

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 beaconing 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 beaconing 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.

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59557 Lippstadt, Germany

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Warranty

Hella 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.

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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 4.7Ω , 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.

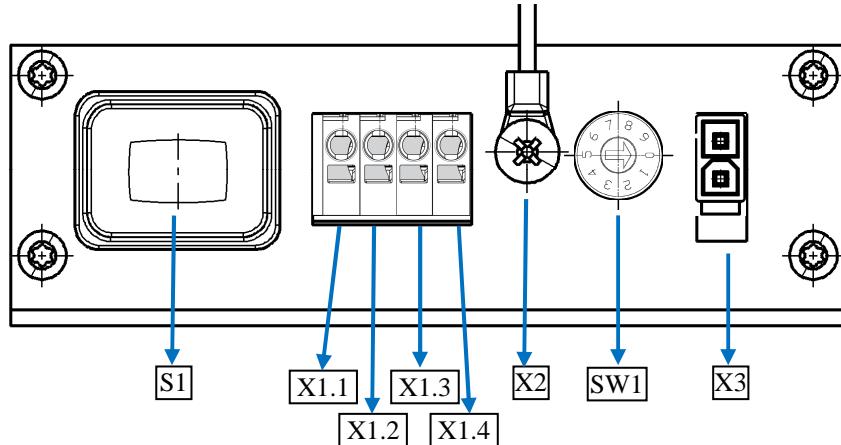
Instructions for use and safety precautions:

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).

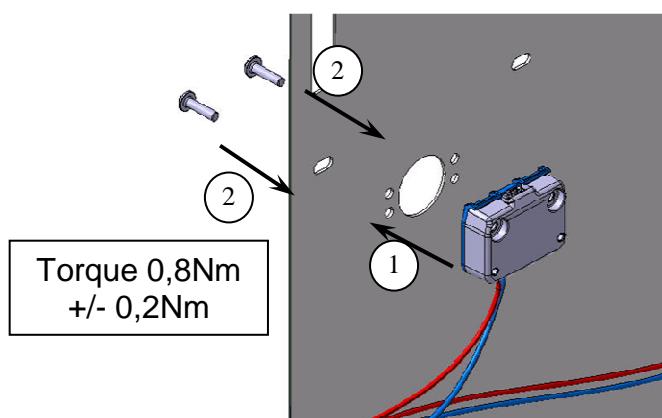
X1.3 and X1.4: Connection for 6,6A (use only the delivered cable).

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.



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Sign configuration:

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

	illuminated width per light assembly	illuminated height per light assembly	relative light intensity	Quantity of LED-modules
				Refer to table...
Distance to front glass	opt. Module interval	opt. Module interval		
100	300	500	196%	1
120	350	550	136%	2
140	400	600	100%	3
160	450	650	77%	4
180	500	700	60%	5

Main table: Sign configuration

Table 1

Sign width	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000		
Sign height	Number of rows	Quantity of LED-modules per row																									
400 - 500	1 row vertical	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10	
>500 - 600	2 rows vertical	2	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6
>600 - 1000	2 rows vertical	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9	9	10	10	10	
>1000 - 1200	4 rows vertical	-	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6	
>1000 - 1500	3 rows vertical	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 2

Sign width	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
Sign height	Number of rows	Quantity of LED-modules per row																								
400 - 500	1 row vertical	2	2	3	3	3	4	4	4	4	5	5	6	6	6	7	7	7	8	8	8	9	9	9	9	9
>500 - 700	2 rows horizontal	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6
>700 - 1100	2 rows vertical	2	2	3	3	3	4	4	4	4	5	5	6	6	6	7	7	7	8	8	8	9	9	9	9	9
>1100 - 1400	4 rows horizontal	-	-	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6
>1100 - 1500	3 rows vertical	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3

Sign width	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
Sign height	Number of rows	Quantity of LED-modules per row																								
400	1 row horizontal	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
>400 - 600	1 row vertical	2	2	2	3	3	3	4	4	4	4	5	5	5	5	6	6	6	7	7	7	8	8	8	8	8
>600 - 800	2 rows horizontal	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
>800 - 1200	2 rows vertical	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8	8	8

Table 4

Sign width	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
Sign height	Number of rows	Quantity of LED-modules per row																								
400 - 450	1 row horizontal	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5
>450 - 650	1 row vertical	2	2	2	2	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7
>650 - 900	2 rows horizontal	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4
>900 - 1300	2 rows vertical	2	2	2	2	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7

Table 5

Sign width	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	
Sign height	Number of rows	Quantity of LED-modules per row																								
400 - 500	1 row horizontal	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4
>500 - 700	1 row vertical	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6
>400 - 1000	2 rows horizontal	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4
>1000 - 1400	2 rows vertical	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6

Table 1 to 5: Orientation and quantity of LED-modules in a sign

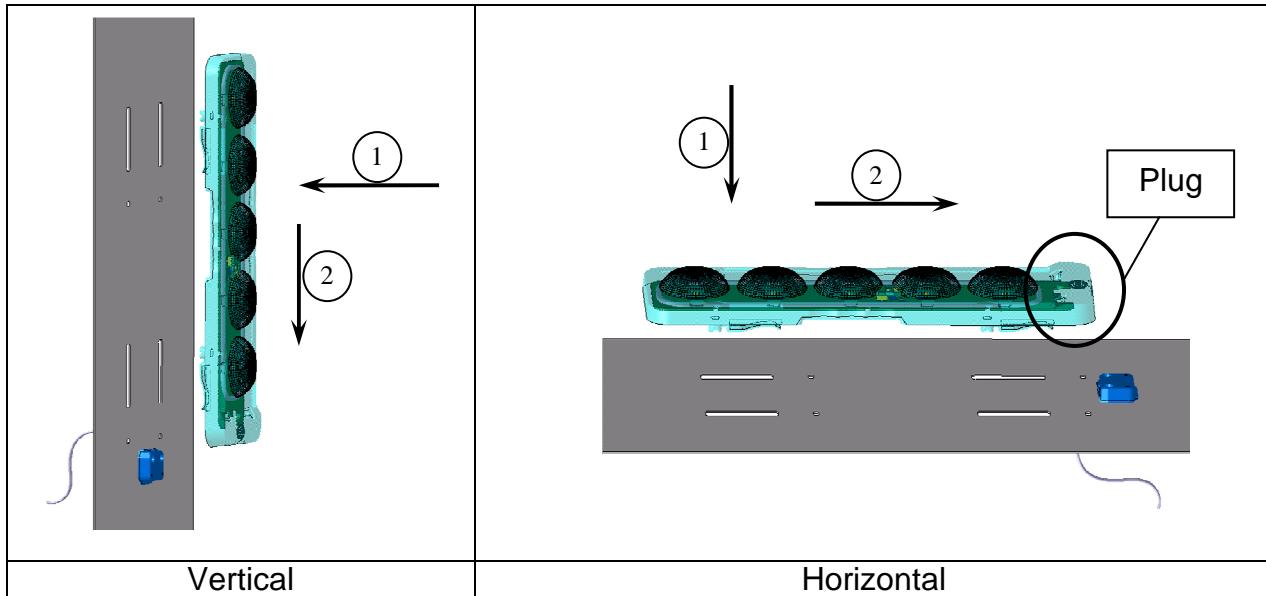
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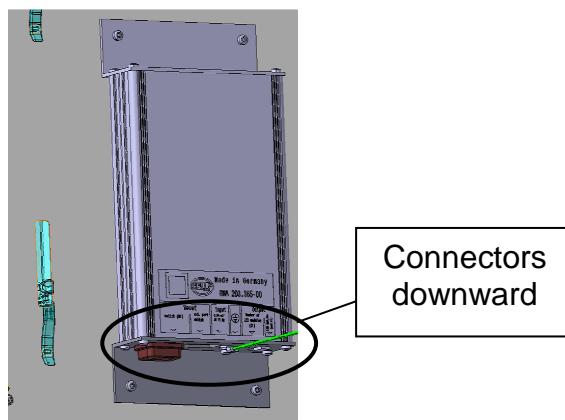
LED-module assembly:

- 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

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- 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