



#### Driver LCO 150W 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 92 % efficiency
- Ambient temperature range of -40 ... +60 °C
- Max. casing temperature tc of 90 °C
- Nominal life-time up to 80,000 h
- 5-year guarantee (conditions at [www.tridonic.com](http://www.tridonic.com))

#### 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 life-time 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, street and road applications
- For linear/area lighting in industry applications



**Standards**, page 3

**Wiring diagrams and installation examples**, page 3



IP67 

Only for 1,400 mA:

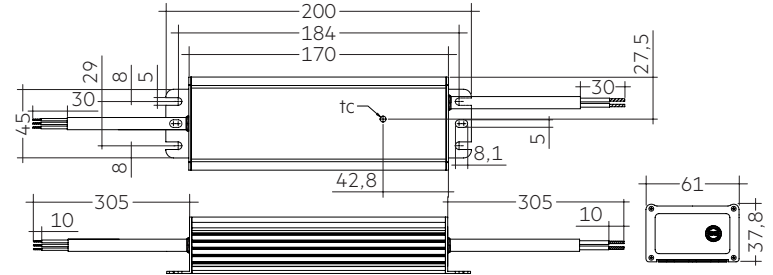


### Driver LCO 150W 500/700/1050/1400mA fixC L SNC2

essence outdoor series

#### 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 <sup>®</sup>        | ± 5 %              |
| 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                       | 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)    | 1.5 kV             |
| Life-time                                    | up to 80,000 h     |
| Guarantee (conditions at www.tridonic.com)   | 5 years            |
| Dimensions L x W x H                         | 200 x 61 x 37.8 mm |



#### Ordering data

| Type                         | Article number <sup>®</sup> | Packaging, carton | Packaging, pallet | Weight per pc. |
|------------------------------|-----------------------------|-------------------|-------------------|----------------|
| LCO 150/500/300 fixC L SNC2  | 28002305                    | 10 pc(s).         | 380 pc(s).        | 0.723 kg       |
| LCO 150/700/214 fixC L SNC2  | 28002306                    | 10 pc(s).         | 380 pc(s).        | 0.723 kg       |
| LCO 150/1050/142 fixC L SNC2 | 28002307                    | 10 pc(s).         | 380 pc(s).        | 0.723 kg       |
| LCO 150/1400/107 fixC L SNC2 | 28002308                    | 10 pc(s).         | 380 pc(s).        | 0.723 kg       |

#### Specific technical data

| Type                         | Output current <sup>®</sup> | Input current (at 230 V, 50 Hz, full load) | Input power (at 230 V, 50 Hz, full load) | Max. input power | Output power range | λ at full load <sup>®</sup> | Efficiency at full load <sup>®</sup> | λ at min. load <sup>®</sup> | Efficiency at min. load <sup>®</sup> | Min. forward voltage | Max. forward voltage | Max. output voltage (U-OUT) | Max. peak output current at full load <sup>®</sup> | Typ. output LF current ripple at full load <sup>®</sup> | Max. casing temperature tc |
|------------------------------|-----------------------------|--|--|------------------|--------------------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|----------------------|----------------------|-----------------------------|--|---|----------------------------|
| LCO 150/500/300 fixC L SNC2  | 500 mA                      | 700 mA                                     | 161.4 W                                  | 161.4 W          | 45 – 150 W         | 0.98                        | 92.0 %                               | 0.90C                       | 83.0 %                               | 90 V                 | 300 V                | 310 V                       | 615 mA   | < 5 %   | 90 °C                      |
| LCO 150/700/214 fixC L SNC2  | 700 mA                      | 710 mA                                     | 163.7 W                                  | 163.7 W          | 45 – 150 W         | 0.98                        | 92.0 %                               | 0.91C                       | 79.0 %                               | 64 V                 | 214 V                | 224 V                       | 882 mA   | < 4 %   | 90 °C                      |
| LCO 150/1050/142 fixC L SNC2 | 1,050 mA                    | 710 mA                                     | 162.5 W                                  | 162.5 W          | 45 – 150 W         | 0.98                        | 92.0 %                               | 0.89C                       | 84.0 %                               | 43 V                 | 142 V                | 152 V                       | 1,260 mA   | < 3 %   | 90 °C                      |
| LCO 150/1400/107 fixC L SNC2 | 1,400 mA                    | 720 mA                                     | 167.3 W                                  | 167.3 W          | 45 – 150 W         | 0.98                        | 89.5 %                               | 0.91C                       | 79.5 %                               | 32 V                 | 107 V                | 113 V                       | 1,694 mA   | < 3 %   | 90 °C                      |

<sup>®</sup> Test result at 230 V, 50 Hz

<sup>®</sup> Output current is mean value.

<sup>®</sup> The trend between min. and full load is linear and depends on load's voltage-current character.

<sup>®</sup> Typical value at full load, depends on load's voltage-current character.

<sup>®</sup> The delivery time is 13 weeks.

## 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

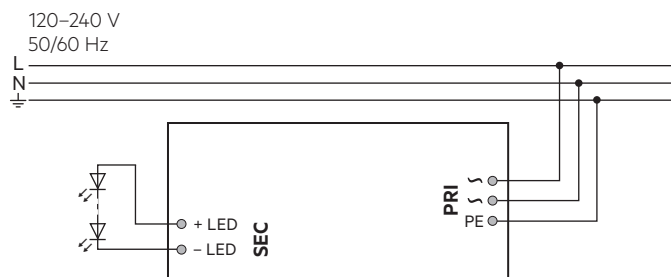
| Expected life-time                  |           |          |          |          |
|-------------------------------------|-----------|----------|----------|----------|
| Type                                | ta        | 50 °C    | 55 °C    | 60 °C    |
| <b>LCO 150/500/300 fixC L SNC2</b>  | tc        | 70 °C    | 75 °C    | 80 °C    |
|                                     | Life-time | 80,000 h | 55,000 h | 40,000 h |
| <b>LCO 150/700/214 fixC L SNC2</b>  | tc        | 70 °C    | 75 °C    | 80 °C    |
|                                     | Life-time | 80,000 h | 55,000 h | 40,000 h |
| <b>LCO 150/1050/142 fixC L SNC2</b> | tc        | 65 °C    | 70 °C    | 70 °C    |
|                                     | Life-time | 80,000 h | 55,000 h | 40,000 h |
| <b>LCO 150/1400/107 fixC L SNC2</b> | 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.

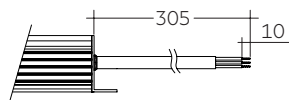
## 3. Installation / wiring

### 3.1 Circuit diagram



### 3.2 Connection

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



**PRI:**  
 3x1.0 mm<sup>2</sup>

**SEC:**  
 2x1.0 mm<sup>2</sup>

### 3.3 Wiring instructions

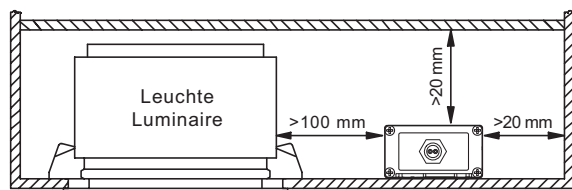
- All connections must be kept as short as possible to ensure good EMI behaviour
- Mains leads should be kept apart from LED Driver and other leads (ideally 5 – 10 cm distance)
- The maximum length of output wires is 3 m.
- Secondary switching is not permitted.
- Incorrect wiring can damage LED modules.
- 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 ( $t_a$ ) 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.

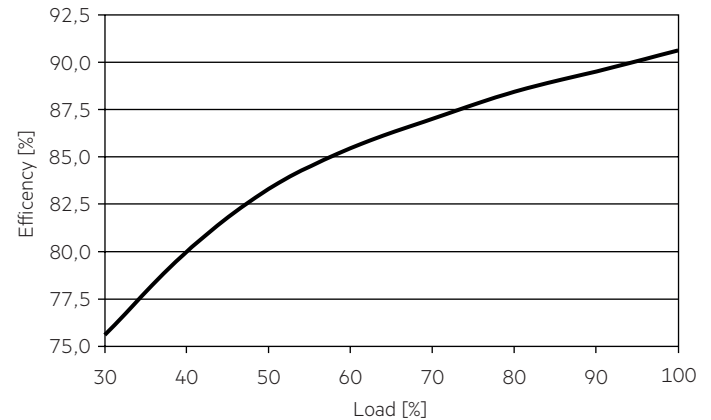
- Electromagnetic interferences (EMI)
- Transmission of mains transients to the LED output

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.

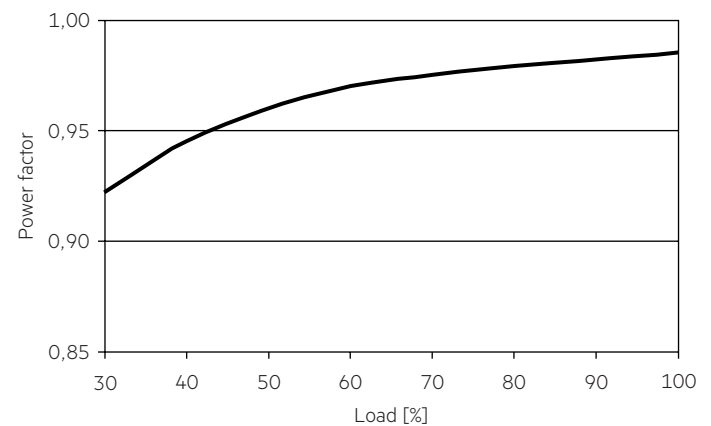
## 4. Electrical values

### 4.1 Diagrams

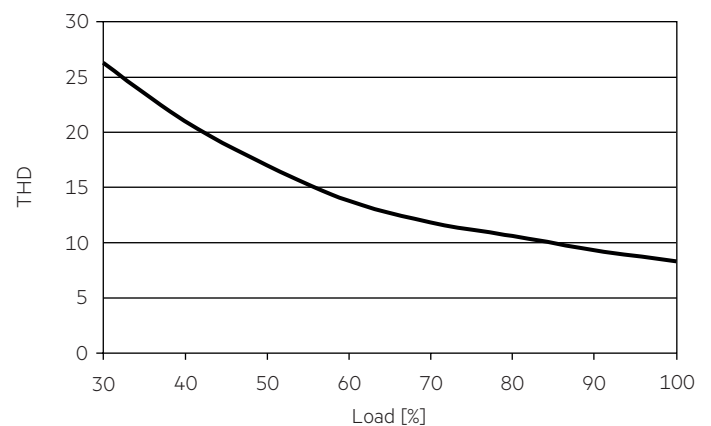
4.1.1 Efficiency vs Load



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 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | I <sub>max</sub> | Time   |
| <b>LCO 150/500/300 fixC L SNC2</b>  | 5                   | 7                   | 8                   | 9                   | 3                   | 3                   | 6                   | 8                   | 124 A            | 208 µs |
| <b>LCO 150/700/214 fixC L SNC2</b>  | 5                   | 7                   | 8                   | 9                   | 3                   | 3                   | 6                   | 8                   | 124 A            | 208 µs |
| <b>LCO 150/1050/142 fixC L SNC2</b> | 5                   | 7                   | 8                   | 9                   | 3                   | 3                   | 6                   | 8                   | 124 A            | 208 µs |
| <b>LCO 150/1400/107 fixC L SNC2</b> | 5                   | 7                   | 8                   | 9                   | 3                   | 3                   | 6                   | 8                   | 124 A            | 208 µs |

This 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. |
|-------------------------------------|-----|-----|-----|-----|-----|-----|
| <b>LCO 150/500/300 fixC L SNC2</b>  | < 9 | < 5 | < 5 | < 4 | < 3 | < 2 |
| <b>LCO 150/700/214 fixC L SNC2</b>  | < 9 | < 5 | < 5 | < 4 | < 3 | < 2 |
| <b>LCO 150/1050/142 fixC L SNC2</b> | < 6 | < 4 | < 2 | < 2 | < 2 | < 2 |
| <b>LCO 150/1400/107 fixC L SNC2</b> | < 9 | < 5 | < 5 | < 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<sub>DC</sub> 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<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). 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 (t<sub>a</sub>) 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](http://www.tridonic.com) → Technical Data

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

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