



**LIGHTGUARD**  
TECHNOLOGY INSIDE



**Intelligent Remote Monitoring**

carmanah  
**SABIK**



## LightGuard Concept

Is the navigational aid still operational? Is the buoy in position? Does the battery still have sufficient charge? For many years technicians were required to be on site to answer these and similar questions.

Remote monitoring of lighted navigational aids has become standard practice. Now, with the LightGuard concept, remote monitoring is available in a fully-integrated, easy-to-handle, and reliable package.

Carmanah/SABIK have developed a series of products under the label »LightGuard Technology inside« which contain all technical components required for remote monitoring. There are no cables or antennas. Everything is in a single housing, and ready for immediate use. It is easy to monitor multiple essential parameters as required by the type of station.

Our newly developed LightGuard Monitor software solution fits perfectly into this attractive concept. The web-based user interface can be used on any Internet-capable desktop computer, laptop or tablet, no matter what hardware and operating system is in use. It can also be integrated easily into an existing monitoring center.

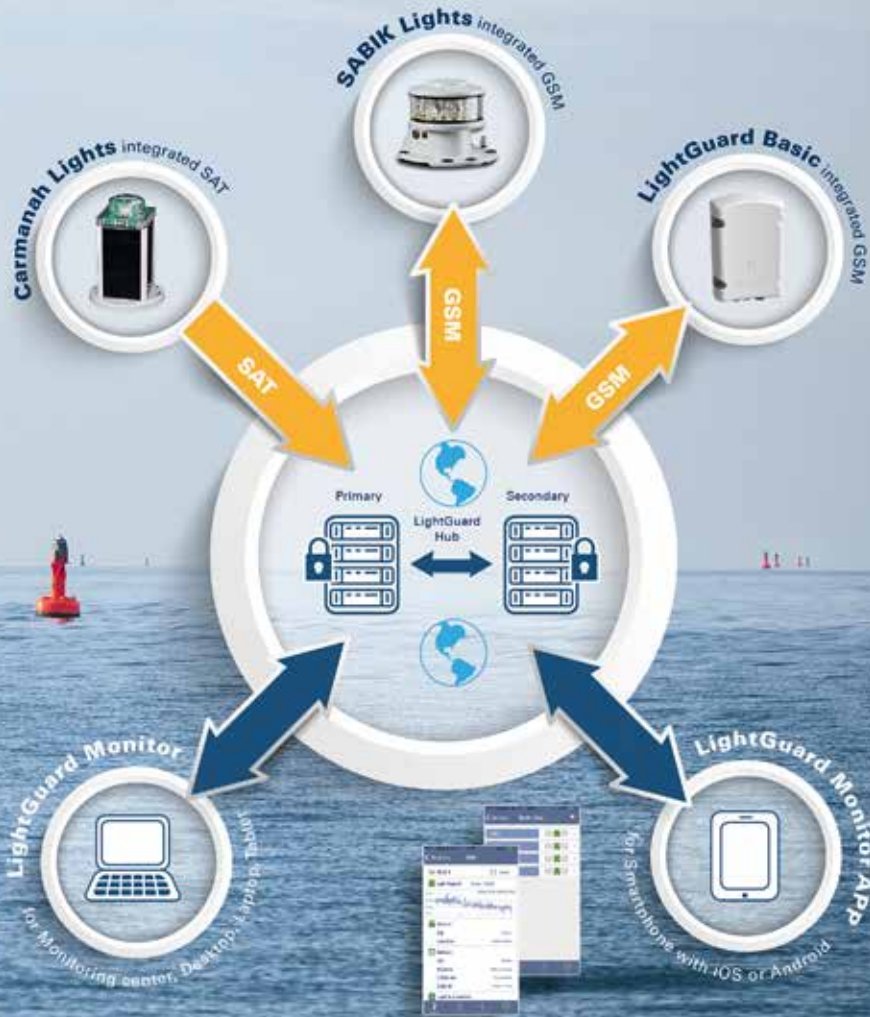


*Our LightGuard concept is a well thought out solution for monitoring navigational aids that was developed to have consistently simple handling and high reliability, thanks to the inclusion of the latest technology.*

**Jens Uwe Reißig and Morten Christensen**  
Managing Directors | SABIK GmbH

# LIGHT GUARD

TECHNOLOGY INSIDE



## Decades of Experience

With over 30 years of combined experience, Carmanah/SABIK are world-wide leaders in the field of developing and producing visual nautical navigational aids.

In 1997, we had already started our first solution for remote monitoring of navigational aids. Currently more than 1,500 navigational aids in more than 20 countries worldwide are monitored using our products.

Building off this background, we introduce the LightGuard Monitor with a vision to fundamentally revise and future-proof remote monitoring.

We have incorporated not only the requirements of our customers, but also our own direct experiences. With our navigational aid service we directly monitor and service approximately 100 floating navigational aids on the German coastline. Thanks to this setup, we could access data from existing stations throughout the development of our LightGuard products. From the beginning, we were able to develop and test our systems under real conditions.



*Thanks to the remote monitoring with LightGuard Monitor, we can perfectly plan and implement our service assignments. This not only prevents unnecessary service assignments, but also allows us to react rapidly if a problem is detected.*

**Torsten Behm**

Navigational Aid Service Manager | SABIK GmbH

# List View

The most important information such as Alarm, Light on/off and the status of the communication can be viewed at a glance using the symbols displayed (List View). Additional parameters such as the battery status and the switching on/off times for the stations can also be seen using the detailed view.

The screenshot displays the SABOK List View interface. At the top, there is a header bar with the SABOK logo, a 'List' menu, and navigation icons. The main content area is a grid of station status cards. Each card contains a station name, three status icons (a light, a communication signal, and an alarm), and a detailed view button. The stations are arranged in three columns. The rightmost column includes two expanded cards for 'Riffgat N' and 'Riffgat S', which show additional data like voltage and timing.

Station Name	Light	Comm	Alarm
BKR1 E	On	Good	Off
BKR1 S1	On	Good	Off
BUE 1	On	Good	Off
BUG 2	On	Good	Off
BUS 1	On	Good	Off
BUW 2	On	Good	Off
BW2 Ost 2	On	Good	Off
BW2 West 2	On	Good	Off
Ersatz 1	On	Good	Off
Ersatz 4	On	Good	Off
GT1 Nord 1	On	Good	Off
GT1 Sued 2	On	Good	Off
MA5	On	Good	Off
MW West	On	Good	Off
NSO SSW (S1)	On	Good	Off
BKR1 N1	On	Good	Off
BKR1 S2	On	Good	Off
BUE 2	Off	Good	Off
BUN 1	On	Good	Off
BUS 2	On	Good	Off
BW2 Nord	On	Good	Off
BW2 Sued	On	Good	Off
CH3	On	Good	Off
Ersatz 2	On	Good	Off
Ersatz 5	On	Good	Off
GT1 Nord 2	On	Good	Off
GT1 West	On	Good	Off
MW G4	On	Good	Off
NSO S (G2)	On	Good	Off
NSO W (G3)	On	Good	Off
BKR1 N2	On	Good	Off
BKR1 W	On	Good	Off
BUG 1	On	Bad	Off
BUN 2	On	Good	Off
BUW 1	On	Good	Off
BW2 Ost 1	On	Good	Off
BW2 West 1	On	Good	Off
Riffgat N	Off	Good	Off
12.86 V	21:10	06:36	
Riffgat S	Off	Good	Off
13.07 V	21:22	06:23	

## Intelligent Remote Monitoring

Using LightGuard Monitor, entire sections of the coast or large seaports, with hundreds of objects to be monitored, can be controlled in exactly the same manner as smaller working ports or marinas that have only a few stations. This flexible system can be adapted to your respective requirements and is always exactly as large as your need.

### Benefits at a glance

- all technical components required for remote monitoring are fully integrated in the new product series
- independent of the operating system
- modern, clear interface
- map representation with vector-based nautical charts
- optional real time AIS representation for possible fleet management
- supports one and two-way communication
- high data security using redundant servers
- secure two factor login
- simple integration of new stations
- clear licensing model

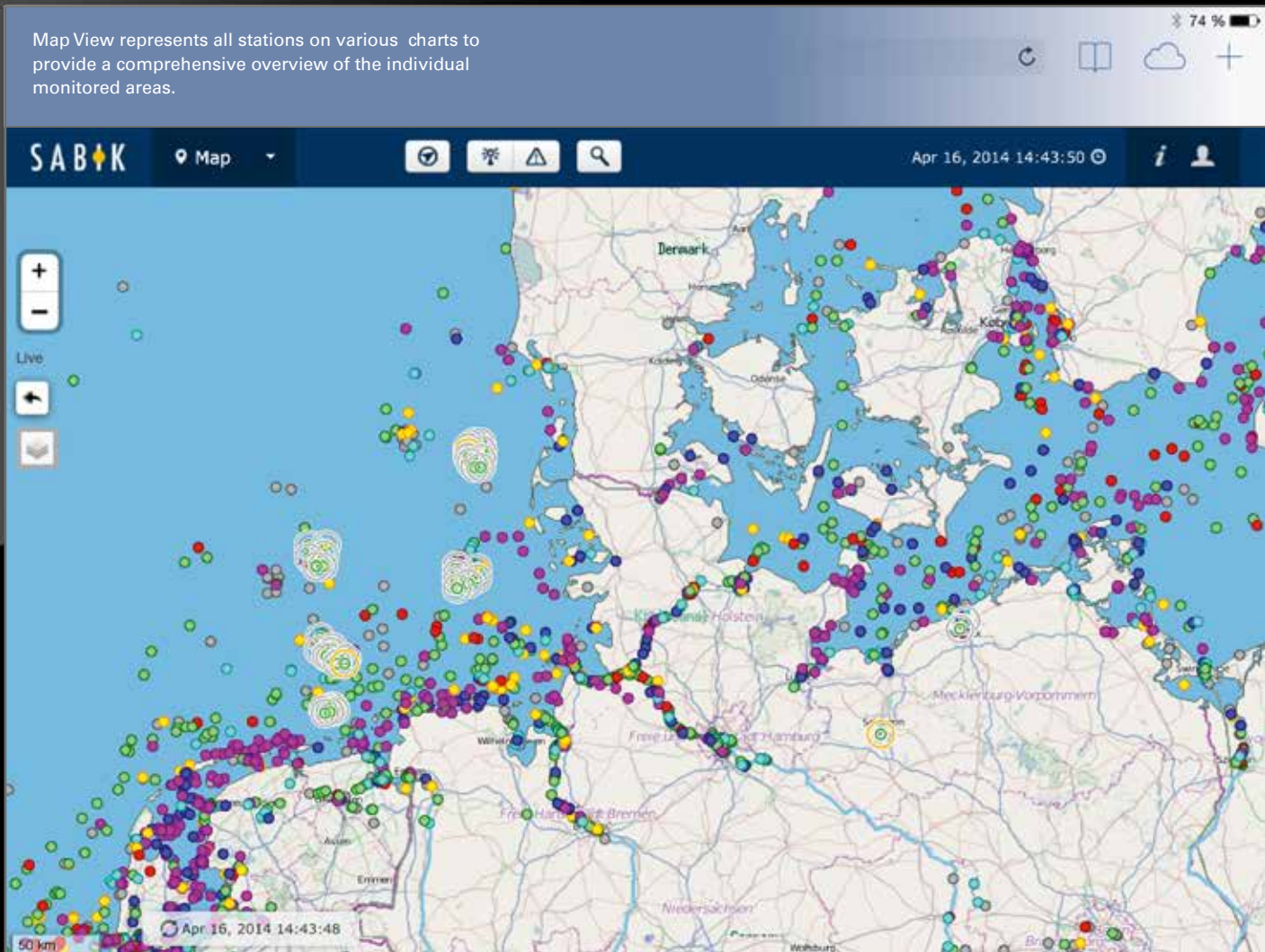


*Carmanah/SABIK have developed a practical series of products in which all technical components necessary for remote monitoring are fully integrated. There are no cables or antennas. Everything is in a single housing, and ready for immediate use.*

**Damien Hortsing**  
Product Manager | Carmanah Technologies Corporation

## Map View

Map View represents all stations on various charts to provide a comprehensive overview of the individual monitored areas.



## Modern Software Interface

Using our modern, clear software interface, all stations may be represented as a simple list or on an electronic nautical chart. This allows the user to always keep the most important information for each station in view. Station designation, light on/off information, current communication status, and potential alarm messages can all be viewed at a glance.

The system's sorting function additionally offers quick access to stations with an activated alarm.

Upon selecting a station, you receive a detailed status report with corresponding graphical chart representations for multiple parameters. The List View still remains onscreen to provide easy access to data for the other stations.

Using superuser or admin access, you can obtain, via a simple tab, direct access to the configuration of the recently selected station.



*One of the most important guiding ideas for the development of our web-based interface was providing the clearest possible overview. It must be possible in all representation modes to easily view several hundred stations with their monitored parameters.*

**Maik Gleitsmann**  
Design Leader | SABIK GmbH



# Status Report

Upon selection of a station, you receive a detailed status report with chart representation of the important parameters, without losing the overview of the other stations.

The screenshot displays a mobile application interface for station status monitoring. The top navigation bar includes the SABOK logo, a 'List' menu, and various utility icons. The main content is divided into two panels. The left panel shows a list of stations, and the right panel provides a detailed status report for station CH4.

**Station List:**

- BKR1 E
- BKR1 N1
- BKR1 N2
- BKR1 S1
- BKR1 S2
- BKR1 W
- BUE 1
- BUE 2
- BUG 1
- BUG 2
- BUN 1
- BUN 2
- BUS 1
- BUS 2
- BUW 1

**Station CH4 Status Report:**

**Status:** 12.86 V, 21:10, 06:36  
last update 16.04.2014 12:10

**Chart Battery Voltage:** Last 7 days

**Beacon:**

Beacon	OK	📊
Beacon Status	Inactive	📊

**Battery:**

Battery	OK	📊
Battery Voltage	15.87 V	📈
Consumption	0.000 Ah	📈
Beacon Power	1.01 W	📈

**Light Automation**

## LightGuard Monitor Mobile

LightGuard Monitor can be used with any Internet-capable laptop and tablet.

We have also developed the LightGuard Monitor App for iOS devices, to give you the opportunity to access your data while you are on the go.

The app and its usage on the smartphone is free of charge for users of the LightGuard Monitor application. Access to the monitored stations is via a secured login.

Because the app supports all display and operating functions of the LightGuard Monitor application on a Smartphone, it is also well-suited as a standalone software solution for smaller ports and marinas with only a few monitored stations.

With this app you have station monitoring services with you at all times.



*As a service technician I travel frequently as part of my work. With the LightGuard Monitor App, I can always keep an eye on my stations. In addition, using the two-way communication I can test stations and perform configurations.*

**Robert Starke**

Service Technician | SABIK GmbH



## Smartphone App

The LightGuard Monitor App was developed specifically for use on Internet-capable smartphones, and supports all necessary displays and operating functions.



## AIS and Fleet Management

LightGuard Monitor is not only suited for remote monitoring of navigational aids. Optionally, vessel traffic can be professionally monitored by means of real-time AIS data on the electronic nautical chart.

For your personal fleet management, you can permanently mark ships (in-software highlighting) and also access, along with the general ship designation and ship data, the current dynamic data.

For smaller sea ports and marinas, this is the optimal software solution in order to monitor your own nautical aids and the vessel traffic simultaneously.



*Thanks to the ability to monitor the AIS vessel traffic, LightGuard Monitor is perfectly suited for monitoring the vessel traffic of offshore wind farm construction fields.*

**Christian Cammin**  
Managing Director | SABIK Ltd

# AIS Representation

Not only can the nautical aids be monitored, optionally vessel traffic can be displayed in the nautical chart representation using AIS data. Vessels can be permanently marked (highlighted) for efficient and clear fleet management.

The screenshot shows a nautical chart application interface. At the top, there is a status bar with a battery level of 74% and a refresh icon. Below that is a dark blue header with the logo 'SABUK' on the left, a 'Map' dropdown menu, and several navigation icons (compass, zoom, search). The main area is a nautical chart with various navigational aids labeled, such as 'F1.G.4s', 'F1.R.4s', 'F1.(2)G.9s', and 'F1.(2+1)R.15s'. A vessel named 'PETER PAN' is highlighted with a blue arrow and a callout box. To the right of the chart is a detailed information panel for the vessel 'PETER PAN', which includes a photo of the ship and a table of its specifications.

PETER PAN	
Flag	Sweden
Vessel Type	Cargo and passenger
Length	190m
Width	30m
IMO	9217242
MMSI	265866000
Callsign	SGUH
Location	Rostock, DE
Destination	ROSTOCK
ETA	2014-04-16 13:00
Course	SSW
Speed	1.7 kn

## Data Security

The safety and integrity of your data is the most important part of our development work.

We guarantee the continuous availability of your data thanks to redundant servers, data security against unauthorised access and encryption of the data transmission using robust methods.

LightGuard Monitor is protected by a secure login against unauthorised access.

For even more security there is an optional two factor login: a disposable password, which is generated from your smartphone, and supplements the entry of your personal password – perfect for use at unsecured workplaces.



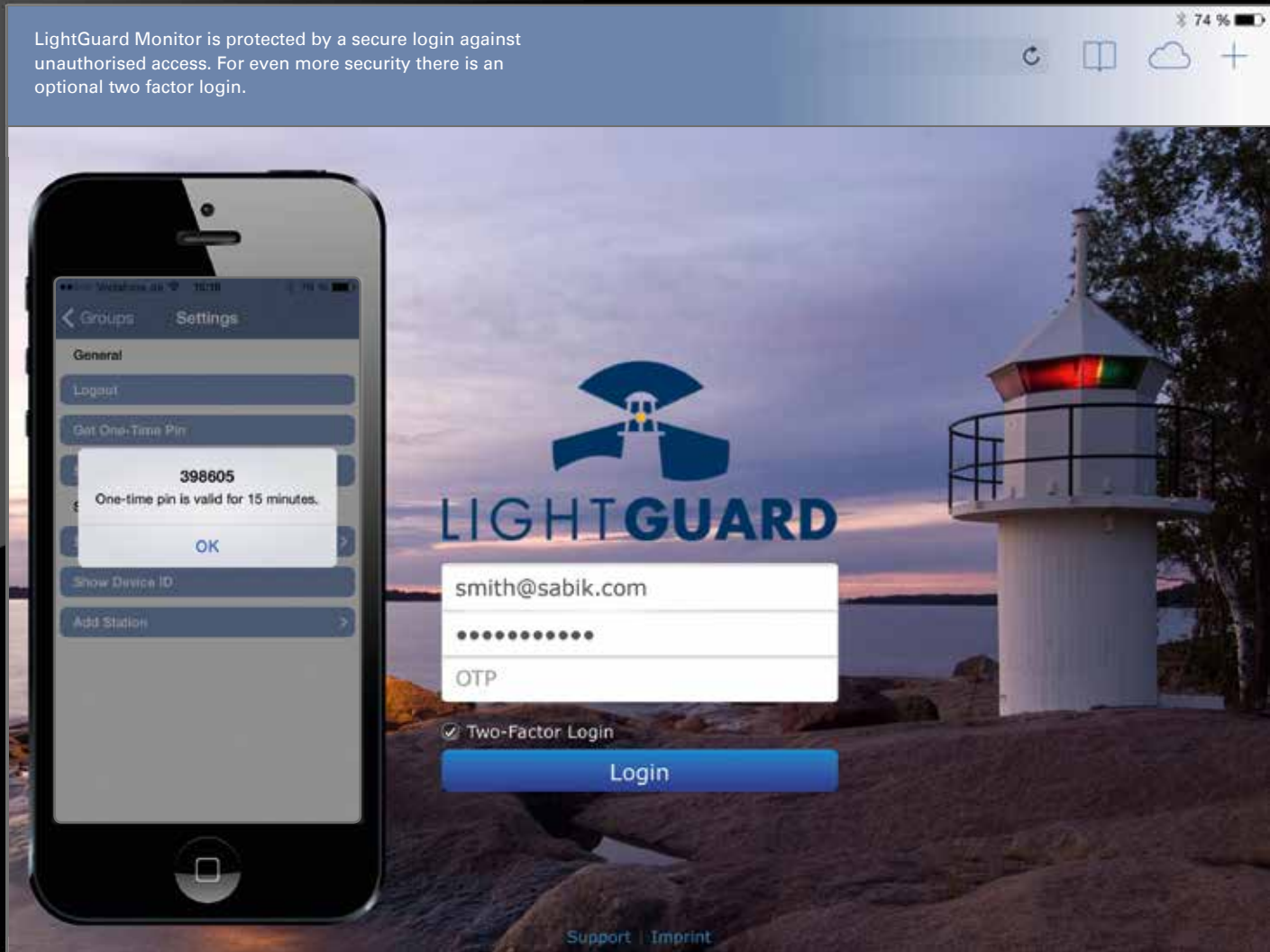
*You decide whether your data is stored on a secure SABIK server, a regional server in your area, or on your own server. With a primary server and a secondary server, there are, in any event, always two redundant data stores.*

**Hannes Rollin**

Lead Developer | SABIK GmbH

## Two-Factor Authentication

LightGuard Monitor is protected by a secure login against unauthorised access. For even more security there is an optional two factor login.



## Setting-up New Stations

We have developed our products in the field of visual navigational aids specifically for easy installation and simple configuration.

With each LightGuard Monitor-capable product, our customers receive a personal service card which contains, along with a serial number, also a corresponding QR code.

New stations can be added easily by entering a serial number in the appropriate entry field.

It is even easier using the LightGuard Monitor App and your smartphone. In this case, simply scan the QR code and the station is registered in the software.



*Our engineers, technicians and designers are always working to make our products safer and more effective. In our development, we pay particular attention to making the installation and configuration as simple as possible for our customers.*

**Michael Schulze**

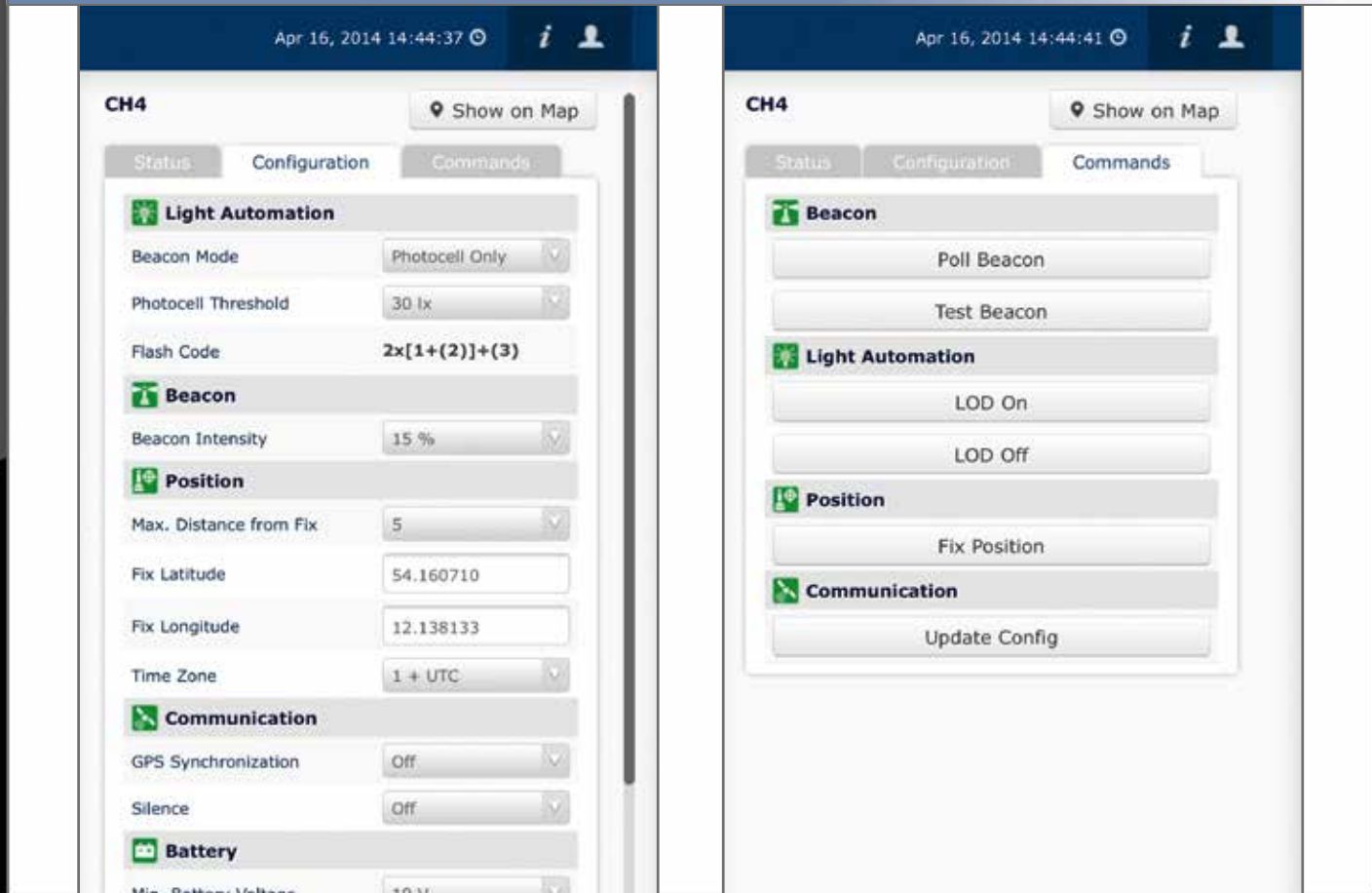
Product Development Manager | SABIK GmbH





# Configuration

Configuring a station, with the corresponding access rights, is just as easy as accessing status data. A two-way communication option allows new stations to be set-up, configured or tested via the software interface.



## Licensing

With the simple LightGuard concept, you automatically benefit from further developments and improvements, without the need to implement software updates.

For optional monitoring of AIS shipping traffic using LightGuard Monitor, you can optionally acquire a license for the use of up to five concurrent users.

When purchasing a LightGuard enabled product we offer you a range of flexible licensing models for LightGuard Monitor with or without the GSM or Satellite communication fee.

You can obtain the associated LightGuard Monitor app for your iOS smartphone free of charge in the appropriate app store.



*We have made licensing the software for our customers as simple as the installation and configuration of our LightGuard products.*

**Lars Mansner**

Managing Director | SABIK Oy

## Simple Concept

With the LightGuard Monitor, any LightGuard product can be monitored easily and provided with the communication cost included in the license fee.

74 %



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