

Driver LC 60W 700/1400mA fixC SC SNC2

essence series

Product description

- Fixed output LED driver
- Can be either used build-in or independent with clip-on strain-relief (see accessory)
- Independent LED driver with cable clamps
- Constant current LED driver
- For luminaires of protection class I and protection class II
- Temperature protection as per EN 61347-2-13 C5e
- Output current 700 or 1,400 mA
- Nominal lifetime up to 50,000 h
- 5 years guarantee (conditions at www.tridonic.com)



Housing properties

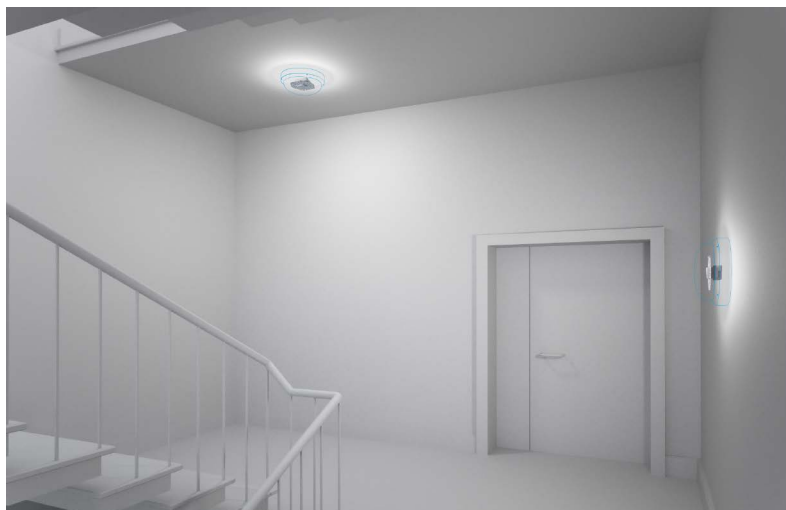
- Casing: polycarbonat, white
- Type of protection IP20

Functions

- Overload protection
- Short-circuit protection
- No-load protection
- Burst protection voltage 1 kV
- Surge protection voltage 1 kV (L to N)
- Surge protection voltage 2 kV (L/N to earth)

Typical applications

- For spot light and downlight in retail and hospitality application
- For panel light and area light in office and education application



Standards, page 4

Wiring diagrams and installation examples, page 4

IP20 SELV         

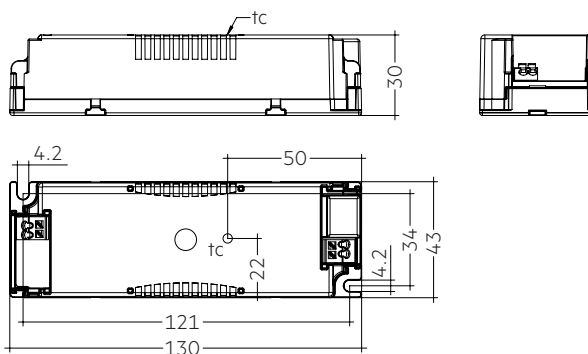
RoHS

Driver LC 60W 700/1400mA fixC SC SNC2

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Technical data

| | |
|---|------------------|
| Rated supply voltage | 220 – 240 V |
| AC voltage range | 198 – 264 V |
| Mains frequency | 50 / 60 Hz |
| Overvoltage protection | 320 V AC, 1 h |
| THD (at 230 V, 50 Hz, full load) | < 20 % |
| Output current tolerance [®] | ± 75 % |
| Typ. output LF current ripple at full load [®] | ± 25 % |
| 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 |
| Hold on time at power failure (output) | 0 s |
| Ambient temperature ta | -20 ... +50 °C |
| Ambient temperature ta (at lifetime 50,000 h) | 40 °C |
| Storage temperature ts | -40 ... +80 °C |
| Lifetime | up to 50,000 h |
| Guarantee (conditions at www.tridonic.com) | 5 years |
| Dimensions L x W x H | 130 x 43 x 30 mm |



Ordering data

| Type | Article number [®] | Packaging, carton | Packaging, low volume | Packaging, high volume | Weight per pc. |
|----------------------------|-----------------------------|-------------------|-----------------------|------------------------|----------------|
| LC 60/700/86 fixC SC SNC2 | 87500767 | 15 pc(s). | 390 pc(s). | 3,120 pc(s). | 0.139 kg |
| LC 60/1400/43 fixC SC SNC2 | 87500770 | 15 pc(s). | 390 pc(s). | 3,120 pc(s). | 0.141 kg |

Specific technical data

| Type | Output current [®] | 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 [®] | Efficiency at full load [®] | λ at min. load [®] | Efficiency at min. load [®] | Min. forward voltage | Max. forward voltage | Max. output voltage | Max. output peak current [®] | Max. casing temperature tc |
|----------------------------|-----------------------------|--|------------------|---|--------------------|-----------------------------|--------------------------------------|-----------------------------|--------------------------------------|----------------------|----------------------|---------------------|---------------------------------------|----------------------------|
| LC 60/700/86 fixC SC SNC2 | 700 mA | 280 mA | 65 W | 64.0 W | 32.9 – 60.2 W | 0.95 | 90 % | 0.9C | 88.0 % | 47 V | 86 V | 100 V | 928 mA | 85 °C |
| LC 60/1400/43 fixC SC SNC2 | 1,400 mA | 300 mA | 66 W | 64.5 W | 35.0 – 60.2 W | 0.95 | 92 % | 0.9C | 91.0 % | 25 V | 43 V | 60 V | 1,881 mA | 85 °C |

[®] Test result at 230 V, 50 Hz.

[®] The trend between min. and full load is linear and depends on load's voltage-current character.

[®] Output current is mean value.

[®] Typical value at full load, depends on load's voltage-current character.

[®] BIS approval mark for art. no.: 87500770.



**ACCES-
SORIES**

Strain-relief set 43x30mm

Product description

- Optional strain-relief set for independent applications
- Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
- Easy and tool-free mounting to the LED driver, screwless cable-clamp channels for long strain-relief (30 x 43 x 30 mm)
- With screws for short strain-relief (15 x 34 x 30 mm)
- Overall length = length L (LED driver) + 2 x 30 mm (long strain-relief set), 2 x 15 mm (short strain-relief) or long and short strain-relief any combination
- Standard SC (L = 30 mm) available as non-pre-assembled and pre-assembled
- Short SC (L = 15 mm) only pre-assembled available

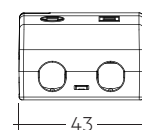
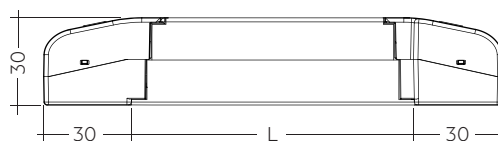


ACU SC 30x43x30mm CLIP-ON SR SET ACU SC 30x43x30mm CLIP-ON SR SET 300
(28001168, non-pre-assembled) (28001351, non-pre-assembled, 300 pcs. packaging)



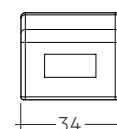
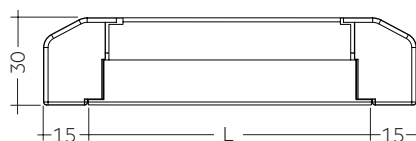
ACU SC 30x43x30mm CLIP-ON SR PA
(28001699, pre-assembled)

ACU SC 15x43x30mm CLIP-ON SR PA
(28001574, pre-assembled)



Permissible
cable jacket
diameter:
2.2 – 9 mm

ACU SC 30x43x30mm CLIP-ON SR SET / PA



Permissible
cable jacket
diameter:
3 – 9 mm

ACU SC 15x43x30mm CLIP-ON SR PA

Ordering data

| Type | Article number | Packaging carton ^① | Packaging outer box | Weight per pc. |
|-----------------------------------|----------------|-------------------------------|---------------------|----------------|
| ACU SC 43x30mm CLIP-ON SR SET | 28001168 | 10 pc(s). | 500 pc(s). | 0.038 kg |
| ACU SC 43x30mm CLIP-ON SR SET 300 | 28001351 | 300 pc(s). | 300 pc(s). | 0.038 kg |
| ACU SC 30x43x30mm CLIP-ON SR PA | 28001699 | 10 pc(s). | 500 pc(s). | 0.021 kg |
| ACU SC 15x43x30mm CLIP-ON SR PA | 28001574 | 10 pc(s). | 1,200 pc(s). | 0.010 kg |

^① 28001168: A carton of 10 pcs. is equal to 10 sets, each with 2 strain-reliefs parts.

28001351: A carton of 300 pcs. is equal to 300 sets, each with 2 strain-reliefs parts.

28001699 + 28001574: A carton contains exactly 10 pcs. strain-reliefs (no sets).

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 60598-1
EN 62384

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

| Expected lifetime | | | |
|----------------------------|----------|--------------------|--------------------|
| Type | ta | 40 °C | 50 °C |
| LC 60/700/86 fixC SC SNC2 | tc | 75 °C ^① | 85 °C ^① |
| | Lifetime | 50,000 h | 30,000 h |
| LC 60/1400/43 fixC SC SNC2 | tc | 75 °C ^① | 85 °C ^① |
| | Lifetime | 50,000 h | 30,000 h |

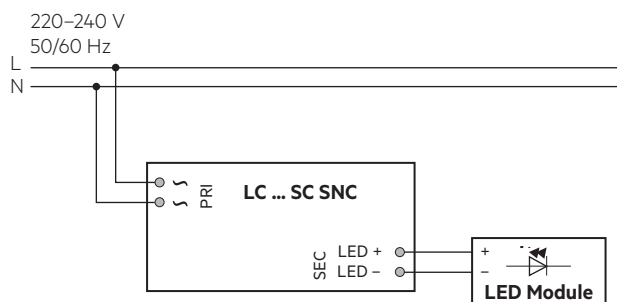
^① Test result at max. output voltage.

The LED drivers are 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.

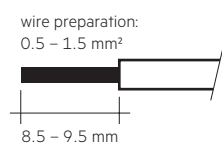
3. Installation / wiring

3.1 Circuit diagram



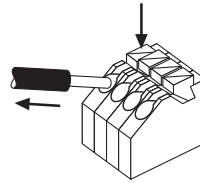
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



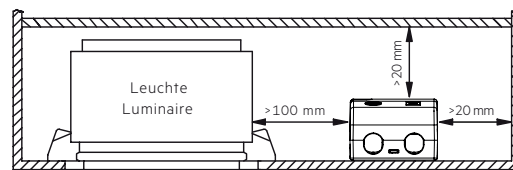
3.3 Release of the wiring

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



3.4 Fixing conditions when using as independent Driver with Clip-On

Dry, 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.



3.5 Wiring guidelines

- 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)
- Max. length of output wires is 2 m.
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.
- 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.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 20 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Installation instructions

The LED module and all contact points within the wiring must be sufficiently insulated against 3 kV surge voltage.
Air and creepage distance must be maintained.

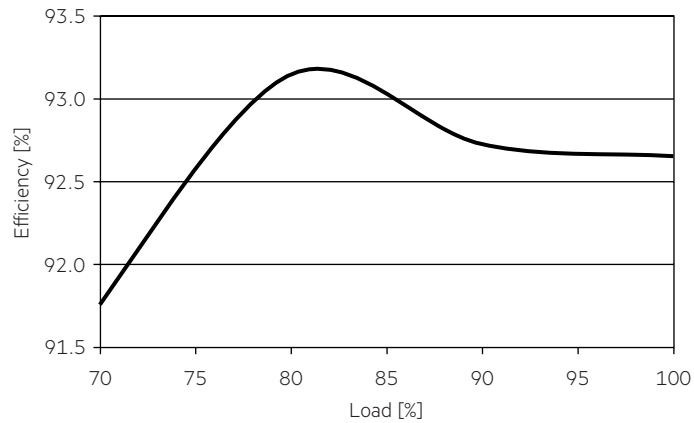
3.8 Mounting of device

Max. torque for fixing: 0.5 Nm/M4

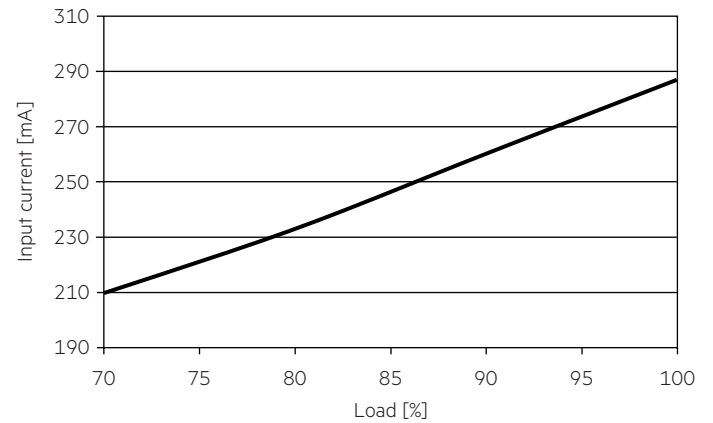
4. Electrical values

4.1 Diagrams LC 60W 700mA fixC SC SNC2

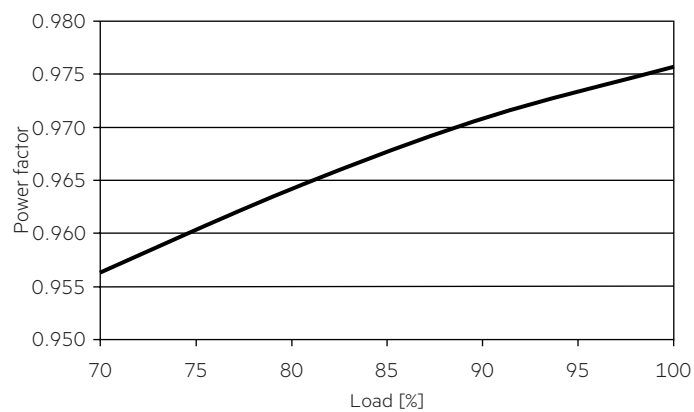
4.1.1 Efficiency vs load



4.1.4 Input current vs load

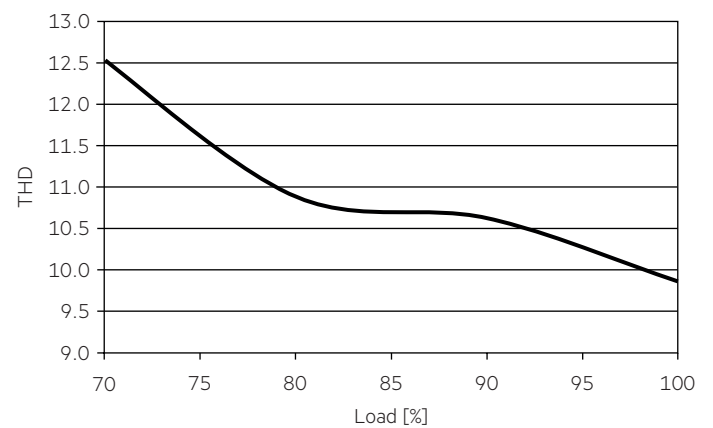


4.1.2 Power factor vs load

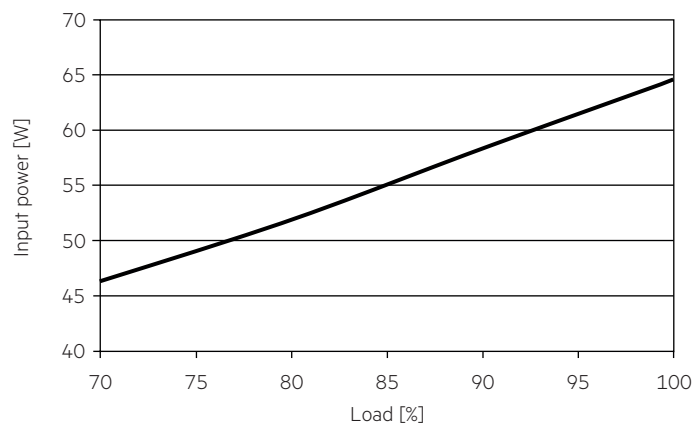


4.1.5 THD vs load

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

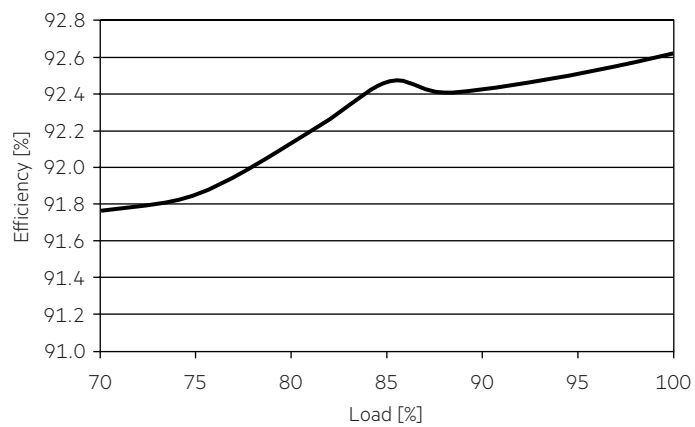


4.1.3 Input power vs load

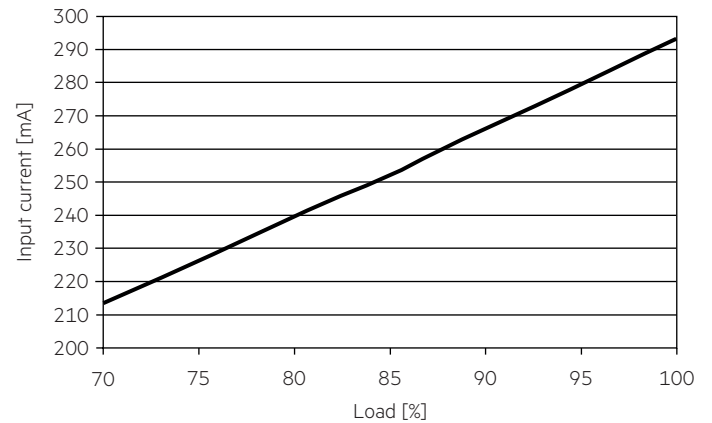


4.2 Diagrams LC 60W 1400mA fixC SC SNC2

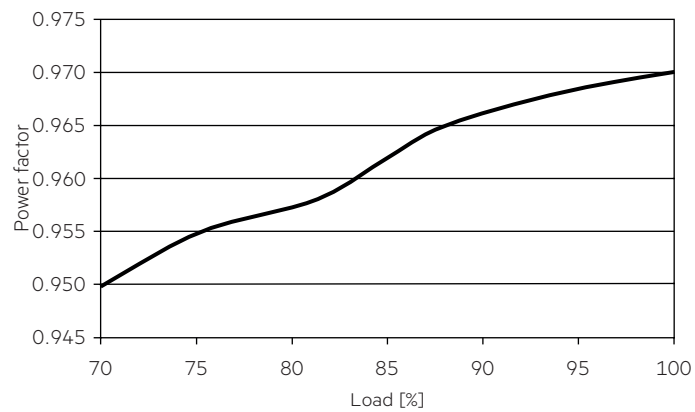
4.2.1 Efficiency vs load



4.2.4 Input current vs load

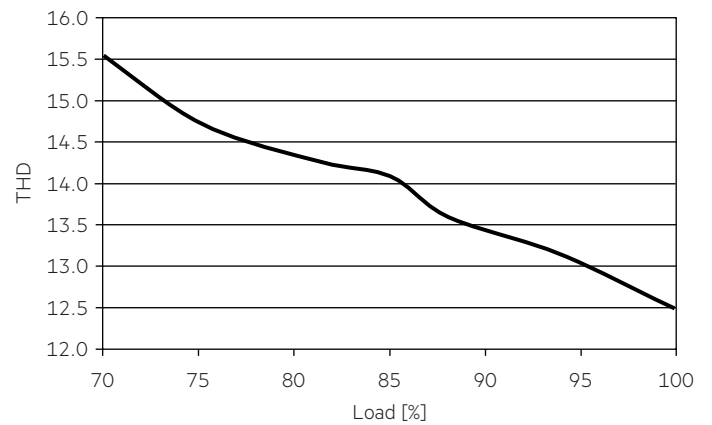


4.2.2 Power factor vs load

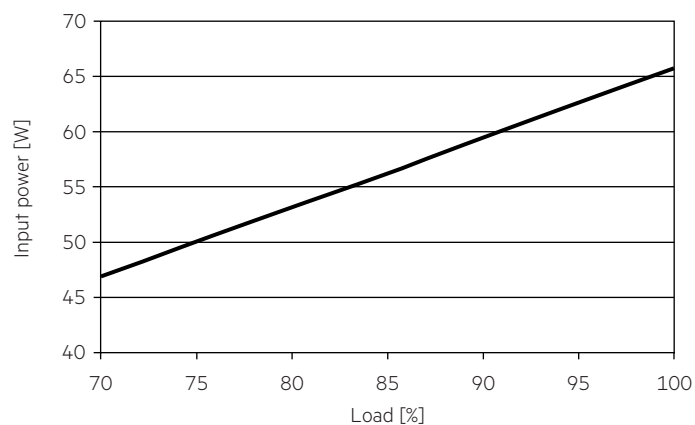


4.2.5 THD vs load

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



4.2.3 Input power vs load



4.3 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 ² | 1.5 mm ² | 1.5 mm ² | 2.5 mm ² | 1.5 mm ² | 1.5 mm ² | 1.5 mm ² | 2.5 mm ² | I _{max} | Time |
| LC 60/700/86 fixC SC SNC2 | 25 | 40 | 50 | 60 | 25 | 40 | 50 | 60 | 10 A | 50 µs |
| LC 60/1400/43 fixC SC SNC2 | 25 | 40 | 50 | 60 | 25 | 40 | 50 | 60 | 10 A | 50 µs |

These are max. values calculated out of continuous current running the device on full load.

There is no limitation due to inrush current.

If load is smaller than full load for calculation only continuous current has to be considered.

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

| | THD | 3. | 5. | 7. | 9. | 11. |
|-----------------------------------|------|------|-----|-----|-----|-----|
| LC 60/700/86 fixC SC SNC2 | < 15 | < 10 | < 7 | < 5 | < 5 | < 3 |
| LC 60/1400/43 fixC SC SNC2 | < 20 | < 15 | < 5 | < 5 | < 5 | < 3 |

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 elimination of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. 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 will switch off. It restarts automatically.

6.2 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 within 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).

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.

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.