



Austin Insulators Inc.
7510 Airport Road
Mississauga, Ontario L4T 2H5 Canada
Tel: (905) 405-1144; Fax: (905) 405-1150
www.austin-insulators.com

A-L810 Steady-Burning Red LED Obstruction Light Installation and Maintenance Manual



Steady-Burning Red LED Obstruction Light
FAA Type L-810
115 / 230 Vac, 50 / 60 Hz (input)



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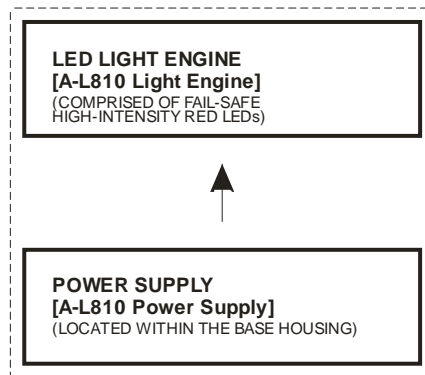
Introduction

The A-L810 Steady-Burning Red LED Obstruction Light (A-L810) is designed to visibly mark any obstacle that may present hazards to aircraft navigation. It has been RF hardened for operation in high-powered MF (medium frequency) to VLF (very low frequency) systems. This unit complies with FAA, ICAO, and Transport Canada requirements as follows.

FAA AC NO: 150/5345-43F
ICAO Annex 14, 4th Edition, July 2004
Transport Canada CAR 621.19

System Schematic

Below you will see the main components that make up the A-L810:



A-L810 LIGHT ASSEMBLY

The LED Light Engine [p/n: A-L810 Light Engine] consists of multiple LEDs placed circumferentially around a metal heat-sinking housing. Contained within the housing is the power supply. The modular design of this LED power supply allows for detachment of this item alone if required. The final component that makes up the LED Light Engine, the removable globe flange, provides an environmental seal. Furthermore it diffuses the light through the prismatic glass for a uniform light output.

The Base Housing [p/n: A-L810 Base Housing] comes with a provision for mounting to either a 1" NPT rigid conduit or 3/4" NPT rigid conduit when the adaptor is used. Enclosed within the base housing is the power supply. This power supply is used to turn on the LEDs within the Light Engine. It can operate at either 115 Vac or 230 Vac (field selectable).



The A-L810 is a stand-alone unit and can be used with or without external periphery equipment. Please consult Austin Insulators Inc. (AUSTIN) to confirm operation.

Installation

Caution!

Before proceeding with installation or service, make sure the following conditions are met:

- Ensure that the tower or mast is grounded (NO RF HAZARD).
- Check that the mast lighting circuit is not faulty.
- Ensure that the power lines are not “live” (NO ELECTRICAL HAZARD).

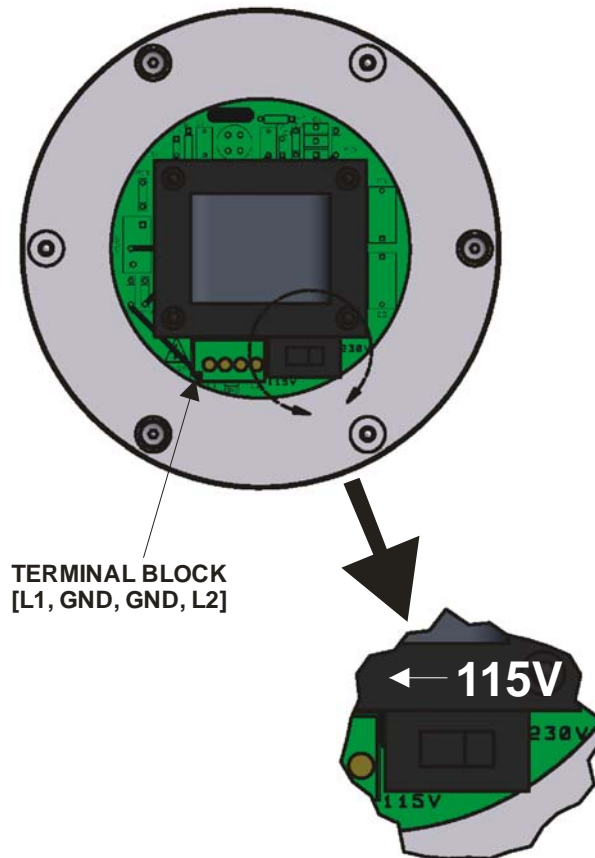
Avoid Touching Live Circuits!

Avoid touching any component or any part of the circuitry while the unit is operating. Do not change components or make adjustments inside the unit with power on.

Remove the Base Housing Assembly from the LED Light Engine by loosening the qty. (3) #8-32 tpi x 1” long pan head Phillips machine screws. There is no need to completely remove the machine screws from the base housing as retaining washers are in place to prevent the screws from falling out. Set the LED Light Engine aside temporarily.

Now insert the power cables into the base housing. In order to optimize performance in harsh RF environments, it is recommended that a three conductor shielded power cable with 100% aluminium foil and 85% tinned copper braid be used. The unit accepts from 14-22 AWG wire, but 16 AWG wire is recommended for use. Secure the base housing to the structure by screwing the bottom of the base housing to the ¾” NPT rigid conduit or similar using the adaptor provided. If a 1” NPT rigid conduit or similar is used, remove the adaptor and screw the bottom of the base housing into place. For any other tower mounting setup, the universal mounting bracket may be used. Please contact AUSTIN with tower mounting details for further discussion.

Next, insert the leads from the power cable into the connector block as shown on next page. Be sure to also connect the shield/ground wire to the spare middle ground (GND) port.



The tabs need to be pressed firmly down in order to insert the leads and set in place. Pull slightly to confirm that leads are secure. Please note that Line and Neutral (L1, L2) are interchangeable.

Confirm that the voltage switch (115V/230V) is set to the correct position as per the above figure.

Finally secure the LED Light Engine back onto the Base Housing Assembly using the qty. (3) #8-32 tpi x 1" long pan head Phillips machine screws.

To ensure proper operation and protection of the A-L810 it is important that the Ground connection be made. Consider the following when installing the A-L810:

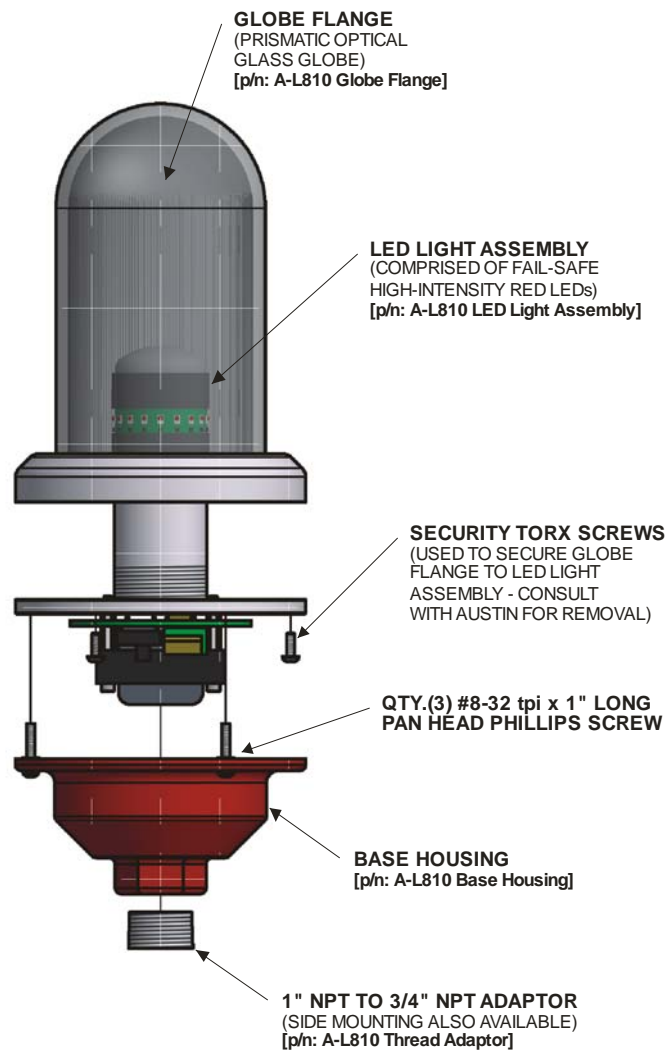
- In order to ensure proper operation in RF conditions, it is essential that all connections to and from the A-L810 be shielded and that the shielding be properly grounded throughout. This also includes any peripheral equipment used with the A-L810.
- Housed within the A-L810 is electronic equipment. Care should be taken to prevent moisture from entering the unit.



Operating Instructions

The A-L810 comes with a field selectable 115 Vac or 230 Vac as mentioned in the Installation section of the manual. With the proper voltage selection and the unit set up as described previously the A-L810 should provide years of continuous satisfactory service.

Drawing Layout with Part References





Parts List of Field Replaceable Items

- LED Light Assembly (p/n: A-L810 LED Light Assembly)
- Globe Flange (p/n: A-L810 Globe Flange); for replacement of Globe Flange security torx bit is required – consult AUSTIN
- Base Housing (p/n: A-L810 Base Housing)
- 1” NPT to ¾” NPT Adaptor (p/n: A-L810 Thread Adaptor)

Note

If field replaceable parts need to be changed, only the parts specified above should be used. Use of any other parts can lead to potential damage to the A-L810. Consult AUSTIN for further assistance if required.

Maintenance

It is recommended that the outer glass cover be cleaned with a non abrasive, streak free cleaner that is compatible with glass. This will ensure that there is no loss of light intensity due to dirt or debris build up. Although site dependant, it is recommended that this be done at least once a year or in line with regular tower maintenance.

If there is a failure of the A-L810 LED Light Assembly, the A-L810 is designed to ensure easy replacement. Please note that to prevent tampering, the Globe Flange is secured to the mount plate of the LED Light Assembly using qty. (3) #8-32 tpi x ½” long Pin-in-Torx Button Socket Cap Screws. If the A-L810 Globe Flange is retained for use again, the proper bit and associated tools are required to remove the Pin-in-Torx screws. Please consult AUSTIN for further details on how to acquire these items.

Care should be taken to make certain that no moisture is allowed to migrate into the A-L810 assembly when components are being replaced.

Caution!

Before proceeding with installation or service, make sure the following conditions are met:

- Ensure that the tower or mast is grounded (NO RF HAZARD).
- Check that the mast lighting circuit is not faulty.
- Ensure that the power lines are not “live” (NO ELECTRICAL HAZARD).

Avoid Touching Live Circuits!

Avoid touching any component or any part of the circuitry while the unit is operating. Do not change components or make adjustments inside the unit with power on.



1. After confirming the power is off remove the qty. (3) #8-32 tpi x 1" long pan head Phillips machine screws which joins the LED light engine to the base housing assembly. There is no need to completely remove the machine screws from the base housing as retaining washers are in place to prevent the screws from falling out.
2. Carefully lift the LED light engine to separate it from the base housing assembly to expose the power cable leads attached to the connector on the primary power board.
3. Press down on the connector tabs to disengage the power cable leads from the connector.
4. Set aside the o-ring used to seal the base housing to the LED light engine for later use.
5. Using the appropriate tools, remove the qty. (3) #8-32 tpi x 1/2" long Pin-in-Torx button socket cap screws. This will separate the globe flange from the LED light assembly. Place the globe flange and o-ring used to seal the globe flange to the LED light assembly in a safe location for later use.
6. With the failed LED light assembly separated from the globe flange and base housing, set aside assembly for disposal or return to AUSTIN for proper environmental disposal. Please contact AUSTIN for further details.
7. Install the o-ring in the groove of the replacement LED light assembly mount plate and secure globe flange to mount plate using the qty. (3) #8-32 tpi x 1/2" long Pin-in-Torx button socket cap screws previously removed.
8. Place the o-ring previously set aside in the groove located on the base housing.
9. Connect the power leads as per the Installation section of the manual.
10. Affix the LED light engine to the base housing using the qty. (3) #8-32 tpi x 1" long pan head Phillips machine screws.

In the event that only the globe flange is damaged and needs to be replaced perform the instructions as provided above with the exception of step 6.

Note

If field replaceable parts need to be replaced, only the parts specified above should be used. Use of any other parts can lead to potential damage to the A-L810. Consult AUSTIN for further assistance if required.

Warning

The LED Light Engine is a factory assembled component containing optics which have been adjusted to meet regulatory requirements and cannot be field serviced.



Troubleshooting

Problem	Cause	Solution
A-L810 does not turn on	AC power not connected	Check AC supply line to obstruction light
	Damaged light assembly	Replace LED light assembly
	Power supply not functioning	Change LED light assembly
A-L810 appears dim	Dirt or debris on outer glass cover	Clean outer glass cover with a non abrasive, streak free cleaner that is compatible with glass
	Improper line voltage	Check line voltage of supply line
	Multiple individual LED failure	Continuously monitor A-L810 and replace LED light assembly when greater than 25% failure occurs and A-L810 shuts off
Base Housing does not mount in place	Rigid Conduit or similar not proper size	Acquire adaptor to enable conduit or fitting currently in place to adapt to either 1" NPT male or 3/4" NPT male
	No rigid conduit or similar used to secure obstruction light	Use universal mounting bracket; consult AUSTIN for further details



Appendix A

Wiring Diagram

