LL1x80-CC-1400-2100

freedom in lighting Helvar

1x80 W **Constant Current** LED driver

80 W 220 – 240 V 0 / 50 – 60 Hz

- SELV output protection for flexibility luminaire design
- High drive current capability, up to 2100 mA
- LEDset1 compatible
- Suitable for use in emergency lighting applications
- Long lifetime up to 100 000 h
- Driver protection Class II (built-in)
- Suitable for Class I or Class II luminaires
- Suitable for driving Class III luminaire as independent controlgear, when optional strain relief LL1x2130-SR is used

LEDset 1 SELV

Functional Description

- Adjustable constant current output: 1400 mA (default) to 2100 mA
- Current setting resistor input. Operation according LEDset power interface specification
- Adaptive LED overload protection. Reduces output current if overload of 1 - 4 V is detected
- Open and short circuit protection
- Duplicated output terminals for parallel LED load connection (total maximum output power 80W)

Mains Characteristics

Voltage range	198 VAC – 264 VAC
DC range	176 VDC - 280 VDC
starting voltage	> 190 VDC
Mains current at full load	0.35 A – 0.50 A
Frequency	0 / 50 Hz – 60 Hz
Power consumption, open load	2.9 W
THD at full power	< 15 %
Leakage current to earth	< 0.7 mA
Tested surge protection	1 kV L-N, 2 kV L-GND (IEC 61000-4-5)
Tested fast transient protection	4 kV (IEC 61000-4-4)

Insulation between circuits & driver case

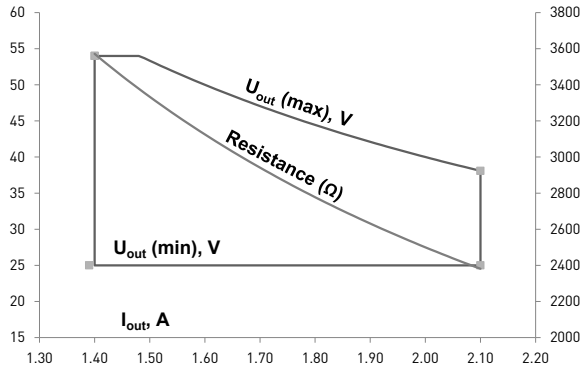
Mains circuit - SELV circuit	Double/reinforced insulation
Mains & output - Driver case	Double/reinforced insulation

Load Output (SELV <60 V)

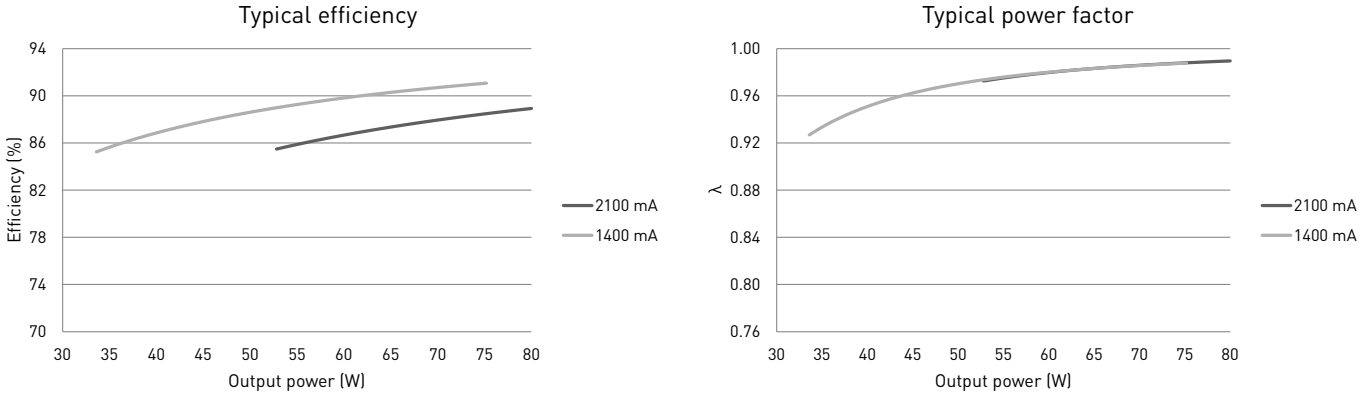
Output current (I_{out})	1400 mA (default) – 2100 mA
Accuracy	± 5 %
Ripple	< 2 %*, at ⩽ 120 Hz
	*) Low frequency, measured according to LEDset power interface specification
U_{out} (max) (abnormal)	60 V
EOFx (EL use)	> 0.99

I_{out}	1400 mA	2100 mA
P_{out} (max)	75 W	80 W
U_{out}	25 V – 54 V	25 V – 38 V
PF (λ) at full load	0.98	0.98
Efficiency (η) at full load	91 %	89 %

Operating window



Driver performance



Operating Conditions and Characteristics

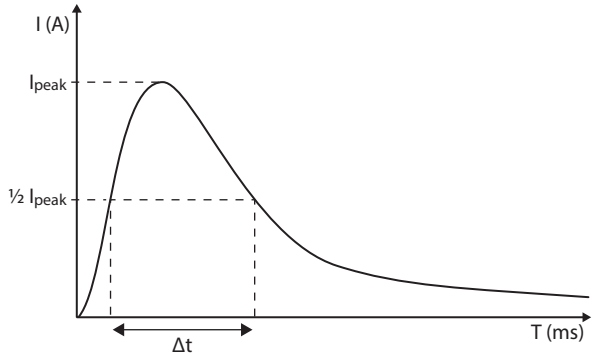
Current setting	1400 ... 2000 mA	> 2000 mA
Highest allowed tc point temperature	85	80
Ambient temperature range	–20 °C ... +50 °C	–20 °C ... +45 °C
Storage temperature range	–40 °C ... +80 °C	–40 °C ... +80 °C
Life time (90 % survival rate)	100 000 h, at t_c = 75 °C 70 000 h, at t_c = 80 °C 50 000 h, at t_c = 85 °C	100 000 h, at t_c = 70 °C 70 000 h, at t_c = 75 °C 50 000 h, at t_c = 80 °C

Quantity of drivers per miniature circuit breaker 16 A Type C

Based on I_{cont}	Based on I_{peak}	Typ.inrush current	1/2 value time, Δt	Calculated energy, $I_{peak}^2 \Delta t$
28 pcs.	31 pcs.	18 A	44 µs	0.0275 A^2s

CONVERSION TABLE FOR OTHER TYPES OF MINIATURE CIRCUIT BREAKER

MCB type	Relative quantity of LED drivers
B 10 A	37 %
B 16 A	60 %
B 20 A	75 %
C 10 A	62 %
C 16 A	100 % (see table above)
C 20 A	125 %



Type C MCB's are strongly recommended to use with LED lighting. Please see more details in "MCB information" document in each driver product page in "downloads & links" section.

Connections and Mechanical Data

Wire size	0.5 mm² – 1.5 mm²
Wire type	Solid core and fine-stranded
Wire insulation	According to EN 60598
Maximum driver to LED wire length	5 m
Weight	278 g
IP rating	IP20

Connections

Current setting (p. 2)	
Resistor R	**output I_{out}**
open	1400 mA
0 Ω	2100 mA

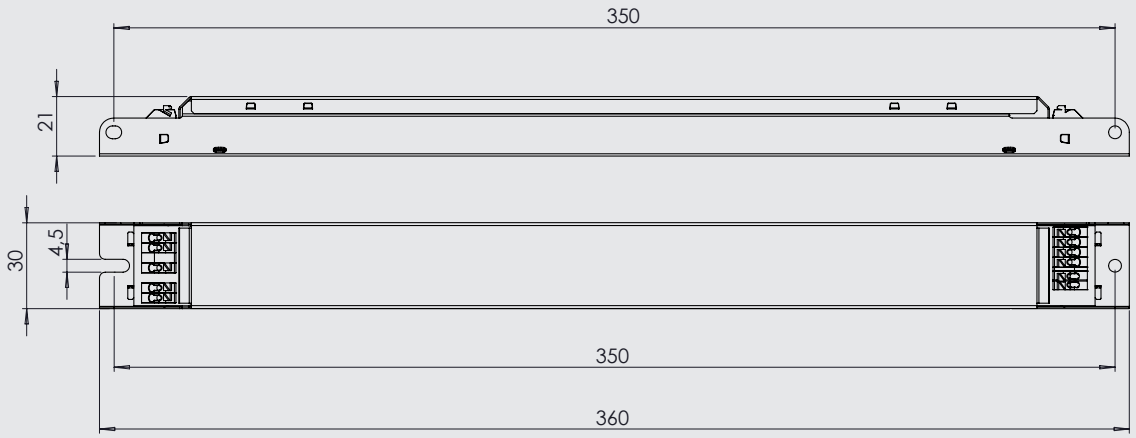
Note:

- *Not suitable for load side switching operation.*

Available Iset resistor values (Nominal I_{out} (±5 % tol.))

Resistor (Ω)	0	2430	2490	2550	2610	2670	2740	2870	3010	3090	3160	3240	3320	3480	Open
I_{out} (mA)	2100	2058	2008	1961	1916	1873	1825	1742	1661	1618	1582	1543	1502	1437	1400
Order code	T70000	T72431	T72491	T72551	T72611	T72671	T72741	T72871	T73011	T73091	T73161	T73241	T73321	T73481	N/A

Dimensions (mm)



LL1x80-CC-1400-2100 LED driver is suited for built-in usage in luminaires. In order to have safe and reliable LED driver operation, the LED luminaires will need to comply with the relevant standards and regulations (e.g. IEC/EN 60598-1). The LED luminaire shall be designed to adequately protect the LED driver from dust, moisture and pollution. The luminaire manufacturer is responsible for the correct choice and installation of the LED drivers according to the application and product datasheets. Operating conditions of the LED driver may never exceed the specifications as per the product datasheet.

Installation & operation

Maximum t_c temperature:

- Reliable operation and lifetime is only guaranteed if the maximum t_c point temperature is not exceeded under the conditions of use
- Ensure that the tc point temperature will not rise higher than specified on the product datasheet

Installation site:

- As a general guideline, the LED driver and module shall be mounted on one metal plate to ensure conformity of emission limits according to EN 55015
- This control gear is intended to drive LED modules, which don't include a logic circuitry such as stated in IEC 62384

Current setting resistor

LL1x80-CC-1400-2100 LED driver features an adjustable constant current output.

- An external resistor can be inserted in to the current setting terminal, allowing the user to adjust the LED driver output current
- When no external resistor is connected, then the LED drivers will operate at their default lowest current level
- A standard through-hole resistor can be used for the current setting. To achieve the most accurate output current it is recommended to select a quality low tolerance resistor. Minimum diameter for resistor leg is 0.51 mm
- Resistor/current values are presented on page 3
- More information about operation of the LED driver can be found from LEDset power interface specification

Conformity & standards

General and safety requirements	EN 61347-1: 2007+ A1:2010+A2:2012
Particular safety requirements for DC or AC supplied electronic control gear for LED modules	EN 61347-2-13: 2014
Additional safety requirements for DC or AC supplied electronic control gear for emergency lighting	EN 61347-2-13: 2014: Annex J
Thermal protection class	EN 61347, C5e
Mains current harmonics	EN 61000-3-2: 2014
Limits for voltage fluctuations and flicker	EN 61000-3-2: 2013
Radio frequency interference	EN 55015: 2013
Immunity standard	EN 61547: 2009
Performance requirements	EN 62384: 2006+ A1:2009
Compliant with relevant EU directives	
RoHS / REACH compliant	
ENEC and CE marked	

Label symbols

EL — AC/DC supplied electronic control gear for emergency lighting purposes intended for connection to a centralized emergency power supply.

Safety isolating control gear with short circuit protection (SELV control gear).

Double insulated control gear suitable for built-in use.

LED⊳set 1 — Control gear complying with LEDset1 specification. LEDset strives for harmonization of resistors for equal module currents from different producers.