



AXON LED High-Intensity Elevated Lights

User Manual

UM-5078, Rev. 1.4.0, 2026-Aug-11



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 further 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.

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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.

FAA Certified products manufactured by ADB SAFEGATE

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.



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

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

Failure to follow this instruction can result in serious injury or equipment damage

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

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

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

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 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

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.

Arctic Kit — Maintains full heating power at all intensity steps.



3.1 Product Information

Compliance and Standards

Compliance Description		AC-AS	SB ICAO	RN-RT ICAO	SW	RE	RN-RT FAA	SB FAA
		DS-5066	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		
IEC	61827	X	X	X	X	X		
NATO	STANAG 3316	X	X	X	X	X		
EASA	CS-ADR-DSN	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		
UFC	3-535-01	X	X	X		X		
Canada	TP 312	X	X	X	X	X		
Australia	MOS 139	X	X	X	X	X		
CE		X	X	X	X	X	X	X

Uses

AC-AS	SB ICAO	RN-RT ICAO	SW
ICAO - Approach centerline - Approach crossbar - Approach siderow (red)	ICAO Stop bar	ICAO - Runway threshold - Runway end - Runway threshold/end - Runway threshold wingbar	ICAO and MOS Stopway ≤ 45 m width runway

Uses

RE	RN-RT FAA	SB FAA
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

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 μ s combination wave, up to 10,000 V and 5,000 A

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	TBC
Weight	Min 2.7 kg (6 lb)

4.0 Pre-Installation Guidelines

Effective installation starts with thorough preparation and thoughtful planning. Please review this entire section before proceeding 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.

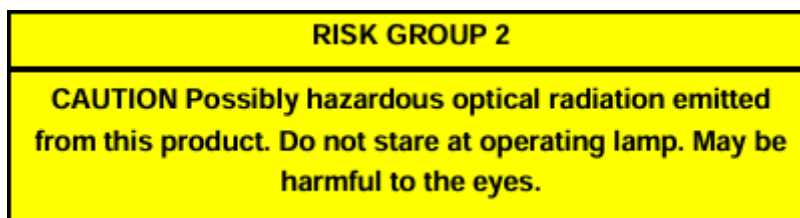


DANGER

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.

4.2 Photobiological Safety – Approach, High Intensity



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 [ADBSafegate support](#).

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.

5.0 Installation

This section provides instructions on how to install and remove in-pavement 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.

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.

5.2 Mounting Types

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, approach side row, threshold wingbar and stopbar
- Alignment:**
- -5° to +30° vertical
 - 360° horizontal
- Adjustment:** via central barrel screw, locking screw and nuts

Overall Height Options:

- ICAO: <350mm, 14", 20", 24" and 30"
- FAA: 14", 20", 24" and 30"

Coupling Thread Options:

- ICAO: 2" 11 TPI (BSP), 2" 11.5 TPI (NPS)
- FAA: 2" 11.5 TPI (NPS) and 1.5" x 12TPI

5.3 Alignment Guidance

Application - Regulatory	Toe In	Colour		Beam Center Requirement		Alignment Tool Setting			
	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
AC - ICAO	N - No Toe		N	5.5	0 or 2° L / R	5.5	N/A		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°			

Application - Regulatory	Toe In	Colour		Beam Center Requirement		Alignment Tool Setting			
	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
AS - ICAO	N - No Toe		N	5.5°	2°	5.5°			2° L / R
				6°	2°	6°			
				7°	2°	7°			



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.

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 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.

Application - Regulatory	Toe In	Colour		Beam Center Requirement		Alignment Tool Setting			
	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
RT - ICAO	L - Side 1			5.5° / 2.5°	3.5° / 0°	0°		N/A	0° or 90°
	L - Side 1		N	5.5°	3.5°				
	N - No Toe			5.5° / 2.5°	3.5° / 0°				
	N - No Toe		N	5.5°	3.5°				
	R - Side 2			2.5° / 5.5°	0° / 3.5°				
	R - Side 2	N		2.5°	3.5°				
RN - ICAO	N - No Toe			2.5° / 2.5°	0° / 0°				
	N - No Toe		N	2.5°	0°				
RW - ICAO	N - No Toe		N	5.5°	2°	5.5°	N/A		2° L / R



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 built-in 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 sighting perpendicular to the runway.

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' is showing level.

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

Application	Toe In	Colour	Beam Center Requirement	Alignment Tool Setting
- Regulatory	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation Toe In Elevation Vernier Scale Bubble Vial 'A' True Level Bubble Vial 'B' -3.5° Offset Toe In Vernier Scale
SW - ICAO 60m (ICAO 45m)	L - Side 1		N	3.5° 4.5° (3.5) 0°
	R - Side 2	N		0°

Application	Toe In	Colour	Beam Center Requirement	Alignment Tool Setting
- Regulatory	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation Toe In Elevation Vernier Scale Bubble Vial 'A' True Level Bubble Vial 'B' -3.5° Offset Toe In Vernier Scale
RE - ICAO 60m (ICAO 45m & FAA)	C - Both Sides With Toe In			3.5° / 3.5° 4.5° / 4.5° (3.5° / 3.5°) 0°
	C - Both Sides With Toe In			0°
	C - Both Sides With Toe In			N/A
	L - Side 1		N	0°
	C - Both Sides With Toe In			3.5° / 3.5° 4.5° / 4.5° (3.5° / 3.5°)
	C - Both Sides With Toe In			0°
	L - Side 1		N	3.5° 4.5° (3.5°)

Application - Regulatory	Toe In	Colour		Beam Center Requirement		Alignment Tool Setting			
	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
	C - Both Sides With Toe In	R ↖	W ↗	3.5° / 3.5°	4.5° / 4.5° (3.5° / 3.5°)				
	C - Both Sides With Toe In	R ↖	Y ↗						
	C - Both Sides With Toe In	R ↖	R ↗						
	R - Side 2	N	W ↗	3.5°	4.5° (3.5°)				
	R - Side 2	N	Y ↗						
RE - FAA	C - Both Sides With Toe In	F ↖	W ↗	5.5° / 3.5°	3.5° / 3.5°	0°		N/A	0°
	C - Both Sides With Toe In	W ↖	F ↗						
	C - Both Sides With Toe In	Y ↖	F ↗						
	C - Both Sides With Toe In	F ↖	Y ↗						



Note

ICAO

Runway Edge 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°.

The beam spread is compliant for runway edge ICAO 45m, 60m and FAA with light body level and toe-in set at 0°.

FAA:

"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."

Application - Regulatory	Toe In	Colour		Beam Center Requirement		Alignment Tool Setting			
	Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
SB L-862S(L) - FAA	N - No Toe	R ↑	N	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.

Application	Toe In	Colour			Beam Center Requirement		Alignment Tool Setting			
		Digit 7 Toe In	Digit 8 Side 1	Digit 9 Side 2	Elevation	Toe In	Elevation Vernier Scale	Bubble Vial 'A' True Level	Bubble Vial 'B' -3.5° Offset	Toe In Vernier Scale
SB - ICAO	N - No Toe		N		4.5°	0°	0°		N/A	0°
SC - ICAO	N - No Toe		N		5.5°	15.75°	0°			15.75° L /R



Note

SB:
Stopbar optical module has built-in 3.5° mechanical elevation with additional 1° optical elevation to give a total of 4.5°. 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 to 0° if sighting parallel to beam direction.

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.

5.4 Illuminated LEDs

The Axon Elevated Light features a modular design, allowing us to reuse optical blocks and LED PCBs across different applications. As a result, not all LED positions are illuminated in every configuration. This is intentional and designed to optimize photometric performance and power consumption for each specific application.

If you notice certain LEDs are not lit, this is not necessarily a fault. Refer to the overview below, which details the specific LEDs that are illuminated for each application. This will help ensure correct visual inspection and avoid misinterpretation.



Approach Centreline & Crossbar

- 12 White LEDs
- Top center LED is only illuminated if combined low intensity omni directional is selected.
- Bottom center LED is for Infra Red enabled applications only and is non visible



Approach Side Row

- 12 Red LEDs
- Top center LED is only illuminated if combined low intensity omni directional is selected.
- Bottom center LED is for Infra Red enabled applications only and is non visible



ICAO Threshold

- 6 Green LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



FAA Threshold L862 E - L

- 4 Green LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



ICAO Runway End

- 6 Red LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



FAA Runway End L862 E - L

- 6 Red LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



ICAO Threshold Wingbar

- 12 Green LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



Runway Edge White L862 - L

- 6 White LEDs
- Top center LED is only illuminated if circling guidance is enabled (always for L862 – L).
- Bottom center LED is for Infra Red enabled applications only and is non visible



Runway Edge Yellow L862 - L

- 6 Yellow LEDs
- Top center LED is only illuminated if circling guidance is enabled (always for L862 – L).
- Bottom center LED is for Infra Red enabled applications only and is non visible



Runway Edge Red L862 – L & ICAO Stopway

- 6 Red LEDs
- Top center LED is only illuminated if circling guidance is enabled (always for L862 – L).
- Bottom center LED is for Infra Red enabled applications only and is non visible



FAA Displaced Threshold L862 E

- 4 Green LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible



ICAO Stopway

- 6 Red LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible

**ICAO Stopbar**

- 2 Red LEDs
- Bottom center LED is for Infra Red enabled applications only and is non visible

**FAA Stopbar L862 S - L**

- 12 Red LEDs
 - Bottom center LED is for Infra Red enabled applications only and is non visible
-

5.5 Fixture Installation

Column Mounting



IMPORTANT

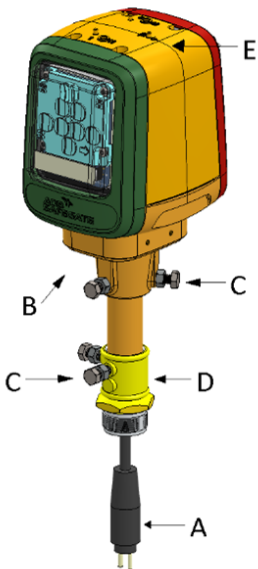
USE PROTECTIVE GLOVES AND FACE PROTECTION.

- 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.



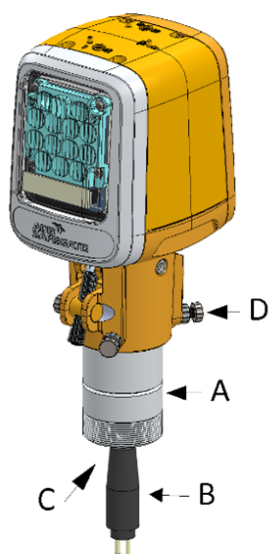
IMPORTANT

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



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.

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.

Alignment Tool Overview

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

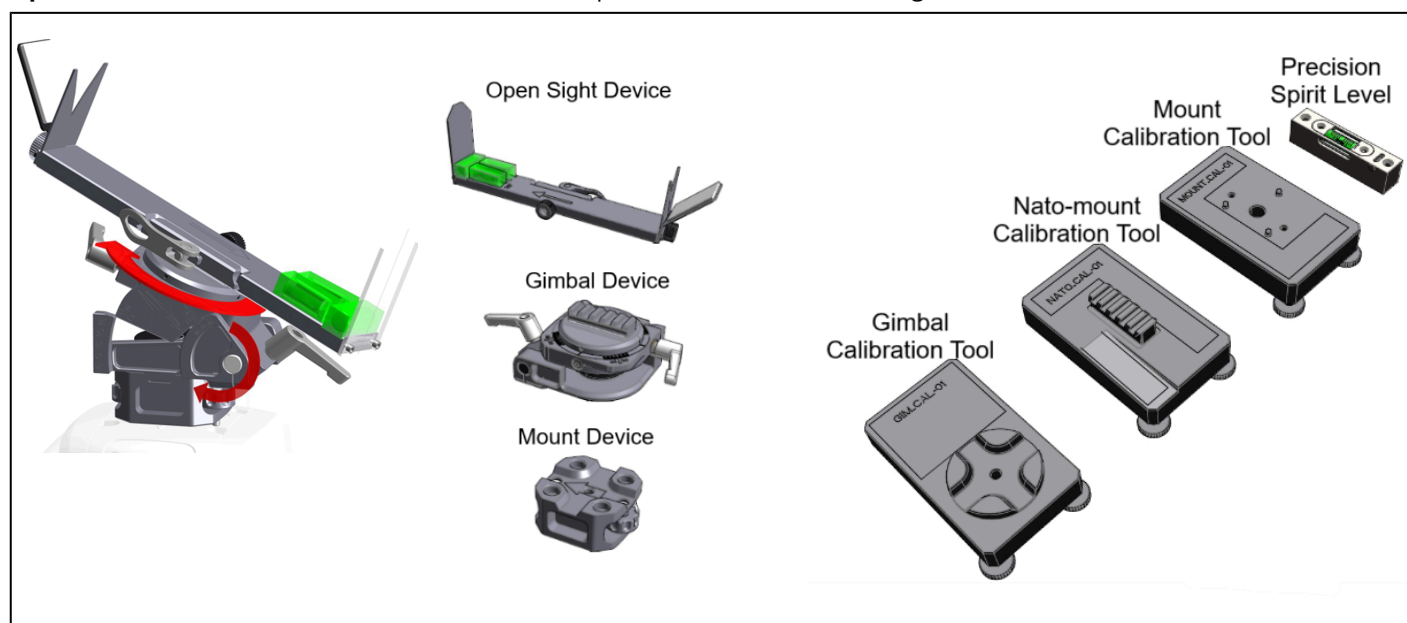
It consists of 3 main parts:

Mount Device – This is 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 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.



Alignment Guidelines & 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.



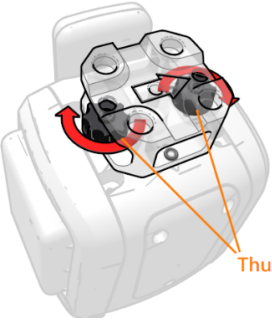
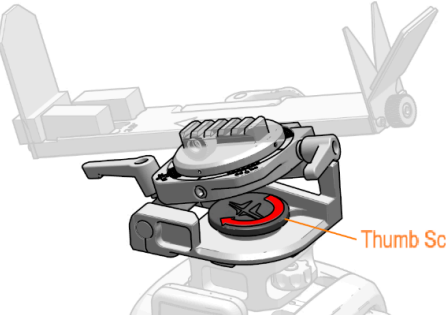
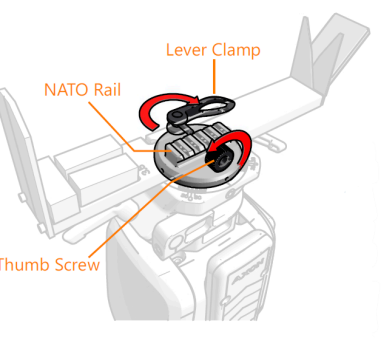
Note

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 of user manual for the Axon elevated lights for complete application guidance with regard to reference sighting and angle setting of the tool.

Install the Alignment Tool on the Fixture

 Thumb Screws	1 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)
 Thumb Screw	2 Install the Gimbal device onto the mount device and secure using the thumb screw. Note this can be mounting for parallel or perpendicular sighting.
 NATO Rail Lever Clamp Thumb Screw	3 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. 4 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.

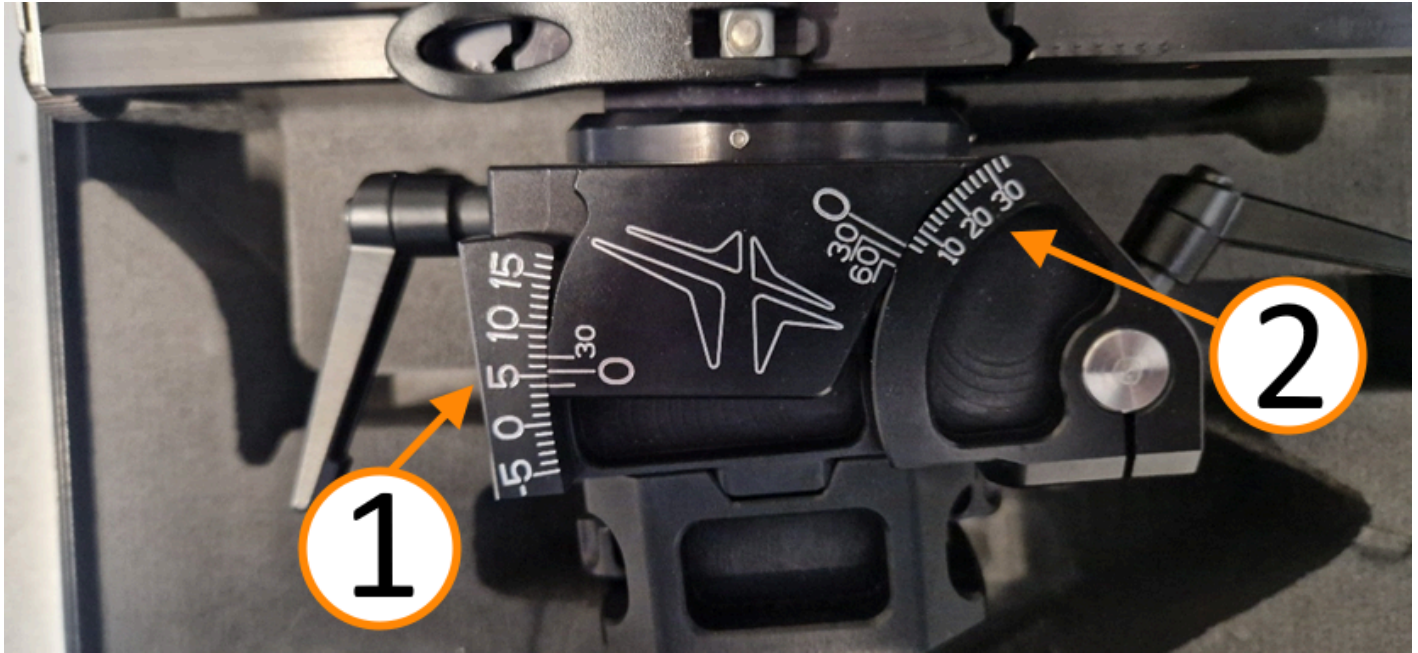
Light Fixture Leveling & Alignment

Reading the Vernier Scales

The gimbal 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

The elevation consists of two vernier scales. The main scale allows for adjustment from -5° to $+17^{\circ}$, this is suitable for most installations. The secondary scale is for adjustments between $+8^{\circ}$ to 32°

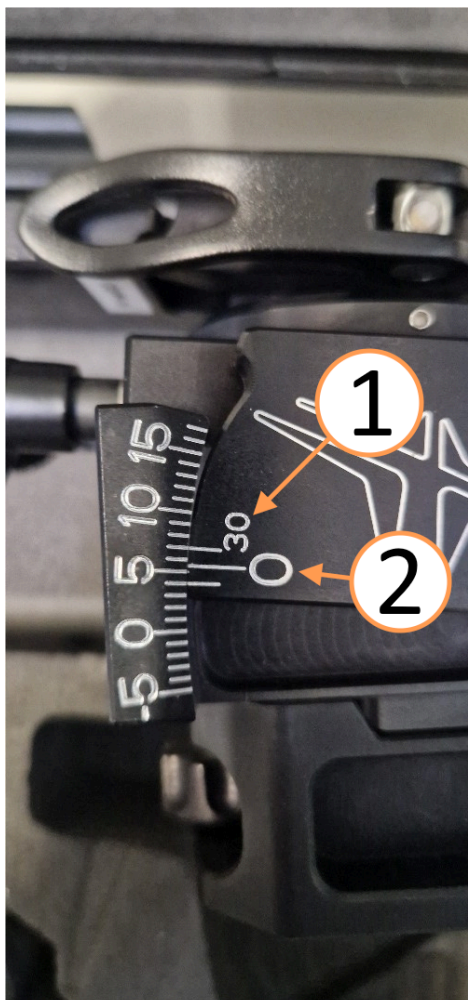


1. Main Scale
2. Secondary Scale

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.



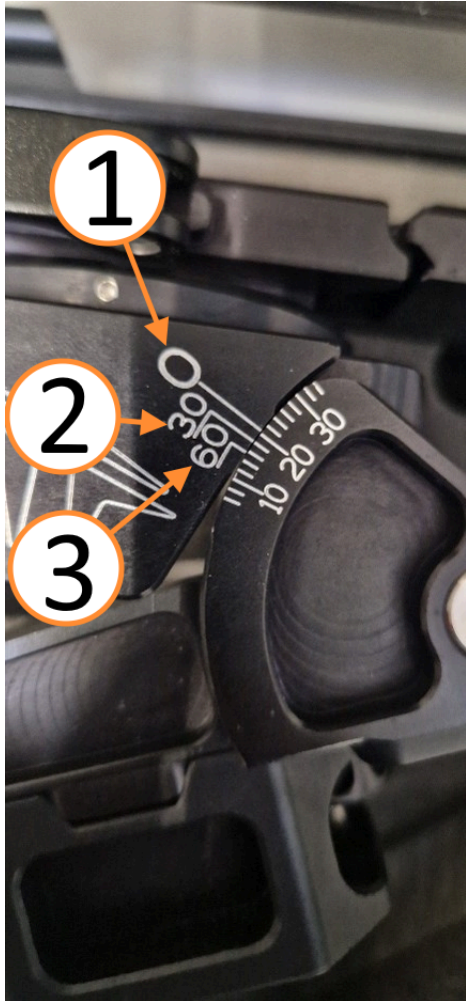
In this example the elevation alignment is set at 5.5° or 5° and 30' of arc:

1. 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°
2. 0 is greater than 5° , but less than 6°

Secondary Scale

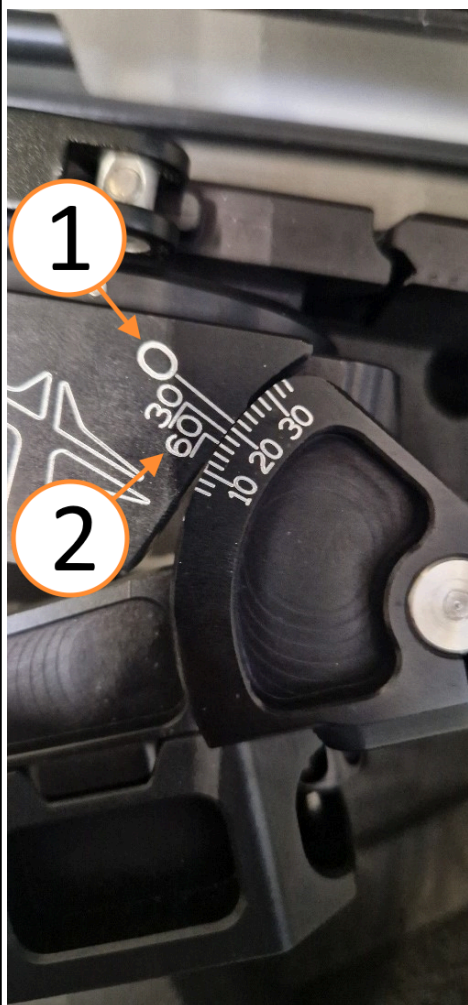
The secondary scale uses the same principle, however the main increments are 2° and the vernier scale has three increments in minutes of arc – marked at 0', 30' and 60'. 0' is set for the angle as a whole number according to the scale. 60' is equivalent to 1° and is for the whole angle between increments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

1. 0 is greater than 20° , but less than 22°
2. 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°
3. Note that the 60' is has not aligned to anything.



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

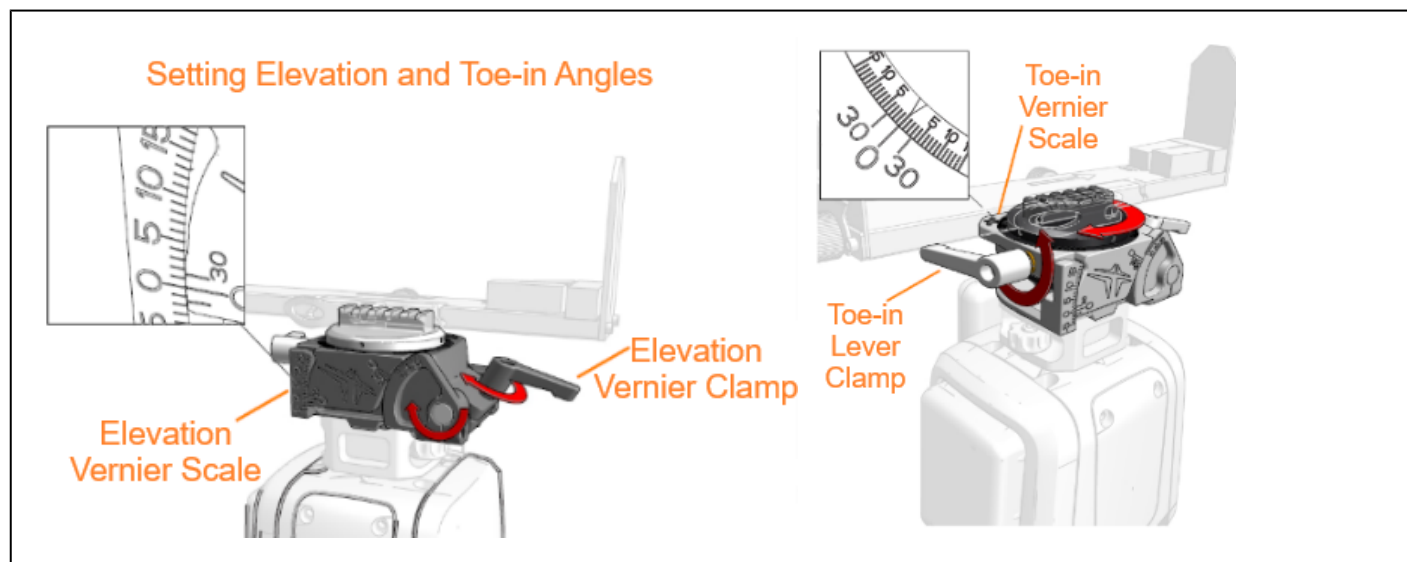
1. 0 is greater than 20° , but less than 22°
2. The next possible alignment of the 60' of arc is made, without exceeding 22° . This achieves the additional 1° to give a total of 21°
3. Note that there are two points of alignment for the 30' in the above scenarios. These will be at 20.5° and 21.5° .
Care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

Azimuth (toe-in) Scale

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'.**



60mm Mount Elevation and Toe-In Setting

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.

Figure 1: Figure 1

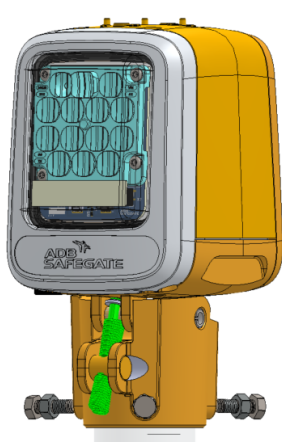


Figure 2: Figure 2

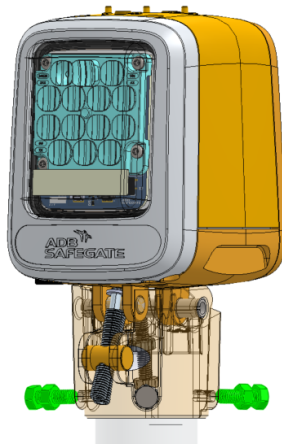
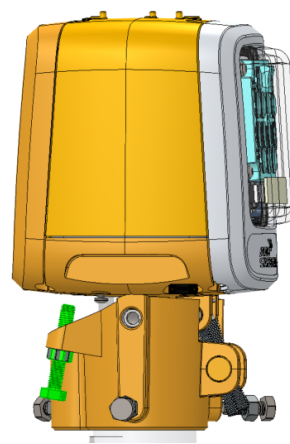


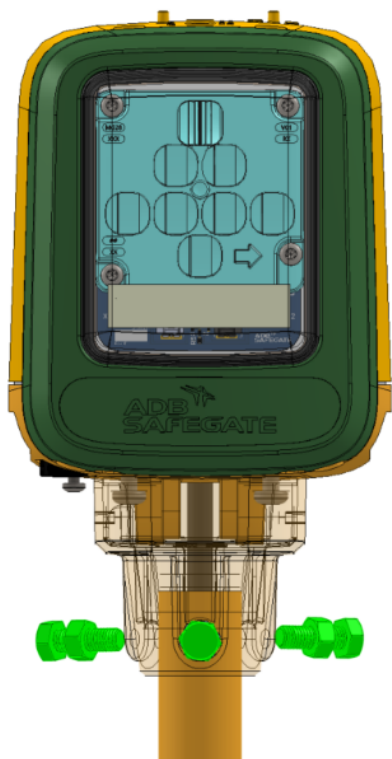
Figure 3: Figure 3



Column Mount Elevation & Toe-In Setting

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 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.

Figure 4: Figure 4



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 1: 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.

6.2 Workshop Maintenance - Spare Part Replacement



Note

Refer to the Components section for instructions on how to correctly replace parts.

Optical Module Replacement

1. Remove 4 Torx screws. 2 are located at the top, 2 are located at the bottom and are the inner most pair.

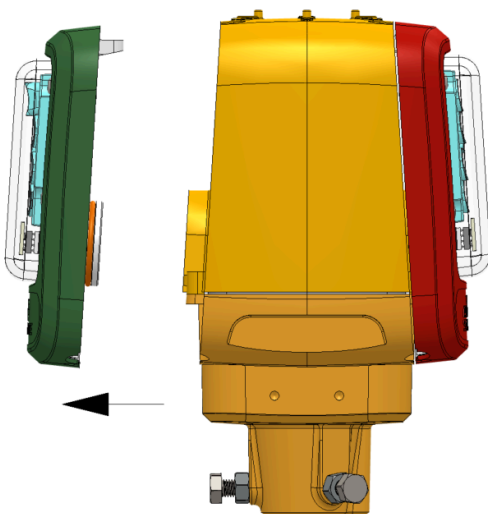


2. Pull optical module away from the light body. Take care not to damage cable by pulling further than the cables will reach).



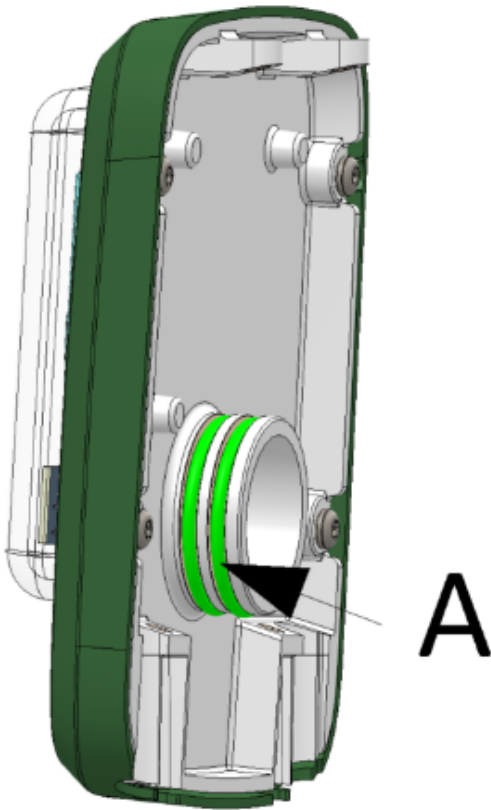
Note

The O-rings are designed to ensure a secure, watertight seal, which may make the optical module feel tight during removal. If needed, we recommend using a plastic pry tool between the light body and the optical module. Gently work around the perimeter to ensure even removal.

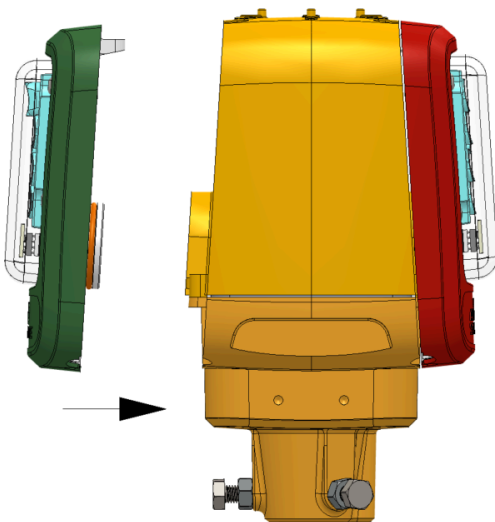


3. Disconnect LED cables from light engine assembly, by gently pulling in direction of arrow.

4. Connect LED cables to new light engine assembly (note they are oriented, so it is not possible to make an incorrect connection)
5. Ensure light engine o-rings (A) are lightly greased with versilube grease or similar, and main light body aperture is clean and undamaged. Ensure new o-rings are used.



6. Gently inset optical module into light body housing until screw holes align top and bottom. Excessive force should not be required. Light engine should be inserted parallel to the light body to avoid damage or misalignment to the two sealing o-rings. Ensure LED cables are within the body and do not get pinched.



7. Insert new torx screws top and bottom (do not re-use old screws, as they utilise pre-applied Loctite). Torque to 2.5Nm (22 in-lbs) (tightening sequence is not important).
8. **IMPORTANT – LED Module Calibration**
Power the light at 6.6 A. After about 10 seconds, the LEDs will blink three times to confirm successful calibration. If the LEDs do not blink, switch off the power and check that all steps have been completed correctly.

Optical Blank Cover (similar to optical module replacement)

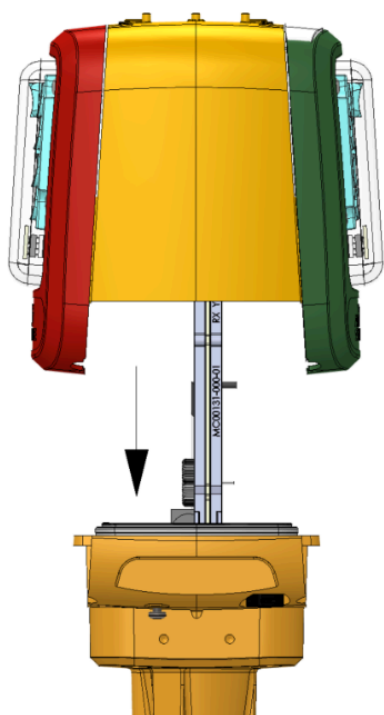
1. Remove 4 Torx screws. 2 are located at the top, 2 are located at the bottom, and are the inner most pair.
2. Pull optical blank cover away from the light body.
3. Ensure optical blank cover o-rings are lightly greased with versilube grease or similar, and main light body aperture is clean and undamaged. Ensure new o-rings are used.
4. Gently inset optical blank cover into light body housing until screw holes align top and bottom. Excessive force should not be required. Light engine should be inserted parallel to the light body to avoid damage or misalignment to the two sealing o-rings.
5. Insert new torx screws top and bottom (do not re-use old screws, as they utilise pre-applied Loctite). Torque to 2.5Nm (22 in-lbs) (tightening sequence is not important).

Power Supply Board

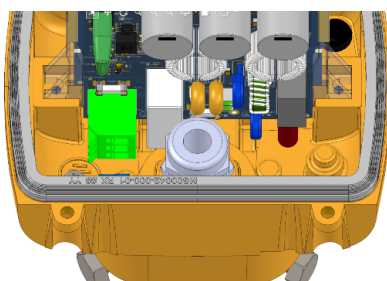
1. Remove 4 screws on the bottom of the light body. There are the outermost pairs of screws on each side.



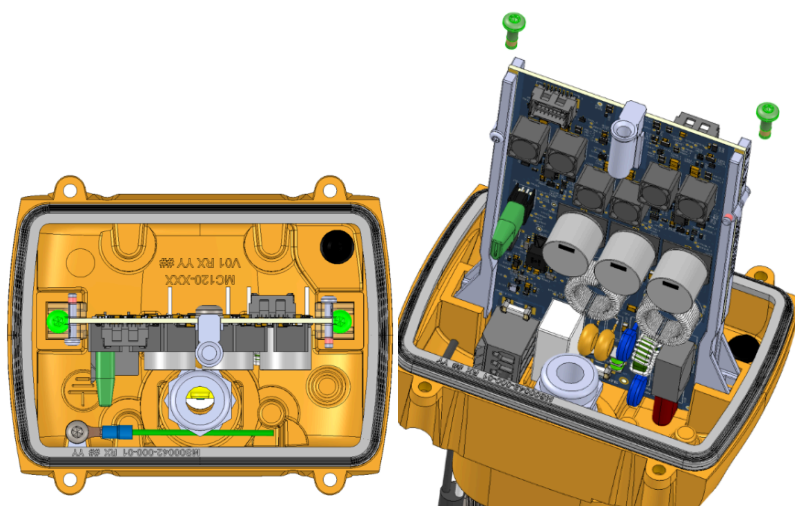
2. Pull lower housing away from upper housing assembly. Take care not to damage cables by pulling further than the cables will reach.



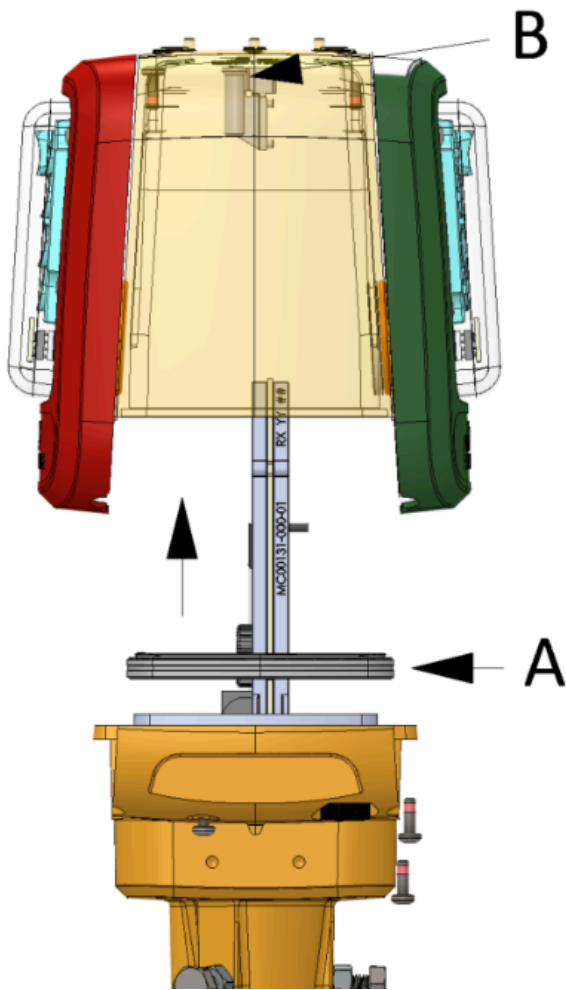
3. Disconnect LED cables from the power supply board.
4. EQ ONLY – Disconnect IOT module power cable from the power supply board.
5. Disconnect input power & earth cable from power supply board. They are disconnected by lifting the connector levers.



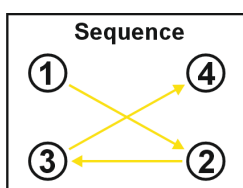
6. Remove two screws securing the power supply board to lower housing and remove power supply board.



7. Insert new power supply board and secure with new torx screws. Do not re-use old screws, as they utilise pre-applied Loctite. Torque to 2.5Nm (22 in-lbs) (tightening sequence is not important).



8. Insert input power & earth cable into connector, taking care to orient as per diagram below. Cables are secured by pushing lever fully down. After securing the connector levers, gently tug on wires to ensure secure installation.
9. Remove old lower housing seal and install new seal (A) . Check the sealing faces of both the lower & upper housing to ensure cleanliness and no damage and surfaces are clean. If cleaning is necessary, only use a plastic scraper and alcohol based cleaner.
10. Hold the lower housing assembly in correct orientation relative to the upper housing assembly and re-connect LED cables to the power supply board.
11. **EQ ONLY** – Reconnect IOT module power cable to the power supply board.
12. Insert lower housing assembly into upper housing assembly until seated, and flush with the bottom of the optical modules, and screw holes are aligned.
13. Take care to align upper housing power supply locating pin with the receptable on the power supply board (B)
14. Ensure the gasket is correctly seated and not pinched or twisted.
15. Ensure correct alignment of the lower housing assembly, with the upper housing and optical modules.
16. Insert new torx screws (do not re-use old screws, as they utilise pre-applied Loctite). Torque to 2.5Nm (22 in-lbs), in the following diagonal sequence:



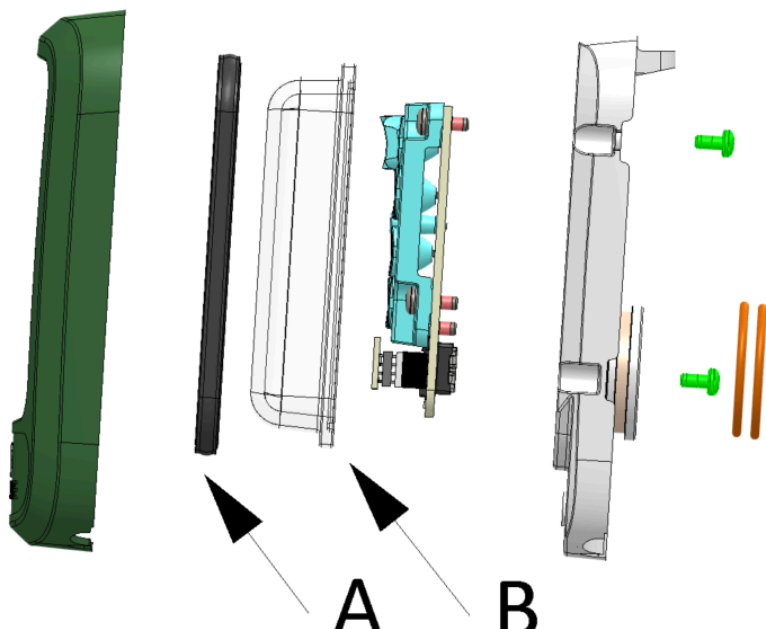
17. IMPORTANT – LED Module Calibration

Power the light at 6.6 A. After about 10 seconds, the LEDs will blink three times to confirm successful calibration. If the LEDs do not blink, switch off the power and check that all steps have been completed correctly.

EQ IOT Module

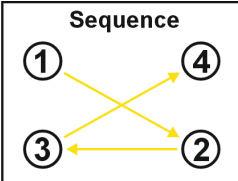
1. To retrofit RF IOT Modules to EQ fixtures, first remove the three torx screws securing the blanking piece in place. Gently pry outwards with a plastic pry tool to release the blank – the sealing methodology is the same as the optical modules.
2. Ensure RF IOT module o-rings are lightly greased with versilube grease or similar, and main light body aperture is clean and undamaged. Ensure new o-rings are used.
3. Withdraw RF IOT module power connector, via the main body opening, and connect to the module.
4. Gently inset RF IOT module into light body housing until firmly positioned and screw holes are aligned. Excessive force should not be required. RF IOT Module should be inserted parallel to the light body to avoid damage or misalignment to the two sealing o-rings. Ensure LED cables are within the body and do not get pinched.
5. Insert three new torx screws (do not re-use old screws, as they utilise pre-applied Loctite). Torque to 2.5Nm (22 in-lbs) (tightening sequence is not important).

Lens Cover (glass/plastic)



1. Follow procedure to replace optical module to step 3.
2. Unscrew 4 torx screws on rear of optical heatsink and remove light engine trim and then lens and gasket.
3. Mount new lens seal (A) to new lens (B), ensuring it's evenly fitted and is not wrinkled. Place the lens assembly through the light engine trim, ensuring it's fully seated.
4. Fit the optical heatsink, ensuring that it's evenly positioned and flush with the surrounding light engine trim.
5. Insert new torx screws (do not re-use old screws, as they utilise pre-applied Loctite). Torque to 2.5Nm (22 in-lbs), in the following diagonal sequence:

Sequence

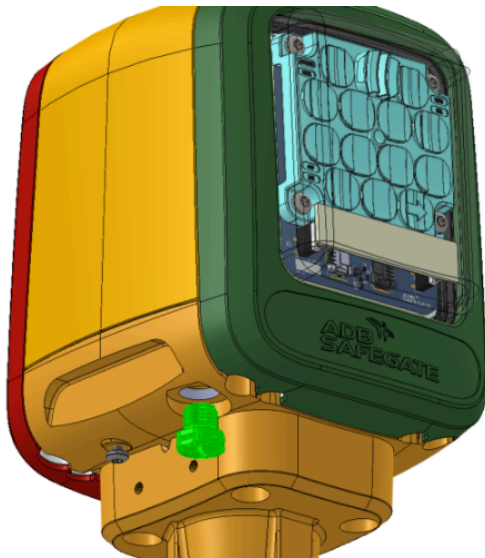


6. Ensure new o-rings are fitted.
7. Reassemble the optical module to the light body, following procedure to replace optical module from step 4.

Blanking Screw

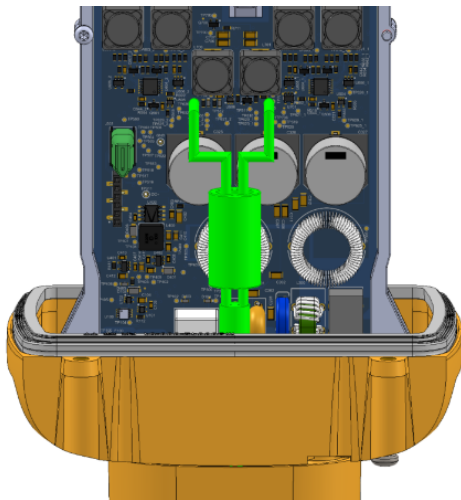
1. Unscrew existing blanking screw from housing with a 10mm hex key.

2. Install new blanking screw, ensuring seal is present and threaded hole in lower light assembly is clean. Torque to 2.5Nm (22 in-lbs).

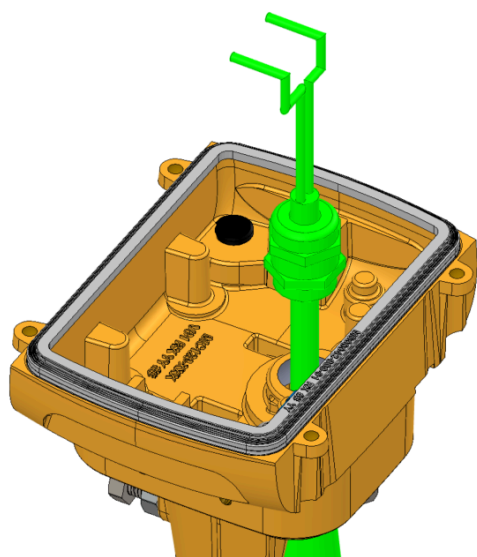


Input Power Cable

1. Follow procedure to remove lower mount.
2. Follow procedure for Power Supply Board Replacement, to step 6
3. Remove ferrite from power supply cable by unwinding cable loops. Unscrew cable gland nut on the exterior of the lower housing.

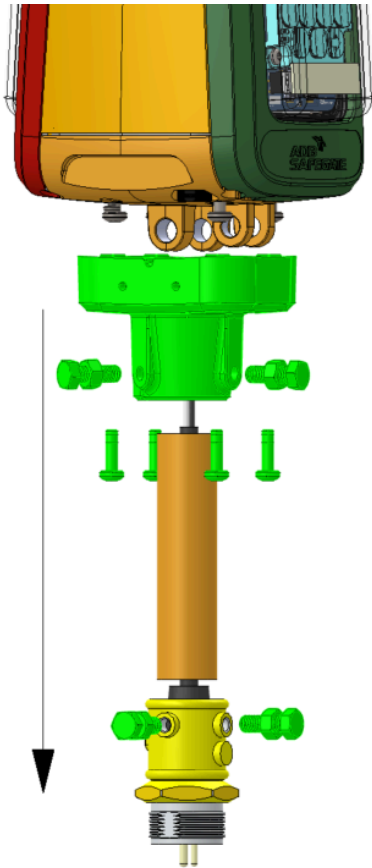


4. Unscrew cable gland cap and withdraw cable from gland and remove gland.



5. To fit new cable, ensure a new gland is also used.
6. Insert corset through gland nut and lower housing body from the outside.
7. Push cordset through gland body and loosely tighten the gland to the lower housing with the gland nut.
8. Ensure 7" of cable is present, measured from the inside of the lower housing assembly to the end of the cordset.
9. Torque the cable gland nut to 6.2Nm (55 in-lbs) to secure to the lower housing assembly. Torque the gland cap to 2.5Nm (55 in-lbs) to ensure correct sealing of the gland to the cordset.
10. Insert the 7" of the exposed cordset through the new ferrite and loop the cables through once, ensuring the ferrite is as close to the gland as possible.
11. Follow procedure for power supply board replacement, from step 7 to completion.

Column Mount



1. Remove frangible coupling from the column by undoing two M8 x 25 screws & M8 nuts. Gently withdraw over the cordset.
2. Remove column from the mounting by undoing three M8 x 25 screws & M8 nuts. Gently withdraw over the cordset.
3. Remove four torx screws securing mount to the light fixture. Gently withdraw from the cable.
4. Install new mount by passing cordset through the center. Align with the holes on the light fixture and secure
5. Using four new torx screws. Do not re-use old screws, as they utilise pre-applied Loctite. Ensure the cordset is not pinched prior to torquing to 6Nm (53 in-lbs).
6. Install column, gently threading cordset through the center. Torque the three M8x25 screw into the runway mount to 8Nm (70 in-lbs). Holding the screws with a socket, tighten the locknuts against the mount with a spanner until hand tight.
7. Install frangible coupling, gently threading cordset through the center. Torque the two M8x25 screw into the frangible coupling to 8Nm (70 in-lbs). Holding the screws with a socket, tighten the locknuts against the frangible coupling with a spanner until hand tight.

Screws Overview (Torque Table)

Name	Screw Type	Torque	
		in/lbs	Nm
Optical Module - Light engine trim to optical heatsink.	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 & gland cap)	Cordset Gland	55	6.2
IoT module / blank to main housing	M4x8	22	2.5

7.0 Ordering Codes

7.1 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 cable¹
7 = 2 individual wires, 16-18 AWG, 90" length, non terminated

Fixture Height
A = Approach mount for 60 mm mast or pole²

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

7.2 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 wires¹

2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable²

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

7.3 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 wires¹
 2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable²

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

7.4 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 wires¹

2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable²

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

7.5 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 wires¹

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

7.6 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

4 = German MIL 7-step¹

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

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 wires²

2 = 1 x style 1 2-pole plug, jacketed SO 2 core cable³

Fixture Height

B = <350mm¹

C = 14" OAH

D = 20" OAH

E = 24" OAH

F = 30" OAH

Coupling

B = 2" 11TPI (BSP) coupling no base plate¹

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

E = 2" 11TPI (BSP) flush break coupling no base plate¹

F = 2" 11.5TPI (NPS) flush break coupling no base plate¹

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

7.7 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-in²

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 wires¹

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

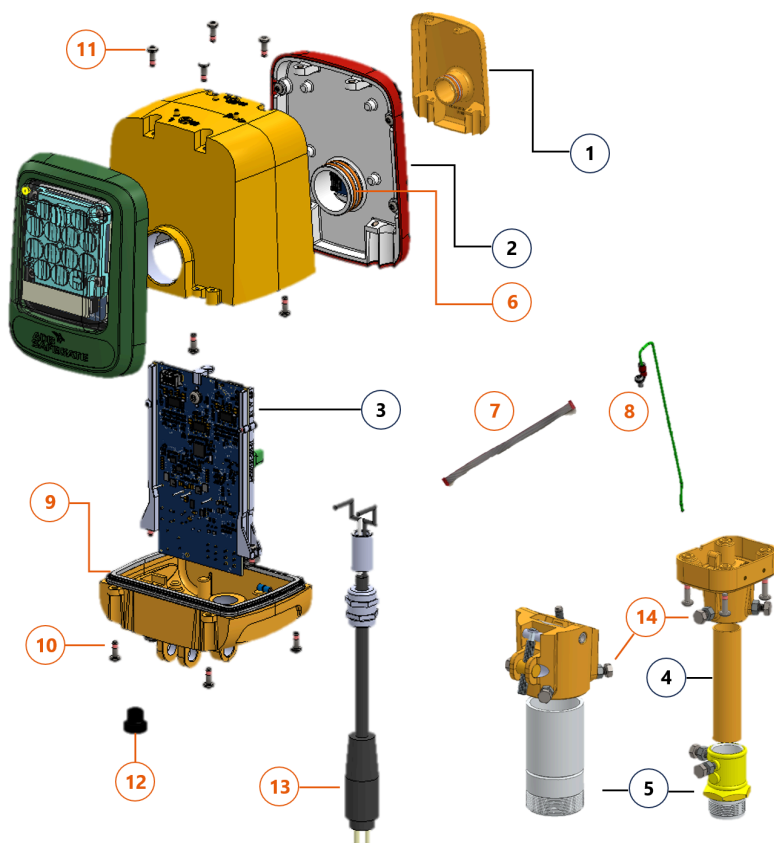
1. With separate earth for internal routing
2. Not available for green

8.0 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.

8.1 Exploded view



Call-out	Description
1	Optical blanking module kit
2	Optical module and components
3	Power supply board
4	Column mount — mounting column
5	Column mount — frangible coupling
6	Optical module O-ring
7	LED cable harness
8	External earthing cable
9	Main body gasket
10 and 11	Screw kit, optical module and main body
12	Blanking plug
13	Input power cable kit
14	M8 screw and nut



Note

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

Table 2: Spare Parts

General spare parts	Quantity	Spare part number
Optical blanking module kit	1	SP.AS312-Blank
Optical module O-ring	50	SP.MS00001-126
LED cable harness from the power supply to the LED board	20	SP.EW00149-150
External earthing cable	5	SP.44A7644/2
Main body gasket	20	SP.MS00042-000
Optical module and main body screw kit with pre-applied Loctite	80	SP.MFPM4PT-612
Blanking plug	10	SP.MS00057-204
M8 screw and nut for alignment or the frangible coupling	60	SP.00116-000-01

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

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

Input power cable kits	Quantity	Spare part number
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

8.1.1 Optical Module

Figure 5: Optical module exploded view



Call-out	Description
15	Heater kit
16	Lens seal
17a	Glass lens
17b	Plastic lens



Note

Where omni is available it's always on the LED module. Configuration of the converter will determine if it's on or off

Optical module	Quantity	Spare part number
Heater kit	5	SP.EP00151-000
Lens seal	5	SP.MS00043-000
Glass lens	5	SP.MG00029-000
Plastic lens	5	SP.MG00029-001

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	2a - Optical Module Spare Part Number
							For 5 step dimming curve (standard) SP.AS312-XXXXX
							"For 7 Step dimming curve SP.AS396-XXXXX
2	Approach Centreline & Crossbar (AC)	Glass	No AK	Straight	○ W ↑	○ W*	G13HN
					○ W ↑	● R*	G13MN
					N/A	○ W	G13LN
					N/A	● R	G13GN

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	2a - Optical Module Spare Part Number		
							For 5 step dimming curve (standard) SP.AS312-XXXXX	"For 7 Step dimming curve SP.AS396-XXXXX	
	Approach Side Row (AS)	Polycarbonate	With AK	Straight	 W ↑	 W*	G13HA		
					 W ↑	 R*	G13MA		
					N/A	 W	G13LA		
					N/A	 R	G13GA		
			No AK	Straight	 W ↑	 W*	P13HN		
					 W ↑	 R*	P13MN		
					N/A	 W	P13LN		
					N/A	 R	P13GN		
			With AK	Straight	 W ↑	 W*	P13HA		
					 W ↑	 R*	P13MA		
					N/A	 W	P13LA		
					N/A	 R	P13GA		
		Glass		No AK	Straight	 R ↑	 W*	G23KN	
						 R ↑	 R*	G23AN	
						N/A	 W	G23LN	
						N/A	 R	G23GN	
				With AK	Straight	 R ↑	 W*	G23KA	
						 R ↑	 R*	G23AA	
						N/A	 W	G23LA	
						N/A	 R	G23GA	

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	2a - Optical Module Spare Part Number	
							For 5 step dimming curve (standard) SP.AS312-XXXXX	"For 7 Step dimming curve SP.AS396-XXXXX
	Approach Side Row Flash (SF)	Polycarbonate	No AK	Straight	 R ↑	 W*		P23KN
					 R ↑	 R*		P23AN
					N/A	 W		P23LN
					N/A	 R		P23GN
			With AK	Straight	 R ↑	 W*		P23KA
					 R ↑	 R*		P23AA
					N/A	 W		P23LA
					N/A	 R		P23GA
		Glass	No AK	Straight	 R ↑	N/A		G2FAN
			With AK	Straight	 R ↑	N/A		G2FAA
		Polycarbonate	No AK	Straight	 R ↑	N/A		P2FAN
			With AK	Straight	 R ↑	N/A		P2FAA
2	ICAO Runway Threshold (RT)	Glass	No AK	Side 1 - Left	 F ↖	N/A		G83BN
			With AK	Side 1 - Left	 F ↖	N/A		G83BA
		Polycarbonate	No AK	Side 1 - Left	 F ↖	N/A		P83BN
			With AK	Side 1 - Left	 F ↖	N/A		P83BA
		Glass	No AK	Side 2 - Right	 F ↗	N/A		G93BN
			With AK	Side 2 - Right	 F ↗	N/A		G93BA
		Polycarbonate	No AK	Side 2 - Right	 F ↗	N/A		P93BN

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	For 5 step dimming curve (standard) SP.AS312-XXXXXX	"For 7 Step dimming curve SP.AS396-XXXXXX "
FAA Threshold L-862E (RT)		Glass	With AK	Side 2 - Right		N/A		P93BA
			No AK	Straight		N/A		G03BN
			With AK	Straight		N/A		G03BA
			No AK	Straight		N/A		P03BN
		Polycarbonate	With AK	Straight		N/A		P03BA
			No AK	Side 1 - Left		N/A		G82NN
			With AK	Side 1 - Left		N/A		G82NA
			No AK	Side 1 - Left		N/A		P82NN
			With AK	Side 1 - Left		N/A		P82NA
		Glass	No AK	Side 2 - Right		N/A		G92NN
			With AK	Side 2 - Right		N/A		G92NA
			No AK	Side 2 - Right		N/A		P92NN
			With AK	Side 2 - Right		N/A		P92NA
		Glass	No AK	Straight		N/A		G02NN
			With AK	Straight		N/A		G02NA
			No AK	Straight		N/A		P02NN
			With AK	Straight		N/A		P02NA
		Polycarbonate	No AK	Straight		N/A		G43EN
			With AK	Straight		N/A		G43EA
			No AK	Straight		N/A		P43EN
			With AK	Straight		N/A		P43EA

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	For 5 step dimming curve (standard) SP.AS312-XXXXX	"For 7 Step dimming curve SP.AS396-XXXXX "
FAA L-862E Runway End (RN)	Glass	No AK	Straight	 R ↑	N/A	G42EN		
		With AK	Straight	 R ↑	N/A	G42EA		
		No AK	Straight	 R ↑	N/A	P42EN		
		With AK	Straight	 R ↑	N/A	P42EA		
	Polycarbonate	No AK	Straight	 R ↑	N/A	P42EN		
		With AK	Straight	 R ↑	N/A	P42EA		
		No AK	Straight	 R ↑	N/A	P42EA		
		With AK	Straight	 R ↑	N/A	P42EA		
ICAO Runway Wingbar (RW)	Glass	No AK	Straight	 F ↑	N/A	G23CN		
		With AK	Straight	 F ↑	N/A	G23CA		
		No AK	Straight	 F ↑	N/A	P23CN		
		With AK	Straight	 F ↑	N/A	P23CA		
	Polycarbonate	No AK	Straight	 F ↑	N/A	P23CN		
		With AK	Straight	 F ↑	N/A	P23CA		
		No AK	Straight	 F ↑	N/A	P23CA		
		With AK	Straight	 F ↑	N/A	P23CA		
ICAO & FAA L862 Runway Edge (RE)	Glass	No AK	Side 1 - Left	 W ↖	 W*	G51JN		
		With AK	Side 1 - Left	 W ↖	 W*	G51JA		
		No AK	Side 1 - Left	 W ↖	 W*	P51JN		
		With AK	Side 1 - Left	 W ↖	 W*	P51JA		
	Polycarbonate	No AK	Side 1 - Left	 W ↖	 W*	P51JN		
		With AK	Side 1 - Left	 W ↖	 W*	P51JA		
		No AK	Side 1 - Left	W ↖	W*	P51JA		
		With AK	Side 1 - Left	W ↖	W*	P51JA		
	Glass	No AK	Side 1 - Left	Y ↖	Y*	G51DN		
		With AK	Side 1 - Left	Y ↖	Y*	G51DA		
		No AK	Side 1 - Left	Y ↖	Y*	G51DN		
		With AK	Side 1 - Left	Y ↖	Y*	G51DA		
	Polycarbonate	No AK	Side 1 - Left	Y ↖	Y*	P51DN		
		With AK	Side 1 - Left	Y ↖	Y*	P51DA		
		No AK	Side 1 - Left	Y ↖	Y*	P51DN		
		With AK	Side 1 - Left	Y ↖	Y*	P51DA		
	Glass	No AK	Side 1 - Left	R ↖	R*	G51EN		
		With AK	Side 1 - Left	R ↖	R*	G51EA		
		No AK	Side 1 - Left	R ↖	R*	G51EN		
		With AK	Side 1 - Left	R ↖	R*	G51EA		
	Polycarbonate	No AK	Side 1 - Left	R ↖	R*	P51EN		
		With AK	Side 1 - Left	R ↖	R*	P51EA		
		No AK	Side 1 - Left	R ↖	R*	P51EN		
		With AK	Side 1 - Left	R ↖	R*	P51EA		
	Glass	No AK	Side 2 - Right	W ↗	W*	G61JN		

Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	For 5 step dimming curve (standard) SP.AS312-XXXXXX	"For 7 Step dimming curve SP.AS396-XXXXXX "
ICAO Stopway (SW)		Polycarbonate	With AK	Side 2 - Right	○ W↗	○ W*		G61JA
			No AK	Side 2 - Right	○ W↗	○ W*		P61JN
		Glass	With AK	Side 2 - Right	○ W↗	○ W*		P61JA
			No AK	Side 2 - Right	● Y↗	● Y*		G61DN
		Polycarbonate	With AK	Side 2 - Right	● Y↗	● Y*		G61DA
			No AK	Side 2 - Right	● Y↗	● Y*		P61DN
		Glass	With AK	Side 2 - Right	● Y↗	● Y*		P61DA
			No AK	Side 2 - Right	● R↗	● R*		G61EN
		Polycarbonate	With AK	Side 2 - Right	● R↗	● R*		G61EA
			No AK	Side 2 - Right	● R↗	● R*		P61EN
		Glass	With AK	Side 2 - Right	● R↗	● R*		P61EA
			No AK	Side 2 - Right	● R↗	● R*		P61EA
	ICAO Stopbar Straight (SB)	Glass	No AK	Side 1 - Left	● R↖	N/A		G53EN
			With AK	Side 1 - Left	● R↖	N/A		G53EA
		Polycarbonate	No AK	Side 1 - Left	● R↖	N/A		P53EN
			With AK	Side 1 - Left	● R↖	N/A		P53EA
		Glass	No AK	Side 2 - Right	● R↗	N/A		G63EN
			With AK	Side 2 - Right	● R↗	N/A		G63EA
		Polycarbonate	No AK	Side 2 - Right	● R↗	N/A		P63EN
			With AK	Side 2 - Right	● R↗	N/A		P63EA
		Glass	No AK	Straight	● R↑	N/A		G74ON
			With AK	Straight	● R↑	N/A		G74OA

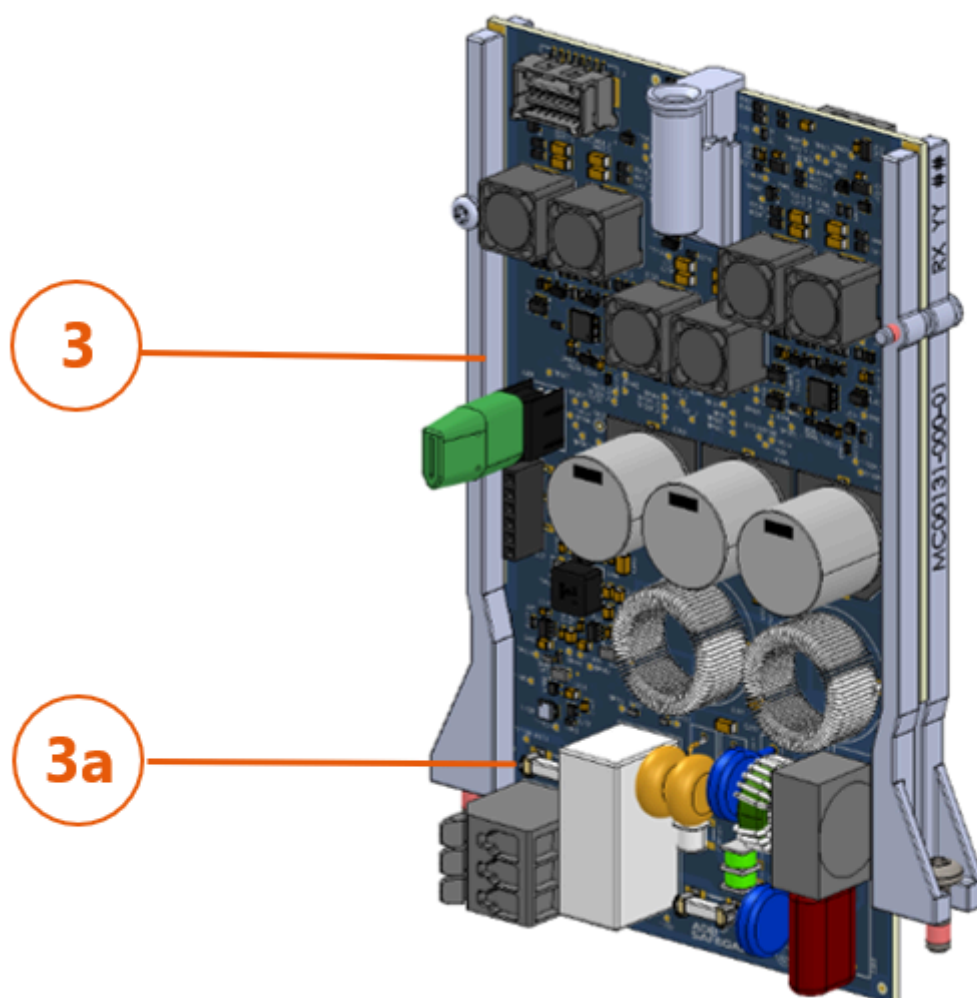
Call Out	Applications	Lens Type	Arctic Kit Selection	Main Beam Toe-In	Main Beam Color	Low Int. Omni (see note below)	For 5 step dimming curve (standard) SP.AS312-XXXXXX	"For 7 Step dimming curve SP.AS396-XXXXXX "
	ICAO Stopbar Curved (SC)	Polycarbonate	No AK	Straight	 R ↑	N/A		P74ON
			With AK	Straight	 R ↑	N/A		P74OA
		Glass	No AK	Straight	 R ↑	N/A		G75ON
			With AK	Straight	 R ↑	N/A		G75OA
		Polycarbonate	No AK	Straight	 R ↑	N/A		P75ON
			With AK	Straight	 R ↑	N/A		P75OA
	FAA Stopbar L-862S (SB)	Glass	No AK	Straight	 R ↑	N/A		G32AN
			With AK	Straight	 R ↑	N/A		G32AA
		Polycarbonate	No AK	Straight	 R ↑	N/A		P32AN
			With AK	Straight	 R ↑	N/A		P32AA



Note

Where omni is available it's always on the LED module. Configuration of the convertor will determine if it's on or off

8.1.2 Power Supply Board



Call-Out	Description	Quantity	Spare Part Number	
3	Non-Configured	Convertor for Customer Configuration on site	1	SP.AS313-DXXX
	"Non Monitored Convertor – Pre Configured Options Including necessary consumables"	Non-Monitored Convertor with No Options Enabled	1	SP.AS313-SXX0
		Non-Monitored Convertor Main Beam with Dimmable Omni directional	1	SP.AS313-SXX1
		Non-Monitored Convertor Main Beam with Constant Intensity Omni directional	1	SP.AS313-SXX2
		Non-Monitored Convertor Main Beam with Near Infra Red	1	SP.AS313-SXX3

Call-Out	Description	Quantity	Spare Part Number
	Non-Monitored Convertor Main Beam with Dimmable Omni directional and Near Infra Red	1	SP.AS313-SXX4
	Non-Monitored Convertor Main Beam with Constant Intensity Omni directional and Near Infra Red	1	SP.AS313-SXX5
"Fail Open Convertor – Pre Configured Options Including necessary consumables"	Fail-Open Convertor with No Options Enabled	1	SP.AS313-MXX0
	Fail-Open Convertor Main Beam with Dimmable Omni directional	1	SP.AS313-MXX1
	Fail-Open Convertor Main Beam with Constant Intensity Omni directional	1	SP.AS313-MXX2
	Fail-Open Convertor Main Beam with Near Infra Red	1	SP.AS313-MXX3
	Fail-Open Convertor Main Beam with Dimmable Omni directional and Near Infra Red	1	SP.AS313-MXX4
	Fail-Open Convertor Main Beam with Constant Intensity Omni directional and Near Infra Red	1	SP.AS313-MXX5
3a	Replacement Fail-Open Fuse Resistor Kit	20	SP.6132.00.250

8.1.3 Tools and Accessories



Call-Out	Description	Quantity	Spare Part Number
15	Heater Kit - Axon Elevated	5	SP.EP00151-000
16	Lens Seal - Axon Elevated	5	SP.EP-MS00043-000
17a	Glass Lens - Axon Elevated	5	SP.MG00029-000
17b	Plastic Lens - Axon Elevated	5	SP.MG00029-001

	Description	Quantity	Spare part number
Tools	Alignment Device (Standard)	1	AK00065-STD-01
	Alignment Device (Electronic) (Available 2026)	1	AK00065-ELE-01
	Alignment Tool Calibration Kit	1	AK00066-000-01
	Convertor Programming Tool	Available 2026	
Accessories	Bird spike Kit	20	AK00060-000-01
	Elevated Snow Flag Kit	10	AK00064-000-01
	Replacement Snow Flag pole	1	SP.4072.28.650

9.0 Power Tables

LED ICAO Approach Centerline and Siderow

ANNEX

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

LED ICAO Stop Bar

ANNEX

Elevated light fixtures with arctic kit and infra red (both 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

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

ANNEX

Elevated light fixtures with arctic kit and infra red (both 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, green / red	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

LED Stopway

ANNEX

Elevated light fixtures with arctic kit and infra red (both 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

LED ICAO Runway Edge

ANNEX

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

Fixture type	Fixture load ¹	Isolation transformer		CCR load
		Wattage	Load	
L-862(L) runway edge, unidirectional, white	28 VA	30 W / 45 W	6 VA	34 VA
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, yellow	26 VA	30 W / 45 W	5 VA	31 VA
L-862(L) runway edge, bidirectional, yellow / red	42 VA	30 W / 45 W	8 VA	50 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
Circling guidance	5 VA / 9 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

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

ANNEX

Elevated light fixtures with arctic kit and infra red (both 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
- See user manual for a complete overview of all variant power consumption data and other power supplies

LED L-862S(L) FAA Stop Bar

ANNEX

Elevated light fixtures with arctic kit and infra red (both 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
- See user manual for a complete overview of all variant power consumption data and other power supplies

LED L-862(L) Runway Edge

ANNEX

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

Fixture type	Fixture load ¹	Isolation transformer		CCR load
		Wattage	Load	
L-862(L) runway edge, unidirectional, white	28 VA	30 W / 45 W	6 VA	34 VA
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, yellow	26 VA	30 W / 45 W	5 VA	31 VA
L-862(L) runway edge, bidirectional, yellow / red	42 VA	30 W / 45 W	8 VA	50 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
Circling guidance	5 VA / 9 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

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, $\Omega \cdot m$)
- **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 mm² copper conductor (where the the resistivity (ρ) is 1.72 10⁻⁸ (m^2), the resistance R is calculated as follows:

$$(1.72 \times 10^{-8}) \times 1000 / (2.5 \times 10^{-6} m^2) = 6.88 \text{ ohms}$$

The loss (Watt) is then $R \times I^2$ or $6.88 \text{ ohms} \times 6.6^2 A^2 = 299.69 \text{ W/km}$ or 0.299 W/m .

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

As such we can calculate:

- Secondary cable for a 2.5 mm² Cu-wire (2 conductors): 0.6 W/m
- Secondary cable for a 4 mm² Cu-wire (2 conductors): 0.4 W/m
- Primary cable for a 6 mm² 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 mm² CU-wire, $20 \text{ m} \times 0.6 \text{ W/m} = 12 \text{ W}$ equals the additional loss to be taken into account.

For a primary cable of e.g., 100 m of 6 mm² CU-wire, $100 \text{ m} \times 0.12 \text{ W/m} = 12 \text{ W}$ equals the additional loss to be taken into account.

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

B.1 ADB SAFEGATE Website

The ADB SAFEGATE website, www.adbsafegate.com, offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.

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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