

# SLU-24/SLU-36

Sabik Lighthouse Unit





## Table of Contents

1.	Introduction .....	4
2.	Technical Details .....	4
2.1.	Standard Features .....	4
2.2.	Optional Features .....	4
2.3.	Optical and Electrical Specification .....	5
2.4.	Dimensions and Weights .....	5
3.	Delivery content .....	6
4.	Installation .....	7
4.1.	Installation preparation .....	7
4.2.	Cable Diagram.....	8
4.3.	Controller Connections .....	8
4.4.	Rotation Sensor .....	10
4.5.	Light Unit Alignment.....	11
5.	Programming.....	12
6.	Order Codes .....	13
7.	Environmental Guide .....	14

## 1. Introduction

SABIK LIGHTHOUSE UNIT - replaces traditional lamp and lamp controller inside historical lighthouses. Sabik Lighthouse Unit (SLU-24 / SLU-36) is a reliable and efficient solid-state light source to replace traditional lamps in rotating or fixed classical lighthouse optics. It extends the service life of traditional lighthouses without expensive and complicated re-work or decommissioning activities. The product also offers many other additional benefits, such as the option for remote monitoring, lower maintenance costs and the possibility to utilize renewable power sources. All of this, while maintaining the traditional look, existing optics, rotating beam, flash characteristics, and heritage value of traditional lighthouses.

The units are provided with rotation and light sensors. The rotation sensor senses rotational failure and the light sensor acts as a "twilight switch" sensor. The automation disconnects the power to the light unit if the rotation fails and the system is engaged in alarm state. If the lighthouse is provided with optional remote monitoring the state is sent to a monitoring station.

## 2. Technical Details

### 2.1. Standard Features

- Expected range up to 24 NM at Tc = 0,74 (with selected optics)
- Copper/aluminium body with special emphasis on heat management to ensure LED longevity
- Neutral white or warm white light options
- SLU-24 for small size optics and/or solar panel
- SLU-36 for high intensity
- Connection for backup lantern
- Integrated flasher with automatic day-night switch
- Adjustable intensity from 0.3% to 100%
- Programmable with Sabik Bluetooth app (iPhone and Android) and standard Sabik IR programming devices
- Integrated event log for 365 days
- Controller in weatherproof polycarbonate enclosure
- Ambient temperature range: -30° to +50 °C / -22° to +122 °F
- 3 year warranty

### 2.2. Optional Features

- LightGuard Remote monitoring using LTE-M (GSM) as plug-in units
- GNSS Synchronization
- PS480 Power supply, 480W / 24VDC

### 2.3. Optical and Electrical Specification

Light source characteristics	SLU-24	SLU-36
Peak intensity standard white	1 450 cd	2 150 cd
Peak intensity warm white	1 000 cd	1 500 cd
LED height	1,1 cm	1,1 cm
LED width	1,3 cm	1,9 cm
LED area	1,4 cm <sup>2</sup>	2,1 cm <sup>2</sup>
Luminance standard white	1035 cd/cm <sup>2</sup>	1024 cd/cm <sup>2</sup>
Luminance warm white	714 cd/cm <sup>2</sup>	714 cd/cm <sup>2</sup>
Focal height adjustment (Focal height extension kit is available)	34-40,5cm	34-40,5 cm
Cable length	5 m	5 m
IP Class	IP10	IP10

SLU driver unit	SLU-DF (Flashing)	SLU-DR (Rotating)
Nominal operating voltage	24 VDC	24 VDC
Operating voltage range	20-30 VDC	20-30 VDC
Reverse polarity protection	Yes	Yes
Peak power consumption SLU-24	110 W	
Peak power consumption SLU-36	165 W	
Power consumption fixed SLU-24	65 W	65 W
Power consumption fixed SLU-36	100 W	100 W
Power cable length	N/A	N/A
Power cable terminal size	2,5-4 mm <sup>2</sup>	2,5-4 mm <sup>2</sup>
Rotating sensor cable length	5 m	5 m
Ambient light sensor cable length	5 m	5 m
IP Class	IP66	IP66

### 2.4. Dimensions and Weights

Unit	Dimension (LxWxH) mm	Weight kg	Package dimension (LxWxH) mm	Gross weight kg
SLU-24 / SLU-36	230x230x610	6,5	300x300x700	14
Driver unit enclosure	260x170x120mm	1,5		

### 3. Delivery content

The SLU light system content:

- SLU-light source with cable
- Driver unit
- Ambient light sensor with cable
- Rotation sensor with cable (on SLU-DR models)
- Antenna for remote monitoring or GNSS sync. with cable (Optional)



*SLU with GSM antenna*



*GPS antenna*



*Light Sensor Bluetooth*



*Rotation Sensor*



*LED unit assembly*

## 4. Installation

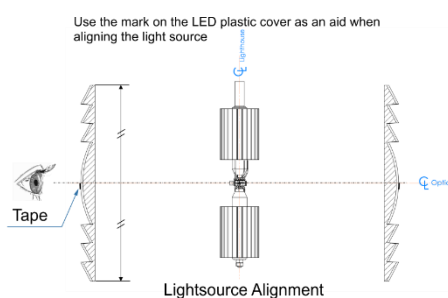
### 4.1. Installation preparation

The SLU light system replaces the old lamp and lamp controller in the lighthouse, but it will operate with existing optics. Installation work should be planned carefully before removing the existing light assembly.

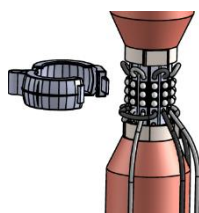
The existing light assembly should be removed in a way that it leaves a good platform to install the new SLU light source. It is vitally important to align the center point of the SLU light source accurately with the focal point of the lens. For accurate alignment the installation surface needs to be horizontally leveled, steady and it need to be suitable to attach the installation bolts properly. The light source comes with a plastic alignment aid where the center is indicated.

Please consider the following before installation:

- Determine the height of the lens focal point from the surface where the SLU light source will be installed. You can make a mark on the vertical focal point using tape.



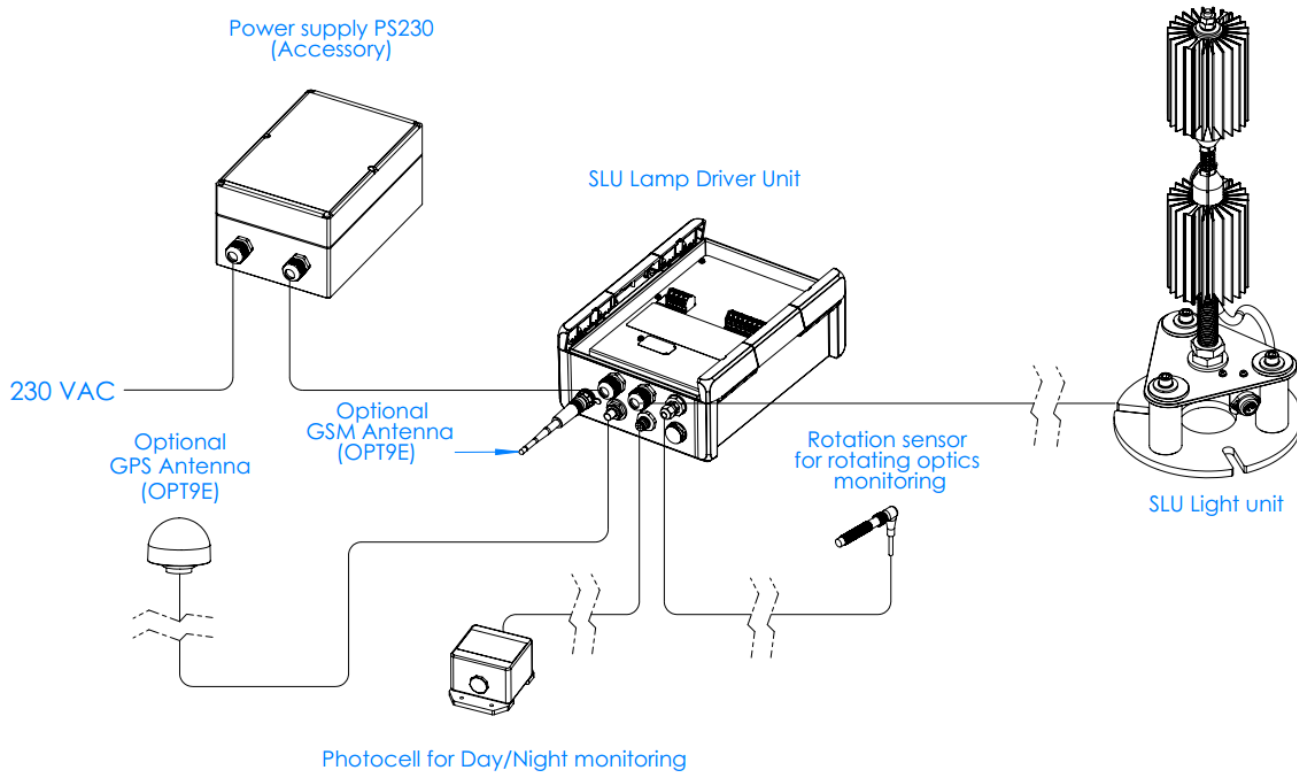
- Determine center point for SLU light source, so that it is horizontally aligned with the lens focal point and the distance to the lens is correct.
- Plan the light unit installation with SLU light source dimension drawing. There is limited room for fine-tuning the height and the location of the light center point after the light pedestal is bolted on the installation surface. (It is possible to extend the height of the light unit with separately sold extension parts if needed.)
- The cross on the protective cover over the LEDs marks the center of the light source. Use it when making final alignment to the lens focal point.
- Avoid touching the LED's during the installation and remember to remove the protective cover before turning the light on.



- SLU light source comes with a 5m long power cable that is connected to SLU driver. This cable should not be extended. Locate the driver unit close to the light and plan the cable route from the light source to the driver unit so that the 5m is enough. It is recommended to trim the cable if the full length is not needed.
- If the lighthouse has rotating optics, plan the installation of the rotating sensor. The sensor comes with a 5m long cable connected to the SLU driver. The SLU driver will turn off the light, if the optics stop rotating. The longest allowed time between pulses is 90 seconds. If the time is longer, two magnets for rotation sensors are needed. Install them on opposite sides of the lens. Please inform Sabik, if more than one magnet is needed.
- Locate the ambient light sensor so that it can monitor the outdoor ambient light level and that the light from the lighthouse does not disturb it. The ambient light sensor comes with a 5m cable and it is connected to the SLU driver.
- Driver unit will need 24V DC feed from power source. 24VDC power source should be located close to the driver to minimize the cable between driver and the power source.
- There is a possibility to connect a backup lantern to SLU controller. Plan the location of the backup lantern and cable route if it is used. The Backup lantern is typically an omnidirectional flashing beacon that it will automatically turn on if the driver detects any fault on the primary light source. A backup lantern is recommended especially for sites with rotating optics. A typical backup lantern for the SLU is M44H.
- If SLU has remote monitoring. Install the antenna so that it has visibility outside to guarantee high quality communication signal. The antenna is supplied with a 5m cable.



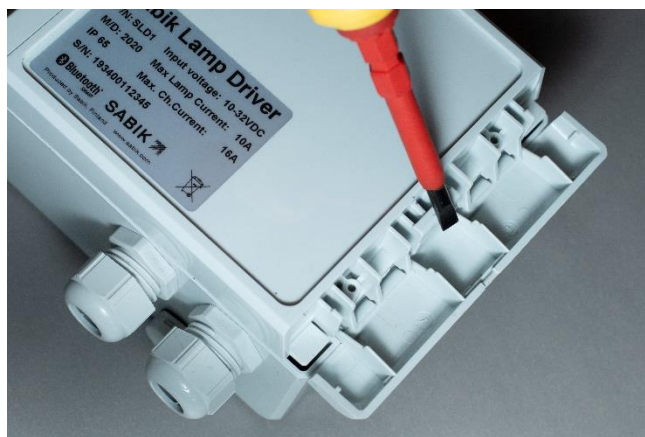
## 4.2. Cable Diagram



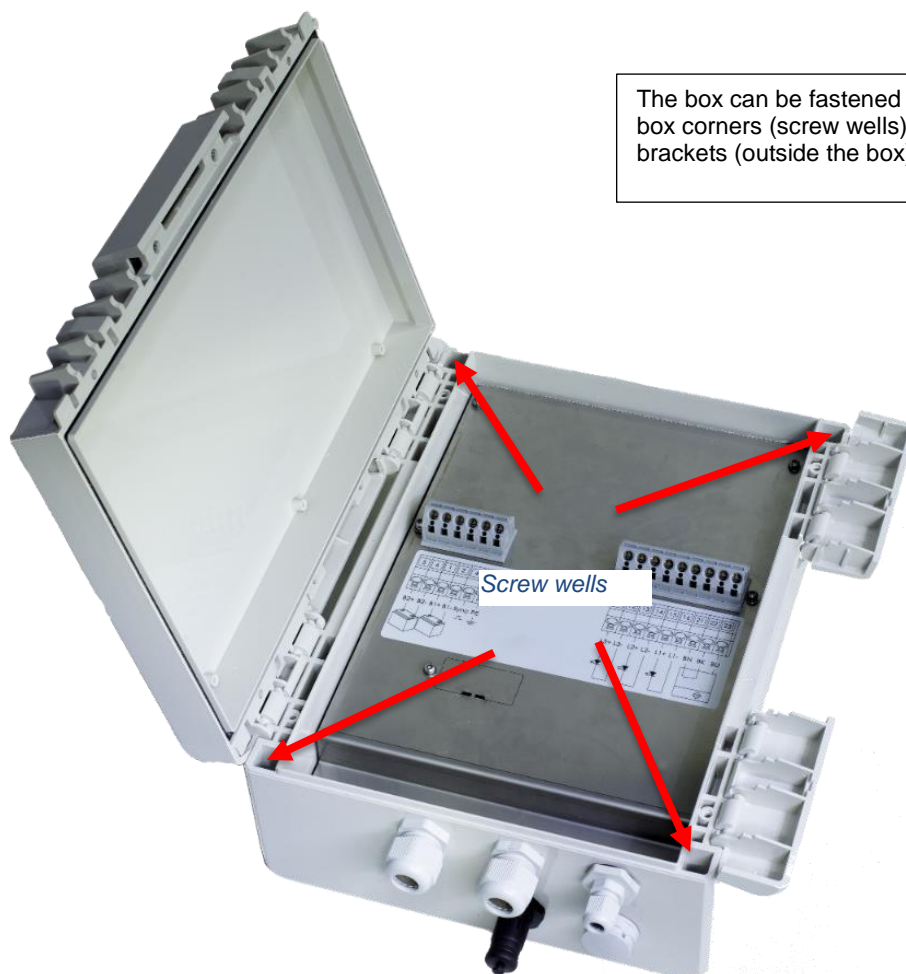
## 4.3. Controller Connections

The Sabik SLU Driver should be installed using 4 screws (or bolts) max diameter 4,5mm. The lid is opened with a flat head screwdriver. The GPS and GSM antennas should be installed outside metal cabinets.

How to Open the box.







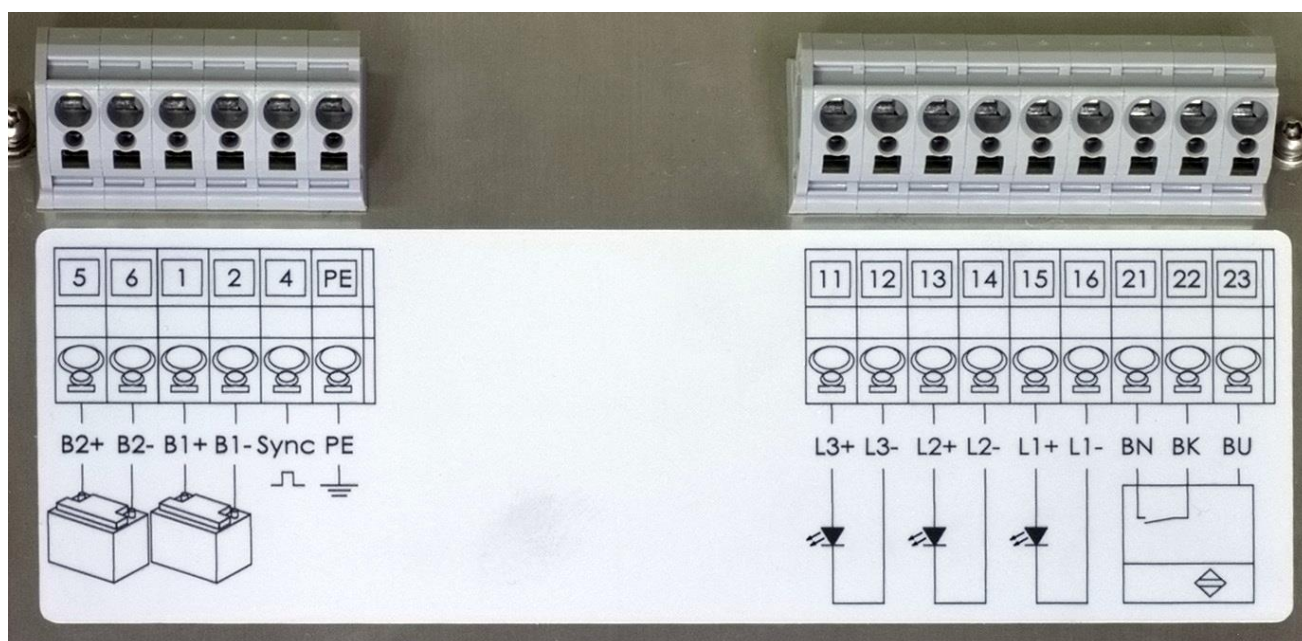
The box can be fastened with 4 screws inside the box corners (screw wells) or with optional 4 wall brackets (outside the box)



Wall Bracket

### Electrical Connections

Thread the wires through the cable glands and connect as described below.



Use a small flat head screwdriver as an aide to insert the leads.

Terminal No	Description
5 B2+	Optional emergency battery positive (+24VDC)
6 B2-	Optional emergency battery negative (GND)
1 B1+	Main battery positive (+24VDC)
2 B1-	Main battery negative (GND, 0V)
4 Sync	Sync port for cable sync or Main / Backup function
PE	Functional Earth
11 L3+	LED String 3 positive (only Driver model 36)
12 L3-	LED String 3 negative (only Driver model 36)
13 L2+	LED String 2 positive
14 L2-	LED String 2 negative
15 L1+	LED String 1 positive
16 L1 -	LED String 1 negative
21 BN	Rotation Sensor Brown lead (BN)
22 BK	Rotation Sensor Black lead (BK)
23 BU	Rotation Sensor Blue lead (BU)

#### 4.4. Rotation Sensor



The Sabik Light House Unit can monitor the rotation optics using a proximity sensor that is delivered with SLU-24/36DR drivers. The light unit is turned off if optics stop rotating. Mounting bracket Y92E-B12 is delivered with the sensor. Note that installing rotating sensor may require additional fittings.

- The gap between sensor and sensing object should be 4-8 mm
- Sensing object should be made of ferrous metal.
- The longest revolution time for the sensor is 90 seconds. If the revolution time is longer, two sensing objects for rotation sensor are needed. Install them on opposite sides of the lens.
- See the installation instructions provided with the sensor for installation.

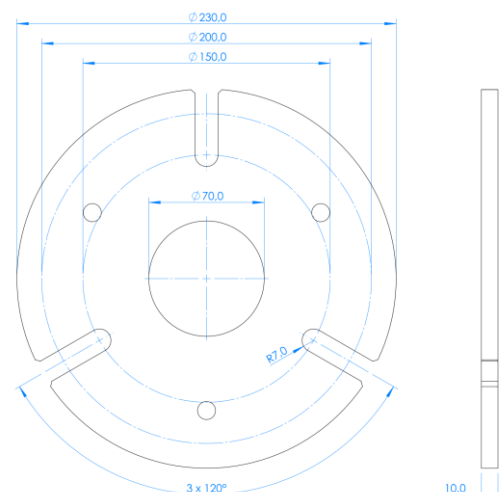
#### **Y92E-B12**

MOUNTING BRACKET, M12



## 4.5. Light Unit Alignment

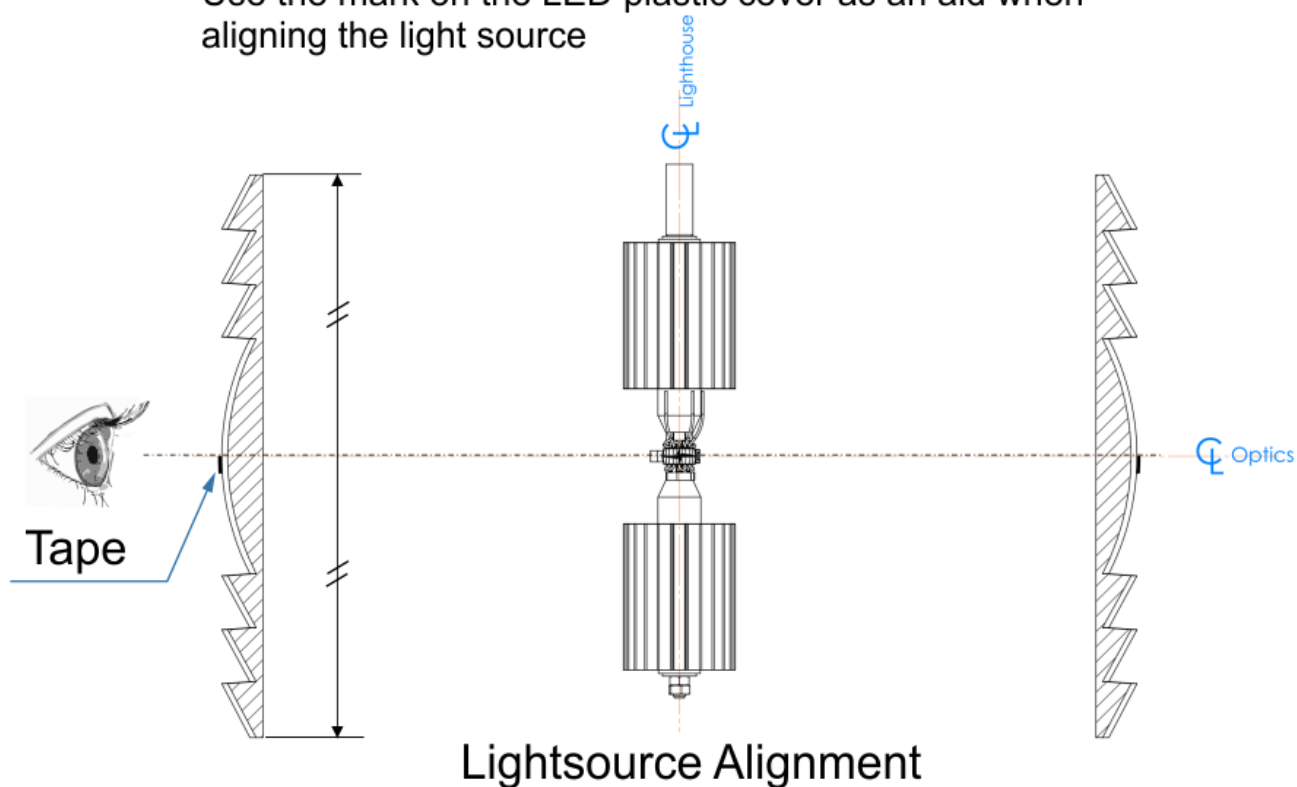
Mount the assembly as level and central as possible. **Do NOT remove the LED Plastic cover yet.**



Height adjustment: Rotate the 36mm nut to move the light unit up or down. **See the drawing below.**

Centre fine adjustment: Loosen the three bolts using an 8mm Allen wrench. Move the whole assembly until it is in the centre. (One screw removed in the picture for illustrational purposes)

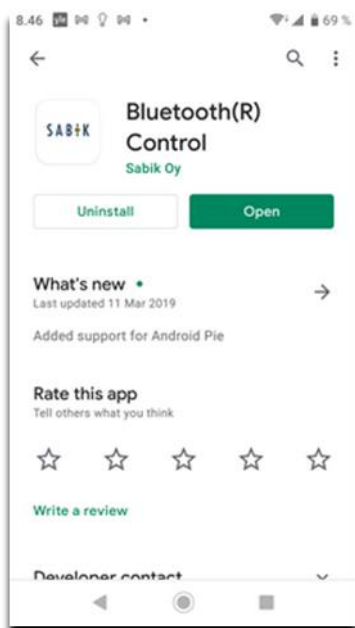
Use the mark on the LED plastic cover as an aid when aligning the light source



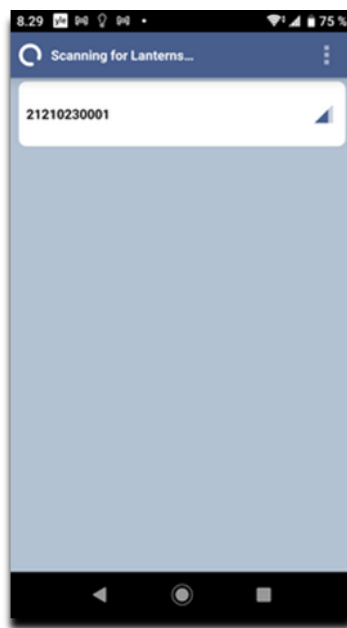
After alignment remember to **remove the plastic cover!**

## 5. Programming

Programming the SLU can be done using Sabik Bluetooth™ app. Connect the Light Sensor BT and refer to the Sabik Bluetooth manual for programming instructions. Login using your credentials. Below are screen shots of the most important settings. You can also find the most common flash characters in the following chapter (Programming Tables).



*App/Play Store*



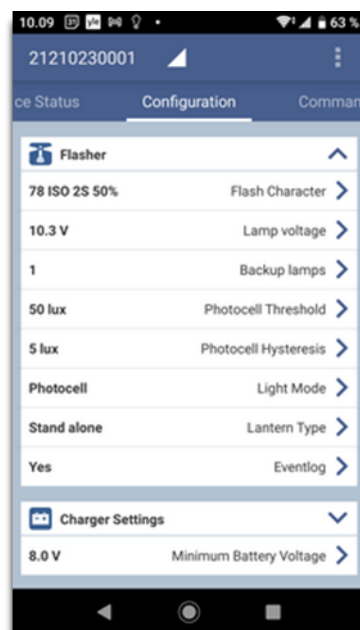
*Connecting – Select (serial no)*



*Status screen*



*Configuration*



*Configuration Expanded*

## 6. Order Codes

Description	Product Code
Light unit, standard white, 24 LED, mounting stand och 5 m cable	SLU-24
Light unit, warm white, 24 LED, mounting stand and 5 m cable	SLU-24-WRM
Light unit, standard white, 36 LED, mounting stand and 5 m cable	SLU-36
Light unit, warm white, 36 LED, mounting stand, 5 m cable to Sabik Lamp Driver	SLU-36-WRM
GPS Sync unit med external GPS antenna, cable and installation set	OPT4E
LightGuard monitoring GSM+GPS incl. GSM /GPS antennas	OPT9E

## 7. Environmental Guide

### NOTICE!

**Incorrect handling or improper disposal can cause danger to the environment!**

There can be serious damage to the environment if substances hazardous to the environment are handled incorrectly and if they are disposed of incorrectly.

- Separate waste and dispose of it separately.
- Observe the disposal instructions on containers/packaging and safety data sheets.
- Have dangerous waste disposed of by companies specialising in disposal.
- Immediately take appropriate action if substances hazardous to the environment are accidentally released into the environment. If in doubt, inform the responsible local authority of the damage.



### Disposal

- Have electronic scrap, electronic components, lubricants and other auxiliary materials disposed of by specialist disposal companies.
- If in doubt, obtain information on environmentally-friendly disposal from the local authority or specific disposal specialists.

### Guidelines

Below you will find some guidelines:

#### Electronic components

Electronic components and electronic scrap are classified as special waste and may only be disposed of by authorised specialist disposal companies.

#### Metals, plastics, paper

Unless there is a return or disposal contract, the dismantled components must be sent for recycling:

Scrap metals.

Send plastic elements and paper for recycling.

Dispose of the remaining components according to their material compositions.

#### Greases, oils and other floating chemicals

Greases and oils contain toxic substances. They may not enter the environment. They must be disposed of by a company specialising in disposal.

#### Batteries

The batteries contained in the back-up power supply contains toxic substances. They may not enter the environment. They must be dis-posed of by a company specialising in disposal.

The Dismantling processes

Proceed as follows to dismantle a device:

Unless there is a return or disposal contract, the dismantled components must be sent for recycling:

- Scrap metals.
- Plastic elements.
- 

Sort the remaining components and dispose of them according to their material compositions.