# LC43MN22-CC-300-1050

## 42 W **SELV constant current** LED driver

Product code: 5964xxx (see last page)

**42 W 220 – 240 V 0 / 50 – 60 Hz**

- Extremely compact and slim 22 mm high mechanics
- High efficiency up to 90 %
- SELV output protection for safety and flexibility in luminaires
- Low current ripple, complying with IEEE 1789 recommendation
- Suitable for use in emergency lighting applications
- Wide output voltage and current range for wide variety of luminaire setups
- Ideal solution for Class I and Class II luminaires
- For driving Class III (SELV) luminaires, optional strain reliefs for independent use outside of luminaire (LC-SR-MN22 or LC-SR-MN22-LOOP)*

*See also last page.*

## Functional Description

- Adjustable constant current output: 300 mA to 1050 mA (default)
- Wide 9 - 49 V output voltage range
- Long lifetime up to 100 000 hours
- Potted casing for improved durability
- 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 |
| DC voltage range | 180 VDC - 280 VDC |
| Mains current at full load | 0.25 A |
| Frequency | 50 Hz – 60 Hz |
| THD at full power | < 7 % |
| 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

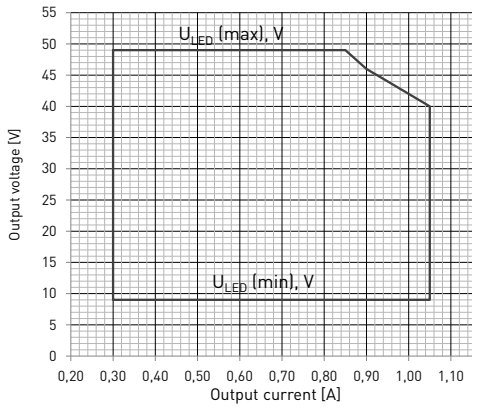
| | |
|---|---|
| Mains circuit - SELV circuit | Double/reinforced insulation |
| Mains and output - Driver case | Double/reinforced insulation |

## Load Output (SELV <60 V)

| | |
|---|---|
| Output current ($I_{out}$) | 300 mA – 1050 mA (default) |
| Accuracy | ± 5 % |
| Ripple | < ±3 %[1] at ≤ 120 Hz |
| | 1) Low frequency |
| PstLM | < 0.05 [2] |
| SVM | < 0.01 [2] |
| | 2) At full power, measured with Cree XP-G LED modules. |
| $U_{out}$ (max) (abnormal) | 60 V |
| $EOF_I$ (EL use) | > 0.98 x output current with AC supply |

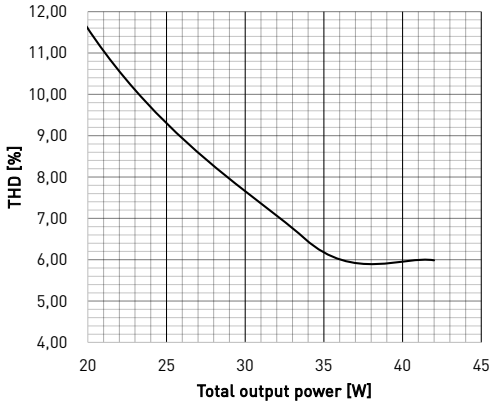
| $I_{LED}$ | 300 mA | 850 mA | 1050 mA |
|---|---|---|---|
| $P_{Rated}$ | 14.7 W | 41.7 W | 42 W |
| $U_{LED}$ | 9 – 49 V | 9-49 V | 9 – 40 V |
| PF (λ) at full load | 0.90 | 0.97 | 0.97 |
| Efficiency (η) at full load | 88 % | 90 % | 88 % |

## Operating window and driver performance

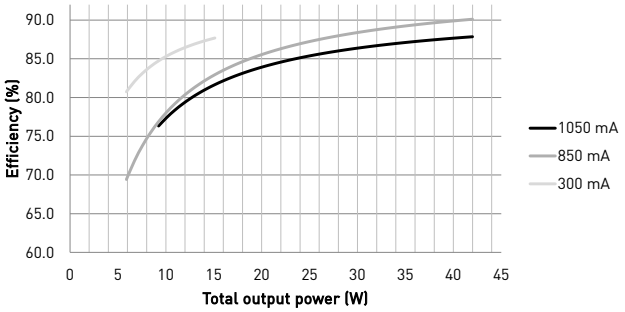



*Current value is adjustable in steps via DIP switch.*
*See DIP switch settings in page 4 for details.*

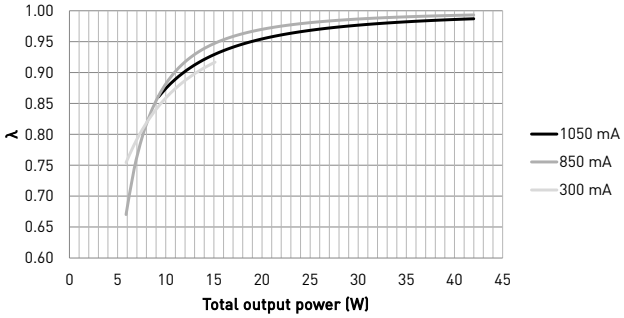
### Current THD




### Typical efficiency




### Typical power factor




## Operating Conditions and Characteristics

| | |
|---|---|
| Absolute highest allowed $t_c$ point temperature | 90 °C |
| Tc life (50 000 h) temperature | 80 °C |
| Ambient temperature range* | –20 °C .. +45 °C* |
| Storage temperature range | –40 °C .. +80 °C |
| Maximum relative humidity | No condensation |
| Mains switching cycles | > 100 000 cycles |
| Life time (90 % survival rate) | 100 000 h, at $t_c$ = 68 °C<br>70 000 h, at $t_c$ = 75 °C<br>50 000 h, at $t_c$ = 80 °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*

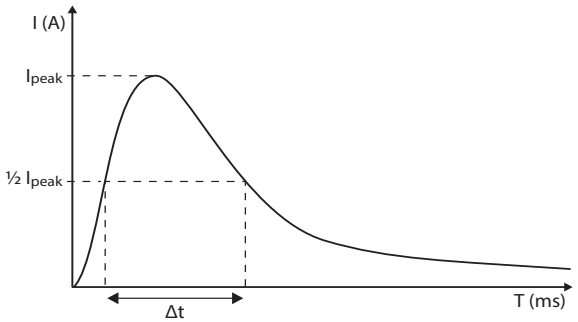
## Quantity of drivers per miniature circuit breaker 16 A Type C

| Based on inrush current $I_{peak}$ | Typ. peak inrush current $I_{peak}$ | 1/2 value time, Δt |
|---|---|---|
| 150 pcs* | 10.5 A | 30 µs |

**Inrush current is not the limiting factor for the products per C 16 A 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 % |




### CONTINOUS CURRENT

Total continous 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 continous current: n($I_{cont}$) = (16 A ($I_{nom,Ta}$) / "nominal mains current with full load") x 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 continous current calculations are based on ABB S200 series circuit breakers. More specific information in ABB series S200 circuit breaker documentation.

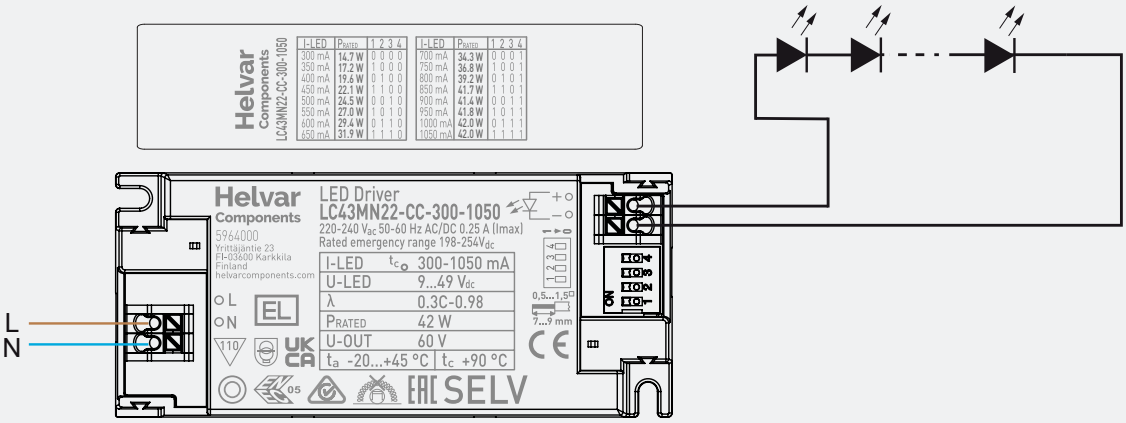
NOTE! Type C MCB's are strongly recommended to use with LED lighting. Please see more details in "MCB information" document in each driver product page in "downloads & links" section.

## Connections and Mechanical Data

| | |
|---|---|
| Wire size | Input: 0.5 mm² – 1.5 mm²<br>Output: 0.2 mm² – 1.5 mm²* |
| Wire type | Solid core and fine-stranded |
| Wire insulation | According to EN 60598 |
| Maximum driver to LED wire length | 1.5 m |
| Weight | 110 g |
| IP rating | IP20 |

**) ENEC certified only from 0.5 mm² – 1.5 mm². If using strain reliefs, please check the allowed cable diameter range from the strain relief datasheet. For LOOP strain reliefs, minimum of 0.5 mm² wires allowed.*

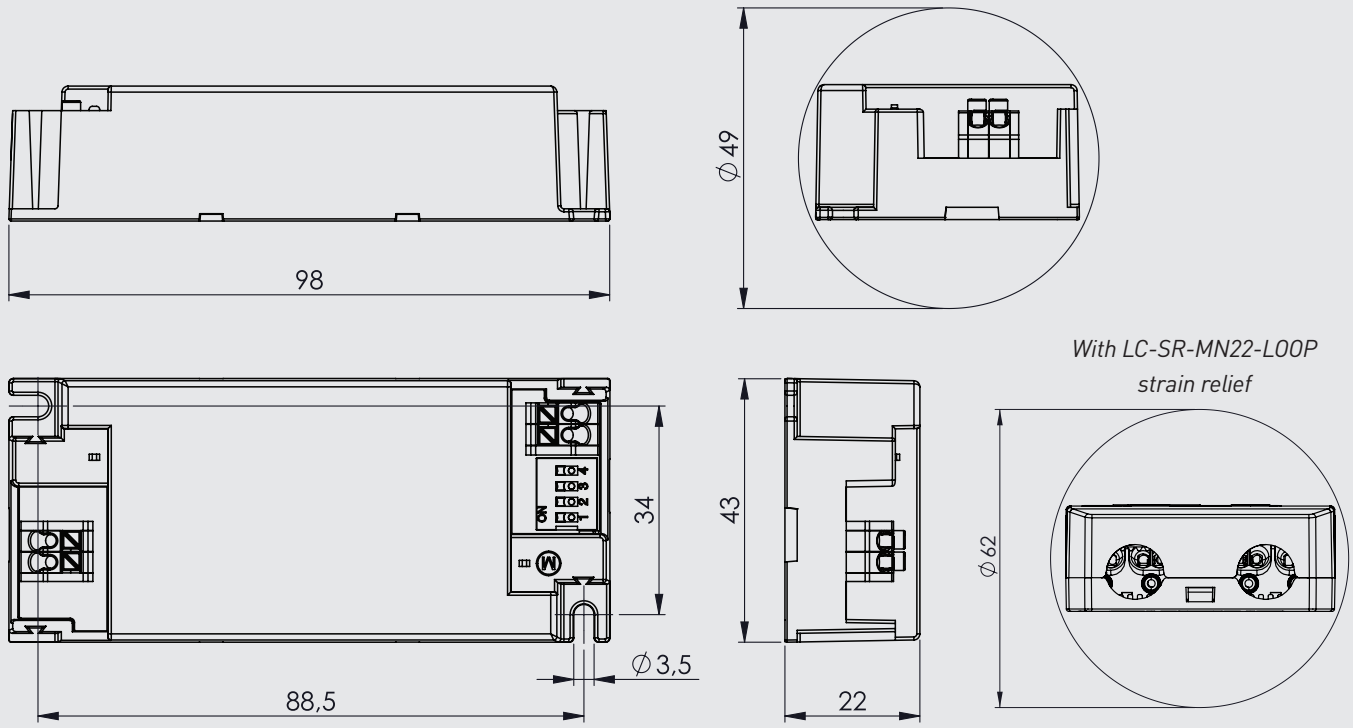
## Connections




*Note:*

- *Not suitable for load side switching operation*

## Dimensions (mm)



In LC43MN22-CC-300-1050, 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 the DIP switch setting presented below and minimum with all switches set to "0" (pushed away from the LED driver label, see connections picture above). The output current values according to the DIP switch settings are presented below.

## DIP switch combinations, output currents and voltage ranges (Nominal $I_{out}$ (±5 % tol.))

| **DIP switch combination** | 1111 | 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 - 44 V | 9 - 46 V | 9 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 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 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 V | 9 - 49 V |

LC43MN22-CC-300-1050 LED driver is suited for built-in usage in luminaires. With external strain relief (LC-SR-MN22 or LC-SR-MN22-LOOP), 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 via DIP switch**

LC43MN22-CC-300-1050 LED driver features a constant current output adjustable via DIP switch combinations

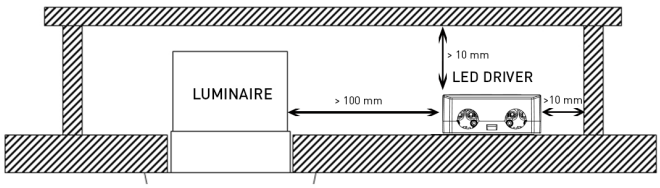
- For the combination/current values, refer to the table on page 4.
- Only the DIP switch settings presented in the table must be used.

**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.
- The minimum clearance distances to normally flammable building elements and the luminaire part:




## Lamp failure functionality

**No load**

When open load is detected, driver limits output voltage according to Uout (max) (abnormal).

**Overload**

The driver can withstand overload.

**Short circuit**

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

## 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 | IEEE1798 - 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).

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 110 °C.

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

RCM (Regulatory Compliance Mark) indicates that this LED driver model is tested and verified to comply with applicable electrical safety and electromagnetic compatibility requirements in Australia and New Zealand.

An independent controlgear that can be used where normally flammable materials, including building insulation, are or may be present, but cannot be abutted against any material and cannot be covered in normal use.

# Order codes

LC43MN22-CC-300-1050 LED driver can be ordered as just the built-in LED driver itself or then as a combination package with strain reliefs for input and output side. Input strain relief is a LOOPing model with the connector block inside, output strain relief is simple model with screw tightening. Everything is preassembled from the factory, ready to be connected to your LED luminaire! Please refer to the order codes in the table below.

## ORDER CODES

| | Order code | Product name | What is included |
|---|---|---|---|
| *LC43MN22-CC-300-1050* | | | |
| Product order codes | 5964000 | LC43MN22-CC-300-1050 | LC43MN22-CC-300-1050 LED driver |
| | 5964010 | LC43MN22-CC-300-1050-SR | LC43MN22-CC-300-1050 LED driver and 2 x LC-SR-MN22 strain reliefs (input + output), preassembled |
| | 5964020 | LC43MN22-CC-300-1050-LOOP-A | LC43MN22-CC-300-1050 LED driver and LC-SR-MN22-LOOP + LC-SR-MN22 strain reliefs (input + output), preassembled |
| | 5966100 | LC-SR-MN22 | 1 x Strain relief, screwable |
| | 5966300 | LC-SR-MN22-LOOP | 1 x Strain relief, LOOP model |