

# PHILIPS

## Xitanium

### LED Transformers



## Datasheet

### LED Transformer 60W 24VDC TD 220-240V

9290 022 00506

Philips full-electronic constant voltage DALI LED Transformers are designed to operate dimmable 24VDC LED solutions used for linear accent lighting in general applications such as hotel rooms, restaurants and retail displays. These state-of-the-art drivers offer a high degree of controllability, either via the digital DALI protocol or via Touch and Dim mains voltage control and are specifically designed to ensure the highest performance with maximum robustness combined with a long lifetime.

#### Benefits

- SELV operating voltage, 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
- Long lifetime

#### Features

- Combined DALI 2 and Touch and Dim control interface
- Independent use for Insulation Class II application
- Stable output voltage
- Wide ambient temperature range
- Protection against overpower and overvoltage
- Output short-circuit shutdown feature with automatic restart
- Global approbations and certifications

#### 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	202...254	V <sub>ac</sub>	Performance range
Rated input voltage	230	V <sub>ac</sub>	
Rated input frequency range	47...63	Hz	Performance range
Rated input current	0.32	A	@ rated output power @ rated input voltage
Max. input current	0.34	A	@ rated output power @ minimum performance input voltage
Rated input power	69	W	@ rated output power @ rated input voltage
Power factor	0.98		@ rated output power @ rated input voltage
Total harmonic distortion	10	%	@ rated output power @ rated input voltage
Efficiency	90	%	@ rated output power @ rated input voltage
Rated input voltage DC range	186...250	V <sub>dc</sub>	Performance range, external DC-rated fuse not required
Input voltage AC range	198...264	V <sub>ac</sub>	Safety operational range
Input frequency AC range	45...66	Hz	Safety operational range
Input voltage DC range	168...275	V <sub>dc</sub>	Safety operational range
Standby Power	0.45	W	
Isolation input to output	SELV		

## Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Voltage		
Output voltage	24	V <sub>dc</sub>	Output voltage range: 22.8 ... 25.2VDC @ output current range 0.75 ... 2.5A
Output voltage max.	26	V	
Output current	0.1...2.5	A	
Output voltage ripple	≤ 240	mV <sub>pp</sub>	
Output power	0...60	W	
Line regulation	≤ 1	%	
Load regulation	≤ 5	%	
Turn-on delay	≤ 1	s	With Integrate engine 24VDC module at rated output power
Output voltage rise time	≤ 30	ms	
Hold-up time	≥ 10	ms	

## Electrical data controls input

Specification item	Value	Unit	Condition
Control method	DALI, Touch & Dim (TD)		Per DALI 2 standard. For certification status please visit: <a href="http://www.digitalilluminationinterface.org/products">www.digitalilluminationinterface.org/products</a> . Please refer to design-in guide for more controllability details.
Dimming range	1...100	%	Based on PWM, f > 2kHz. Dimming curve = logarithmic. <b>Note:</b> minimum output loading at full light output must be at least 20W to ensure stable dimming down to 1%.
Isolation controls input to output	Double		acc. IEC61347-1

## Wiring and Connections

Specification item	Value	Unit	Type
Input wire cross-section	0.75...2.5 / 14...18	mm <sup>2</sup> / AWG	Solid / stranded wire
Input wire strip length	6...7	mm	
Output wire cross-section	0.5...2.5 / 14...20	mm <sup>2</sup> / AWG	Solid / stranded wire
Output wire strip length	6...7	mm	
Control wire cross-section	0.75...2.5 / 14...18	mm <sup>2</sup> / AWG	Solid / stranded wire
Control wire strip length	6...7	mm	
Strain relief screw max. torque	0.5	Nm	
Connector screw max. torque	0.5	Nm	
Maximum cable length	2.5	m	Total cable length between driver and LED modules per CISPR15



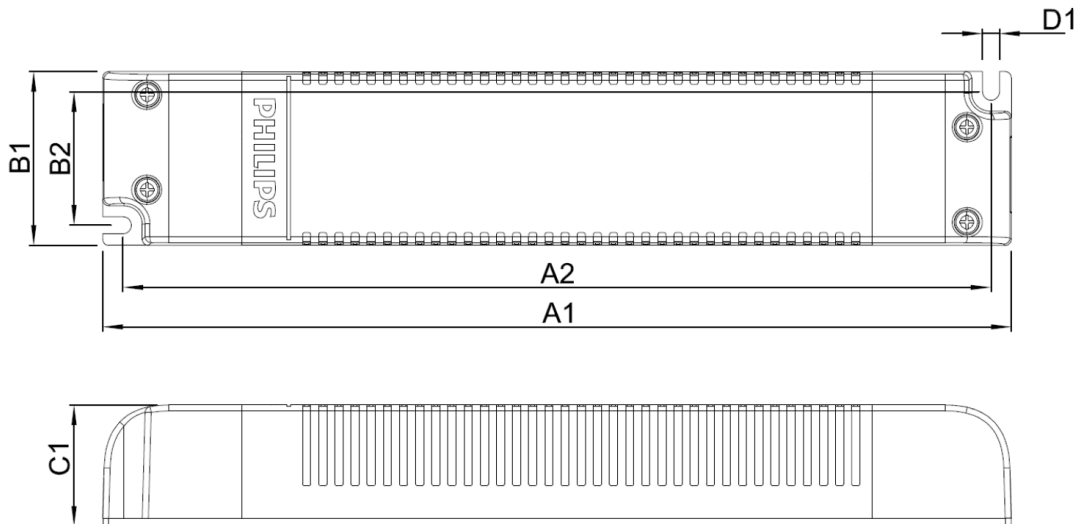
For independent application: minimum wire cross section = 0.75mm<sup>2</sup> / 18AWG for output current > 2A

## Insulation

Insulation per IEC61347-1	Mains	LED	DALI/TD
Mains		SELV	Basic
LED	SELV		Double
DALI/TD	Basic	Double	

## Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	225	mm	
Mounting hole distance (A2)	215	mm	
Width (B1)	43	mm	
Width (B2)	33	mm	
Height (C1)	30	mm	
Mounting hole diameter (D1)	4.2	mm	
Weight	315	gram	



## Logistical data

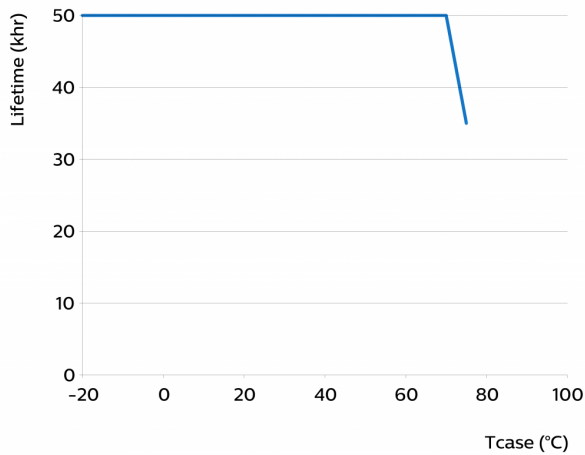
Specification item	Value
Product name	LED Transformer 60W 24VDC TD 220-240V
EOC	692234193150500
Logistic code 12NC	9290 022 00506
EAN1 (GTIN)	6922341931505
EAN3	06922341931512
Pieces per box	20

## Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-20...+50	°C	Higher ambient temperature allowed as long as T <sub>case-max</sub> is not exceeded
T <sub>case-max</sub>	75	°C	Maximum temperature measured at T <sub>case-point</sub>
T <sub>case-life</sub>	70	°C	Measured at T <sub>case-point</sub>
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	50,000	hours	Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10%



## Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-20...+85	°C	
Relative humidity	5...95	%	Non-condensing

## Features

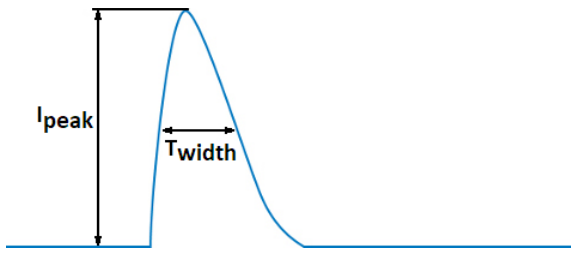
Specification item	Available	Default setting	Condition
Touch & Dim (TD)	Yes	ON	Note: when using Touch and Dim, do not combine with constant-current type TD LED drivers connected to the same TD controller/switch. The Touch & Dim feature of this driver is not configurable. This driver is not equipped with the Corridor Mode feature.

## Features

Specification item	Value	Condition
Open load protection	Yes	Uout (open circuit) = 26V max.
Short circuit protection	Yes	Hiccup mode, automatic recovering
Over power protection	Yes	Automatic recovering
Hot wiring	Yes	
Suitable for fixtures with protection class	II	per IEC60598
Overtemperature protection	Yes	Automatic recovering

## Inrush current

Specification item	Value	Unit	Condition
Inrush current $I_{peak}$	43	A	Input voltage 230V
Inrush current $T_{width}$	150	$\mu$ s	Input voltage 230V, measured at 50% $I_{peak}$
Drivers / MCB 16A type B	$\leq 21$	pcs	Indicative value



MCB	Rating	Relative number of LED drivers
B	4A	25%
B	6A	40%
B	10A	63%
B	13A	81%
B	16A	100% (stated in datasheet)
B	20A	125%
B	25A	156%
B	32A	200%
B	40A	250%
C	4A	42%
C	6A	63%
C	10A	104%
C	13A	135%
C	16A	170%
C	20A	208%
C	25A	260%
C	32A	340%
C	40A	415%

## Surge immunity

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

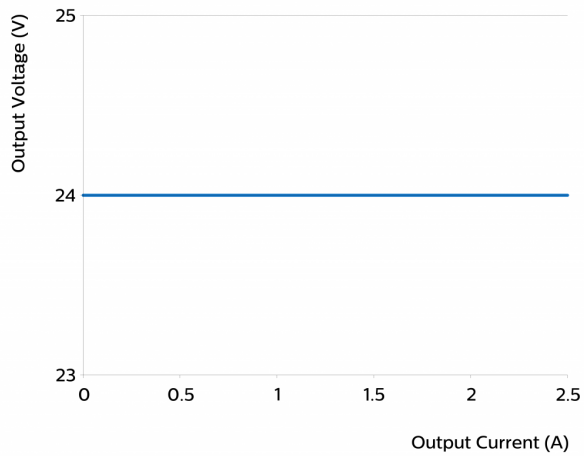
## Application Info

Specification item	Value
Approval marks	110 / CCC / CE / DALI 2 / Double-insulated / EL / ENEC / Independent / KC / MM / RCM / SELV
Ingress Protection classification (IP)	20
Noise and hum dB(A)	20
Application	Indoor Constant Voltage
Mounting Type	Independent

## Graphs

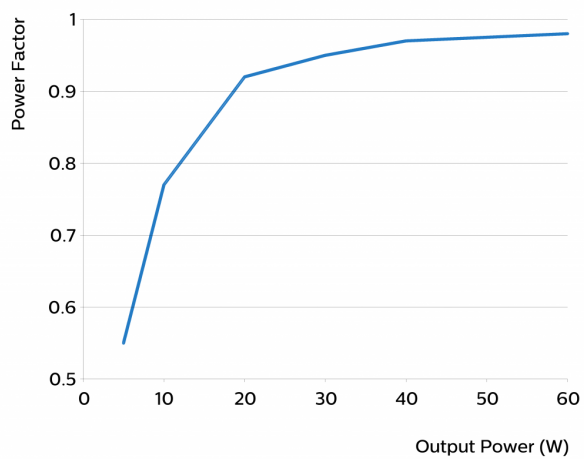
### Operating window

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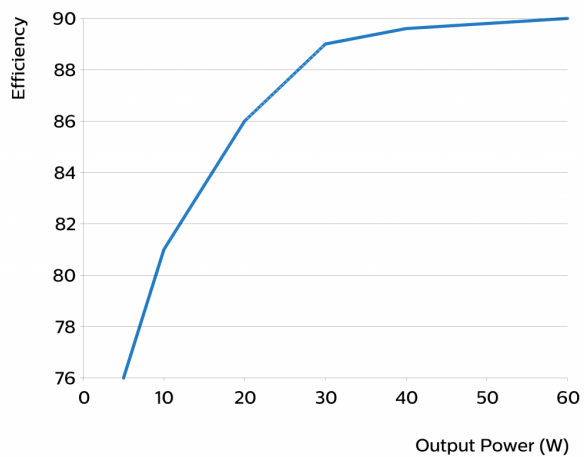
### Power factor versus output power

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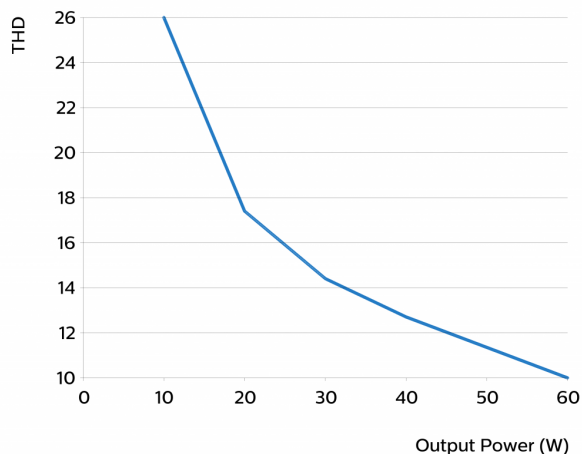
### Efficiency versus output power

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## THD versus output power

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### Notes

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#### Ingress Protection (IP):

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 affect on driver operation and performance. Exposure may lead to driver failure. It is the luminaire manufacturer's / installer's responsibility to prevent exposure.

#### Mains input cable:

supported cable diameter range = 3.3 ... 8.0mm

#### LED output cable:

supported cable diameter range = 2.0 ... 5.0mm

#### Control input cable:

supported cable diameter range = 3.3 ... 8.0mm



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