

### Driver LC 20W 350mA fixC C SNC

essence series

#### Product description

- Fixed output built-in LED Driver
- 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 350 mA
- Max. output power 18.9 W
- Nominal lifetime up to 50,000 h
- 5 years guarantee (conditions at [www.tridonic.com](http://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)



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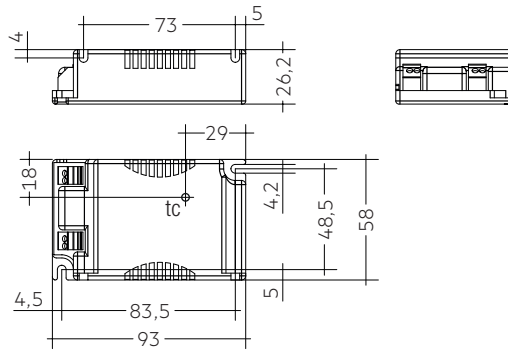
IP20 SELV 

### Driver LC 20W 350mA fixC C SNC

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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 <sup>®</sup>	± 75 %
Typ. current ripple (at 230 V, 50 Hz, full load)	± 30 %
Starting time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.2 s
Hold on time at power failure (output)	0 s
Ambient temperature $t_a$	-20 ... +50 °C
Ambient temperature $t_a$ (at lifetime 50,000 h)	40 °C
Storage temperature $t_s$	-40 ... +80 °C
Lifetime	up to 50,000 h
Guarantee (conditions at <a href="http://www.tridonic.com">www.tridonic.com</a> )	5 years
Dimensions L x W x H	93 x 58 x 26.2 mm



#### Ordering data

Type	Article number	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 20W 350mA fixC C SNC	87500631	50 pc(s).	700 pc(s).	4,200 pc(s).	0.075 kg

#### Specific technical data

Type	Output current <sup>®</sup>	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	$\lambda$ at full load <sup>®</sup>	Efficiency at full load <sup>®</sup>	$\lambda$ at min. load <sup>®</sup>	Efficiency at min. load <sup>®</sup>	Min. forward voltage	Max. forward voltage	Max. output voltage	Max. output peak current at full load <sup>®</sup>	Max. output peak current at min. load <sup>®</sup>	Max. casing temperature $t_c$
LC 20W 350mA fixC C SNC	350 mA	110 mA	21.5 W	21.3 W	14 – 18.9 W	0.9C	87.5 %	0.87C	86.5 %	40 V	54V	60 V	450 mA	500 mA	70 °C

<sup>®</sup> Test result at 230 V, 50 Hz, 25 °C.

<sup>®</sup> The trend between min. and full load is linear.

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

## 1. Standards

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

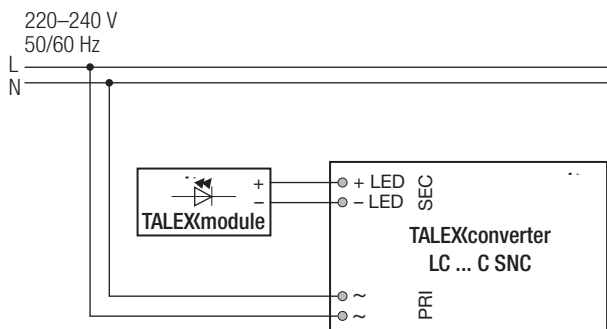
Expected lifetime				
Type	ta	40 °C	50 °C	60 °C
LC 20W 350mA fixC C SNC	tc	60 °C	70 °C	x
	Lifetime	50,000 h	30,000 h	x

The LED Driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %. Lifetime declarations are informative and represent no warranty claim.

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



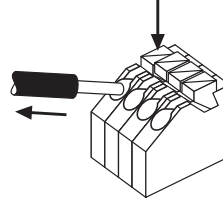
### 3.2 Wiring type and cross section

The output wiring can be done with a cross section of 0.5 – 1.5 mm<sup>2</sup>. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

wire preparation:  
0.5 – 1.5 mm<sup>2</sup>  
8.5 – 9.5 mm

### 3.3 Release of the wiring

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



### 3.4 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.
- 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.).

### 3.5 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.

### 3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 30 seconds
4. Connect LED module again

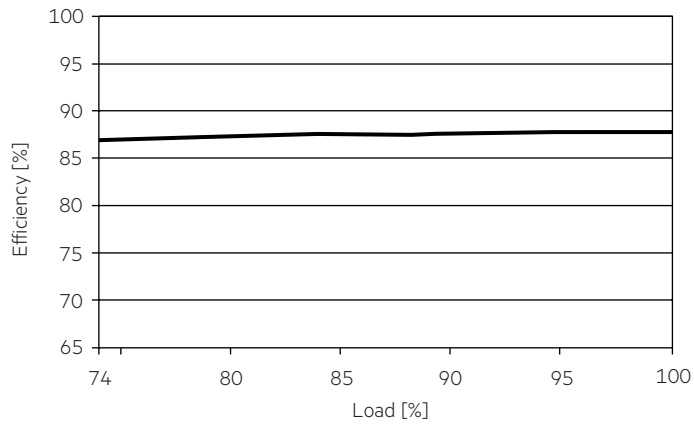
Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

### 3.7 Mounting of device

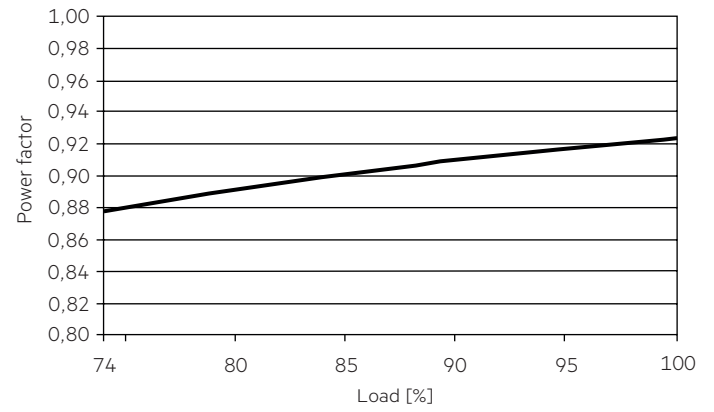
Max. torque for fixing: 0.5 Nm/M4

## 4. Electrical values

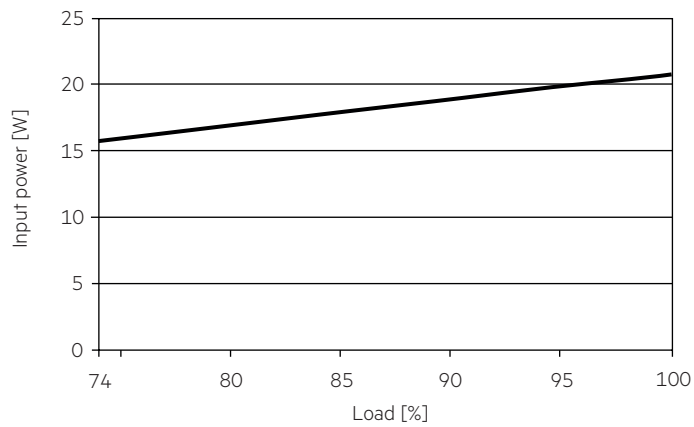
### 4.1 Efficiency vs load



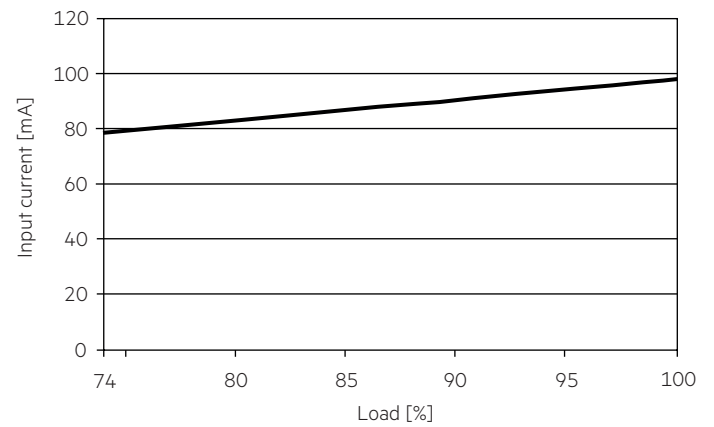
### 4.4 Power factor vs load



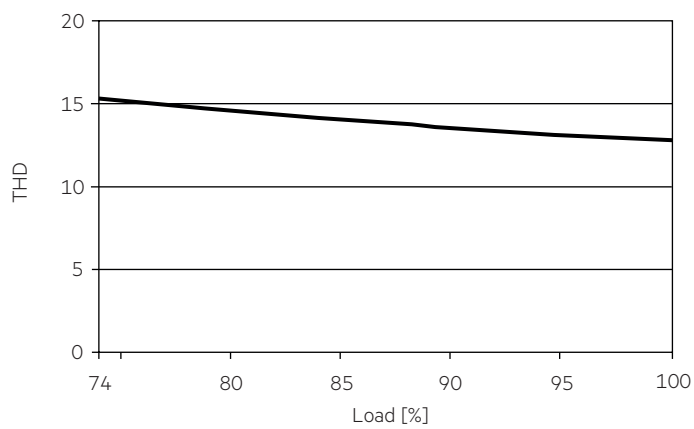
### 4.2 Input power vs load



### 4.5 Input current vs load



### 4.3 THD vs load



#### 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 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>I</i> <sub>max</sub>	Time
<b>LC 20W 350mA fixC C SNC</b>	60	80	100	120	60	80	100	120	2.9 A	61 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.

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

	THD	3.	5.	7.	9.	11.
<b>LC 20W 350mA fixC C SNC</b>	< 20	< 10	< 5	< 5	< 4	< 3

## 5. Functions

### 5.1 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.

### 5.2 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.

### 5.3 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.

## 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. 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 (t<sub>a</sub>) 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](http://www.tridonic.com) → Technical Data

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