

AXON LED High-Intensity Elevated Lights

User Manual

UM-5078, Rev. 1.6.0, 2026-Sep-18

ADB SAFEGATE

A.0 Disclaimer / Standard Warranty

CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The European directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

ETL certification

The equipment listed as ETL certified means that the product complies with the essential requirements concerning safety and C22.2 No.180:13 (R2018) regulations. The CSA directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

All Products Guarantee

ADB SAFEGATE will correct by repair or replacement per the applicable guarantee below, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB SAFEGATE reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB SAFEGATE furthers reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

ADB SAFEGATE's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by ADB SAFEGATE, warranty is limited to that extended by the original manufacturer. This is ADB SAFEGATE's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed.

Standard Products Guarantee

Products manufactured by ADB SAFEGATE are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of two years from the date of ex-works delivery, and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

Note

See your applicable sales agreement for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

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ADB SAFEGATE L858 Airfield Guidance Signs are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation, per FAA AC 150/5345-44 (applicable edition).

ADB SAFEGATE LED products (with the exception of obstruction lighting) are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years from date of installation, per FAA EB67 (applicable edition). These FAA certified constant current (series) powered LED products must be installed, interfaced and powered with and through products certified under the FAA Airfield Lighting Equipment Program (ALECP) to be included in this 4 (four) year warranty. This includes, but is not limited to, interface with products such as Base Cans, Isolation Transformers, Connectors, Wiring, and Constant Current Regulators.

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Note

See your sales order contract for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

Liability

WARNING

Use of the equipment in ways other than described in the catalog leaflet and the manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in the manual.

ADB SAFEGATE cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses, includes the following actions:

- Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB SAFEGATE replacement parts or accessories.
- Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards if not in contradiction with the general rules.
- Using materials or auxiliary equipment that are inappropriate or incompatible with your ADB SAFEGATE equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

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1.0 Safety

Introduction to Safety

This section contains general safety instructions for installing and using ADB SAFEGATE equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate.

1.1 Safety Messages

HAZARD Icons used in this manual

For all HAZARD symbols in use, see the Safety section. All symbols must comply with ISO and ANSI standards.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbols shown below.

	WARNING Failure to observe a warning may result in personal injury, death or equipment damage.
	DANGER – Risk of electrical shock or ARC FLASH Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.
	WARNING – Wear personal protective equipment Failure to observe may result in serious injury.
	WARNING – Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.
	CAUTION Failure to observe a caution may result in equipment damage.
	ELECTROSTATIC SENSITIVE DEVICES This equipment may contain electrostatic devices.

Qualified Personnel

	**Important Information** The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements. Always use required personal protective equipment (PPE) and follow safe electrical work practice.

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1.1.1 Introduction to Safety



CAUTION

Unsafe Equipment Use

This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- Read installation instructions in their entirety before starting installation.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

Failure to follow these instructions can result in serious injury, death or equipment damage

Additional Reference Materials



Important Information

- IEC – International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 – Electrical Installations in Buildings.
- CSA – C22.2 No.180:13 (R2018), series isolating transformers for airport lighting.
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use



CAUTION

Use this equipment as intended by the manufacturer

This equipment is designed to perform a specific function. Do not use this equipment for other purposes

Failure to follow this instruction can result in serious injury, death and / or property and equipment damage

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1.1.3 Material Handling Precautions: Storage



CAUTION

Improper Storage
Store this equipment properly

- If equipment is to be stored prior to installation, it must be protected from the weather elements and kept free of condensation and dust.

Failure to follow this instruction can result in equipment damage

1.1.4 Arc Flash and Electric Shock Hazard



DANGER

SERIES CIRCUITS HAVE HAZARDOUS VOLTAGES
THIS EQUIPMENT PRODUCES HIGH VOLTAGES TO MAINTAIN THE SPECIFIED CURRENT - DO NOT DISCONNECT WHILE ENERGIZED.

- ALLOW ONLY QUALIFIED PERSONNEL TO PERFORM MAINTENANCE, TROUBLESHOOTING, AND REPAIR TASKS.
- ONLY PERSONS WHO ARE PROPERLY TRAINED AND FAMILIAR WITH ADB SAFEGATE EQUIPMENT ARE PERMITTED TO SERVICE THIS EQUIPMENT.
- AN OPEN AIRFIELD CURRENT CIRCUIT IS CAPABLE OF GENERATING >5000 VAC AND MAY APPEAR OFF TO A METER.
- NEVER UNPLUG A DEVICE FROM A CONSTANT CURRENT CIRCUIT WHILE IT IS OPERATING; ARC FLASH MAY RESULT.
- DISCONNECT AND LOCK OUT ELECTRICAL POWER.
- ALWAYS USE SAFETY DEVICES WHEN WORKING ON THIS EQUIPMENT.
- FOLLOW THE RECOMMENDED MAINTENANCE PROCEDURES IN THE PRODUCT MANUALS.
- DO NOT SERVICE OR ADJUST ANY EQUIPMENT UNLESS ANOTHER PERSON TRAINED IN FIRST AID AND CPR IS PRESENT.
- CONNECT ALL DISCONNECTED EQUIPMENT GROUND CABLES AND WIRES AFTER SERVICING EQUIPMENT. GROUND ALL CONDUCTIVE EQUIPMENT.
- USE ONLY APPROVED ADB SAFEGATE REPLACEMENT PARTS. USING UNAPPROVED PARTS OR MAKING UNAPPROVED MODIFICATIONS TO EQUIPMENT MAY VOID AGENCY APPROVALS AND CREATE SAFETY HAZARDS.
- CHECK THE INTERLOCK SYSTEMS PERIODICALLY TO ENSURE THEIR EFFECTIVENESS.
- DO NOT ATTEMPT TO SERVICE ELECTRICAL EQUIPMENT IF STANDING WATER IS PRESENT. USE CAUTION WHEN SERVICING ELECTRICAL EQUIPMENT IN A HIGH-HUMIDITY ENVIRONMENT.
- USE TOOLS WITH INSULATED HANDLES WHEN WORKING WITH AIRFIELD ELECTRICAL EQUIPMENT.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR EQUIPMENT DAMAGE

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1.1.5 Operation Safety



CAUTION

Improper Operation
Do Not Operate this equipment other than as specified by the manufacturer

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

Failure to follow these instructions can result in serious injury, death or equipment damage.

1.1.6 Maintenance Safety



DANGER

ELECTRIC SHOCK HAZARD
THIS EQUIPMENT MAY CONTAIN ELECTROSTATIC DEVICES

- DO NOT OPERATE A SYSTEM THAT CONTAINS MALFUNCTIONING COMPONENTS. IF A COMPONENT MALFUNCTIONS, TURN THE SYSTEM OFF IMMEDIATELY.
- DISCONNECT AND LOCK OUT ELECTRICAL POWER.
- ALLOW ONLY QUALIFIED PERSONNEL TO MAKE REPAIRS OR REPLACE MALFUNCTIONING COMPONENTS ACCORDING TO INSTRUCTIONS PROVIDED IN MANUAL.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR EQUIPMENT DAMAGE

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1.1.7 Material Handling Precautions, ESD



CAUTION

Electrostatic Sensitive Devices
This equipment may contain electrostatic devices

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you shall bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

Failure to follow this instruction can result in equipment damage

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2.0 About this Manual

This document includes AXON elevated light fixture information with a focus on safety and step-by-step procedures for installation and maintenance..

For more information, see www.adbsafegate.com.

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

This manual covers the following elevated light fixtures::

- ICAO centerline, crossbar and siderow (AC/AS)
- ICAO Approach Flash and RTIL (FL)
- ICAO stop bar (SB)
- ICAO runway threshold, end, threshold/end, and threshold wingbar (RN/RT ICAO)
- ICAO Stopway (SW)
- ICAO and FAA L-862(L) runway edge (RE)
- FAA L-862E(L) runway threshold, end and threshold/end (RN/RT FAA)
- FAA L-862S(L) stop bar (SB FAA)

2.1 How to work with the Manual

- Familiarize yourself with the structure and content.
- Carry out the actions completely and in the given sequence.

2.2 Abbreviations and Terms

This document may include the abbreviations and terms listed below.

Abbreviation	Description
AGL	Airfield Ground Lighting
ANSI	American National Standards Institute
ATM	Air Traffic Movement
CAA	Civil Aviation Authority
CCR	Constant Current Regulator
EASA	European Union Aviation Safety Agency
FAA	Federal Aviation Administration
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Committee
IEEE	Institute of Electrical and Electronics Engineers
ILCMS	Individual Light Control and Monitoring System
LED	Light Emitting Diode
NATO	North Atlantic Treaty Organization
OFDM	Orthogonal Frequency Division Multiplexing
PWM	Pulse Width Modulation
STAC	Service Technique de l'Aviation Civile (France
STANAG	Standardization Agreement (NATO)
UFC	Unified Facilities Criteria
RTIL	Runway Threshold Indicator Lights

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3.0 Introduction

The All-in-One Solution

The AXON high intensity elevated light fixture is a modular light-emitting diode (LED) light fixture available in different versions:

Non-MON

Basic operation, providing power only

MON (Fail-open)

Integrated fail-open technology for CCR monitoring compatibility

Note

All our light fixtures are equipped with failed LED detection monitoring as required by FAA Engineering Brief 67.

Functional Options

Low Intensity Approach — Integrated omnidirectional, low intensity approach light.
Circling Guidance — Integrated omnidirectional circling guidance, which dims in proportion to intensity step.
Constant Circling Guidance — Integrated omnidirectional circling guidance, stays at 100% intensity regardless of input current.
Near Infra Red (NIR) — NIR LED supports EFVS or NVG operations, both overt and covert.
SMART Arctic Kit — Maintains full heating power at all intensity steps.





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3.1 Illuminated LEDs

The AXON elevated light has a modular design. Different configurations use the same optical blocks and LED PCBs.

In some configurations, only specified LEDs come on. This is normal. The active LEDs are designed to optimize photometric performance and power consumption for each specific application.

Do not identify an unlit LED as a fault before you examine the configuration. Refer to the overview below to identify the LEDs that must come on for each application:

12 LEDs		
		
Approach centerline[1] Approach crossbar[1] Approach flash and RTIL[2]	Approach side row [1] FAA L-862S(L) stopbar	ICAO threshold wingbar

[1]Top center LED is only illuminated if combined low intensity omni directional is selected.

[2]Bottom left and right LEDs are for infra red enabled applications only and are non visible.

6 LEDs			
			
L862(L) runway edge (red)[1] ICAO runway end[1] FAA L862–E(L) runway end[1] ICAO stopway[1]	L-862(L) runway edge (white)[1]	L-862(L) runway edge (yellow)[1]	ICAO threshold

[1]Top center LED is only illuminated if circling guidance is enabled (always for L-862(L) runway edge).

4 LEDs	2 LEDs
	
FAA L862–E displaced threshold	ICAO stopbar

Note
The bottom center LED is for infra red enabled applications only and is non visible

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3.2 Product Information

Compliance and Standards

Compliance	Description	AC-AS	FL	SB ICAO	RN-RT ICAO	SW	RE	RN-RT FAA	SB FAA
		DS-5066	DS-5126	DS-5067	DS-5068	DS-5069	DS-5071	DS-5072	DS-5073
FAA	AC 150/5345-46 and the FAA Engineering Brief No. 67						X	X	X
ICAO	Annex 14 Volume 1	X	X	X	X	X	X		
IEC	61827	X	X	X	X	X	X		
NATO	STANAG 3316	X	X	X	X	X	X		
EASA	CS-ADR-DSN	X	X	X	X	X	X		
STAC	SPE/STAC/SE/E/VIS/6008	X		X	X	X	X		
UK	CAP 168	X	X	X	X	X	X		
UFC	3-535-01	X	X	X	X		X		
Canada	TP 312	X	X	X	X	X	X		
Australia	MOS 139	X	X	X	X	X	X		
CE		X	X	X	X	X	X	X	X

Uses

AC-AS	FL	SB ICAO	RN-RT ICAO
ICAO ▪ Approach centerline ▪ Approach crossbar ▪ Approach siderow (red)	**ICAO** ▪ Approach flash ▪ RTIL	**ICAO** ▪ Stop bar	**ICAO** ▪ Runway threshold ▪ Runway end ▪ Runway threshold/ end ▪ Runway threshold wingbar

Uses

SW	RE	RN-RT FAA	SB FAA
ICAO and MOS ▪ Stopway ≤ 45 m width runway	**ICAO** ▪ Runway edge ≤ 45 m width runway **FAA** ▪ L-862(L) runway edge	**FAA** ▪ L-862E(L) Runway threshold ▪ L-862E(L) Runway end ▪ L-862E(L) Runway threshold/end	**FAA** ▪ L-862S(L) stop bar

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Features and Benefits

Efficiency

- Infrared for EFVS/NVG compatibility. Highly configurable to meet operational requirements
- The LED uses 400 Hz PWM modulation to optimize performance and prevent visible flicker at all brightness levels.
- The Lights are fully dimmable and conform to the FAA EB 67D and ICAO Annex 14 dimming curve
- A dedicated aiming device allows easy leveling and azimuth adjustment of the light
- Three screws allow up to 4° leveling adjustment of the fixture after installation

Sustainability

- Independent Product Carbon Footprint calculation available to support in product lifecycle analysis
- Modular housing maximizes parts commonality and allows midlife upgrades for enhanced functionality without replacing the product
- Available with either a glass or UV-resistant polycarbonate outer lens
- A single fixture family covers all elevated approach, runway, and stop bar applications
- The enclosure is IP68 and IP69K rated for harsh environments; All fastenings are stainless steel
- This product is a direct replacement for ADB SAFEGATE LED elevated fixtures due to its mechanical and photometric backwards compatibility
- Finish: Stainless steel hardware, aluminum body, phosphated aviation yellow electrostatic polyester powder coating
- Based on the LED manufacturer's ratings and calculations, LED life expectancy (L70) is guaranteed to exceed 50,000 operating hours
- Aerodynamic and lightweight design built to withstand the strongest jet blast

Safety

- Clear daytime recognition with large colored optical module surround
- Modular mechanical design consolidates and strengthens components for faster and easier maintenance and reconfiguration
- SMART Arctic kit available with optional heater output down to 4.1 A
- The fail-open option allows compatibility with both legacy and advanced control and monitoring systems
- Failed-LED detection as required by FAA Engineering Brief 67D
- The product meets the lightning protection requirements of ANSI/IEEE C62.41-1991 and FAA Engineering Brief 67, Location Category C2. It is tested with a 1.2/50–8/20 µs combination wave, up to 10,000 V and 5,000 A

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Power Supply

- Non-monitored power only
- Monitored — integrated fail-open technology

Maintenance and Installation

The fixture has an aluminum body. Install it on the ground with a frangible coupling or elevated on a mast with a mounting stem, as applicable. Designed for backward compatibility with ADB SAFEGATE LEAP and EREL fixtures in existing installations.

Operating Conditions

Operating temperature	-55 °C to +55 °C / -67 °F to +131 °F
Storage temperature	-60 °C to +80 °C / -76 °F to +176 °F
Humidity	Up to 100%

Dimensions and Weight

Dimensions	26.4 cm (H) × 14.7 cm (W) × 15.8 cm (D)
Weight	Min 2.7 kg (6 lb)

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4.0 Pre-Installation Guidelines

Effective installation starts with thorough preparation and thoughtful planning. Please review this entire section before proceeding to to ensure your process is seamless, safe, and optimized for long-term reliability.

4.1 Safety Considerations

- Read the installation section in its entirety before you begin installation and follow all instructions for installing components and accessories.
- Understand the requirements of all system components. This will help you install the system safely and efficiently.
- Refer to FAA AC 150/5340-30 (latest revision) for design and installation details for airport visual aids and ICAO Annex 14, Volume I, paragraph 5.3.9 for runway edge lights.
- Use the site plans and specifications for instructions about installing light fixtures.



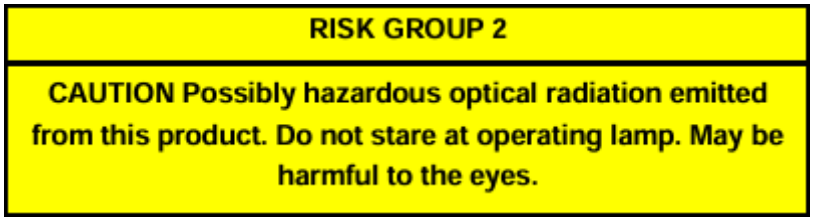
DANGER

FAILURE TO FOLLOW THESE SAFETY PROCEDURES CAN RESULT IN PERSONAL INJURY OR DEATH

- ALLOW ONLY QUALIFIED PERSONNEL TO INSTALL ADB SAFEGATE AND AUXILIARY EQUIPMENT. USE ONLY APPROVED EQUIPMENT. USING UNAPPROVED EQUIPMENT IN AN APPROVED SYSTEM MAY VOID FAA APPROVALS. OBSERVE AND FOLLOW THE SAFETY INSTRUCTIONS IN THIS DOCUMENT AND ALL OTHER RELATED DOCUMENTATION.
- MAKE SURE ALL EQUIPMENT IS RATED AND APPROVED FOR THE ENVIRONMENT WHERE IT IS BEING USED.
- INSTALL ALL ELECTRICAL CONNECTIONS IN COMPLIANCE WITH LOCAL AND NATIONAL CODES AND REGULATIONS.
- USE ONLY ELECTRICAL WIRE OF SUFFICIENT GAUGE AND INSULATION TO HANDLE THE RATED CURRENT DEMAND.
- ROUTE ELECTRICAL WIRING ALONG A PROTECTED PATH. MAKE SURE IT WILL NOT BE DAMAGED BY MOVING EQUIPMENT.
- PROTECT COMPONENTS FROM DAMAGE, WEAR AND HARSH ENVIRONMENTAL CONDITIONS.
- ALLOW AMPLE CLEARANCE FOR MAINTENANCE, PANEL ACCESSIBILITY AND COVER REMOVAL.
- PROTECT EQUIPMENT WITH SAFETY DEVICES AS SPECIFIED BY APPLICABLE SAFETY REGULATIONS.
- IF SAFETY DEVICES MUST BE REMOVED FOR INSTALLATION, REINSTALL THEM IMMEDIATELY AFTER THE WORK IS COMPLETED AND CHECK THEM FOR PROPER FUNCTIONING.
- THE CORD SET MUST BE PROTECTED PRIOR TO INSTALLATION.
- DO NOT DAMAGE THE CABLE INSULATION.
- ALWAYS SWITCH OFF POWER TO THE SERIES CIRCUIT BEFORE INSTALLING OR REMOVING ANY FIXTURE.

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4.2 Photobiological Safety



CAUTION

Photobiological safety conforming with IEC 62471

RISK GROUP 2: Optical radiation emitted from LED lights possibly harmful to the eyes. Do not stare with at the light source with bare eyes at a fixture operating at high intensity. Use protection goggles or similar protection method

Goggles with a transmission factor not higher than 5% in the 400-530 nm band have been tested and provide adequate protection.

4.3 Delivery Inspection and Unpacking

1. Upon receipt of goods, inspect all packaging for visible damage.
   - If packaging is damaged, open the affected packaging and check the equipment for damage. Take care not to damage the cable insulation when unpacking the equipment or when it is unpacked.

     IMPORTANT

     If damage to the equipment is detected, immediately complete a claim form with the carrier. The carrier may need to inspect the equipment.
2. Store the equipment in its original packaging in a clean, dry, and protected indoor area.
3. Unpack at the installation site just before installation to avoid damage during transportation and handling.

Verify Specifications and Record Product Information

When opening the box, verify that the light fixture's specifications — such as type and color — match the design requirements. If the specifications do not match, contact ADB SAFEGATE.

If you are installing a fixture where control and monitoring will be activated later, record product information, including PID/SN and the fixture's location, in your site documentation table. This information is essential for enabling remote activation and effective management of control and monitoring from the substation.

4.4 Verify Input Requirements and Equipment Needed

Make sure that:

- The fixture is connected to a 6.6 A series lighting circuit using an L-830 (60 Hz) or L-831 (50 Hz) isolation transformer.
- The series circuit is powered by a Constant Current Regulator (CCR) that complies with IEC 61820-3-2 or FAA AC 5345-10 (latest revision).
- The isolation transformer complies with IEC 61823 or FAA AC 5345-47 (latest revision), and its power does not exceed 150 W.
- You have all necessary tools and materials ready for installation (not supplied). Consider any additional tools needed for your specific site conditions.

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5.0 Installation

This section provides instructions on how to install and remove elevated light fixtures. **Read the instructions in their entirety before starting installation.** Follow airport project plans and specifications for specific instructions. All work must meet the National Electric Code and local codes.

Before Installation

- Read and understand Safety and Safety Considerations.

CAUTION

Use of incorrect combination of gaskets, bolts and nuts can cause severe damage to the product and create multiple safety risks.



IMPORTANT

USE PROTECTIVE GLOVES AND FACE PROTECTION.

- A corrosion inhibitor is applied to the female threads for the fixation and adjustment screws. This substance can cause serious irritation to your eyes or skin, and is harmful if inhaled or ingested.
- If your eyes or skin come into contact with this substance, rinse thoroughly with water. If inhaled or ingested, seek medical attention immediately.

IMPORTANT

Make sure that he mounting support is correctly earthed. Failure to do so will void the warranty for all damage that occurs as a result of voltage surges.

5.1 Required Tools

The following tools are recommended for installation:

- Torque wrench with 13mm socket
- Long-shaft Torx head set, without insulation or sleeves (minimum T20, T25, and T30 required)
- Allen wrench set
- Open-end or adjustable spanner 52 - 62mm
- Optical module opening tool
- Standard or electronic alignment tool, if applicable

Tip

Use the standard alignment tool for ground-mounted light fixtures that are not more than 2 m high.

Use the electronic alignment tool for light fixtures on high masts if you cannot get access to the top of the mast when the mast is vertical. Typically, use this tool for light fixtures on tiltable masts.

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5.2 Mounting

Column Mounting

Install the fixture only on ADB SAFEGATE-approved mounting supports.;



Use: ADB SAFEGATE 1” column and frangible couplings.

Applications: Runway edge, stopway, runway threshold, runway threshold/end and runway end

Alignment:

- +/- 4° vertical
- 360° horizontal

Adjustment: via three tripod screws and locking nuts

60mm Mounting



Use: ADB SAFEGATE 60 mm frangible couplings, poles or masts.

Applications: Approach centerline and crossbar, approach side row, approach flash and RTIL, threshold wingbar and stopbar

Alignment:

- -5° to +30° vertical
- 360° horizontal

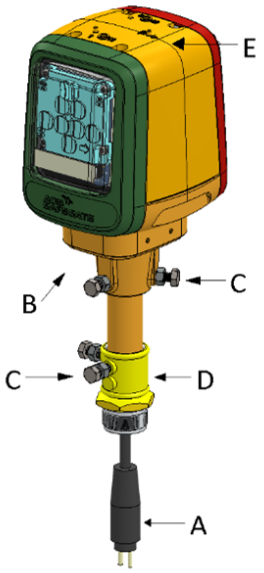
Adjustment: via central barrel screw, locking screw and nuts

Overall Height and Coupling Thread Options

Standard	Overall height options	Coupling thread options
ICAO	Less than 350 mm; 14 in.; 20 in.; 24 in.; 30 in.	2 in.; 11 TPI (BSP) 2 in.; 11.5 TPI (NPS)
FAA	14 in.; 20 in.; 24 in.; 30 in.	1.5 in.; 12 TPI 2 in.; 11.5 TPI (NPS)

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5.2.1 Column Mounting

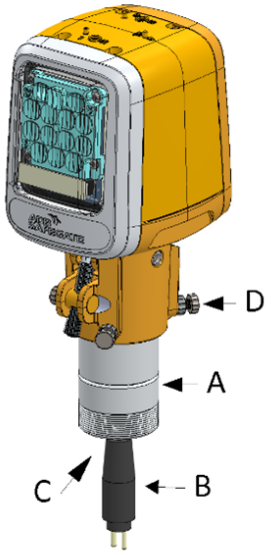


1. Connect plug (A) to the transformer receptacle.
2. Attach ground wire (B) to the lower body with the screw and washer. Tighten the screw to 2.5 N·m (22 in-lb). Crimp ground wire (B) to the circuit ground wire.
3. Loosen the three tripod screws (C).
4. Put the light fixture on the base plate (not shown).
5. Turn the frangible coupling (D) into the base plate receptacle (not shown)..

   Do not turn the light fixture because this can twist the cable.
6. Tighten coupling (D) in the base plate. Use an open-ended or adjustable spanner of the correct size for the hexagon on the frangible coupling.
7. Make sure that arrow (E) on top of the light points toward the runway centerline. For approach centerline, runway end, and straight threshold lights, ignore the direction of the arrow.
8. Proceed to Alignment.

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5.2.2 60mm Mounting



1. If you use a frangible coupling, turn coupling (A) into the base plate receptacle (not shown). Put the transformer secondary cable through the center of the coupling.

   If you install the fixture on a pole or mast, go to the next step.
2. Connect the plug to transformer receptacle (B).

   Do not turn the light fixture because this can twist the cable.
3. Connect the supplied ground wire to the lower body with screw and washer and tighten to 2.5 Nm (22 in-lbs). Crimp the ground wire (C) to the circuit ground.
4. Loosen the central barrel screw, the locking screw, and nuts (D).
5. Put the light fixture on the coupling, pole, or mast.
6. Proceed to Alignment.

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5.3 RFID AXON Flasher Programming Tool



To set the flash sequence address of an AXON elevated flash or RTIL light in a new or existing system, use the ADB SAFEGATE RFID Programmer. The programmer communicates wirelessly with the fixture. You do not have to open the fixture during commissioning.

Because of software license requirements, two versions of the tool are available.

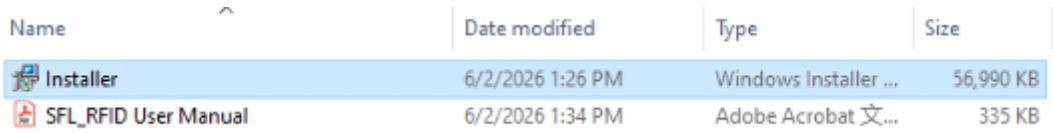
Table 1: RFID AXON flasher programming tool versions

Version	Spare part number
USA	AK00084-000-01
Europe and rest-of-world	AK00085-000-01

Note

Includes the connection cable and software.

Software Installation – Windows-Based Laptop



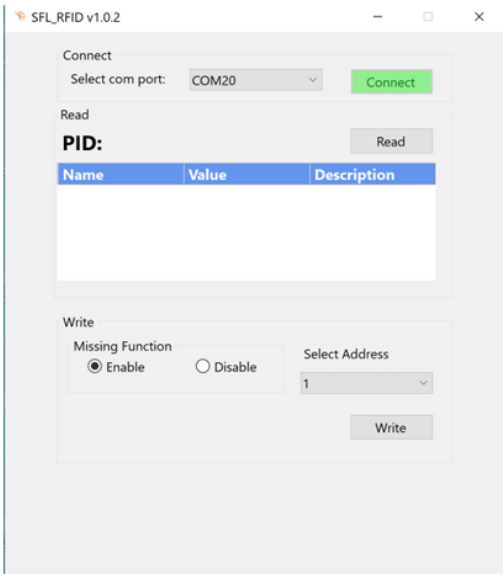
Run the installer. When the installation is complete, the **SFL+RFID** shortcut appears on the desktop.



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Connect

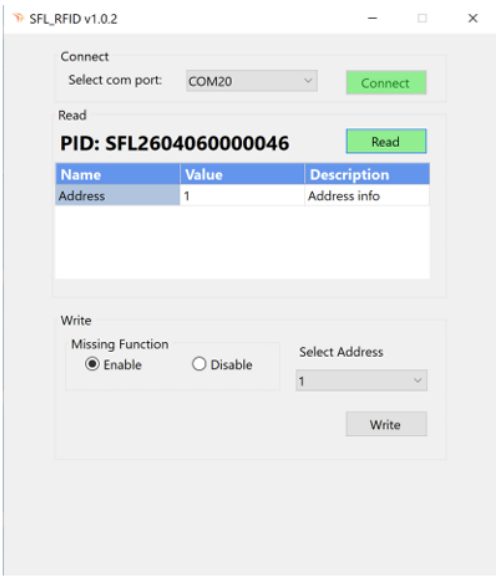
- Open the **SFL+RFID** software.
- Find the **Connect** section at the top of the window.
- From the **Select COM Port** dropdown list, select the COM port assigned to the programming tool (for example, **COM23**).
- Select **Connect**. The color of the **Connect** button indicates the connection status:
  - **Green:** The connection is successful.
  - **Red:** The connection failed.



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Read Data

- This function reads the current address and EPC data from the light's RFID module. Hold the RFID reader next to the RFID module during this operation.
- Make sure that the device is connected and that the **Connect** button is green.
- Select **Read**. A successful read operation has the following results:
  - The **Read** button turns green.
  - The **EPC** field displays the tag ID (for example, **SFL2604060000046**).
  - The image below shows the current address and its description.

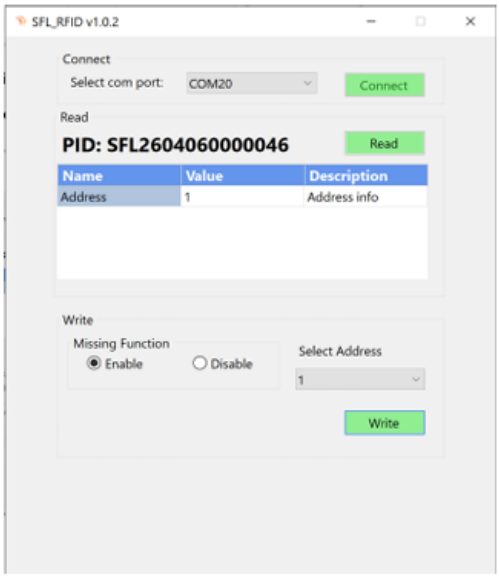


- **Failed Read:** The software does not retrieve data.
  - The **Read** button turns red if the read operation fails.

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Write Address Data

- This function writes the address and configuration data to the light's RFID module. Hold the RFID reader next to the RFID module during this operation.
- Make sure that the device is connected and that the **Connect** button is green.
- Configuration Options
  - Missing Function
    - Select **Enable** or **Disable**.
  - Select the required Address.
    - Open the **Address** list and select an address from **1** to **32**.
    - **Special Modes:** For demonstration or test purposes:
      - **Expo Mode:** The LED flashes once every second.
      - **Burn-In Mode:** The LED remains continuously on.
- Write the address
  - Select **Write** button to save the settings to the RFID module.
    - **Green:** The operation is successful.
    - **Red:** The operation failed.



1. **The fixture is now ready for installation in the system.**

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5.4 Alignment Tool

Full details of the tool can be found in the Light Alignment Device Operation Manual

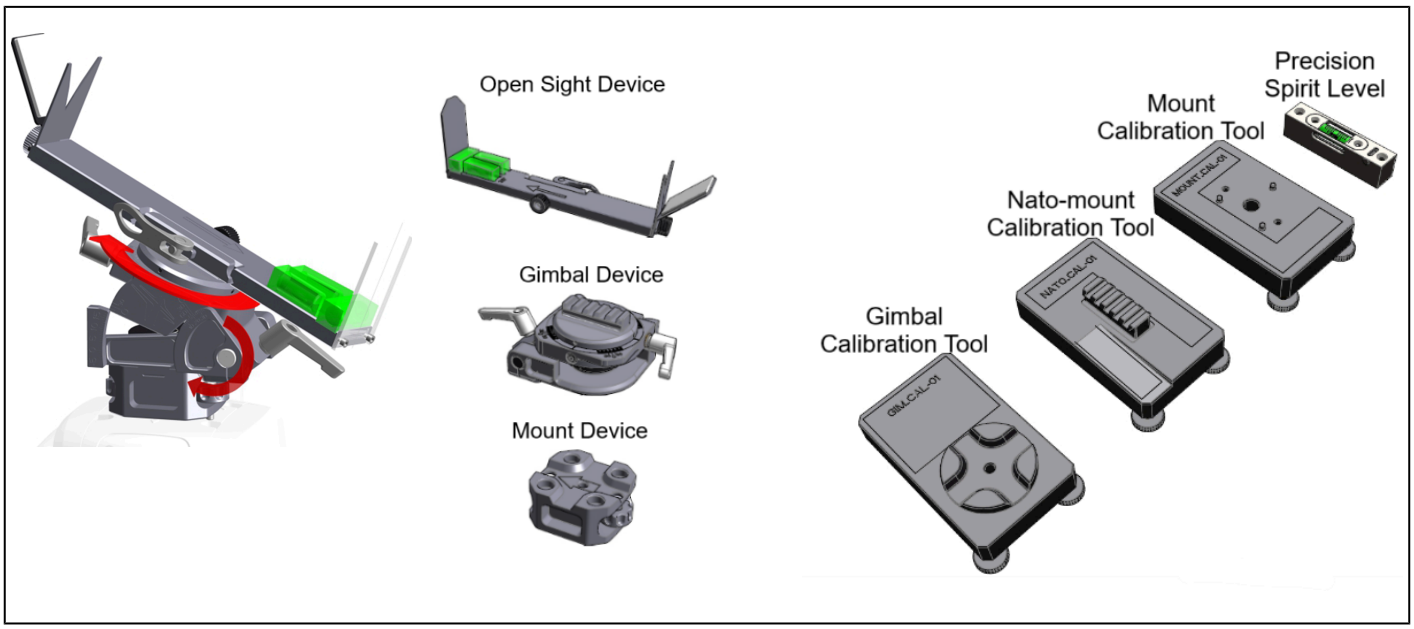
It consists of 3 main parts:

Mount Device – This is a the mounting interface between the tool and the light fixture. Such modularity allows this alignment tool to be used with different fixture, via alternative mounting interfaces and avoids the need for fixture specific tools.

Gimbal Device – This is the secured to the mount device and is equipped with an elevation and vernier toe-in scale, for setting the correct alignment angles. It is further equipped with a standard NATO rail interface, to allow the mounting of 'off the shelf' tools, such as magnifying or laser sights, to aid in light fixture alignment.

Open Sight Device – This is the standard open sighting device, which allows for precise visual sighting towards a reference mark. It is further equipped with leveling bubbles to ensure correct elevation adjustment.

Optional Self Calibration Tools – These allow for rapid self verification of the alignment tool.



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5.4.1 Guidelines and Principle

This fixture is aligned in azimuth (toe-in) by looking at a reference mark through the open sight device of the alignment tool, and used in conjunction with the toe-in vernier scale. Elevation is adjusted in conjunction with the elevation vernier scale and bubble levels A & B.

Depending on the position of the fixture, the reference mark may be another light in the same row or a stick installed for this purpose. Usually, for runway edge lights, another light of the same row is used. For threshold and runway end lights, a stick can be installed parallel to the runway center line at equal distance to the light or sighted perpendicular to the runway.

In some instances there is a built in elevation to the optical module of 3.5°. It is therefore important to reference the correct bubble level (A or B), to compensate for this where required. Full details can be found in Appendix C of this user manual.



Note

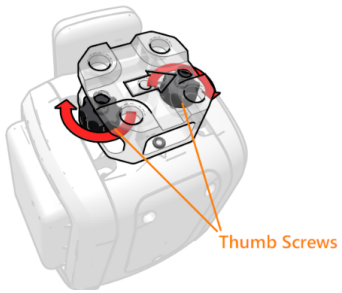
The alignment tool can be installed in two directions. The device should be positioned so that that arrow on the gimbal device is pointing towards the intended direction of sighting reference.

For a detailed overview of the alignment and calibration tools, please see light alignment device operation manual.

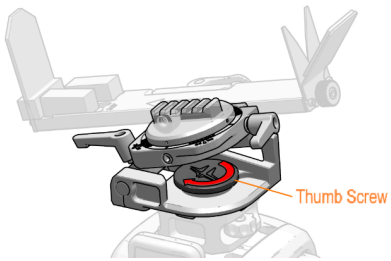
Refer to the Appendix C for complete application guidance with regard to reference sighting and angle setting of the tool.

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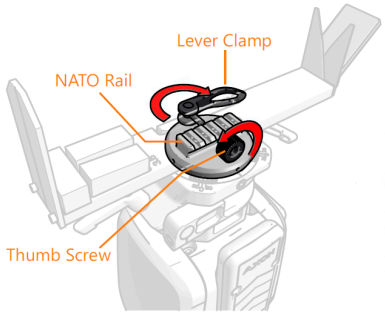
5.4.2 Installation of Alignment Tool



Install the mount device onto the threaded holes on the top of the light fixture, and secure with the two thumb screws. The arrow should be pointing in the intended direction of alignment sighting. It will be necessary to remove and replace the two Torx screws in the top of the fixture to prevent debris build up in the mounting holes. Torque to 2.5Nm (22 in-lbs)



Install the Gimbal device onto the mount device and secure using the thumb screw. Note this can be mounting for parallel or perpendicular sighing.



Secure the open sight to the NATO rail of the Gimbal device. Use the thumb screw to position the locking block and level clamp close enough for the level to lock open sign. Close lever clamp to secure open sight. The locking block is keyed to keep the level handle in line with the open sight device.

Once assembled, it is not necessary to disassembly when transferring between lights. The two thumb screws of the mount device can be undone and the whole assembly carefully transferred to the next fixture.

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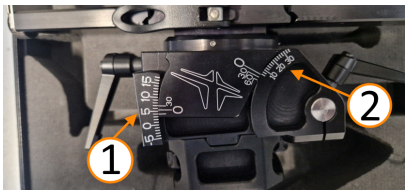
5.4.3 The Vernier Scales

The gimball device consists of two principle alignments for correct adjustment of elevation (vertical angle) and azimuth (toe-in). In both cases a vernier scale is used, and it's important to understand and read the scales correctly:

Elevation Scale – Vertical Angle

The elevation consists of two vernier scales:

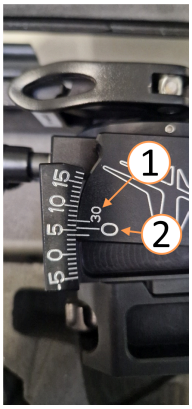
1. The **Main Scale**
    - For adjustment between -5° and +17° (suitable for most installations)
2. The **Secondary Scale**
    - For adjustments between +8° and 32°



Main Scale

The main scale is in increments of 1°, the vernier scale has two increments in minutes of arc – marked at 0' and 30'. 0' is set for the angle as a whole number, 30' of arc, is equivalent to 0.5° and for 0.5° adjustment.

Therefore when the vernier scale 0' is perfectly aligned to a main scale increments of 1°, the adjustment is set at that exact degree, To set at increments of 0.5°, the vernier scale 30' must align to the next increment after the desired full degree.



In this example the elevation alignment is set at 5.5° or 5° and 30' of arc:

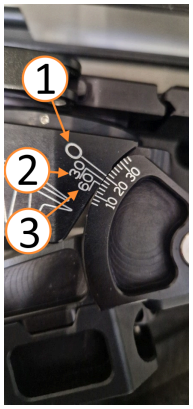
- The next possible alignment of the 30' of arc is made, without exceeding 6°. This achieves the additional 0.5° to give a total of 0.5°
- 0° is greater than 5°, but less than 6°

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Secondary Scale

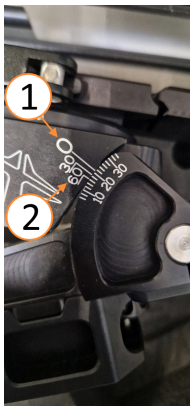
The secondary scale uses the same principle, however the main increments are 2° and the vernier scale has three increments in minutes of arc – marked at 0', 30' and 60'. 0' is set for the angle as a whole number according to the scale. 60' is equivalent to 1° and is for the whole angle between increments of the main scale. 30' of arc, is equivalent to 0.5° and for 0.5° adjustment.

Therefore when the vernier scale 0' is perfectly aligned to a main scale increments of 2°, the adjustment is set at that exact degree, To set at increments of 1°, between the main scale increments, the 60' must align to the next increment after the desired 2° increment. To set at increments of 0.5°, the vernier scale 30' must align to the next increment after the desired full degree.



In this example the elevation alignment is set at 20.5°:

- 0 is greater than 20°, but less than 22°
- The next possible alignment of the 30' of arc is made, without exceeding 22°. This achieves the additional 0.5° to give a total of 20.5°
- Note that the 60' is has not aligned to anything.



In this example the elevation alignment is set at 21°:

- 0 is greater than 20°, but less than 22°
- The next possible alignment of the 60' of arc is made, without exceeding 22°. This achieves the additional 1° to give a total of 21°
- Note that there are two points of alignment for the 30' in the above scenarios. These will be at 20.5° and 21.5°.

  Care must be taken in monitoring the sequence of alignments to ensure correct setting is made.

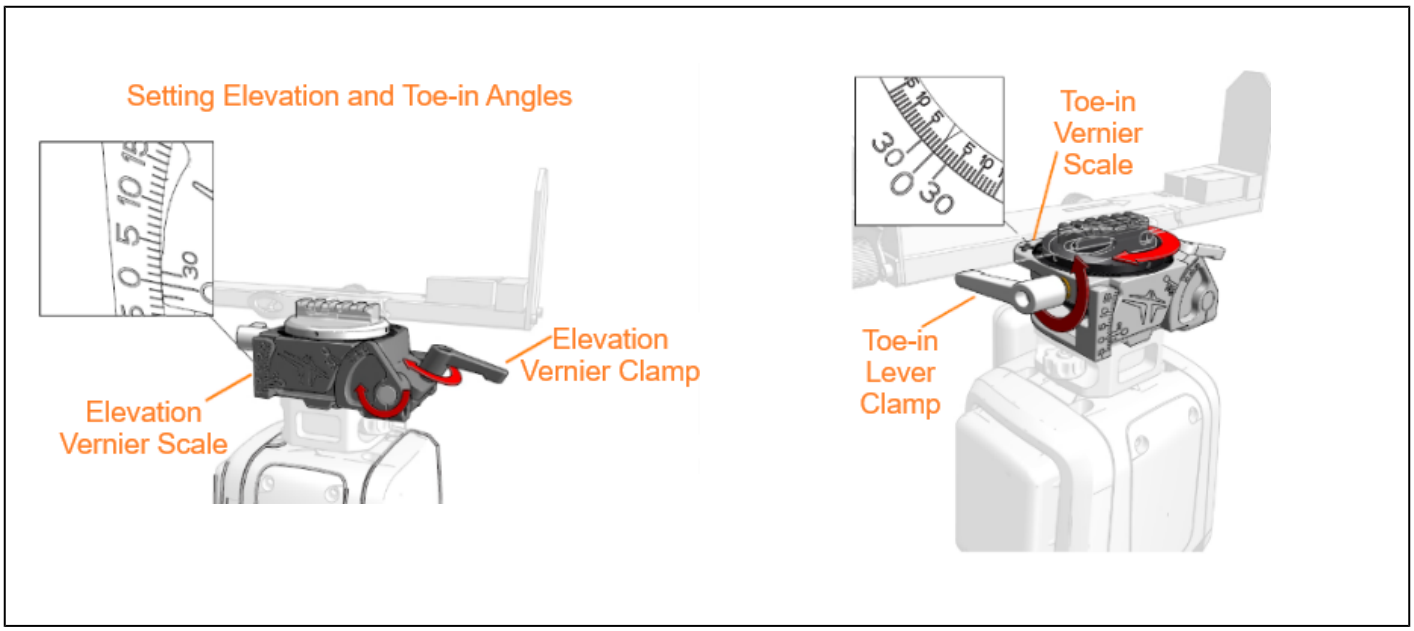
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Azimuth Scale – Toe-In

The azimuth scale works identically to the main elevation scale, and is in 1° increments, with vernier markings for +/- 30' of arc (+/- 0.5°)

Set the Alignment Tool

Set the elevation and toe in vernier scale on the alignment tool, according to the application angle in Appendix C" Alignment Guidance. **Take note of the correct reference bubble level 'A' or 'B'.**



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5.5 Elevation and Toe-In Settings

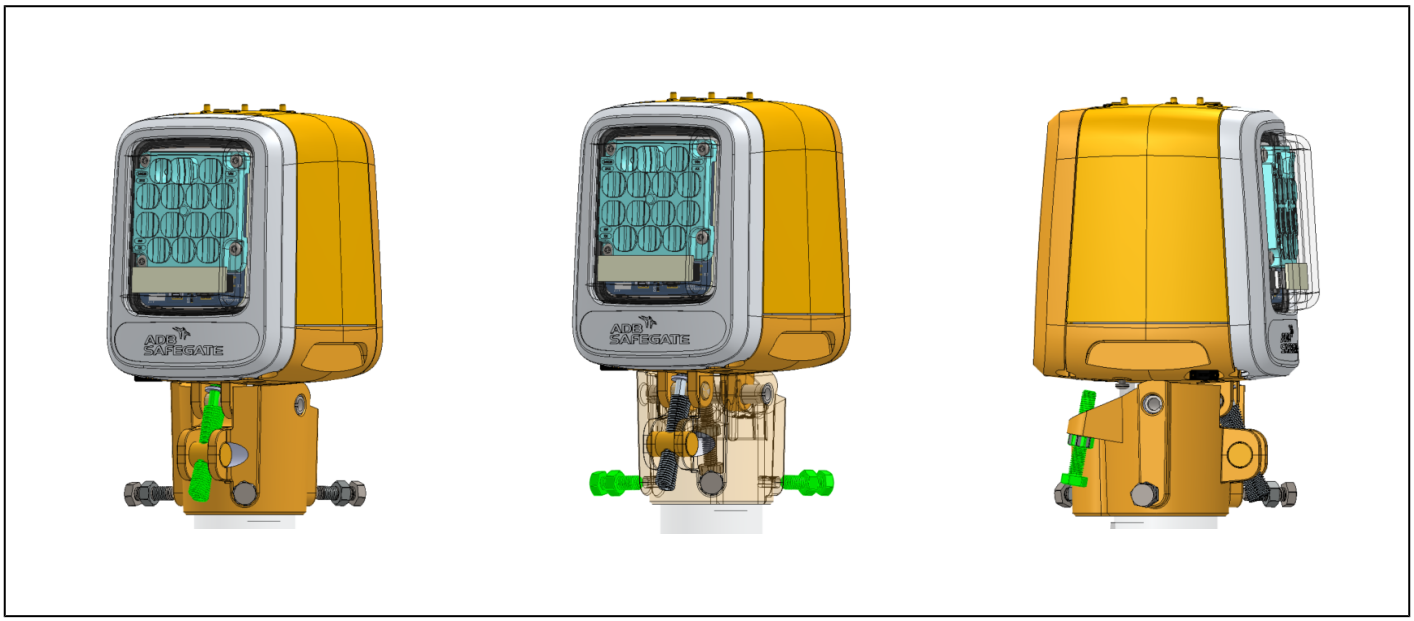
5.5.1 60mm Mount

Toe-In adjustment is via the 3 fixing screws, securing the light fixture to the frangible coupling or mast (fig 1). Loosen the screws and sight through the mirror of the open sighting device to obtain correct toe-in. When correctly aligned, secure the alignment by progressively tightening the screws to 8Nm (70 in-lbs). Secure the locking nuts to prevent loosening.

Vertical adjustment is via the central barrel screw (fig 2). Adjust until the correct bubble level is centered. Secure the elevation by tightening the locking screw to 8Nm (70 in-lbs). Secure the locking nut to prevent loosening.

IMPORTANT

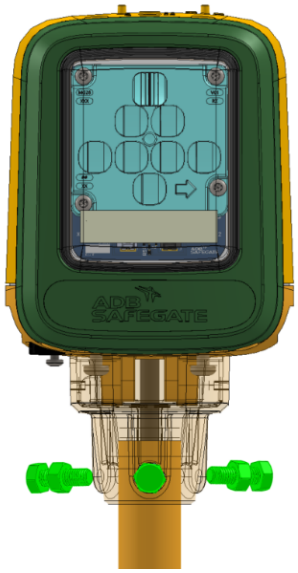
Excessive torque of adjustment screws or adjustment of barrel screw while locking screw is fixed, may cause damage to the fixture.



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5.5.2 Column Mount

Vertical & toe-in adjustment is via the 3 fixing screws, securing the light fixture to the column (fig 4). Loosen the screw and sight through the mirror of the open sighting device to obtain correct toe-in. Further adjust until until the correct bubble level is centered. Secure the fixture by tightening the locking screw to 8Nm (70 in-lbs). Secure the locking nut to prevent loosening.



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5.6 Toe-In and Alignment Guidance

Approach Centerline and Crossbar

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
White ↑	✗	5.5	0 or 2° L / R	5.5	✗	✓	0° or 2° L / R
		6°	0 or 2° L / R	6°			
		7°	0 or 2° L / R	7°			
		8°	0 or 2° L / R	8°			

Note

AC:

Approach Optical Module has built-in 3.5° mechanical elevation with 0° toe-in.

Alignment tool elevation vernier scale should be set to required elevation angle and is at the correct alignment when 'offset bubble level B' in showing level.

Toe-In should be set on the toe-in vernier scale and sighted parallel to the runway.

Approach Siderow

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↑	✗	5.5°	2°	5.5°	✗	✓	2° L / R
		6°	2°	6°			
		7°	2°	7°			

Note

AS:

Approach siderow Optical Module has built-in 3.5° mechanical elevation with 0° toe-in.

Alignment tool elevation vernier scale should be set to required elevation angle and is at the correct alignement when 'offset bubble level B' in showing level.

Toe-in should be set on the toe-in vernier scale at 2° left or right and sighted parllel to the runway.

Approach Flash and RTIL

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
White ↑	✗	5.5	0°	5.5	✗	✓	0°
		6°	0°	6°			
		7°	0°	7°			
		8°	0°	8°			

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ICAO Runway Threshold

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
F-green ↖	Red ↑	5.5° / 2.5°	3.5° / 0°	0°	✓	✗	0° or 90°
F-green ↑							
F-green ↖	✗	5.5°	3.5°				
F-green ↑							
Red ↑	F-green ↗	2.5° / 5.5°	0° / 3.5°				
✗	F-green ↗	2.5°	3.5°				

ICAO Runway End

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↑	Red ↑	2.5° / 2.5°	0° / 0°	0°	✓	✗	0° or 90°
Red ↑	✗	2.5°	0°				

Note

RN RT:

Threshold optical module has built-in 3.5° mechanical elevation, with additional 2° optical elevation to give a total of 5.5°. Left / right versions have built-in 3.5° optical toe-in, while straight versions have 0° toe-in.

Runway end optical module has inbuilt 3.5° elevation with additional -1° optical elevation to give a total elevation of 2.5°. Toe-in is at 0°.

Alignment tool elevation vernier scale should be set to 0° and is at the correct alignment when 'true level bubble A' is showing level.

Toe-in should be set on toe-in vernier scale to 0° if sighting parallel with the runway, or 90° if sighing perpendicular to the runway.

ICAO Runway Threshold Wingbar

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
F-green ↑	✗	5.5°	2°	5.5°	✗	✓	2° L / R

Note

RW:

Threshold Wingbar Optical Module has built-in 3.5° mechanical elevation with 0° toe-in.

Alignment tool elevation vernier scale should be set to required elevation and is at the correct alignment when 'offset bubble level B' in showing level.

Toe-In should be set on the toe-in vernier scale at 2° left or right and sighted parallel to the runway.

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ICAO Runway Edge

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
White ↖	White ↗	3.5° / 3.5°	4.5° / 4.5° (3.5° / 3.5°)	0°	✓	✗	0°
White ↖	Yellow ↗						
White ↖	Red ↗						
Yellow ↖	White ↗						
Yellow ↖	Red ↗						
Red ↖	White ↗						
Red ↖	Yellow ↗						
Red ↖	Red ↗						
Yellow ↖	✗	3.5°	4.5° (3.5°)				
White ↖	✗						
✗	Yellow ↗						
✗	White ↗						

ICAO Stopway

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↖	✗	3.5°	4.5° (3.5)	0°	✓	✗	0°
✗	Red ↗						

Note

ICAO Runway Edge and Stopway Optical module has built-in 3.5° mechanical elevation & 3.5° optical toe-in.

Alignment tool elevation vernier scale should be set to 0° and is at the correct alignment when 'true level bubble A' is showing level. Toe-in should be set on toe-in vernier scale to 0° if sighting parallel with the runway. The beam spread is compliant for stopway ICAO 45m and 60m with light body level and toe-in set at 0°. beam spread is compliant for runway edge ICAO 45m, 60m and FAA with light body level and toe-in set at 0°.

FAA Runway Edge Displaced Threshold

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
F-green ↖	White ↗	5.5° / 3.5°	3.5° / 3.5°	0°	✓	✗	0°
White ↖	F-green ↗						
Yellow ↖	F-green ↗						
F-green ↖	Yellow ↗						

Note

FAA Displaced Threshold Optical module has built-in 3.5° mechanical elevation on both sides, with additional 2° optical elevation for the threshold side to give a total of 5.5°. Both sides have 3.5° optical toe-in. Alignment tool elevation vernier scale should be set to 0° and is at the correct alignment when 'true level bubble A' is showing level. Toe-in should be set on toe-in vernier scale to 0° if sighting parallel with the runway.

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FAA L-862S(L) Stop Bar

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↑	✗	0°	0°	0°	✗	✓	0°

Note

FAA stopbar Optical module has built-in 3.5° mechanical elevation 0° toe-in.

To achieve 0° optical beam center the alignment tool elevation vernier scale should be set to 0° and is at the correct alignment when 'offset bubble level B' in showing level.

Toe-on is also 0° and should be set on the toe-in vernier scale relative to sighting reference.

ICAO Stop Bar

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↑	✗	4.5°	0°	0°	✓	✗	0°

ICAO Curved Stop Bar

Color and toe-in		Beam center requirement		Alignment tool setting			
Side 1 (left)	Side 2 (right)	Elevation	Toe-in	Elevation vernier scale	Bubble vial 'A' true level	Bubble vial 'B' -3.5° offset	Toe-in vernier scale
Red ↑	✗	5.5°	15.75°	0°	✓	✗	15.75° L /R

Note

SC:

Stopbar optical module has built-in 3.5° mechanical elevation with additional 2° optical elevation to give a total of 5.5°. Toe in is 0°. Alignment tool elevation vernier scale should be set to 0° and is at the correct alignment when 'true level bubble A' is showing level. Toe-in should be set on toe-in vernier scale at 15.75° for stopbar curved when sighting parallel to beam direction.

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6.0 Maintenance

Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9, Airport maintenance practices and in FAA Advisory Circular AC150/5340-26.

WARNING
Do not carry out any action on the fixture unless you have read and understood all the information in the Safety chapter.

DANGER
MAKE SURE THAT THE POWER TO THE SERIES CIRCUIT IS OFF WHEN YOU CARRY OUT MAINTENANCE.

6.1 Basic Maintenance Program

Table 2: Maintenance tasks

Daily	▪ Check for low light output according to ICAO Annex 14.
	  ▪ If low light output is detected, check if the optical cover is dirty.
	  ▪ If cover is dirty, clean it with warm water only.
	  ▪ If the optical cover is not dirty, check for correct alignment, replace the complete fixture head, and replace the faulty optical module or component in the workshop.

Weekly	▪ Check for contamination. Clean the fixture with warm water only.
Monthly	▪ Visually check for condensation on the inner side of the optical cover (presence of moisture or water). Condensation is acceptable as long as it disappears when the equipment is in use. Turn on the fixture for 30 minutes. ▪ Check for a failed fixture. Replace the complete fixture head and troubleshoot the failure in the workshop.
Semi-annually	▪ Check for the presence of water inside the fixture. In the workshop, remove the optical cover, dry and clean the optical cover, replace all sealing gaskets, and install the dry optical cover. ▪ Check for watertightness. Replace the gaskets for the optical and electronic cartridges. ▪ Check for correct alignment and make sure that the fixture is level. Adjust the alignment or level the fixture. ▪ Check for damaged paint. Clean the fixture and apply touch-up paint to prevent corrosion.
Annually	▪ Check for cracks, corrosion, or short circuits. Clean the fixture and replace faulty or corroded parts. ▪ Check for dirty contacts. Make sure that the power is OFF and clean the contacts. ▪ Check for loose connections. Tighten or repair the connections.
After snow removal	▪ Check for damaged fixtures. ▪ Remove any debris or leftover parts and install a new fixture. ▪ Use a power broom to remove snow near the fixture, if practical. ▪ Follow the recommended snow-removal techniques described in FAA AC 150/5200-23 to avoid or reduce damage to the fixture.

Note
For procedures for replacing the complete fixture head and troubleshooting fixture failures, refer to the Complete Optical Cartridge section.

For procedures for adjusting or leveling the fixture and installing a new fixture, refer to the Installation chapter.

All component module replacements must be done in the workshop, except when replacing the complete fixture.

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6.2 Cleaning

Regular cleaning of the lens is crucial for maintaining light quality and fixture efficiency.

Disclaimer:

ADB SAFEGATE gives specific cleaning instructions and recommendations for its airfield light fixtures and signs. Following these guidelines helps ensure best performance and long service life.

If you use a cleaning method that is different from ADB SAFEGATE's recommendations, you do so at your own risk. ADB SAFEGATE is not responsible for any damage, reduced performance, or failure caused by improper cleaning.

Safety Precautions

1. Make sure the light fixture is turned off at the main power source to eliminate electrical hazards.
2. Use safety gloves to protect your hands and safety glasses to shield your eyes from dust and debris.

Basic Cleaning Procedure

1. Gently dust the lens with a soft, dry brush or cloth to get rid of any loose dirt or dust.
2. Remove any build-up using a soft brush.
3. Dip a soft, non-abrasive microfiber cloth or sponge into lukewarm water mixed with pH-neutral soap.

   Clean the surface of the lens using small, gentle circular motions.
4. Thoroughly rinse off with water and dry lens with a soft, lint-free cloth to prevent water spots and ensure clear illumination.

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Removing Stubborn Build-up

- Cleaning chemicals and/or de-icing liquids with a pH of 11 or less may be used in cases where pH-neutral soap is not enough. See Approved Chemicals for Cleaning and Protocol for Introducing New Chemical Solutions. After applying chemicals, rinse all surfaces thoroughly with clean fresh water to remove any residue, as leftover chemicals can damage adhesives, gaskets, and other components, causing corrosion or reduced performance.

> **CAUTION**
>
> The extensive application of chemical cleaners and/or de-icing liquids may damage the light fixtures leading to corrosion and increased maintenance requirements and costs.
>
> Do not use abrasive cleaners or pads that can scratch the lens surface.

- High-pressure water jets may also be used for stubborn build-up ensuring the minimum distance of 165 mm (6.5 inches) is maintained and the water pressure does not exceed 80 bar (1300 psi) to prevent damage to the gaskets, high-pressure water jets may be employed for cleaning.

Figure 1: High-pressure water jet precautions



- After cleaning, gently and thoroughly dry lens with a soft, lint-free cloth to prevent water spots and ensure clear illumination.

Approved Chemicals for Cleaning

The following chemicals are tested for compatibility with ADB SAFEGATE light fixtures:

- Potassium Acetate
- Potassium Formate
- Sodium Acetate
- Sodium Formate

Protocol for Introducing New Chemical Solutions

- Verify the intended use of the chemical on similar materials and products, adhering to ADB SAFEGATE recommendations.
- Initially, conduct tests on a few units to ensure there is no damage to the light fixture or gaskets before applying the chemical to a larger installation.

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7.0 Workshop Maintenance

This section gives step by step instructions for safe and correct workshop maintenance. The design of your light fixture may be different from the picture, depending on the application. Always follow the described work flow and use the specified torque levels.

Before you start:

- Read and understand Safety and Safety Considerations.
- Remember that all maintenance that requires opening the light fixture must be done in a dedicated maintenance area.
- Only authorized personnel should disassemble fittings. This should be done with prior agreement from ADB SAFEGATE.

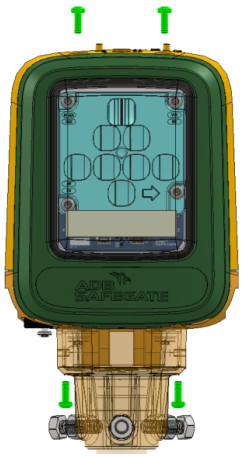
Chapter Contents

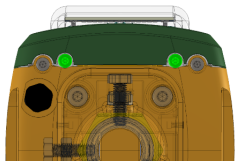
1. Remove the optical module
2. Replace the light engine assembly
3. Replace the lens cover
4. Attach the optical module
5. Calibrate the led module
6. Open the light fixture and disconnect the upper housing from the lower housing
7. Replace the power supply board
8. Replace the input power cable
9. Connect the upper housing to the lower housing and close the light fixture
10. Replace column mount
11. Replace the blanking screw
12. Screws overview

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7.1 Remove the Optical Module

1. Remove the two Torx screws at the top. Remove the two innermost Torx screws at the bottom.

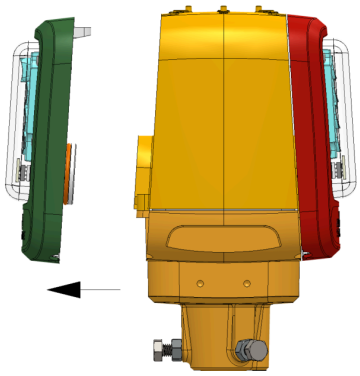




2. Carefully pull the optical module away from the light body.

   CAUTION: Do not pull the optical module farther than the cables permit. This can damage the cables.

> **Note**
> The O-rings form a watertight seal and can make the optical module difficult to remove. If necessary, insert a plastic pry tool between the light body and the optical module. Carefully move the tool around the perimeter to remove the optical module evenly.



3. Carefully pull the LED cable connectors in the direction of the arrow to disconnect them from the light engine assembly.

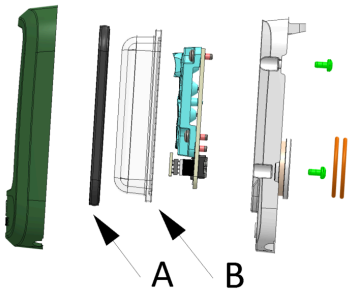
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7.2 Replace the Light Engine Assembly

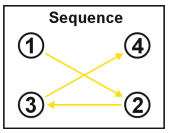
Replace the Light Engine Assembly

1. Remove the Optical Module
2. Connect the LED cables to the new light engine assembly. The connectors fit in only one orientation.
3. Attach the Optical Module
4. **IMPORTANT** – Calibrate the LED Module

7.3 Replace the Lens Cover



1. Remove the Optical Module
2. Remove the four Torx screws from the rear of the optical heat sink. Remove the light-engine trim, the lens, and the gasket.
3. Install the new lens seal (A) on the new lens (B). Make sure that the seal fits evenly and has no wrinkles. Insert the lens assembly into the light-engine trim. Make sure that the lens assembly is fully seated.
4. Install the optical heat sink. Make sure that it is evenly positioned and flush with the light-engine trim.
5. Install new Torx screws. Do not reuse the old screws because the pre-applied Loctite is for one use only. Tighten the screws to 2.5 N·m (22 lbf·in) in the specified diagonal sequence:

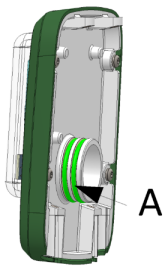


6. Attach the Optical Module
7. **IMPORTANT** – Calibrate the LED Module

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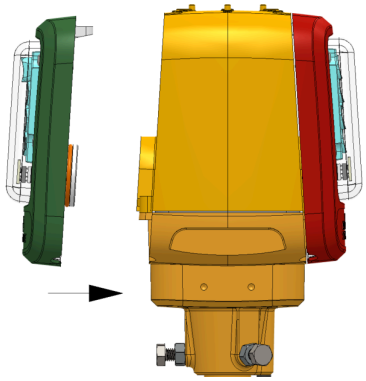
7.4 Attach the Optical Module

1. Install new O-rings (A) on the light engine. Apply a thin layer of Versilube grease or equivalent grease to the O-rings. Make sure that the aperture in the main light body is clean and not damaged.



2. Make sure that the LED cables are inside the light body and cannot become pinched. Keep the optical module parallel to the light body. Carefully insert the optical module into the light body. Do not use excessive force. Align the top and bottom screw holes.

   CAUTION: Incorrect alignment can damage the two sealing O-rings.



3. Install new Torx screws at the top and bottom. Do not reuse the old screws because the pre-applied Loctite is for one use only. Tighten the screws to 2.5 N·m (22 in-lbs). You can tighten the screws in any sequence.
4. **IMPORTANT** – Calibrate the LED Module

Note

To Replace the Optical Blank Cover

Remove the Optical Module but do not do step 3,

Attach the Optical Module (blank cover) but do not do step 4.

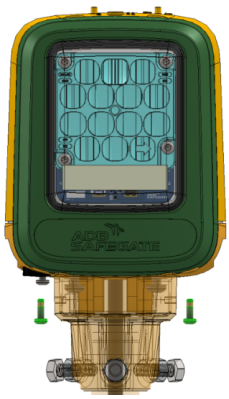
7.5 Calibrate the LED Module

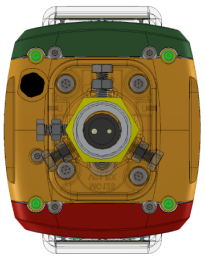
1. Supply 6.6 A to the light.
2. Wait approximately 10 seconds. The LEDs blink three times to confirm successful calibration.
3. If the LEDs do not blink, switch off the power. Make sure that you completed all previous steps correctly.

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7.6 Open the Light Fixture and Disconnect the Upper Housing from the Lower Housing

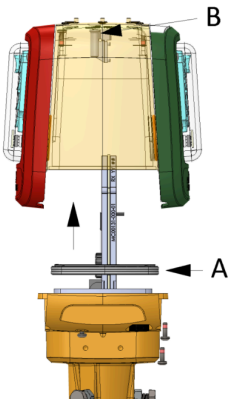
1. Remove the four outermost screws from the bottom of the light body. Remove two screws from each side.





2. Carefully pull the upper housing away from the lower housing assembly.

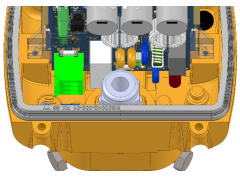
   CAUTION: Do not pull the upper housing farther than the cables permit. This can damage the cables.



3. Carefully disconnect the LED cables from the power supply board.
4. Lift the connector levers. Disconnect the input power cable and the earth cable from the power supply board.

Note

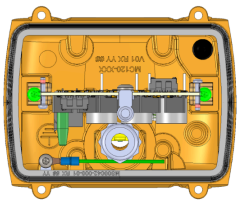
- **Non-Mon, and Mon lights:** Use a **2-core** input cable with an earth conductor.
- **Approach Flash and RTIL lights:** Use a **4-core** input cable with an earth conductor.



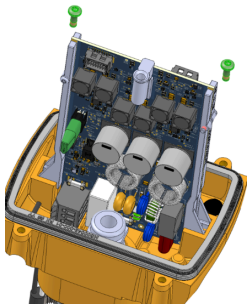
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7.7 Replace the Power Supply Board

1. Open the Light Fixture and Disconnect the Upper Housing from the Lower Housing
2. Remove the two screws that attach the power supply board to the lower housing. Remove the power supply board.



3. Install the new power supply board. Attach it with new Torx screws. Do not reuse the old screws because the pre-applied Loctite is for one use only. Tighten the screws to 2.5 N·m (22 in-lbs). You can tighten the screws in any sequence.



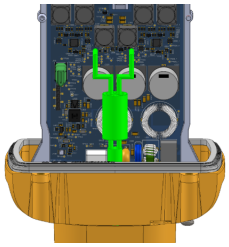
> **Note**
> The power supply boards for Non-Mon/Mon, and Flash/RTIL fixtures have different appearances. However, the same replacement procedure is used for all versions

4. Insert the input power cable and the earth cable into the connector. Make sure that the cable orientation agrees with the diagram. Push each connector lever fully down to secure the cables. Carefully pull each wire to make sure that it is secure.
5. Connect the Upper Housing to the Lower Housing and Close the Light Fixture
6. **IMPORTANT** – Calibrate the LED Module

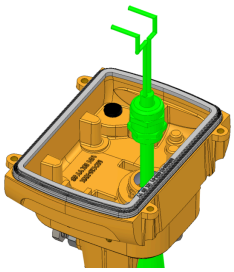
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7.8 Replace the Input Power Cable

1. Open the Light Fixture and Disconnect the Upper Housing from the Lower Housing
2. Unwind the cable loops and remove the ferrite from the power supply cable. Loosen the cable-gland nut on the outside of the lower housing.



3. Unscrew the cable-gland cap. Pull the cable out of the gland. Remove the cable gland. **Always use a new cable gland when you install the new cable. Do not reuse the old cable gland.**



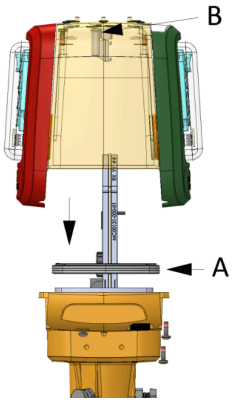
4. Push the cord set through the cable-gland body. Loosely tighten the gland nut to attach the cable gland to the lower housing. Make sure that the cord set can move freely.
5. Adjust the cord set until 7 in (178 mm) extends from the inside of the lower housing to the end of the cord set.
6. Tighten the cable-gland nut to 6.2 N·m (55 in-lbs) to attach the gland to the lower housing.
7. Tighten the gland cap to 2.5 N·m (22 in-lbs) to seal the gland around the cord set.
8. Put the 7 in (178 mm) section of the cord set through the new ferrite. Make one loop through the ferrite. Position the ferrite as near as possible to the cable gland.
9. Connect the Upper Housing to the Lower Housing and Close the Light Fixture
10. **IMPORTANT** – Calibrate the LED Module

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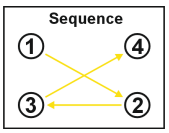
7.9 Connect the Upper Housing to the Lower Housing and Close the Light Fixture

1. Remove the old lower-housing seal. Install a new seal (A).

   Make sure that the sealing surfaces of the upper and lower housings are clean and not damaged. If necessary, clean the surfaces with a plastic scraper and an alcohol-based cleaner.



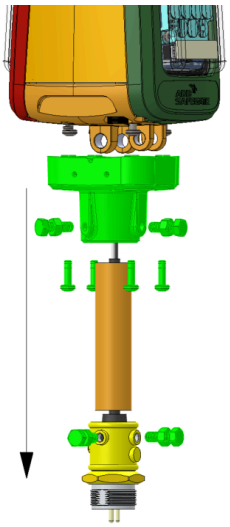
2. Hold the lower housing assembly in the correct orientation against the upper housing assembly. Connect the LED cables to the power supply board.
3. Align the lower housing assembly with the upper housing and the optical modules. Align the locating pin in the upper housing with receptacle (B) on the power supply board. Insert the lower housing assembly until it is fully seated. Make sure that it is flush with the bottom of the optical modules and that the screw holes align. Make sure that the gasket is correctly seated and is not pinched or twisted.
4. Install new Torx screws. Do not reuse the old screws because the pre-applied Loctite is for one use only. Tighten the screws to 2.5 N·m (22 in-lbs) in the specified diagonal sequence:



5. **IMPORTANT** – Calibrate the LED Module

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7.10 Replace Column Mount

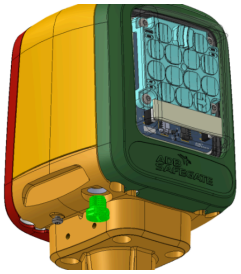


1. Remove the three M8 × 25 screws and M8 nuts that attach the column or frangible coupling to the mounting. Carefully pull the component over the cord set.
2. Remove the four Torx screws that attach the mounting to the light fixture. Carefully pull the mount off the cable.
3. Put the cord set through the center of the new mount. Align the mount with the holes in the light fixture. Attach the mount to the light fixture.
4. Install four new Torx screws. Do not reuse the old screws because the pre-applied Loctite is for one use only. Make sure that the cord set is not pinched. Tighten the screws to 6Nm (53 in-lbs).
5. Put the cord set through the center of the column. Install the column. Tighten the three M8 × 25 screws in the runway mount to 8 Nm (70 in-lbs). Hold each screw with a socket. Use a spanner to tighten each locknut against the mount until hand-tight.
6. Carefully put the cord set through the center of the frangible coupling. Install the frangible coupling. Tighten the two M8 × 25 screws to 8 Nm (70 in-lbs). Hold each screw with a socket. Use a spanner to tighten each locknut against the frangible coupling until hand-tight.

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7.11 Replace the Blanking Screw

1. Use a 10 mm hex key to remove the blanking screw from the housing.
2. Make sure that the seal is installed and that the threaded hole in the lower light assembly is clean. Install the new blanking screw. Tighten it to 2.5 N·m (22 in-lbs).



7.12 Screws Overview

Table 3: Torque Table

Name	Screw type	Torque	
		in/lbs	Nm
Optical module – light engine trim to optical heat-sink	M4x8	22	2.5
Optical module / blank to main housing / lower housing	M4x12	22	2.5
Lower housing to main housing	M4x12	22	2.5
Blanking plug	M12 Plug	22	2.5
Alignment mounting blanking screws	M5 x 8	22	2.5
Column mount to lower housing	M6x20	53	6
Column to mounting screws (upper)	M8x25	70	8
Column to frangible coupling	M8x25	70	8
Power supply mounting screws to lower housing	M4x12	22	2.5
Internal ground wire to lower housing	M4x12	22	2.5
External ground wire to lower housing	M4x12	22	2.5
Input cable gland (gland to body and gland cap)	Cord set gland	55	6.2
IoT module / blank to main housing	M4x8	22	2.5

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8.0 Ordering Codes

8.1 ICAO Approach Centerline and Siderow

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
AC = Approach centerline / cross bar
AS = Approach siderow

Standards
3 = ICAO

Market Specific
0 = None
1 = Buy American preference (BAP)
4 = German MIL 7-step

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
N = No toe-in

Color - Side 1 (Left)
W = White
R = Red

Color - Side 2 (Right)
N = None (obscured)

Omnidirectional
0 = None
3 = Low intensity approach omni light (white)
4 = Low intensity approach omni light (red)

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable[1]
7 = 2 individual wires, 16-18 AWG, 90" length, non terminated

Fixture Height
A = Approach mount for 60 mm mast or pole[2]

Coupling
A = No coupling (for approach only)

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for external routing
2. Also for 60 mm coupling or base plate

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8.2 ICAO Approach Flash and Runway Threshold Indicator Light

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
FL = Approach Flasher

Standards
3 = ICAO

Market Specific
0 = None

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
N = No toe-in

Color - Side 1 (Left)
W = White

Color - Side 2 (Right)
N = None (obscured)

Omnidirectional
0 = None

Power Supply
V = Voltage from System MCU

Cable and Connector
0 = 4/C Cable with Semi-Stripped Leads, 2.5 m
F = 4/C Cable with FAA Style 1 Molded Plug, 0.3 m[1]

Fixture Height
A = Approach mount for 60 mm mast or pole[2]

Coupling
A = No coupling (for approach only)

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

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8.3 ICAO Stop Bar

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
SB = Stop bar

Standards
3 = ICAO

Market Specific
0 = None

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
N = No toe-in

Color - Side 1 (Left)
R = Red

Color - Side 2 (Right)
N = None (obscured)

Omnidirectional
0 = None

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[1]
2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable[2]

Fixture Height
B = <350mm
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
B = 2" 11TPI (BSP) coupling no base plate
C = 2" 11.5TPI (NPS) coupling no base plate
E = 2" 11TPI (BSP) flush break coupling no base plate
F = 2" 11.5TPI (NPS) flush break coupling no base plate

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for internal routing
2. With separate earth for external routing

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8.4 ICAO Runway Threshold, Threshold/End, End and Threshold Wingbar

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
RT = Runway threshold/end
RN = Runway end
RW = Runway threshold wingbar

Standards
3 = ICAO

Market Specific
0 = None
4 = German MIL 7-step

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
L = Side 1 – left toe-in
R = Side 2 – right toe-in
N = No toe-in

Color - Side 1 (Left)
R = Red
F = Green
N = None (obscured)

Color - Side 2 (Right)
R = Red
F = Green
N = None (obscured)

Omnidirectional
0 = None

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[1]
2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable[2]

Fixture Height
B = <350mm
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
B = 2" 11TPI (BSP) coupling no base plate
C = 2" 11.5TPI (NPS) coupling no base plate
E = 2" 11TPI (BSP) flush break coupling no base plate
F = 2" 11.5TPI (NPS) flush break coupling no base plate

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for internal routing
2. With separate earth for external routing

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8.5 Stopway

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
SW = Stop way

Standards
3 = ICAO

Market Specific
0 = None
4 = German MIL 7-step

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
L = Side 1 – left toe-in
R = Side 2 – right toe-in

Color - Side 1 (Left)
R = Red
N = None (obscured)

Color - Side 2 (Right)
R = Red
N = None (obscured)

Omnidirectional
0 = None

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[1]
2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable[2]

Fixture Height
B = <350mm
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
B = 2" 11TPI (BSP) coupling no base plate
C = 2" 11.5TPI (NPS) coupling no base plate
E = 2" 11TPI (BSP) flush break coupling no base plate
F = 2" 11.5TPI (NPS) flush break coupling no base plate

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for internal routing
2. With separate earth for external routing

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8.6 L-862S(L) FAA Stop Bar

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
SB = L-862S(L) stop bar

Standards
2 = FAA

Market Specific
0 = None
1 = Buy American preference (BAP)

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
N = No toe-in

Color - Side 1 (Left)
R = Red

Color - Side 2 (Right)
N = None (obscured)

Omnidirectional
0 = None

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[1]

Fixture Height
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
C = 2" 11.5TPI (NPS) coupling no base plate

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for internal routing

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8.7 L-862(L) Runway Edge

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
RE = Runway edge L-862(L)

Standards
1 = ICAO & FAA

Market Specific
0 = None
1 = Buy American preference (BAP)
4 = German MIL 7-step[1]

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
L = Side 1 – left toe-in
R = Side 2 – right toe-in
C = Both sides with toe-in

Color - Side 1 (Left)
W = White
Y = Yellow
R = Red
F = Green
N = None (obscured)

Color - Side 2 (Right)
W = White
Y = Yellow
R = Red
F = Green
N = None (obscured)

Omnidirectional
0 = None
1 = Dimmable circling guidance
2 = Constant intensity circling guidance

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[2]
2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable[2]

Fixture Height
B = <350mm[1]
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
B = 2" 11TPI (BSP) coupling no base plate[1]
C = 2" 11.5TPI (NPS) coupling no base plate
D = 1.5" 12TPI coupling no base plate
E = 2" 11TPI (BSP) flush break coupling no base plate[1]
F = 2" 11.5TPI (NPS) flush break coupling no base plate[1]

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. Not ETL submitted or not applicable to FAA market.
2. With separate earth for internal routing
3. With separate earth for external routing

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8.8 L-862E(L) FAA Runway Threshold, Threshold/End and End

Ordering Code

Application	Standards	Market Specific	Lens Type	Toe-in	Color - Side 1 (Left)	Color - Side 2 (Right)	Omnidirectional	Power Supply	Cable and Connector	Fixture Height	Coupling	Option 2	Advanced Connectivity	Refurbished	Version control
A															

Application
RT = L-862E(L) runway threshold/end
RN = L-862E(L) runway end

Standards
2 = FAA

Market Specific
0 = None
1 = Buy American preference (BAP)

Lens Type
G = Glass
P = UV resistant polycarbonate

Toe-in
L = Side 1 – left toe-in
R = Side 2 – right toe-in
N = No toe-in[2]

Color - Side 1 (Left)
R = Red
F = Green
N = None (obscured)

Color - Side 2 (Right)
R = Red
F = Green
N = None (obscured)

Omnidirectional
0 = None

Power Supply
S = No monitoring
M = With monitoring

Cable and Connector
1 = 1 x style 6 2-pole plug, 2 individual wires[1]

Fixture Height
C = 14" OAH
D = 20" OAH
E = 24" OAH
F = 30" OAH

Coupling
C = 2" 11.5TPI (NPS) coupling no base plate
D = 1.5" 12TPI coupling no base plate

Option 2
0 = None
1 = Smart arctic kit
3 = Near infra red
4 = Smart arctic kit & near infra red

Advanced Connectivity
0 = 0

Refurbished
0 = 0

Version control
1 = 1

Ordering Code Notes

1. With separate earth for internal routing
2. Not available for green

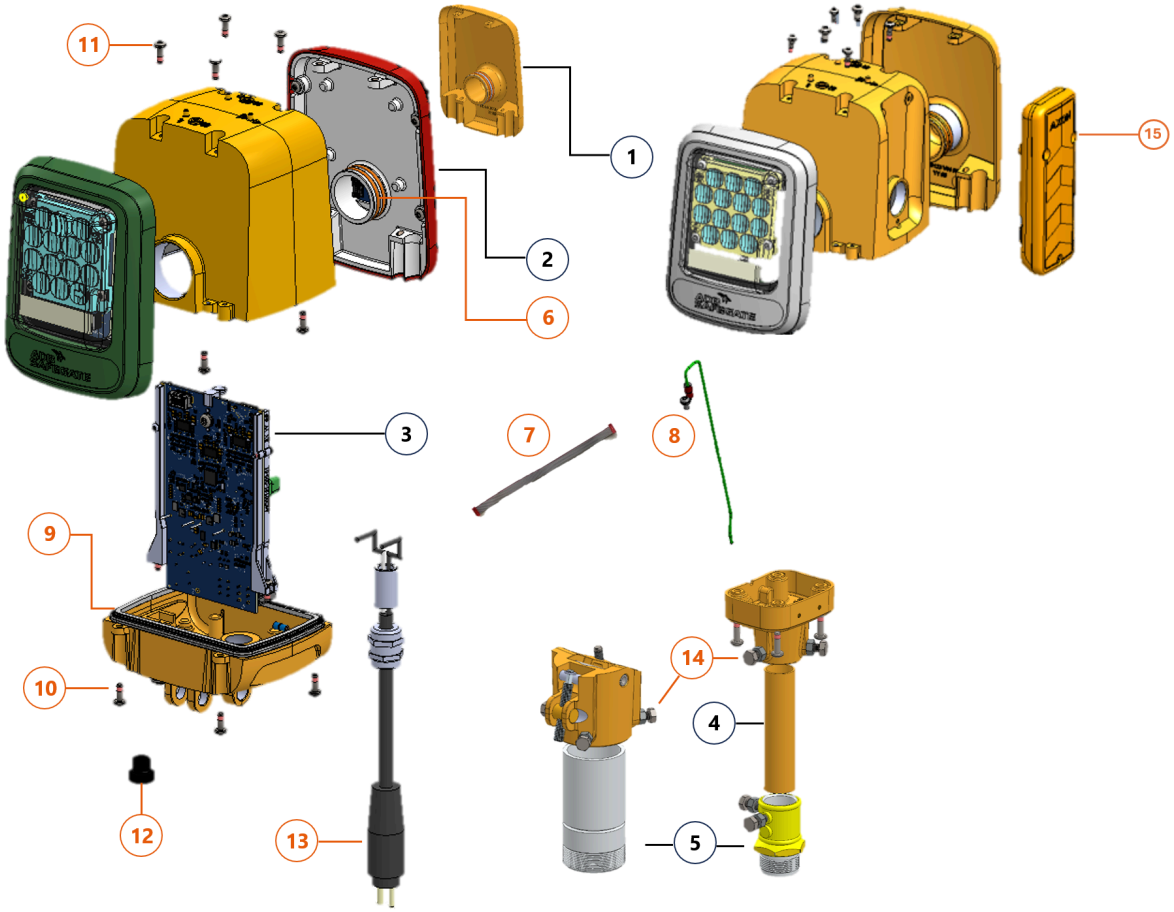
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9.0 Spare Parts

Spare parts are available for light fixtures with and without the control and monitoring functionality.

For more information, see http://www.adbsafegate.com/ and the spare part lists, or contact ADB SAFEGATE for assistance.

9.1 Exploded view



Call-out	Description	Quantity	Spare part number
1	Optical blanking module kit	1	SP.AS312-Blank
2	Optical module and components		See Optical Module
3	Power supply board		See Power Supply Board
4	Column mount — mounting column	1	(see Mounting and Power Connection)
5	Column mount — frangible coupling	1	(see Mounting and Power Connection)
6	Optical module O-ring	50	See Optical Module
7	LED cable harness from the power supply to the LED board (non-mon,mon) LED cable harness from the power supply to the LED board (flasher / RTIL)	20	SP.EW00149-150 SP.EW00216-150-10

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Call-out	Description	Quantity	Spare part number
8	External earthing cable	5	SP.44A7644/2
9	Main body gasket	29	SP.MS00042-000
10 and 11	Screw kit, optical module and main body with pre-applied Loctite	80	SP.MFPM4PT-612
12	Blanking plug	10	SP.MS00057-204
13	Input power cable kit	5	(see Mounting and Power Connection)
14	M8 screw and nut for alignment or the frangible coupling	60	SP.00116-000-01
15	Approach flash / RTIL RFID module	1	SP.AS00484-000-01

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9.2 Mounting and Power Connection

Note

- Each mounting kit includes the necessary screws and nuts.
- Each input power cable kit includes a gland, a ferrite, and the necessary consumables.

Mounting columns	Quantity	Spare part number
Mounting column, height less than 350 mm	1	SP.62A0007/2
Mounting column, 14 in. OAH	1	SP.62A0007/14
Mounting column, 20 in. OAH	1	SP.62A0007/20
Mounting column, 24 in. OAH	1	SP.62A0007/24
Mounting column, 30 in. OAH	1	SP.62A0007/30

Column-mount frangible couplings	Quantity	Spare part number
Frangible coupling, 2 in., 11 TPI thread, OAH less than 30 in.	1	SP.4072.65.570
Frangible coupling, 2 in., 11.5 TPI thread, OAH less than 30 in.	1	SP.4072.65.580
Frangible coupling, 1.5 in., 12 TPI thread, OAH less than 30 in.	1	SP.4072.65.550
Frangible coupling, 2 in., 11 TPI thread, 30 in. OAH	1	SP.4072.65.600
Frangible coupling, 2 in., 11.5 TPI thread, 30 in. OAH	1	SP.4072.65.610
Frangible coupling, 1.5 in., 12 TPI thread, 30 in. OAH	1	SP.4072.65.560
ICAO flush frangible coupling, 2 in., 11 TPI thread, OAH less than 30 in.	1	SP.MC135-10S
ICAO flush frangible coupling, 2 in., 11.5 TPI thread, OAH less than 30 in.	1	SP.MC00135-15S
ICAO flush frangible coupling, 2 in., 11 TPI thread, 30 in. OAH	1	SP.MC00135-10H
ICAO flush frangible coupling, 2 in., 11.5 TPI thread, 30 in. OAH	1	SP.MC00135-15H

60mm frangible mount	Quantity	Spare part number
2” 11 TPI thread, <350mm OAH	1	SP1409.06.021
2” 11.5 TPI thread, <350mm OAH	1	SP4072.65.540
2” 11 TPI thread, 14” OAH	1	SP.MM421-004
2” 11.5 TPI thread, 14” OAH	1	SP.MM421-504
2” 11 TPI thread, 20” OAH	1	SP.MM421-010
2” 11.5 TPI thread, 20” OAH	1	SP.MM421-510
2” 11 TPI thread, 24” OAH	1	SP.MM421-014
2” 11.5 TPI thread, 24” OAH	1	SP.MM421-514
2” 11 TPI thread, 30” OAH	1	SP.MM421-020
2” 11.5 TPI thread, 30” OAH	1	SP.MM421-520
ICAO flush frangible break - 2” 11 TPI thread, <350mm OAH	1	SP.MC00136-10x
ICAO flush frangible break - 2” 11.5 TPI thread, <350mm OAH	1	SP.MC00136-11x

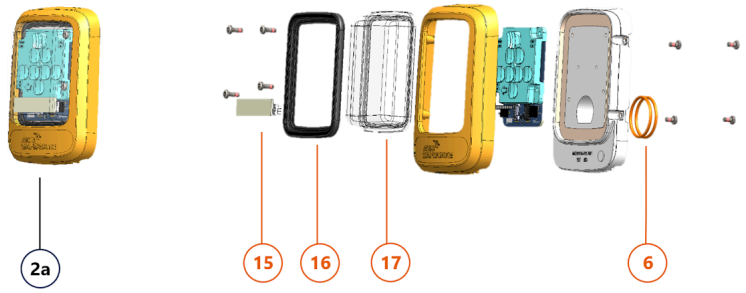
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Input power cable kits	Quantity	Spare part number
Style 6, 2-pole plug, two individual wires, for an OAH less than 350 mm or an OAH of 14 in.	5	SP.00113-018
Style 6, 2-pole plug, two individual wires, for a 20 in. OAH	5	SP.00113-020
Style 6, 2-pole plug, two individual wires, for a 24 in. OAH	5	SP.00113-024
Style 6, 2-pole plug, two individual wires, for a 30 in. OAH	5	SP.00113-030
Style 6 plug, two individual 16–18 AWG wires, 90 in. long	5	SP.00113-104
Style 1, 2-pole plug, jacketed SP two-core cable for external routing, for an OAH less than 350 mm or an OAH of 14 in.	5	SP.00114-024
Style 1, 2-pole plug, jacketed SP two-core cable for external routing, for a 20 in. OAH	5	SP.00114-030
Style 1, 2-pole plug, jacketed SP two-core cable for external routing, for a 24 in. OAH	5	SP.00114-034
Style 1, 2-pole plug, jacketed SP two-core cable for external routing, for a 30 in. OAH	5	SP.00114-040
FAA Style, SO jacketed, 4-pin plug assembly. 0.44m length	5	SP.MCMP10CF4U16044
FAA Style, SO jacketed, 4-pin plug assembly. 2.56m length	5	SP.MCMP10CF4U163256

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9.3 Optical Module

Figure 2: Optical module exploded view



Call Out	Description	Quantity	Spare Part Number
2a	Optical module	1	see below
15	Heater kit	5	SP.EP00151-000
16	Lens seal	5	SP.MS00043-000
17	Lens, glass	5	SP.MG00029-000
17	Lens, plastic	5	SP.MG00029-001
6	Optical module O-ring	50	SP.MS00001-126
Not shown (see 1 in image)	Optical blanking module kit	1	SP.AS312-Blank

Approach Centerline and Crossbar (AC)

Lens kits – 5-step dimming curve (standard)	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	white	white[1]	1	SP.AS312-G13HN
Glass, straight	white	red[1]	1	SP.AS312-G13MN
Glass, straight	N/A	white	1	SP.AS312-G13LN
Glass, straight	N/A	red	1	SP.AS312-G13GN
Polycarbonate, straight	white	white[1]	1	SP.AS312-P13HN
Polycarbonate, straight	white	red[1]	1	SP.AS312-P13MN
Polycarbonate, straight	N/A	white	1	SP.AS312-P13LN
Polycarbonate, straight	N/A	red	1	SP.AS312-P13GN

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	white	white[1]	1	SP.AS312-G13HA
Glass, straight	white	red[1]	1	SP.AS312-G13MA
Glass, straight	N/A	white	1	SP.AS312-G13LA
Glass, straight	N/A	red	1	SP.AS312-G13GA
Polycarbonate, straight	white	white[1]	1	SP.AS312-P13HA

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Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Low int. omni	Quantity	Spare part code
Polycarbonate, straight	white	red[1]	1	SP.AS312-P13MA
Polycarbonate, straight	N/A	white	1	SP.AS312-P13LA
Polycarbonate, straight	N/A	red	1	SP.AS312-P13GA

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 7-step dimming curve	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	white	white[1]	1	SP.AS396-G13HN
Glass, straight	white	red[1]	1	SP.AS396-G13MN
Glass, straight	N/A	white	1	SP.AS396-G13LN
Glass, straight	N/A	red	1	SP.AS396-G13GN
Polycarbonate, straight	white	white[1]	1	SP.AS396-P13HN
Polycarbonate, straight	white	red[1]	1	SP.AS396-P13MN
Polycarbonate, straight	N/A	white	1	SP.AS396-P13LN
Polycarbonate, straight	N/A	red	1	SP.AS396-P13GN

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 7-step dimming curve with arctic kit	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	white	white[1]	1	SP.AS396-G13HA
Glass, straight	white	red[1]	1	SP.AS396-G13MA
Glass, straight	N/A	white	1	SP.AS396-G13LA
Glass, straight	N/A	red	1	SP.AS396-G13GA
Polycarbonate, straight	white	white[1]	1	SP.AS396-P13HA
Polycarbonate, straight	white	red[1]	1	SP.AS396-P13MA
Polycarbonate, straight	N/A	white	1	SP.AS396-P13LA
Polycarbonate, straight	N/A	red	1	SP.AS396-P13GA

1) Omni always installed. The converter configuration determines whether omni is on or off.

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Approach Side Row (AS)

Lens kits – 5-step dimming curve (standard)	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	red	white[1]	1	SP.AS312-G23KN
Glass, straight	red	red[1]	1	SP.AS312-G23AN
Glass, straight	N/A	white	1	SP.AS312-G23LN
Glass, straight	N/A	red	1	SP.AS312-G23GN
Polycarbonate, straight	red	white[1]	1	SP.AS312-P23KN
Polycarbonate, straight	red	red[1]	1	SP.AS312-P23AN
Polycarbonate, straight	N/A	white	1	SP.AS312-P23LN
Polycarbonate, straight	N/A	red	1	SP.AS312-P23GN

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	red	white[1]	1	SP.AS312-G23KA
Glass, straight	red	red[1]	1	SP.AS312-G23AA
Glass, straight	N/A	white	1	SP.AS312-G23LA
Glass, straight	N/A	red	1	SP.AS312-G23GA
Polycarbonate, straight	red	white[1]	1	SP.AS312-P23KA
Polycarbonate, straight	red	red[1]	1	SP.AS312-P23AA
Polycarbonate, straight	N/A	white	1	SP.AS312-P23LA
Polycarbonate, straight	N/A	red	1	SP.AS312-P23GA

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 7-step dimming curve	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	red	white[1]	1	SP.AS396-G23KN
Glass, straight	red	red[1]	1	SP.AS396-G23AN
Glass, straight	N/A	white	1	SP.AS396-G23LN
Glass, straight	N/A	red	1	SP.AS396-G23GN
Polycarbonate, straight	red	white[1]	1	SP.AS396-P23KN
Polycarbonate, straight	red	red[1]	1	SP.AS396-P23AN
Polycarbonate, straight	N/A	white	1	SP.AS396-P23LN
Polycarbonate, straight	N/A	red	1	SP.AS396-P23GN

1) Omni always installed. The converter configuration determines whether omni is on or off.

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Lens kits – 7-step dimming curve with arctic kit	Main beam	Low int. omni	Quantity	Spare part code
Glass, straight	red	white[1]	1	SP.AS396-G23KA
Glass, straight	red	red[1]	1	SP.AS396-G23AA
Glass, straight	N/A	white	1	SP.AS396-G23LA
Glass, straight	N/A	red	1	SP.AS396-G23GA
Polycarbonate, straight	red	white[1]	1	SP.AS396-P23KA
Polycarbonate, straight	red	red[1]	1	SP.AS396-P23AA
Polycarbonate, straight	N/A	white	1	SP.AS396-P23LA
Polycarbonate, straight	N/A	red	1	SP.AS396-P23GA

1) Omni always installed. The converter configuration determines whether omni is on or off.

Approach Side Row Flash (SF)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G2FAN
Polycarbonate, straight	red	1	SP.AS312-P2FAN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G2FAA
Polycarbonate, straight	red	1	SP.AS312-P2FAA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G2FAN
Polycarbonate, straight	red	1	SP.AS396-P2FAN

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G2FAA
Polycarbonate, straight	red	1	SP.AS396-P2FAA

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Approach Flasher and RTIL (FL)

Lens kits – ICAO	Main Beam	Infra Red	Quantity	Spare part code
Glass, straight	White	N/A	1	SP.AS481-G3N-6WA0
Glass, straight	White	YES	1	SP.AS481-G3N-6WE0
Polycarbonate, straight	White	N/A	1	SP.AS481-P3N-6WA0
Polycarbonate, straight	White	YES	1	SP.AS481-P3N-6WE0

Lens kits – ICAO with arctic kit	Main Beam	Infra Red	Quantity	Spare part code
Glass, straight	White	N/A	1	SP.AS481-G3A-6WA0
Glass, straight	White	YES	1	SP.AS481-G3A-6WE0
Polycarbonate, straight	White	N/A	1	SP.AS481-P3A-6WA0
Polycarbonate, straight	White	YES	1	SP.AS481-P3A-6WE0

Lens kits – FAA	Main Beam	Infra Red	Quantity	Spare part code
Glass, straight	White	N/A	1	SP.AS481-G2N-6WA4
Glass, straight	White	YES	1	SP.AS481-G2N-6WE4
Polycarbonate, straight	White	N/A	1	SP.AS481-P2N-6WA4
Polycarbonate, straight	White	YES	1	SP.AS481-P2N-6WE4

Lens kits – FAA with arctic kit	Main Beam	Infra Red	Quantity	Spare part code
Glass, straight	White	N/A	1	SP.AS481-G2A-6WA4
Glass, straight	White	YES	1	SP.AS481-G2A-6WE4
Polycarbonate, straight	White	N/A	1	SP.AS481-P2A-6WA4
Polycarbonate, straight	White	YES	1	SP.AS481-P2A-6WE4

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ICAO Runway Threshold (RT)

Lens kits – 5-step dimming curve (standard)	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS312-G83BN
Glass, side 2 - right	green	1	SP.AS312-G93BN
Glass, straight	green	1	SP.AS312-G03BN
Polycarbonate, side 1 - left	green	1	SP.AS312-P83BN
Polycarbonate, side 2 - right	green	1	SP.AS312-P93BN
Polycarbonate, straight	green	1	SP.AS312-P03BN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS312-G83BA
Glass, side 2 - right	green	1	SP.AS312-G93BA
Glass, straight	green	1	SP.AS312-G03BA
Polycarbonate, side 1 - left	green	1	SP.AS312-P83BA
Polycarbonate, side 2 - right	green	1	SP.AS312-P93BA
Polycarbonate, straight	green	1	SP.AS312-P03BA

Lens kits – 7-step dimming curve	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS396-G83BN
Glass, side 2 - right	green	1	SP.AS396-G93BN
Glass, straight	green	1	SP.AS396-G03BN
Polycarbonate, side 1 - left	green	1	SP.AS396-P83BN
Polycarbonate, side 2 - right	green	1	SP.AS396-P93BN
Polycarbonate, straight	green	1	SP.AS396-P03BN

Lens kits – 7-step dimming curve with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS396-G83BA
Glass, side 2 - right	green	1	SP.AS396-G93BA
Glass, straight	green	1	SP.AS396-G03BA
Polycarbonate, side 1 - left	green	1	SP.AS396-P83BA
Polycarbonate, side 2 - right	green	1	SP.AS396-P93BA
Polycarbonate, straight	green	1	SP.AS396-P03BA

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L-862E FAA Threshold (RT)

Lens kits – 5-step dimming curve (standard)	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS312-G82NN
Glass, side 2 - right	green	1	SP.AS312-G92NN
Glass, straight	green	1	SP.AS312-G02NN
Polycarbonate, side 1 - left	green	1	SP.AS312-P82NN
Polycarbonate, side 2 - right	green	1	SP.AS312-P92NN
Polycarbonate, straight	green	1	SP.AS312-P02NN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS312-G82NA
Glass, side 2 - right	green	1	SP.AS312-G92NA
Glass, straight	green	1	SP.AS312-G02NA
Polycarbonate, side 1 - left	green	1	SP.AS312-P82NA
Polycarbonate, side 2 - right	green	1	SP.AS312-P92NA
Polycarbonate, straight	green	1	SP.AS312-P02NA

Lens kits – 7-step dimming curve	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS396-G82NN
Glass, side 2 - right	green	1	SP.AS396-G92NN
Glass, straight	green	1	SP.AS396-G02NN
Polycarbonate, side 1 - left	green	1	SP.AS396-P82NN
Polycarbonate, side 2 - right	green	1	SP.AS396-P92NN
Polycarbonate, straight	green	1	SP.AS396-P02NN

Lens kits – 7-step dimming curve with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	green	1	SP.AS396-G82NA
Glass, side 2 - right	green	1	SP.AS396-G92NA
Glass, straight	green	1	SP.AS396-G02NA
Polycarbonate, side 1 - left	green	1	SP.AS396-P82NA
Polycarbonate, side 2 - right	green	1	SP.AS396-P92NA
Polycarbonate, straight	green	1	SP.AS396-P02NA

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ICAO Runway End (RN)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G43EN
Polycarbonate, straight	red	1	SP.AS312-P43EN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G43EA
Polycarbonate, straight	red	1	SP.AS312-P43EA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G43EN
Polycarbonate, straight	red	1	SP.AS396-P43EN

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G43EA
Polycarbonate, straight	red	1	SP.AS396-P43EA

FAA L-862E Runway End (RN)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G42EN
Polycarbonate, straight	red	1	SP.AS312-P42EN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G42EA
Polycarbonate, straight	red	1	SP.AS312-P42EA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G42EN
Polycarbonate, straight	red	1	SP.AS396-P42EN

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G42EA
Polycarbonate, straight	red	1	SP.AS396-P42EA

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ICAO Runway Wingbar (RW)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	green	1	SP.AS312-G23CN
Polycarbonate, straight	green	1	SP.AS312-P23CN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	green	1	SP.AS312-G23CA
Polycarbonate, straight	green	1	SP.AS312-P23CA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	green	1	SP.AS396-G23CN
Polycarbonate, straight	green	1	SP.AS396-P23CN

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	green	1	SP.AS396-G23CA
Polycarbonate, straight	green	1	SP.AS396-P23CA

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FAA L-862(L) and ICAO Runway Edge (RE)

Lens kits – 5-step dimming curve (standard)	Main beam	Low int. omni[1]	Quantity	Spare part code
Glass, side 1 - left	white	white	1	SP.AS312-G51JN
Glass, side 1 - left	yellow	yellow	1	SP.AS312-G51DN
Glass, side 1 - left	red	red	1	SP.AS312-G51EN
Glass, side 2 - right	white	white	1	SP.AS312-G61JN
Glass, side 2 - right	yellow	yellow	1	SP.AS312-G61DN
Glass, side 2 - right	red	red	1	SP.AS312-G61EN
Polycarbonate, side 1 - left	white	white	1	SP.AS312-P51JN
Polycarbonate, side 1 - left	yellow	yellow	1	SP.AS312-P51DN
Polycarbonate, side 1 - left	red	red	1	SP.AS312-P51EN
Polycarbonate, side 2 - right	white	white	1	SP.AS312-P61JN
Polycarbonate, side 2 - right	yellow	yellow	1	SP.AS312-P61DN
Polycarbonate, side 2 - right	red	red	1	SP.AS312-P61EN

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Low int. omni[1]	Quantity	Spare part code
Glass, side 1 - left	white	white	1	SP.AS312-G51JA
Glass, side 1 - left	yellow	yellow	1	SP.AS312-G51DA
Glass, side 1 - left	red	red	1	SP.AS312-G51EA
Glass, side 2 - right	white	white	1	SP.AS312-G61JA
Glass, side 2 - right	yellow	yellow	1	SP.AS312-G61DA
Glass, side 2 - right	red	red	1	SP.AS312-G61EA
Polycarbonate, side 1 - left	white	white	1	SP.AS312-P51JA
Polycarbonate, side 1 - left	yellow	yellow	1	SP.AS312-P51DA
Polycarbonate, side 1 - left	red	red	1	SP.AS312-P51EA
Polycarbonate, side 2 - right	white	white	1	SP.AS312-P61JA
Polycarbonate, side 2 - right	yellow	yellow	1	SP.AS312-P61DA
Polycarbonate, side 2 - right	red	red	1	SP.AS312-P61EA

1) Omni always installed. The converter configuration determines whether omni is on or off.

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Lens kits – 7-step dimming curve	Main beam	Low int. omni[1]	Quantity	Spare part code
Glass, side 1 - left	white	white	1	SP.AS396-G51JN
Glass, side 1 - left	yellow	yellow	1	SP.AS396-G51DN
Glass, side 1 - left	red	red	1	SP.AS396-G51EN
Glass, side 2 - right	white	white	1	SP.AS396-G61JN
Glass, side 2 - right	yellow	yellow	1	SP.AS396-G61DN
Glass, side 2 - right	red	red	1	SP.AS396-G61EN
Polycarbonate, side 1 - left	white	white	1	SP.AS396-P51JN
Polycarbonate, side 1 - left	yellow	yellow	1	SP.AS396-P51DN
Polycarbonate, side 1 - left	red	red	1	SP.AS396-P51EN
Polycarbonate, side 2 - right	white	white	1	SP.AS396-P61JN
Polycarbonate, side 2 - right	yellow	yellow	1	SP.AS396-P61DN
Polycarbonate, side 2 - right	red	red	1	SP.AS396-P61EN

1) Omni always installed. The converter configuration determines whether omni is on or off.

Lens kits – 7-step dimming curve with arctic kit	Main beam	Low int. omni[1]	Quantity	Spare part code
Glass, side 1 - left	white	white	1	SP.AS396-G51JA
Glass, side 1 - left	yellow	yellow	1	SP.AS396-G51DA
Glass, side 1 - left	red	red	1	SP.AS396-G51EA
Glass, side 2 - right	white	white	1	SP.AS396-G61JA
Glass, side 2 - right	yellow	yellow	1	SP.AS396-G61DA
Glass, side 2 - right	red	red	1	SP.AS396-G61EA
Polycarbonate, side 1 - left	white	white	1	SP.AS396-P51JA
Polycarbonate, side 1 - left	yellow	yellow	1	SP.AS396-P51DA
Polycarbonate, side 1 - left	red	red	1	SP.AS396-P51EA
Polycarbonate, side 2 - right	white	white	1	SP.AS396-P61JA
Polycarbonate, side 2 - right	yellow	yellow	1	SP.AS396-P61DA
Polycarbonate, side 2 - right	red	red	1	SP.AS396-P61EA

1) Omni always installed. The converter configuration determines whether omni is on or off.

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ICAO Stopway (SW)

Lens kits – 5-step dimming curve (standard)	Main beam	Quantity	Spare part code
Glass, side 1 - left	red	1	SP.AS312-G53EN
Glass, side 2 - right	red	1	SP.AS312-G63EN
Polycarbonate, side 1 - left	red	1	SP.AS312-P53EN
Polycarbonate, side 2 - right	red	1	SP.AS312-P63EN

Lens kits – 5-step dimming curve (standard) with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	red	1	SP.AS312-G53EA
Glass, side 2 - right	red	1	SP.AS312-G63EA
Polycarbonate, side 1 - left	red	1	SP.AS312-P53EA
Polycarbonate, side 2 - right	red	1	SP.AS312-P63EA

Lens kits – 7-step dimming curve	Main beam	Quantity	Spare part code
Glass, side 1 - left	red	1	SP.AS396-G53EN
Glass, side 2 - right	red	1	SP.AS396-G63EN
Polycarbonate, side 1 - left	red	1	SP.AS396-P53EN
Polycarbonate, side 2 - right	red	1	SP.AS396-P63EN

Lens kits – 7-step dimming curve with arctic kit	Main beam	Quantity	Spare part code
Glass, side 1 - left	red	1	SP.AS396-G53EA
Glass, side 2 - right	red	1	SP.AS396-G63EA
Polycarbonate, side 1 - left	red	1	SP.AS396-P53EA
Polycarbonate, side 2 - right	red	1	SP.AS396-P63EA

ICAO Stopbar Straight (SB)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G74ON
Polycarbonate, straight	red	1	SP.AS312-P74ON

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G74OA
Polycarbonate, straight	red	1	SP.AS312-P74OA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G74ON
Polycarbonate, straight	red	1	SP.AS396-P74ON

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G74OA
Polycarbonate, straight	red	1	SP.AS396-P74OA

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ICAO Stopbar Curved (SC)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G75ON
Polycarbonate, straight	red	1	SP.AS312-P75ON

Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G75OA
Polycarbonate, straight	red	1	SP.AS312-P75OA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G75ON
Polycarbonate, straight	red	1	SP.AS396-P75ON

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G75OA
Polycarbonate, straight	red	1	SP.AS396-P75OA

L-862S FAA Stopbar (SB)

Lens kits – 5-step dimming curve (standard)	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G32AN
Polycarbonate, straight	red	1	SP.AS312-P32AN

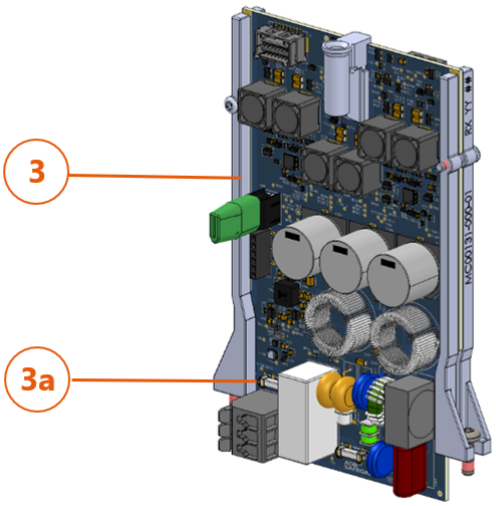
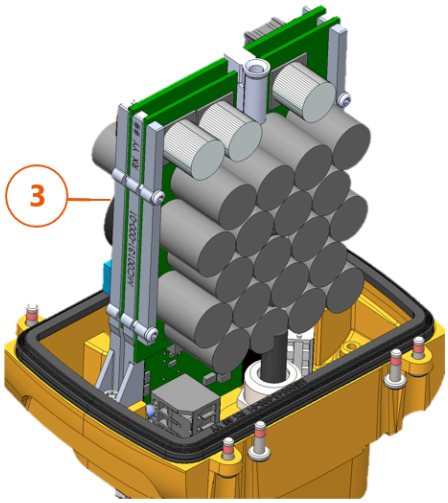
Lens kits – 5-step dimming curve (standard) with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS312-G32AA
Polycarbonate, straight	red	1	SP.AS312-P32AA

Lens kits – 7-step dimming curve	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G32AN
Polycarbonate, straight	red	1	SP.AS396-P32AN

Lens kits – 7-step dimming curve with arctic kit	Main Beam	Quantity	Spare part code
Glass, straight	red	1	SP.AS396-G32AA
Polycarbonate, straight	red	1	SP.AS396-P32AA

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9.4 Power Supply Board

Non-Mon, and Mon lights	Approach Flash / RTIL lights
	

Call out	Description	Quantity	Spare part number
3	Converter for customer configuration on site (See versions below)	1	SP.AS313-DXXX
3a	Fuse resistor, replacement fail-open kit	20	SP.6132.00.250

Non-monitored converter	Quantity	Spare part number
No options enabled	1	SP.AS313-SXX0
Dimmable omni directional	1	SP.AS313-SXX1
Constant intensity omni directional	1	SP.AS313-SXX2
Near infra red	1	SP.AS313-SXX3
Dimmable omni directional and near infra red	1	SP.AS313-SXX4
Constant intensity omni directional and near infra red	1	SP.AS313-SXX5

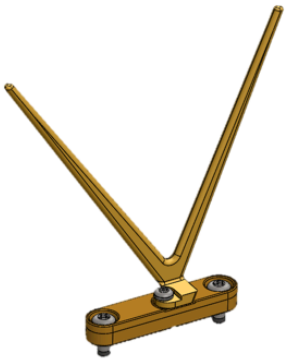
Fail-open converter	Quantity	Spare part number
No options enabled	1	SP.AS313-MXX0
Dimmable omni directional	1	SP.AS313-MXX1
Constant intensity omni directional	1	SP.AS313-MXX2
Near infra red	1	SP.AS313-MXX3
Dimmable omni directional and near infra red	1	SP.AS313-MXX4
Constant intensity omni directional and near infra red	1	SP.AS313-MXX5

Approach Flash / RTIL converter	Quantity	Spare part number
No options enabled	1	SP.AS8-0SS

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9.5 Tools and Accessories







Tools	Quantity	Spare part number
Alignment Device (Standard)	1	AK00065-STD-01
Alignment Tool Calibration Kit	1	AK00066-000-01
Optical Module Removal Tool	1	AK00209-000-01
Converter Programming Tool	Available 2026	
RFID Flasher Programming Tool for US Market[1]	1	AK00084-000-01
RFID Flasher Programming Tool for EU and ROW Market[1]	1	AK00085-000-01

[1]Including connection wire and software

Accessories	Quantity	Spare part number
Bird spike Kit	20	AK00060-000-01
Elevated Snow Flag Kit	10	AK00064-000-01
Replacement Snow Flag pole	1	SP.4072.28.650

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10.0 Power Tables

LED ICAO Approach Centerline and Siderow

Elevated light fixtures with arctic kit, combined low intensity and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
Approach centerline / crossbar, unidirectional, white	60 VA	65 W	12 VA	72 VA
Approach siderow, unidirectional, red	49 VA	65 W	10 VA	59 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA
Low intensity omni white	10 VA
Low Intensity omni red	9 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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LED ICAO Approach Flash and Runway Threshold Indicator Light

Elevated light fixtures with arctic kit, combined low intensity and infra red (all features enabled)[1]

Fixture type	Fixture load	Isolation transformer		CCR load
		Wattage	Load	
Approach flash and RTL	43 VA	W	VA	VA
SMART arctic kit	4 VA	W	VA	VA
Near infra red	2 VA	W	VA	VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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LED ICAO Stop Bar

Elevated light fixtures with arctic kit and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
Stop bar, unidirectional, red	19 VA	20 W / 25 W	6 VA	25 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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LED ICAO Runway Threshold, Threshold/End, End and Threshold Wingbar

ANNEX

Elevated light fixtures with arctic kit and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
Runway threshold, unidirectional, green	27 VA	30 W / 45 W	5 VA	32 VA
Runway threshold/end, bidirectional, red / green	40 VA	30 W / 45 W	8 VA	48 VA
Runway threshold and wingbar, unidirectional, green	30 VA	30 W / 45 W	6 VA	36 VA
Runway end, unidirectional, red	20 VA	20 W / 25 W	6 VA	26 VA
Runway end/end, bidirectional, red / red	33 VA	30 W / 45 W	7 VA	40 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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LED Stopway

Elevated light fixtures with arctic kit and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
Stopway, unidirectional, red	20 VA	20 W / 25 W	6 VA	26 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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LED L-862(L) FAA and ICAO Runway Edge

Elevated light fixtures with arctic kit, infra red and circling guidance (all features enabled)[1].

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
L-862(L) Runway edge, bidirectional, white / white	49 VA	65 W	10 VA	59 VA
L-862(L) Runway edge, bidirectional, white / yellow	46 VA	65 W	9 VA	55 VA
L-862(L) Runway edge, bidirectional, white / red	44 VA	30 W / 45 W	9 VA	54 VA
L-862(L) Runway edge, unidirectional, white	28 VA	30 W / 45 W	6 VA	34 VA
L-862(L) Runway edge, bidirectional, yellow / red	42 VA	30 W / 45 W	8 VA	50 VA
L-862(L) Runway edge, unidirectional, yellow	26 VA	30 W / 45 W	5 VA	31 VA
L-862(L) Runway edge, bidirectional, red / red	41 VA	30 W / 45 W	9 VA	50 VA
L-862(L) Runway edge, bidirectional, white / green[2]	43 VA	30 W / 45 W	9 VA	52 VA
L-862(L) Runway edge, bidirectional, green / yellow[2]	40 VA	30 W / 45 W	8 VA	49 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.
2. FAA displaced threshold

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA
Circling guidance	5 VA / 9 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
- See user manual for a complete overview of all variant power consumption data and other power supplies

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ANNEX

Elevated light fixtures with arctic kit and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
L-862E(L) runway threshold, unidirectional, green	19 VA	20 W / 25 W	6 VA	25 VA
L-862E(L) runway threshold/end, bidirectional, green / red	31 VA	30 W / 45 W	6 VA	37 VA
L-862E(L) runway end, unidirectional, red	20 VA	20 W / 25 W	6 VA	26 VA
L-862E(L) runway end/end, bidirectional, red / red	33 VA	30 W / 45 W	7 VA	40 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
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LED L-862S(L) FAA Stop Bar

ANNEX

Elevated light fixtures with arctic kit, and infra red (all features enabled)[1]

Fixture type	Fixture load[1]	Isolation transformer		CCR load
		Wattage	Load	
L-862S(L) stop bar, unidirectional, red	20 VA	30 W / 45 W	7 VA	27 VA

Notes

1. The fixture load list shows the load with **all functions enabled**, as required by the FAA. This also applies to ICAO-specific datasheets. To calculate the fixture VA, use the table that follows and subtract the applicable values from the fixture load.

Overhead VA per function

Fixture type	Fixture VA
SMART arctic kit	5 VA / 10 VA
Infra red	3 VA / 6 VA

Note

- Fail-open fixtures:
  - The maximum rating for the isolation transformer is 150 W
- Additional voltage loss not included in the above table which must be factored into the circuit load calculation:
  - Primary cables will result in a higher CCR load
  - Longer secondary cables may result in a larger size isolation transformer requirement
- Efficiency of the isolation transformer depends on the manufacturer of the transformer
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Appendix A: Cable Loss

The formula for measuring the cable resistance **R** (in ohms) for a single conductor is calculated with following formula:

$R = \rho \times (L / A)$

Where:

- **R** = resistance of the cable (in ohms, Ω)
- **ρ** = resistivity of the conductor material (in ohm-meters, Ω·m)
- **L** = length of the conductor (in meters, m)
- **A** = cross-sectional area of the conductor (in square meters, m^2)

Example: for 1 km of 2.5 mm^2 copper conductor (where the the resistivity (ρ) is 1.72 10-8 (m^2), the resistance R is calculated as follows:

(1.72 10-8) × 1000 / (2.5 10-6 m^2) = 6.88 ohms

The loss (Watt) is then R × I^2 or 6.88 ohms × 6.6^2 A^2= 299.69 W/km or 0.299 W/m.

The loss (Watt) for a secondary cable with 2 conductors is thus 2 × 0.299 = 0.599 or 0.6 W/m.

As such we can calculate:

- Secondary cable for a 2.5 mm^2 Cu-wire (2 conductors): 0.6 W/m
- Secondary cable for a 4 mm^2 Cu-wire (2 conductors): 0.4 W/m
- Primary cable for a 6 mm^2 Cu-wire (1 conductor): 0.12 W/m

The cable between the isolation transformer and the lamp adds losses that cannot be ignored when dimensioning the circuits and selecting rating for secondary transformers and regulators.

WARNING

Cable lengths should not exceed 100 meters.

For a secondary cable of e.g., 20 m of 2.5 mm^2 CU-wire, 20 m × 0.6 W/m = 12 W equals the additional loss to be taken into account.

For a primary cable of e.g., 100 m of 6 mm^2 CU-wire, 100 m × 0.12 W/m = 12 W equals the additional loss to be taken into account.

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Appendix B: Support

Your airport needs fast, reliable support when technical issues affect operations. ADB SAFEGATE provides 24/7 phone support by experienced technical service and support teams to help you troubleshoot issues and reduce disruption.

For general product information, solutions and more, visit the ADB SAFEGATE website, www.adbsafegate.com.

Global Technical Service & Support

For support in Europe, the Middle East, Africa and Asia Pacific, contact ADB SAFEGATE's technical support specialists. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists offers 24/7 phone support.

- Europe: **+32-2-722-17-11**
- China: **+86-10-8476-0106**
- Middle East and Africa: **+971-4-452-7575**

Live Technical Support – Americas

For support in the Americas, contact ADB SAFEGATE's U.S.-based technical support specialists. The team provides support for airfield lighting products, power and control systems, weather systems, and Safedock A-VDGS.

Phone support is available 24/7.

- United States: **+1-800-545-4157**
- Canada: **+1-905-631-1597**

You can also reach the Americas support team by email during regular business hours:

- Airfield Technical Service: techservice.us@adbsafegate.com
- Apron (previously Gate) Technical Service: gateservice.us@adbsafegate.com
- Weather Customer Service: CustomerServiceWeather@adbsafegate.com

Before You Call

Help us resolve your issue faster by having the right information ready before you contact Technical Support.

For Airfield Lighting, Control Systems, and Weather Product Issues

Please review the following before calling:

- Review the product manual and troubleshooting guide.
- Be near the product and ready to troubleshoot.
- Have a True RMS Multimeter available, along with any other necessary tools.
- Have the following information ready:
  - Airport code
  - Company name, phone number, and email address
  - Product number or part number, if available

For Safedock A-VDGS Issues

Please collect the following information before calling:

- Gate number
- Flight number
- Aircraft type
- Time of the event
- Description of the issue
- Any actions already taken to resolve the issue
- CCTV footage of the incident, if available, to help align the event with the Safedock log file

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Appendix C: Recycling

C.1 Local Authority Recycling

The disposal of ADB SAFEGATE 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.

C.2 ADB SAFEGATE Recycling

ADB SAFEGATE is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. ADB SAFEGATE offers a recycling program for our products to all customers worldwide, whether or not the products were sold within the European Union (EU).

ADB SAFEGATE 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 labeled as follows:

- For Restriction of Hazardous Substances (*RoHS*)/Waste Electrical and Electronic Equipment (*WEEE*) Recycling
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

ADB SAFEGATE 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.

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