Airfield Lighting

Manual

Omnidirectional SafeLED Elevated Light (SL-TE-E, SL-TH-E)

- Taxiway Edge
- Intermediate Holding Position

THORN Airfield Lighting

IDMAN

SAFEGATE GROUP

***Note**: This page is blank for convenient double-sided printing.*

MANUAL
OMNIDIRECTIONAL SAFELED ELEVATED LIGHT
(SL-TE-E, SL-TH-E)
CONTENTS

THORN Airfield Lighting IDMAN

SAFEGATE GROUP

Documentation

This document includes Airfield Lighing information with a focus on safety, installation and maintenance procedures.
For more information, see www.safegate.com.

***Note**: It is very important to read this document before any work is started.*

Copyright

History

Version	Date	Description
1.0	February 2010	First Release
1.1	November 2010	Second Release
1.2	February 2011	Third Release
1.3	February 2012	Fourth Release
1.4	March 2014	Fifth Release

***Note**: This page is to be updated with every authorised change to the document.*

Abbreviations and Terms

This document may include abbreviations and terms.

Abbreviation	Term
CAA	Civil Aviation Authority
CCR	Constant Current Regulator
CU	Concentrator Unit
FAA	Federal Aviation Administration
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Committee
LED	Light Emitting Diode
LMS	Light Monitor and Switch unit
MOS	Manual of Standards (Australia)
NATO	North Atlantic Treaty Organization
STAC	Service Technique de l'Aviation Civile (France)
STANAG	Standardization Agreement (NATO)

1. INTRODUCTION

In this section you can find a general description and safety instructions related to the installation and usage of the fitting.

The elevated SafeLED light is an omnidirectional LED light. The light is available in two versions either to be connected in a series circuit version or a parallel version.

The LED light follows the same light intensity curve as a corresponding halogen lamp with different intensity levels at the CCR. This means that the fitting is fully backwards compatible with a halogen lamp fitting.

1.1 SAFETY INSTRUCTIONS

Make sure you read this section and are familiar with safety precautions before any work is started.

1.1.1 Product Safety

Airfield lighting fixtures in a constant current circuits are connected in a circuit via isolating transformers with currents between 2.0 – 6.6A in the primary circuits.. The primary voltages, depending on the circuitry, are usually several kilovolts and therefore lethal. Although the open circuit voltages of the isolating transformers are much lower, the peak voltage while opening the secondary circuit under current is also hazardous. So it is vitally important to follow all the safety regulations with adequate circumspection.

In the design of this equipment all the practical safety aspects have been taken into account. It is also important to strictly follow existing international or national regulations, the instructions established by civil aviation authority or airport operator and the following instructions.

1.1.2 Electrical Maintenance

Valid safety regulations must always be followed. Never carry out any maintenance or maintenance measures before the current is confirmed as safely disconnected. Use extreme caution when disconnecting or connecting high voltage primary connectors.

WARNING! *PRIOR TO THE COMMENCEMENT OF WORK ALL ELECTRICAL SERVICES MUST BE ISOLATED FROM THE SUPPLY AND CONNECTED TO EARTH. FULL DETAILS OF THE WORK INVOLVED MUST BE GIVEN TO THE AUTHORISED PERSON RESPONSIBLE FOR THE ELECTRICAL ENGINEERING SERVICES AT THE AIRPORT WITH REGARD TO THE DURATION OF THE WORK AND SO ON. IT IS RECOMMENDED THAT PRIOR TO STARTING ANY CUTTING WORK, THE NATURE AND LOCATION OF SERVICES SUCH AS CABLE DUCTS AND THE LIKE SHOULD BE IDENTIFIED. ANY INSTALLATION OR MAINTENANCE WORK SHOULD ONLY BE CARRIED OUT BY TRAINED AND EXPERIENCED PERSONNEL. ALSO, WHEN WORKING ON CIRCUITS USING AIRFIELD SMART POWER SYSTEM (ASP) THE SCM MUST BE TUNED OFF.*

1.1.3 Mechanical Maintenance

When maintaining mechanical components, it is important to follow the instructions for electrical maintenance.

1.2 DESCRIPTION OF THE FITTING

The SafeLED TE-E is a blue taxiway edge fitting.

The SafeLED TH-E is a yellow taxiway edge intermediate holding position fitting.

To meet different needs, the light is available in different electrical versions:
6,6A or 50-260Vac.

The light can be supplied with 2 different frangible coupling accessories:
2” NPS or 2” BSP.

1.1 DELIVERY OF THE FITTING

Each unit is supplied completely assembled, tested and sealed, ready for installation.

The electrical connection is made via one cable assembly; the cable is equipped with an FAA L-823 style 5 plug.

Before electrical connection, check the SafeLED version corresponds to the existing circuit, according to the available designations as follows:

Electrical power	**Designation**
6,6 A constant current	SafeLED -……..+6.6A
230 VAC	SafeLED -……..+VAC

Each unit is individually packed in a durable cardboard box, labelled with its reference name and code.

For more information, see www.safegate.com.

2. INSTALLATION

In this section you can find a description of the different steps for successful installation of the fitting. Before you start, make sure you have read and understand §1.1 Safety Instructions.

When removing the fitting from its packaging box, check that nothing is broken.

The screw tapping of the frangible support can be either 2 in. NPS (American standard - 11.5 threads per inch) or 2 in. BPS (British standard - 11 threads per inch). Check support and base tapings fit.

The following tools and accessories are required for installation and removal of the unit:

Standard tools and accessories:

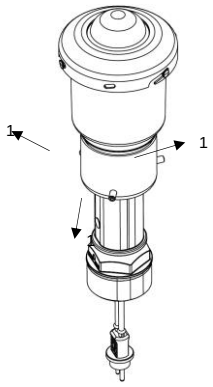
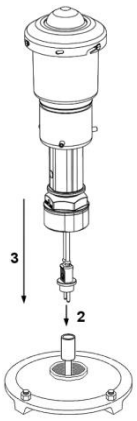
- A wrench of 50mm (NPS or BSP thread).
- An Allen key n°3.
- A SafeLED levelling tool.
- One brush or cloth.

***Note**: Provided that the base intended to receive the fitting has been properly installed, no other specific tool is required.*

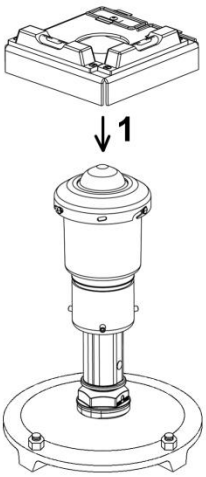
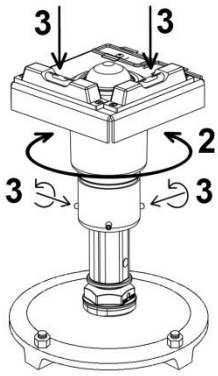
The installation steps refer to:

1. Installing/ removing the fitting
2. Mounting the light

2.1 INSTALLING/ REMOVING THE FITTING

Install	
Before installation • Open the box and verify that the characteristics of the fitting correspond to your design requirements, such as type, colour and electrical supply. • Carefully clean all contact surfaces of the fitting and the support.	
(a) Unscrew (but do not remove) the 3 setting screws with an Allen key n°3. Check the fitting corresponds to your actual installation position, for example colour and direction.	
(b) Hold the light above the fixing accessory (such as tripod stand or elbow tube) and connect the light plug (male) to the power supply cable plug (female). (c) Fasten and block the frangible leg of the light on the fixing accessory by using the appropriate wrench. Make sure to hold the optical head so it does not turn when securing the leg section.	
After installation • check that each fitting functions properly.	
Remove	
(a) Unscrew (but do not remove) the 3 setting screws with an Allen key n°3. (b) Unscrew the frangible leg of the light on the fixing accessory by using the appropriate wrench. Make sure to hold the optical head so it does turn when separating from the leg section. (c) Remove the light from its support. (d) Disconnect the light plug (male) from the power supply cable plug (female).	

2.2 MOUNTING THE LIGHT

(a) Place the SafeLED light levelling tool on the optical head.	
(b) If necessary turn the optical head on the frangible leg for the correct alignment. (c) Position the optical head horizontally using the two levelling devices of the tool for accuracy. (d) Fasten and block the three setting screws using the Allen key. (e) Remove the SafeLED levelling tool.	

3. OPERATION

The LED fitting acts as a halogen lamp fitting with a resistive load profile.

For more information contact Safegate or see www.safegate..com.

4. MAINTENANCE

In this section you can find a description of the different steps for the maintenance of the fitting.

Before you start, make sure you have read and understand §1.1 Safety Instructions.

Find out the location of the light unit that needs maintenance. If the purpose is to replace an existing light unit with new one, make sure that corresponding unit is available.

WARNING! *WHEN A FITTING HAS BEEN REMOVED FROM ITS BASE, THE BASE MUST BE EITHER FITTED WITH A COVER OR A RESERVE FITTING PUT IN ITS PLACE.*

IT IS RECOMMENDED THAT ONLY AUTORIZED PERSONNEL DISASSEMBLE FITTINGS WITH PRIOR AGREEMENT FROM SAFEGATE.

Identify the fitting by finding the type information on the identification tag with details of name.

Spare parts are available, if required. For more information, see the Spare Parts List document or www.safegate.com.

4.1 BASIC MAINTENANCE PROGRAMME

There are recommended maintenance tasks to ensure that the equipment is in correct operating condition.

Maintenance tasks	
Weekly	• Visual inspection of the fitting. • Removal of dust from external surfaces of the fitting.
Monthly	• Check of the glass dome and housing for damage. • Check for proper fixing of the fitting in its base.
Yearly	• Detailed inspection of the fitting. • Check of the body resistance, check for mechanical damage (for example cracks around prism windows). • Clean of the optical windows.

A daily function check is referred to in the document:
ICAO, Airport Services Manual Part 9, Airport Maintenance Practice and FAA AC 150/5340-26A, Maintenance of airport visual aids facilities.

The light is designed for outdoor operation, however storing the light outside without using it is a risk for damage to light components. For a longer storage time (more than a week), it is recommended to store the light indoors in a dry and dust free environment and at room temperature. Proper storage ensures trouble free replacement procedures. It is strongly recommended not to store any electrical equipment outside.

***Note**: Only the most common maintenance procedures are instructed in following paragraphs. Construction of the luminaire allows that it can be fully disassembled and all the parts can be replaced if needed*.

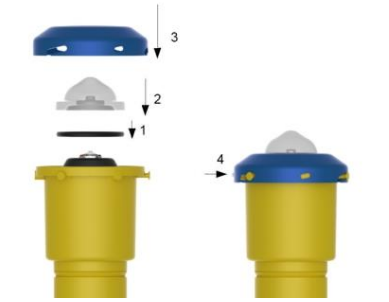
4.2 WORKSHOP MAINTENANCE

Before you start, make sure you have read and understand §1.1 Safety Instructions.

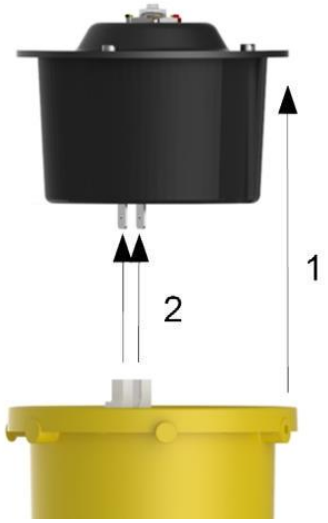
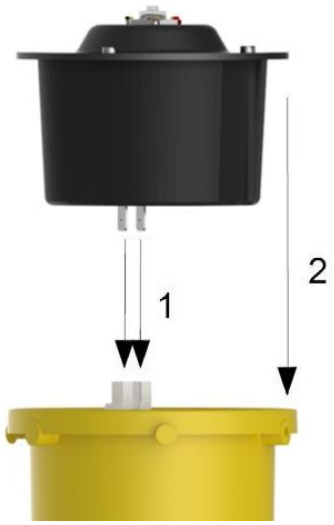
The workshop maintenance refers to following:

1. Replacing the glass dome
2. Replacing the LED converter unit

4.2.1 Replacing the Glass Dome

Remove	
(a) Unscrew the blocking screw and release the closure circle. (b) Remove the closure circle (c) Remove the glass dome (d) Remove the gasket.	
Replace	
(a) Place a new gasket in position. (b) Place the glass dome in position. (c) Place the closure circle in position and turn to fasten the glass dome on the gasket. (d) Fasten the blocking screw on the closure circle.	

4.2.2 Replacing the LED Converter Unit

Remove	
(a) Remove the glass dome. (b) Pull the LED-converter block out of the fitting body. (c) Disconnect the 2 supply cables from the LED-converter unit. ***Note:*** *In the 230 VAC converter, the cable is integrated and encapsulated into the converter.*	
Replace	
(a) Connect the 2 supply cables on the LED-converter unit. (b) Place the LED-converter unit in the fitting body. (c) Mount the glass dome.	

5. SUPPORT

5.1 SAFEGATE GROUP WEBSITE

The Safegate Group Website, www.safegate.com, offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.
***Note**: There is also a Client/Partner login area for the latest information and updates, if available.*

5.2 RE-CYCLING

5.2.1 Local Authority Re-cycling

The disposal of Safegate Group products is to be made at an applicable collection point for the recycling of electrical and electronic equipment. The correct disposal of equipment prevents any potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling. The recycling of materials helps to conserve natural resources. For more detailed information about recycling of products, contact your local authority city office.

5.2.2 Safegate Group Re-cycling

Safegate Group is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. Safegate Group offers a re-cycling program for our products to all customers worldwide, whether or not the products were sold within the EU.

Safegate Group products and/or specific electrical and electronic component parts which are fully removed/separated from any customer equipment and returned will be accepted for our recycling program.

All items returned must be clearly labelled as follows:

- For ROHS/WEEE Re-cycling.
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

Safegate Group will continue to monitor and update according for any future requirements for EU directives as and when EU member states implement new regulations and or amendments. It is our aim to maintain our compliance plan and assist our customers.
***Note**: For more information, see www.safegate.com, or contact Safegate Group Support via email at support@safegate.com or phone +46 40 699 1740.*

5.3 SPARE PARTS

Spare parts are available for Airfield Lighting fittings. For more information see the Spare Parts List document.

***Note**: Contact Safegate Group for assistance with ordering spare parts.*

Check in to the future

How many aircraft can your airport handle today?
Can this number be increased without adverse effects on the airport's safety level?
It is a known fact that traffic volume will rise in the foreseeable future. More movements will demand monitoring of the entire airport. Requirements will be sharpened and the development of an integrated system controlling not only ground movements but also air traffic close to the airport is of the highest interest.
The International Civil Aviation Organization (ICAO) already describes A-SMGCS, Advanced Surface Movement Guidance and Control System, as the answer to the future modern airport need to control the entire airport space in one superior system.
To a larger extent than today's systems, A-SMGCS will rely on automated processes to give both pilots and traffic controllers exact information about positions and directions. Safegate Group delivers complete A-SMGCS solutions already, as well as all vital parts relating to it.
Safegate Group can check your airport into the future – today!

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THORN Airfield Lighting IDMAN avibit AIR TRAFFIC SOLUTIONS SAFEGATE GROUP

Safegate Group offers solutions for increased safety, efficiency and environmental benefits to airports worldwide. The company was founded in 1973 and has its headquarters in Malmö, Sweden. Safegate Group has more than 70 partners around the globe in order to be close to its customers.
Earlier members of Safegate Group include Thorn AFL and Idman, who both have over 40 years of experience in airfield lighting solutions for airports and heliports. The latest member of Safegate Group is Avibit, a leading provider of next generation software applications and integration of efficient air traffic control systems. Safegate Group's complete range of products and services, a "one-stop shop", provides solutions to customers and airborne travellers around the globe.

www.safegate.com