

42 W **SELV Constant current** LED driver

Product code: 5969

42 W 220 – 240 V 0/ 50 – 60 Hz

- SELV output protection for safety and flexibility in luminaires
- Very low current ripple, complying with IEEE 1789 recommendations
- Suitable for DC use
- Long lifetime up to 100 000 h
- Optimised driver mechanics for independent usage applications
- Integrated spacious strain reliefs with screwless clamps (up to 13.5 mm cable), quick and simple installation process
- Doubled input terminals for looping the mains cables
- Ideal solution for Class I, Class II and Class III (SELV) luminaires

**Functional Description**

- Adjustable constant current output: 300 mA to 1050 mA (default)
- Wide 9 - 48 V voltage range
- Current setting via DIP switches
- Overload, open & short circuit protection

Mains Characteristics

Nominal rated voltage range	220 V – 240 V, 50 – 60 Hz
Rated emergency voltage range	198 VDC - 254 VDC
AC voltage range	198 VAC – 264 VAC
	Withstands max. 300 VAC (max. 1 hour)
DC range	198 VDC - 280 VDC
Mains current at full load	0.30 A
Frequency	0 / 50 Hz – 60 Hz
THD at full power	< 10 %
Tested surge protection	1 kV L-N (IEC 61000-4-5) 2 kV L/N-GND (IEC 61000-4-5)
Tested fast transient protection	1 kV (IEC 61000-4-4)

Insulation between circuits & driver case

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

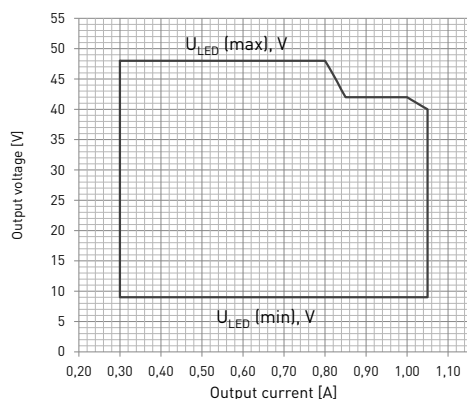
Load Output (SELV 60 V)

Output current (I_{out})	300 mA – 1050 mA (default)
Accuracy	± 5 %
Ripple	< 3 %* at ≤ 120 Hz *) Low frequency, measured with Cree XP-G LED modules
PstLM	< 0.05*
SVM	< 0.01* *) At full power, measured with Samsung LM281B LEDs
U_{out} (max) (abnormal)	60 V

This LED driver does not allow operation with high output capacitance according to IEC 62384 clause 7.3.

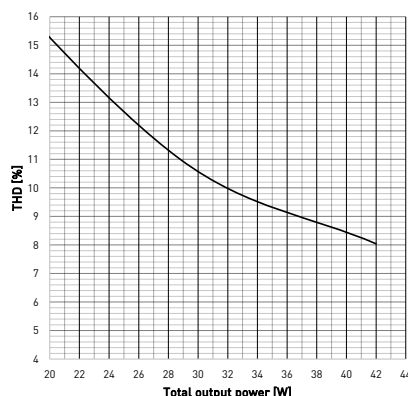
I_{LED}	300 mA	600 mA	1050 mA
P_{Rated}	2.7...14.4 W	5.4...28.8 W	9.5...42 W
U_{LED}	9 - 48 V	9 - 48 V	9 - 40 V
PF (λ) at full load	0.84	0.94	0.98
Efficiency (η) at full load	87 %	> 88 %	> 88 %

Operating window and driver performance

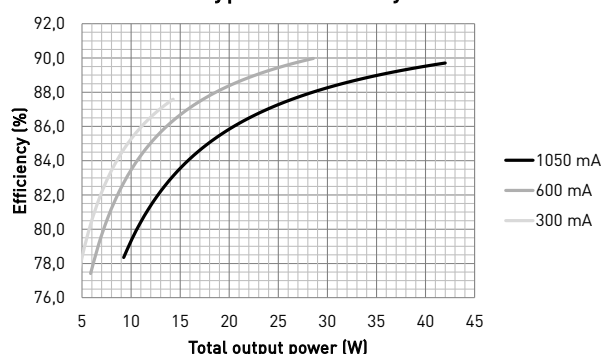


Current value is adjustable in steps via DIP switch.
See DIP switch settings in page 3 for details.

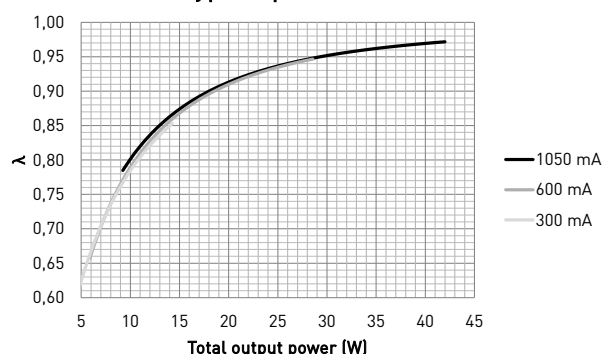
Current THD



Typical efficiency



Typical power factor



Operating Conditions and Characteristics

Absolute highest allowed t_c point temperature	75 °C
T_c life (100 000 h) temperature	75 °C
Ambient temperature range	-25 °C ... +50 °C*
in independent use	-25 °C ... +50 °C
Storage temperature range	-25 °C ... +60 °C
Maximum relative humidity	No condensation
Life time (90 % survival rate)	100 000 h at $t_c = 75$ °C

* For other than independent use, higher t_a of the controlgear possible as long as highest allowed t_c point temperature is not exceeded

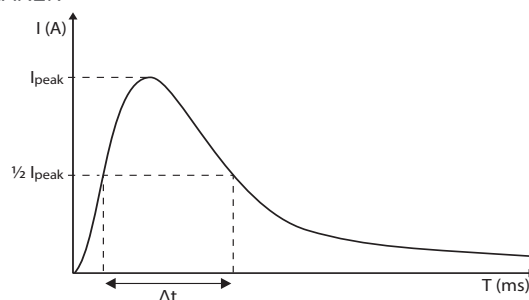
Quantity of drivers per miniature circuit breaker 16 A Type C

Based on inrush current I_{peak}	Typ. peak inrush current I_{peak}	1/2 value time, Δt	Calculated energy, $I_{peak}^2 \Delta t$
> 150 pcs*	9 A	44 μs	0.0028 A ² s

* Inrush current is not the limiting factor for the products per MCB, please notice the continuous current limitations.

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 %



CONTINUOUS CURRENT

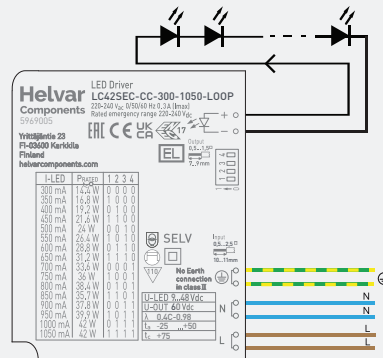
Total continuous current of the drivers and installation environment must always be considered and taken into calculations when installing drivers behind miniature circuit breaker. Example calculation of total drivers amount limited by continuous current: $n(I_{cont}) = \{16 A (I_{nom, T_a}) / \text{"nominal mains current with full load"}\} \times 0.76$. This calculation is an example according to recommended precautions due to multiple adjacent circuit breakers (> 9 MCBs) and installation environment (T_a 30 degrees); variables may vary according to the use case. Both inrush current and continuous current calculations are based on ABB S200 series circuit breakers. More specific information in ABB series S200 circuit breaker documentation.

NOTE! 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	Input: 0.5 mm ² – 2.5 mm ²
	Output: 0.5 mm ² – 1.5 mm ²
Max. cable diameter for strain relief:	13.5 mm
Wire type	Solid core and fine-stranded
Wire insulation	According to EN 60598
Maximum current through looping terminals	16 A
Maximum driver to LED wire length	1.5 m
Weight	197 g
IP rating	IP20

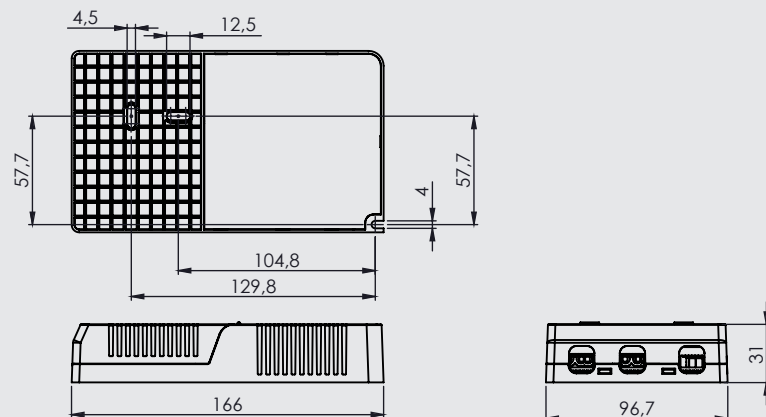
Connections



Note:

- PE terminal is for looping only and therefore earth connection is not needed for the functionality of the driver. See page 5 for details.
- When looping mains, only additional LED drivers shall be connected through the device terminals
- Not suitable for load side switching operation
- Label may differ if the unit is preset to fixed current

Dimensions (mm)



In LC42SEC-CC-300-1050-LOOP, the current can be set with DIP switches. With each combination of switch setup, a different output current value can be set. The maximum value can be reached with all switches set to "1" (away from the connectors) and minimum with all switches set to "0". The output current values according to the DIP switch settings are presented below.

Setting Current via DIP Switch

DIP switch combination	1111 (default)	0111	1011	0011	1101	0101	1001	0001
I _{out} (mA)	1050	1000	950	900	850	800	750	700
Voltage range	9 - 40 V	9 - 42 V	9 - 42 V	9 - 42 V	9 - 42 V	9 - 48 V	9 - 48 V	9 - 48 V
DIP switch combination	1110	0110	1010	0010	1100	0100	1000	0000
I _{out} (mA)	650	600	550	500	450	400	350	300
Voltage range	9 - 48 V	9 - 48 V	9 - 48 V	9 - 48 V	9 - 48 V	9 - 48 V	9 - 48 V	9 - 48 V

LC42SEC-CC-300-1050-LOOP LED driver is suited for independent use and built-in usage in 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 driver from dust, moisture and pollution. The luminaire is not allowed to be covered with thermally insulating material. 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.

LED driver earthing

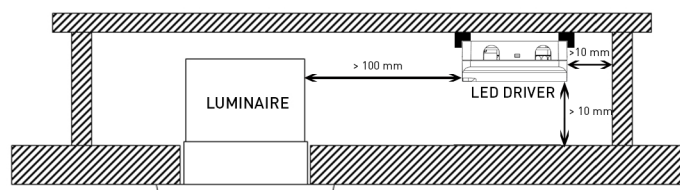
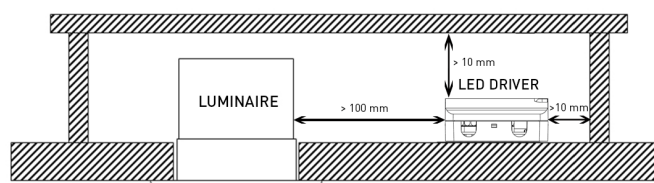
- LC42SEC-CC-300-1050-LOOP is Class II LED driver suitable for Class I and II luminaires, as well as driving Class III (SELV) luminaire parts in independent installation.
- If used inside **Class I** luminaires, the earth cable is not required for electrical safety in this driver. The PE connection is designed for earth signal looping between drivers.
- If used inside **Class II** luminaires, the safety of the luminaire shall be ensured through double/reinforced insulation of live parts. LC42SEC-CC-300-1050-LOOP has double/reinforced insulation between accessible and live parts, and is suitable for use in all Class II luminaires. In this case the earth terminal of the driver must be left unconnected and the luminaire terminal block shall not have any protective earthing terminal.
- If used in **independent** installation with Class I/II/III luminaires, the earth cable is not required to be connected. The PE connection is designed for earth signal looping between drivers.

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.

Installation site

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



- Suitable for installation upside down and in the corner, in this case separate spacers must be used. For more information, please consult Helvar Components.

Lamp failure functionality

No load

When open load is detected, driver limits output voltage according to $U_{out} (max)$ (abnormal).

Short circuit

Driver can withstand output short circuit and after resolving the fault, driver recovers normal operation automatically.

Overload

The driver can withstand overload.

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
Additional safety requirements for AC or DC supplied electronic controlgear for emergency lighting	EN 61347-2-13, Annex J
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	
RoHS/REACH compliant	
ENEC and CE / UKCA marked	

Label symbols



Safety isolating control gear with short circuit protection (SELV control gear).



Thermally controlled control gear, incorporating means of protection against overheating to prevent the case temperature under any conditions of use from exceeding 110 °C.



Double insulated control gear suitable for independent use.



Symbol for independent control gear.



AC/DC supplied electronic control gear for emergency lighting purposes intended for connection to a centralized emergency power supply.



The product is not allowed to be covered with thermally insulating material according to IEC 60598-1 (ed. 8.0)b.