

LL1x50-E-CC-700-1050

Helvar*freedom in lighting*

1x50 W **Constant Current** LED driver

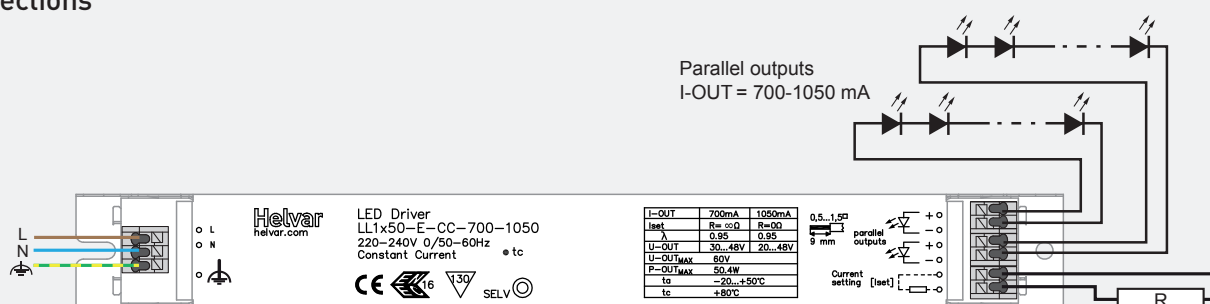
- Adjustable constant current output: 700 (default) to 1050 mA
- Parallel connected output terminals for parallel LED connection
- SELV < 60 V output protection
- Overload, open & short circuit protection
- Accept DC mains in case of central emergency battery
- High efficiency 0.90
- Suitable for Class I and Class II luminaires
- Current setting resistor input



50 W
220 VAC - 240 VAC
50 Hz - 60 Hz



Connections



Note:

- 1) Not suitable for load side switching operation.
- 2) Output terminals are internally parallel connected

| Current setting (p.2) | |
|-----------------------|-----------------------|
| Resistor R | output I _v |
| open | 700 mA |
| 0 Ω | 1050 mA |

Mains Characteristics

| | |
|---------------------------------|----------------------------|
| Voltage range | 198-264 VAC, |
| DC range | 176-280 VDC, |
| | starting voltage > 190 VDC |
| Max mains current at full load | 0.22-0.30 A |
| Frequency | 0 / 50 - 60 Hz |
| U-OUT _{max} (abnormal) | 60 V |

Load Output (SELV <60 V)

| | |
|-----------------------------------|----------------------------|
| Output current (I-OUT) | 700 mA (default) - 1050 mA |
| Max output power | 50.4 W |
| Efficiency, at full load, typical | 0.90 |

| I-OUT | 700 mA | 1050 mA |
|-------------|-----------|-----------|
| P-out (max) | 33.6 W | 50.4 W |
| U-OUT | 30 - 48 V | 20 - 48 V |
| λ | 0.95 | 0.95 |
| η @ max | 0.88 | 0.90 |

Operating Conditions and Characteristics

| | |
|-----------------------------|--|
| Max.temperature at tc point | 80 °C |
| Ambient temperature range | -20...+50 °C |
| Storage temperature range | -40...+80 °C |
| Maximum relative humidity | no condensation |
| Life time | 50 000h, at TC max (90 % survival rate) |

Connections and Mechanical Data

| | |
|-----------------------------------|------------------------------|
| Wire size | 0.5 - 1.5 mm ² |
| Wire type | solid core and fine-stranded |
| Maximum driver to LED wire length | 5 m |
| Weight | 210 g |
| IP rating | IP20 |

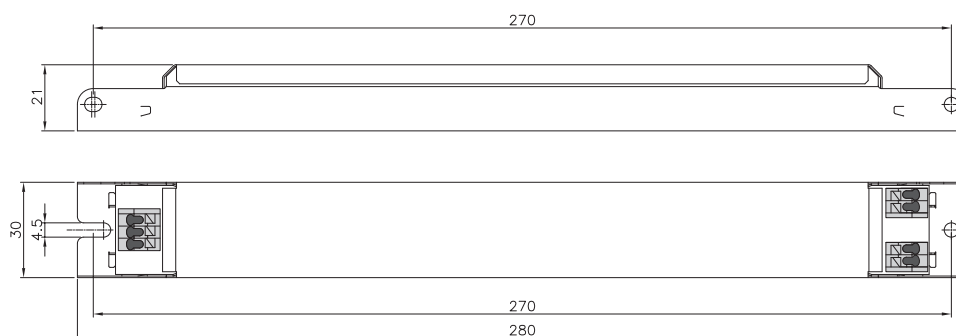
Conformity

| | |
|--|---------------|
| General and safety requirements | EN 61347-1 |
| Particular safety requirements for d.c. or a.c. supplied electronic controlgear for LED modules, acc. to | EN 61347-2-13 |
| Thermal protection class | EN61347, C5e |
| Mains current harmonics, acc. to | EN 61000-3-2 |
| Limits for Voltage Fluctuations and Flicker, acc to | EN 61000-3-3 |
| Radio Frequency Interference, acc. to | EN 55015 |
| Immunity standard, acc. to | EN 61547 |
| Performance requirements, acc to | EN 62384 |

Compliant with relevant EU directives
ENEC, CE and SELV marked

SELV = Control gear for inbuilt usage is double insulated from live parts

Note: See page 2 for dimensions



Wiring & connectivity

LL1x50-E-CC-700-1050 LED driver is suited for in-built 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. Specifications of the LED drivers may never exceed the operating conditions as per the product datasheets.

Wiring considerations

Wire type and cross section

- Please refer to datasheets connections & mechanical data

Wiring insulation

- According to recommendations in EN 60598

Maximum wire lengths

- Please refer to datasheets connections & mechanical data

Wire connections

- Please refer to datasheets connections diagram

Miniature Circuit Breakers (MCB)

- Type-C MCB's with trip characteristics in according to EN 60898 are recommended.

LED driver earthing

- LED drivers are designed to support different luminaire classifications, like Class I or Class II fittings (no earth required). Please check the individual LED driver type for its exact safety class rating.
- For Helvar LED drivers to have a reliable operation and EMC performance, the luminaires are expected to have an earth connection.

Installation & operational considerations

Maximum tc temperature

- Reliable operation and lifetime is only guaranteed if the maximum tc point temperature is not exceeded under the conditions of use.

Installation site

- Ensure that the LED driver does not exceed temperature higher than specified on the product datasheets.
- The general preferred installation position of LED drivers is to have the top cover facing upwards.

Current setting resistor

The Helvar LL1x50-E-CC-700-1050 LED driver feature 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 driver will operate at their default lowest current level (700 mA).
- 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.
- For the resistor / current value selection, please refer to the enclosed table below.

Current setting resistor values (Nominal I_{out} (±5 % tol.))

| R (Ω) | 0 | 1k | 2k2 | 3k3 | 4k7 | 8k2 | 10k | 15k | 22k | 33k | 47k | 68k | 100k | Open |
|-----------------------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| I _{out} (mA) | 1050 | 1000 | 960 | 940 | 920 | 880 | 860 | 830 | 800 | 770 | 750 | 730 | 720 | 700 |

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 | Calculated energy |
|----------------------------|----------------------------|-----------------------|----------------|--|
| (pcs.) | (pcs.) | I _{peak} (A) | Δt (μs) | I _{peak} ² Δt (A ² s) |
| 42 | 63 | 29 | 143 | 0.0889 |