

# LL1x70-E-CC (code:5511904)

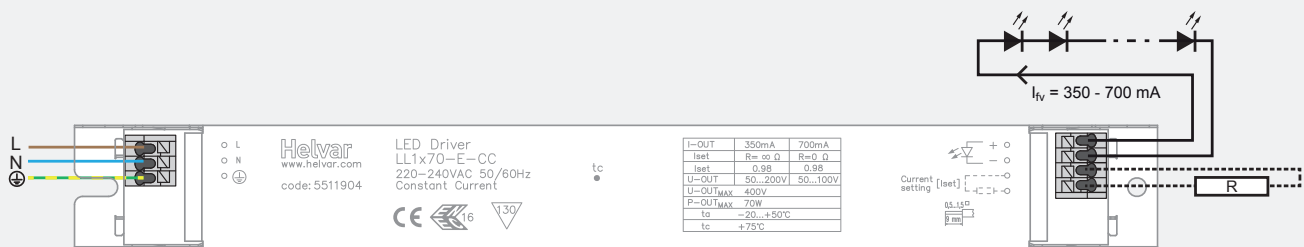
## 1x70 W **Constant Current** LED driver

- Short & open circuit protection
- Suitable for class I luminaires
- Adjustable constant current output: 350 (default) to 700 mA
- Maximum 70 W load
- Accept DC mains in case of central emergency battery
- High efficiency > 0.91
- Protected up to 4 kV power network fast transients
- Suitable for Class I luminaires
- Current setting resistor input

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



### Connections



**Note:**

- Not suitable for load side switching operation.
- Driver output and current setting circuit are not isolated from mains

For current setting resistor values please refer to page 2

### Mains Characteristics

Voltage range	198 - 264 VAC
DC range	176 - 280 VDC, starting voltage > 195 VDC
Max mains current at full load	0.32 - 0.41 A
Frequency	0 / 50 - 60 Hz
U-OUT <sub>max</sub> (abnormal)	400 V

### Load Output

Output current (I-OUT)	350 (default) to 700 mA
Max output power	70 W
Efficiency, at full load, typical	> 0.91

	I-OUT 350 mA	700 mA
P-out (max)	70 W	70 W
U-OUT	50 - 200 V	50 - 100 V
λ	0.98	0.98
η @ max	0.91	0.89

### 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	50 000 h, at TC max (90 % survival rate)

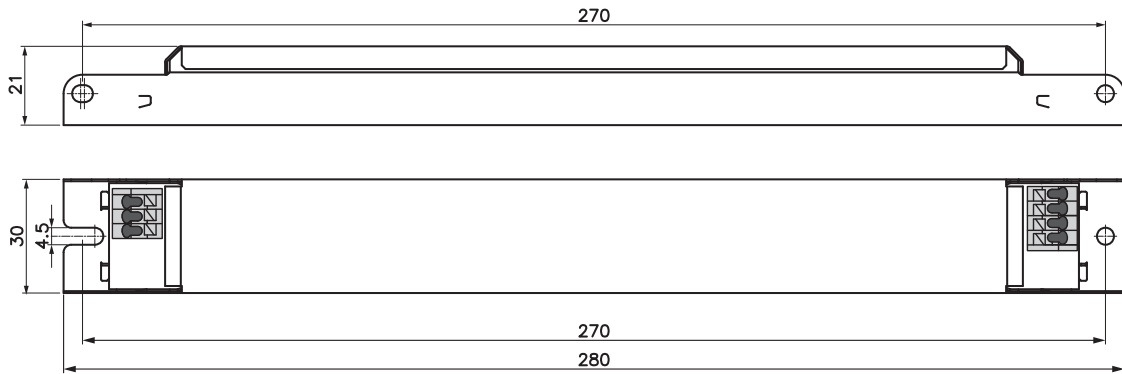
### Connections and Mechanical Data

Wire size	0.5 - 1.5 mm <sup>2</sup>
Wire type	solid core and fine-stranded
Maximum driver to LED wire length	5 m
Weight	227 g
IP rating	IP20

### Conformity & Standards

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 marked



LL1x70-E-CC is designed for in-built luminaire use in class I 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 drivers 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 datasheet. Specifications of the LED driver may never exceed the operating conditions as per the product datasheet.

## 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

- 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.

### Current setting resistor

The Helvar LL1x70-E-CC 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 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.
- For the resistor / current value selection, please refer to the enclosed table below.

## Current setting resistor values LL1x70-E-CC

R (Ω)	0	1k	1k2	1k5	1k8	2k2	2k7	3k3	3k9	4k7	5k6	6k8	8k2	10k	12k	15k	22k	27k	33k	39k	47k	56k	68k	82k	100k	150k	330k	1M	∞
I <sub>out</sub> (mA)	700	650	640	630	620	610	600	580	570	550	530	520	500	480	470	450	430	420	410	400	390	385	380	375	370	365	360	355	350