

30 W **Dimmable DALI** LED driver

Product code: 5502

30 W 220 – 240 V 0 / 50 – 60 Hz

- DALI dimmable LED driver, 1 - 100 % dimming range
- Suitable for DC use
- SELV output protection for safety and flexibility in luminaire design
- Driver protection Class II
- Suitable for Class I and Class II luminaires
- 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

- Selectable constant current output: 350 mA / 500 mA / 700 mA
- Switch-Control functionality for easy-to-use intensity control
- NTC terminal for overtemperature protection
- Helvar Driver Configurator Support

Mains Characteristics

Voltage range	198 VAC – 264 VAC
	Withstands max. 320 VAC (max. 1 hour)
DC range	176 VDC - 280 VDC
starting voltage	> 190 VDC
Mains current at full load	0.14 – 0.18 A
Frequency	0 / 50 Hz – 60 Hz
Stand-by power consumption	0.3 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

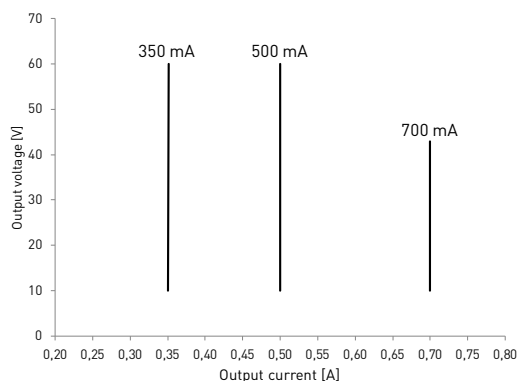
Mains circuit - SELV circuit	Double/reinforced insulation
DALI circuit - SELV circuit	Double/reinforced insulation
Mains circuit - DALI circuit	Basic insulation
Mains and output - Driver case	Double/reinforced insulation

Load Output (SELV <120 V)

Output current (I_{OUT})	350 mA / 500 mA / 700 mA
Accuracy	$\pm 5 \%$
Ripple	< 2 %, at ≤ 120 Hz
	*) Low frequency, LED load: Cree XP-G LEDs
PstLM	< 1*
SVM	< 0.4*
	*) At full load

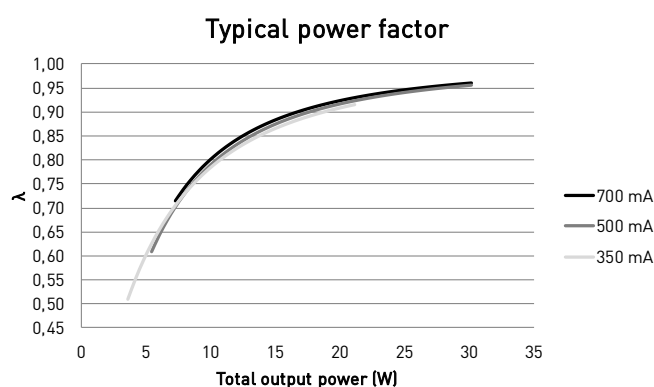
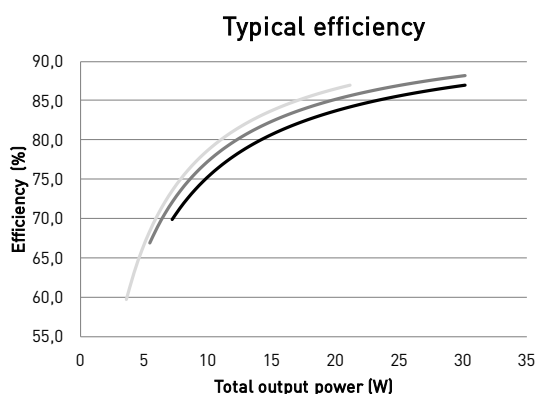
U_{out} (max) (abnormal)	80 V		
I_{LED}	350 mA	500 mA	700 mA
P_{RATED}	21 W	30 W	30 W
U_{LED}	10 – 60 V	10 – 60 V	10 – 43 V
PF (λ) at full load	0.93	0.96	0.96
Efficiency (η) at full load	87 %	88 %	86 %

Operating window



Note: Dimming between 1 % - 100 % possible across the whole operating window

Driver performance



Operating Conditions and Characteristics

Highest allowed t_c point temperature	75 °C
Ambient temperature range*	-20 °C ... +50 °C
in independent use	-20 °C ... +45 °C
Storage temperature range	-40 °C ... +80 °C
Maximum relative humidity	no condensation
Life time (90 % survival rate)	100 000 h, at $t_c = 65$ °C
	70 000 h, at $t_c = 70$ °C
	50 000 h, at $t_c = 75$ °C

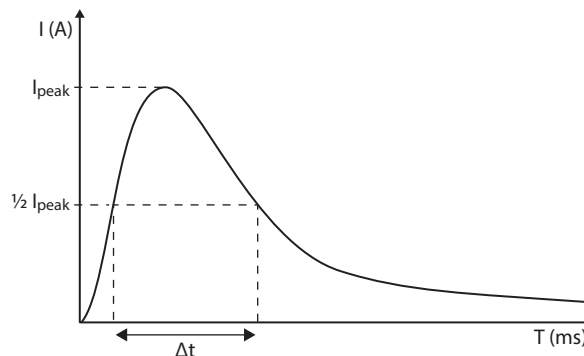
*) For other than independent use, higher t_g of the control gear possible as long as highest allowed t_c point temperature is not exceeded

Quantity of drivers per miniature circuit breaker 16 A Type C

Based on I_{cont}	Based on inrush current I_{peak}	Typ. peak inrush current I_{peak}	1/2 value time, Δt	Calculated energy, $I_{peak}^2 \Delta t$
73 pcs	1528 pcs	7 A	26 μ s	0,0011 A ² s

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 %

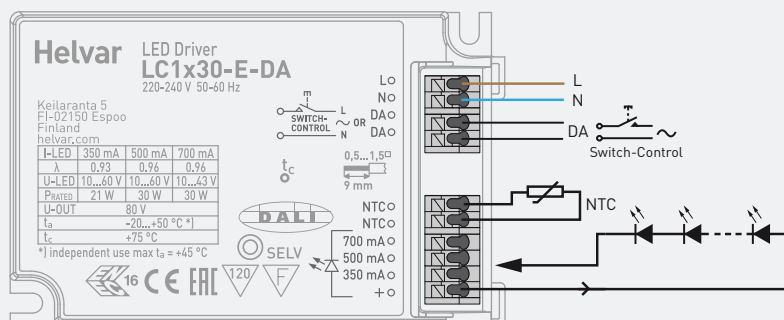


Type C MCB's are strongly recommended to use with LED lighting. Please see more details in "MCB information" document in each driver product page in "downloads & links" section.

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 EN 60598
Maximum driver to LED wire length	5 m (1 m with NTC)
Weight	123 g
NTC trigger point	8.2 k Ω
IP rating	IP20

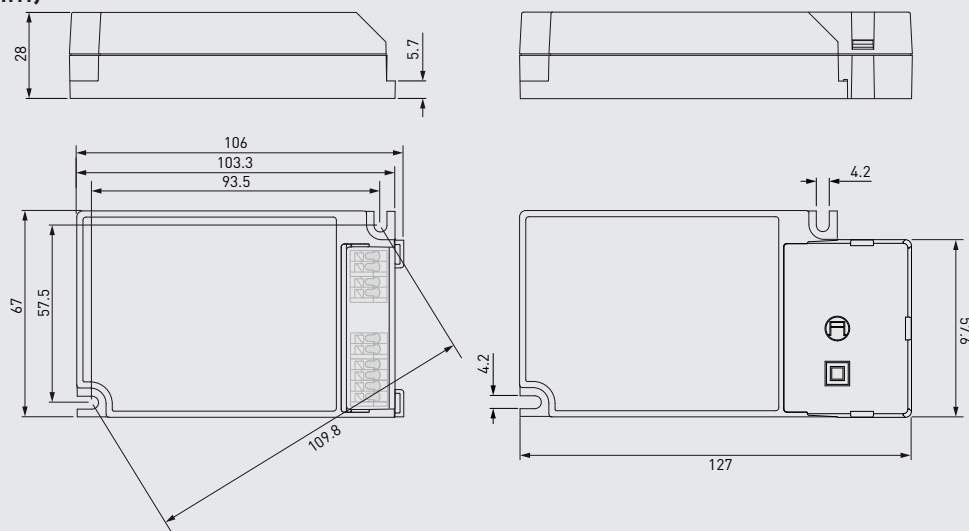
Connections



Note:

- Not suitable for load side switching operation.
- Label may differ if the unit is preset to fixed current.
- Gray label from revision U onwards

Dimensions (mm)



LC1x30-E-DA LED driver is suited for built-in usage in luminaires. With LC1x30-SR/LC-SRA/LC-SRA-LOOP strain reliefs, independent use is possible too. 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 datasheet.

Installation & operation

Maximum ambient and t_c temperature:

- For built-in components inside luminaires, the t_a ambient temperature range is a guideline given for the optimum operating environment. However, integrator must always ensure proper thermal management (i.e. mounting base of the driver, air flow etc.) so that the t_c point temperature does not exceed the t_c maximum limit in any circumstance.
- Reliable operation and lifetime is only guaranteed if the maximum t_c point temperature is not exceeded under the conditions of use.

Current setting

- LC1x30-E-DA driver features three separate constant current outputs selectable via current output terminals.

Miniature Circuit Breakers (MCB)

- Type-C MCB's with trip characteristics in according to EN 60898 are recommended.
- Please see more details in "MCB information" document in each driver product page in "downloads & links" section.

Use of Switch-Control functionality

- Maximum numbers of LED drivers to be connected to one switch is 30.
- The maximum cabling length from the switch to the driver is 25 meters. If longer cabling is needed, please connect a capacitor across the Switch-Control input (1 μ F, min. 275 VAC RMS, X2 Class, according to IEC 60384-14).
- Ensure that all components connected to Switch-Control circuitry are mains rated.
- More information in Switch-Control User Guide at www.helvarcomponents.com.

Installation site

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

Helvar Driver Configurator support

LC1x30-E-DA LED driver is supported by Helvar Driver Configurator software. Helvar Driver Configurator allows user to enable NTC, Switch Control and linear dimming curve. The user is also able to adjust dimming range, as well as enable the power level to be set on last adjusted level, after power shutdown.

Lamp failure functionality

No load: When open load is detected, driver limits output voltage according to U_{out} (max) (abnormal).

Overload: When low overload is detected (> 30 W), the driver will reduce the output current, however reliable operation is only guaranteed in specified voltage range.

Underload: Reliable operation is only guaranteed in specified voltage range.

Short circuit: Driver can withstand output short circuit.

NTC trigger: When NTC is enabled via Helvar Driver Configurator, driver follows NTC feature behaviour. Default NTC trigger point is 8,2 k Ω , after which the driver starts to decrease the output level.

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	EN 61347, 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
Digital addressing lighting interface:	
General requirements for DALI system	EN 62386-101
Requirements for DALI control gear	EN 62386-102
Requirements for control gear of LED modules (DALI Device Type 6)	EN 62386-207
Compliant with relevant EU directives	
RoHS/REACH compliant	
CE / UKCA and ENEC marked	

Label symbols



Double insulated control gear suitable for built-in use.



Thermally controlled control gear, incorporating means of protection against overheating to prevent the case temperature under any conditions of use from exceeding 120 °C.



Control gear suitable for direct mounting on normally flammable surfaces, with or without thermally insulating material. Normally flammable surfaces are defined to include building materials such as wood, and materials based on wood, of more than 2 mm thickness.



DALI certified control gear.