Airfield Lighting

Manual

Omnidirectional Medium-Intensity Elevated Light (IDM 2927)

- Approach Centre Line and Crossbars for Non-Category Lighting Systems

THORN Airfield Lighting IDMAN

SAFEGATE GROUP

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MANUAL
OMNIDIRECTIONAL MEDIUM-INTENSITY ELEVATED LIGHT
(IDM 2927)
CONTENTS

Documentation

This document includes Elevated Lights 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	January 2011	First Release
1.1	March 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
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
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.

IDM 2927 is an omnidirectional medium-intensity elevated light.

The fitting has many advantages and special features:

- Fulfils ICAO and FAA standards in categories I, II and III
- Effective and accurate light distribution
- Corrosion resistant materials
- Light weight
- Modularity reduces spare parts stocking needs and costs
- Simple construction reliable and easy to maintain

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

IDM 2927 is an omnidirectional medium-intensity elevated light.

Overview of lights			
Light	**Colours**	**Power**	**Description**
IDM 2927	C	100W	Approach centre line and cross bars for non-category approaches.

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.

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:

- Keys, opening 10, 13 and 52 mm (17 mm for base plate bolts)
- Screw-driver

The installation steps refer to:

1. Installing the fitting on a transformer case
2. Installing the fitting on a curve tube
3. Installing the fitting on a safety mast
4. Aligning the fitting

2.1 INSTALLING THE FITTING ON A TRANSFORMER CASE

(a) Put the isolating transformer with primary connectors connected to the transformer case.
(a) Pull the secondary cable of the transformer through the base plate.
(b) Attach the cable clamp to the transformer secondary cable just under the female connector.
(c) Attach the base plate on the transformer case and tighten the three bolts.
(d) Place the cable clamp to the base plate's thread and screw the mechanical frangible coupling to the base plate.
(e) If the luminaire is equipped in factory with supply cable connect the male connector to the transformer's female connector. In other case use a secondary male connector kit and approximately 0,5 m 2x1,5 mm^2 to make the supply cable.
(f) Pass the cable through the mechanical adapter, the cable gland and in the luminaire.
(g) Attach the wire connectors supplied with the luminaire to the cable and press the wire connectors to the plastic holder.
(h) Connect the lamp wires.
Install the luminaire to the breakable coupling and tighten the fastening screws.

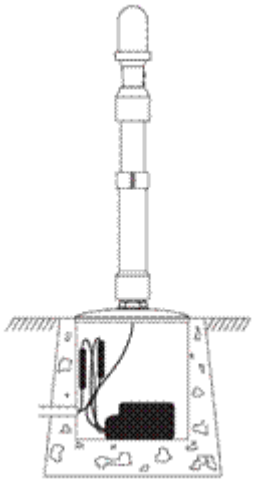


FIGURE 1 – INSTALLATION ON A TRANSFORMER CASE

2.2 INSTALLING THE FITTING ON A CURVE TUBE

(a) Pull the secondary cable of the transformer through the curve tube. If the cable is not long enough make an extension cable with male and female secondary connectors.
(b) Attach the cable clamp to the transformer secondary cable or alternatively to the extension cable just under the female connector.
(c) Place the cable clamp to the curve tube's thread and screw the mechanical breakable coupling to the curve tube.
(d) If the luminaire is equipped in factory with supply cable connect the male connector to the female connector. In other case use a secondary male connector kit and approximately 0,5 m 2x1,5 mm^2 to make the supply cable.
(e) Pass the cable through the adapter and

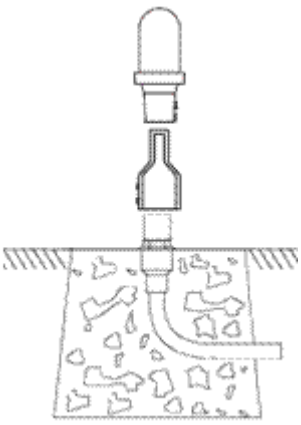


FIGURE 2 – INSTALLATION ON A CURVE TUBE

in the luminaire. (f) Attach the wire connectors supplied with the luminaire to the cable and press the wire connectors to the plastic holder. (g) Connect the lamp wires. (h) Install the luminaire to the frangible coupling and tighten the fastening screws. (i) Check that the luminaire is vertically levelled.	

2.3 INSTALLING THE FITTING ON A SAFETY MAST

(a) Attach the luminaire to the mast by the mechanical adapter. (b) Tighten the fastening screws of the expander and pass the cable through the adapter and the cable gland in the luminaire. (c) Attach the wire connectors supplied with the luminaire to the supply cable and press the wire connectors to the plastic holder. (d) Connect the lamp wires. (e) Connect the secondary supply cable to the transformer. (f) Check that the luminaire is vertically levelled.	 FIGURE 3 – INSTALLATION ON A SAFETY MAST

2.1 ALIGNING THE FITTING

No special alignment tool is needed. Check that the luminaire is properly tightened and that it is vertically levelled.

2.1.1 Horizontal alignment

The intensity distribution of the luminaire is omnidirectional and therefore no horizontal alignment is required.

2.1.2 Vertical alignment

No special vertical alignment is required. It is sufficient to visually check that the luminaire is vertically levelled.

3. 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.

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.

***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*.

3.2 WORKSHOP MAINTENANCE

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

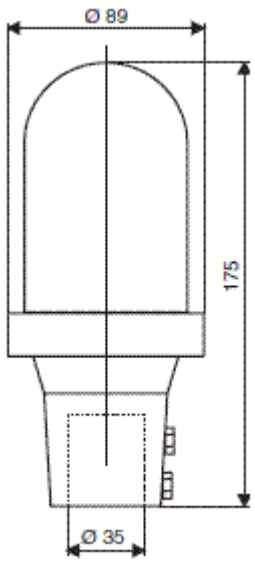
The workshop maintenance refers to following:

1. Replacing the fitting on its support
2. Replacing the lamp
3. Replacing a bowl and a gasket

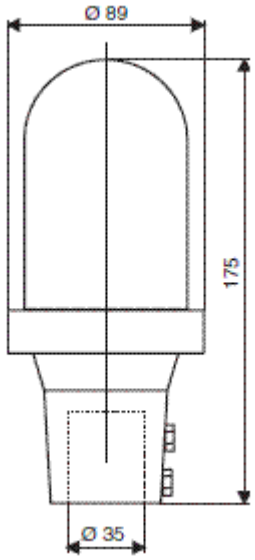
3.2.1 Replace a Light on its Support

For instructions, see § 2.1 Installing the fitting on a transformer case, § 2.2 Installing the fitting on a curve tube or § 2.3 Installing the fitting on a Safety Mast.

3.2.2 Replacing a Lamp

Remove	
(a) Open the latches of the bowl fixing ring. (b) Lift the fixing ring over the bowl and remove the glass bowl. (c) Disconnect the lamp wires from the plastic holder. (d) Turn the lamp holder springs aside and remove the lamp. (e) Remove the possible lamp glass protection cap and attach the new lamp to the housing.	 FIGURE 4 – LAMP REPLACEMENT
Replace	
(a) Take care that the placement pin is correctly positioned and fasten the lamp by holder springs. (b) Connect the lamp wires to the plastic holder. **Note:** *While closing the luminaire secure that the wires will correctly settle into the housing and the gasket for bowl seats well.* (c) Close the latches and clean the glass bowl outer surface.	

3.2.3 Replace a Bowl and a Gasket

Remove	
(a) Open the latches of the bowl fixing ring, (b) Lift the fixing ring over the bowl and remove the glass bowl. **Note:** *Do not touch the optical surfaces with bare hands.* (c) Check the glass bowl gasket and change if necessary.	 FIGURE 5 – BOWL AND GASKET REPLACEMENT
Replace	
(d) Replace a broken glass bowl. **Note:** *While closing the luminaire secure that the wires will correctly settle into the housing and the gasket for bowl seats well.* (e) Close the latches and clean the glass bowl outer surface.	

4. SUPPORT

Our experienced engineers are available for support and service at all times, 24 hour/7 days a week. They are part of a dynamic organization making sure the entire Safegate Group is committed to minimal disturbance for airport operations.

Safegate Group Support	
Safegate Group knows that our equipment is used in one of the busiest industries in the world, where down-time costs money and creates delays for airlines and their passengers. As one of the world's leading suppliers of airport systems, Safegate Group is committed to ensuring that our customers are able to get the most out of your equipment, regardless of the location or the time of day. For this reason, Safegate Group has established the Safegate Group Support service. Safegate Group Support is a unique service provided by Safegate Group to our customers, free of charge during the warranty period or as a service contract. Any time of day, any day of the year, a Safegate Group engineer is on standby to answer questions and assist with any problems that may arise. Qualified technical assistance is just a phone call or an e-mail away, 24-7 worldwide. ✉ support@safegate.com ☎ +46 40 699 1740	

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.

4.2.1 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 fittings. 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