Xitanium

Datasheet

Xitanium FULL Prog LED Xtreme drivers

Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt
9290 040 04006



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

Application

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

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)

Logistical data

Specification item	Value
Product name	Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt
EOC	872110305996300
Logistic code 12NC	9290 040 04006
EAN1 (GTIN)	8721103059963
EAN3 (box)	8721103059970
Pieces per box	20
Weight	190 gram

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	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	46.0	W	@ rated output power @ rated input voltage
Power factor	0.99		@maximum output power @ rated input voltage
Total harmonic distortion	7	%	@ rated output power @ rated input voltage
Efficiency	90.0	%	@ rated output power @ rated input voltage @ max. Iout
Rated input voltage DC	186...250	V_{dc}	Performance range
Rated input current DC	0.01...0.15	A_{dc}	Performance range
Input voltage AC	80...264	V_{ac}	Safety operational range; see MainsGuard graph
Input frequency AC	45...66	Hz	Safety operational range
Input voltage DC	168...275	V_{dc}	Safety operational range
Standby Power (no load)	0.44	W	
Isolation input to output	SELV		

Electrical output data

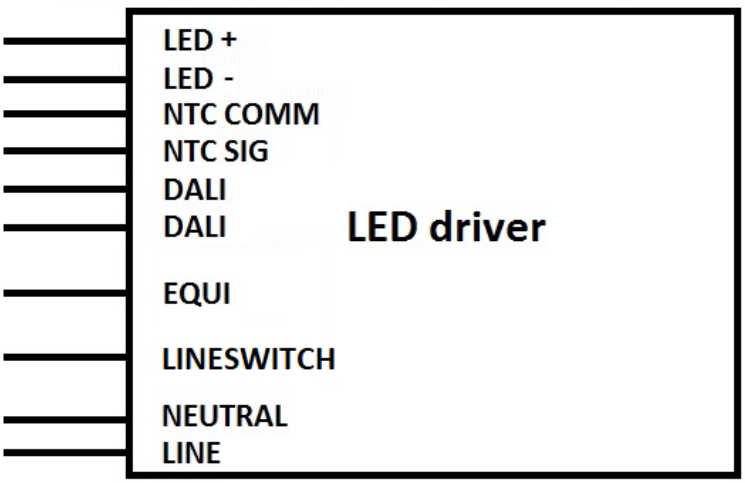
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	25...77	V_{dc}	
Output voltage max.	100	V	Maximum voltage at open load
Output current	53...700	mA	
Output current min programmable	200	mA	
Min output current	53	mA	
Output current tolerance ±	3	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average @ < 3kHz
Output current ripple HF	≤ 4	%	
Output P_{st}^{LM}	≤ 0.6		In entire operating window
Output SVM	≤ 0.3		In entire operating window
Output power	1.3...40.0	W	

Control interfaces

Specification item	Value	Unit	Condition
Control method	AmpDim, Coded Mains, DALI, Dynadimmer, LineSwitch, LineSwitch 3-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	0.5...1.5 / 20...16	mm² / AWG	solid / stranded wire
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm² / AWG	solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.5...1.5 / 20...16	mm² / AWG	solid / stranded wire
Control wire strip length	8.5...9.5	mm	
Maximum cable length	0.6	m	CISPR15: between driver and LED module
Maximum NTC output cable length	0.6	m	

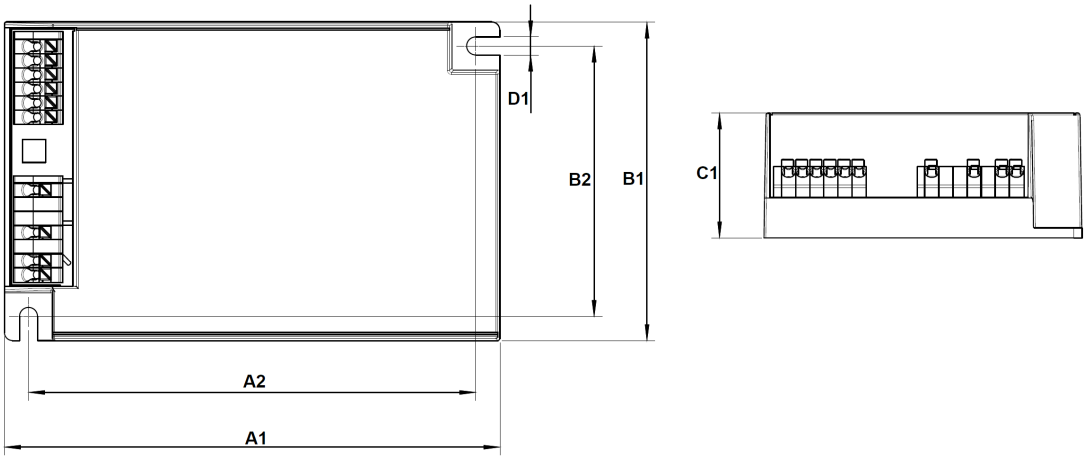


Isolation

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

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	123	mm	
Mounting hole distance (A2)	111	mm	
Width (B1)	79	mm	
Width (B2)	67	mm	
Height (C1)	31	mm	
Mounting hole diameter (D1)	4.5	mm	
Weight	190	gram	

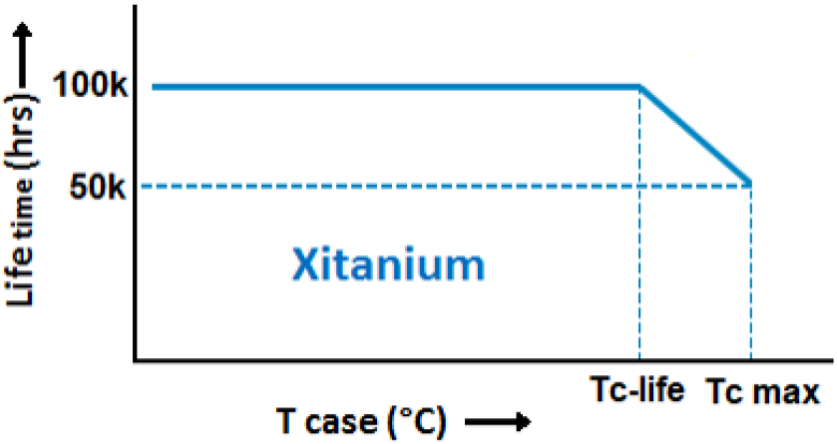


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40...+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	85	°C	Maximum temperature measured at T_{case}-point
Tcase-life	75	°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%



Maximum failures = 10%

Temperature [°C]	Lifetime	Unit	Condition
85	50000	hr	
80	71000	hr	
75	100000	hr	Temperature measured @Tc point
70	>100000	hr	
65	>100000	hr	

Storage temperature and humidity

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

Programmable features

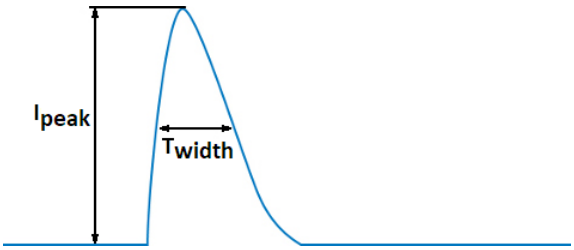
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Driver Temperature Limit (DTL)	Yes	ON	
Adjustable Light Output (ALO)	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
Adjustable Start-up 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: T5A 250VAC/DC.
End Of Life indicator (EOL)	Yes	OFF	
Coded Mains	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
Luminaire Info (DALI part 251)	Yes		
Luminaire maintenance (DALI part 253)	Yes		

Non-programmable 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
Energy metering (DALI part 252)	Yes	Accuracy = 10%
Diagnostics (DALI part 253)	Yes	
Diagnostics via Signify tool	Yes	

Inrush current

Specification item	Value	Unit	Condition
Inrush current	18	A	Input voltage 230V
Inrush peak width	280	µs	Input voltage 230V, measured at 50% height
Drivers / MCB 16A type B @230V AC	≤ 30	pcs	Input voltage 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)	0.24	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	0.17	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

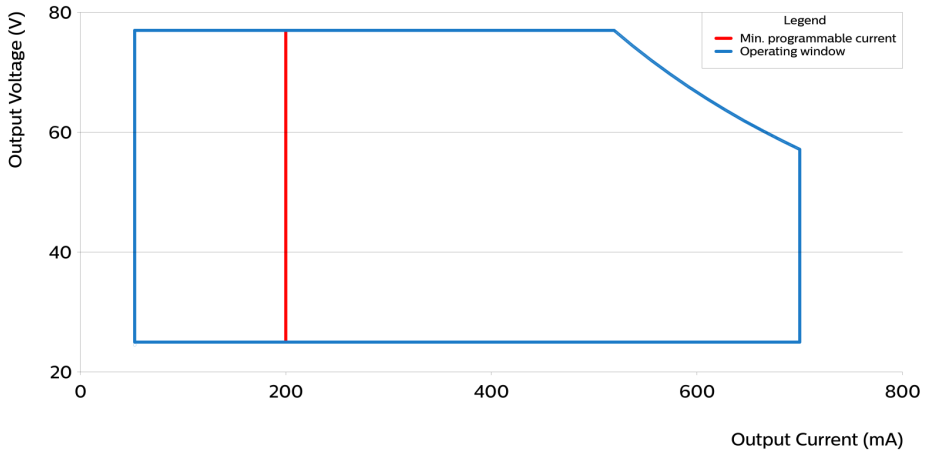
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N, Ls-L, Ls-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N/Ls - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.9	kV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

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

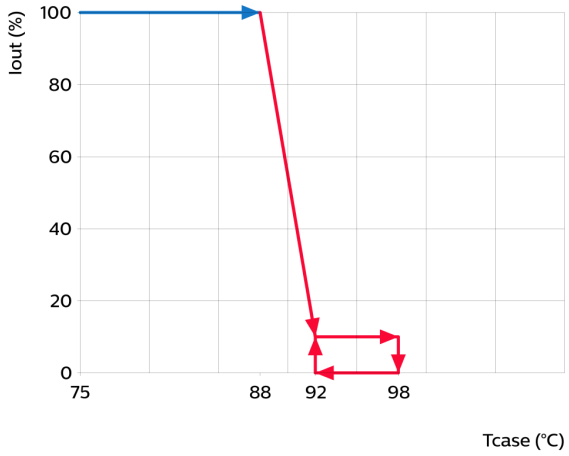
Graphs

Operating window

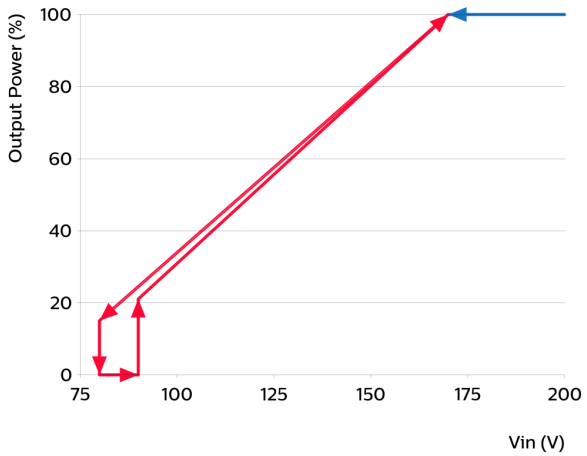


Type	Output current (mA)	Min. output voltage (V)	Max. output voltage (V)	Max. output power (W)
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	200	25	77	15.4
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	250	25	77	19.25
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	300	25	77	23.1
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	350	25	77	26.95
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	400	25	77	30.8
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	450	25	77	34.65
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	500	25	77	38.5
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	550	25	72	40
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	600	25	66	40
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	650	25	61	40
Xi FP 40W 0.2-0.7A SNLDAE 230V C123 sXt	700	25	57	40

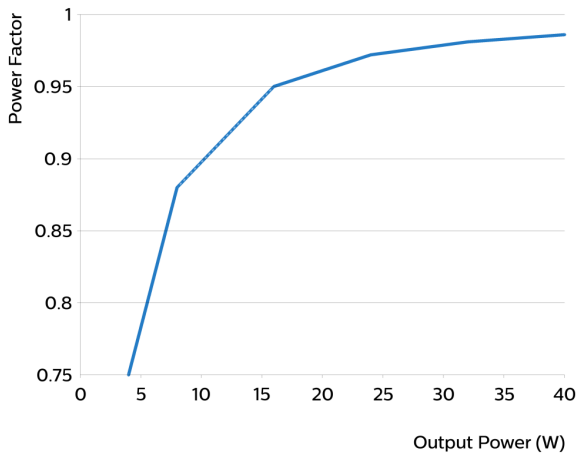
Thermal Guard



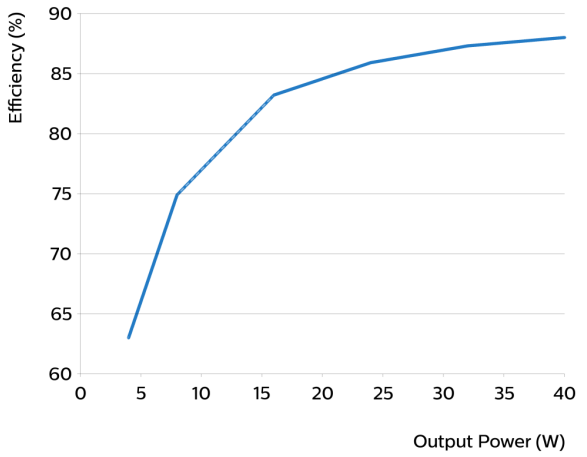
Mains Guard



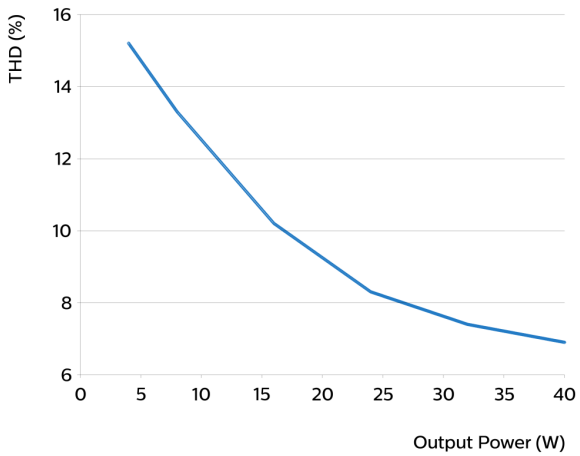
Power factor versus output power



Efficiency versus output power



THD versus output power



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