Installation manual
LED-module + Power supply
Safety Instructions

Safety
This section contains general safety instructions for using your HELLA equipment. Some safety instructions may not apply to the equipment in this manual. Note all warnings and follow all instructions carefully. Failure to do so may result in personal injury, death, or property damage.

To use this equipment safely,
• refer to the International Standard IEC 61820, Electrical installation for lighting and beaoning of aerodromes - Constant current series circuits for aeronautical ground Lighting - System design and installation requirements, and to the International Standard IEC 61821, Electrical installations for lighting and beaoning of aerodromes - Maintenance of aeronautical ground lighting constant current series circuits for instructions on safety precautions.
• observe all safety regulations. To avoid injuries, always remove power prior to making any wire connections and touching any live part. Refer to the International Standards IEC 61820 & IEC 61821.
• read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.
• read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
• store this manual within easy reach of personnel installing, operating, maintaining, or repairing this equipment.
• follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.

Qualified Personnel
The term qualified personnel is defined here as individual who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain, and repair the equipment. It is the responsibility of the company operating this equipment to see that its personnel meet these requirements.

Intended Use
Use of this equipment in ways other than described in the catalog leaflet and this manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in this manual. HELLA cannot be responsible for injuries or damages resulting from non-standard, unintended applications of its equipment.
This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage. Unintended uses may result from taking the following actions:
• making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine HELLA replacement parts or accessories
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• using materials or auxiliary equipment that are inappropriate or incompatible with your HELLA equipment
• allowing unqualified personnel to perform any task.

Installation
Read the installation section of all system component manuals before installing your equipment. A thorough understanding of system components and their requirements will help you install the system safely and efficiently.
Failure to follow these safety procedures can result in personal injury or death.
• Allow only qualified personnel to install HELLA and auxiliary equipment. Use only approved equipment. Using unapproved equipment in an approved system may void agency approvals and will void the Warranty.
• Make sure all equipment is rated and approved for the environment in which you are using it.
• Follow all instructions for installing components and accessories.
• Install all electrical connections to local code provided they are not in contradiction with the general rules.
• Use only electrical wire of sufficient gauge and insulation to handle the rated current and voltage demand. All wiring must meet local codes.
• Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment and animals (e.g. rodents).
• Protect components from damage, wear, and harsh environment conditions.
• Allow ample room for maintenance, panel accessibility (power products), and cover removal (power products).
• Protect equipment with safety devices as specified by applicable safety regulations.
• If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.

Operation
Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment. Read all system component manuals before operating this equipment.
A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
• Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
• Never operate equipment with a known malfunction.
• Do not attempt to operate or service electrical equipment if standing water is present.
• Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
• Never touch exposed electrical connections on equipment while the power is ON.
• Never look directly in the light source while the power is ON.

Action in the event of a system or component Malfunction
Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.

- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual. Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks. Only persons who are properly trained and familiar with HELLA equipment are permitted to service this equipment.
- Follow the recommended maintenance procedures in your equipment manuals.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved HELLA replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals, impair specified performance and create safety hazards.
- Check interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with electrical equipment.

Use Restriction Notice, Warranty and Disclaimers

Use restriction notice This Instruction Manual is the property of HELLA LGaA Hueck & Co.
Rixbecker Strasse 75
59557 Lippstadt, Germany

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Warranty

HELFA General Conditions for Deliveries and Services available at the time of the offer made by HELLA for the delivery of products and services shall apply unless otherwise agreed in writing.

Disclaimers

This manual could contain technical inaccuracies or typographical errors. HELLA reserves the right to revise this manual from time to time in the contents thereof without obligation of HELLA to notify any person of such revision or change. Details and values given in this manual are average values and have been compiled with care. They are not binding, however, and HELLA disclaims any liability for damages or detriments suffered as a result of reliance on the information given herein or the use of products, processes or equipment to which this manual refers. No warranty is made that the use of the information or of the products, processes or equipment to which this manual refers will not infringe any third party’s patents or rights. The information given does not release the buyer from making their own experiments and tests.
Similarly, HELLA disclaims any liability for damages or detriments suffered as a result of modification made on site on the products by any other party than HELLA.
General recommendations
Receiving, storage and unpacking
1. Upon receipt of goods at the site store, check all packaging for visible damage. Every damaged box should be opened and its content inspected for damage. If equipment is damaged, a claim form shall be filed with the carrier immediately. It may then be necessary for the carrier to inspect the equipment.
2. Store the LED-module preferably in its original packaging in a protected area. When stored unpacked, please take care not to damage the cable insulation.
3. Unpack the LED-module at the installation site to avoid damage during transportation and handling.

Electrical connection
The current supply should not deliver more than 8A over a long time, since it could damage the power supply.
The current supply should include a resistance (Value 4.7 Ω, 250W).
The power consumption is dependent on the number of connected LED-module.
Therefore, you should pay attention to the input current.

Base Earthing
Whatever the chosen installation method, it is strongly recommended to earth the sign housing, especially in locations presenting a risk of lightning strikes. Failure to earth correctly the sign housing will void the warranty for all damages occurring as a result of voltage surges.

Maintenance
Warranty limitation
The LED-modules are delivered fully tested and sealed. In case of malfunctioning during the warranty period, the defective module shall be shipped back to Hella without opening it. Any attempt to open the module during the warranty period will void the warranty.

Instructions for use and safety precautions:
Do not connect to 220V.
Do not connect to DC.
Pay attention that by switching ON the sign, the correct quantity of LED-modules is connected to the power supply (see the adjustment of SW1).
**Power supply interface:**

S1: Reset button.
   A- Push this button to see which LED-module is not working.
   B- Push this button to reboot the system after replacement of the damaged LED-module(s).

X1.1 and X1.2: Connection to the internal Reset button (do not use).

X1.3 and X1.4: Connection for 6.6A (use only the delivered cable).

X2: Earth (Sign housing).

SW1: Adjustment of the quantity of LED-modules connected to the power supply (maximum number of modules per power supply is 6)

**Instruction for installation:**

Assemble the plug into the plug housing and fix it with the delivered screws.
### Sign configuration:

To choose the optimal orientation and quantity of LED-modules in the sign, please refer to the following tables:

<table>
<thead>
<tr>
<th>Distance to front glass</th>
<th>illuminated width per light assembly</th>
<th>illuminated height per light assembly</th>
<th>relative light intensity</th>
<th>Quantity of LED-modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>300</td>
<td>500</td>
<td>196%</td>
<td>1</td>
</tr>
<tr>
<td>120</td>
<td>350</td>
<td>550</td>
<td>136%</td>
<td>2</td>
</tr>
<tr>
<td>140</td>
<td>400</td>
<td>600</td>
<td>100%</td>
<td>3</td>
</tr>
<tr>
<td>160</td>
<td>450</td>
<td>650</td>
<td>77%</td>
<td>4</td>
</tr>
<tr>
<td>180</td>
<td>500</td>
<td>700</td>
<td>60%</td>
<td>5</td>
</tr>
</tbody>
</table>

**Main table: Sign configuration**

Table 1 to 5: Orientation and quantity of LED-modules in a sign
LED-module assembly:
- Vertical: introduce the LED-module into the back sheet and push it down (plug showing downward)
- Horizontal: introduce the LED-module into the back sheet and push it sideward (Orient the plug as shown on the picture)

Power supply assembly:
When mounting the power supply, make sure that it is built vertically and the connections show downward.

Handling of signs in case of maintenance
When a sign is reported as failed, the following routine is required:
- Get access to “Reset” button of the sign
- Press the “Reset” button and watch the modules to detect the broken parts. If there is no failure the sign will stay alive after releasing the button. If there is a failure the sign will switch off within one second
- If the failure parts could not be detected, wait for at least 10 seconds and press the “Reset” button again
- Switch off power supply of the sign and change faulty modules
- Switch on the power supply again and press “Reset” button to start the signs

**Spare parts:**

Please get in contact to your sales-manager by Hella, or your supplier