xitanium

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

Application

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

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)
- End-Of-Life Indicator (EOL)
- OEM Write Protection (OWP)

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
Weight	1020 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	0.37	A	@ rated output power @ rated input voltage
Max. input current	0.43	A	@ rated output power @ minimum performance input voltage
Rated input power	87.0	W	@ rated output + 24V aux supply @ rated input voltage
Power factor performance range	≥ 0.99		@ rated output power @ rated input voltage@ rated output power @ rated input voltage
Total harmonic distortion	10	%	@ rated output power @ rated input voltage
Efficiency	91.0	%	@ rated output power @ rated input voltage @ max. Uout
Rated input voltage DC	186...250	V_{dc}	Performance range
Rated input current DC	0.43...0.3	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)	0.5	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

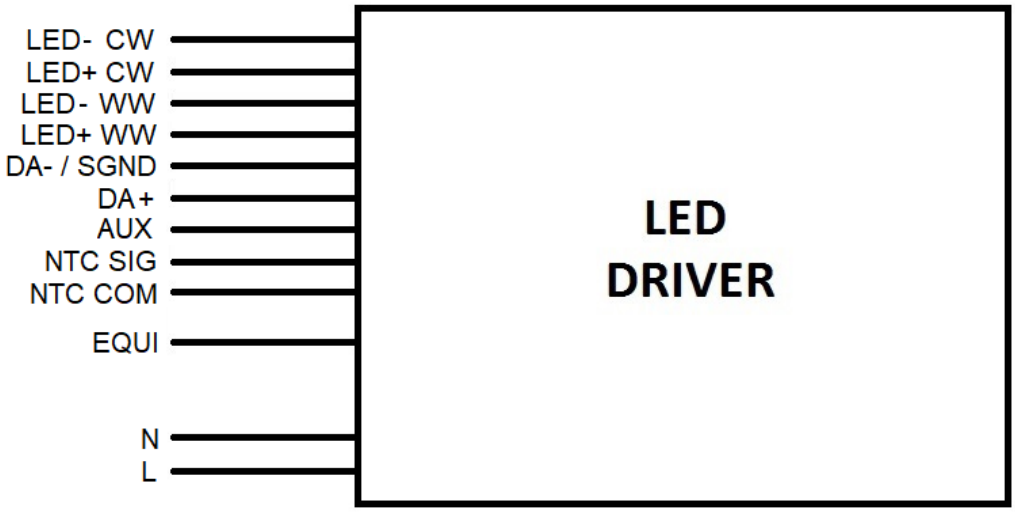
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	35...108	V_{dc}	
Output voltage max.	170	V	Maximum voltage at open load
Output current	74...1050	mA	
Output current min programmable	300	mA	
Min output current	70	mA	
Output current tolerance ±	5	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average, < 3kHz
Output current ripple HF	≤ 4	%	
Output P_{st}^{LM}	≤ 0.1		In entire operating window
Output SVM	≤ 0.3		In entire operating window
Output power	7.5...75.0	W	Combined output power of the two channels = max. 75W
Number of output channels	2		

Control interfaces

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 Power Supply max voltage.	22.5	V	
SR output current	52	mA	
SR Power Supply max current source	60	mA	
Supported DALI parts	207, 209, 250, 251, 252, 253		Check website: https://www.dali-alliance.org/dali/standards.html for details.

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	

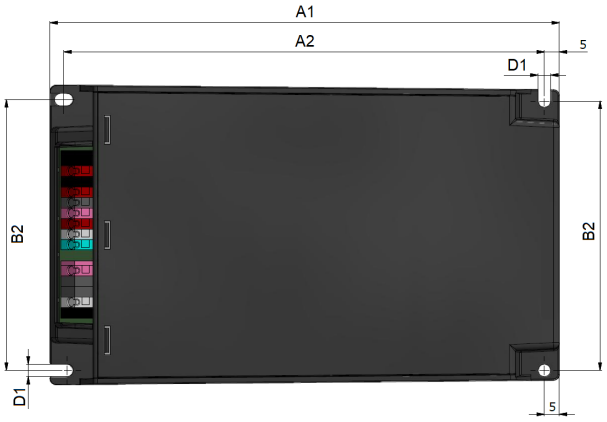


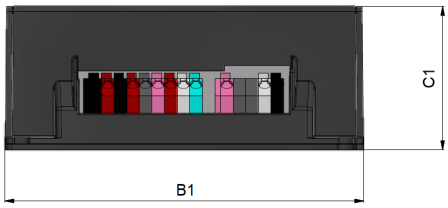
Isolation

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	



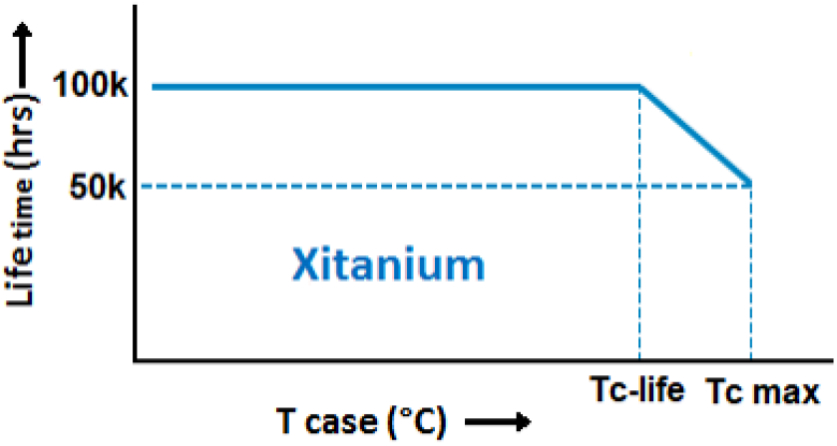


Operational temperatures and humidity

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%



Maximum failures = 10%

Temperature [°C]	Lifetime	Unit	Condition
90	50000	hr	
85	71000	hr	
80	100000	hr	Temperature measured @Tc point
75	>100000	hr	
70	>100000	hr	

Storage temperature and humidity

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

Programmable features

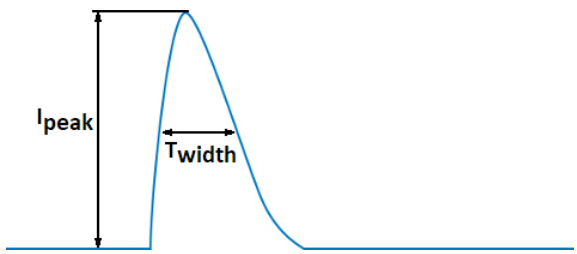
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Driver Temperature Limit (DTL)	Yes	ON	
Constant Light Output (CLO)	Yes	OFF	
Adjustable Start-up Time (AST)	Yes	1 s	
Integrated Dynadimmer	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	ON mA	Per DALI part 209 Device Type 8. Driver can also be set per DALI part 207 Device Type 6.
DALI Power Supply (DALI part 250)	Yes	ON	
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
+24V Auxiliary Power Supply (DALI part 150)	Yes	
Inrush Limiter type	IntelliStart	
Energy metering (DALI part 252)	Yes	Accuracy 0.5W at standby, +/-1 % at full power
Diagnostics (DALI part 253)	Yes	
Diagnostics via Signify tool	Yes	

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 230V, measured at 50% height
Inrush current subsequent peak width	2000	µs	Input voltage 230V, measured at 50% height
Drivers / MCB 16A type B / Fuse 16A	42	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 piece

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

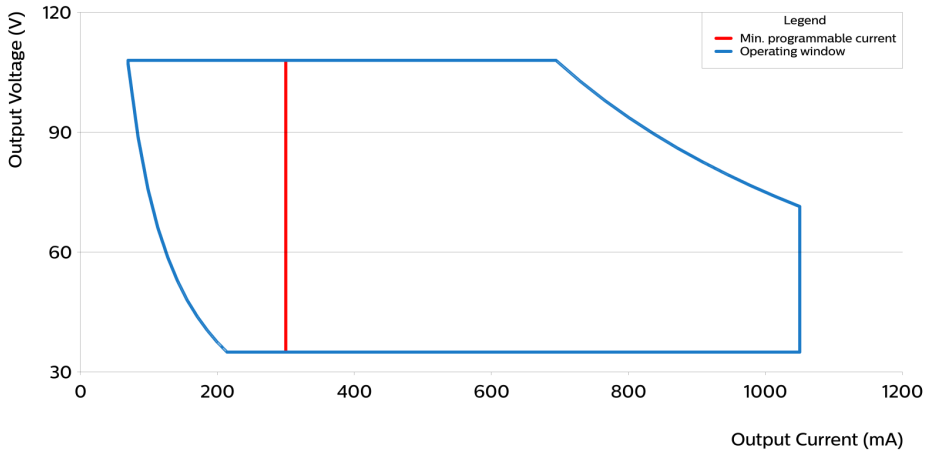
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	6	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N - EQUI 10kV acc. EN61547; 8kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.03	kV	DA - DA-, DA - 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 (Approbation)

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

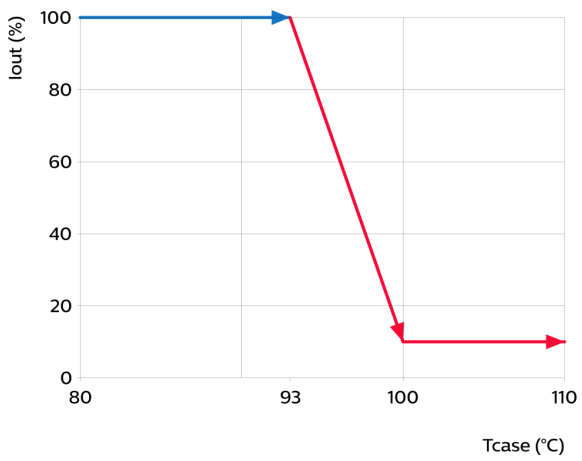
Graphs

Operating window

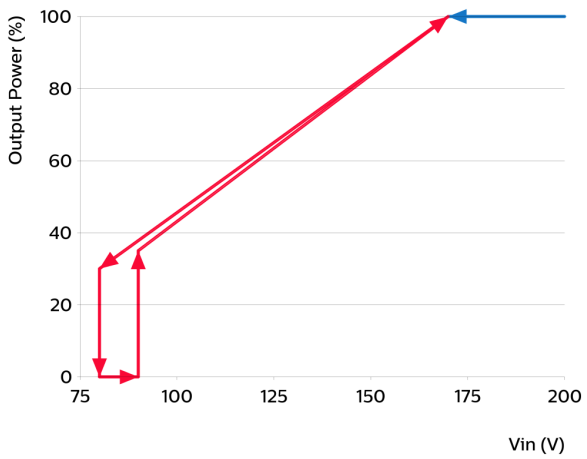


Type	Output current (mA)	Min. output voltage (V)	Max. output voltage (V)	Max. output power (W)
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	300	35	108	32.4
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	350	35	108	37.8
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	400	35	108	43.2
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	450	35	108	48.6
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	500	35	108	54
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	550	35	108	59.4
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	600	35	108	64.8
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	650	35	108	70.2
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	700	35	107	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	750	35	100	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	800	35	93	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	850	35	88	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	900	35	83	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	950	35	78	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	1000	35	75	75
Xi SR 75W 2:0.3-1.0A SNEMPF 230V C170 sXt	1050	35	71	75

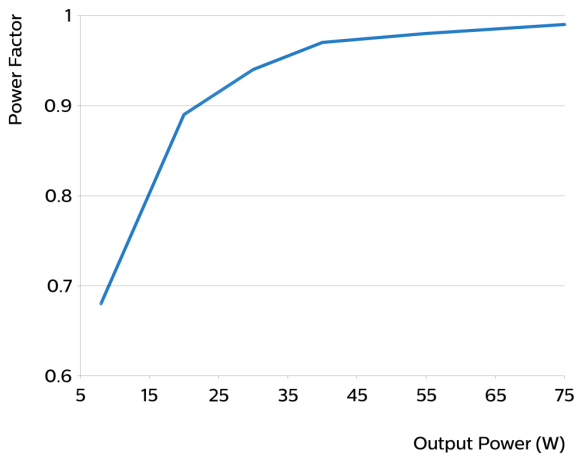
Thermal Guard



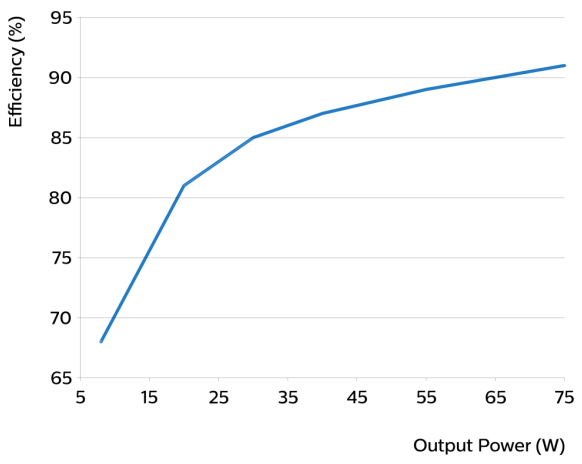
Mains Guard



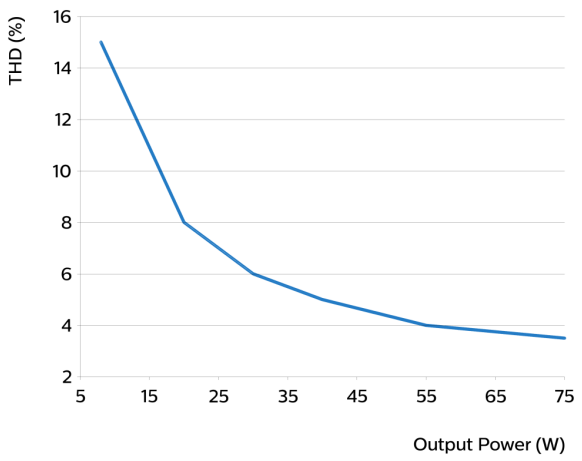
Power factor versus output power



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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