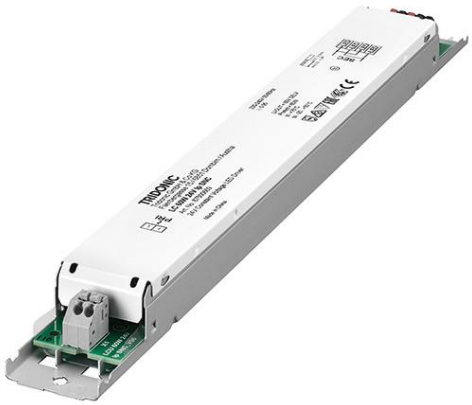
TRIDONIC

Driver LC 60W 24V lp SNC

essence series 24 V – not dimmable (IP20)



Product description
_ Constant voltage LED driver
_ Output voltage 24 V
_ Max. output power 60 W
_ For luminaires of protection class I and protection class II
_ Dimmable via external PWM LED dimmers attached on output side
_ Nominal lifetime up to 50,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Typical applications
_ Cove lighting, facade accent lighting, ceiling integration

Technical details
_ 24 V, 60 W
_ Very good THD performance in wide load range < 5 %
_ Output LF voltage ripple (< 120 Hz) ± 1.5 %
_ Small cross section
_ Push terminals for simple wiring

System solution
_ Tridonic LLE-FLEX ADV G2 600, 1,200, 1,800 lm/m
_ Tridonic LLE-FLEX EXC 600, 1,200, 1,800, 2,500 lm/m
_ In connection with Flex accessories wire to PCB plug

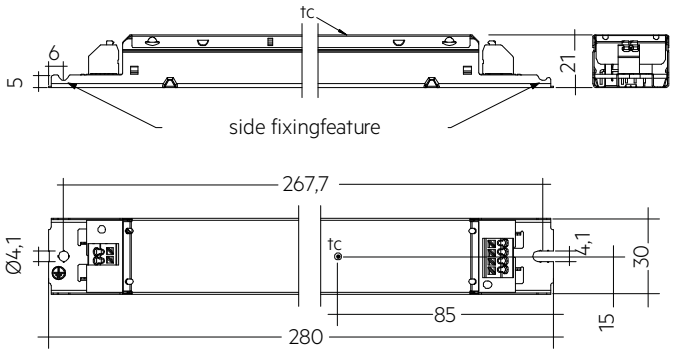
Website
http://www.tridonic.com/87500669



Linear | High bay | **Decorative** | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

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Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Packaging, high volume	Weight per pc.
LC 60W 24V lp SNC	**87500669**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.201 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. rated current (at 230 V, 50 Hz, full load) ①	296 mA
Leakage current (at 230 V, 50 Hz, full load) ①	< 267 µA
Max. input power	68 W
Typ. efficiency (at 230 V, 50 Hz, full load)	90.6 %
λ (at 230 V, 50 Hz, full load) ①	0.98
Typ. input current in no-load operation	44.4 mA
Typ. input power in no-load operation	1.3 W
In-rush current (peak / duration)	27.7 A / 198 µs
THD (at 230 V, 50 Hz, full load) ①	< 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load) ①	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	< 0.5 s
Hold on time at power failure (output)	0 s
Output voltage tolerance	± 1 V
Output LF voltage ripple (< 120 Hz)	± 1.5 %
Max. output voltage (U-OUT)	25 V
Burst capability	1 kV
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	280 x 30 x 21 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 62384, EN 61547

Specific technical data

Type	Load	Output voltage	Output current	Max. output power	Typ. power consumption	Typ. current consumption	tc point max.	Ambient temperature ta
LC 60W 24V lp SNC	30 %	24 V	750 mA	18 W	21.3 W	111 mA	70 °C	-20 … +50 °C
LC 60W 24V lp SNC	55 %	24 V	1,375 mA	33 W	37.4 W	174 mA	75 °C	-20 … +50 °C
LC 60W 24V lp SNC	80 %	24 V	2,000 mA	48 W	53.5 W	241 mA	75 °C	-20 … +50 °C
LC 60W 24V lp SNC	100 %	24 V	2,500 mA	60 W	66.5 W	296 mA	75 °C	-20 … +50 °C

① Valid at 100 % dimming level.

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 62384
EN 61547

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

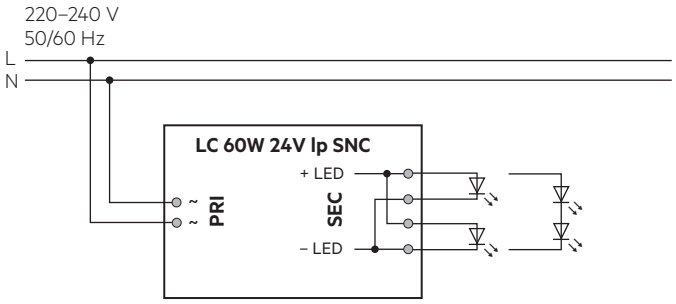
Type	Output load	ta	40 °C	45 °C	50 °C
LC 60W 24V Ip SNC	≥ 33 … ≤ 60 W	tc	65 °C	70 °C	75 °C
		Lifetime	70,000 h	50,000 h	35,000 h
	< 33 W	tc	60 °C	65 °C	70 °C
		Lifetime	> 100,000 h	> 100,000 h	75,000 h

The LED control gear is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

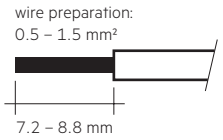
3. Installation / wiring

3.1 Circuit diagram



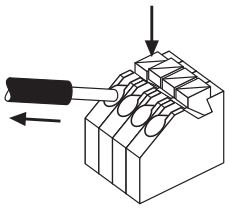
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5 – 1.5 mm². Strip 7.2 – 8.8 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit).
- The LED driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Secondary switching is not permitted.
- Wrong wiring of the LED driver can lead to malfunction or irreparable damage.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.5 Earth connection

The earth connection is conducted as protection earth (PE). The LED driver can be earthed via metal housing. If the LED driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED driver. Earth connection is recommended to improve following
behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

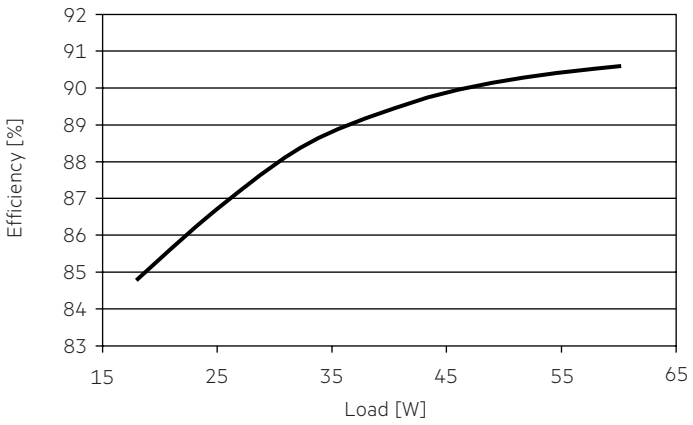
In general it is recommended to earth the LED driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and thereby representing a high capacity against earth.

3.6 Installation instructions

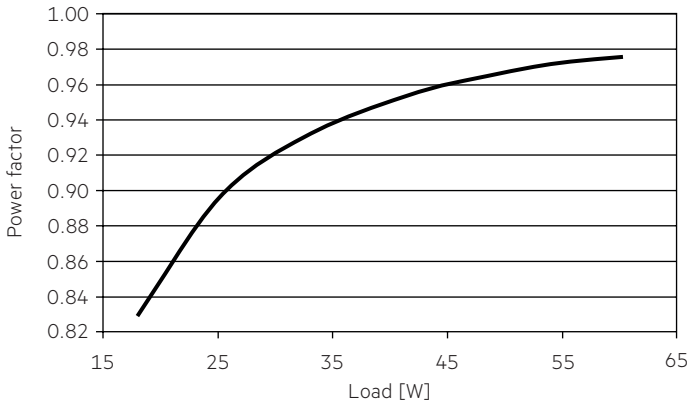
The LED module and all contact points within the wiring must be sufficiently insulated against 500 V surge voltage.
Air and creepage distance must be maintained.

4. Electrical values

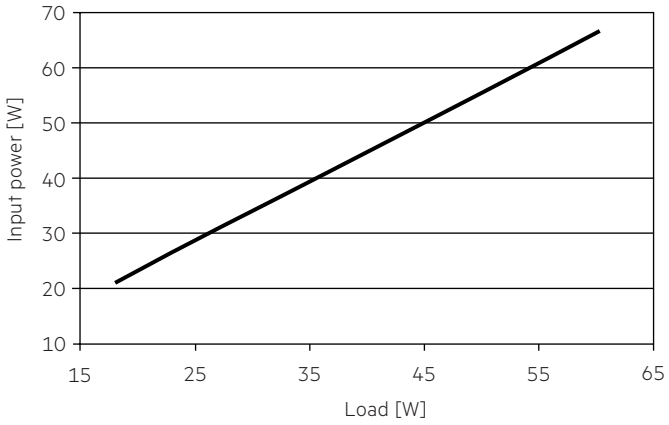
4.1 Efficiency vs. load



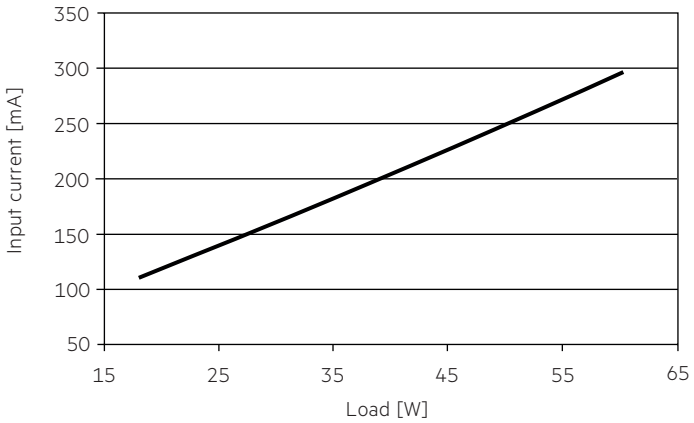
4.2 Power factor vs. Load



4.3 Input power vs. Load

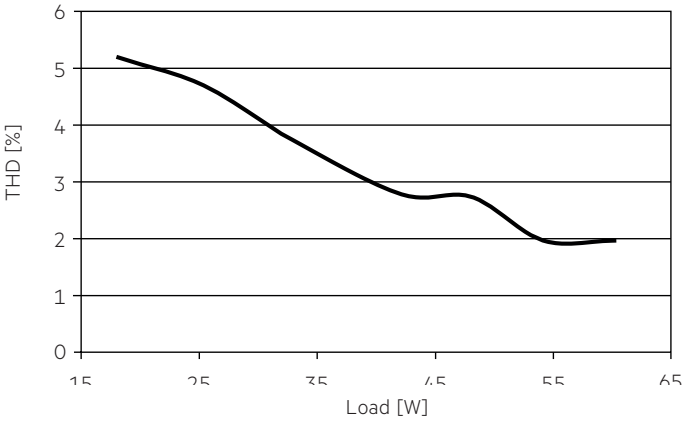


4.4 Input current vs. Load



4.5 THD vs. Load

THD without harmonic < 5 mA (0.6 %) of the input current:



4.6 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
LC 60W 24V lp SNC	28	37	47	58	17	22	28	35	27,7 A	198 µs

These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.7 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 60W 24V lp SNC	< 3	< 2	< 2	< 2	< 2	< 2

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

5. Functions

5.1 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED will flicker, and output voltage will be reduced.
When fault is removed, the driver can go back to work automatically without resetting input main power.

5.2 Overtemperature protection

The LED driver is protected against temprorary thermal overheating. If the temperature limit is exceeded the LED will flicker, and restart automatically after the driver cold down. The temperature protection is activated approx. + 15 °C above Tc max.

5.3 Short-circuit behaviour

In case of a short circuit at the LED output the LED output is switched off. When fault is removed, the driver can go back to work automatically without resetting input main power.

5.4 No-load operation

The LED driver will not be damaged in the no-load operation. When the output is floating and doesn't connect the LED modules, the output voltage will keep the max. voltage (< 25 V). After connecting the LED load, the driver works normally without resetting the main power.

5.5 Hot plug-in

Hot plug-in is supported.
If a LED load is connected, the device does not need to be restarted before the output will be activated again.

5.6 Use of PWM dimmers

PWM dimmers are used to dim the attached LED module.
For fulfilling the ecodesign requirements of the European Union following has to be considered:

- Going to stand-by via PWM dimmer is not supported.
- To turn off the luminaire, mains has to be off.

7. Miscellaneous

7.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

7.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.

7.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.