

## Radar-LED

### Safety notes

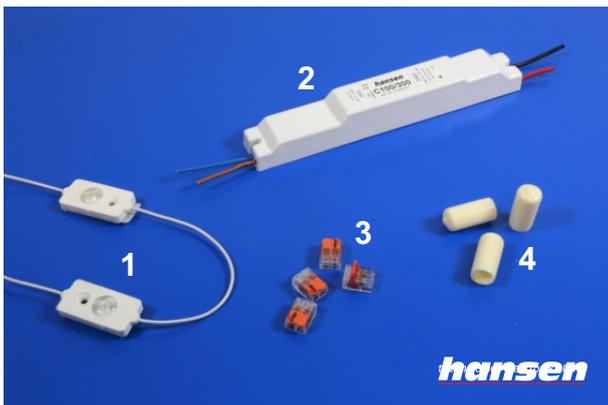
- The electrical connection must be carried out by qualified electricians only. The supply voltage must be switched off before carrying out any installation or maintenance activities.
- Only use original parts from the manufacturer for maintenance and repair.
- The manufacturer accepts no liability for damage caused by improper use or extreme external influences. These are for example:
  - **Mistakes during transport and installation:**
    - excessive bending, twisting or squeezing of the LEDs and connecting wires, particularly due to improper use of sharp tools
    - damage due to improper transport or installation
    - tampering with the electric circuits
  - **Environmental and natural influences:**
    - overheating due to excessive ambient temperatures
    - chemical influences in the environment (e.g. sulphur)
    - dirt contamination
    - overvoltage due to lightning

Please keep these instructions with the documentation of your installation.

### Intended use

- The **hansen** Radar-LED is a semi-finished product which fulfills its final function after further processing (e.g. installation) by the customer or third parties.
- The Radar-LED is designed for the illumination of channel letters, light boxes and similar hollow bodies inside and outside dry rooms. In addition, it can be operated "open", i.e. without protective enclosure inside dry rooms when appropriate mechanical or electrical protection is provided.
- Proper operation, storage and processing of the Radar-LED is only ensured in still natural air, free of chemically reactive gases, vapours, aerosols, liquids or solids, within the temperature range between -10 °C and +50 °C, at humidity levels below dew point (no condensation), free of UV radiation or ionizing radiation with wavelengths below 380 nm. Any use of the product outdoors outside suitable hollow bodies or under water is not permitted.
- The intended use includes observance of the associated technical data sheet, operating instructions and installation instructions.

### Radar-LED and accessories



#### 1 Radar-LEDs

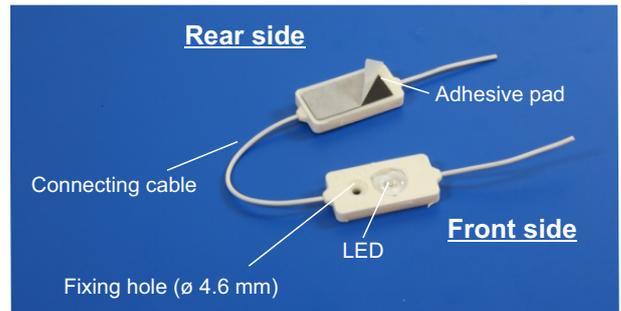
##### Accessories (picture shows example):

Not included in the scope of delivery. Depends on the order, quantity and scope (see delivery note).

- 2 LED converter (optional)
- 3 WAGO connectors (optional)
- 4 Insulating caps (optional)

### Unpacking and checking the content

- The packaging must be opened in such a way that the content cannot be damaged. Particular care must be taken when using sharp tools.
- After unpacking, immediately check the content for damage (e.g. transport damage) and compliance with the delivery note.
- Any defects or deficiencies must be notified to the supplier (the company Hansen) immediately.



### Installing the Radar-LEDs

- The Radar-LEDs are usually mounted on the inside rear wall of the illuminated body (e.g. light box) with the LEDs/lenses facing towards the front.
- The Radar-LEDs should be distributed as evenly as possible inside the illuminated body. This can be ensured by installing them at the spacing pre-determined by the length of the connecting cables. If required, they can be installed at a smaller spacing, which will create loops in the connecting cables.
- The Radar-LEDs can be fixed in two ways:
  - with double-sided adhesive tape or
  - with screws
- **Fixing with double-sided adhesive tape**  
The Radar-LEDs are provided with an adhesive pad on the rear protected by a paper foil. Remove the protective foil and place the LED on the desired spot. To ensure good adhesion, press the LED onto the surface with moderate finger pressure. Make sure not to place the finger onto the LED/lens but onto any other part of the module.
- **Fixing with screws**  
Each Radar-LED can be fixed to the rear wall using a screw. The adhesive tape provided on the rear can (with or without the protective foil) remain on the module. For a screwed connection, each Radar-LED is provided with a 4.6 mm fixing hole. Threaded bolts, chipboard screws, sheet metal screws or self-tapping screws can be used. Make sure to only hand-tighten the screws as firmer tightening may crack the housing and damage the LED.

## Radar-LED

### Electrical connection

- For trouble-free operation the Radar-LEDs require a ***hansen*** converter of the C100/... series. The Radar-LEDs must only be operated with a converter of this type.
- The Radar-LEDs are operated in series connection (see connection diagram below).
- Connecting the LEDs in parallel, e.g. to 12 volts, is not permitted and will destroy the LEDs.
- **The connection of the Radar-LEDs to the converter must only be made when the system is de-energized. Establish and check the connection between the LEDs and the converter first before switching on the mains voltage.**
- The Radar-LEDs and the converter are connected in series as shown in the diagram below:
  - The POSITIVE pole (red cable) of the converter is connected to the POSITIVE side of the first Radar-LED.
  - The NEGATIVE pole (black cable) of the converter is connected to the NEGATIVE side of the last Radar-LED.
  - The individual Radar-LEDs are connected to each other "POSITIVE to NEGATIVE".
- For the connection to the converter or between the Radar-LEDs we recommend using the WAGO connector type 221-412 (article no. 5 0004 013).
- When using the converters C100/990 or C100/990D, the WAGO connectors must be protected with an additional insulating cap (12 x 30 mm, article no. 5 0004 004).
- To prevent ingress of water into the connector/insulating cap, arrange them in such a way that the cables enter the connectors from below. This will allow any developing condensate to flow off.

### Converters

- The Radar-LEDs are operated in series connection with a current of 100 mA.
- Currents below 100 mA are permitted, whereas currents above 100 mA are not permitted as they will damage the LEDs.
- The Radar-LED system may only be operated with the following ***hansen*** converters and the corresponding maximum number of LEDs stated on the right:

Converter type	Max. no. of LEDs
C100/150	20
C100/300	42
C100/990	150
C100/300D	42
C100/990D	150
C100/990DALI	150

### Advice for safe and trouble-free operation:

- The specified maximum number of LEDs for the converter must not be exceeded.
- The LEDs must not be operated with a current higher than the specified rated current.
- Individual sections of the Radar-LEDs system must only be connected with cables approved for the maximum open-circuit voltage of the converter used.
- The electric circuit must not be interrupted while the system is operational.
- For the installation of the LED converters please refer to the respective installation instructions.

