

Product description

- Independent LED driver with cable clamps
- For luminaires of protection class I and protection class II
- Temperature protection
- Constant current LED driver
- Selectable fixed output current via DIP switch 350, 400, 450 and 500 mA
- Max. output power 20 W
- Nominal lifetime up to 50,000 h
- 5 years guarantee



Housing properties

- Casing: polycarbonat, white
- Type of protection IP20

Functions

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

Typical applications

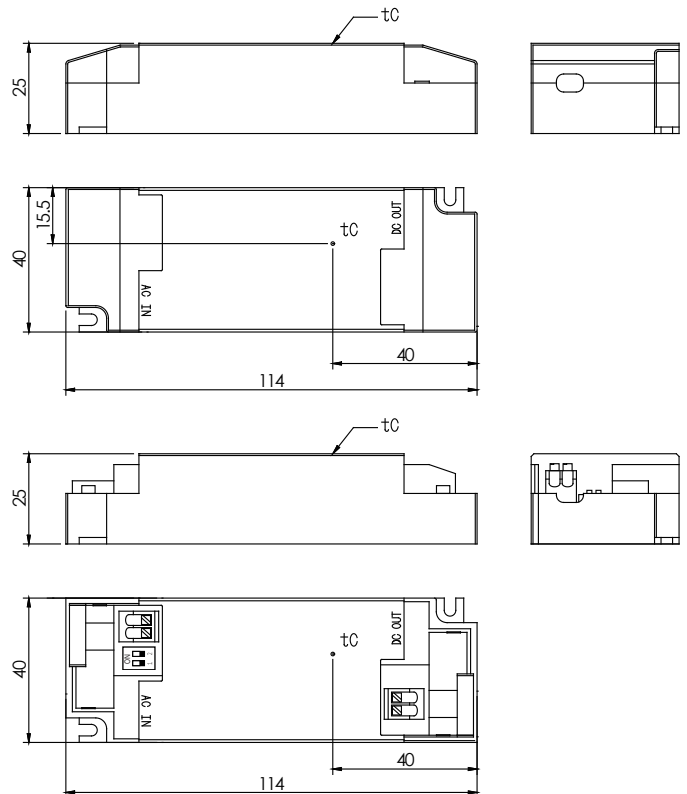
- For spot light and downlight in retail and hospitality application
- For panel light in office application

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Technical data

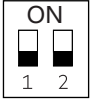
Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max.input current(at 230V,50Hz,full load)	0.095 A
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 2 h
Typ. power consumption(at 230V,50Hz,full load)	21.8 W
Min. output power	8.7 W
Max. output power	20 W
Typ. efficiency(at 230V/50Hz/full load)	86 %
λ over full operating range (max.)	0.95
λ over full operating range (min.)	0.93C
Output current tolerance	$\pm 10\%$
Max. output current peak	\leq output current + 12 %
Max. output voltage	60 V
THD (at 230 V, 50 Hz, full load)	< 10 %
Output LF current ripple (< 120 Hz)	$\pm 5\%$
Output P_{stLM} (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230V,50Hz,full load)	< 0.5 s
Turn off time (at 230V,50Hz,full load)	≤ 0.5 s
Hold on time at power failure (output)	0 s
Ambient temperature t_a (at lifetime 50,000 h)	50°C
Storage temperature t_s	-40~+80°C
Mains burst capability	1 kV
Mains surge capability (between L – N)	1 kV
Mains surge capability (between L/N–PE)	2 kV
Surge voltage at output side (against PE)	3 kV
Lifetime	up to 50,000h
Guarantee	5 years
Dimensions L x W x H	114 x 40 x 25 mm



Current setting

Set the current by DIP switch after mains off.
Use of DIP switch only after mains off.

350 mA: Switch 1 = Off, Switch 2 = Off



450 mA: Switch 1 = Off, Switch 2 = On



400 mA: Switch 1 = On, Switch 2 = Off



500 mA: Switch 1 = On, Switch 2 = On



Specific technical data

Type	Output current	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)	Max. casing temperature t_c^4	Ambient temperature t_a max. ⁴	Output select
LC021/42/350-500Ad	350 mA	25 V	40 V	14.3 W	15.5 W	67 mA	86 %	80 °C	-20 ... +60 °C	1=off / 2=off
	400 mA	25 V	40 V	16.5 W	17.5 W	76 mA	86.5 %	85 °C	-20 ... +60 °C	1=on / 2=off
	450 mA	25 V	40 V	18.7 W	19.7 W	86 mA	86.7 %	85 °C	-20 ... +60 °C	1=off / 2=on
	500 mA	25 V	40 V	20.7 W	21.8 W	95 mA	86.9 %	90 °C	-20 ... +60 °C	1=on / 2=on

¹ Test result at 450 mA.

² Output current is mean value.

³ Test result at 25 °C.

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 lifetime

2.1 Expected lifetime

Expected lifetime for independent use

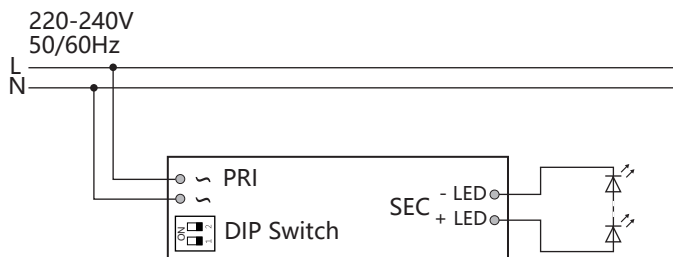
Type	Output current	t_a	25°C	30°C	40°C
LC021/42/350-500Ad	350 mA	t_c	50°C	55°C	65°C
		Lifetime	>50,000 h	>50,000 h	50,000 h
	400 mA	t_c	50°C	55°C	65°C
		Lifetime	>50,000 h	>50,000 h	50,000 h
	450 mA	t_c	55°C	60°C	70°C
		Lifetime	>50,000 h	>50,000 h	>50,000 h
	500 mA	t_c	55°C	60°C	70°C
		Lifetime	>50,000 h	>50,000 h	50,000 h

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 t_c to t_a temperature depends also on the luminaire design. If the measured t_c temperature is approx. 5 K below t_c max., t_a temperature should be checked and eventually critical components (e.g. ELCAP) measured.

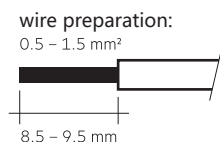
3. Installation / wiring

3.1 Circuit diagram



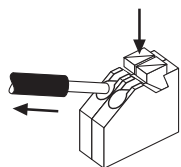
3.2 Wiring type and cross section for input

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm . 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.



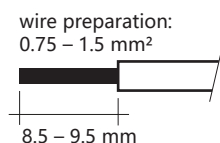
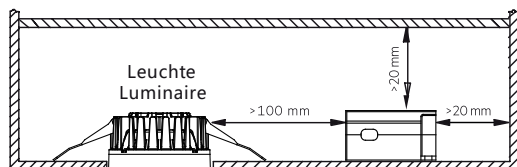
3.3 Release of the wiring

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



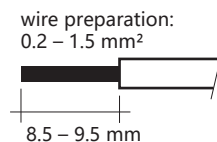
3.4 Fixing conditions when using as independent Driver with Clip-On

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 type and cross section for output

For wiring use stranded wire with ferrules or solid wire from 0.2–1.5 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.



3.6 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.).

3.7 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.

3.8 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.

3.9 Mounting of device

Max. torque for fixing: 0.5 Nm/M4

4. Functions

4.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

4.2 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.

4.3 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 will recover automatically.

4.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating. If the temperature limit is exceeded, the output current will reduce or LED may flicker. It will recover automatically.

5. Miscellaneous

5.1 Disposal of equipment



Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 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 500V 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 1500V (or 1.414 x 1500V). To avoid damage to the electronic devices this test must not be conducted.

5.3 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.

5.4 Maximum number of switching cycles

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

Lifetime declarations are informative and represent no warranty claim.

No warranty if device was opened.