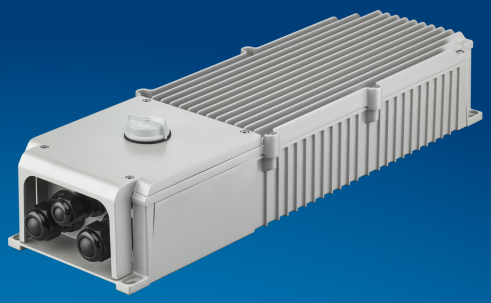
PHILIPS

Xitanium

LED driver



Datasheet

Xitanium LED Xtreme high-power drivers

Xi 1800W 220-400V D4i

9290 029 52206

Philips Xitanium High Power 1800W driver

Capitalizing on Philips Lighting's unique experience in sports lighting, the Philips 1800W driver is designed to cater to the high-end broadcasting needs and support the best quality of light that make it an ideal choice for sports events, recreational sport, large area lighting and other outdoor activities. Designed with advanced and robust technology, this driver provides unparalleled performance and efficiency. Versatile, it features 3 independent programmable channels, a wide input voltage range and output current options that can be used in a variety of applications. This driver is future-ready with wireless connectivity and sensor-ready technology. This means that it can be easily integrated with other systems and sensors. Whether you're looking for high reliability or ease of installation, the Philips Xitanium High Power 1800W driver is the perfect choice.

Features

- DALI-D4i certification (DALI parts 150, 250, 251, 252, 253)
- SR socket (option)
- 3 x 600W independent channels with configurable operating windows (AOC)
- Wireless programming with SimpleSet
- Up to 97% efficiency
- < 0,5W stand-by power in 230Vac
- 10kV surge immunity (CM/DM), residual output surge voltage < 2kV
- Dimming range 5-100%
- IP66, IK08 housing supports 1440hours SST (tests are ongoing)
- Weight of 5.2kg

Benefits

- No afterglow
- Future ready wireless connectivity (Sensor ready)
- Easy installation and integration thanks to low weight, space available for wiring, long cable distance, resistance to coastal environment.

Application

- Recreational and high-end sport lighting
- Arenas
- Area lighting (parking, harbors, airports, industrial zones, ...)

Logistical data

Specification item	Value
Product name	Xi 1800W 220-400V D4i
EOC	872016919007800
Logistic code 12NC	9290 029 52206
EAN1 (GTIN)	8720169190078
Pieces per box	1
Weight	5200 gram

Accessory*

Specification item	Value
Accessory name	Xi 1800W Zhaga SR kit*
EOC	872016934122700
Logistic code 12NC	9290 039 70606
EAN1 (GTIN)	8720169341227
Pieces per box	1

*The base model code does not include the Zhaga D4i socket as shown on the picture of this datasheet. For this configuration, please consider in addition the accesory code above.

Electrical input data

Specification item	Value	Value	Unit	Condition
Rated input voltage range	212…254	368…424	V_{ac}	Performance range
Rated input frequency	47…63	47…63	Hz	Performance range
Rated input current	8.2	4.6	A	@ rated output power @ rated input voltage
Max. input current	8.5	4.5	A	@ rated output power @ minimum performance input voltage
Rated input power	1,875.0	1,855.0	W	@ rated output power @ rated input voltage
Power factor performance range	0.95…0.99	0.95…0.99		@ rated output power @ rated input voltage
Power factor	0.99	0.99		@ maximum output power @ rated input voltage
Total harmonic distortion	≤ 20	≤ 20	%	@ rated output power @ rated input voltage
Efficiency	96.0	97.0	%	@ rated output power @ rated input voltage @ max. Uout
Input voltage AC	198…457	198…457	V_{ac}	Operational range.
Input frequency AC	47.5…63	47.5…63	Hz	Operational range
Standby Power	0.50	0.50	W	Excl. consumption by sensors connected to the DA bus and/or 24VDC auxiliary supply
Isolation input to output	No	No		

Electrical output data

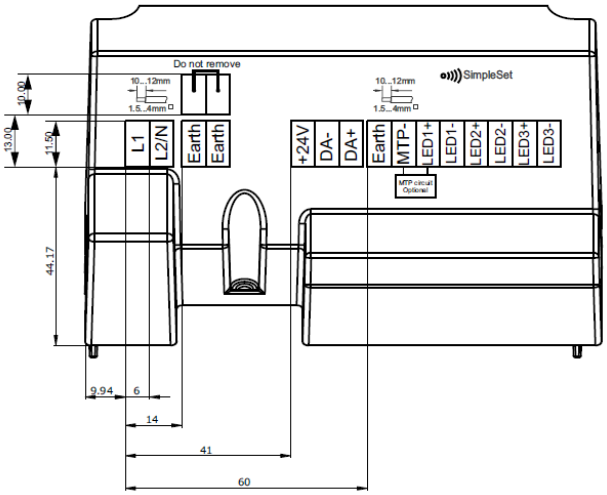
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	250…500	V_{dc}	
Output voltage max.	520	V	Maximum voltage at open load
Output current	100…2100	mA	
Output current min programmable	700	mA	
Output current tolerance ±	5	%	@full load
Output current ripple LF	≤ 1	%	Ripple = peak / average, < 3kHz
Output current ripple HF	≤ 10	%	
Output P_{st}^{LM}	≤ 0.4		In entire operating window
Output SVM	≤ 0.3		In entire operating window
Output power	75.0…600.0	W	3 channels. 600W per channel. 1800W Total Power.
Minimum performance output power	180	W	Each channel, Power factor > 0.9 and THD < 20%
Number of output channels	3		

Control interfaces

Specification item	Value	Unit	Condition
Control method	DALI		Output current amplitude dimming. Please refer to design-in guide at www.philips.com/oem for more controllability details.
Dimming range	5…100	%	min Iout 100mA; Acc. D4i. See www.digitalilluminationinterface.org/products
Isolation controls input to output	Reinforced		acc. IEC61347-1
D4i Power Supply max voltage.	22.5	V	
D4i output current	52	mA	
D4i Power Supply max current source	60	mA	
Supported DALI parts	150, 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	1.5…4 / 16…12	mm^2 / AWG	solid / stranded wire
Input wire strip length	10…12	mm	
Output wire cross-section	1.5…4 / 16…12	mm^2 / AWG	solid / stranded wire
Output wire strip length	10…12	mm	
Control wire cross-section	1.5…4 / 16…12	mm^2 / AWG	solid / stranded wire
Control wire strip length	10…12	mm	



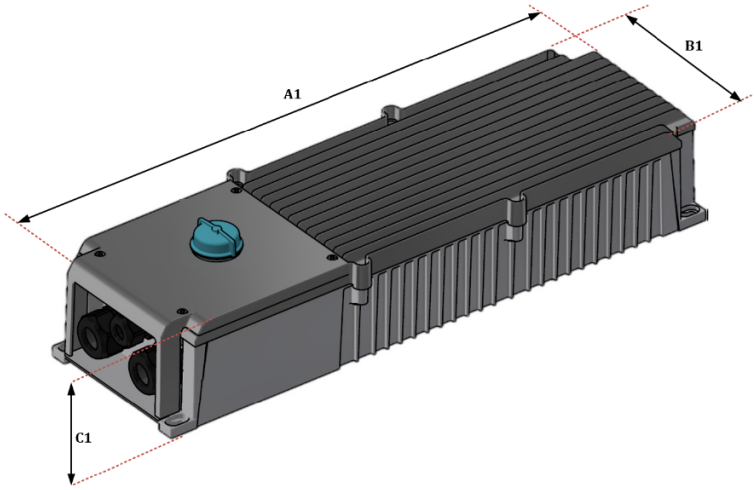
Isolation

Insulation per IEC61347-1	Mains	Output	DALI
Mains	-	No	Reinforced
Output	No	-	Reinforced
DALI	Reinforced	Reinforced	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	500	mm	± 1
Width (B1)	145	mm	± 1
Height (C1)	90.5	mm	± 1
Height with Zhaga Socket*	120	mm	± 1
Mounting hole diameter (D1)	6.5	mm	± 0.2
Weight	5200	gram	
Housing color	RAL9006		

*The base model code does not include the Zhaga D4i socket as shown on the picture below. If the product is ordered without Zhaga socket please consider Height (C1) as the actual height.

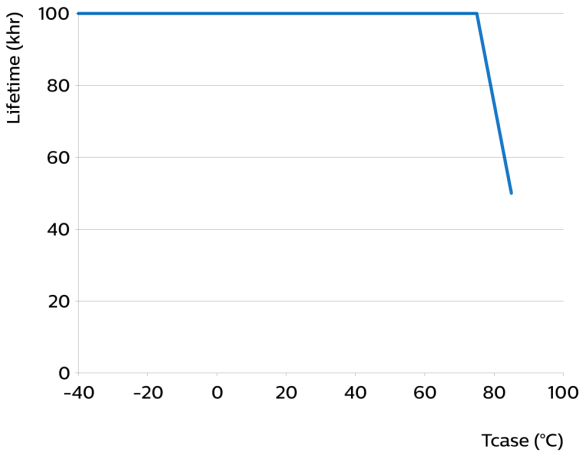


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-40…+45	°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	80	°C	Measured at T_{case}-point
Maximum housing temperature	110	°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 -10 degrees. Maximum failures = 10%



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

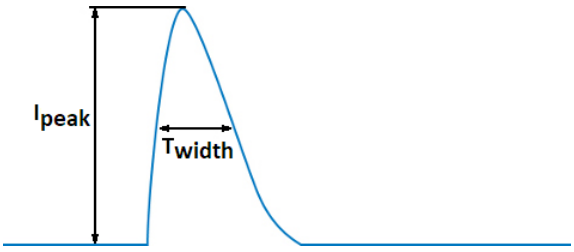
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	700 mA	
LED Module Temperature Protection (MTP)	Yes	OFF	
Driver Temperature Limit (DTL)	Yes	ON	
Adjustable Light Output (ALO)	Yes	OFF	
Adjustable Light Output (ALO) min level	Yes	OFF	
Constant 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	5 %	
End Of Life indicator (EOL)	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
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		per IEC60598
Overtemperature protection	Yes		Automatic recovering
+24V Auxiliary Power Supply (DALI part 150)	Yes		24VDC
Energy metering (DALI part 252)	Yes		+/-4%
Diagnostics (DALI part 253)	Yes		

Inrush current

Specification item	Value	Unit	Condition
Inrush current	20	A	Input voltage 230V
Inrush current	30	A	Input voltage 400V
Drivers / MCB 16A type B @230V AC	≤ 1	pcs	Input voltage 230V
Drivers / MCB 16A type B @400V AC	≤ 2	pcs	Input voltage 400V



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 Protective Conductor Current (ins. Class I)	1.8	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

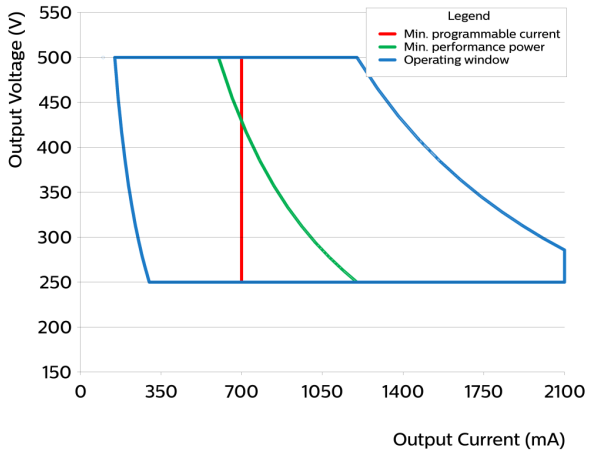
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	10	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	10	kV	L/N - PE 10kV acc. IEC61000-4-5, 12 Ohm 1.2/50us,8/20us
Control surge immunity (diff. mode)	0.9	kV	DA+ - DA- acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	4	kV	DA / Vaux - L/N acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us
Control surge immunity (comm. mode)	4	kV	DA / Vaux - EQUI acc. IEC61000-4-5. 12 Ohm 1.2/50us,8/20us

Application Info (Approbation)

Specification item	Value
Approval marks and Certifications	CB / CE / D4i / EMC / ENEC / RCM / UKCA / WEEE
Ingress Protection classification (IP)	IP66 / IK08
Coastal rating	SST rating (1000 hours)
Application	Outdoor
Mounting Type	Independent

Graphs

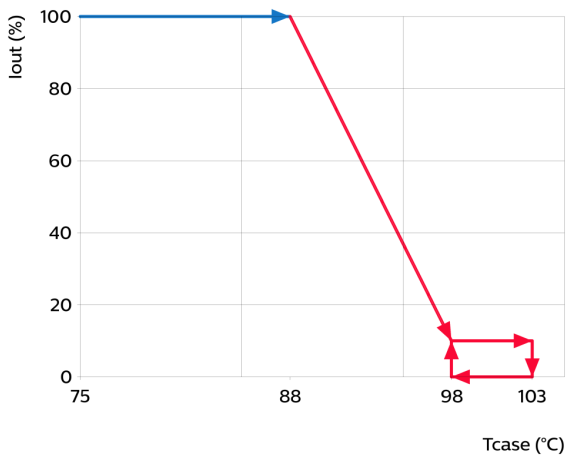
Operating window



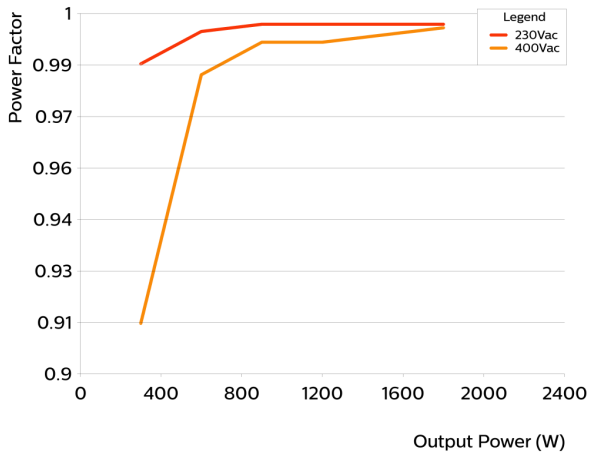
Type	Output current (mA)	Min. output voltage (V)	Max. output voltage (V)	Max. output power (W)
Xi 1800W 220-400V D4i	700	250	500	350
Xi 1800W 220-400V D4i	750	250	500	375
Xi 1800W 220-400V D4i	800	250	500	400
Xi 1800W 220-400V D4i	850	250	500	425
Xi 1800W 220-400V D4i	900	250	500	450
Xi 1800W 220-400V D4i	950	250	500	475
Xi 1800W 220-400V D4i	1000	250	500	500
Xi 1800W 220-400V D4i	1050	250	500	525
Xi 1800W 220-400V D4i	1100	250	500	550
Xi 1800W 220-400V D4i	1150	250	500	575
Xi 1800W 220-400V D4i	1200	250	500	600
Xi 1800W 220-400V D4i	1250	250	480	600
Xi 1800W 220-400V D4i	1300	250	461	600
Xi 1800W 220-400V D4i	1350	250	444	600
Xi 1800W 220-400V D4i	1400	250	428	600
Xi 1800W 220-400V D4i	1450	250	413	600
Xi 1800W 220-400V D4i	1500	250	400	600
Xi 1800W 220-400V D4i	1550	250	387	600
Xi 1800W 220-400V D4i	1600	250	375	600
Xi 1800W 220-400V D4i	1650	250	363	600
Xi 1800W 220-400V D4i	1700	250	352	600
Xi 1800W 220-400V D4i	1750	250	342	600

Xi 1800W 220-400V D4i	1800	250	333	600
Xi 1800W 220-400V D4i	1850	250	324	600
Xi 1800W 220-400V D4i	1900	250	315	600
Xi 1800W 220-400V D4i	1950	250	307	600
Xi 1800W 220-400V D4i	2000	250	300	600
Xi 1800W 220-400V D4i	2050	250	292	600
Xi 1800W 220-400V D4i	2100	250	285	600

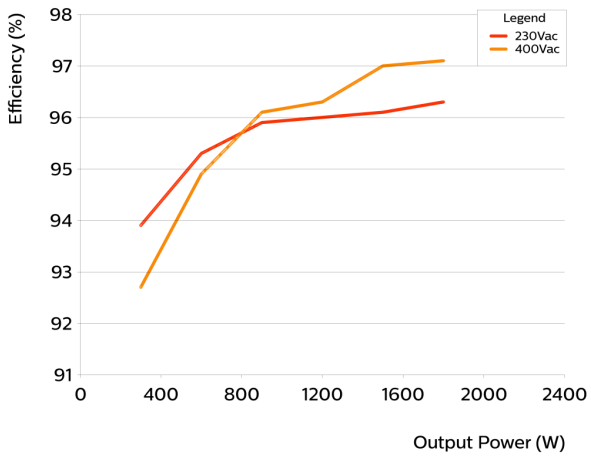
Thermal Guard



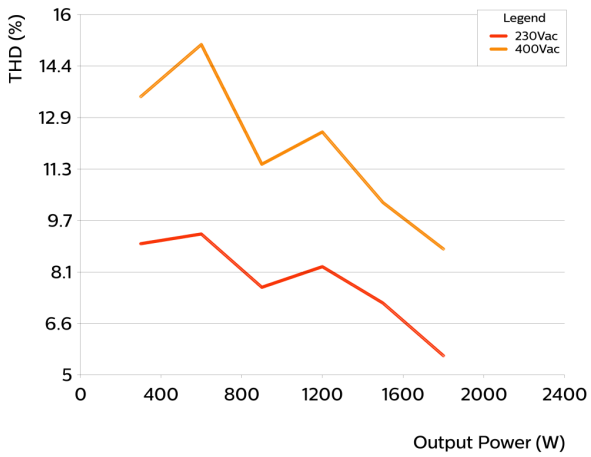
Power factor versus output power



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 6W 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.

Note LED output: Parallel connection of output channels is not allowed, and Output channels cannot be connected in series.
Also: Output loading in power of the 3 output channels is allowed to be inequal.

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www.philips.com/oem