



StarGuide MAXI **Railing module**

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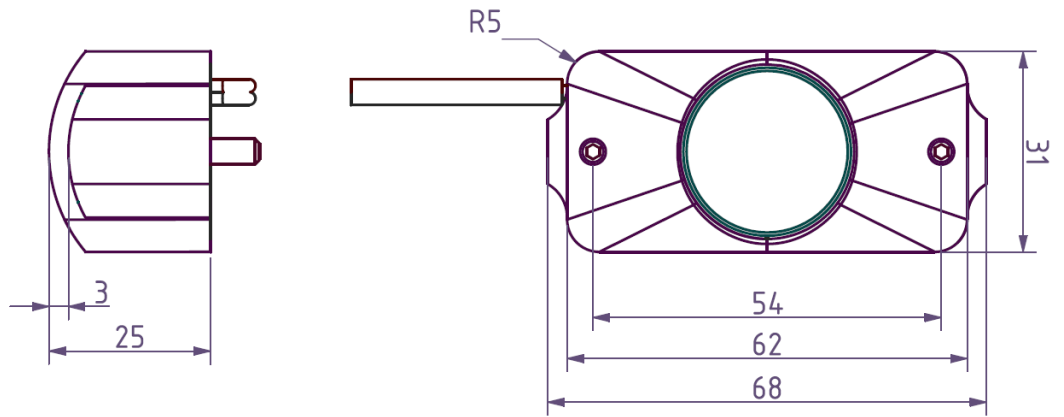
Picture

1.1 General



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Dimensions



Safety information

Before installing, powering up, or servicing the StarGuide MAXI led-unit, it is highly recommended that you read this manual, and you insure yourself that you completely understand its content. Observe the safety precautions in this manual. Install and operate the led-unit only as described in this manual, and in conformity with local regulations. If you have any questions how to operate this product safely, please contact your point of sale.

3.1 Symbols

Following symbols are used to identify important safety information on the product and in this manual.



DANGER!
Safety hazard. Risk of severe injury or death.



Warning!
Hazardous voltage. Risk of lethal or severe electric shock.



Warning!
LED light emission. Risk of eye injury.



Warning!
Burn hazard. Hot surface. Do not touch



Warning!
Refer to user manual.

3.2 Protection from electric shock



Although this device itself does not operate with dangerous voltages, the installation in which is intended to be used, can contain dangerous voltages.

Shut down the power of the complete installation before carrying out any installation, or maintenance work.

Use only AC to DC current controlled 350 mA power sources, suitable for the application, and conform to local regulations.

Please ensure yourself that the AC to DC current controlled power supply is able to deliver the rated requirements of the complete installation.

If any cable, seal or housing is damaged, cracked, or reformed, disconnect the power of the installation immediately.

For any additional servicing, not described in this manual, please contact your point of sales.

3.3 Protections from fire and burns



Do not operate this led-unit if ambient temperatures, is above 45°C (113°F). It might be necessary to allow the led-unit to cool down for 5 minutes, before servicing.

Do not modify the led-fixture, in a way, not described in this manual.

3.4 Protection from injury



Ensure yourself that all components, covers is securely fastened. Verify that the led-unit is firmly fixed to its supporting railing. Ensure yourself that the vibration, will not loosen the screws, which hold the module. Take precautions if necessary by applying a low grade locking glue. (Loctite® 222)

3.5 Disposing of this product



This led-lighting device is manufactured in compliance with directive of the European community: 'waste of electrical and electronically equipment'. Please help to preserve our environment, and ensure that this product will be recycled properly at the end of its life.

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Physical installation

Thank you for selecting this StarGuide MAXI led-unit as best solution in your setup.



Warning! Read the safety precautions in this manual before integrating this card into your installation. Installation must be carried out by qualified professionals only.

4.1 Unpacking

The StarGuide modules are only sold in sets, together with their dedicated power supply and all accessories.

The following items are included in your set:

- A number of StarGuide MAXI led-units each with its two allen key bolts:



- A number of push seal connectors (named further in this document: Scotchlok™)



- An allen key nr 2:



- A tube, or flacon with threat locking glue.



- A dedicated led-driver.



Sets are delivered in a carton box and protective antistatic packaging, with this manual.

4.2 Location and orientation

This StarGuide MAXI led-unit itself can be used in all different directions and orientations.

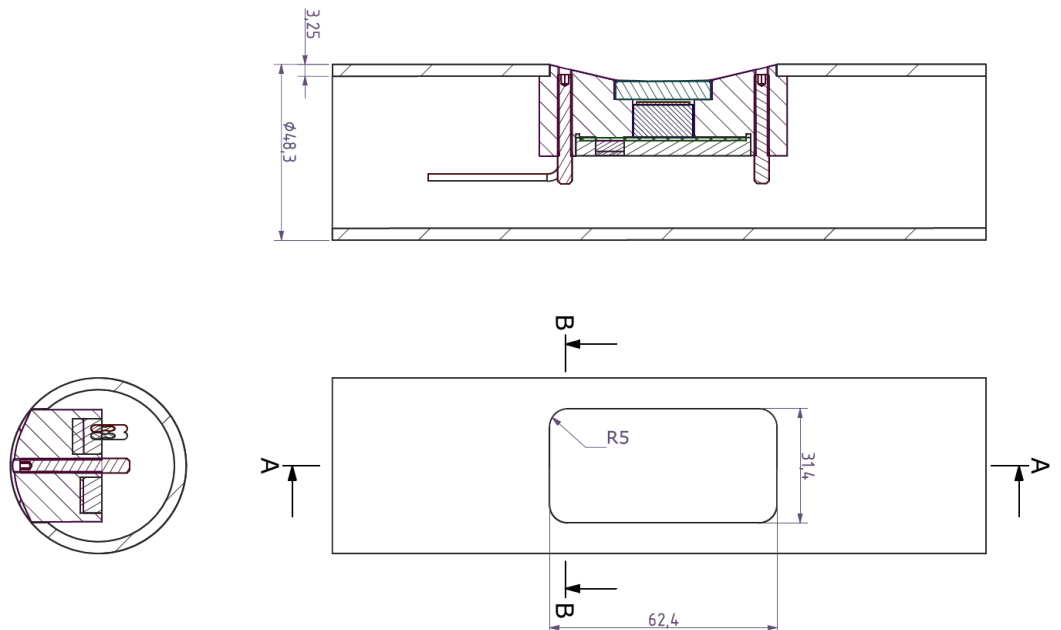
4.3 Mounting

The StarGuide MAXI led-unit is designed to be used on a stainless steel tube of 48.3 mm diameter, wall-thickness of 3.25 mm. Due to the unique concept of fixation, installation can be done easily, with the help of a small allen Key.

In case of problems, or doubts, please contact your point of sale.

4.4 Cutout

Dimensions of cutout in the tube can be found here:



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External connections

5.1 DC power at input

Safety precautions

Never connect the live power on the input terminals of the Railing-led unit!

In case of doubts, contact your point of sale.

Polarity

The StarGuide MAXI led-unit is polarity sensitive. So observe polarity and colour cabling:

- Red = positive
- Black = negative

Power supply: Rated current

The rated input current of the Railing module is 350 mA DC. Verify that the your power supply has a current controlled output. If you are not sure do not connect the power supply! In case of doubt, please contact your point of sale.

Power supply: Rated current

A StarGuide MAXI led-unit consumes approx 1 watt power, which results at 350 mA at a forward voltage of ± 2.8 to 3.2 Volt.



EMC and safety requirements

The StarGuide MAXI led-unit is fully compliant to the LVD and EMC directive of the European council, if used in a properly designed setup.

EMC requirements of the power supply:

The StarGuide MAXI led-unit is only intended to be used in lighting applications, and as such, the complete assembly of led unit and power supply needs to be fully compliant with the harmonized standards.

Immunity according to:

- EN 61547:2009 (General EMC immunity requirements lighting eq.)
- EN 61000-4-1:2006 (General immunity testing techniques)
- EN 61000-4-2:2008 (ESD immunity test)
- EN 61000-4-3:2006 + A1:2007 (Radiated immunity test)
- EN 61000-4-4:2004 (Fast transients and burst immunity)
- EN 61000-4-5:2005 (Surge immunity test)
- EN 61000-4-6:2008 (Conducted immunity test)
- EN 61000-4-8:1993 (Magnetic field immunity test)
- EN 61000-4-11:2004 (Voltage variations immunity test)
- EN 61000-6-1:2005 (Generic standards for immunity)

Emission according to:

- EN 61000-3-2:2005+A1:2008+A2:2009 (Harmonics emission test < 16A)
- EN 61000-3-3:2008 (Flicker+ voltage changes limits < 16A)
- EN 55015:2006+A2:2009 (Conducted + radiated emission lighting equipment)

To achieve this compliance, a proper power supply must be supplied. In case of doubts, contact your point of sale.

LVD requirements of the power supply:

The StarGuide MAXI led-unit is only intended to be used in lighting applications, and as such, the complete assembly of led unit and power supply needs to be fully compliant with following harmonized standards:

- EN 60598: general requirements of lighting equipment.

The module can be categorized according to EN 60598 as following:

- SELV class III
- Power supply-cord type Z, no removal, without permanent damage to the unit.
- IP 67 for the StarGuide MAXI led-unit.
- IK 06 for the StarGuide MAXI led-unit.

Please note that although the unit seems to be SELV, the complete installation is not SELV, and the railing needs a proper safety earth connection!

Installation setup

7.1 Specification

The StarGuide MAXI led-unit is a small and efficient solution which can be easily integrated in a circular railing tube. It uses a current controlled power supply and all modules are connected in series. Up to 100 modules can be connected in series, depending on the power supply used.

Please note that dangerous voltages are used. Always disconnect the main power of the complete installation, before executing any works on the installation.

- Power consumption each StarGuide MAXI led-unit: 1,2 W
- Rated current input: 350 mA
- Forward voltage over the led: ± 2.8 to 3.2 volt depending on binning and color
- Ingress protection: IP 67
- Impact protection: IK 06
- Weight: 32 gr
- Body material is 15 μM anodized aluminums.
- Transparent cover material is glass.
- Resin is epoxy based, and heat conductive.

The unit is equipped with a 'antifuse', so in case of failure of one module in a series string, all other modules remain fully functional.

Standard cable length is 1200 mm for positive polarity, and 200 mm for negative polarity, so maximum pitch is approx 100 cm between the modules.



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The module is polarity sensitive.

Connections are done by using Scotchlok™ connectors, supplied together with the StarGuide MAXI led-unit.

7.2 Installation

Tools

The installation of the StarGuide MAXI led-unit is straightforward, and needs mainly two tools:

- Allen key NR 2:



- Universal Pliers:

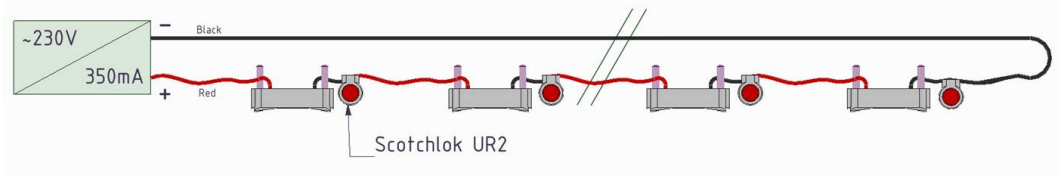


Note: A dedicated crimping tool is available to shrink the Scotchlok™ connectors. In case of a bigger installation, it might be useful to have this crimping tool in your tool set.



This tool is available at your point of sale.

SCHEMATIC of installation



So the units are connected in series in one string of elements. A 'retour line' makes the loop closed with the power supply. Each red wire is connected with the black wire, coming from its neighbour. The electrical connection is made with the supplied Scotchlok™ connectors.

STEP1:

Insert a black cable at the last cutout, direction to the led driver. So the cable is from end to begin of the railing, and has enough cable length to be connected to the driver.



The result will be like this:



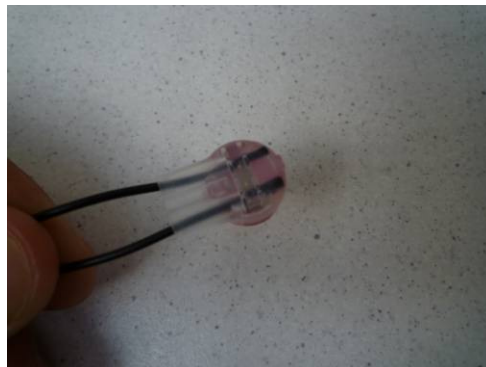
At the place of the last module, leave approx 20 cm cable out of the tube, and tape it the tube, so it will not get lost in the tube.

STEP 2:

Start the installation at the last module, by connecting the black cable on the module, with the black 'loop-back cable' by using the Scotchlok™ connector. Please note: this is the only place, where a black cable is connected with another black cable.



Insert the trimmed wire ends into the connector. Do not strip the wires. Make sure all wires are inserted past the metal element to the back wall of the connector.



Take a universal pliers, and place the connector between the jaws.

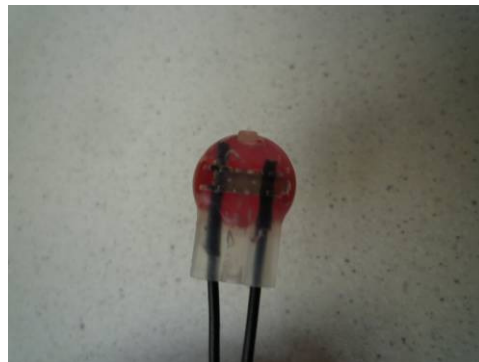


Make sure the two black wires remain fully inserted to the back wall of the connector.

Squeeze the handles of the pliers, so the red cap remains flush with the rim of the connector body.



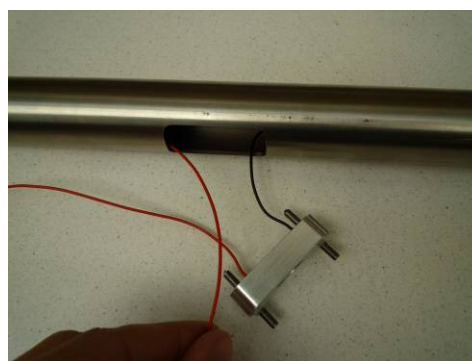
You will see that a gel, which is located in the red cap, will be injected in the cable insertions.



After verifying that the cable is still in good position, you can put the Scotchlok™ connector in the tube.

STEP 3:

Insert the red cable in the cutout, and glide it in to the next module.

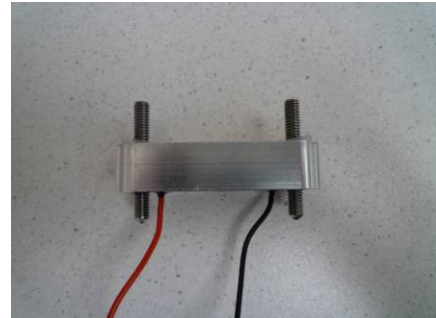
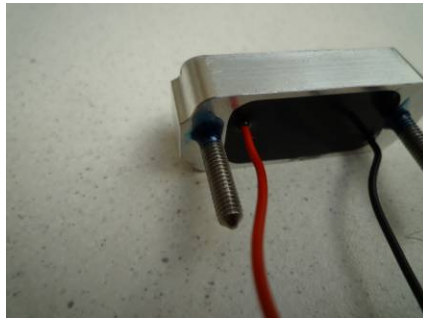


STEP 4:

Make sure both screws are like on following photo and apply some thread locking glue to both screws.



After applying the glue, turn the screws back to approx this situation:



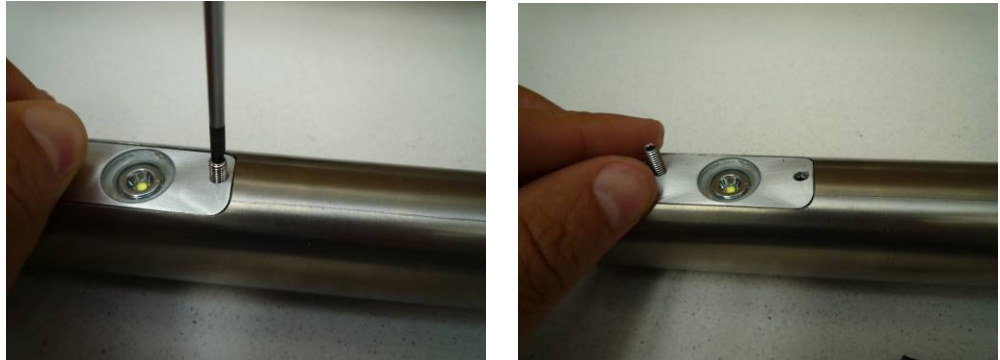
STEP 5:

Insert the module into the cutout. The screw has to be approx 10 mm visible from the front.



STEP 6:

Insert both screws complete to the end, make sure you do not perforate the black 'loop-back' cable.



The result is looking like this:



STEP 7:

Proceed with next module, starting from step 3.

Note: the installer has to ensure him(her)-self that the screw will not perforate any of the cabling, located in the railing!!

Never use an electrical tool to fasten the fixing screws in the led-module.



STEP 8:

At the beginning of the setup, you will have the black loop-back cable, and a red cable, coming from the first module. These cables need to be connected to the power supply, delivered together with your setup.

7.3 Choice of power supply

Since this led-unit is current driven, the voltage that the power supply has to deliver, is dependent on the number of modules that are connected in series.

The voltage drop over one module is approx 3 volt.
So in case of 12 modules, the current in the circuit will be 350 mA, and the voltage drop over the complete circuit will be:
 $12 \text{ modules} \times 3 \text{ volt(over one module)} = 36 \text{ volt.}$
It is important to understand that not all current sources are capable of producing a current of 350 mA at 36 volt.
In this example, the power generated by the power supply is:
 $0,350 \text{ (A)} \times 36 \text{ (volt)} = 12,6 \text{ watt.}$

We specify three different power supply's to use, depending on the number of units connected in series.

Number of modules	Current in circuit	Min voltage	Max voltage	Power supply mfr.	Power supply type
1 to 4	350 mA	2 V	14 V	Lightech	LED-4W 350mA
4 to 19	350 mA	12 V	58 V	Lightech	LED-18W DC350mA
20 to 50	350 mA	60 V	210 V	Philips Advance	LEDINTA 350C210DHO
51 to 100	350 mA	120 V	425 V	Phillips Advance	LEDINTA 0350C425FO

Manuals of the led-drivers are supplied with your setup.
Note that the power supply LEDINTA 350C210 DHO has a 1-10 volt dim-input. When your setup needs no dimming, the wires can stay unconnected.

Service and maintenance



8.1 Safety precautions

Read carefully the safety information in this manual. Lock out the power on the entire system and allow all electronic devices to discharge, and cool down, before executing any service or maintenance.

8.2 Cleaning

The StarGuide MAXI Led-unit itself

Extensive dirt, and particle build-up degrades performance, may cause overheating can result in damaged led-unit, and power supply's. Damage by inadequate cleaning or maintenance is not covered by the product warranty.

Never use solvents to clean the outer housing of the unit.

Warranty

9.1 Application of warranty

Warranty period.

Warranty service is valid for one year from the date of purchase by the consumer, as evidenced by invoice date given out by your point of sale.

Warranty service

Service under warranty can only be done by Lux Lumen.

Coördinaties:

Lux Lumen
Kernenergiestraat 53 A
2610 Wilrijk
Belgium

Any cost of secure transportation of the product to and from Lux Lumen service department, will be borne by the customer.

Limitations

Lux Lumen will not warrant the following:

- Periodic check-ups, maintenance and repair or replacement of parts due to normal wear and tear.
- Consumables
- Any software
- Defects caused by modifications carried out without Lux Lumen's approval.
- Damage resulting from the fact that a product is not conforming to country specific standards or specifications in another country than the country of purchase.

Costs incurred by Lux Lumen's service center in making any adoptions or modifications of a product necessary for country specific technical or safety standards or specifications, or any other cost to adjust the product as a result of any specifications which have changed since the delivery of the product.

Warranty service is excluded if damage or defects have been caused by:

Improper use, extensive use, handling or operation of the product as referred to in the user manual or operator manual and/or relevant user documents, including without limitation, incorrect storage, dropping, excessive shocks, corrosions, dirt, water, or sand damage, if the product is not rated to be used in severe conditions, indicated by its IP and IK degree, mentioned in the product specifications in this manual.

Repairs, modifications or cleaning carried out by a non Lux Lumen service centre.

Use of spare parts, software or consumables, which are not compatible with the product.

Connecting the product to equipment not intended to be used with this product.

Defects caused by improper condition of the power supply network.

Inadequate packaging of the product when returning it under the RMA procedure.

Accidents or disasters or any cause beyond the control of Lux Lumen, including but not limited to lightning, water, fire, public disturbances, improper ventilation, and acts of god.

Others

It is the responsibility of the customer to backup and save any software files and programs before repair and to restore the same after such repair.

This warranty does not affect the consumer's statutory rights under applicable national legislation in force, nor the consumer's rights against the retailer arising from the sales/purchase contract. In the absence of applicable national legislation, this warranty will be the consumer's sole and exclusive remedy, and Lux Lumen cannot be liable for any incidental or consequential damages for breach of any express or implied warranty of this product.

For full details of the warranty offered on this product, please contact Lux Lumen's service center.

9.2 RMA procedure

To send material back to Lux Lumen, you need a RMA (Return Material Authorization) document that you will receive from Lux Lumen.

Without the RMA document, we cannot accept the material.

The procedure to obtain a RMA:

Step1:

Customer contacts Lux Lumen about warranty, defects if material has to be returned.

Step2:

Lux Lumen sends the customer a filled out RMA document (using a unique RMA number)

Step3:

Customer sends material (include a copy of the RMA document with the material)

Step 4:

Lux Lumen evaluates the problem, and informs the client if repair is done under warranty, or makes an offer to the client for repair.

Step 5:

The procedure related to lux lumen quality procedures, according ISO 9001 is started up.

Used list of abbreviations.

- AC: Alternating current
- DC: Direct current
- °F: Temperature in degrees Fahrenheit
- °C: Temperature in degrees Celsius
- LED: Light Emitting Diode
- SELV: Safety extra low voltage
- mA: Milliampere
- V: Volt
- EN: European Norm
- EMC: Electro Magnetic Compatibility
- RMA: Return Material Authorization
- ESD: Electro Static Discharge
- LVD: Low Voltage Directive
- PCS: Pieces.
- SELV: Safety Extra Low Voltage
- IP: ingress Protection
- IK: International Mechanical Protection