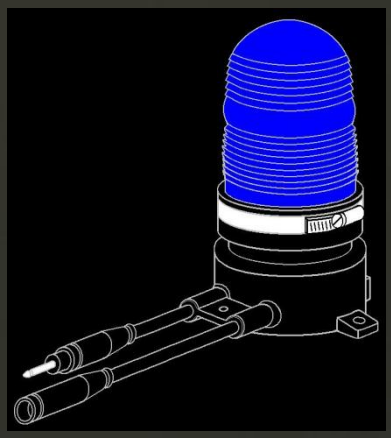
Airfield Lighting

Manual

Omni- or Bidirectional Medium-/Low-Intensity Transformer Light (F18)

- Taxiway Edge
- Apron Edge
- Runway Simplified Approach (Medium-Intensity)
- Runway Edge (Medium-Intensity)
- Runway Threshold and End (Low-Intensity)
- Heliport TLOF Edge



THORN Airfield Lighting IDMAN

SAFEGATE GROUP

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MANUAL

OMNI- OR BIDIRECTIONAL MEDIUM-/LOW-INTENSITY TRANSFORMER LIGHT

(F18)

CONTENTS

Documentation

This document includes Airfield Lighting information with a focus on safety, installation and maintenance procedures.

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

Original documentation is created in English (U.K.).

Images and texts used in this document are reference examples only and may not exactly depict a customer product.

For more information, see www.safegate.com.

Copyright

History

Version	Date	Description
1.0	October 2011	First Release
1.1	Mars 2014	Second 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
APP	Approach
CAA	Civil Aviation Authority
CU	Concentrator Unit
FAA	Federal Aviation Administration
HEL	Heliport
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Committee
LMS	Light Monitor and Switch unit
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.

F18 is an omnidirectional medium/low-intensity transformer light fitting.

Unlike other light fittings which are of a specialised nature, the F18 design is extremely versatile to meet the demands of variety of systems such as:

- Small civil aerodromes used for seasonal transportation and oil or mining exploration/production.
- Section of civil airport during maintenance periods.
- Fixed or temporary military aerodromes or helipads.
- Owing to its simple and sturdy design this light forms the basic element of modular and portable lighting system.
- The F18 can be mounted by use of a stake or fixed onto concrete using a sealed rod. This will apply to either a paved or non-paved application for runway, taxiway or apron areas as well as offshore platforms.
- The F18 can fulfil various AFL functions such as: Approach lighting, Runway Edge/Threshold/End, Taxiway Edge, Apron Edge and Heliport TLOF.

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

F18 is an omnidirectional medium/low-intensity transformer light fitting mounted with one lamp and two primary connectors. This fitting can also be mounted with various filters colours according to the position on the airfield, namely blue, yellow, red and green.

1.3. DELIVERY OF THE FITTING

The F18 unit is supplied in three parts: a Body equipped with a lamp holder and a clamping ring, a lamp (PK30D) and a glass dome. The body comprises of two primary connectors (one plug + one receptacle) for a direct connection on the primary circuit.

The fixing devices for F18 are delivered separately.

Each components of the F18 is packed in a durable cardboard box, labelled with its reference name and code. On request, a documentation set (including: manual, product description and spare parts list) can be delivered with the fitting.

2. INSTALLATION

In this section you can find a description 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:

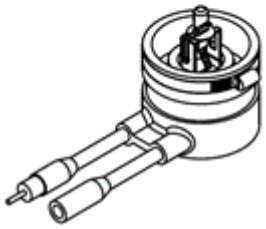
Standard tools and accessories:

- One angled socket wrench of 16 mm (for installation/removal).
- One large flat screwdriver.
- One brush or cloth.

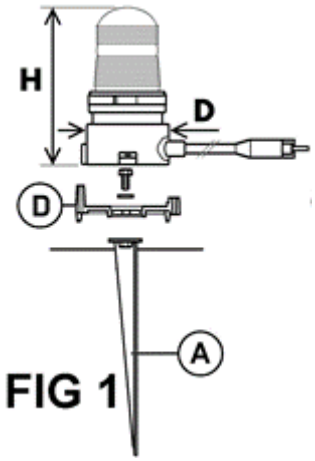
The installation steps refer to:

1. Installing a lamp and an optical lens into the fitting
2. Installing the fitting on a mounting stack
3. Installing the fitting on a sealing rod
4. Installing the fitting on tripod stand
5. Adjusting the optical lens
6. Electrical connections and testing of electrical circuits

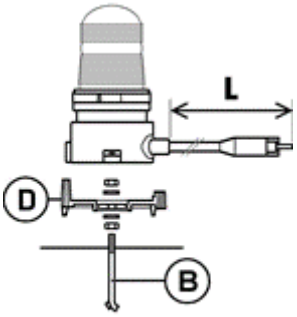
2.1. INSTALLING A LAMP AND AN OPTICAL LENS INTO THE FITTING

Installing a PK30D lamp	
(a) Identify the PK30D lamp. (b) Mount the lamp on the F18 body holder. (c) Verify if the power of the lamp (30 or 45 W) corresponds to the requested AFL function.	
Installing the optical lens	
(a) Identify the optical lens. (b) Mount the optical lens on the body and carefully screw it in place. Make sure it corresponds to the requested AFL function. (c) Use a large screwdriver to tighten the clamping ring.	 

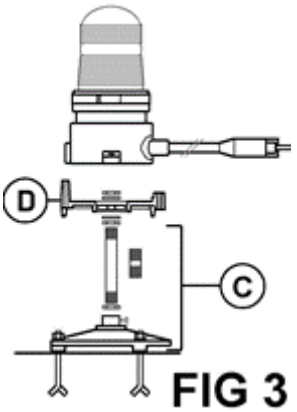
2.2. INSTALLING THE FITTING ON A MOUNTING STACK

(a) Place the mounting stack (A) in the ground where the fitting is to be installed. If necessary use a hammer to secure the stack in the ground. (b) Use the mounting kit (D – a frangible plate, a fixation screw and a washer) to install the fitting on the mounting stack. (c) Mount the fitting on the frangible plate and secure it with the fixing screw.	 FIG 1

2.3. INSTALLING THE FITTING ON A SEALING ROD

(a) Seal the sealing rod (B) in the ground where the light is to be installed. (b) Use the Mounting Kit" (D – a frangible plate, a fixation screw and a washer) to install the fitting on the sealing rod. (c) Mount the fitting on the frangible plate and secure it with the fixing screw.	 FIG 2

2.4. INSTALLATION ON A TRIPOD STAND

(a) Seal the three sealing rods (B) in the ground where the light is to be installed (C). (b) Mount the frangible plate on the tripod stand. (c) Use the mounting kit (D – a frangible plate, a fixation screw and a washer) to install the plate on the sealing rods. (d) Mount the fitting on the frangible plate and secure it with the fixing screw.	 FIG 3

2.5. ADJUSTING THE OPTICAL LENS

If the glass dome is bi-coloured, readjust the orientation if necessary, as follows:

1. Unfasten the clamping ring.
2. Turn the optical lens until its orientation is correct.
3. Fasten the clamping ring.

2.6. ELECTRICAL CONNECTIONS AND TESTING OF ELECTRICAL CIRCUITS

1. When all fittings are installed in the airfield, pull and place all the primary AFL cables necessary the AFL “portable” system.
2. Connect the two supply AFL cables to the corresponding fitting male and female connectors.
3. After installation of all fittings in the airfield, connect AFL loops to the corresponding CCR. Power on the loops and verify the efficiency of your AFL installation.

3. MAINTENANCE

In this section you can find a description 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.

3.1. 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 optical window, check for mechanical 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.

3.2. WORKSHOP MAINTENANCE

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

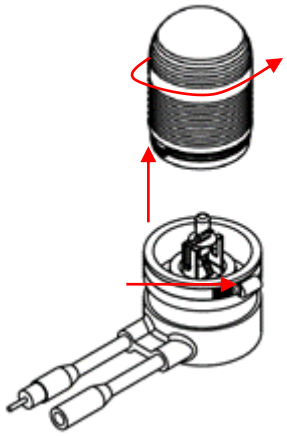
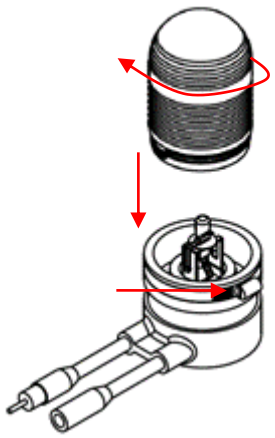
The workshop maintenance refers to following:

1. Removing a fitting
2. Replacing the optical glass
3. Replacing the lamp

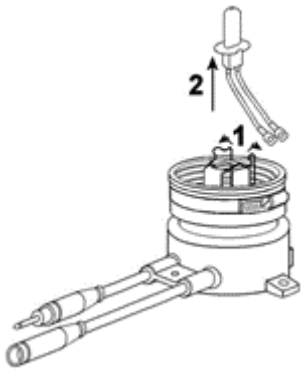
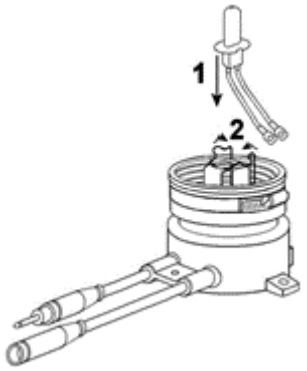
3.2.1 Replacing a Fitting

(a) Power off the corresponding CCR(s). (b) Disconnect the corresponding AFL loop from the CCR. (c) Disconnect the two supply AFL cables from each fitting to be removed. (d) Store the fittings and cables in a safe place for service, maintenance, future re-use or re-cycling according to local authority regulations.	

3.2.2 Replacing the Optical Glass

Remove	
(a) Use a large flat screwdriver to loosen the clamping ring. (b) Unscrew the optical glass. (c) Lift to remove the glass from the fitting.	
Replace	
(a) Place the glass on the fitting. (b) Screw the optical glass on the fitting body. (c) Use a large flat screwdriver to tighten the clamping ring.	

3.2.3 Replacing the Lamp

Remove	
(a) Remove the optical glass (see § 3.2.2 Replacing the Optical Glass). (b) Remove the PK30D lamp from the lamp holder of the F18 body. (c) Pull the spring then remove the lamp.	
Replace	
(a) Mount a PK30D lamp on the lamp holder of the body. (b) Pull the spring then place the lamp. (c) Replace the optical glass (see § 3.2.2 Replacing the Optical Glass).	

4. SUPPORT

4.1. 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.*

4.2. RE-CYCLING

4.2.1 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.

4.2.2 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.*

4.3. SPARE PARTS

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

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

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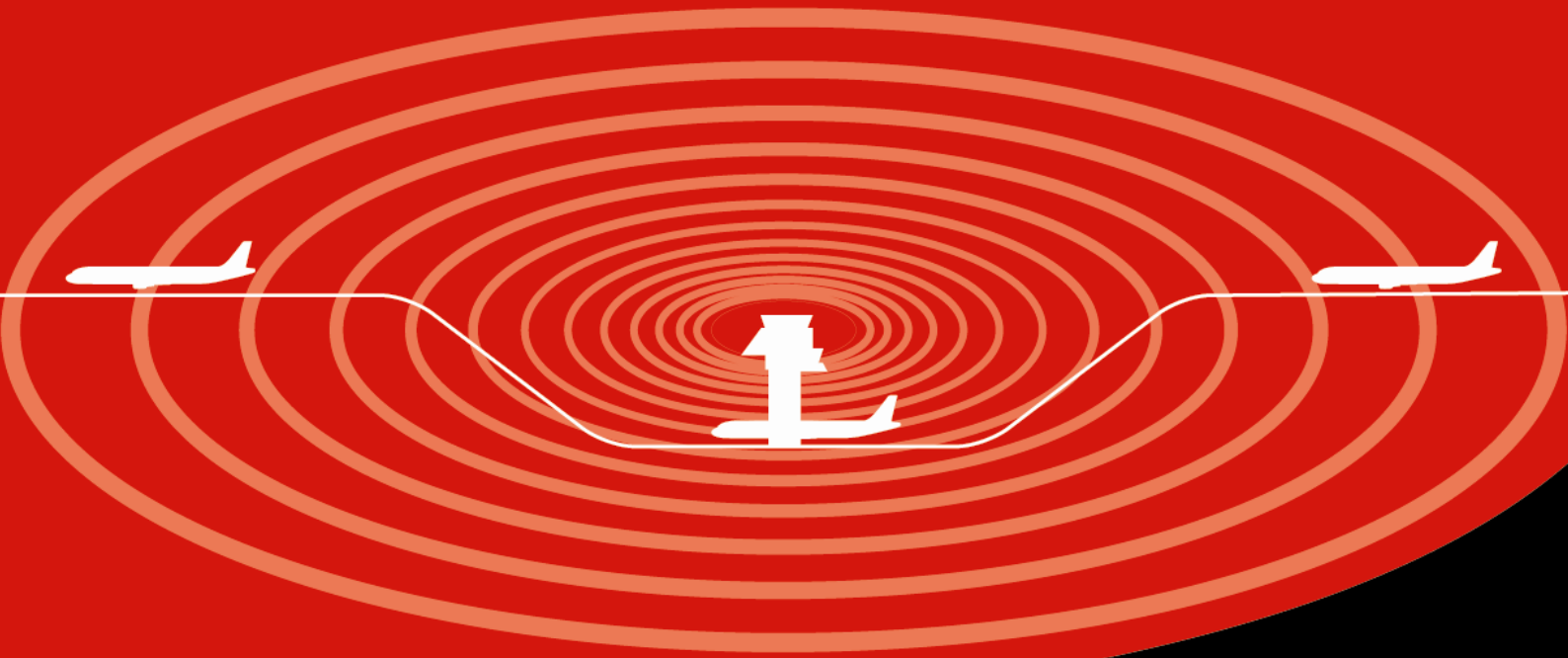
Check in to the future

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