

# Airfield Lighting

Manual

Unidirectional High-Intensity Elevated Light  
(IDM 6301)

- Elevated Runway Guard Light



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

**MANUAL**  
**UNIDIRECTIONAL HIGH-INTENSITY ELEVATED LIGHT**  
**(IDM 2982)**  
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## Documentation

This document includes Elevated Lights information with a focus on safety, installation and maintenance procedures.

For more information, see [www.safegate.com](http://www.safegate.com).

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

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## History

Version	Date	Description
1.0	March 2014	First 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 6301 is an high-intensity dual flashing light for the runway guard application.

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 6301 is an elevated unidirectional flashing runway guard light for configuration A installations. The main parts are made from special corrosion resistant aluminium alloy. Screws are made of stainless steel and gaskets of heat resistant silicone rubber. The lamp can be easily changed without touching the optics. No tools are needed for re-lamping. The luminaire will be connected to the constant current circuit and flashing effect will be produced either by the remote control system or runway guard light controller IDM 8025.

For more information, see [www.safegate.com](http://www.safegate.com).

## 1.1 DELIVERY OF THE FITTING

Each unit is individually packed in a durable cardboard box, labelled with its reference name and code. On request one set of fitting documents (= commercial brochure, installation manual, maintenance manual and spare parts list) is delivered the fittings.

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.

## 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.

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

*Standard tools and accessories:*

- Alignment device IDM 5842
- 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. Horizontal alignment
3. Vertical alignment

### 2.1 INSTALLING THE FITTING ON A TRANSFORMER CASE

- (a) When transformer case is installed, put the isolating transformer with primary connectors connected to the transformer case.
- (b) Pull the secondary cable of the transformer through the base plate.
- (c) Attach the cable clamp to the transformer secondary cable just under the female connector.
- (d) Attach the base plate on the transformer case and tighten the three bolts.
- (e) Place the cable clamp to the thread of the base plate and screw the mechanical breakable coupling to the base plate.
- (f) 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 2x2,5 mm<sup>2</sup> to make the supply cable.
- (g) Pass the cable through the cable glands in the adapter and in the luminaire.
- (h) Attach the wire connectors to the plastic holder.
- (i) Connect the lamp wires.
- (j) Install the luminaire to the breakable coupling and tighten the fastening screws.
- (k) Align the luminaire.

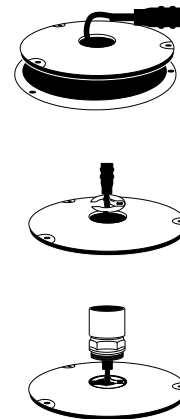


FIGURE 1 – INSTALLATION ON A TRANSFORMER CASE

## 2.1 ALIGNMENT

The magnification of the telescope of the alignment device is 4x20. It is not allowed to aim through the telescope to bright light sources, because this can cause damages to eye. Check that the telescope is parallel to the body of alignment device. Place the alignment device to the front glass fastening ring of the luminaire. Three balls in the alignment device ring lock it to the luminaire ring when the alignment device is gently pressed against the luminaire.

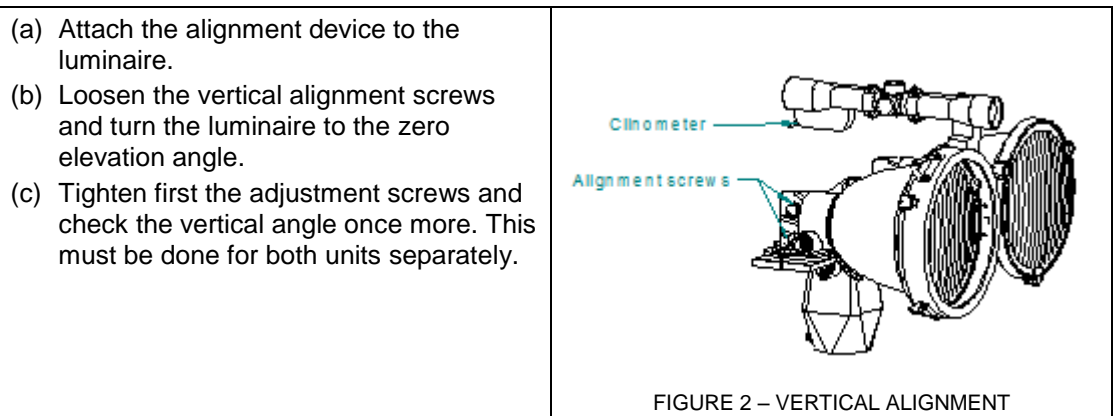
### 2.1.1 Horizontal Alignment

Horizontal alignment will be made by the aid of an alignment stick. The stick shall locate on the same side and equidistant from the taxiway centreline than the luminaire to be aligned at a distance of 30m from the luminaire.

The whole luminaire can be horizontally aligned by loosening the hexagonal screws in the adapter and turning the luminaire with respect to the mechanically breakable coupling. Attach the alignment device to the luminaire and align the luminaire by aiming through the telescope to the alignment stick. When the direction is set, tighten the adapter screws.

### 2.1.2 Vertical Alignment

The vertical alignment is made by the aid of clinometer which is attached to the alignment device. When looking through the clinometer the pointer line and graduation of scale can be seen. The degree scale is on the left.





### 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.

It is not allowed to touch the glass of the lamp nor the reflecting surface of the reflector by bare hand! Use soft, clean and dry rag when cleaning, handling or maintaining the optical parts of the luminaire.

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.

**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.

#### 3.1 BASIC MAINTENANCE PROGRAMME

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

Maintenance tasks	
Weekly	<ul style="list-style-type: none"><li>• Visual inspection of the fitting.</li><li>• Removal of dust from external surfaces of the fitting.</li></ul>
Monthly	<ul style="list-style-type: none"><li>• Check of the optical window, check for mechanical damage.</li><li>• Check for proper fixing of the fitting in its base.</li></ul>
Yearly	<ul style="list-style-type: none"><li>• Detailed inspection of the fitting.</li><li>• Check of the body resistance, check for mechanical damage (for example cracks around prism windows).</li><li>• Clean of the optical windows.</li></ul>

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.

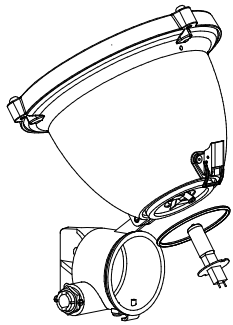
### 3.2 WORKSHOP MAINTENANCE

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

The workshop maintenance refers to following:

1. Replacing the lamp
2. Replacing the front glass
3. Replacing the reflector

#### 3.2.1 Replacing the Lamp

Remove	
<p>(a) Open the latch of the housing and turn the housing upwards.</p> <p>(b) Disconnect the lamp wires from the plastic holder.</p> <p>(c) Turn the lamp holder springs aside and remove the lamp.</p> <p>(d) Remove the possible lamp glass protection cap.</p>	 <p>FIGURE 3 –LAMP REPLACEMENT</p>
Replace	
<p>(a) Attach the new lamp to the housing. <b>Note:</b> Make sure that the placement pin is correctly positioned and fasten the lamp by holder springs.</p> <p>(b) Connect the lamp wires to the plastic holder. While closing the housing secure that the wires will correctly settle into the housing and the O-ring gasket (20) seats well.</p> <p>(c) Close the latch.</p>	

### 3.2.2 Replacing the Front Glass

Remove	
<p>(a) Remove the front glass fastening ring (12) by loosening the screws (19).</p> <p>(b) Check the reflector and if necessary clean with compressed air. <b>Note:</b> Do not touch the reflecting surfaces of the reflector!</p> <p>(c) Check the front glass gasket (21) and change if necessary.</p>	<p>FIGURE 4 – FRONT GLASS REPLACEMENT</p>
Replace	
<p>(a) Replace a broken front glass (15). <b>Note:</b> When assembling new front glass place it first to the gasket taking care that the slots in the glass position well to the studs in the gasket.</p> <p>(b) Likewise when placing the gasket-glass subassembly to the housing (16) pay attention that the studs in the gasket rear face settle well to the guide holes in the housing.</p> <p>(c) Fasten the front glass fastening ring with screws.</p>	

### 3.2.3 Replacing the Reflector

Remove	
<p>(a) Remove the front glass.</p> <p>(b) Remove the reflector by loosening the 3 screws.</p>	
Replace	
<p>(a) Place the new reflector into the luminaire using a piece of soft rag or similar.</p> <p>(b) Tighten the fastening screws after securing that the reflector is properly positioned and assemble the front glass.</p>	

### 3.4 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	
<p>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.</p> <p>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.</p> <p>✉ <a href="mailto:support@safegate.com">support@safegate.com</a></p> <p>☎ +46 40 699 1740</p>	

#### 3.4.1 Safegate Group Website

The Safegate Group Website, [www.safegate.com](http://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.

## 3.5 RE-CYCLING

### 3.5.1 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.

### 3.5.1 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](http://www.safegate.com), or contact Safegate Group Support via email at [support@safegate.com](mailto:support@safegate.com) or phone +46 40 699 1740.

## 3.6 SPARE PARTS

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

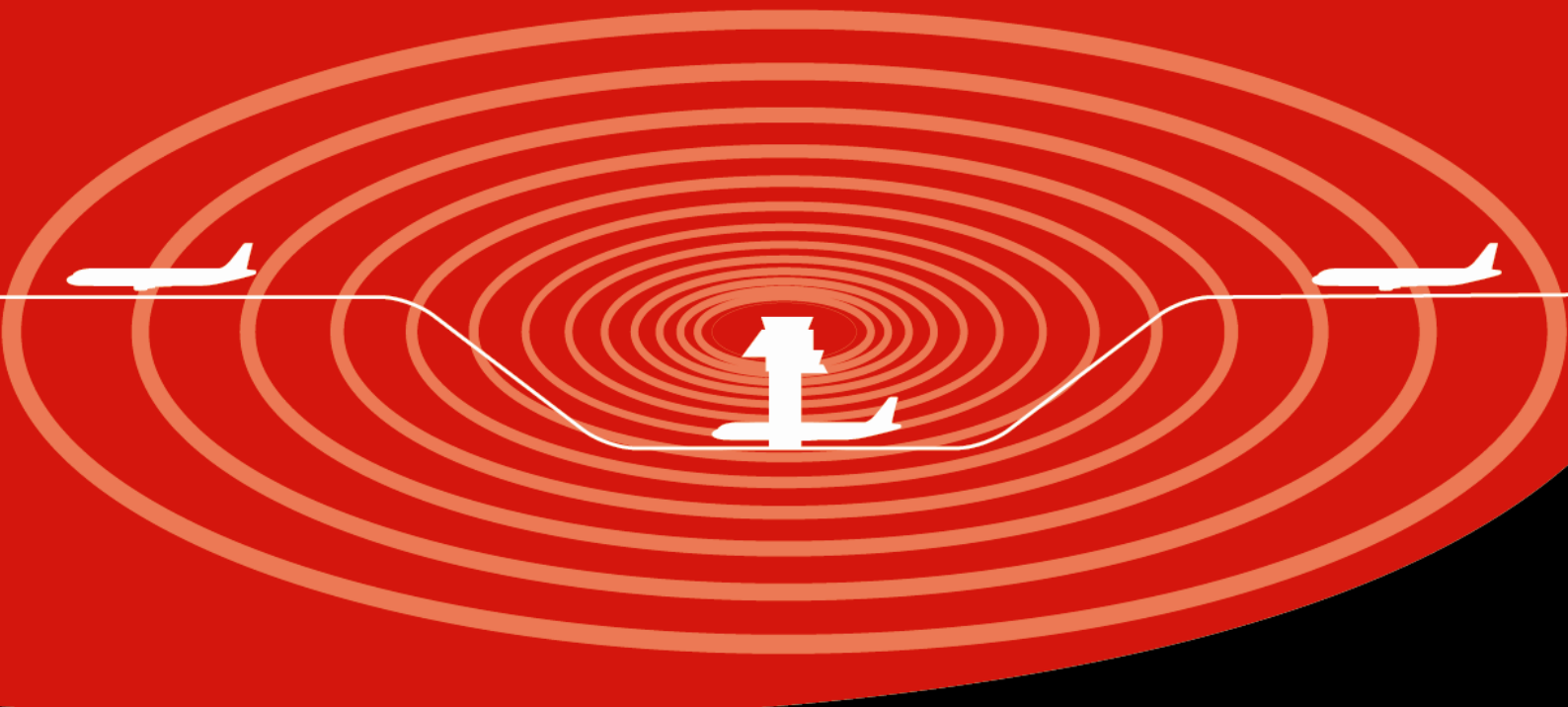
**Note:** Contact Safegate Group for assistance with ordering spare parts.

# 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!



**Safegate Group HQ**  
Djurhagegatan 19  
SE-213 76 Malmö, Sweden  
Phone: +46 (0)40 699 17 00  
Fax: +46 (0)40 699 17 30  
E-mail: market@safegate.com

**Australia**  
australia@safegate.com  
+61 (0)3 9720-3233

**Austria**  
office@avibit.com  
+43 316 429961

**Brazil**  
brazil@safegate.com  
+55 11 2137 4405

**China**  
china@safegate.com  
+8610-85275297

**Dubai**  
dubai@safegate.com  
+971 4 452 75 75

**Finland**  
finland@safegate.com  
+358 (0)20754 7700

**France**  
france@safegate.com  
+33 (0)1 42 99 60 40

**Germany**  
germany@safegate.com  
+49 (0)4121 464 303

**India**  
india@safegate.com  
+91 11 4106 1545

**Malaysia**  
malaysia@safegate.com  
+60 32 011 3522

**Qatar**  
qatar@safegate.com  
+974 436 9628

**Russia**  
russia@safegate.com  
+7 495 917 4614

**Singapore**  
singapore@safegate.com  
+65 6289 6893

**Spain**  
spain@safegate.com  
+34 917 157 598

**UK**  
uk@safegate.com  
+44 (0)208 573 0384

**USA**  
usa@safegate.com  
+1 763 535 92 99

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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](http://www.safegate.com)