

PHILIPS

Xitanium

LED driver



Datasheet

LED Transformers

Xi LED Transformer 250W 1-10V 24VDC

Product description

Philips full-electronic constant voltage LED Transformers are designed to operate 24VDC LED solutions used in general applications such as refrigerated display lighting, retail display lighting and linear accent lighting. They are specifically designed to ensure the highest performance with maximum robustness combined with a long lifetime.

Benefits

- SELV operating voltages, ensuring safety even if wiring or LED boards become damaged
- Energy savings through high efficiency
- Ultimate robustness, offering peace of mind and lower maintenance costs
- Easy to design-in and install
- 1% output voltage ripple
- Long lifetime 50k hours

Features

- Built in and independent use for Insulation Class II application
- Global approbations and certifications
- Stable output voltage
- Wide ambient temperature range
- Protection against overpower and overvoltage
- Output short-circuit shutdown feature with automatic restart

Application

- Retail display lighting, linear accent lighting and refrigerated display lighting
- Shelf lighting
- Cove lighting
- Facade accent lighting
- Coolers and freezers

Electrical Input Data

Specification item	Value	Unit	Condition
Rated input voltage range	220 ... 240	Vac	Performance
Rated input voltage range	198 ... 264	Vac	Operational safety
Rated input frequency	50 ... 60	Hz	Performance
Rated input frequency	45 ... 66	Hz	Operational safety
Rated input current	1.2	A	230Vac, @ rated output power
Max. input current	1.5	A	@ rated output power, @ min. input voltage
Rated input power	274	W	230Vac, @ rated output power
Power factor	0.95		230Vac, @ rated output power
Total harmonic distortion	10	%	230Vac, @ rated output power
Efficiency	92.0	%	@ rated output power @ rated input voltage
Standby power	0.5	W	

Electrical Output Data

Specification item	Value	Unit	Condition
Regulation method	Constant Voltage		
Output voltage	24	V _{dc}	Output voltage range: 22.8 ... 25.2VDC @ output current range 5210...10420mA
Output current	521...10420	mA	
Output voltage ripple	≤ 1	%	≤ 240 mV _{pp}
Output power	12.5...250.0	W	
Line regulation	≤ 1	%	
Load regulation	≤ 2	%	
Turn-on delay	≤ 1	s	
Output voltage rise time	≤ 100	ms	
Hold-up time	≥ 10	ms	

Electrical data controls input

Specification item	Value	Unit	Condition
Control method	1-10V (0-10V) dimming		0-10Vdc, Port source current 0.1mA typical
	PWM dimming		PWM Signal dimming Duty: 0- 99%,0.25KHz-2KHz, Voltage amplitude:3-10V
	Resistance dimming		0-100/N Kohm (N=driver quantity for synchronized dimming operation)
Dimming range	1..100	%	Output duty:1%-100%,1.38KHz, Dim-to-off

Logistical Data

Specification item	Value
Product Name	Xi LED Transformer 250W 1-10V 24VDC
Logistics Code 12NC	929002826206
Pieces per Box	36

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.75 ... 1.5 / 18 ... 16	mm ² / AWG	Solid and stranded wire
Input wire strip length	6	mm	
Output wire cross-section	0.75 ... 1.5 ⁽¹⁾ / 18 ... 16 ⁽¹⁾	mm ² / AWG	Solid and stranded wire
Output wire strip length	6	mm	
DIM wire cross-section	0.5 ... 1.5 / 20 ... 16	mm ² / AWG	Solid and stranded wire
DIM wire strip length	6	mm	
Maximum output cable length	1.0	m	CISPR15: between driver and LED module



*: Shown values apply to independent application.

For CCC compliance: minimum wire cross section = 0.75mm²

Maximum connector fastening torque: 0.5Nm.

(1) Max output current / Output wire cross section: < 6.75A / 0.75mm² (18AWG); < 9A / 1.0mm² (17AWG) and < 13.5A / 1.5mm² (16AWG)

Insulation

Insulation	Mains	LED	1-10V
Mains		SELV (double)	Basic
LED	SELV (double)		Double
1-10V	Basic	Double	

Dimensions and weight

Specification item	Value	Unit	Condition
Length (A1)	400	mm	
Width (B1)	40	mm	
Height (C1)	22	mm	
Fixing hole distance (A2)	360.4	mm	Fixing hole diameter (D1): 4.1mm
Weight	550	gram	



Operational Temperature and Humidity

Specification item	Value	Unit	Condition
Driver ambient temperature	-25 ... +45	°C	At rated output power. Higher ambient temperature allowed as long as T _{case-max} is not exceeded.
T _{case} - min	-25	°C	
T _{case} - max	+90	°C	Max. steady-state T _{case}
T _{case} - life	-25 ... +80	°C	For rated driver lifetime
Maximum housing temperature	110	°C	In case of a failure
Relative humidity	10 ... 90	%	Non-condensing
Ingress Protection*	IP20		
Noise and hum	≤ 20	dB	≤ 24dB at dimming

*: The LED Transformer is primarily intended for independent use. It must not be exposed including but not limited to snow, water and ice or any other chemical agent which may have an adverse effect on driver operation and performance. Exposure may lead to driver failure. It is the luminaire manufacturer's / installer's responsibility to prevent exposure.

Storage Temperature and Humidity

Specification item	Value	Unit	Condition
Ambient Temperature	-25 ... +80	°C	
Relative Humidity	5 ... 95	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Rated Driver Lifetime	50,000	Hours	$T_{case} \leq T_{case-life}$. Maximum failures = 10%. See graph.

Features

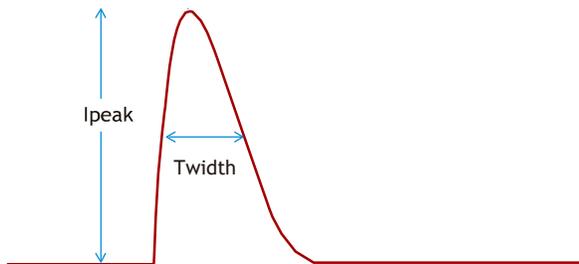
Specification item	Value	Remark	Condition
Open Load Protection	Yes		U_{out} (open circuit) = 26V max.
Short-Circuit Protection	Yes		Hiccup mode, automatic recovering
Overpower Protection	Yes		Automatic recovering
Overheating Protection	Yes		Automatic recovering
Hot Wiring	Yes		
Suitable Insulation Class Applications	II		per IEC60598

Certificates and standards

Specification item	Value
Approval mark	CE / ENEC / CCC / RCM(Do not Cover) / MM / SELV / UKCA

Inrush current

Specification item	Value	Unit	Condition
Inrush Current I_{peak} (typ)	46.4	A	Input voltage 230V
Inrush Current T_{width} (typ)	205	us	Input voltage 230 V, measured at 50% height
Max. Recommended Number of Drivers	6	pcs	Input voltage 230V



MCB	Rating	Relative number of LED drivers*
B	6A	37%
B	10A	63%
B	13A	81%
B	16A	100%
B	20A	125%
B	25 A	156%
C	6A	63%
C	10A	104%
C	13A	135%
C	16A	170%
C	20A	208%
C	25A	260%
D	6A	125%
D	10A	104%
D	13A	135%
D	16A	170%
D	20A	208%

*: please check that cable cross sectional area corresponds with MCB rating and type

Driver touch current

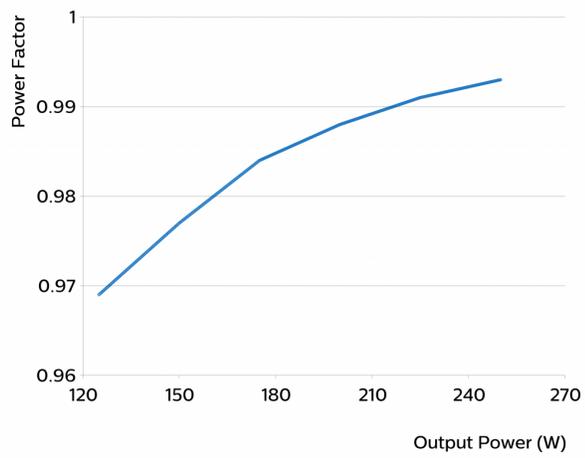
Specification item	Value	Unit	Condition
Touch current	< 0.7	mA_{peak}	Acc. IEC61347-1 at 240Vac 60Hz LED module contribution not included

Surge immunity

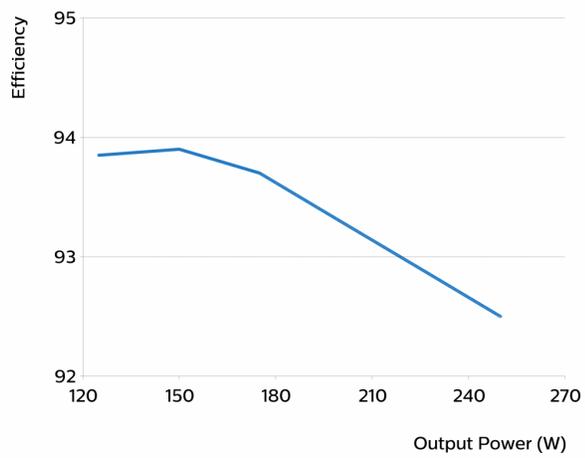
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	L-N acc. IEC61000-4-5. 2 Ohm
Mains surge immunity (com. mode)	2	kV	L/N-PE, acc. IEC61000-4-5. 12 Ohm

Graphs

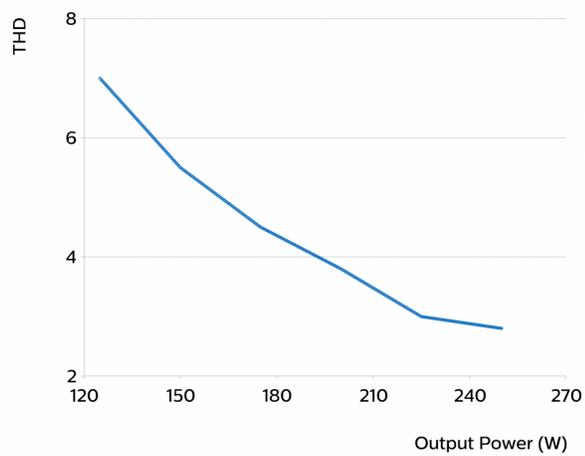
Power factor versus output power



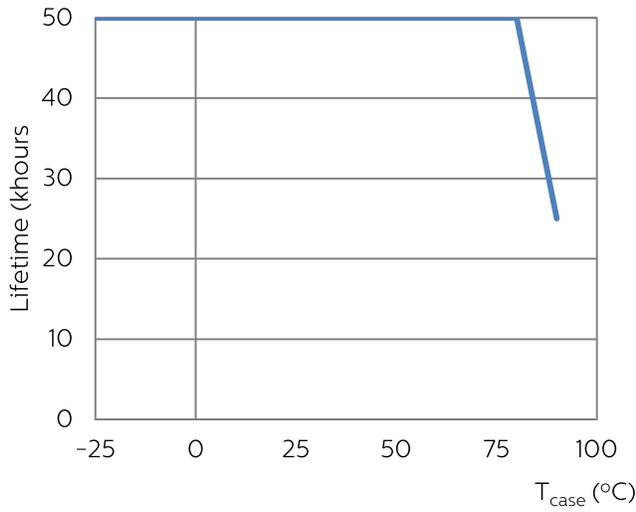
Efficiency versus output power



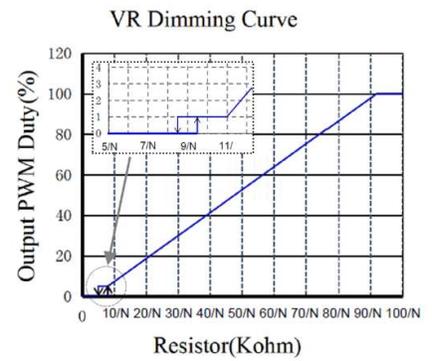
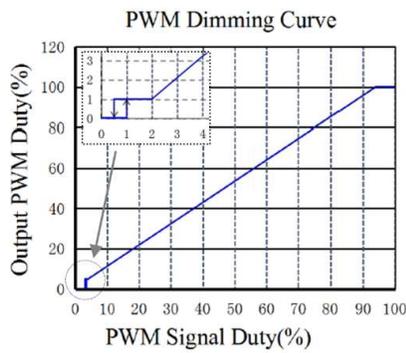
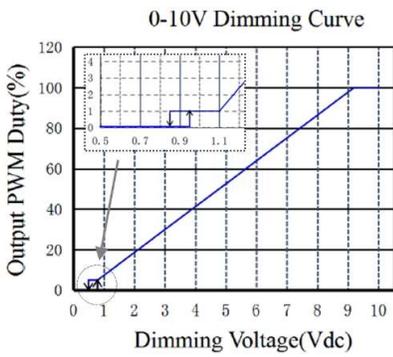
THD versus output power



Driver lifetime versus Tc temperature



Driver output versus dimming voltage



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