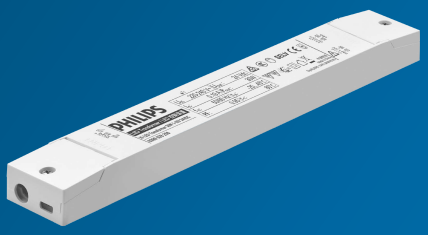
PHILIPS

LED Transformers

Datasheet



LED Transformers

Xi LED Transformer 30W 1-10V 24VDC

Product description

Philips fully-electronic constant voltage 1-10V 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 controllability via the 1-10V protocol. 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
- Extremely slim design, enabling integration in narrow cabinets
- Long lifetime

Features

- 1-10V control interface incl. dim to OFF
- Independent use for Insulation Class I and Class II applications
- Global approbations and certifications
- Stable output voltage
- Wide ambient temperature range
- Protection against overpower and overvoltage
- Output short-circuit shutdown feature with automatic restart

Applications

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	0.16	A	230Vac, @ rated output power
Rated input power	36	W	230Vac, @ rated output power
Power factor	0.98		230Vac, @ rated output power.
Total harmonic distortion	7	%	230Vac, @ rated output power.
Efficiency (typ)	85	%	230Vac, @ rated output power.

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Voltage		Rated output voltage = 24VDC
Output voltage range	22.8 ... 25.2	Vdc	@ output current range 0.62 ... 1.25A
Output current range	0 ... 1.25	Adc	
Output voltage ripple	< 480	mV_{pp}	
Rated output power	30	W	
Line regulation	< 1	%	
Load regulation	< 2	%	
Turn-on delay	< 0.5	s	With Fortimo LEDFlex 24VDC Strip
Output voltage rise time	≤ 50	ms	
Hold-up time	≥ 10	ms	

Electrical data controls input

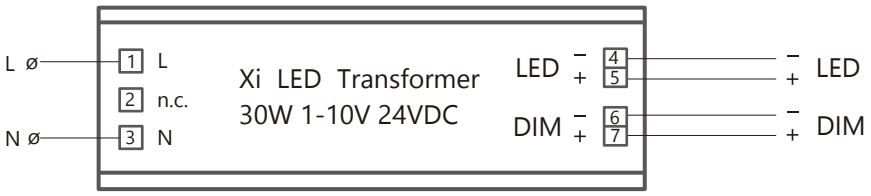
Specification item	Value	Unit	Condition
Control method	1-10V（0-10V）dimming		0-10V, source current 0.1mA typical
	PWM dimming		PWM Signal dimming Duty: 0 ... 99%. 0.25 ... 2kHz Voltage amplitude: 3 ... 10V
	Resistance dimming		0-100/N kilo-Ohm, N=driver quantity for synchronized dimming operation
Dimming range	1 ... 100	%	Based on PWM, f = 1.38kHz, incl. Dim-to-off. **Note:** minimum output loading at full light output must be at least 15W to ensure stable dimming down to 1%. Please refer to design-in guide for more controllability details.

Logistical data

Specification item	Value
Product name	Xi LED Transformer 30W 1-10V 24VDC
EOC	692234191926800
Logistic code 12NC	9290 028 25880
Pieces per box	25

Wiring & Connections

Specification item	Value	Unit	Condition
Input wire cross-section	0.75 ... 1.5 / 18 ... 16	mm^2 / AWG	Screw connection, solid and stranded wire
Input cable diameter	3.3 ...8.0	mm	
Input wire strip length	6 ... 7	mm	
Output wire cross-section	0.75 ... 1.5 / 18 ... 16	mm^2 / AWG	Screw connection, solid and stranded wire
Output cable diameter	3.3 ... 8.0	mm	
Output wire strip length	6 ... 7	mm	
Control wire cross-section	0.5 ... 1.5 / 20 ... 16	mm^2 / AWG	Screw connection, solid and stranded wire
Control cable diameter	2.5 ... 8.0	mm	
Control wire strip length	6 ... 7	mm	
Strain relief screw max. torque	0.5	Nm	
Connector screw max. torque	0.5	Nm	
Maximum output cable length	1.0	m	CISPR15: between driver and LED module

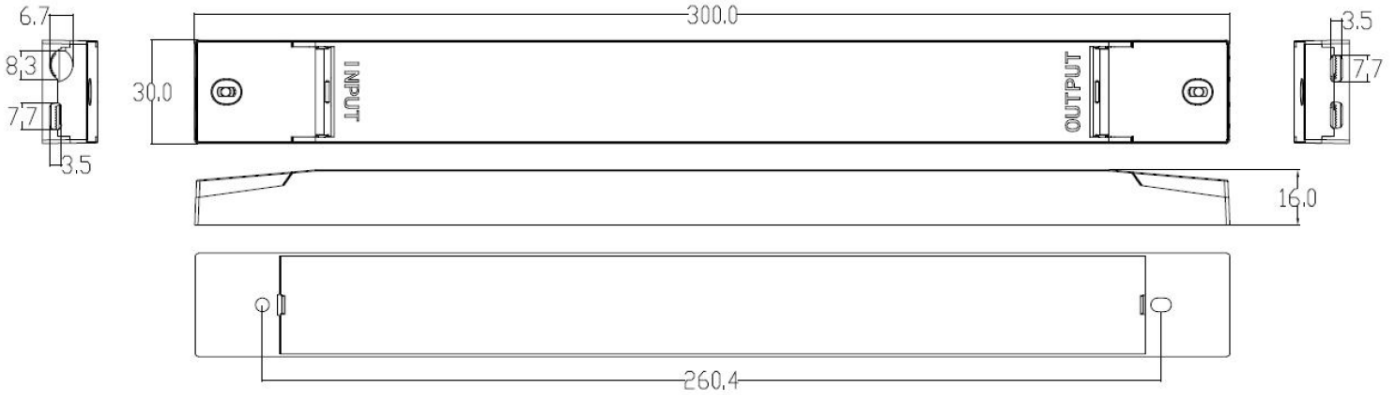


Insulation

Insulation (acc. IEC61347-1)	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)	300	mm	
Width (B1)	30	mm	
Height (C1)	16	mm	
Fixing hole distance (A2)	260.4	mm	Fixing hole diameter (D): 4.1mm
Weight	125	gram	



Operational temperatures and humidity

Specification item	Value	Unit	Condition
Driver ambient temperature	-25 ... +45	°C	At rated output power. Higher ambient temperature allowed as long as Tcase-max is not exceeded.
Tcase-min	-25	°C	
Tcase-max	+80	°C	Max. steady-state Tcase
Tcase-life	+70	°C	For rated driver lifetime
Maximum housing temperature	130	°C	In case of failure, inherent by design
Relative humidity	10 ... 90	%	Non-condensing
Ingress Protection *	IP20		
Noise and hum	≤ 20	dB(A)	

*: 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 responsibity 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	Tcase ≤ Tcase-life. Maximum failures = 10%. See graph.

Features

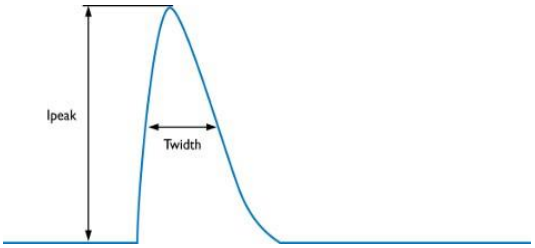
Specification item	Value	Remark	Condition
Open load protection	Yes		U_{out} (open circuit) = 26V max.
Short-circuit protection	Yes		Hiccup mode, automatic recovering
Overpower protection	Yes		Automatic recovering
Overheating protection	No		
Hot wiring	Yes		
Suitable insulation class applications	I / II		Per IEC60598

Certificates and standards

Specification item	Value
Approval marks	CE / ENEC / F / 110 / Double-insulated / Independent / SELV / MM / CCC / RCM

Inrush current

Specification item	Value	Unit	Condition
Inrush current I_{peak} (typ)	5.4	A	Input voltage 240Vac
Inrush current T_{width} (typ)	100	µs	Input voltage 240Vac, measured at 50% Ipeak
Max. recommended number of drivers	53	pcs	MCB 16A B type, mains impedance 200mΩ + 400µH



MCB	Rating	
B	6A	37%
B	10A	63%
B	13A	81%
B	16A	**100%**
B	20A	125%
B	25A	156%
C	6A	63%
C	10A	104%
C	13A	135%
C	16A	170%
C	20A	208%
C	25A	260%
D	6A	130%
D	10A	210%
D	13A	280%
D	16A	350%
D	20A	470%
D	25A	550%

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

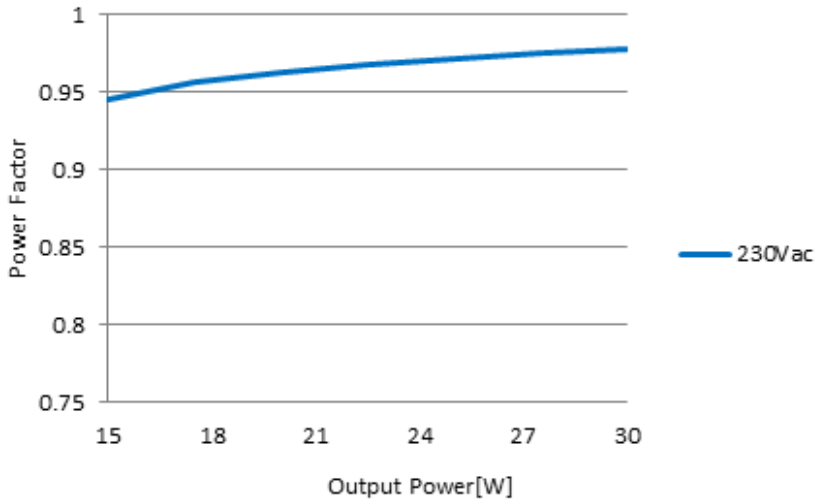
Touch current/protective conductor current

Specification item	Value	Unit	Condition
Touch / protective conductor current	< 0.7 / 0.5	mA_{peak} / mA_{rms}	Acc. IEC61347-1 at 240V/60Hz LED module contribution not included

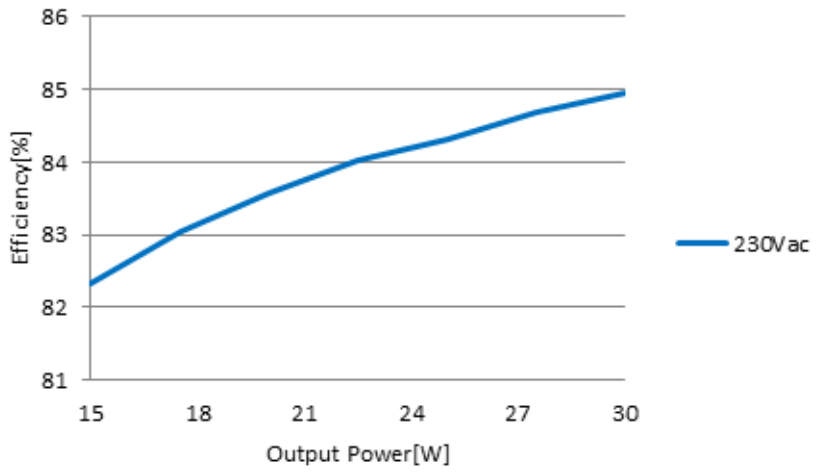
Surge immunity

Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	2	kV	L-N, acc. IEC61000-4-5, 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	L/N-PE/GND, acc. IEC61000-4-5, 12 Ohm, 1.2/50us, 8/20us
1-10V control surge immunity (diff. mode)	1	kV	1-10V +/-, acc. IEC61000-4-5, 2 Ohm, 1.2/50us, 8/20us

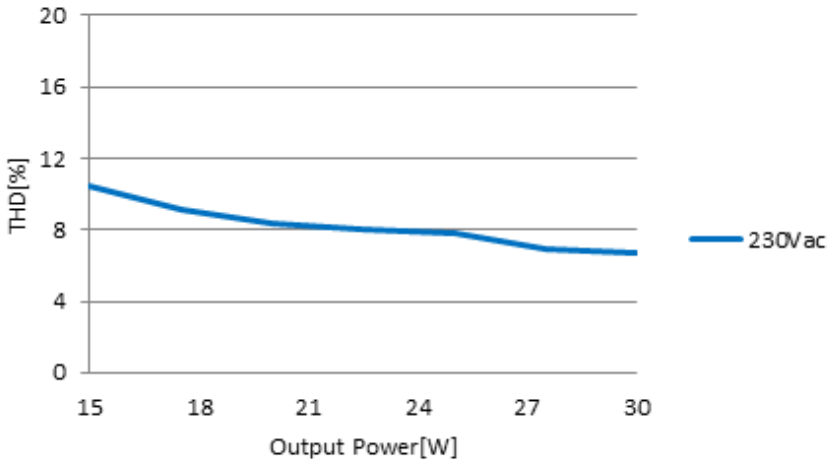
Power factor versus output power



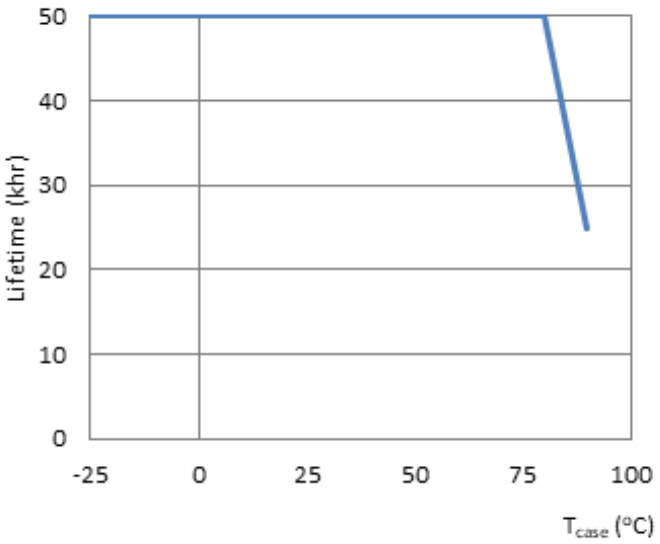
Driver efficiency versus output power



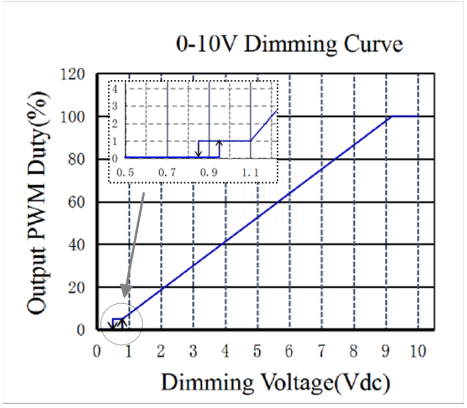
Input current THD versus output power

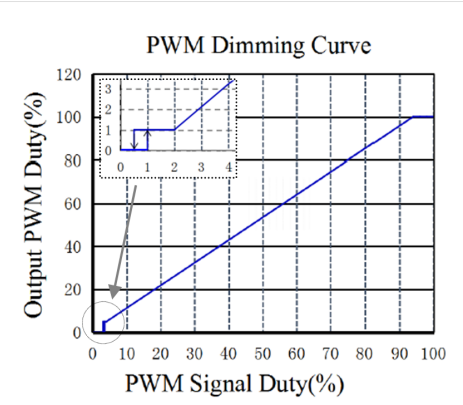


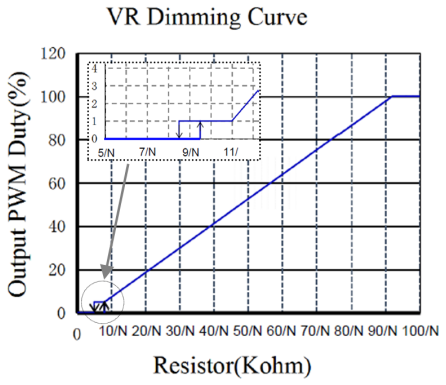
Driver lifetime versus Tc temperature



Driver output versus dimming voltage







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