

LL1x150-E-CC

Helvar

freedom in lighting

1x150 W **Constant Current** LED driver

150 W 220-240 VAC 0/50-60 Hz

- Open & short circuit protection
- Adjustable constant current output: 350 (default) to 700 mA
- Maximum 150 W load
- Protected up to 4 kV power network fast transients
- High efficiency 0.96
- Suitable for Class I luminaires



Mains Characteristics

| | |
|---------------------------------|----------------------------|
| Voltage range | 198-264 VAC, |
| DC range | 176-280 VDC, |
| | Starting voltage > 190 VDC |
| Max mains current at full load | 0.50-0.80 A |
| Frequency | 0 / 50 - 60 Hz |
| U-OUT _{max} (abnormal) | 400 V |

Load Output

| | |
|-----------------------------------|---------------------------|
| Output current (I-OUT) | 350 mA (default) - 700 mA |
| Max output power | 150 W |
| Efficiency, at full load, typical | 0.96 |

| | I-OUT 350 mA | 700 mA |
|--------------|--------------|-------------|
| P-out (max) | 122.5 W | 150 W |
| U-OUT | 257 - 350 V | 128 - 214 V |
| λ | 0.98 | 0.98 |
| η @ max | 0.96 | 0.95 |

Operating Conditions and Characteristics

| | |
|-----------------------------|--|
| Max.temperature at tc point | 75 °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) |

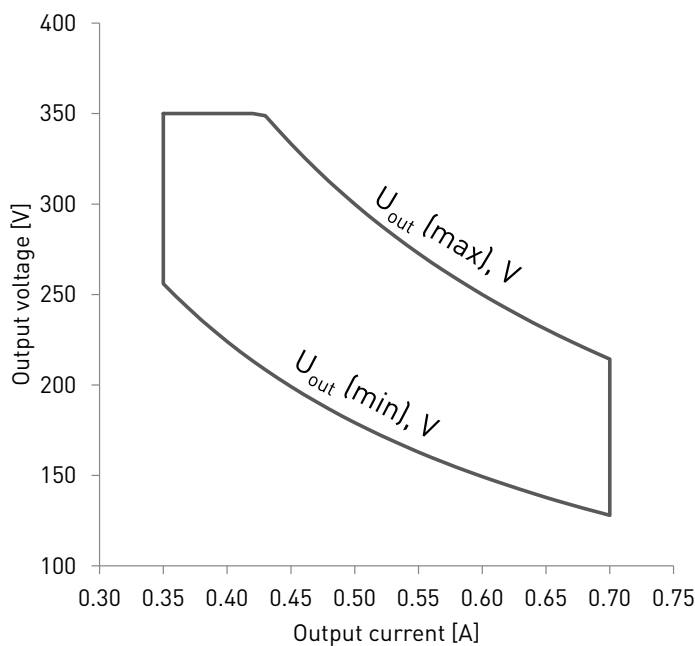
Connections and Mechanical Data

| | |
|-----------------------------------|------------------------------|
| Wire size | 0.5 - 1.5 mm ² |
| Wire type | Solid core and fine-stranded |
| Wiring insulation | According to EN 60598 |
| Maximum driver to LED wire length | 5 m |
| Weight | 254 g |
| IP rating | IP20 |

Conformity

| | |
|---|---------------|
| General and safety requirements | EN 61347-1 |
| Particular safety requirements for DC or AC supplied electronic controlgear for LED modules | EN 61347-2-13 |
| 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 |

Compliant with relevant EU directives
ENEC & CE marked



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

| R (Ω) | 0 | 220 | 470 | 820 | 1k2 | 1k5 | 2k2 | 2k7 | 3k9 | 5k6 | 6k8 | 10k | 18k | 39k | ∞ |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| I _{out} (mA) | 700 | 675 | 650 | 625 | 600 | 575 | 550 | 525 | 500 | 475 | 450 | 425 | 400 | 375 | 350 |

Connections

Helvar LED Driver LL1x150-E-CC
220-240 V 0/50-60 Hz

| | | |
|-----------|--------------|-------------|
| I-OUT | 350 mA | 700 mA |
| Iset | R = ∞ Ω | R = 0 Ω |
| I+ - I- | 257...350 V | 128...214 V |
| A | 0.98 | 0.92 |
| I-OUT max | 400 V | |
| P-OUT max | 150 W | |
| Ta | -20...+50 °C | |
| Tc | +75 °C | |

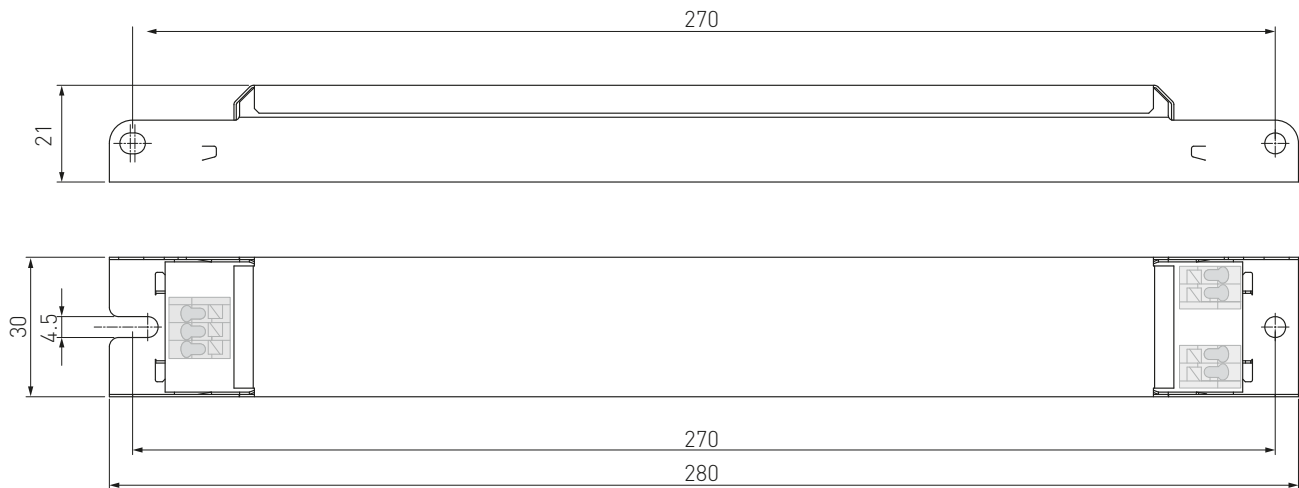
Current setting (p.2)

| Resistor R | output I _v |
|------------|-----------------------|
| open | 350 mA |
| 0 Ω | 700 mA |

Note:
* Not suitable for load side switching operation.

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) |
| 16 | 16 | 51 | 273 | 0.416 |



Installation & operation

LL1x150-E-CC 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.

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 LL1x150-E-CC 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 (350 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 table on the page 2.

Miniature Circuit Breakers (MCB)

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

LED driver earthing

- For Helvar LED drivers to have a reliable operation and EMC performance, the luminaires are expected to have an earth connection.

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