

Xitanium non-iso DALI dimmable & programmable (TD21 LEDset)



Xitanium 90W 0.25-0.7A 220V TD21 230V
9290 016 94706

Xitanium non-isolated DALI drivers are ideal for High Voltage (HV) linear systems and stand on three pillars: quality of light, reliability and flexibility.

By using Xitanium LED drivers in your luminaires, you can be sure to offer your customers high quality of light without visual flicker and stroboscopic effects. The reliability of our drivers is based on in-depth electronics knowledge and extensive testing.

Finally, application-oriented operating windows offer the flexibility required to provide the stable lumen output and light quality levels that lighting specifiers and architects demand.

Benefits

- High quality of light
- High reliability
- Future-proof flexibility
- Flicker and noise free dimming due to amplitude modulation dimming (AM)

Application

- Offices
- Healthcare
- Education
- Indoor parking areas
- Retail: supermarkets, shopping malls

Features

- Configurable operating windows (AOC) via DALI interface or with LEDset
- Adjustable Light Output (ALO)
- Constant Light Output (CLO)
- Corridor Mode (CM)
- Dimming supported during DC operation (DCemDim)
- Touch & Dim (TD)
- OEM Write Protection (OWP)
- Memory Bank 1 Extension / Luminaire Data (DALI part 251)

Logistical data

Specification item	Value
Product name	Xitanium 90W 0.25-0.7A 220V TD21 230V
EOC	871951427854700
Logistic code 12NC	9290 016 94706
EAN1 (GTIN)	8719514278547
EAN3 (box)	8719514278554
Pieces per box	24
Weight	180 gram

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	220...240	V _{ac}	Nominal range
Rated input voltage	230	V _{ac}	
Rated input frequency	50...60	Hz	Nominal range
Rated input current	0.44	A	@ max output power @ rated input voltage
Rated input power	97.0	W	@ max output power @ rated input voltage
Power factor performance range	≥ 0.99		@ max output power @ rated input voltage@ rated output power @ rated input voltage
Total harmonic distortion	5	%	@ max output power @ rated input voltage
Efficiency	93.0	%	@ rated output power @ rated input voltage @ max. U _{out}
Rated input voltage DC	186...250	V _{dc}	Nominal range
Rated input current DC	0.52	A _{dc}	Nominal range
Input voltage AC	198...264	V _{ac}	Operational range
Input frequency AC	45...66	Hz	Operational range
Input voltage DC	168...275	V _{dc}	Operational range
Standby Power (no load)	0.34	W	
Isolation input to output	No		

Electrical output data

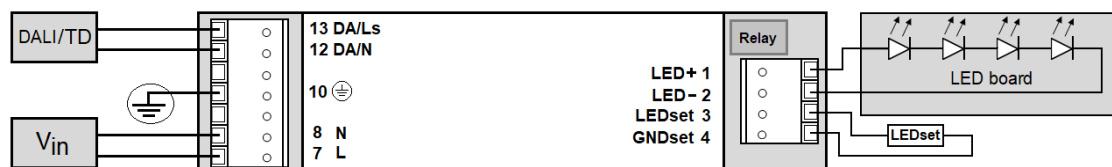
Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	50...220	V _{dc}	
Output voltage max.	250	V	Maximum output voltage (rms)
Output current	250...700	mA	
Min output current	4	mA	
Output current tolerance ±	5	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average. < 3kHz
Output P _{st} ^{LM}	≤ 0.3		
Output SVM	≤ 0.1		
Output power	25.0...90.0	W	

Control interfaces

Specification item	Value	Unit	Condition
Control method	Corridor Mode, DALI, TD		Output current amplitude dimming. Please refer to design-in guide at www.philips.com/oem for more controllability details.
Dimming range	1...100	%	With AOC > 250mA 1% dimming possible; AOC < 250mA min. physical current = 4mA. For latest DALI certification status please visit www.digitalilluminationinterface.org/products
Isolation controls input to output	Basic		acc. IEC61347-1

Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO744, solid wire
Input wire strip length	8...9	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO744, solid wire
Output wire strip length	8...9	mm	
Control wire cross-section	0.5...1.5 / 20...16	mm ² / AWG	WAGO744, solid wire
Control wire strip length	8...9	mm	
Maximum cable length	2	m	Total length of wiring including LED module, one way. For longer wiring please double check EMI behavior of luminaire.

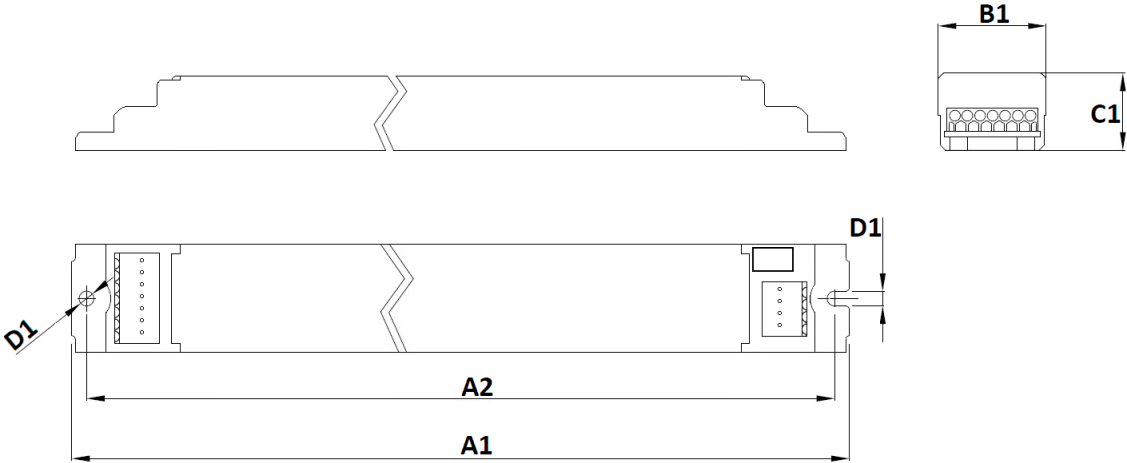


Isolation

Insulation per IEC61347-1	Input	Output+LEDset	DALI	Housing
Input	-	No	Basic	Basic
Output+LEDset	No	-	Basic	Basic
DALI	Basic	Basic	-	Basic
Housing	Basic	Basic	Basic	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	280	mm	
Mounting hole distance (A2)	270	mm	
Width (B1)	30	mm	
Height (C1)	21	mm	
Mounting hole diameter (D1)	4.1	mm	
Weight	180	gram	

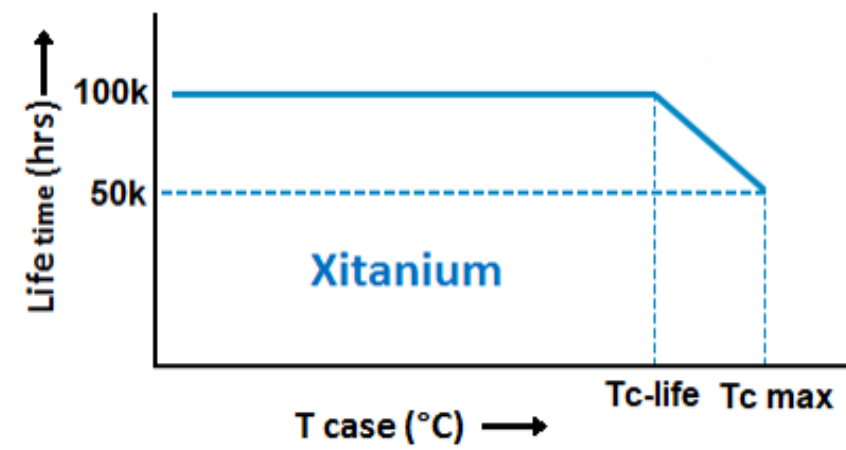


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25...+50	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	75	°C	lifetime 50khrs;
Tcase-life	65	°C	lifetime 100khrs; measured at T _c -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. Maximum failures = 10%
Driver lifetime Tcmax	0	hours	Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10%
Mains switching cycles	> 100,000	switches	See Design-in guide for detailed explanation



Maximum failures = 10%

Temperature [°C]	Lifetime	Unit	Condition
75	50000	hr	Temperature measured @Tc point
70	71000	hr	
65	100000	hr	
60	>100000	hr	
55	>100000	hr	

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25...+85	°C	Non-condensing
Relative humidity	5...95	%	

Programmable features

Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	LEDset, Programmable	250 mA	If the output current is set via LEDset, do not leave open / short-circuit. See Design-In Guide for resistor value table.
NTC on LEDset	Yes		
Adjustable Light Output (ALO)	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
Touch & Dim (TD)	Yes	ON	
Corridor Mode	Yes	OFF	Default: T1=55s, T2=12s, T3=30min
Min Dim Level (%)	Yes	1 %	
DC emergency (DCemDim)	Yes	ON	Default 15%, EOFx range = 1 .. 100% (EOFx = DCemDIM level)
DALI control supported at DC operation	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
Luminaire Info (DALI part 251)	Yes		

Non-programmable features

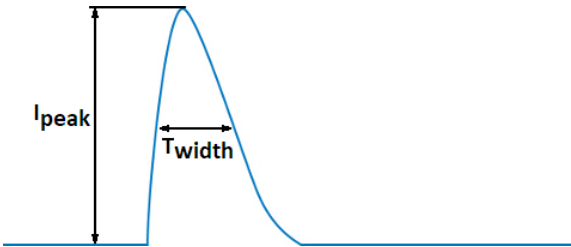
Specification item	Value	Condition
Open load protection	Yes	Automatic recovering
Short circuit protection	Yes	Automatic recovering
Over power protection	Yes	Automatic recovering
Hot wiring	No	
Suitable for fixtures with protection class	I	per IEC60598
Output Overvoltage Detection	Yes	
Energy metering (DALI part 252)	No	
Diagnostics via Signify tool	No	

Inrush current

Specification item	Value	Unit	Condition
Inrush current	25	A	Input voltage 230V
Inrush peak width	230	µs	Input voltage 230V, measured at 50% height
Drivers / MCB 16A type B @230V AC	≤ 20	pcs	Input voltage 230V

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 Protective Conductor Current (ins. Class I)	0.5	mA rms	Acc. IEC60598-1. LED module contribution not included

Surge immunity

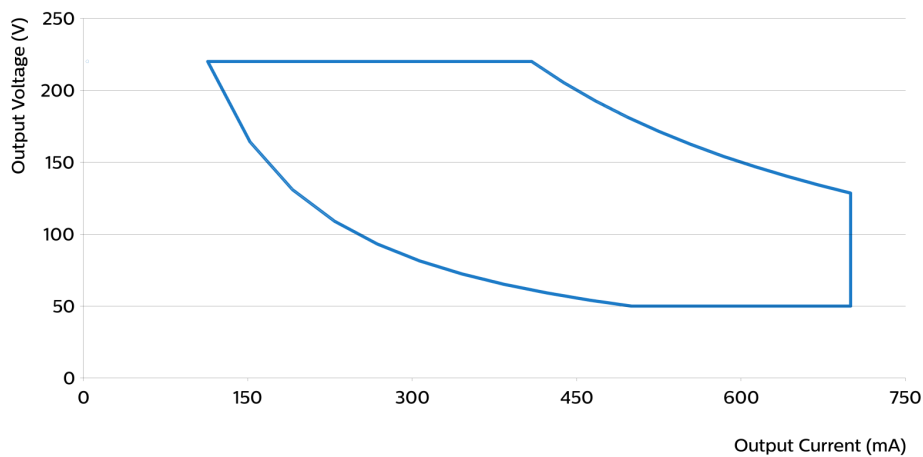
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us
Control surge immunity (diff. mode)	1	kV	Acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Control surge immunity (comm. mode)	2	kV	Acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Application Info (Approbation)

Specification item	Value
Approval marks and Certifications	CCC / CE / DALI 2 / EAC / EL / ENEC / RCM / UA / WEEE
Ingress Protection classification (IP)	20
Noise and hum dB(A)	20
Application	Indoor Linear
Mounting Type	Built-in

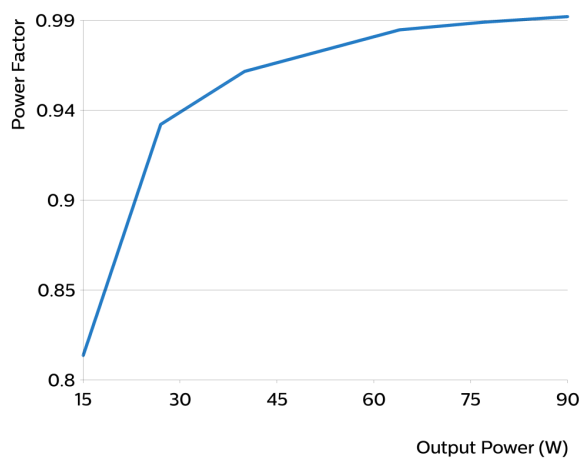
Graphs

Operating window

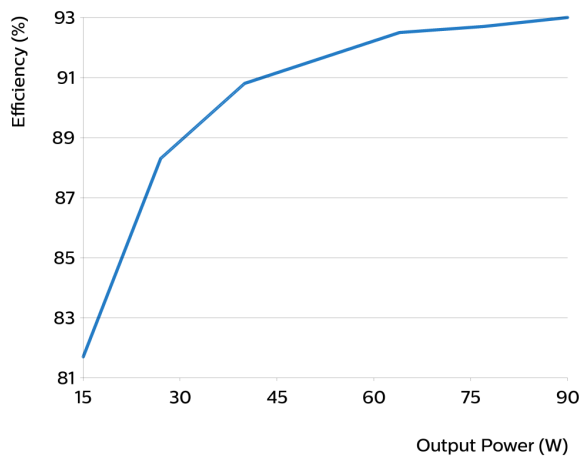


Type	Output current (mA)	Min. output voltage (V)	Max. output voltage (V)	Max. output power (W)
Xitanium 90W 0.25-0.7A 220V TD21 230V	250	100	220	55
Xitanium 90W 0.25-0.7A 220V TD21 230V	300	83	220	66
Xitanium 90W 0.25-0.7A 220V TD21 230V	350	71	220	77
Xitanium 90W 0.25-0.7A 220V TD21 230V	400	62	220	88
Xitanium 90W 0.25-0.7A 220V TD21 230V	450	55	200	90
Xitanium 90W 0.25-0.7A 220V TD21 230V	500	50	180	90
Xitanium 90W 0.25-0.7A 220V TD21 230V	550	50	163	90
Xitanium 90W 0.25-0.7A 220V TD21 230V	600	50	150	90
Xitanium 90W 0.25-0.7A 220V TD21 230V	650	50	138	90
Xitanium 90W 0.25-0.7A 220V TD21 230V	700	50	128	90

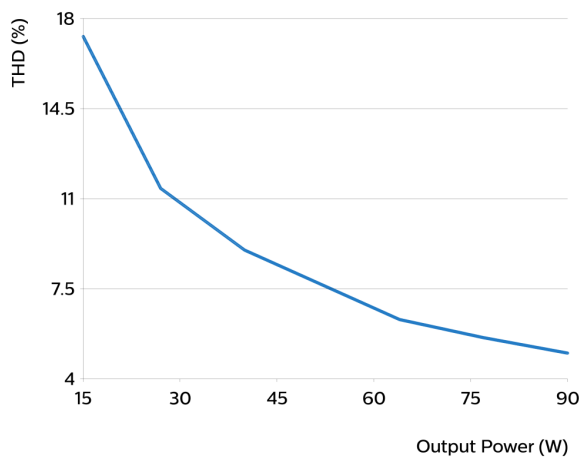
Power factor versus output power



Efficiency versus output power



THD versus output power



Notes

Caution: It is not safe to touch the PCB (tracks) around the relay when the driver is powered on.