TRIDONIC

LED Driver
Constant voltage

Driver LCU 60W 12/24V IP20 EXC
excite series

Product description
- Constant voltage LED Driver
- Universal input voltage range
- Constant output voltage
- Push terminals for simple wiring
- Complies with CLASS C from minimum to maximum load range according to EN 61000-3-2
- Nominal lifetime up to 50,000 h (at ta 45 °C with a failure rate max. 0.2 % per 1,000 h)
- 5 years guarantee (conditions at www.tridonic.com)

Properties
- Small design
- High efficiency
- Low power loss
- Overtemperature and overload protection
- Short-circuit shutdown feature with automatic restart
- Protection class II, SELV
- Type of protection IP20
- Plastic casing white

IP20 SELV Class 2

RoHS

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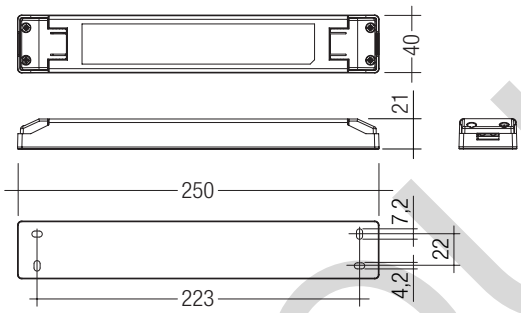
Technical data

Rated supply voltage	100 – 277 V
AC voltage range	90 – 305 V
Rated current (at 230 V 50 Hz)	0.32 A
Mains frequency	50 / 60 Hz
Efficiency	> 85 %
λ (at 230 V 50 Hz)	0.95
Max. input power in no-load operation	0.5 W
Output voltage tolerance 12 V	-0 /+10 %
Output voltage tolerance 24 V	-0 /+5 %
Output power (ta ≤ 50 °C)	60 W
Output power (ta > 50 °C)	42 W
Output power range	4,8 – 60 W
Starting time (output)	≤ 0.5 s
Turn off time (output)	≤ 1 s
Hold on time at power failure (Output)	10 ms
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	1 kV
Surge voltage at output side (against PE)	< 500 V
Ambient temperature ta	-25 … +60 °C
Ambient temperature ta (at lifetime 50,000 h)[1]	-25 … +45 °C
Storage temperature	-40 … +85 °C
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 years
Dimensions LxWxH	250 x 40 x 21 mm
Hole spacing D	223 mm



Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LCU 60W 12V SR top	**28000407**	20 pc(s).	1,500 pc(s).	0.29 kg
LCU 60W 24V SR top	**28000412**	20 pc(s).	1,500 pc(s).	0.28 kg

Specific technical data

Type	Max. casing temperature tc	Output voltage	Max. input power	Output current range
LCU 60W 12V SR top	85 °C	12 V	74 W	400 – 5,000 mA
LCU 60W 24V SR top	85 °C	24 V	74 W	200 – 2,500 mA

[1] For input voltage from 120 to 277 V AC (50 / 60 Hz) with 100 % load.
For input voltage from 100 to 120 V AC (50 / 60 Hz) with 80 % load.

Standards
EN 55015
EN 60598-1
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62493

Overload protection
If the maximum load is exceeded by a defined internal limit, occurs an automatic shutdown of the LED Driver. Automatic restart if the output current is below the limit.

No-load operation
The LED Driver is not damaged in the no-load operation. The max. output voltage (see page1) can be obtained during no-load operation.

Over temperature protection
Automatic shutdown of the LED Driver if the temperature limit is exceeded. Automatic restart if the temperature falls below the limit.

Short-circuit behaviour
In case of a short circuit on the secondary side (LED) the LED Driver switches into hiccup mode. After removal of the short-circuit fault the LED Driver will recover automatically.

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

Expected lifetime

Type	Output voltage	**ta**	**35 °C**	**45 °C**	**55 °C**
LCU 60W 12V SR top	12 V	tc	63 °C	73 °C	83 °C
		Lifetime	> 100.000 h	> 50.000 h	> 25.000 h
LCU 60W 24V SR top	24 V	tc	69 °C	79 °C	89 °C
		Lifetime	> 100.000 h	> 50.000 h	> 25.000 h

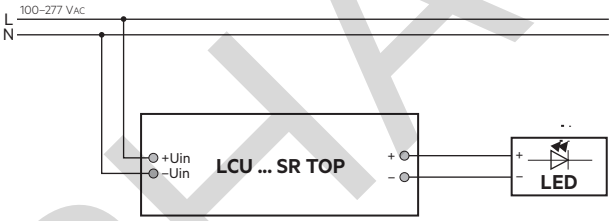
Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
LCU 60W 12V SR top	20	26	32	40	12	15	19	24	41,7A	105 µs
LCU 60W 24V SR top	14	18	22	28	8	10	13	16	46,6 A	96 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.

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

Type	THD	3	5	7	9	11
LCU 60W 12V SR top	9,8	2,4	1,4	0,9	0,8	0,3
LCU 60W 24V SR top	8	2	1,2	1	1	1

Wiring diagram


Installation instructions
The switching of LEDs on secondary side is not permitted.
The functioning of the LCU in combination with dimming devices (e.g. PWM) cannot be guaranteed and has to be checked individually before using in combination.

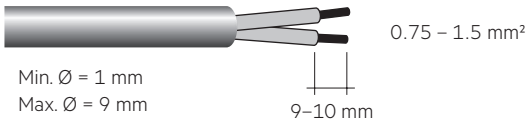
To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

Wiring type and cross section
The wiring can be in fine-stranded wires with ferrules. For perfect function of the terminals the strip length should be 9–10 mm for the terminal.

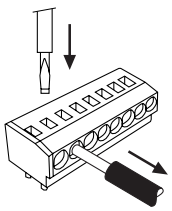
The maximum secondary cable length at the terminals is 2 m.
The LED wiring should be kept as short as possible to ensure good EMC.

Input / Output terminal

PRI and SEC:
19 AWG – 16 AWG



Release of the wiring:
The terminals have a simple push-in termination. Conductor removal via screwdriver (2.5 mm x 0.4 mm).



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.

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.

Conditions of use

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).

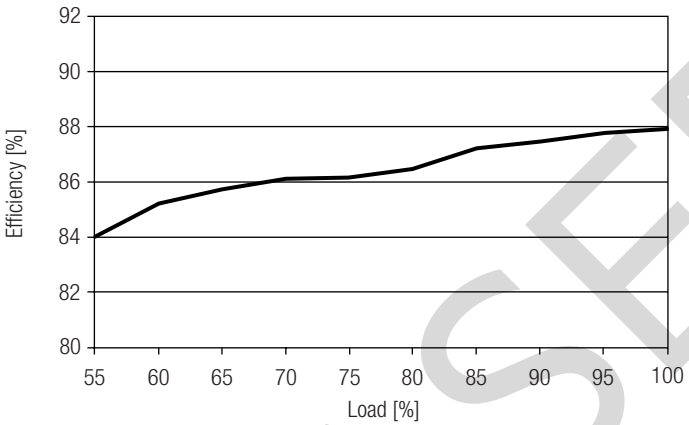
Additional information

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

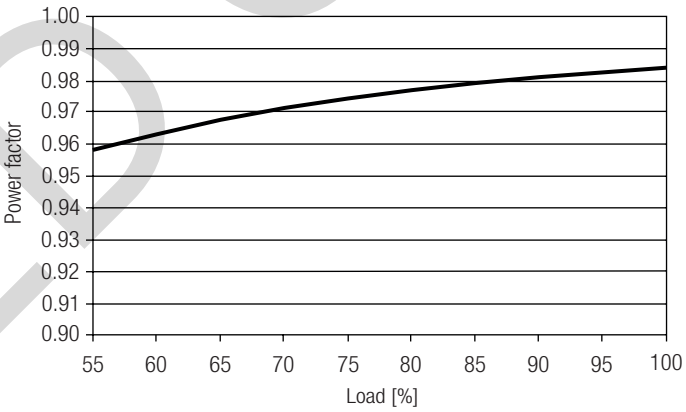
Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

Diagrams for 12 V

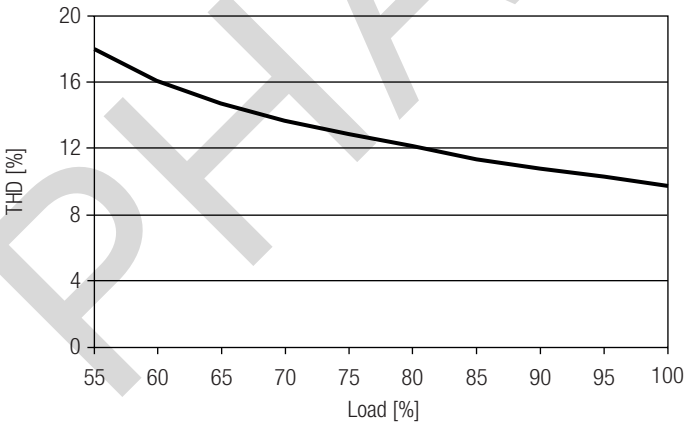
Efficiency vs load



Power factor vs load

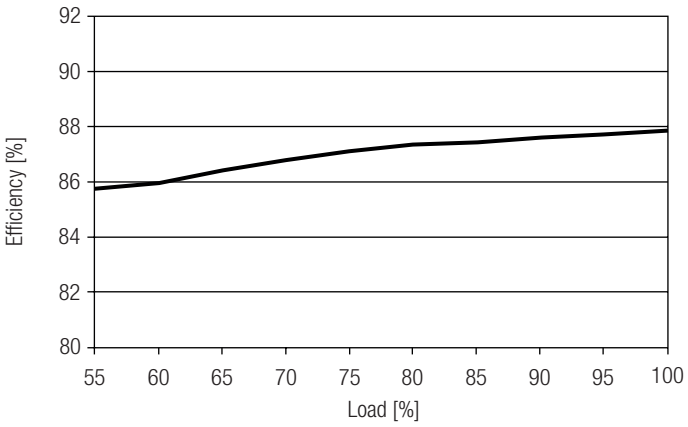


THD vs load

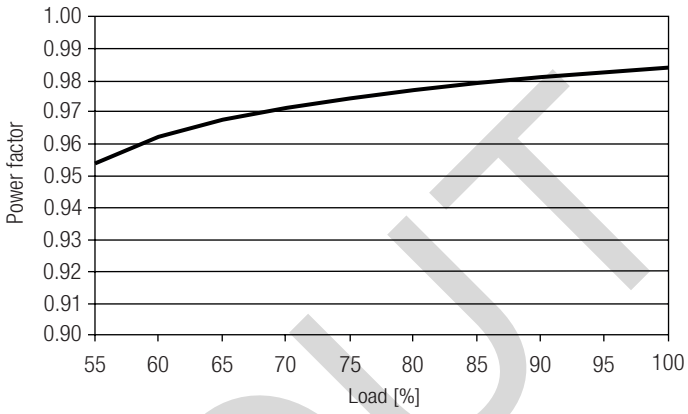


Diagrams for 24 V

Efficiency vs load



Power factor vs load



THD vs load