AirportLightingCompany
An ISO 9001:2015 Certified Company

OWNER'S MANUAL

L-861(L) /L-861E(L) /L-861T(L)
LED Elevated Medium Intensity Edge Light
Series ALC-861L

How to get help

Have Questions? Contact Us:

General Inquiry: (315) 682-6460

Email: info@airportlightingcompany.com

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Warranty on LED Products

Products manufactured by Airport Lighting Company (ALC) which use LEDs as a light source are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation per the applicable FAA Advisory Circular and against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years per FAA EB67D. ALC will correct such defects by repair or replacement, at its option, provided the products have been properly handled and stored prior to installation, properly installed and operated after installation, and provided further that the Buyer has notified ALC in writing within the warranty period and within a reasonable time after notice of such defects. Refer to handling, storage, installation and operational instructions for proper procedural guidance that must be followed to maintain warranty provisions.

This warranty is in effect for the specified term as long as the equipment, in ALC's judgment, has not been altered in such a way as to affect the equipment adversely, subject to accident, negligence, improper storage, and has been operated and maintained in accordance with accepted FAA guidelines as described in AC 150/5340-26 and ALC's published operational guidelines.

ALC reserves the right to examine products about which a claim has been made. Equipment must be presented in the same condition as when the defect was discovered. ALC also reserves the right to require the return of equipment to establish any claim.

Disclaimer: ALC's obligation under this warranty is limited to repair or replacement of defective equipment sold by ALC at no cost to Buyer. This does not include any other costs such as the cost of removal, shipping, or installation of the defective part or repaired or replaced product, including labor or any consequential damages of any kind. Warranty services provided under this agreement do not assure uninterrupted operations of LED illuminated equipment. ALC shall not be liable for any indirect or consequential damages.

ALC's liability under no circumstances will exceed its sales price of the products claimed to be defective. All transportation costs under this warranty are the responsibility of the purchaser. Replacement parts and/or equipment provided under this warranty are covered under the same terms until the expiration of the original warranty period that began upon the first installation of the equipment.

This is ALC's sole and exclusive warranty with respect to the equipment sold to the Buyer. There are no express or implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein.

ALC shall not be liable to the purchaser of this product or third parties for indirect or consequential damages, or for damages arising from the use of any options or parts other than those designated by ALC as approved products. Damage caused by lightning, flood and other natural or manmade causes are outside the scope of this warranty.

L861 LED Medium Intensity Elevated Edge Light - Overview and Application

Product Identification

LED Elevated Medium Intensity Edge Light L861(L), L861E(L), and L861T(L) Series ALC-861L

Introduction:

The ALC-861L Series from Airport Lighting Company is a series of elevated LED airfield lights that meet the L861 Medium Intensity Elevated Runway Light, L861E Elevated Runway Threshold Light and the L861T Elevated Taxiway Light specifications. Every light in this series can be delivered with or without an arctic kit.

Compliances (Current Editions)

FAA: AC 150/5345-46 and Engineering Brief No. 67, ETL Certified
Canada: TP 312, para. 5.3.12.7 and Appendix 5B Table 5B-1

Application

Runway Edge
Threshold/End
Non Precision Instrument Flight Rules
Displaced Threshold
Taxiway Edge
Apron Edge

Key Features

- The average LED life is 100,000 hours high intensity / 180,000 hours under typical operating conditions
- Applicable for L-861T (L), L-861 (L) and L-861E (L) requirements
- Colored glass lens for easy day time recognition
- Double sealing system creates watertight head assembly
- Rugged solid state components
- Threaded 1.5" frangible coupling or optional 2" thread matches existing baseplates/stakes
- Complies with intensity requirements on 3 or 5 step regulators
- Durable powder coat finish lasts longer
- Reduces power consumption
- Long life LEDs
- Cord set sealed to prevent insect entry
- IP68

L861 LED Medium Intensity Elevated Edge Light - Available Options

General Catalog Numbering System

The L861 LED Medium Intensity Elevated Edge Lights use a modular catalog numbering format that allows precise configuration. The base format is shown below with all available selections. Selecting the correct combination ensures the unit meets the exact site requirements for intensity, directionality, and installation method.

Lens Colors

Color	Part Number
Blue	BB
Clear	CC
Clear/Yellow	CY
Green	GG
Green/Clear	GC
Green/Opaque	GO
Green/Yellow	GY
Red	RR
Red/Clear	RC
Red/Green	RG
Red/Yellow	RY
Red/Yellow	RY

Height

Height in Inches	Part Number
14"	14
20"	20
24"	24
30"	30

Other heights available upon request

Options

Option	Part Number
Frangible coupling with 2" thread for 1" dia. column	2
Optional arctic kit (6.6A only)	5
90-260 VAC Style 6 plug*	V
90-260 VAC Style A plug* includes Flange for desktop	VS

*Not ETL certified

L861 LED Medium Intensity Elevated Edge Light - Performance Information

Performance Criteria

All PF ≥ .95

Without Arctic Kit

Color	Fixture VA	Total VA	Isolation Transformer
Blue	6.5	12.2	10/15 W
Clear	17.9	25.8	20/25 W
Yellow	17.9	25.8	20/25 W
Clear/Yellow	17.9	25.8	20/25 W
Clear/Red	17.8	25.8	20/25 W
Red	17.9	25.8	20/25 W
Red/Yellow	17.9	25.8	20/25 W
Green	14.7	22.1	20/25 W
Green/Yellow	14.7	22.1	20/25 W
Green/Clear	14.7	22.1	20/25 W
Red/Green	9.7	15.5	10/15 W
Red/Opaque	9.7	15.5	10/15 W
Green/Opaque	9.7	15.5	10/15 W

With Arctic Kit

Color	Fixture VA	Total VA	Isolation Transformer
Blue	23.3	32.8	10/15 W
Clear	31	39.8	30/45 W
Yellow	31.9	39.8	30/45 W
Clear/Yellow	31.9	39.8	30/45 W
Clear/Red	31.9	39.8	30/45 W
Red	31.9	39.8	30/45 W
Red/Yellow	31.9	39.8	30/45 W
Green	31.5	41	30/45W
Green/Yellow	31.5	41	30/45W
Green/Clear	31.5	41	30/45W
Red/Green	26.5	36	10/15W
Red/Opaque	26.5	36	10/15W
Green/Opaque	26.5	36	10/15W

L861(L) Medium Intensity Elevated Edge Light - Installation Instructions

Mounting the Fixture

- The ALC-861L Elevated LED fixtures mount to a 1½" – 12 NF base plate or can be specially ordered to mount on a 2" NPS baseplate.
- The fixture ships from Airport Lighting Company ready to be plugged into an appropriate L830 Style isolation transformer with a 6.6amp output.
- Snake the cord through the column and frangible coupling, then plug the fixture into the isolation transformer secondary.
- Thread the frangible coupling onto the baseplate.
- Secure the column to the frangible coupling.

Bi-Directional Fixture Alignment

- The ALC-861L bi-directional fixtures are assembled so that the 2 clasps that hold through the glass lens are on the dividing line of the bi-directional colors.
- Line the ALC-861L up so that a line thru the clasps is perpendicular to the runway and the colors are in the correct orientation.

Leveling the Fixture

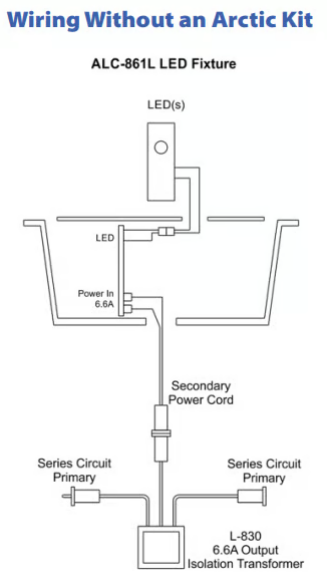
- Place a torpedo level along the bottom edge of the light fixture base.
- Using the (3) ¼"-20 hex screws in the base of the fixture adjust the screws until the light fixture is level and tighten to 30 in-lbs.

Final Preparation and Verification

- Wipe the lens clean.
- Power the constant current regulator and check that the LEDs come on.
- Run through all the steps of the regulator and make sure that the light intensity increases as the current is increased.
- The fixture is ready to provide years of quality service.

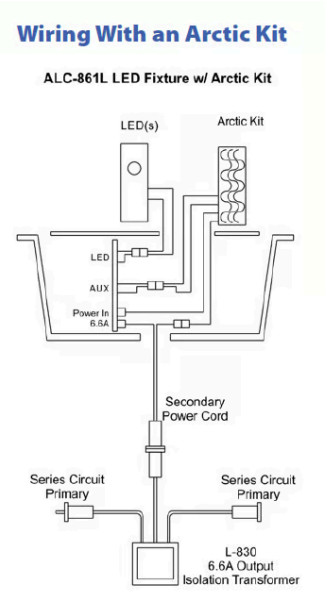
Wiring Without an Arctic Kit

- The ALC-861L fixture leaves the factory ready to be connected to a 6.6A output isolation transformer.
- The secondary of the isolation transformer plugs into the fixture power cord.
- The power cord connects to 2 tabs on the driver board with quick connect terminals.
- The driver board connects to the LED light engine with a 2-position inline connector.



Wiring With an Arctic Kit

- The ALC-861L fixture leaves the factory ready to be connected to a 6.6A output isolation transformer.
- The secondary of the isolation transformer plugs into the fixture power cord.
- The power cord connects to the driver board and arctic kit in series.
- The remaining arctic kit power lead plugs into the remaining tab on the driver board.
- The driver board connects to the LED light engine with a 2-position inline connector.
- The driver board connects to the arctic kit control circuit with a 3-position inline connector.



Troubleshooting an L-861(L) Medium Intensity Elevated Edge Light

Overview

This article walks you though how to troubleshoot an LED Medium Intensity Light. You can also view a more guided flow style walkthrough by using the link below. Select L861 from the product guides dropdown box.

Guided Product Troubleshooting

Identify the Symptoms

- Record the symptoms.
- Does the fixture illuminate?
- Is the light dim (noticeably weaker than normal), flickering/intermittent, or going on and off randomly?
- Does it happen only on one intensity or all?
- Was there any environmental factors?
- Are there any signs of water intrusion?

General Troubleshooting Notes

Always first determine if the fixture is getting the correct input power, if correct then de-energize before performing any further troubleshooting or replacement. Use insulated tools and follow lockout/tagout procedures. Record fixture catalogue number, serial number, position in the circuit and observed symptoms.

See
Verify Isolation Transformer Output/Fixture Input Current
for details on how to complete that check

Test the light engine

The easiest way to isolate the problem is to open the fixture and perform a diode test after de-energizing to determine if the light engine is faulty. If there are any signs of water intrusion replace the head in its entirety.

See Perform a Diode Test on the L861 LED Light Engine for details on how to complete that check

If the diode test passes then replace the light engine, if the diode test fails replace the driver board. Refer to the table below to see various symptoms and their possible cause and solution. Swap testing from a known good fixture is a great way to determine exactly what has failed.

Symptom	Possible Cause	Corrective Action
No illumination	No power to fixture Failed light engine Failed Driver Failed isolation transformer	Verify Isolation Transformer Output/Fixture Input Current Replace the Light Engine Replace the driver board Replace transformer
Intermittent operation	Loose connections Failing parts Circuit degradation	Inspect and tighten all connections Swap test components Replace the Light Engine Replace the driver board Megger test the circuit
Reduced intensity	Dirty or damaged lens Failing parts Failed or undersized transformer	Clean or replace lens Swap test components Test/Check the isolation transformer. Replace if necessary.

Perform a Diode Test on the L861 LED Light Engine

Purpose

The ALC-861(L) family uses different LED configurations depending on model type.
Some fixtures have a single LED, while others use multiple LEDs mounted on a shared circuit board.
Follow the appropriate procedure below based on your fixture type.

Preparation

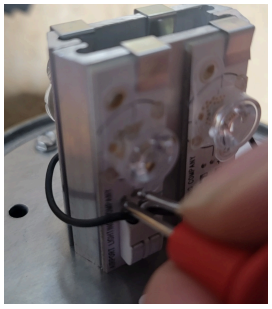
Open the fixture by unclipping the two clasps and removing the lens and ring to expose the light engine.

Single LED Fixture

- Turn off power and lock out the Constant Current Regulator (CCR) before testing.
- Set the multimeter to Diode Test mode.
- Verify test lead orientation — Red to positive (+), Black to negative (–).
- Disconnect the LED light engine from the driver board.
- Touch the Red probe to the + (anode) solder point on the LED circuit board.
- Touch the Black probe to the – (cathode) solder point.
- Observe the LED:
- If it lights up, the LED is functional.
- Some LEDs may appear dim in bright environments — shade the test area if needed.
- Expected reading: 1.7 – 3.0 V DC on the multimeter indicates a good LED.
- If the LED does not light or reads outside range → Replace the light engine.

Multi-LED Fixture

- Fixtures with multiple LEDs use a common circuit board with built-in test points for each LED.
- Each LED must be tested individually at its designated test points.
- Turn off power and lock out the CCR.
- Set the multimeter to Diode Test mode.
- Confirm leads — Red to positive (+), Black to negative (–).
- Disconnect the LED light engine from the driver board.
- Touch the Red probe to the + (anode) test point.
- Touch the Black probe to the – (cathode) test point.
- Observe the LED:
- If it lights up, that LED is functional.
- Dim light under bright conditions is normal.
- Expected reading: 1.7 – 3.0 V DC per LED indicates proper operation.
- Repeat Steps 5 – 8 for each LED on the board.
- If any LED fails the test → Replace the entire light engine.



How to Replace the Driver PCB on an L861 LED Medium Intensity Elevated Edge Light

Tools Required

Flat head screwdriver.

Procedure

- Open the fixture by unclipping the two clasps and removing the lens and ring.
- Unscrew the two mounting screws.
- Remove the light engine
- Unplug the LED connector.
- Unplug the arctic kit if applicable
- Remove the red hold-down board (top bracket securing the driver board).
- Slide the driver board out of the grooves in the base casting.
- Unplug the power input wires from the driver board terminals.

Prepare the Replacement Driver Board

- Check for a thermal pad on the aluminum heatsink.
- Ensure the pad has protective film in place before installation.
- Peel off the protective film immediately before seating the new board.
- Slide in the new driver board, ensuring it seats fully into the grooves.
- Confirm the thermal pad makes solid contact with the fixture base.
- Reconnect the power input terminals to the driver board.
- Reinstall the red hold-down board securely.

Reassemble the Fixture

- Plug the LED connector back into the new driver board.
- If applicable plug in the arctic kit
- Place the light engine so that the thru-hole is opposite the driver board.
- Reinstall and tighten the two light engine screws.
- Clean the inside edge of the base before sealing.
- Align the lens ring recesses with the tabs on the base.
- Verify glass color matches the LED side (if applicable).
- Lower the lens ring into position and clip both clasps closed.

How to Replace the Light Engine on an L861 LED Medium Intensity Elevated Edge Light

Tools Required

Flathead screwdriver

Procedure

- Open the fixture by unclipping the two lens ring clasp
- Remove the lens ring and lens together as one assembly
- Unscrew the two screws securing the light engine.
- Disconnect the LED cable from the driver board.
- Carefully remove the existing light engine from the base.

Note: If an arctic kit is installed you must unplug the arctic kit with the light engine

Inspect and Prepare the Base

- Clean any debris or residue from the inner edge to ensure a proper seal.
- Plug in the new light engine to the LED connector.
- Position the light engine so the mounting hole is opposite the driver board.
- Secure it using the two mounting screws.

Reinstall the Lens Assembly

- Match the lens color with the LED side (if applicable).
- Align the two recesses on the lens ring with the tabs on the base.
- Lower the assembly into place and latch both clasps securely.

How to Replace the Arctic Kit on an L861 LED Medium Intensity Elevated Edge Light

Arctic Kit Installation Procedure

- Remove the lens with ring by opening the 2 clasps
- Remove the 2 screws holding down the light engine
- Unplug the LED inline connector and remove the light engine
- Unplug the Arctic Kit inline connector, for arctic kit control circuit
- Unplug the Arctic Kit Power connectors, at driver board, and on primary incoming power connection
- Remove the Arctic Kit from the light engine disk by squeezing the snap in standoffs on the underside of the light engine disk
- Fixtures that use 6 LEDs will need the LED mount to be removed.
- Take a new Arctic Kit and orient it so the 3 standoffs are over the 3 holes in the light engine disk.
- Pass the wires thru the opening in the light engine disk
- Snap the Arctic Kit in place
- Connect the power leads, the male lead connects to the incoming power lead, the female lead connects to the driver board
- Connect the Arctic Kit inline connector, for Arctic Kit control
- Screw in the 2 screws holding down the light engine
- Note the 2 tabs on the outside of the base and the 2 recesses on the inside of the lens ring
- Check the orientation of the lens.
- The lens ring has 2 recesses which will fall over the 2 tabs on the outside of the light base
- When the lens with ring is in place, clip the 2 clasps down
- The lens should feel warm after operating at 6.6 amps for 10-15 minutes in the cold
- A very small red LED will light up when the heater is activated

Performance Impact

Fixture VA and total VA increase significantly with arctic kit Isolation Transformer upgrade to 30/45W for most colors. Blue and red/green remain compatible with 10/15W transformer even with arctic kit.

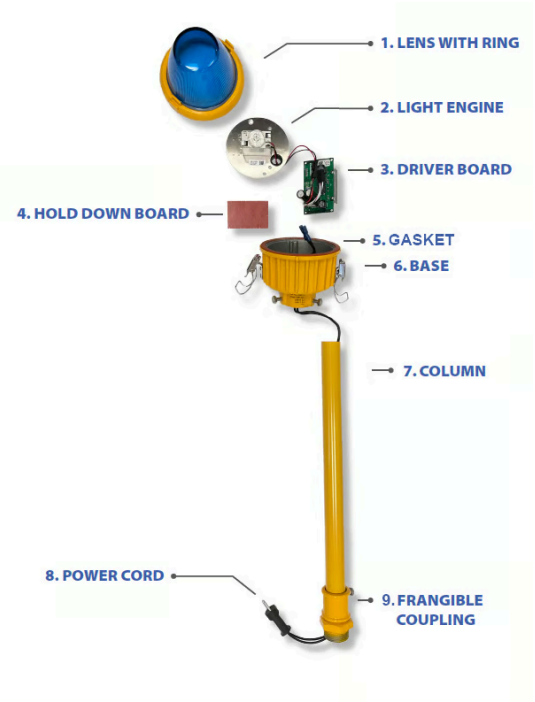
L861 LED Medium Intensity Elevated Edge Light - Replacement Parts

Head Assemblies

Includes housing, LED module, cord, power supply, gasket, and lens

861L-ZZ-XX-L Head Assembly
861L-ZZ-XX-V-L Head Assembly LED (Voltage)*

ZZ = Fixture color
XX = Overall height of fixture - 14", 20", 24" or 30" - other heights available
Reference Available Options



L861 Base w/Power Cord - XX = Overall Height of Fixture (in) - 14, 18, 20, 24, or 30

Part Number	Part Name
217B-BA-xx	Base, Latches, Power Cord

Columns - Other heights available

Part Number	Part Name
61C-14	7" (14" overall height of fixture)
61C-20	13" (20" overall height of fixture)
61C-24	17" (24" overall height of fixture)
61C-30	23" (30" overall height of fixture)

Lens & Ring - XX = Lens color

Color	Part Number
Clear/Red	61L-CR
Clear	61L-CC
Clear/Yellow	61L-CY
Yellow/Red	61L-YR
Green/Yellow	61L-GY
Green/Clear	61L-GC
Red/Green	61L-RG
Red	61L-RR
Green/Obscure	61L-GO
Blue	61L-BB
Green	61L-GG

Electronics

Color	Light Engine Part Number	Driver Board Part Number
Clear	861LEDMOD-CC	61PCB-PWR-HC
Clear / Yellow	861LEDMOD-CC	61PCB-PWR-HC
Clear / Red	861LEDMOD-CC	61PCB-PWR-HC
Yellow	861LEDMOD-CC	61PCB-PWR-HC
Yellow / Red	861LEDMOD-CC	61PCB-PWR-HC
Green	861LEDMOD-GG	61PCB-PWR-LC-GG
Green / Clear	861LEDMOD-GC	61PCB-PWR-LC-GC
Green / Yellow	861LEDMOD-GY	61PCB-PWR-LC-GY
Red	861LEDMOD-CC	61PCB-PWR-HC
Red / Green	861LEDMOD-RG	61PCB-PWR-LC-RG
Green / Obscure	861LEDMOD-GO	61PCB-PWR-LC-XO
Blue	861LEDMOD-BB	61PCB-PWR-LC

Other Parts

Part Number	Part Name
61-GSK	Lens Gasket
58	Frangible Coupling, 1.5"
58-2	Frangible Coupling, 2"
61-HDB	Hold Down Board

Accessories

Part Number	Part Name
34-L830-16X	L-830-16 10/15W Transformer
34-L830-17X	L-830-17 20/25W Transformer
34-L830-1X	L-830-1 30/45W Transformer
82-D4	L-823 Primary Connector Kit - #8 AWG
82-S-D4	L-823 Super Connector Kit
71 L-867B	12" baseplate 1.5" hub
72 L-867B	12" baseplate 2" hub
80	Heat shrink tubing - adhesive throughout
81	Heat shrink tubing - adhesive ends only

x - M (Monroe/Integro), A (ABB/Amerace)

Verifying Isolation Transformer Output Current / Fixture Input Current

Purpose

Before continuing with diagnostics, confirm that power is reaching the fixture.
Use the procedure below to verify isolation transformer output/fixture input current.

Tools Required

Clamp meter (True RMS, rated for airfield current levels).

Procedure

Locate the fixture's pigtail cable — it connects to the transformer's 2-prong female secondary.
Identify the two conductors leading into the molded plug.
Clamp your AC meter around one conductor only, not both.
Choose the straightest section of wire near the plug for best accuracy.
Power on the Constant Current Regulator (CCR) and set it to a known step, such as 6.6 A.
Observe the clamp meter reading.

Important Information

Clamp only one conductor to prevent phase cancellation.
Never attempt clamp tests on molded connectors where conductors are inaccessible.

Expected Result

The clamp meter reading should match the CCR output current setting.