

Driver LC 100/24V Ip ADV UNV

Constant voltage advanced series (US applications)

Product description

- Constant voltage LED Driver
- Universal input voltage range
- Max. output power 96 W
- Efficiency > 87 %
- Class 2
- UL Listed Class P
- FCC Part 15
- Nominal lifetime up to 50,000 h (at ta 40 °C)
- 5 years guarantee (conditions at www.tridonic.com)



Housing properties

- Casing: metal, black
- Potted style
- Dry and damp location

Properties

- Protective features (over-temperature, short-circuit, overload, no-load)
- Linear and rugged form factor



Standards, page 3

Wiring diagrams and installation examples, page 3



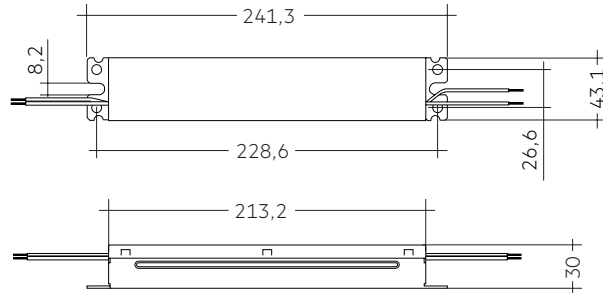


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Technical data

Rated supply voltage	120 – 277 V
AC voltage range	108 – 305 V
Rated current (at 120 V, 60 Hz)	0.92 A
Rated current (at 277 V, 60 Hz)	0.41 A
Leakage current (at 120 V, 60 Hz, full load)	< 500 µA
Leakage current (at 277 V, 60 Hz, full load)	< 500 µA
Mains frequency	50 / 60 Hz
Efficiency (at 120 V, 60 Hz)	> 87 %
Efficiency (at 277 V, 60 Hz)	> 88 %
λ (at 120 V, 60 Hz)	0.97
λ (at 277 V, 60 Hz)	0.92C
Output voltage tolerance	22.8 – 24 V
Max. output power	96 W
Output power range	62 – 96 W
Output LF current ripple (< 120 Hz, P-P)	375 mV
Starting time (Output)	≤ 1 s
Turn off time (Output)	≤ 0.1 s
Hold on time at power failure (Output)	0 s
Mains burst capability (between L - N)	2 kV
Mains surge capability (between L - N)	4 kV
Ambient temperature t_a	-40 ... +55 °C
Ambient temperature t_a (at lifetime 50,000 h)	40 °C
Storage temperature	-40 ... +85 °C
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 years
Dimensions LxWxH	241.3 x 43.1 x 30 mm
Hole spacing D	228.6 mm



Dimensions in mm

Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight per pc.
LC 100/24V Ip ADV UNV	28002133	10 pc(s).	1,280 pc(s).	0.634 kg

Specific technical data

Type	Max. casing temperature t_c	Output voltage	Max. input power at 120 V, 60 Hz	Output current range	Max. output voltage [®]
LC 100/24V Ip ADV UNV	85 °C	24 V	109 W	2,580 – 4,000 mA	24 V

[®] At failure mode.

1. Standards

UL8750 with class 2 output based on UL1310
FCC part 15, Class B

Product not designed for European Economic Area.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

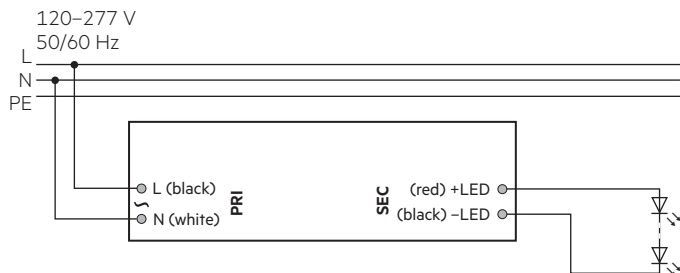
Type	Output voltage	ta	86 °F (30 °C)	104 °F (40 °C)	113 °F (45 °C)	122 °F (50 °C)
LC 100/24V Ip ADV UNV	24 V	tc	122 °F (50 °C)	140 °F (60 °C)	149 °F (65 °C)	158 °F (70 °C)
		Lifetime	> 100,000 h	> 55,000 h	> 35,000 h	> 25,000 h

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

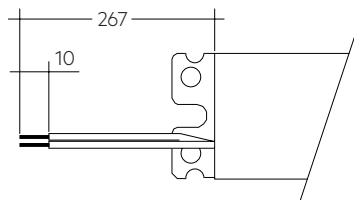
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

3.1 Wiring diagram



Primary cable		Secondary cable	
L	N	+	-
black	white	red	black



3.2 Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid.

The maximum secondary cable length is 2 m.

The LED wiring should be kept as short as possible to ensure good EMC.

3.3 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.
- 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.).

3.4 Hot plug-in

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

3.5 Replace LED module

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

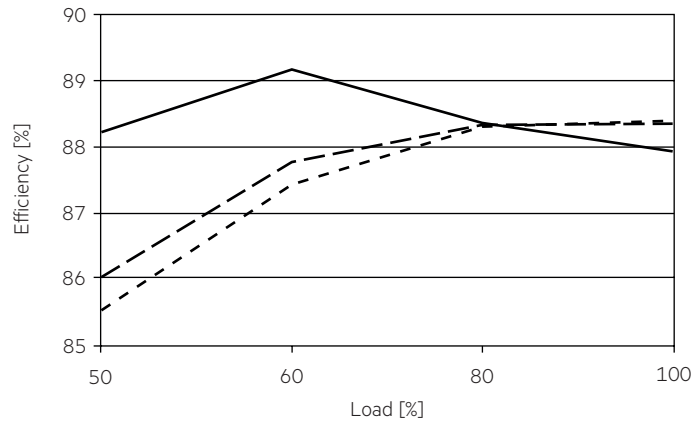
3.6 Installation instructions

The switching of LEDs on secondary side is not permitted.

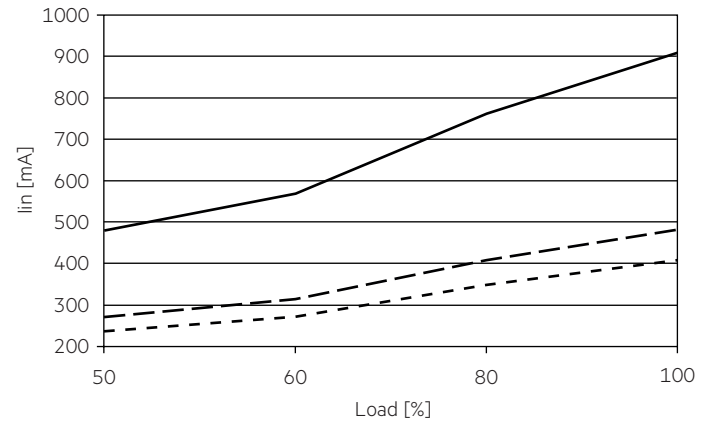
The functioning of the LC in combination with dimming devices (e.g. PWM) cannot be guaranteed and has to be checked individually before using in combination.

4. Electrical values

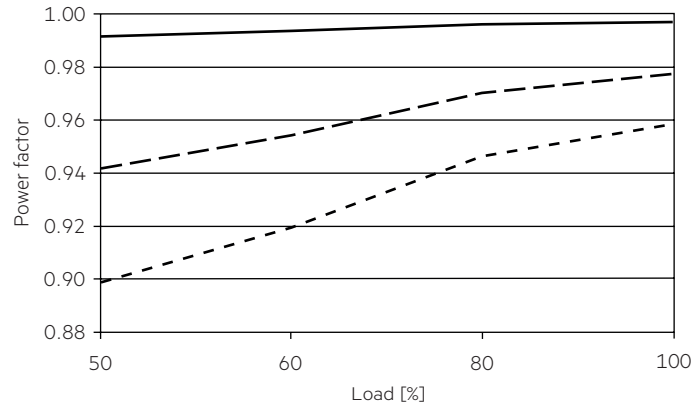
4.1 Efficiency vs. load



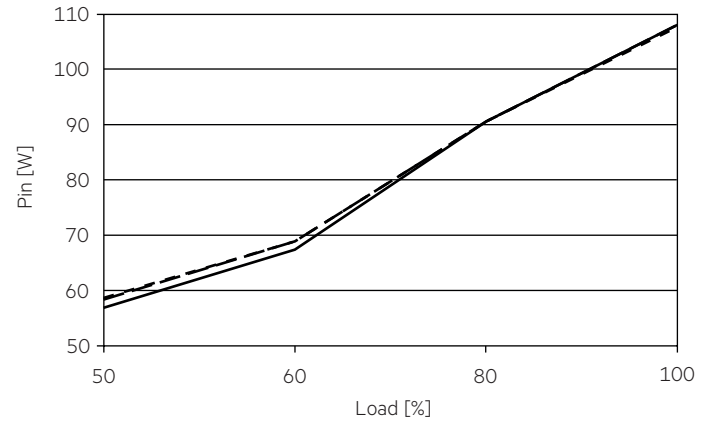
4.4 Input current vs. load



4.2 Power factor vs. load



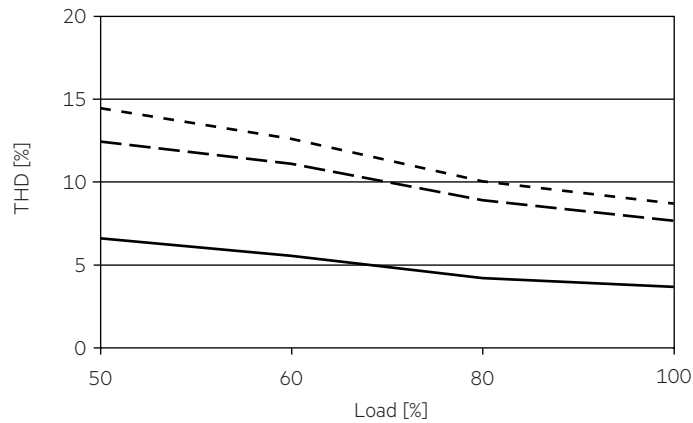
4.5 Input power vs. load



— 120 V / 60 Hz
 - - 230 V / 50 Hz
 - · - 277 V / 60 Hz

4.3 THD vs. load

THD without harmonic < 5 mA or 0.6 % of the input current.



4.6 Maximum loading of automatic circuit breakers

Maximum loading of automatic circuit breakers at 120 V, 60 Hz

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
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	I_{max}	time
LC 100/24V Ip ADV UNV	10	14	17	21	10	14	17	21	75 A	100 µs

Maximum loading of automatic circuit breakers at 230 V, 50 Hz

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
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	I_{max}	time
LC 100/24V Ip ADV UNV	9	12	14	18	5	7	8	11	140 A	100 µs

Maximum loading of automatic circuit breakers at 277 V, 60 Hz

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
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	I_{max}	time
LC 100/24V Ip ADV UNV	7	9	11	14	4	5	6	8	180 A	100 µs

4.7 Harmonic distortion in mains supply in %

120 V, 60 Hz:

Type	THD	3	5	7	9	11
LC 100/24V Ip ADV UNV	< 4	< 1	< 1	< 1	< 1	< 1

230 V, 50 Hz:

Type	THD	3	5	7	9	11
LC 100/24V Ip ADV UNV	< 8	< 1	< 1	< 1	< 1	< 1

277 V, 60 Hz:

Type	THD	3	5	7	9	11
LC 100/24V Ip ADV UNV	< 9	< 1	< 1	< 1	< 1	< 1

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

Shut down and auto-recovery when factor is removed.

5.2 No-load operation

The LED Driver will not be damaged in the no-load operation.
A voltage of 24V DC is permanent at the output.

5.3 Over current protection

Transferred to output voltage model and the output current decreases.

5.4 Over voltage protection

Transferred to output current model and the output voltage decreases.

5.5 Over temperature protection

Shut down, re-strike and auto-recovery.

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 UL 8750 (informative only!) each luminaire should be submitted to an insulation test with 500 V_{DC}. The dielectric withstand test equipment shall employ a transformer of 500-VA or larger capacity and have a variable output voltage that is essentially sinusoidal or continuous direct current. The applied potential is to be increased from zero at a substantially uniform rate until the required test level is reached, and is to be held at that level for 1 minute.

As an alternative, UL8750 (informative only!) describes a test of the electrical strength with 2V AC + 1000V (or 1.414 x V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 Conditions of use and storage

Humidity: 10 % up to max. 95 %,
not condensed
(max. 56 days/year at 95 %)

Storage temperature: -40 °C up to max. +85 °C

The devices have to be within the specified temperature range (ta) 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 → Technical Data

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