

PHILIPS

Xitanium

LED driver



Datasheet

Xitanium LED Xtreme drivers – Sensor Ready

Xi SR 22W 0.2-0.7A SNEMP 230V C133 sXt

9290 021 78806

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
- Low inrush current due to IntelliStart, a driver-integrated feature enabling a high amount of drivers per MCB (75W and up)
- High-accuracy integrated power metering
- Certified per DIIA intra-luminaire standard D4i

Features

- Integrated Bus Power Supply for sensors and radios (DALI part 250)
- Integrated 24VDC auxiliary power supply (DALI Part 150)
- Memory Bank 1 Extension / Luminaire Data (DALI part 251)
- Highly accurate energy reporting (DALI Part 252)
- Diagnostics & Maintenance data (DALI part 253)
- SimpleSet[®], wireless configuration interface
- High surge immunity (CM/DM)
- Long lifetime and robust protection
- Configurable operating windows (AOC)
- Autonomous dimming via Integrated DynaDimmer
- Suitable for central emergency DC operation (DCemDim)
- 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)
- OEM Write Protection (OWP)

Application

- Road and street lighting
- Area lighting
- Industrial lighting
- Tunnel 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	0.13	A	@ rated output power @ rated input voltage
Max. input current	0.17	A	@ rated output power @ minimum performance input voltage
Rated input power	29	W	@ rated output + Vaux 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	85	%	@ rated output power @ rated input voltage
Rated input voltage DC range	186...250	V _{dc}	Performance range
Rated input current DC range	0.07...0.13	A _{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 DA bus and/or 24VDC auxiliary supply
Isolation input to output	SELV		

Electrical output data

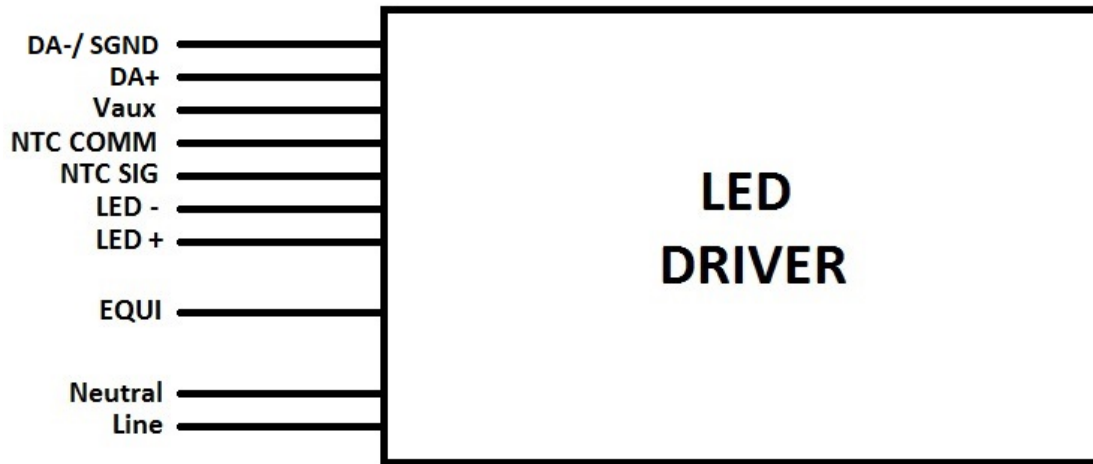
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	16...48	V _{dc}	
Output voltage max.	70	V	Maximum voltage at open load
Output current	0.2...0.7	A	
Output current min programmable	200	mA	
Output current min dimming	53	mA	
Output current tolerance ±	5	%	@ Tcase_life
Output current ripple LF	≤ 1	%	Ripple = peak / average, < 3kHz
Output current ripple HF	≤ 4	%	
Output P _{st} ^{LM}	≤ 0.03		
Output SVM	≤ 0.01		
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	%	Acc. D4i. See www.digitalilluminationinterface.org/products
Isolation controls input to output	Supplementary		acc. IEC61347-1
SR output voltage max.	22.5	V	
SR guaranteed current	52	mA	
SR maximum current	60	mA	

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...2.5 / 20...14	mm ² / AWG	WAGO804, solid / stranded wire
Input wire strip length	10...11	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO250 (compatible), solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO250 (compatible), solid / stranded wire
Control wire strip length	8.5...9.5	mm	
Maximum cable length	1.5	m	Total length of wiring including LED module, one way
Maximum NTC output cable length	0.6	m	

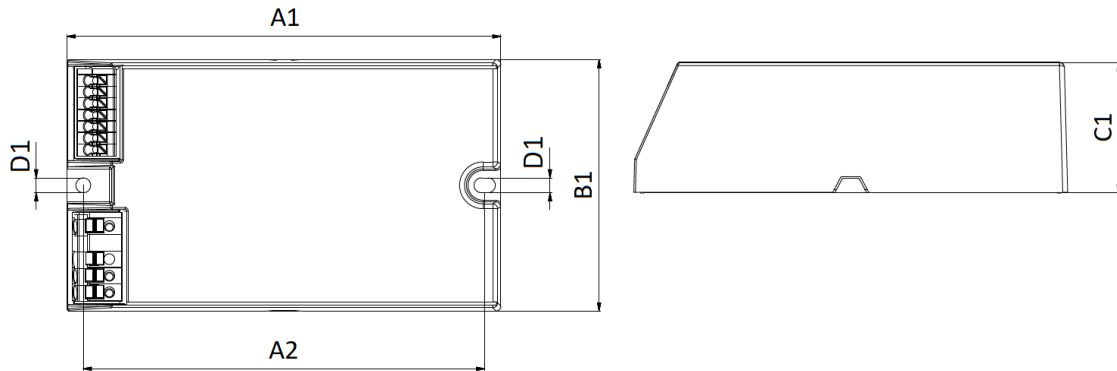


Insulation

Insulation per IEC61347-1	Mains	EQUI	LED + NTC	DA + Vaux
Mains		Double	SELV	SELV
EQUI	Double		Supplementary	Supplementary
LED + NTC	SELV	Supplementary		Supplementary
DA + Vaux	SELV	Supplementary	Supplementary	

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	133	mm	
Mounting hole distance (A2)	122.5	mm	
Width (B1)	77	mm	
Height (C1)	40	mm	
Mounting hole diameter (D1)	4.5	mm	
Weight	220	gram	



Logistical data

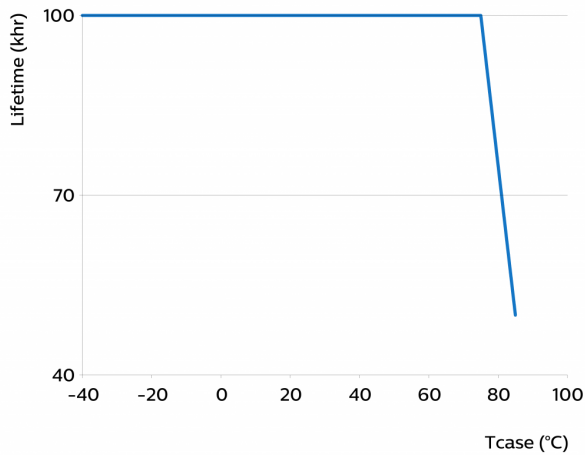
Specification item	Value
Product name	Xi SR 22W 0.2-0.7A SNEMP 230V C133 sxt
EOC	871869976661000
Logistic code 12NC	9290 021 78806
EAN1 (GTIN)	8718699766610
EAN3 (box)	8718699766627
Pieces per box	20

Operational temperatures and humidity

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



Storage temperature and humidity

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

Programmable features

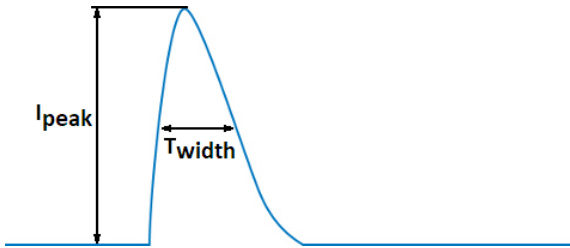
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Adjustable Light Output (ALO)	Yes	OFF	
Adjustable Light Output (ALO) min level	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
Adjustable Start-up Time (AST)	Yes	1 s	
Integrated Dynadimmer	Yes	OFF	5-step, light turn-off possible
Min Dim Level	Yes	10 %	
DC emergency (DCemDim)	Yes	ON	Sensor commands accepted, EOF(x) range: 10 ... 60%. No external DC rated mains fuse required
DALI control supported at DC operation	Yes	OFF	
End Of Life indicator (EOL)	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
SR PSU (DALI part 250)	Yes	ON	
Luminaire Info (DALI part 251)	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	Automatic recovering
Overheating protection	Yes	Automatic recovering
Energy metering (DALI part 252)	Yes	Accuracy 0.5W at standby, +/-1 % at full power
Diagnostics	Yes	
+24V Auxiliary Power Supply (DALI part 150)	Yes	24VDC

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak}	18	A	Input voltage 230V
Inrush current T_{width}	320	μ s	Input voltage 230V, measured at 50% I_{peak}
Drivers / MCB 16A type B	≤ 23	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)	0.35	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	0.27	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

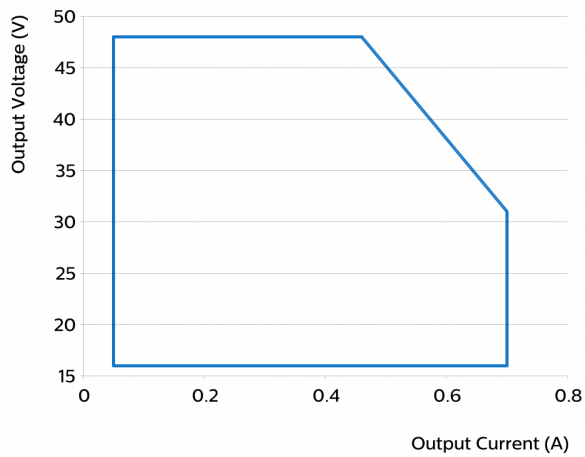
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	8	kV	L/N - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.03	kV	DA+ - DA- acc. IEC61000-4-5. 2 Ohm, 1.2/50us,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

Application Info

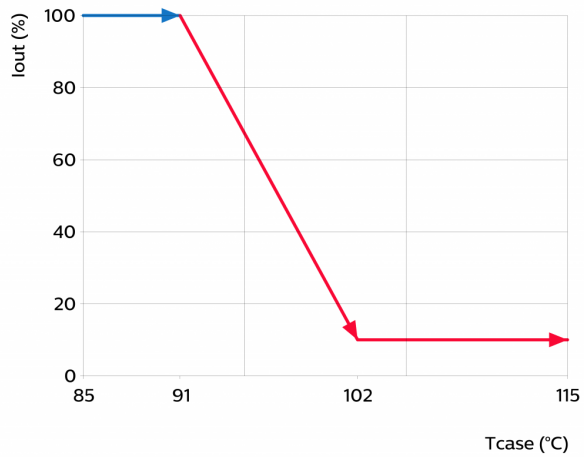
Specification item	Value
Approval marks	CCC / CE / D4i / Double-insulated / EAC / EL / ENEC / SELV
Ingress Protection classification (IP)	20
Application	Outdoor
Mounting Type	Built-in

Graphs

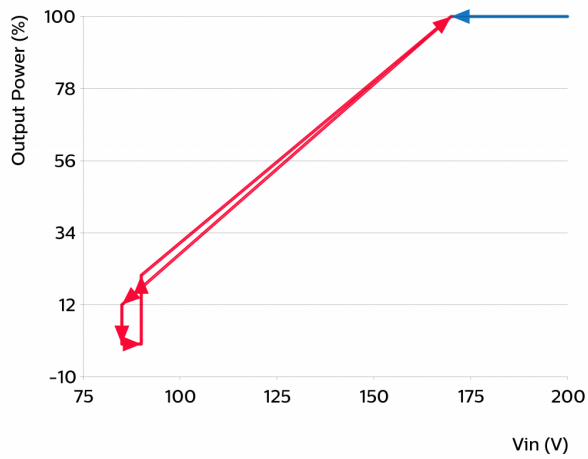
Operating window



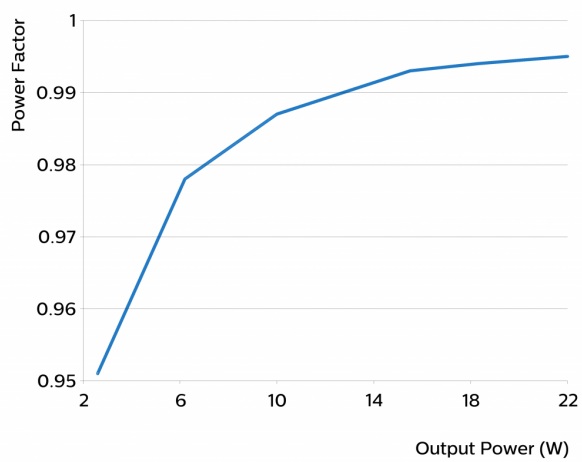
Thermal Guard



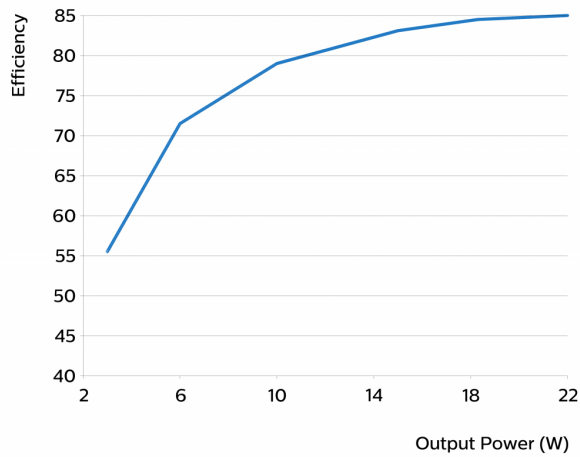
Mains Guard



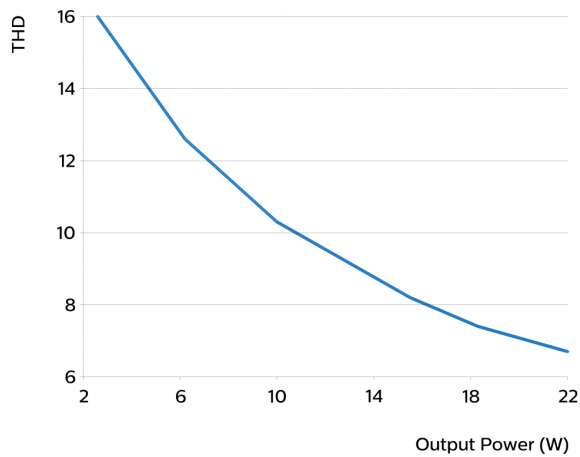
Power factor versus output power



Efficiency versus output power



THD versus output power



Notes

Important info about dual power supplies:

- 1: DA power supply and Vaux supply are short-circuit proof.
- 2: The DA supply is specified with a guaranteed supply current of 52mA and a maximum supply current of 60mA. Voltage is depending on loading and will vary between 12V and 20VDC. The DA 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: DA supply and Vaux share the same common negative terminal.
- 5: Do not connect multiple Vaux supplies in parallel.



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