

PHILIPS

LED Transformers

Datasheet



LED Transformers

LED Transformer 150W IP67 24VDC 220-240V

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. Additional, the IP67 range are designed for outdoor environment applications such as signage and flood lighting.

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
- High thermal and EMC performance, enabling easy design-in
- IP rated housing, allowing for driver gearbox with low IP rating
- Long lifetime

Features

- Independent use for Insulation Class I applications
- Global approbations and certifications
- Stabilized output voltage
- Wide ambient temperature range
- Protection against overpower and overvoltage
- Output short-circuit shutdown feature with automatic restart

Applications

- Area and flood lighting
- Industry lighting
- Signage lighting

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 | 0.72 | A | 230Vac, @ rated output power |
| Rated input power | 165 | W | 230Vac, @ rated output power |
| Power factor | 0.99 | | 230Vac, @ rated output power. |
| Total harmonic distortion | 8 | % | 230Vac, @ rated output power. |
| Efficiency (typ) | 91 | % | 230Vac, @ rated output power. |

Electrical output data

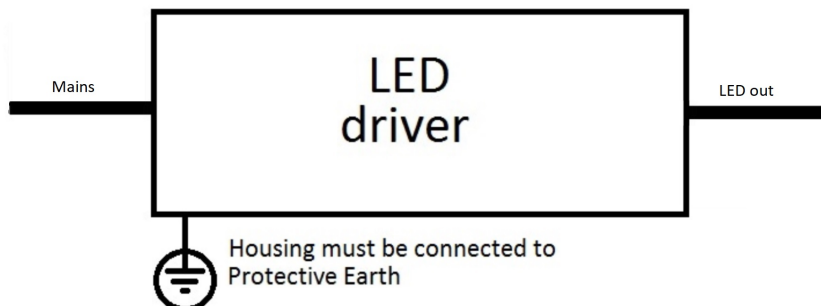
| Specification item | Value | Unit | Condition |
|--------------------------|------------------|------------------|------------------------------|
| Regulation method | Constant Voltage | | Rated output voltage = 24VDC |
| Output voltage range | 22.8 ... 25.2 | Vdc | |
| Output current range | 0.1 ... 6.25 | A _{dc} | |
| Output voltage ripple | < 300 | mV _{pp} | |
| Rated output power | 150 | W | |
| Line regulation | < 3 | % | |
| Load regulation | < 5 | % | |
| Turn-on delay | ≤ 1 | s | |
| Output voltage rise time | ≤ 50 | ms | |
| Hold-up time | ≥ 10 | ms | |

Logistical data

| Specification item | Value |
|--------------------|--|
| Product name | LED Transformer 150W IP67 24VDC 220-240V |
| Order code | 694793915922200 |
| Logistic code 12NC | 9290 014 85580 |
| Pieces per box | 6 |

Wiring & Connections

| Specification item | Value | Unit | Condition |
|-----------------------------|----------|-----------------|--|
| Input wire cross-section | 1.0 | mm ² | Stranded wires |
| Input cable diameter | 8 | mm | |
| Input wire strip length | 8 ... 10 | mm | |
| Output wire cross-section | 1.0 | mm ² | Stranded wires |
| Output cable diameter | 7 | mm | |
| Output wire strip length | 8 ... 10 | mm | |
| Maximum output cable length | 1.0 | m | CISPR15: between driver and LED module |

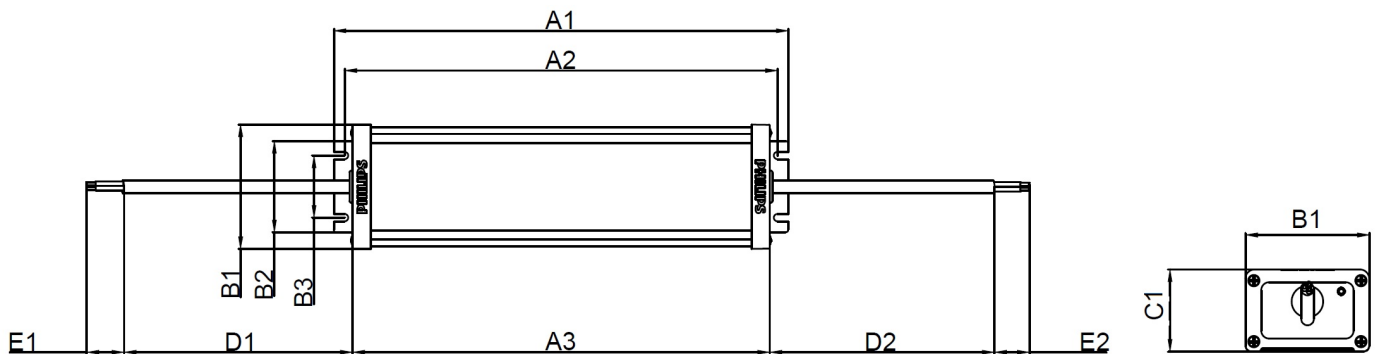


Insulation

| Insulation | Mains | LED | Housing |
|------------|---------------|---------------|---------|
| Mains | | SELV (double) | Basic |
| LED | SELV (double) | | Basic |
| Housing | Basic | Basic | |

Dimensions and weight

| Specification item | Value | Unit | Condition |
|---------------------------|-------|------|------------------------------|
| Length (A1) | 250 | mm | |
| Length (A3) | 232 | mm | |
| Width (B1) | 68 | mm | |
| Width (B2) | 50 | mm | |
| Fixing hole distance (A2) | 238 | mm | Fixing hole diameter: 4.2 mm |
| Fixing hole distance (B3) | 34 | mm | |
| Height (C1) | 45 | mm | |
| Input cable D1 | 300 | mm | |
| Output cable D2 | 300 | mm | |
| Wire length E1 | 60 | mm | |
| Wire length E2 | 60 | mm | |
| Weight | 1010 | gram | |



Operational temperatures and humidity

| Specification item | Value | Unit | Condition |
|-----------------------------|-------------|------|---|
| Driver ambient temperature | -40 ... +55 | °C | At rated output power. Higher ambient temperature allowed as long as Tcase-max is not exceeded. |
| Tcase-min | -40 | °C | |
| Tcase-max | +90 | °C | Max. steady-state Tcase |
| Tcase-life | -40 ... +80 | °C | For rated driver lifetime |
| Maximum housing temperature | 110 | °C | In case of failure |
| Relative humidity | 10 ... 90 | % | Non-condensing |
| Ingress Protection * | IP67 | | |
| Noise and hum | ≤ 24 | dB | |

*: 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.

Storage temperature and humidity

| Specification item | Value | Unit | Condition |
|---------------------|-------------|------|----------------|
| Ambient temperature | -40 ... +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

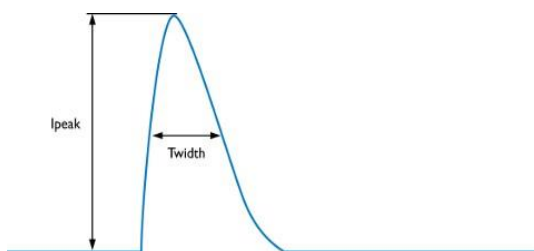
| Specification item | Value | Remark | Condition |
|--|-------|--------|--|
| Open load protection | Yes | | U_{out} (open circuit) = 25.2V max. |
| Short-circuit protection | Yes | | Hiccup mode, automatic recovering |
| Overpower protection | Yes | | Automatic recovering |
| Overheating protection | Yes | | Automatic recovering, see ThermalGuard graph |
| Hot wiring | Yes | | |
| Suitable insulation class applications | I | | Per IEC60598 |

Certificates and standards

| Specification item | Value |
|--------------------|---|
| Approval marks | CE / ENEC / CB / F / CCC / RCM / IP67 / SELV / Double-insulated / Independent |

Inrush current

| Specification item | Value | Unit | Condition |
|------------------------------------|-------|---------|---|
| Inrush current I_{peak} (typ) | 38 | A | Input voltage 240Vac |
| Inrush current T_{width} (typ) | 600 | μs | Input voltage 240Vac, measured at 50% I_{peak} |
| Max. recommended number of drivers | 4 | pcs | MCB 16A B type, mains impedance $200m\Omega + 400\mu H$ |



| MCB | Rating | Relative number of drivers * |
|-----|--------|------------------------------|
| 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 | 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

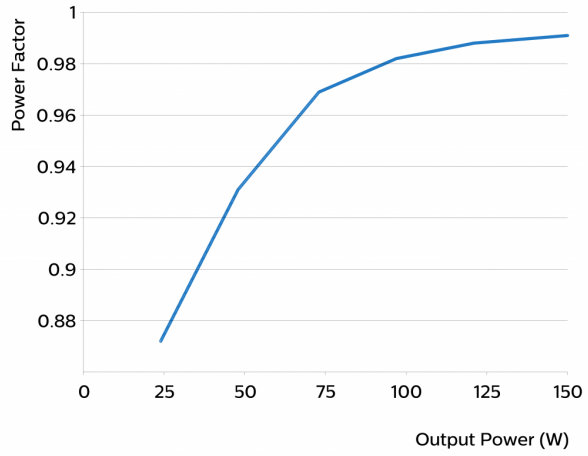
Surge immunity

| Specification item | Value | Unit | Condition |
|-----------------------------------|-------|---------|---|
| Mains surge immunity (diff. mode) | 6/ 3 | kV / kA | L-N, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us |
| Mains surge immunity (comm. mode) | 6 | kV | L/N - GND, acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us |

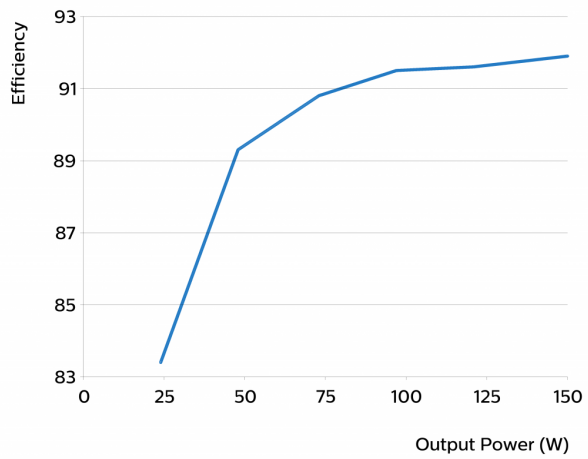
Driver protective conductor current

| Specification item | Value | Unit | Condition |
|---|-------|--------|---|
| Typical protective conductor current (ins. Class I) | 0.17 | mA rms | Acc. IEC61347-1. LED module contribution not included |

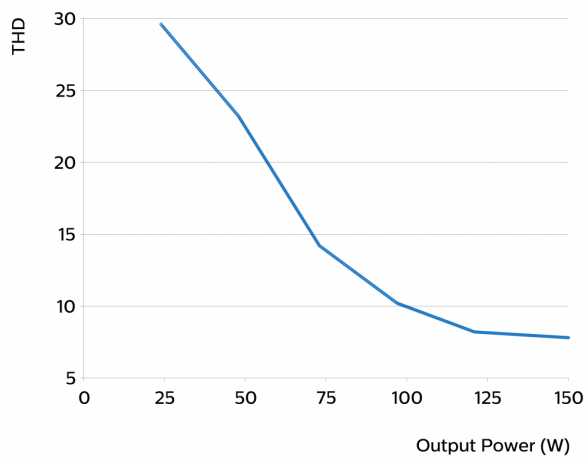
Power factor versus output power



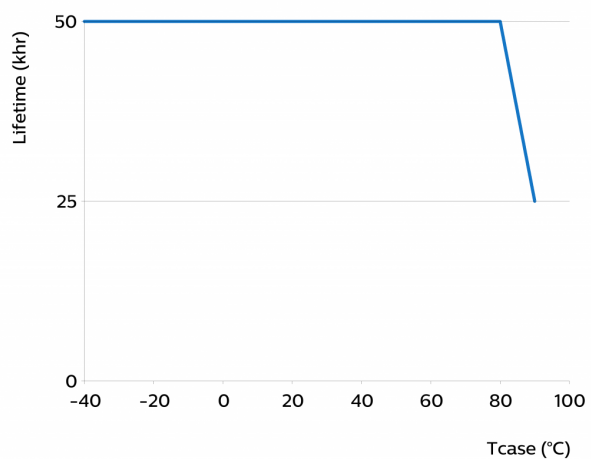
Efficiency versus output power



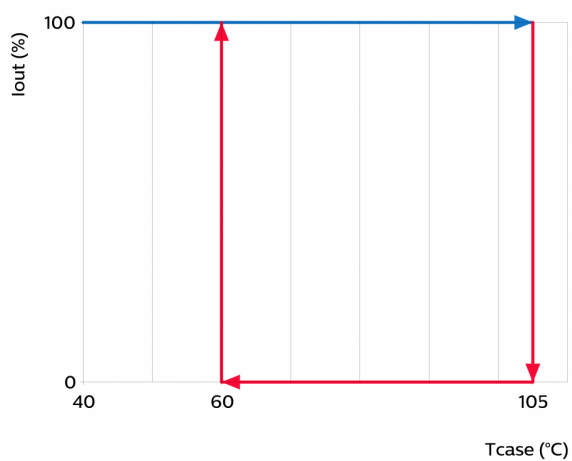
THD versus output power



Driver lifetime versus Tc temperature



Thermal Guard



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