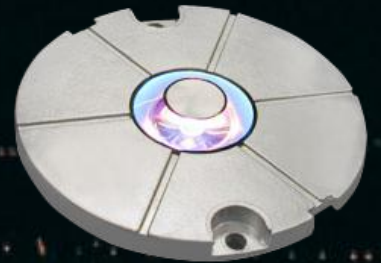


Airfield Lighting

Product Description

8" Omnidirectional SafeLED Inset Light
(SL-TE-I, SL-SG-I)

- Taxiway Edge
- Aircraft Stand Manoeuvring Guidance



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1. INTRODUCTION

The SafeLED TE-I and SafeLED SG-I are omnidirectional LED inset light fixtures. The light is available in two versions either to be connected in a series circuit or a parallel system.

The SafeLED light has integrated fail open technology which means that the CCR can detect any failure in the LED or the electronics. 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.

Note: *Integrated fail open and light intensity control is only available for the series circuit version.*

Utilisation

- Taxiway Edge
- Aircraft Stand Manoeuvring Guidance

Compliance

- ICAO: Annex 14 Volume I Paragraphs 5.3.17, 5.3.26 for use in CAT I, II, III
- FAA: L-852T AC150/5345-46D
- FAA: EB67D
- IEC 61827
- NATO: STANAG 3316
- STAC

2. MAIN ADVANTAGES

LED Source

The LED technology offers a long lasting light source, low power consumption depending on operation, a technology which is environmentally friendly and robust to vibration. By using SafeLED, the maintenance cost of light fittings and airport operation interruptions, is dramatically reduced.

LED technology secures a future proof Airfield Lighting (AFL) investment and removes the uncertainty of the proposed international phase out regulations for the traditional incandescent lamps.

Compact Design

The fitting has a low projection height of 10 mm (<1/2") omni-directional, without any negative slope in front of the prism. This gives the same performance in dry and rainy conditions. The 6.6A version is designed to fit into shallow 100 mm bases. The VAC version is designed to fit into the deeper 134 mm bases.

Robustness

SafeLED is designed for use in harsh environments. The electronic components are encapsulated in waterproof polyurethane, well protected from wear and tear. Castings are anodised and fixings are stainless steel. Component life cycle is dramatically extended and its operational lifespan is greatly increased. There is also an inbuilt over-voltage surge and lightning protection.

Mixed Circuit Compatibility

Compatible with incandescent halogen lights on CCR circuits (6.6A). The LED fitting follows the same light intensity curve as a halogen lamp. This allows mixed circuits with halogen and LED fittings. There is no need for updating previously installed AFL infrastructure when installing SafeLED.

CCR Compatibility

The SafeLED reacts as a halogen lamp with a resistive load profile. When turning on a Constant Current Regulator (CCR), the CCR does not trip as the current does not fluctuate with SafeLED technology.

Fail Open Technology*

The LED fitting includes fail open technology providing functionality which allows for a CCR to detect LED lamp failure.

* **Note:** Only available for series circuit versions.

3. TECHNICAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Circuits				
Supply current from parallel VAC circuit (90-260VAC, 50-60Hz)	I _{SUPPLY}	2.5	7.1 ¹ 8.2 ²	A _{RMS}
Power consumption				
Total power consumption omnidirectional fitting @ 6.6 A _{RMS} Note: Power Factor (PF) type 1.0.	P _{fit}	1.36	6.78	W
Total power consumption omnidirectional fitting @ 90-260VAC, 50-60Hz. Note: Power Factor (PF) type 0.45.	P _{fit}	3.94 W / 8.7 VA		
Environment				
Operating humidity range	RH	0	100	%
Operating temperature range ³	T _A	-55	+80	°C
Storage temperature range	T _{STG}	-55	+80	°C
Power Supply	Integrated, encapsulated electronic converter (6.6A/VAC version). Two-pole FAA plug for connection to the transformer (6.6A version). Three pole Amphenol S44 plug for connection to a VAC parallel circuit.			
Optics	Equipped with 1 LED ⁴ . No colour filters required, colours obtained directly by the LED in compliance with standards.			
Finish	External parts made of anodised aluminium alloy casting. All fixings and fastenings in stainless steel.			
CCR detection	Open secondary failure mode.			
Dimensions	Projection: 10 mm (<1/2") omnidirectional. Diameter: 203 mm (8").			
Net Weight	3.0 kg			
Packaging	Volume: 0,006 m ³ . Dimensions: 235 x 255 x 100 mm (6.6A), 220 x 220 x 130 mm (VAC).			

Key *Description*

- 1 *In accordance with FAA advisory circular 150/5345-47D (Isolation transformers for airport lighting systems).*
- 2 *For max 1s, in accordance with FAA advisory circular 150/5345-10E (Specification for CCRs and regulator monitors).*
- 3 *Ambient temperature inside the base hole or where the inset light is installed.*
- 4 *Lifetime LED depending on operation.*

Note: For more information, contact Safegate Group or see www.safegate.com.

4. INSTALLATION OPTIONS

The fitting can be installed in standard bases or with adapter rings in an existing/new airfield lighting system.

The fitting can have different dimensions as described below:

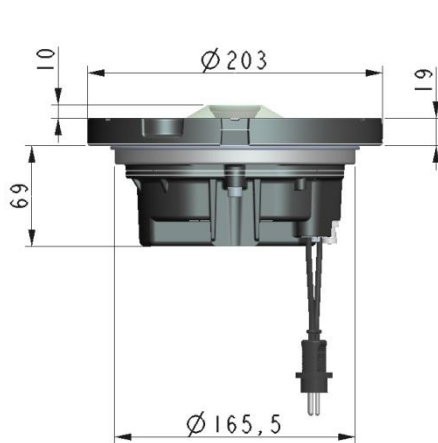


FIGURE 1 – SAFELED TE-I-6.6 SIDE VIEW

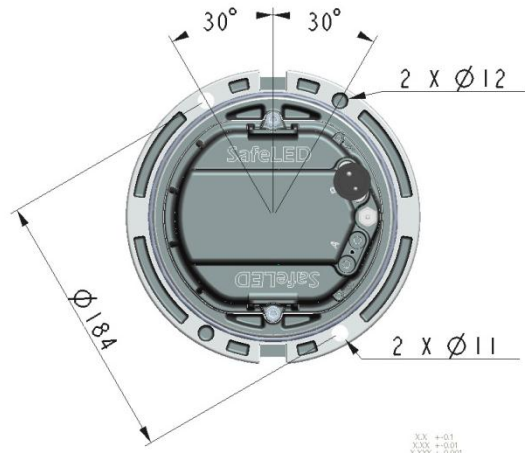


FIGURE 2 – SAFELED TE-I-6.6 TOP VIEW

The SafeLED-TE-I-6.6 fitting is installed in one of the following:

- Thorn 8 inch shallow base, minimum height 100 mm with side or bottom entry for the cable.
- 12" base with side or bottom entry.
Note: Install with a Thorn AFL adapter ring 12" – 8" with 2 x M10 studs (order code 96217254).
- FAA L-868B deep base using an adapter ring.

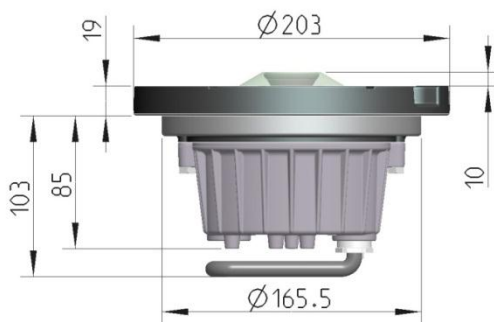


FIGURE 3 – SAFELED TE-I-230V SIDE VIEW

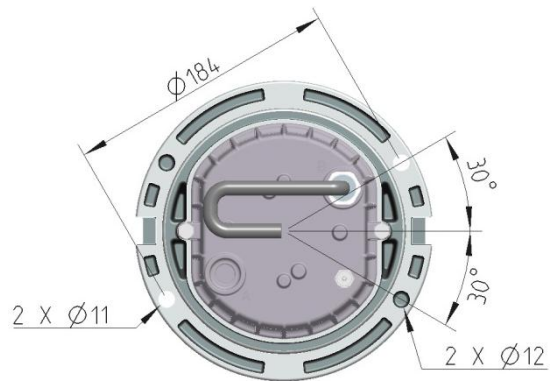


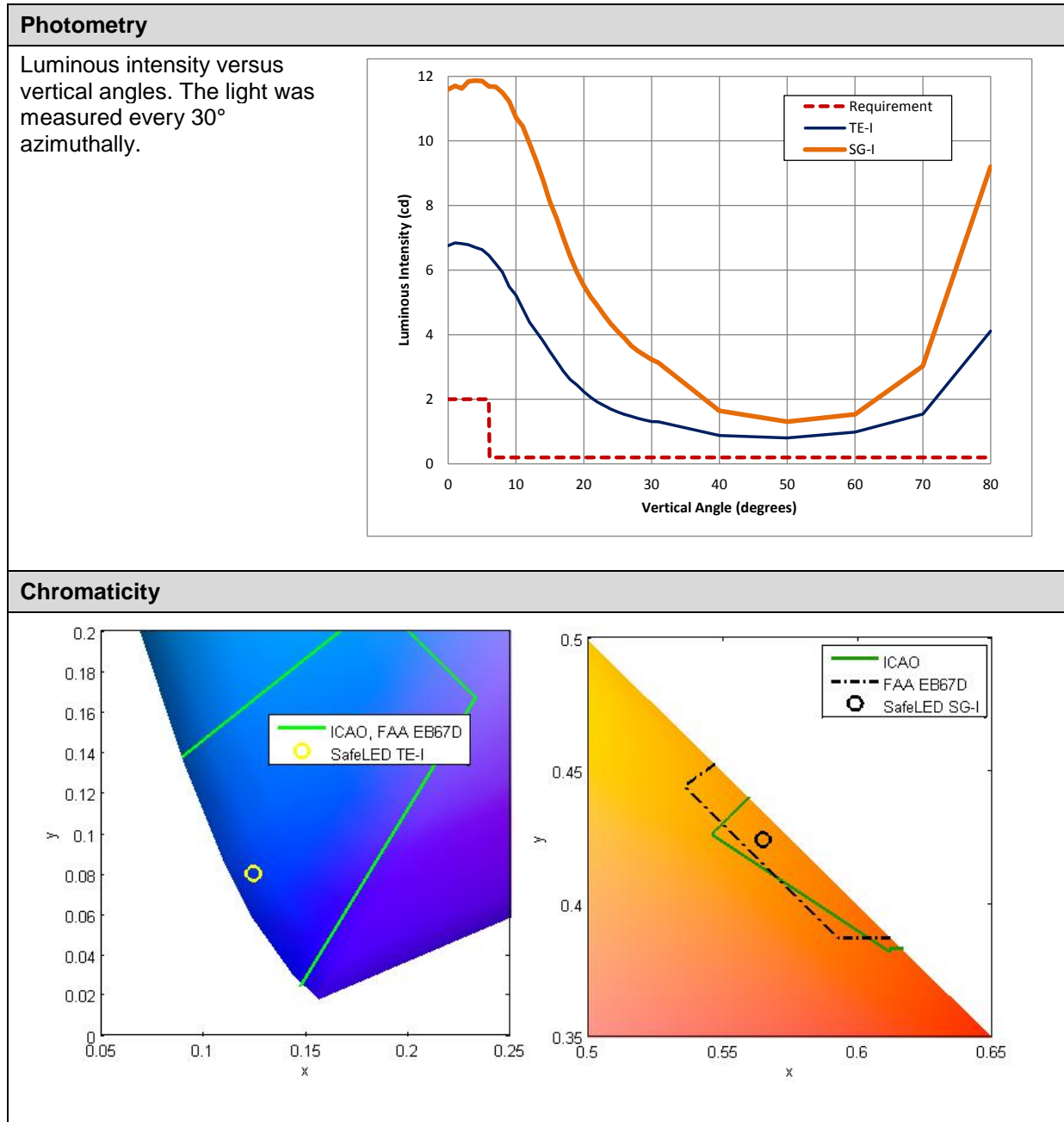
FIGURE 4 – SAFELED TE-I-230V TOP VIEW

The SafeLED-TE-I-230V fitting is installed in one of the following:

- Thorn 8 inch shallow base minimum height 134 mm with side or bottom entry for the cable.
- 12" base with side or bottom entry.
Note: Install with a Thorn AFL adapter ring 12" - 8", 2 x M10 studs (order code 96217254).
- FAA L-868B deep base using an adapter ring.

5. PHOTOMETRICS

This section shows the typical optical performance of the Taxiway Edge blue light according to the ICAO and FAA L-852T standards and the photometrics of the yellow Aircraft stand manoeuvring guidance light, which is defined in ICAO Annex 14, paragraph 5.3.25.3.



6. DESIGN

Components		SL-TE-I; SL-SG-I
1	Top cover	
2	O Ring gasket for 8" shallow base	
3	Silicone prism gasket	
4	Non-sealed prism	
5	Protection Teflon washer	
6	LED assembly	
7	Silicon prism gasket	
8	6.6A converter assembly	
9	VAC converter assembly	
10	Valve for water tightness test	
11	Cover screws VAC version	

Note: The complete fitting is delivered with a water tightness O ring gasket for a 8" shallow base.

7. ORDER CODES

The table below is a guide to order codes for an inset light fitting with **X** representing the available component parts.

It is important to consider the correct isolation transformer for fittings depending on the configuration.

Ordering Code	Components	X	X	X	X	X	X	X
SafeLED	-							
Location								
Taxiway Edge	TE							
Aircraft Stand	SG							
Manoeuvring Guidance								
Fitting								
Inset	I							
Type								
Omni-directional	O							
Colour(s)								
Blue	B							
Yellow	Y							
Connection to isolating transformer(s)								
1 Connector	1C							
System								
6.6A	6.6A							
VAC	VAC							
Additional	Shallow base and Adapter ring. Isolation transformer, depending on the configuration. For more information, contact Safegate Group or see www.safegate.com .							

8. SPECIFICATION

SafeLED lights include numerous technical benefits:

- Taxiway Edge and Stand Guidance inset LED lights.
- Monitors LED lamp status. (Integrated Fail Open technology/SafeLED 6.6A only)
- Acts like a halogen lamp and does not pulsate due to resistive load.
- 10 mm elevation point, only.
- No negative slope (dirt advert design).
- Over voltage surge and lightning protection.
- *All-in-one* integrated and moulded electronics with a connector.
- An easily replaced prism.
- Backwards compatible with halogen lamps on CCR series circuit.
- Photometrics and colours in compliance with recommendations in ICAO Annex 14 Volume 1, FAA AC150/5345-46D and FAA EB67D.
- Can be powered by an isolating transformer on a standard 6.6 A AGL primary loop, due to the internal converter in the fitting (6.6A version only).
- LED life depends on operation.
- All external parts are made of anodised aluminium alloy casting.
- All fixings and fastenings are stainless steel.
- The fitting has a maximum outer diameter of 203 mm (8") and its projection shall not exceed 10 mm (<1/2") omni-directional.
- The weight of the fitting is less than 3.0 kg.
- The fitting is installed directly on an 8" shallow base minimum 100 mm (6.6A version only), or in a Thorn AFL adapter ring on a FAA L-868B deep base.
- The fitting is designed to allow easy maintenance.

Compliance

The inset light is in compliance with standards:

- ICAO: Annex 14 Vol. I Paragraphs 5.3.17 and 5.3.26 for use in CAT I, II, III
- FAA: L-852T AC150/5345-46D
- FAA: EB67D
- IEC 61827
- NATO: STANAG 3316
- STAC

Note: *All descriptions and photometric characteristics in this publication present only general particulars and shall not form part of any contract. The right is reserved to change them without prior notification.*

For more information, contact Safegate Group for compliance with other standards.

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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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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.

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