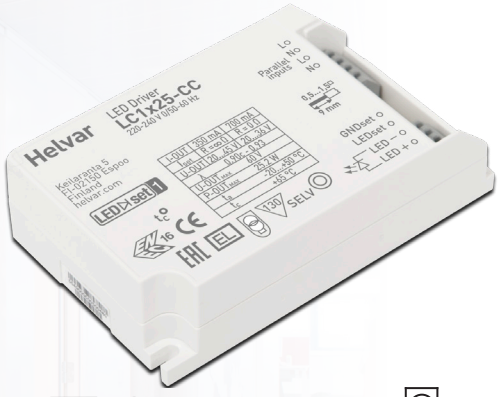
LC1x25-CC

25 W **Constant Current** LED driver

Product code: 5549

25 W 220 – 240 VAC 50 – 60 Hz

- High efficiency up to 89 %
- Low current ripple, complying with IEEE 1789 standard
- Allows open and flexible luminaire design
- LEDset1 compatible
- Suitable for use in emergency lighting applications
- Suitable for class I and class II luminaires
- Long lifetime, up to 100 000 h
- For driving Class III (SELV) luminaires, optional strain reliefs available for independent use outside of luminaire (LC-SRA/LC1x30-SR or LC-SRA-LOOP for looping the input cables)



Functional description

- Adjustable constant current output: 350 mA (default) to 700 mA
- Current setting resistor input. Iset resistor values according to 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 mains connection terminal. Maximum continous current via device is 4 A

Mains characteristics

Voltage range	198 VAC – 264 VAC
	Withstands max. 300 VAC (max. 1 hour)
DC range	176 VDC - 280 VDC
starting voltage	> 190 VDC
Mains current at full load	0.13 A – 0.14 A
Frequency	0 / 50 Hz – 60 Hz
Power consumption, abnormal load	< 1.5 W
THD at full power	< 17 %
Tested surge protection	1 kV L-N, 2 kV L-GND (IEC 61000-4-5)
Tested fast transient protection	2 kV (IEC 61000-4-4)

Insulation between circuits

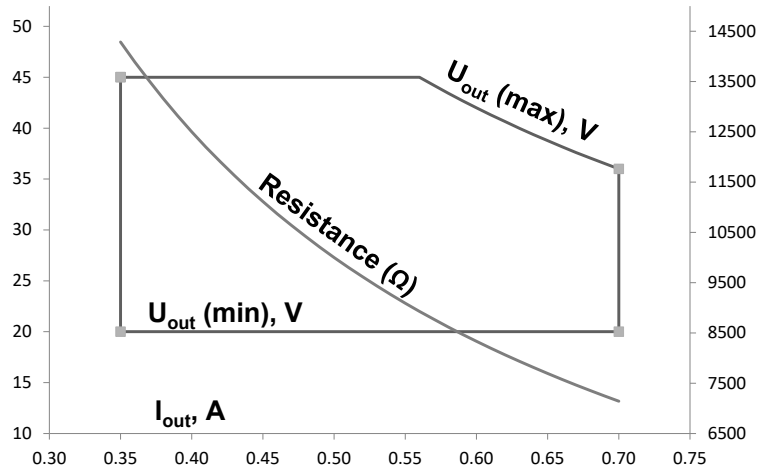
Mains circuit - SELV circuit	Double/reinforced insulation

Load output (SELV <60 V)

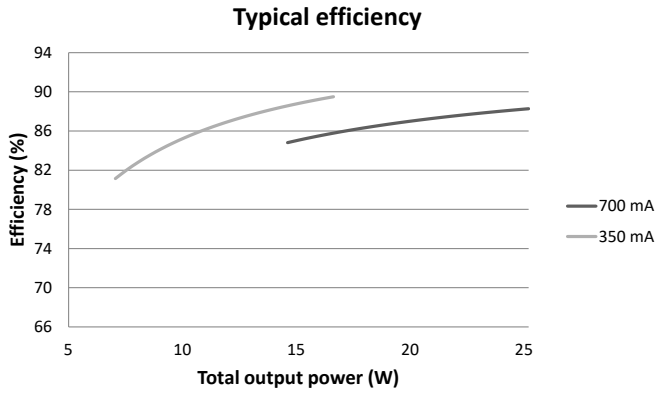
Output current (I_{out})	350 mA (default) – 700 mA
Accuracy	± 5 %
Ripple	< 2 %*, at ⩽ 120 Hz (Low frequency)
	*) Measured according to LEDset power interface specification
PstLM	< 1
SVM	< 0.4
U_{out} (max) (abnormal)	60 V
Starting time	< 400 ms
EOF_L (EL use)	> 0.98 x output current with AC supply

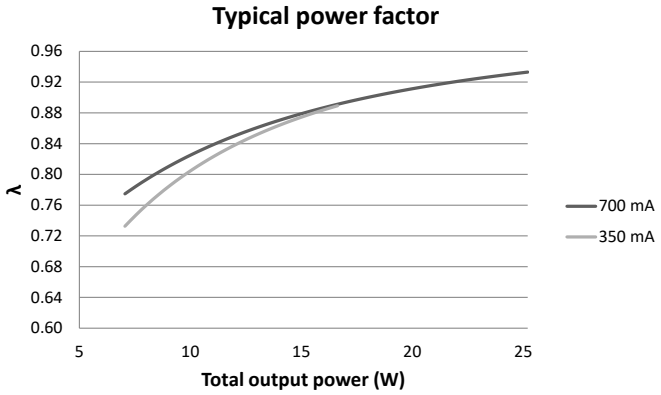
I_{out}	350 mA	700 mA
P_{out} (max)	15.75 W	25.2 W
U_{out}	20 V – 45 V	20 V – 36 V
λ, full power	0.90	0.93
Efficiency (η), full load	89 %	88 %

Operating window



Driver performance





Operating conditions and characteristics

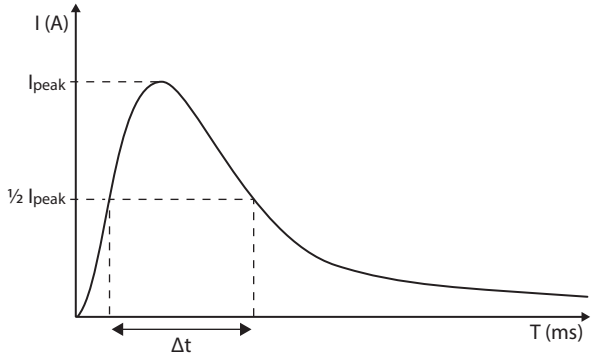
Highest allowed t_c point temperature	65 °C
Ambient temperature range	–20 °C ... +50 °C
Storage temperature range	–40 °C ... +80 °C
Maximum relative humidity	No condensation
Mains switching cycles	> 100 000 cycles
Life time (90 % survival rate)	100 000 h, at t_c = 55 °C 90 000 h, at t_c = 60 °C 60 000 h, at t_c = 65 °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, $I_{peak}^2 \Delta t$
80 pcs.	80 pcs.	7 A	24 µs	0.00086 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 %

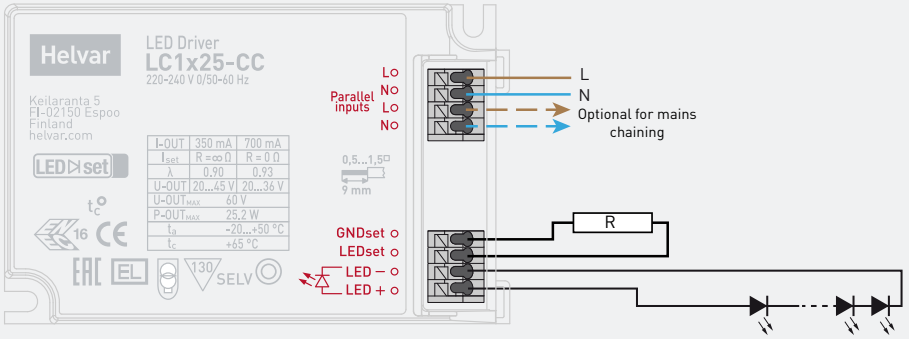


Type C MCB's are strongly recommended to use with LED lighting. Please see more details in "MCB information" document in each driver product page in "downloads & links" section.

Connections and mechanical Data

Wire size	0.5 mm^2 – 1.5 mm^2
Wire type	Solid core and fine-stranded
Wire insulation	According to EN60598
Maximum driver to LED wire length	5 m
Weight	115 g
IP rating	IP20

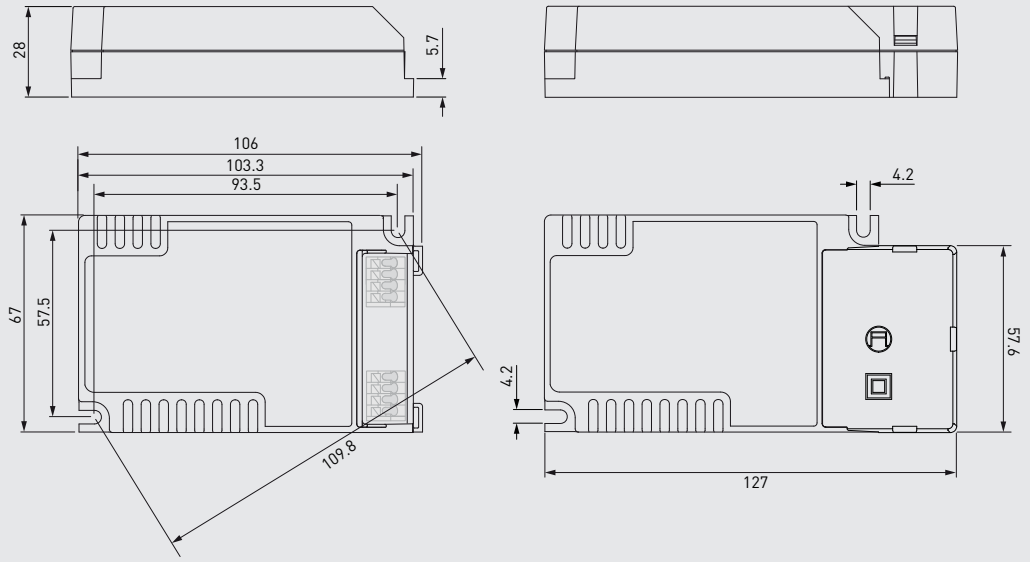
Connections



Note:

- *Not suitable for load side switching operation.*
- *Hot plug of LED load is not allowed.*

Dimensions (mm)



The current setting values are adjusted according to the LEDset specification. The resistor value for each required output current can thus be calculated from the formula R [Ω] = (5 [V] / I_out [A]) * 1000. Below are the available LED-Iset resistors from Helvar Components, pre-adjusted for the most common output currents.

Helvar Components LED-Iset resistors and currents (Nominal I_{out} (±5 % tol.))

LED-Iset resistor model	MAX	650 mA	600 mA	550 mA	500 mA	475 mA	450 mA	425 mA	400 mA	375 mA	No resistor
I_{out} (mA)	700	650	600	550	500	475	450	425	400	375	350
Order code	T90000	T90650	T90600	T90550	T90500	T90475	T90450	T90425	T90400	T90375	N/A
Resistance values (Ω)	0	7.68k	8.25k	9.09k	10k	10.5k	11k	11.8k	12.4k	13.3k	∞

The current can be adjusted also with normal resistors by selecting suitable resistor value (formula R [Ω] = (5 [V] / I_out [A]) * 1000). Reference resistor values can be found below order code in the table above.

Installation and conformity

LC1x25-CC LED driver is suited for built-in luminaire usage. 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 drivers may never exceed the specifications as per the product datasheets.

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 does not exceed the specified value on the datasheet

Installation site:

- The general preferred installation position of LED drivers for independent use is to have the top cover facing upwards.

Current setting resistor

LC1x25-CC LED driver features an adjustable constant current output.

- 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 0.51mm
- If no external resistor is connected, the LED driver will operate at the lowest current level by default
- Resistor/current values are presented on page 3
- Current setting according to LEDset power interface specification. LED- (cathode side) and GNDset terminals are internally connected together
- Always connect the current setting resistor only between the terminals marked with LEDset and GNDset on the LED driver label.
- 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
Particular safety requirements for DC or AC supplied electronic control gear for LED modules	EN 61347-2-13
Additional safety requirements for DC or AC supplied electronic control gear for emergency lighting	EN 61347-2-13, Annex J
Thermal protection class	EN61347, C5e
Mains current harmonics	EN 61000-3-2
Limits for voltage fluctuations and flicker	EN 61000-3-3
Radio frequency interference	EN 55015
Immunity standard	EN 61547
Performance requirements	EN 62384
Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers	IEEE 1789-2015
Compliant with relevant EU directives	
ENEC and CE / UKCA marked	

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