
Weight	890	gram	



Logistical data

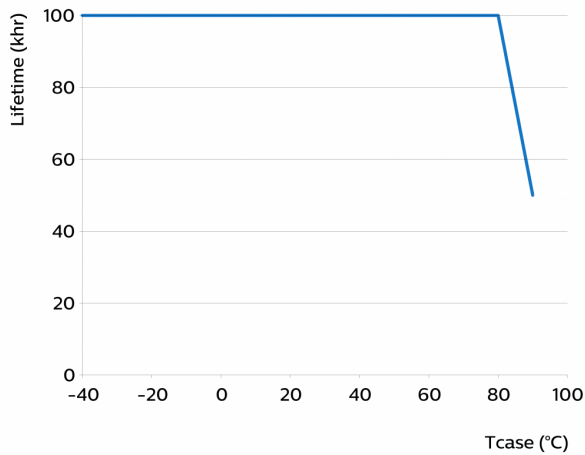
Specification item	Value
Product name	Xi FP 165W 0.3-1.0A SNLDAE 230V C170 sXt
EOC	871869656576600
Logistic code 12NC	9290 009 76306
EAN1 (GTIN)	8718696565766
EAN3 (box)	8718696565773
Pieces per box	9

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
T _{case-max}	90	°C	Maximum temperature measured at T _{case-point}
T _{case-life}	80	°C	Measured at T _{case-point}
Maximum housing temperature	120	°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

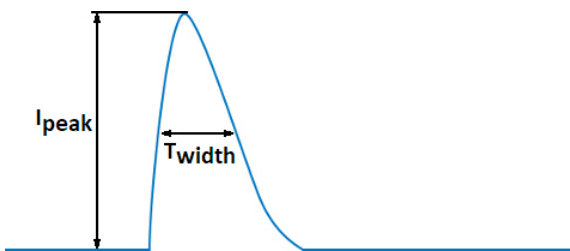
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Driver Temperature Limit (DTL)	Yes	ON	
Adjustable Light Output (ALO)	Yes	OFF	
Adjustable Light Output (ALO) min level	Yes	OFF	
Constant 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	Light turn-off not supported: min. dimming level = 10%
LineSwitch 3-step	Yes	OFF	Light turn-off not supported: min. dimming level = 10%
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: T5A 250VAC/DC.
DALI control supported at DC operation	Yes	OFF	
End Of Life indicator (EOL)	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	

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	Automatic recovering
Diagnostics	Yes	

Inrush current

Specification item	Value	Unit	Condition
Inrush current	58/340	A/ μ s	Input voltage 230V
Drivers / MCB 16A type B	≤ 7	pcs	Indicative value



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

Driver touch current / protective conductor current

Specification item	Value	Unit	Condition
Typical Touch Current (ins. Class II)	0.29	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	0.2	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

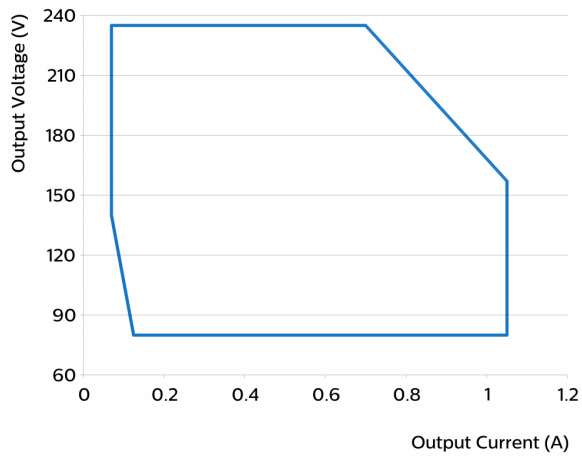
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N, Ls-L, Ls-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N/Ls - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.9	kV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

Application Info

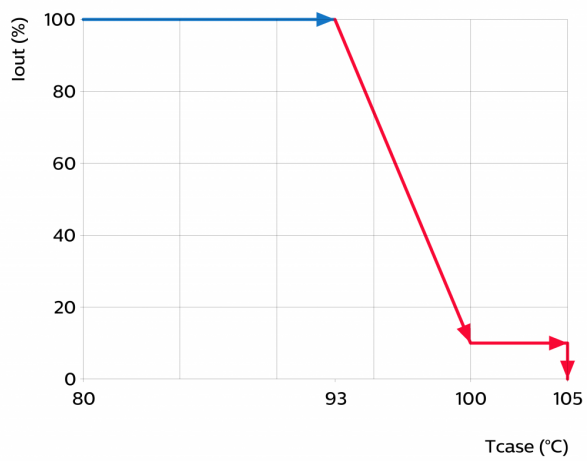
Specification item	Value
Approval marks	CCC / CE / DALI 2 / Double-insulated Built-In / EAC / ENEC / UA / VDE-EMC / WEEE
Ingress Protection classification (IP)	20
Application	Outdoor
Mounting Type	Built-in

Graphs

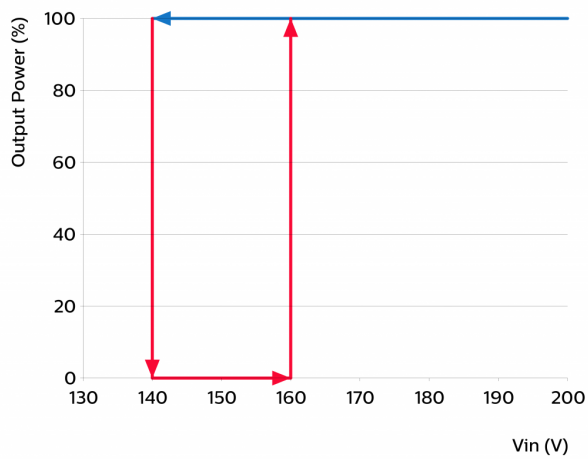
Operating window



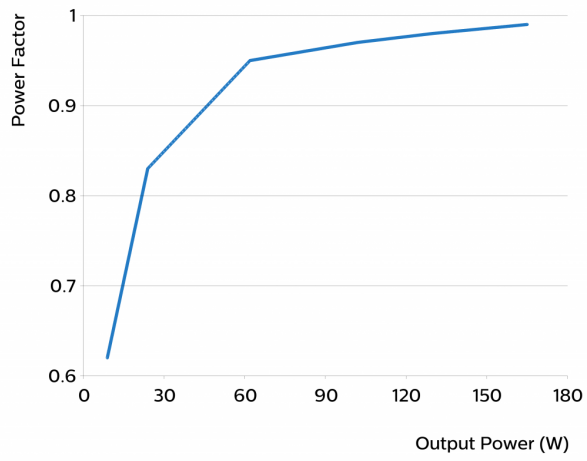
Thermal Guard



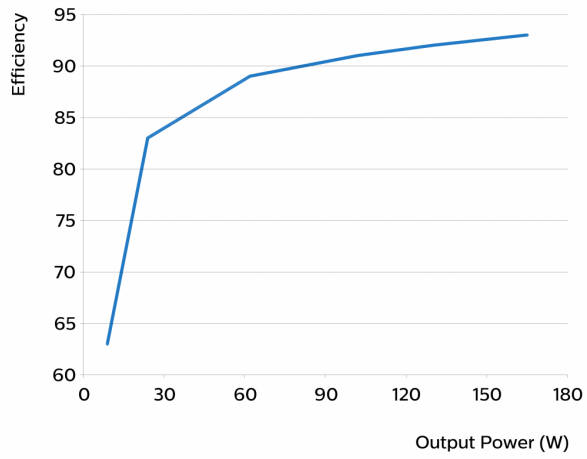
Mains Guard



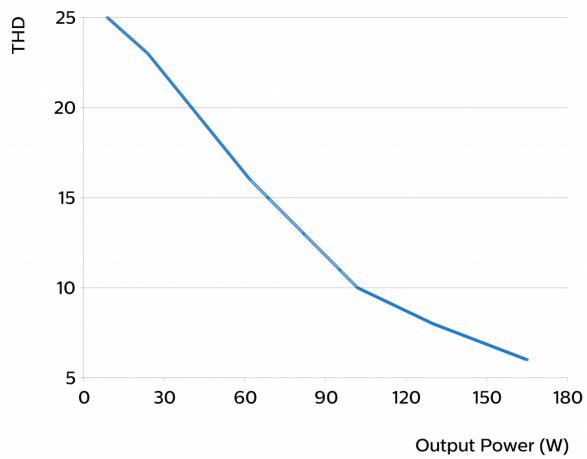
Power factor versus output power



Efficiency versus output power



THD versus output power





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