

## Strain Relief Series

- Innovative accessory (patent pending) that enables independent installation of compatible 30 mm wide metal case LED drivers
- Easy installation
- Sturdy structure, compatible with cables of different thickness
- Available in white (product code 5596000)




IEC Halogen free



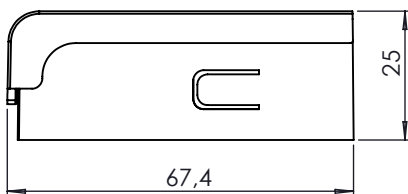
### PACKAGE CONTENTS

One set of LL1x2130-SR strain relief consists of the following parts:

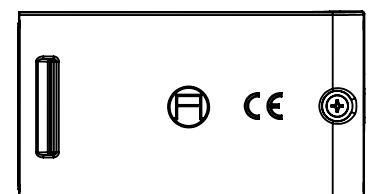
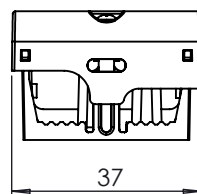
- Cover part
- Bottom part
- One screw (3x14 mm)
- One sticker bearing the  symbol per two strain reliefs (for Class II drivers, see page 3)

The LL1x2130-SR products are packed in bags of 20 strain reliefs each. When installing the products, please make sure to have two strain reliefs available per each driver.

### DIMENSIONS



Tolerance for dimensions ± 0,1 mm



### MATERIALS AND CONDITIONS

#### Material Specifications

Material type	Polycarbonate/ABS
Fire retardant	Yes
UV protected	Yes
Ball pressure test passed at	75 °C (IEC 60598-1 cl. 13.2)
Colour	White, RAL 9016
Halogen free according to	IEC 61249-2-21

#### Mechanical, Operating & Storage Conditions

Driver cross-section dimensions	21 x 30 mm
Wire size	0.5 - 1.5 mm <sup>2</sup>
Ambient temperature range	-20...+40 °C*
Storage temperature range	-40...+80 °C
Assembly temperature range	+5...+30 °C
Do not store in wet or humid environment!	

\*Unless otherwise stated in the driver datasheet (for independent installation). Note! Tc max temperature of the driver shall not be exceeded.

#### Conformity & Standards

Luminaires - Part 1: General requirements and tests	IEC 60598-1:ed.8 2014 EN 60598-1:2015
Luminaires. Part 2: Particular requirements. Section One: Fixed general purpose luminaires	IEC 60598-2-1:1979+A1:1987 EN 60598-2-1:1989

Compliant with relevant EU directives, CE marked, RoHS/REACH compliant

LL1x2130-SR strain reliefs enable the independent installation of Helvar metal case LED drivers. The usage of the strain reliefs with a Helvar built-in driver is covered by our CE declaration. Possible ENEC certification of the driver does not extend to independent use, unless otherwise stated in the driver datasheet and/or certificate. Please always take specific requirements into account before installing and using the strain reliefs.

## ASSEMBLY INSTRUCTIONS

Please refer to separate Installation guide, available on product website's Download & Links section, for instructions of how to install the LL1x2130-SR strain reliefs to the driver.

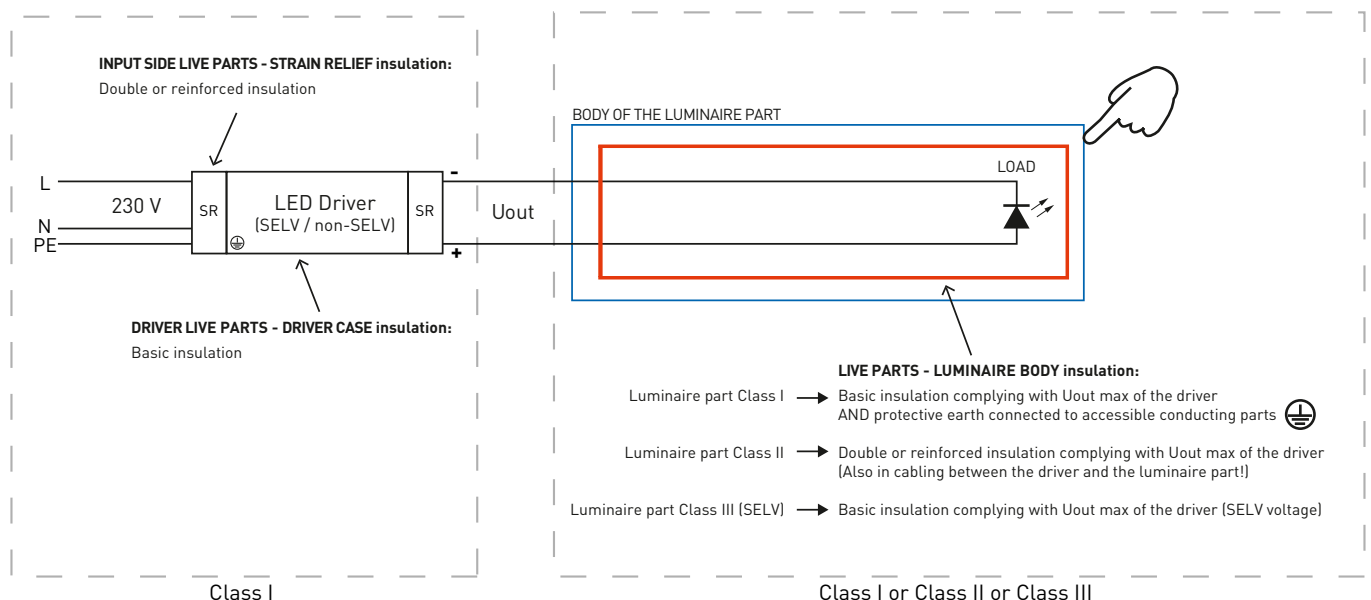
## Protection class of the LED driver

### CLASS I DRIVERS

LED drivers of protection class I have basic insulation between live electrical parts and accessible parts of the driver. In addition to this, they always have protective earth (PE) terminal/cable, to which the electrically conductive casing components are connected. Protective earth conducts in such a way that accessible parts can't become live in case of the basic insulation fails.

When installing Class I drivers independently with LL1x2130-SR strain reliefs, PE terminal of the driver must be connected to protective earth conductor. In addition to this, the operating conditions of the driver in independent installation may never exceed the specifications as per the product datasheet.

Required insulations illustrated in the figure below. It is always the integrator's responsibility to ensure that the combination of the driver and the luminaire part complies with the relevant standards (e.g. IEC / EN 60598-1).



**Note: The combination is Class I, even though Class II or Class III luminaire parts are used!**

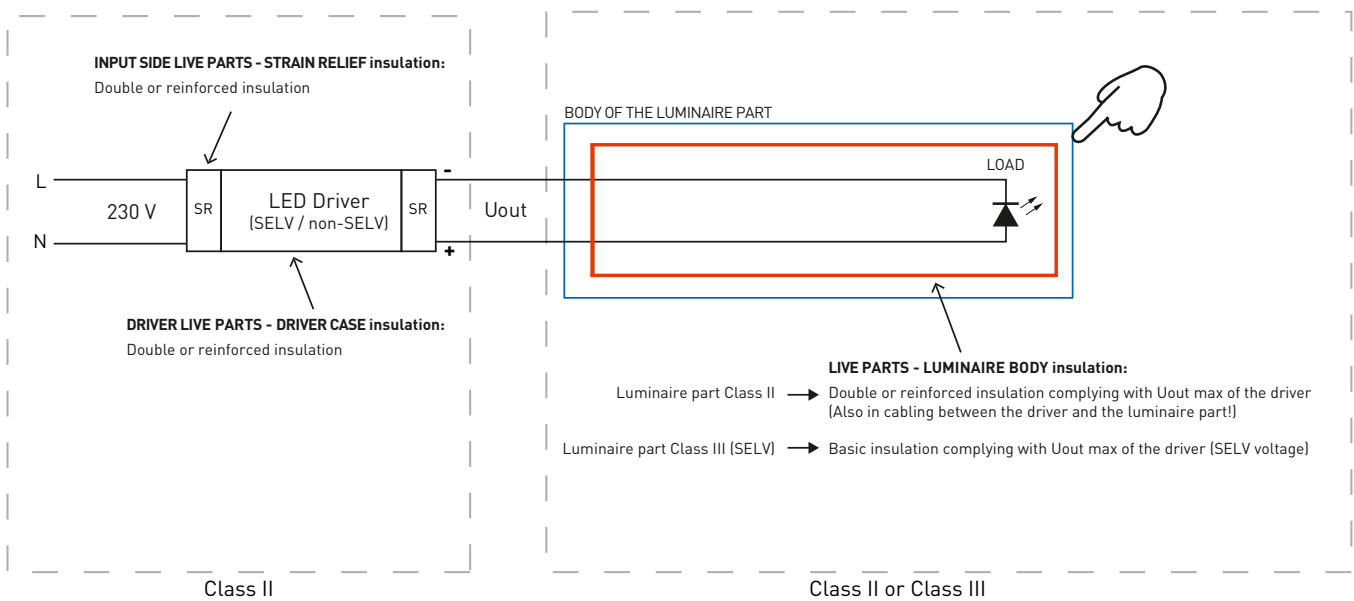
**LIMITATION OF LIABILITY. ALWAYS CHECK AND FOLLOW EXACT REGULATIONS FROM LATEST RELEVANT IEC/EN STANDARDS.**

## CLASS II DRIVERS



LED drivers of protection class II have double or reinforced insulation between live electrical parts and accessible parts of the driver.

When installing Class II drivers independently with LL1x2130-SR strain reliefs, the accessible parts of both the cabling and the luminaire part must have double or reinforced insulation from the live parts. Only when the driver has isolated SELV output, those may be basic isolated according to  $U_{out\ max}$  of the driver (SELV voltage). In addition to this, the operating conditions of the driver in independent installation may never exceed the specifications as per the product datasheet.

Required insulations illustrated in the figure below. It is always the integrator's responsibility to ensure that the combination of the driver and the luminaire part complies with the relevant safety standards (e.g. IEC / EN 60598-1).



**Note:** The combination is Class II, even though Class III luminaire parts are used!

Because of the regulations, the Class II drivers designed for built-in usage, marked with symbol  (double ring), must be marked with the symbol of  (double square) when fitted with accessories making it suitable for independent installation.

**Thus, when installing the LL1x2130-SR strain reliefs to Class II Helvar drivers marked with the symbol , the sticker bearing the symbol  must be attached to the driver case or strain reliefs.**

**Do not use the stickers with Class I drivers!**

**Attach the sticker, when using the LL1x2130-SR strain relief with the following drivers:**

LL1x50-E-CC	LL1x50-E-CC-700-1050	LL1x50-E-DA	(LL1x50 Active+)
LL2x25-E-CC	LL2x35-E-CC	LL2x35-E-DA	LL1x80-CC-1400-2100

**LIMITATION OF LIABILITY. ALWAYS CHECK AND FOLLOW EXACT REGULATIONS FROM LATEST RELEVANT IEC/EN STANDARDS.**

## Thermal considerations

The LL1x2130-SR strain reliefs are designed and tested to comply with the luminaire standard EN 60598-1:2015 where applicable, and the metal case LED drivers are designed and tested as built-in components, complying the relevant standards when used properly. When combining the strain reliefs and drivers for independent installation of the drivers, it is always the responsibility of the integrator to ensure that the combination complies with the relevant standards (e.g. IEC / EN 60598-1).

Thermal design of the luminaire system is important for the safety, reliability and lifetime of the system. Datasheets give guidelines what range of ambient temperature is recommended for the driver in built-in and in independent usage, but in both environments it is always the responsibility of the integrator to ensure that the Tc point temperature does not exceed the Tc max temperature specified in the product datasheet.

## Installation, mechanical and chemical considerations

- Do not assemble the LL1x2130-SR strain reliefs into place in cold environments (<5 °C)
- When installing the strain reliefs, refer to the separate installation guide
- The protection class of the final installation must be adequate for the application
- While handling the strain reliefs avoid excess mechanical stress or pressure applied to them
- Avoid dropping of the strain reliefs
- Mechanical modifications (drilling, milling, sawing or cutting of the strain reliefs) are not permitted

Chemical substances may cause damage to the LL1x2130-SR strain reliefs.

Avoid materials and substances containing:

- Acetone, ketones, ethers, and aromatic and chlorinated hydrocarbons
- Aqueous or alcoholic alkaline solutions, ammonia gas and its solutions and amines

Do not expose LL1x2130-SR strain reliefs to steamy environments.

## Compatibility list

**LL1x2130-SR strain reliefs are compatible with the following Helvar LED drivers:**

LL1x26-CC	LL1x38-CC	LL1x38-CC-350	LL1x10-42-E-CC
LL1x10-42-E-DA	LL1x50-E-DA	LL1x50-E-CC	LL1x50-E-CC-700-1050
LL1x70-E-DA	LL1x70-E-CC	LL1x23-80-E-CC	LL1x23-80-DA
LL1x80-E-CC-350-700	LL1x80-DA-350-700	LL1x80-CR-DA	LL1x110-E-CC-200-350
LL1x110-E-CC-350-700	LL1x110-E-DA	LL1x150-E-CC	LL1x80-CC-1400-2100
LL2x25-E-CC	LL2x35-E-CC	LL2x35-E-DA	

For use with Active+ drivers or any other driver than the listed ones, please consult Helvar.