

# LL1x30-E-CV24

## 30 W Constant Voltage LED driver

- 24 V constant voltage output
- Low voltage ripple, complying with IEEE 1789-2015 recommendation
- SELV protection for safety and flexibility in luminaires
- Open circuit, short circuit and overload protection
- Suitable for Class I and Class II luminaires
- Strain reliefs for independent use
- Suitable for use with LL1xCV-DA driver extension in DALI dimmable solutions

30 W 220-240 VAC 50-60 Hz



### Mains Characteristics

Voltage range	198-264 VAC
Max mains current at full load	0.17 A
Frequency	50 - 60 Hz
Power factor at full load	0.95
THD at full load	< 15 %
Input Power at no load	< 0.5 W
Leakage current to earth	< 0.7 mA
Tested surge protection	1 kV L-N, 2 kV L-GND (IEC 61000-4-5, performance criteria B)
Tested fast transient protection	2 kV (IEC 61000-4-4, performance criteria B)

### Load Output (SELV < 60 V)

Output voltage (U-OUT)	24 V
Output voltage tolerance	± 5 %
Ripple	< ± 5%* at ≤ 120 Hz
PstLM	< 0.04*
SVM	< 0.01* <span style="float: right;">*) At full power</span>
Max output current (I-OUT)	1.25 A
Max output power	30 W
Efficiency, at full load	86 %

### Operating Conditions and Characteristics

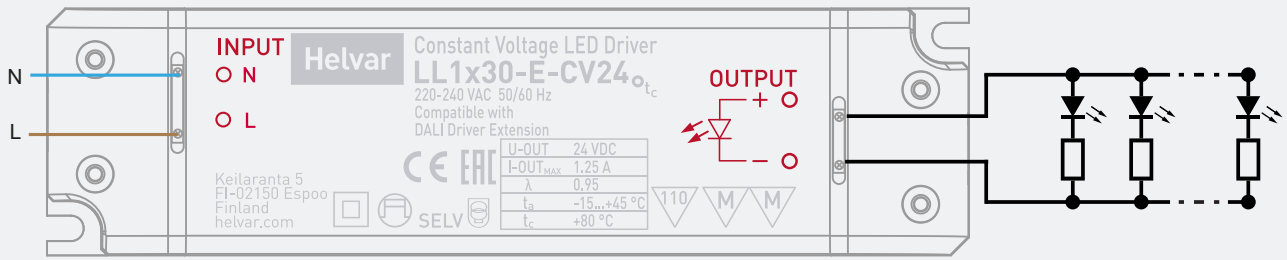
Max. temperature at $t_c$ point	80 °C
Ambient temperature range	-15...+45 °C
Storage temperature range	-40...+80 °C
Maximum relative humidity	No condensation
Mains switching cycles	> 100 000 cycles
Life time (90 % survival rate)	50 000 h, at $t_c = 70$ °C 30 000 h, at $t_c = 80$ °C

### Connections and Mechanical Data

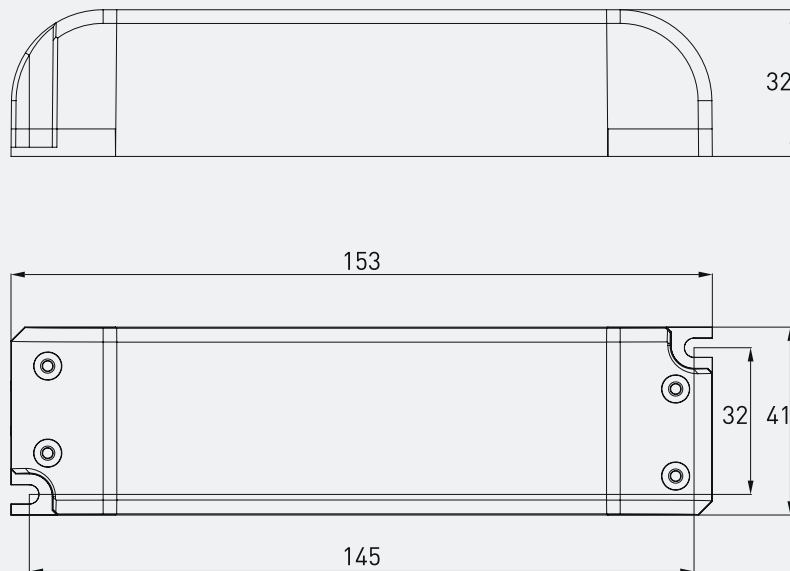
Wire size	0.5 – 1.5 mm <sup>2</sup>
Wire type	Solid core and fine-stranded
Wire insulation	According to EN 60598
Maximum driver to LED wire length	5m
Weight	150 g
IP rating	IP20

Note: See page 2 for connections and dimensions

## Connections



## Dimensions (mm)



## Quantity of drivers per miniature circuit breaker 16 A Type C

Based on $I_{cont}$ (pcs.)	Based on $I_{peak}$ (pcs.)	Typ.inrush current $I_{peak}$ (A)	1/2 value time $\Delta t$ ( $\mu s$ )	Calculated energy $I_{peak}^2 \Delta t$ (A <sup>2</sup> s)
72	68	16	208	0.0386

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

LL1x30-E-CV24 LED driver is suited for either built-in and independent 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 & operational considerations

### 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  $t_c$  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

## 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
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	
CE / UKCA marked	

Company Address:  
**Helvar Components Oy Ab**  
Yrittäjätie 23  
FI-03600, Karkkila