



Driver LC 21W 500mA fixC SR ADV2

advanced series

Product description

- Independent driver with strain-relief housing
- Extra flat housing for constrained installation conditions (small ceiling cut outs and low ceiling voids)
- For luminaires of 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
- Output current 500 mA
- Nominal life-time up to 50,000 h
- 5-year guarantee



Housing properties

- Casing: polycarbonat, white
- Type of protection IP20
- Push-in terminals
- 2 separate strain relief parts for input and output cables with highly robust clamps

Functions

- Overload protection
- Short-circuit protection
- No-load protection
- No output current overshoot at mains on/off
- Burst protection voltage 1.4 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



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Wiring diagrams and installation examples, page 3

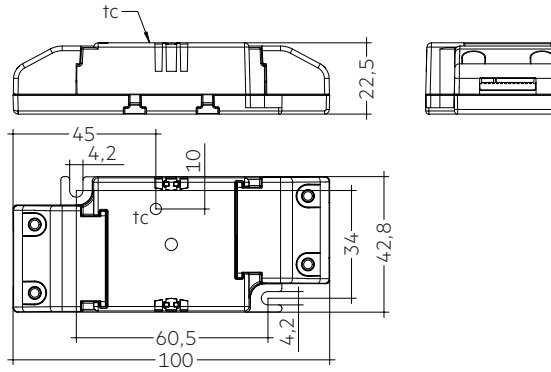
IP20 SELV  RoHS 

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Technical data

| | |
|---|--------------------|
| Rated supply voltage | 220 – 240 V |
| AC voltage range | 198 – 264 V |
| λ at full load ^① | 0,95 |
| λ at min. load ^① | 0,9C |
| Mains frequency | 50/60 Hz |
| Overvoltage protection | 320 V AC, 1 h |
| THD (at 230 V, 50 Hz, full load) | ≤ 15 % |
| Output current tolerance ^② | ± 7,5 % |
| Typ. output LF current ripple at full load ^③ | ± 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 |
| Hold on time at power failure | 0 s |
| Ambient temperature t_a | -20 ... +40 °C |
| Ambient temperature t_a (at life-time 50,000 h) | 30 °C |
| Storage temperature t_s | -40 ... +80 °C |
| Life-time | up to 50,000 h |
| Dimensions L x W x H | 100 x 43 x 22,5 mm |



Ordering data

| Type | Article number | Packaging, carton | Packaging, low volume | Packaging, high volume | Weight per pc. |
|---------------------------|----------------|-------------------|-----------------------|------------------------|----------------|
| LC 21/500/42 fixC SR ADV2 | 87500863 | 39 pc(s). | 819 pc(s). | 5,733 pc(s). | 0,058 kg |

Specific technical data

| Type | Output current ^② (at 230 V, 50 Hz, full load) | Typ. rated current (at 230 V, 50 Hz, full load) | Max. input power | Typ. power consumption (at 230 V, 50 Hz, full load) | Output power | Efficiency at full load ^③ | Efficiency at min. load ^③ | Min. forward voltage ^④ | Max. forward voltage ^④ | Max. output voltage | Max. peak output current ^④ | Max. casing temperature t_c |
|---------------------------|--|---|------------------|---|---------------|--------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|---------------------|---------------------------------------|-------------------------------|
| LC 21/500/42 fixC SR ADV2 | 500 mA | 0,11 A | 25 W | 24 W | 16,5 – 21,0 W | 88 % | 86 % | 33 V | 42 V | 60 V | 563 mA | 80 °C |

^① Test result at 230 V, 50 Hz

^② Output current is mean value.

^③ Typical value at full load, depends on load's voltage-current character.

^④ The trend between min. and full load is linear and depends on load's voltage-current character.

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 60598-1 with increased temperature of 850 °C passed.

2. Thermal details and life-time

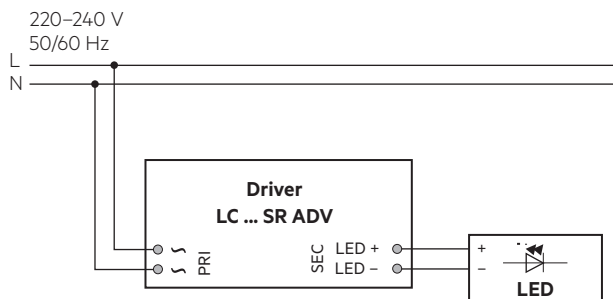
2.1 Expected life-time

| Expected life-time | | | |
|---------------------------|-----------|----------|----------|
| Type | ta | 30 °C | 40 °C |
| LC 21/500/42 fixC SR ADV2 | tc | 70 °C | 80 °C |
| | Life-time | 50,000 h | 30,000 h |

The LED Drivers are designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %. Life-time declarations are informative and represent no warranty claim.

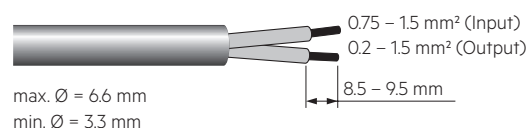
3. Installation / wiring

3.1 Circuit diagram



3.2 Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid with a cross section of 0.75–1.5 mm² (mains wires) and 0.2–1.5 mm² (secondary wires, LED module). 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. The max. torque at the clamping screw (M3) is 0.3 Nm.

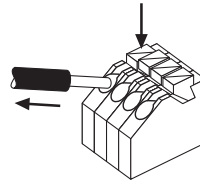


The following cable types are approved and recommended by Tridonic:

RVVB 2 x 0.5 mm²
RVVB 2 x 0.75 mm²
RVVB 2 x 1 mm²
RVVB 2 x 1.5 mm²
RVV 3 x 0.75 mm²
SOLID 2.5 mm²

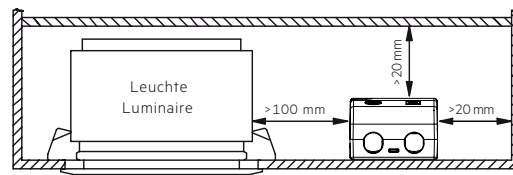
3.3 Release of the wiring

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.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- 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 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 Installation instructions

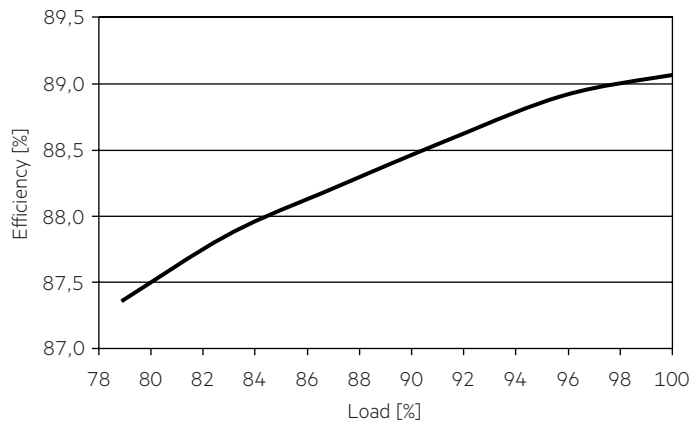
The LED module and all contact points within the wiring must be sufficiently insulated against 3 kV surge voltage. Air and creepage distance must be maintained.

3.8 Mounting of device

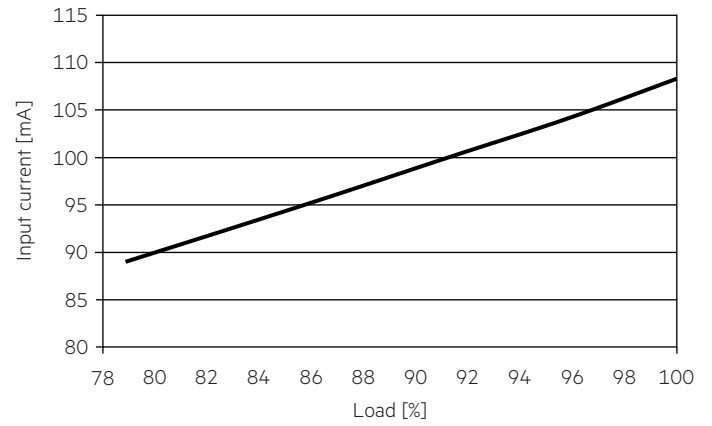
Max. torque for fixing: 0.5 Nm/M4

4. Electrical values

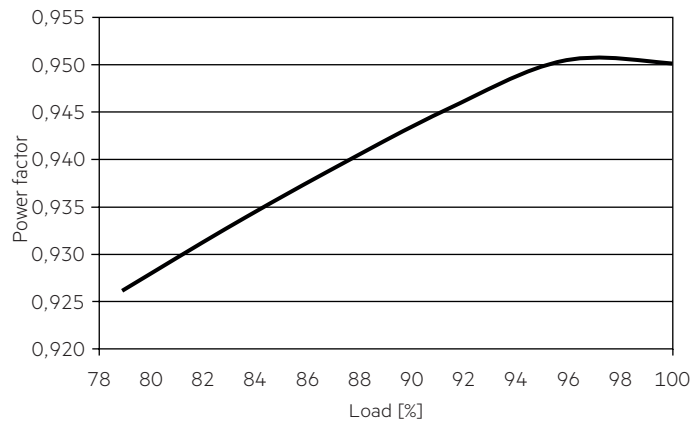
4.1 Efficiency vs load



4.4 Input current vs load

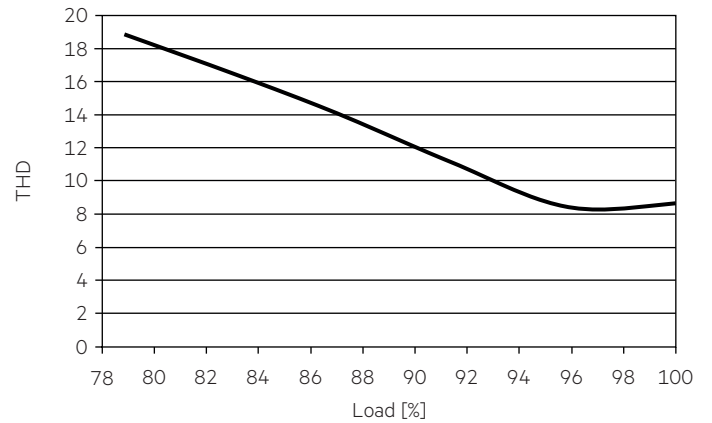


4.2 Power factor vs load

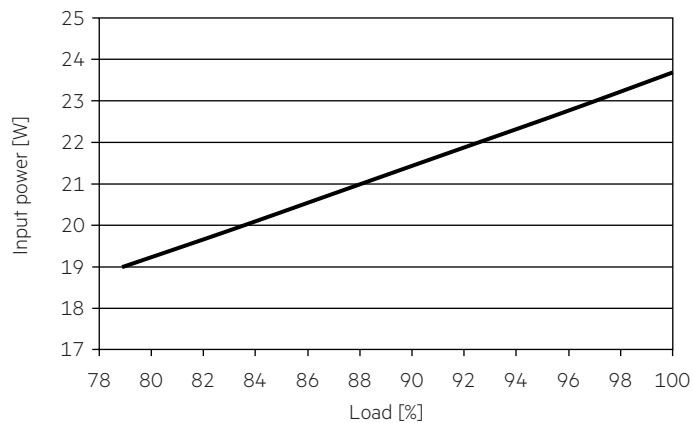


4.5 THD vs load

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



4.3 Input power vs load



4.6 Maximum loading of automatic circuit breakers in relation to inrush current

Maximum loading of automatic circuit breakers

| Automatic circuit breaker type | | | | | | | | | Inrush current | |
|----------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------|--------|
| | C10 | C13 | C16 | C20 | B10 | B13 | B16 | B20 | I _{max} | Time |
| 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 | | |
| LC 21/500/42 fixC SR ADV2 | 54 | 68 | 84 | 107 | 33 | 43 | 53 | 67 | 16 A | 100 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.

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

| | THD | 3. | 5. | 7. | 9. | 11. |
|----------------------------------|------|------|------|-----|-----|-----|
| LC 21/500/42 fixC SR ADV2 | < 15 | < 12 | < 10 | < 7 | < 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 off. After elimination of the short circuit the nominal operation is restored 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 by reducing the LED output current. After elimination of the overload, the nominal operation is restored 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_{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.

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 Maximum number of switching cycles

All LED Driver are tested with 50,000 switching cycles. The actually achieved number of switching cycles is significantly higher.

6.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

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