



### Driver LC 60W 1050/1200/1400mA flexC SR ADV

advanced series

#### Product description

- Independent constant current LED Driver
- Adjustable output current between 1,050, 1,200 and 1,400 mA
- Max. output power 60 W
- Up to 90.5 % efficiency
- Nominal life-time up to 50,000 h
- For luminaires of protection class I and protection class II
- For luminaires with M and MM as per EN 60598, VDE 0710 and VDE 0711
- Temperature protection as per EN 61347-2-13 C5e
- 5-year guarantee



#### Housing properties

- Casing: polycarbonate, white
- Type of protection IP20

#### Interfaces

- Input terminals: 0° screw terminals
- Output terminals: 45° push terminals

#### Functions

- Overload protection
- Short-circuit protection
- No-load protection
- Overtemperature 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            

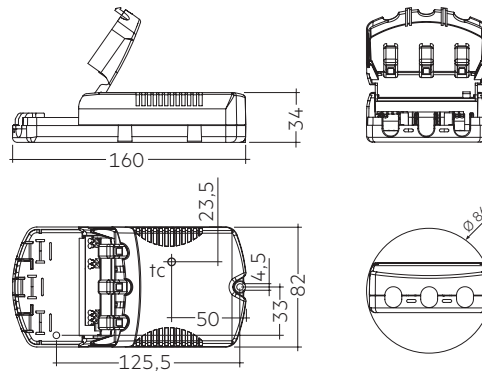
RoHS

### Driver LC 60W 1050/1200/1400mA flexC SR ADV

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#### Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.31 A
Leakage current (at 230 V, 50 Hz, full load)	< 400 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
Max. input power	68 W
Typ. power consumption (at 230 V, 50 Hz, full load) <sup>①</sup>	67 W
Min. output power	30 W
Max. output power	60 W
Typ. efficiency (at 230 V / 50 Hz / full load) <sup>①</sup>	90.5 %
λ (at 230 V, 50 Hz, full load) <sup>①</sup>	0.95
Output current tolerance <sup>②</sup>	± 10 %
Max. output current peak <sup>③</sup>	≤ output current + 20 %
Max. output voltage	60 V
THD (at 230 V, 50 Hz, full load)	< 10 %
Output LF current ripple (< 120 Hz)	± 5 %
Time to light (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 (at life-time 50,000 h)	40 °C
Storage temperature ts	-40 ... +80 °C
Dimensions L x W x H	159.4 x 82 x 34 mm



#### Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
LC 60W 1050/1200/1400mA flexC SR ADV	28002498	20 pc(s).	1,120 pc(s).	0.202 kg

#### Specific technical data

Type	Output current <sup>②</sup>	Min. forward voltage	Max. forward voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz, min. load)	Max. casing temperature tc	Ambient temperature ta max.	I-out select	Resistor <sup>④</sup>
LC 60W 1050/1200/1400mA flexC SR ADV	1,050 mA	28.5 V	54 V	57 W	63 W	280 mA	90.5 %	87.5 %	80 °C	-20 ... +50 °C	open	–
	1,200 mA	25.0 V	50 V	60 W	67 W	300 mA	90.5 %	87.5 %	80 °C	-20 ... +50 °C	0-1	ADV Type A
	1,400 mA	21.5 V	43 V	60 W	67 W	300 mA	90.5 %	86.0 %	80 °C	-20 ... +50 °C	0-2	ADV Type A

<sup>①</sup> Test result at 1,400 mA.

<sup>②</sup> Output current is mean value.

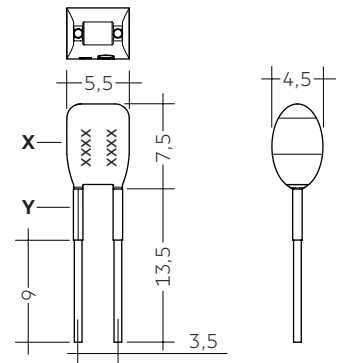
<sup>③</sup> Test result at 25 °C.

<sup>④</sup> Type A is a short circuit plug (0 Ω).

<sup>⑤</sup> Test result at default output current.

#### Product description

- Ready-for-use resistor to set output current value
- Compatible with LED Driver serie LC flexC ADV;  
not compatible with I-select (generation 1) and  
I-select 2 (generation 2)
- Resistor is base isolated
- When using your own resistors, make sure the resistor must be  
isolated
- Resistor power 0.25 W
- Current tolerance  $\pm 2\%$  additional to output current tolerance
- Hot plug of the resistor is not permitted
- For detailed current setting see table "Specific technical data" of  
the respective LED Driver and chapter 3.8 Current setting



#### Ordering data

Type	Article number	Colour of X area	Colour of Y area	Marking	Resistor value	Packaging bag	Weight per pc.
ADV Plug Type A YL	28001771	Yellow	Yellow	A	0,0 $\Omega$	10 pc(s).	0.001 kg

## 1. Standards

EN 55015  
EN 60598-1  
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 life-time

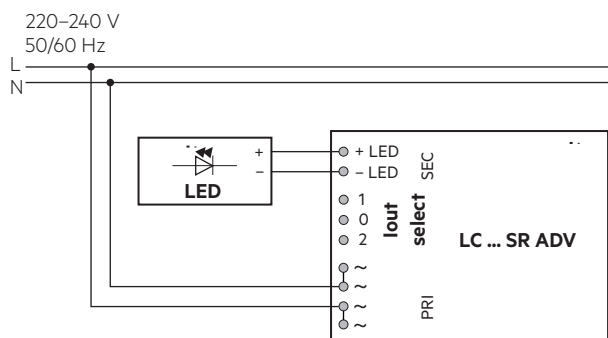
### 2.1 Expected life-time

Expected life-time				
Type	Current	ta	40 °C	50 °C
LC 60W 1050/1200/1400mA flexC SR ADV	1,050 mA	tc	70 °C	80 °C
		Life-time	50,000 h	30,000 h
	1,200 mA	tc	70 °C	80 °C
		Life-time	50,000 h	30,000 h
	1,400 mA	tc	70 °C	80 °C
		Life-time	50,000 h	30,000 h

The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

## 3. Installation / wiring

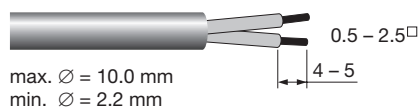
### 3.1 Circuit diagram



### 3.2 Wiring type and cross section

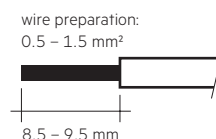
#### Mains supply wires

The wiring can be in stranded wires with ferrules or solid.  
For perfect function of the cage clamp terminals the strip length should be 4 – 5 mm for the input terminal.  
The max. torque at the clamping screw (M3) is 0.2 Nm.



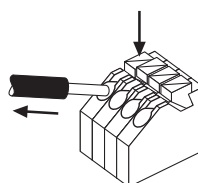
### Secondary wires (LED module)

The output wiring can be done with a cross section of 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.



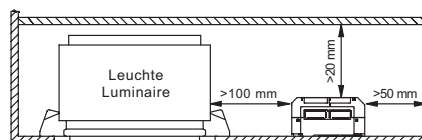
### 3.3 Loose wiring

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



### 3.4 Fixing conditions

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.



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

### 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.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- 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.).
- The current selection has to be installed in the accordance to the requirement of low voltage installation.
- Through wiring of mains is for connecting additional LED Driver only. Max. permanent current of 13 A may not be exceeded.

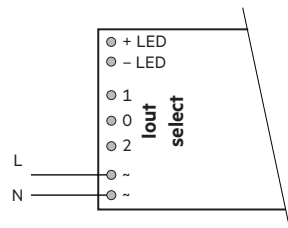
### 3.6 Replace LED module

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

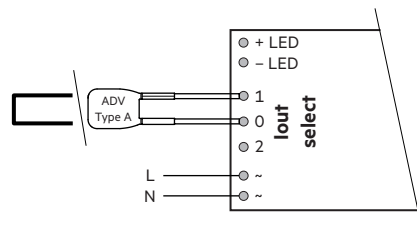
Hot plug-in or output switching of LEDs is not permitted and may cause a very high current to the LEDs.

### 3.7 Current setting

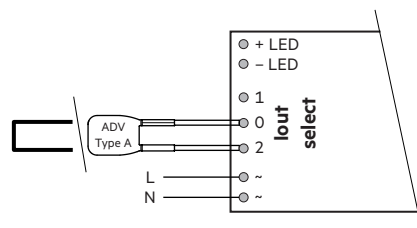
**1,050 mA:** All terminals open



**1,200 mA:** Terminal 0 and 1 connected with 0  $\Omega$  wire (max. 6 cm length) or resistor ADV Plug Type A BR (article number: 28001771)



**1,400 mA:** Terminal 0 and 2 connected with 0  $\Omega$  wire (max. 6 cm length) or resistor ADV Plug Type A BR (article number: 28001771)



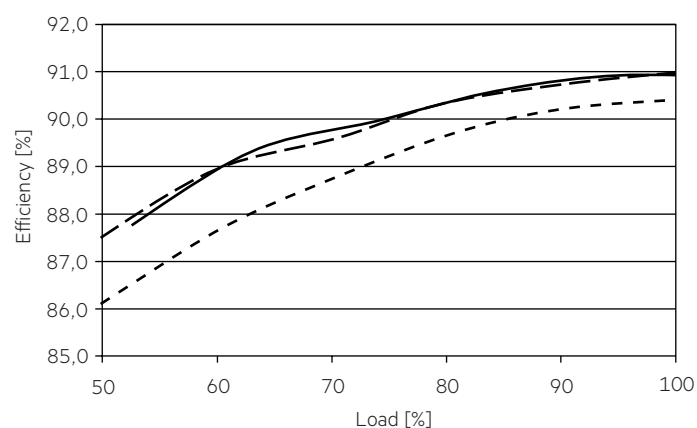
### 3.8 Mounting of device

Max. torque for fixing: 0.5 Nm/M4

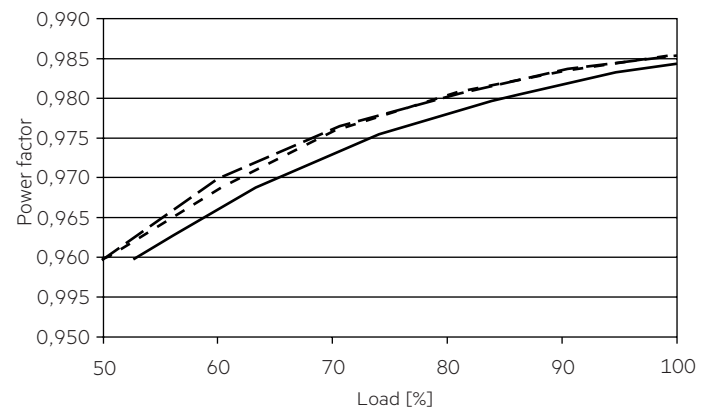
## 4. Electrical values

Test at 230 V 50 Hz.

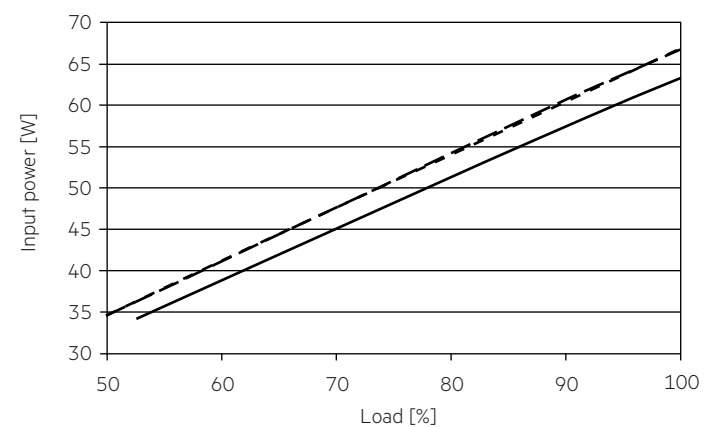
### 4.1 Efficiency vs load



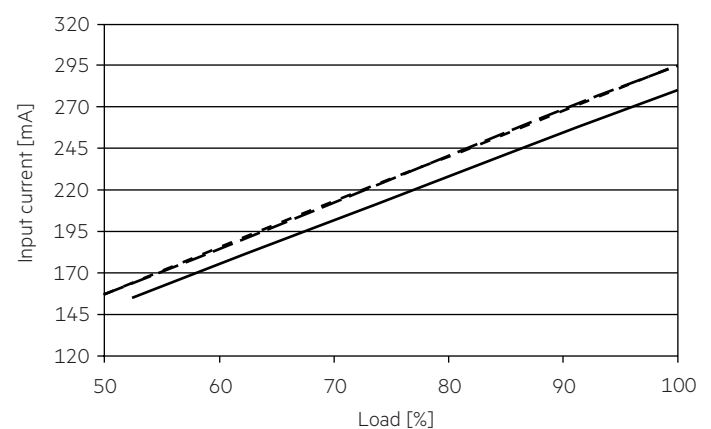
### 4.2 Power factor vs load



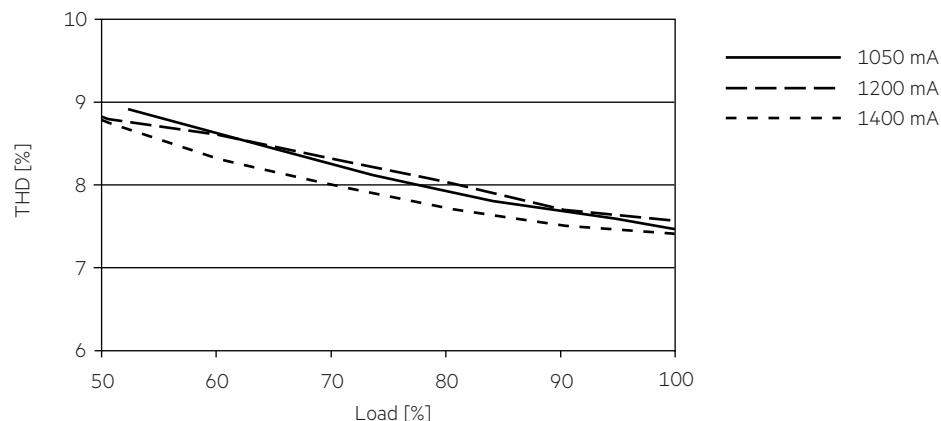
### 4.3 Input power vs load



### 4.4 Input current vs load



#### 4.5 THD vs load



#### 4.6 Maximum loading of automatic circuit breakers

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>LC 60W 1050/1200/1400mA flexC SR ADV</b>	26	36	46	60	16	22	28	36	28 A	210 µs

#### 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 60W 1050/1200/1400mA flexC SR ADV</b>	< 10	< 8	< 5	< 3	< 2	< 2

### 5. Functions

#### 5.1 Short-circuit behaviour

In case of a short circuit on the output side (LED) the LED Driver switches off. 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 output voltage range is exceeded the LED Driver will protect itself and LED may flicker. After elimination of the overload, the nominal operation is restored automatically.

#### 5.4 Over temperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded, the Driver switch off. It restarts automatically. The temperature protection is activated typically at 10 °C above  $t_{c \max}$ .

### 6. Miscellaneous

#### 6.1 Isolation 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 isolation 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 isolation 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 ( $t_a$ ) before they can be operated.

#### 6.3 Additional information

Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

Life-time declarations are informative and represent no warranty claim. No warranty if device was opened.