PHILIPS

Xitanium

LED driver

Datasheet

Xitanium LED Xtreme drivers – Sensor Ready

Xi SR 22W 0.3-1.0A SNEMP 230V C133 sXt

Simplifying connectivity solutions with sensors and controls

Philips LED Xtreme Sensor Ready drivers are ideal for use with sensors applied in outdoor and industrial management systems. With its dual integrated power supplies it is easy to power sensors and wireless modules directly from the driver. The driver also features integrated energy metering related to these management systems from the SR Certified partner program. This program with key management and sensor vendors ensures that certified sensors and controllers work seamlessly with the Xitanium SR driver.

Benefits

- Sensor Ready concept, ideal for use with sensors applied in outdoor and industrial management systems
- Dual integrated power supplies to power sensors and wireless radios directly from the driver, open spec for all OEMs, simplifying integration of sensors into the luminaire
- High-accuracy integrated power metering

Features

- Integrated ~15VDC current source power supply based on DALI 2.0
- Integrated 24VDC/3W auxiliary power supply
- Highly accurate power metering, accessible over DALI
- SimpleSet®, wireless configuration interface
- High surge immunity (CM/DM)
- Long lifetime and robust protection against moisture, vibration and temperature
- Configurable operating windows (AOC)
- 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)
- OEM Write Protection (OWP)

Application

- Road and street lighting
- Area lighting
- Industrial lighting

October 2018

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	0.13	A	@ rated output power @ rated input voltage
Max. input current	0.17	A	@ rated output power @ minimum performance input voltage
Rated input power	27	W	@ rated output + Vaux power @ rated input voltage
Power factor	0.95		@ rated output power @ rated input voltage
Total harmonic distortion	10	%	@ rated output power @ rated input voltage
Efficiency	85	%	@ rated output power @ rated input voltage
Rated input voltage DC range	186…250	V_{dc}	Performance range
Input voltage AC range	90…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	0.5	W	Excl. consumption by sensors connected to the SR bus and/or 24VDC auxiliary supply
Isolation input to output	SELV		

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	8…32	V_{dc}	
Output voltage max.	50	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	%	@ Tcase_life
Output current ripple LF	≤ 1	%	Ripple = peak / average
Output current ripple HF	≤ 4	%	
Output power	0.8…22	W	

Electrical data controls input

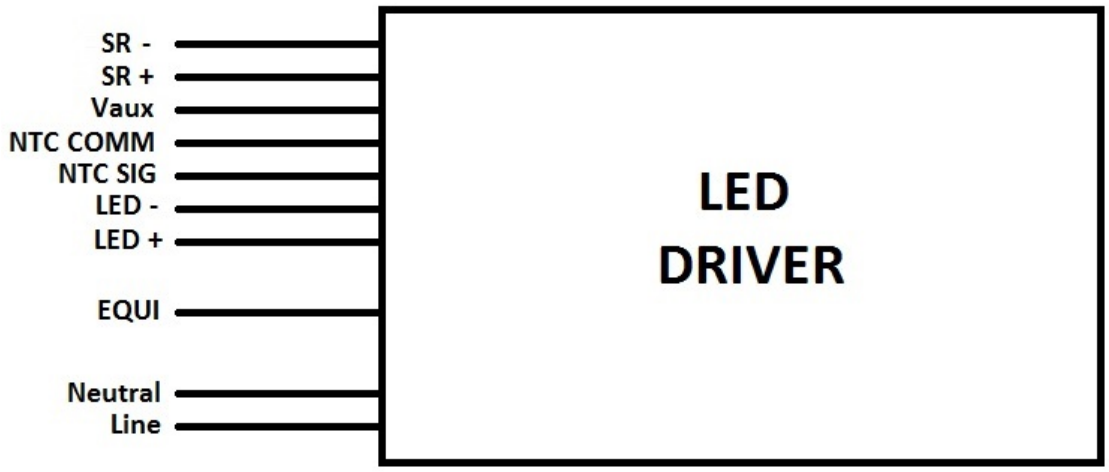
Specification item	Value	Unit	Condition
Control method	Dynadimmer, SR		Output current amplitude dimming
Dimming range	10…100	%	DALI acc. IEC62386-101, -102 Ed. 2.0
Galvanic Isolation	Reinforced		

Logistical data

Specification item	Value
Product name	Xi SR 22W 0.3-1.0A SNEMP 230V C133 sXt
Order code	871869673918100
Logistic code 12NC	9290 015 73706
EAN3	8718696739198
Pieces per box	20

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.5…2.5	mm^2	WAGO804, solid / stranded wire
	14…20	AWG	WAGO804, solid / stranded wire
Input wire strip length	10…11	mm	
Output wire cross-section	0.2…1.5	mm^2	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	
Dimming wire cross-section	0.2…1.5	mm^2	WAGO250 (3.5 mm), solid / stranded wire
	16…24	AWG	WAGO250 (3.5 mm), solid / stranded wire
Dimming wire strip length	8.5…9.5	mm	
Maximum cable length	1500	mm	Total length of wiring including LED module, one way
Maximum NTC output cable length	0.6	m	

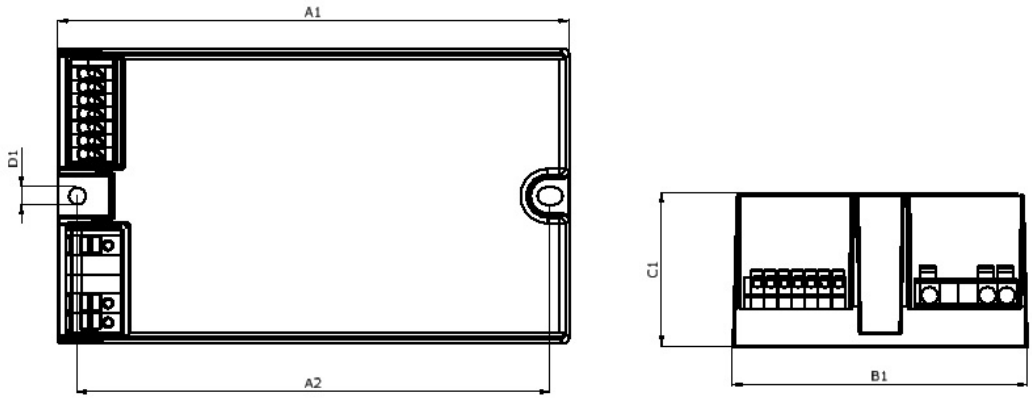


Insulation

Insulation	Mains	EQUI	LED + NTC	SR + Vaux
Mains		Double	SELV	Re-inforced
EQUI	Double		Basic	Basic
LED + NTC	SELV	Basic		Basic
SR + Vaux	Re-inforced	Basic	Basic	

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	133	mm	
Width (B1)	77	mm	
Height (C1)	40	mm	
Fixing hole diameter (D1)	4.2	mm	
Fixing hole distance (A2)	122	mm	
Weight	220	gram	



Operational temperatures and humidity

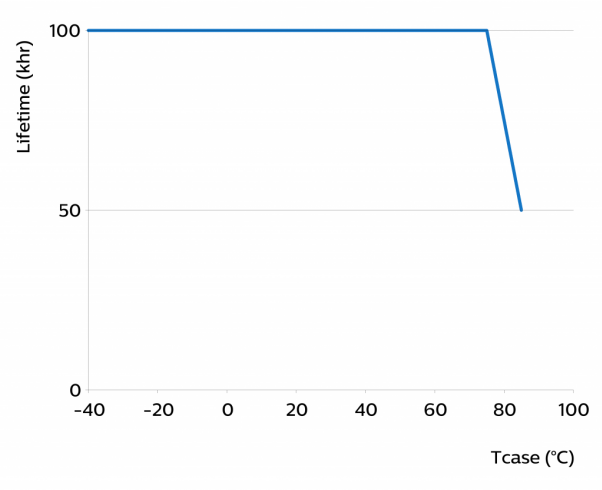
Specification item	Value	Unit	Condition
Ambient temperature	-40…+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded.
Tcase-max	85	°C	Maximum temperature measured at T_{case}-point
Tcase-life	75	°C	Measured at T_{case}-point
Maximum housing temperature	120	°C	In case of a failure
Relative humidity	10…90	%	Non-condensing

Storage temperature and humidity

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

Lifetime

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



Programmable features

Specification item	Value	Remark	Condition
Set output current (AOC)	Programmable, SimpleSet	See Design-in guide.	Default output current: = 700 mA
LED module temperature derating (MTP)	Yes		
Constant Lumen Over Lifetime (CLO)	Yes		
DC emergency dimming (DCemDIM)	Yes		Sensor commands accepted, EOF(x) range: 10 … 60%. No external DC rated mains fuse required
Energy metering	Yes		Accuracy 0.5W at standby, +/-1 % at full power
Diagnostics	Yes		
Adjustable Light Output (ALO)	Yes		
Adjustable Start-up Time (AST)	Yes		
Integrated Dynadimmer	Yes		5-step, light turn-off possible
End Of Life indicator	Yes		

Features

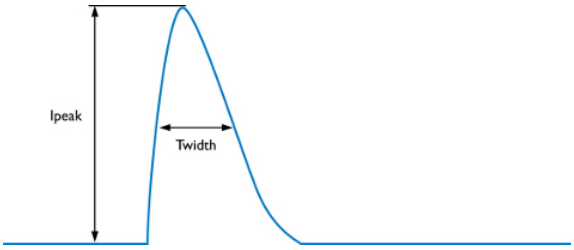
Specification item	Value	Remark	Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with protection class	I and II		per IEC60598
Over temperature protection driver	Yes		Automatic recovering
Overheating protection	Yes		Automatic recovering

Certificates and standards

Specification item	Value
Approval marks	CB / CCC / CE / EL / ENEC / SELV
Ingress Protection classification (IP)	20

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak}	13	A	Input voltage 230V
Inrush current T_{width}	440	µs	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A type B	≤ 23	pcs	



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

Driver touch current / protective conductor current

Specification item	Value	Unit	Condition
Typical touch current (ins. Class II)	< 0.35	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

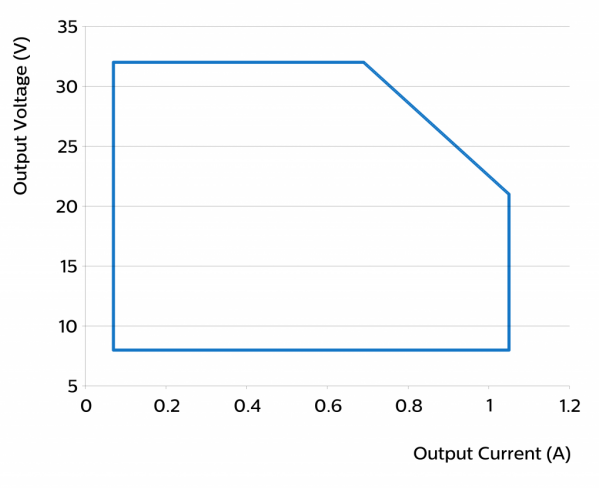
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	8	kV	L/N - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.03	kV	SR - SR acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	8	kV	SR/Vaux - L-N: 8kV; SR/Vaux - EQUI: 4kV acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us

Additional information

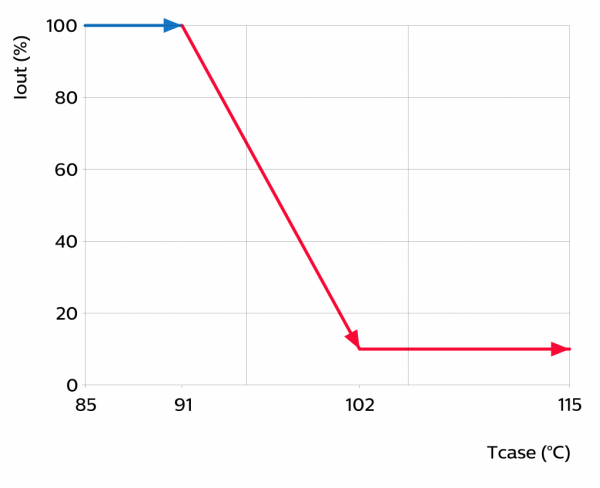
Specification item	Default setting	Remark	Condition
AOC	700	mA	
CLO	OFF		
MTP	OFF		
Dynadimmer	OFF		
EOL	OFF		

Graphs

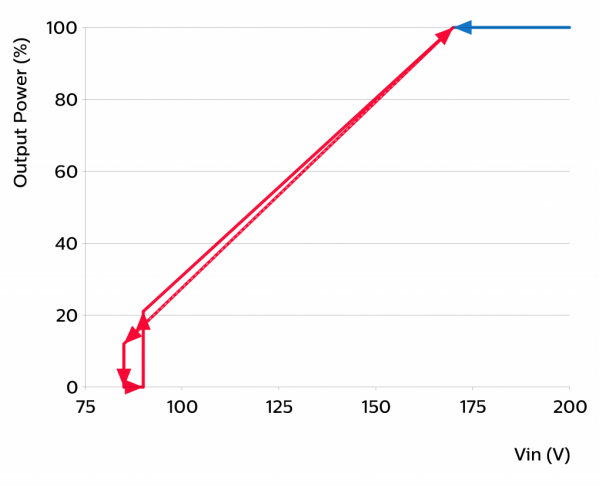
Operating window



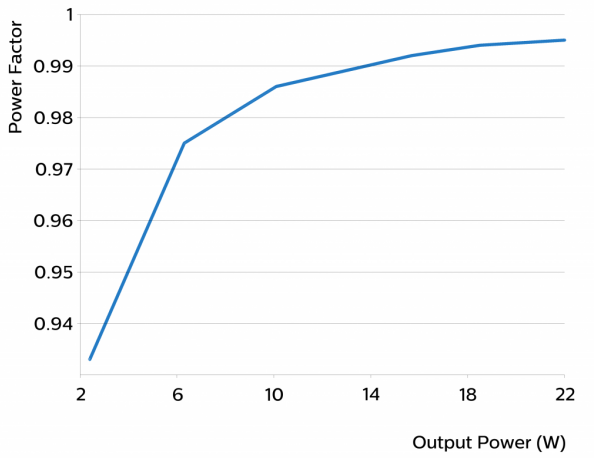
Thermal Guard



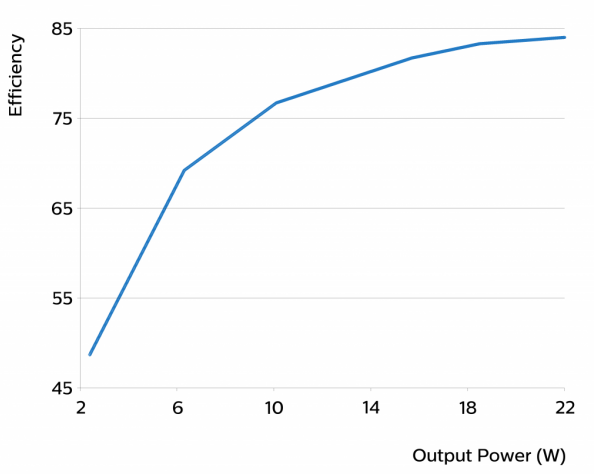
Mains Guard



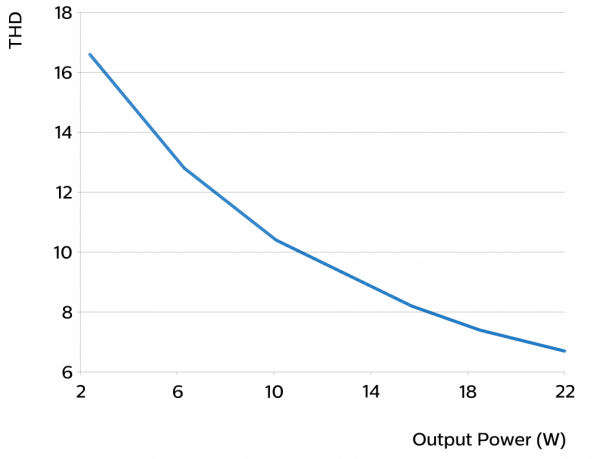
Power factor versus output power



Efficiency versus output power



THD versus output power



Notes

Important info about dual power supplies:

1: SR power supply and Vaux supply are short-circuit proof.

2: SR supply can supply max. 60mA. Voltage is depending on loading and will vary between 12 and 20VDC. The SR supply is turned on by factory default and can be switched off through MultiOne software.

3: Auxiliary supply Vaux supplies 24VDC and is able to deliver 3W average power. Peak power capacity is 10W with 25% duty cycle (T=5.2ms). This supply cannot be switched off.

4: SR supply and Vaux share the same common negative terminal.

5: Do not connect multiple Vaux supplies in parallel.

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