

PHILIPS

Xitanium

LED driver



Datasheet

Xitanium LED Xtreme drivers – Sensor Ready FlexTune

Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt

9290 028 27206

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 (on select models)
- High-accuracy integrated power metering
- Certified per DIIA intra-luminaire standard D4i
- FlexTune (select models with suffix SNEMPF): easy to configure tunable white CCT tuning from 1800K to 6500K per DALI 209 device type 8 and DALI 207 device type 6 commands

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) 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
- Residential lighting
- Area lighting
- Industrial lighting
- Tunnel lighting

Logistical data

Specification item	Value
Product name	Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt
EOC	871951427852300
Logistic code 12NC	9290 028 27206
EAN1 (GTIN)	8719514278523
EAN3 (box)	8719514278530
Pieces per box	9

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	0.37	A	@ rated output power @ rated input voltage
Max. input current	0.43	A	@ rated output power @ minimum performance input voltage
Rated input power	87	W	@ rated output + 24V aux supply @ rated input voltage
Minimum Power factor	0.99		@ rated output power @ rated input voltage
Total harmonic distortion	10	%	@ rated output power @ rated input voltage
Efficiency	91	%	@ rated output power @ rated input voltage @ max. Uout
Rated input voltage DC range	186...250	V _{dc}	Performance range
Rated input current DC range	0.43...0.3	A _{dc}	Performance range
Input voltage AC range	80...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 (no load)	0.5	W	Excl. consumption by sensors connected to the DA bus and/or 24VDC auxiliary supply
Isolation input to output	Double		

Electrical output data

Data below applies to each separate output channel

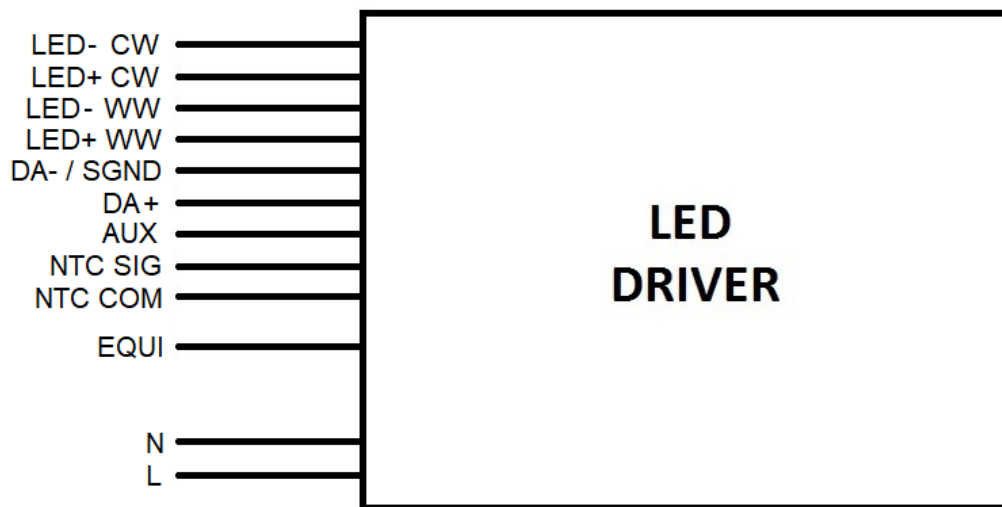
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	35...108	V _{dc}	
Output voltage max.	170	V	Maximum voltage at open load
Output current	0.074...1.05	A	
Output current min programmable	300	mA	
Min output current	70	mA	
Output current tolerance ±	5	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average, < 3kHz
Output current ripple HF	≤ 4	%	
Output P _{st} ^{LM}	≤ 0.02		In entire operating window
Output SVM	≤ 0.07		In entire operating window
Output power	7.5...75	W	Combined output power of the two channels = max. 75W
Number of output channels	2		

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	Dynadimmer, SR		Acc. D4i. Compliant per DALI Part 207 and 209. See www.digitalilluminationinterface.org/products . Please refer to design-in guide at www.philips.com/oem for more controllability details.
Dimming range	10...100	%	Output current amplitude dimming
Isolation controls input to output	Supplementary		acc. IEC61347-1
SR output voltage max.	22.5	V	
SR output current	52	mA	
SR maximum current	60	mA	

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	solid / stranded wire
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	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	solid / stranded wire
Control wire strip length	8.5...9.5	mm	
Maximum cable length	1.5	m	CISPR15: between driver and LED module
Maximum NTC output cable length	0.6	m	

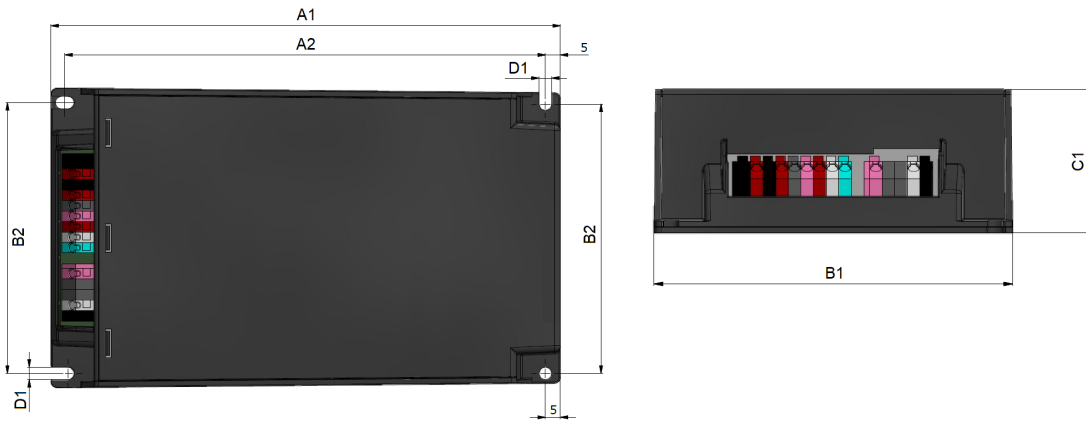


Isolation

Insulation per IEC61347-1	Mains	EQUI	LED + NTC	DA + AUX
Mains	-	Reinforced	Reinforced	Reinforced
EQUI	Reinforced	-	Basic	Basic
LED + NTC	Reinforced	Basic	-	Supplementary
DA + AUX	Reinforced	Basic	Supplementary	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	171	mm	
Mounting hole distance (A2)	160	mm	
Width (B1)	100	mm	
Width (B2)	90	mm	
Height (C1)	41	mm	
Mounting hole diameter (D1)	4.2	mm	
Weight	1020	gram	

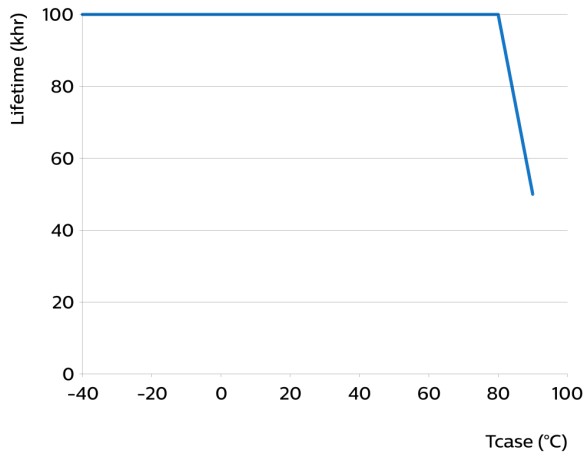


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40...+55	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	90	°C	Maximum temperature measured at T _{case} -point
Tcase-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
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. Internal fuse rating is T5A 250VDC/AC
DALI control supported at DC operation	Yes	OFF	
End Of Life indicator (EOL)	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
FlexTune (DALI part 209)	Yes	700 mA	Per DALI part 209 Device Type 8. Driver can also be set per DALI part 207 Device Type 6.
SR PSU (DALI part 250)	Yes	ON	
Luminaire Info (DALI part 251)	Yes	—	
Energy metering (DALI part 252)	Yes	—	Accuracy 0.5W at standby, +/-1 % at full power
Diagnostics	Yes	—	
Diagnostics (DALI part 253)	Yes	—	
DALI 253 M	Yes	—	

Features

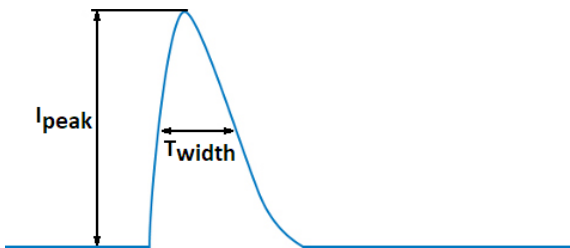
Specification item	Value		Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with protection class	I and II		per IEC60598
Overtemperature protection	Yes		Automatic recovering
+24V Auxiliary Power Supply (DALI part 150)	Yes		
Inrush Limiter type	IntelliStart		

Inrush current

Specification item	Value	Unit	Condition
Inrush current	49	A	Input voltage 230V
Subsequent inrush current	4	A	Input voltage 230V
Inrush peak width	290	µs	Input voltage 230 V, measured at 50% height
Inrush current subsequent peak width	2000	µs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A / Fuse 16A	41	pcs	Based on rated full output power

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)	0.32	mA peak	Acc. IEC61347-1. LED module contribution not included
Typical Protective Conductor Current (ins. Class I)	0.25	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

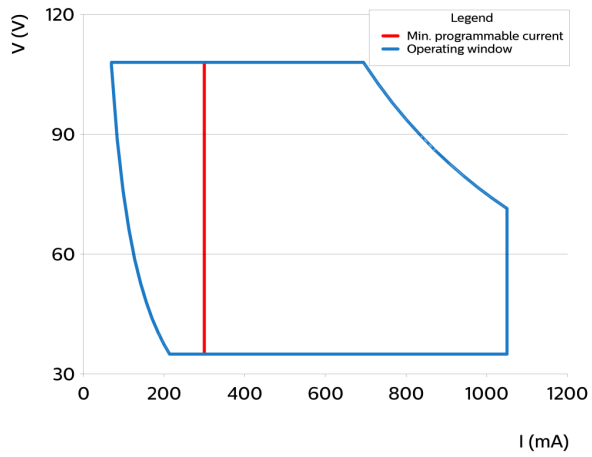
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us. Typical 10 pulses.
Control surge immunity (diff. mode)	0.03	kV	DA - DA-, DA - AUX acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	4	kV	DA /AUX - L/N acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us
Control surge immunity (comm. mode)	4	kV	DA /AUX - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us

Application Info

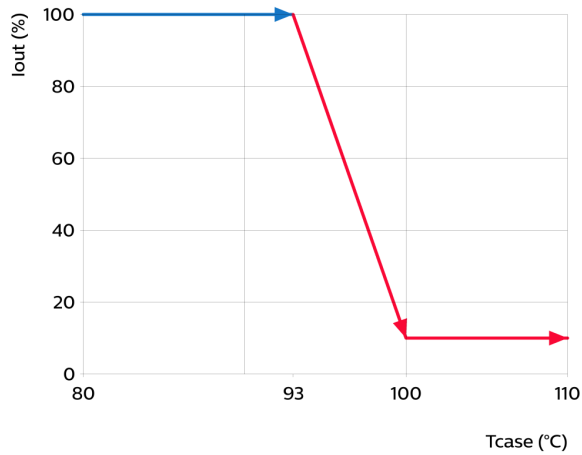
Specification item	Value
Approval marks and Certifications	CE / D4i / Double-insulated Built-In / EL / ENEC / SR / UKCA / WEEE
Ingress Protection classification (IP)	20
Application	Outdoor
Mounting Type	Built-in

Graphs

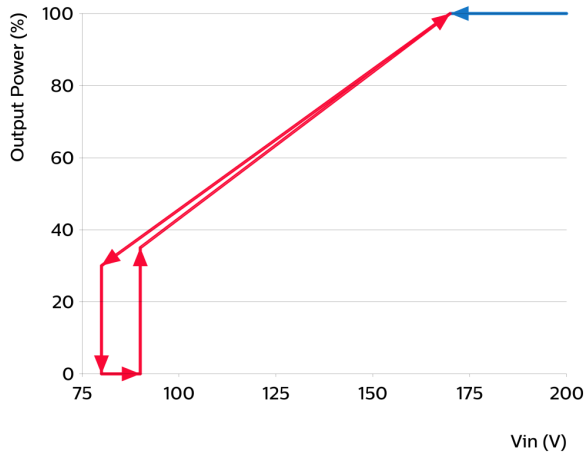
Operating window



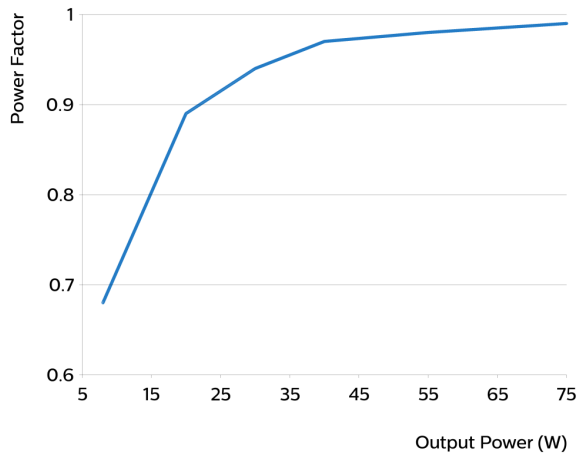
Thermal Guard



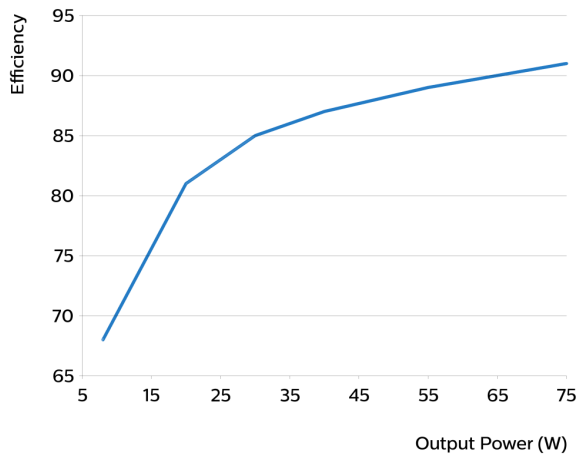
Mains Guard



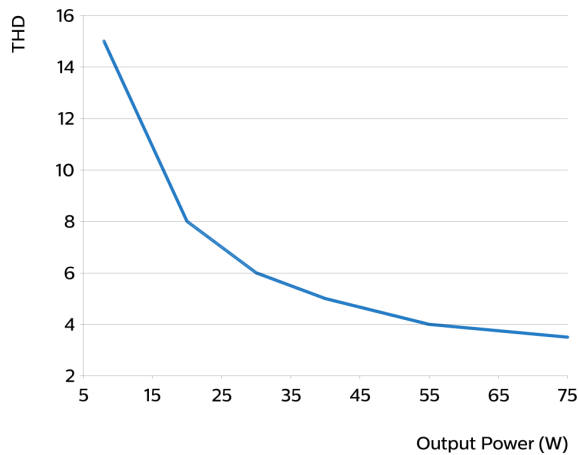
Power factor versus output power



Efficiency versus output power



THD versus output power



Notes

Important info about dual power supplies:

- 1: DA power supply and auxiliary 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 12 and 20VDC. The DA supply is turned on by factory default and can be switched off through MultiOne software.
- 3: Auxiliary supply delivers 24VDC and is able to deliver 3W average power. Peak power capacity is 6W with 25% duty cycle (T=5.2ms). This supply cannot be switched off.
- 4: DA and auxiliary supplies share the same common negative terminal DA-.
- 5: Parallel connection of multiple auxiliary supplies is not supported.

CCT configuration conditions:

- 1: CCT control is supported both per DALI part 209 Device Type 8 and part 207 Device Type 6.
- 2: Min. dimming level per DALI part 207 per output channel is 10%.
- 3: Min. dimming level per DALI part 209 per output channel is 1%. However, the dimming levels of the two output channels combined cannot be less than 10%.

Dual output channel operation conditions:

- 1: Series or parallel operation of the two output channels is NOT supported.
- 2: The output power of the two output channels combined cannot exceed 75W.
- 3: Do not leave either channel unloaded: always connect LED modules to both output channels.

Inrush current & fusing:

- 1: Driver inrush current is limited by randomly switching on at mains voltage zero crossing (IntelliStart).
- 2: Max. number of drivers per MCB/melting fuse is based on aggregate steady-state input current.



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