TRIDONIC

Driver LCO 200W 500/700/1050/1400mA fixC L SNC2

essence outdoor series

Product description
_ Independent fixed output LED driver
_ Constant current LED driver
_ Output current 500, 700, 1,050 or 1,400 mA
_ Up to 94 % efficiency
_ Ambient temperature range of -40 … +60 °C
_ Max. casing temperature tc of 90 °C
_ The delivery time is 13 weeks, except 28002310.
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/manufacturer-guarantee-conditions)

Housing properties
_ Casing: metal, black
_ Type of protection IP67

Interfaces
_ Connection: cable 300 mm

Functions
_ Protective features (overtemperature, short-circuit, overload, no-load)

Benefits
_ Wide voltage input 100 – 240 V
_ Best energy savings due to low stand-by losses and high efficiency
_ Suitable for mains voltage peaks (burst/surge) up to 6 kV
_ Double or reinforced insulation
_ High number of drivers on 16 A (B) automatic circuit breakers
_ Extended vibration damping
_ The LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %
_ The wide product range offers common currents for a cost effective luminaire manufacturing

Typical applications
_ For parking lot, high bay and street applications
_ For linear/area lighting in industry applications

Website
http://www.tridonic.com/28002309

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

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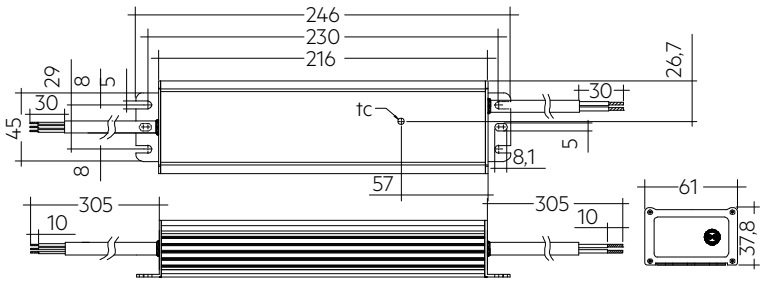


Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
LCO 200/500/400 fixC L SNC2	**28002309**	10 pc(s).	480 pc(s).	0.92 kg
LCO 200/700/285 fixC L SNC2	**28002310**	10 pc(s).	480 pc(s).	0.92 kg
LCO 200/1050/190 fixC L SNC2	**28002311**	10 pc(s).	480 pc(s).	0.92 kg
LCO 200/1400/142 fixC L SNC2	**28002312**	10 pc(s).	480 pc(s).	0.92 kg

Technical data

Rated supply voltage	120 – 240 V
AC voltage range	100 – 240 V
Mains frequency	50 / 60 Hz
Leakage current (at 230 V, 50 Hz, full load)	< 500 µA
THD (at 230 V, 50 Hz, full load)	< 10 %
Output current tolerance ①	± 5 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Ambient temperature ta	-40 … +60 °C
Storage temperature ts	-40 … +85 °C
Mains burst capability (between L - N)	4 kV
Mains surge capability (between L - N)	4 kV
Mains surge capability (between L/N - PE)	6 kV
Surge voltage at output side (against PE)	1 kV
Type of protection	IP67
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	246 x 61 x 37.8 mm

Approval marks

IP67 RoHS

Standards

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

Specific technical data

Type	Output current ①	Input current (at 230 V, 50 Hz, full load)	Max. input power	Typ. power consumption (at 230 V, 50 Hz, full load)	Output power range	λ at full load ②	Efficiency ② at full load	λ over full operating range (min.) ②	Efficiency ② at min. load	Min. forward voltage	Max. forward voltage	Max. output voltage (U-OUT)	Max. peak output current	Typical output LF current ripple ② at full load	Max. casing temperature tc
LCO 200/500/400 fixC L SNC2	500 mA	940 mA	216.3 W	216.3 W	60 – 200 W	0.98	93.5 %	0.91C	87.0 %	133 V	400 V	410 V	615 mA	< 3 %	90 °C
LCO 200/700/285 fixC L SNC2	700 mA	930 mA	212.8 W	212.8 W	60 – 200 W	0.98	94.0 %	0.90C	85.0 %	95 V	285 V	295 V	819 mA	< 3 %	90 °C
LCO 200/1050/190 fixC L SNC2	1,050 mA	950 mA	216.3 W	216.3 W	60 – 200 W	0.98	93.0 %	0.89C	82.0 %	63 V	190 V	200 V	1,376 mA	< 10 %	90 °C
LCO 200/1400/142 fixC L SNC2	1,400 mA	970 mA	215.1 W	215.1 W	60 – 200 W	0.98	93.0 %	0.92C	83.5 %	47 V	142 V	152 V	1,960 mA	< 13 %	90 °C

① Output current is mean value.
② Test result at 230 V, 50 Hz.
③ Typical value at full load, depend on load's V-I character.

1. Standards

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

2. Thermal details and life-time

2.1 Expected life-time

Expected life-time

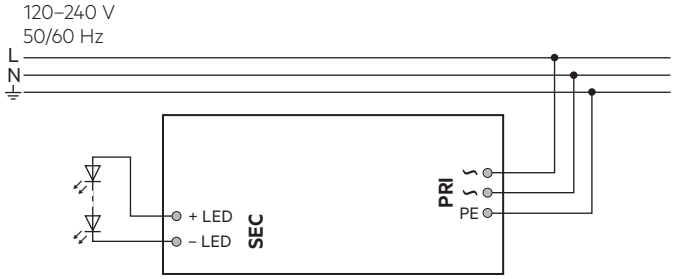
Type	ta	50 °C	55 °C	60 °C
LCO 200/500/400 fixC L SNC2	tc	65 °C	70 °C	75 °C
	Life-time	>100,000 h	70,000 h	50,000 h
LCO 200/700/285 fixC L SNC2	tc	65 °C	70 °C	75 °C
	Life-time	85,000 h	60,000 h	40,000 h
LCO 200/1050/190 fixC L SNC2	tc	70 °C	75 °C	80 °C
	Life-time	70,000 h	50,000 h	35,000 h
LCO 200/1400/142 fixC L SNC2	tc	70 °C	75 °C	80 °C
	Life-time	65,000 h	45,000 h	30,000 h

The LED driver 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.

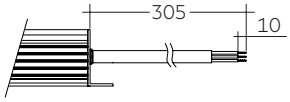
3. Installation / wiring

3.1 Circuit diagram



3.2 Connection

Primary cable			Secondary cable	
L	N	PE	+	–
brown	blue	green/yellow	brown	blue



PRI:
3x 1.0 mm²

SEC:
2 x 1.0 mm²

3.3 Wiring instructions

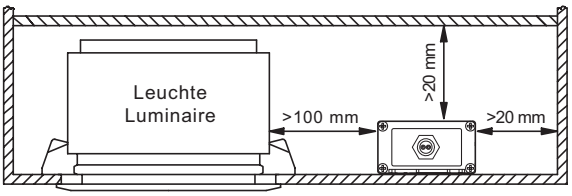
- All connections must be kept as short as possible to ensure good EMI behaviour
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.
- Mains leads should be kept apart from LED driver and other leads (ideally 5 – 10 cm distance)
- The maximum length of output wires is 3 m.
- Secondary switching is not permitted.
- Incorrect wiring can damage LED modules.
- 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.).

3.4 Installation instructions

The switching of LEDs on secondary side is not permitted.

3.5 Fixing conditions

Acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire. Is not suitable for fixing in corner. Terminals according to EN 60998-2-1 or EN 60998-2-2 are required.



3.6 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.

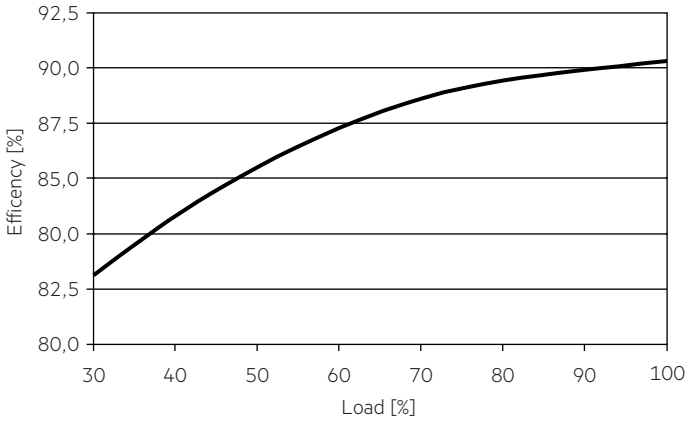
- Electromagnetic interferences (EMI)
- Transmission of mains transients to the LED output

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.

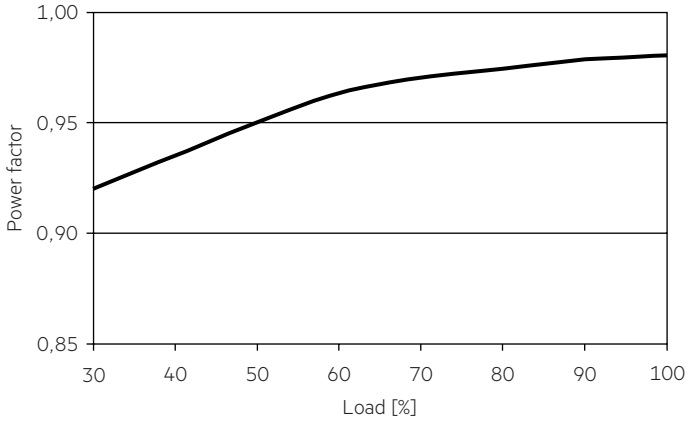
4. Electrical values

4.1 Diagrams

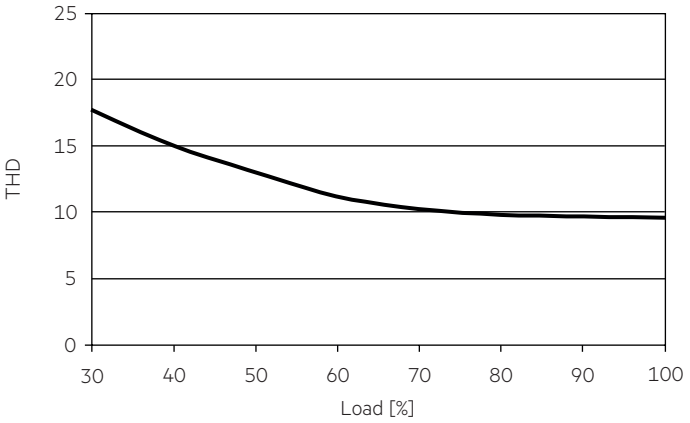
4.1.1 Efficiency vs Load



4.1.2 Power factor vs Load



4.1.3 THD vs Load



4.2 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
LCO 200/500/400 fixC L SNC2	3	4	6	6	1	2	3	6	172 A	228 µs
LCO 200/700/285 fixC L SNC2	3	4	6	6	1	2	3	6	172 A	228 µs
LCO 200/1050/190 fixC L SNC2	3	4	6	6	1	2	3	6	172 A	228 µs
LCO 200/1400/142 fixC L SNC2	3	4	6	6	1	2	3	6	172 A	228 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.

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

	THD	3.	5.	7.	9.	11.
LCO 200/500/400 fixC L SNC2	< 8	< 5	< 4	< 4	< 3	< 2
LCO 200/700/285 fixC L SNC2	< 8	< 5	< 4	< 4	< 3	< 2
LCO 200/1050/190 fixC L SNC2	< 8	< 5	< 4	< 4	< 3	< 2
LCO 200/1400/142 fixC L SNC2	< 8	< 5	< 4	< 4	< 3	< 2

Acc. to 6100-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches into hic-cup mode. After the removal of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in constant voltage mode. In no-load operation the output voltage will not exceed the specified max. output voltage (see page 2).

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will work in hic-cup mode. After elimination of the overload, the nominal operation is restored automatically.

5.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver is switched off.
It restarts automatically.

6. Miscellaneous

6.1 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.

6.2 Conditions of use and storage

Humidity: 5 % up to max. 95 %, not condensed (max. 56 days/year at 95 %)

Storage temperature: -40 °C up to max. +85 °C

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

6.3 Maximum number of switching cycles

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

6.4 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.