

Ztron Labs ZL-LL15B User Manual



Introduction

Utilizing fewer than 18 Watts this ultra compact unit can fulfill your nighttime landing light requirements.

These units use advanced microprocessor circuitry to provide the greatest flexibility in the industry.

Easy installation, just four 5/32" holes for mounting bolts onto most hard surfaces.

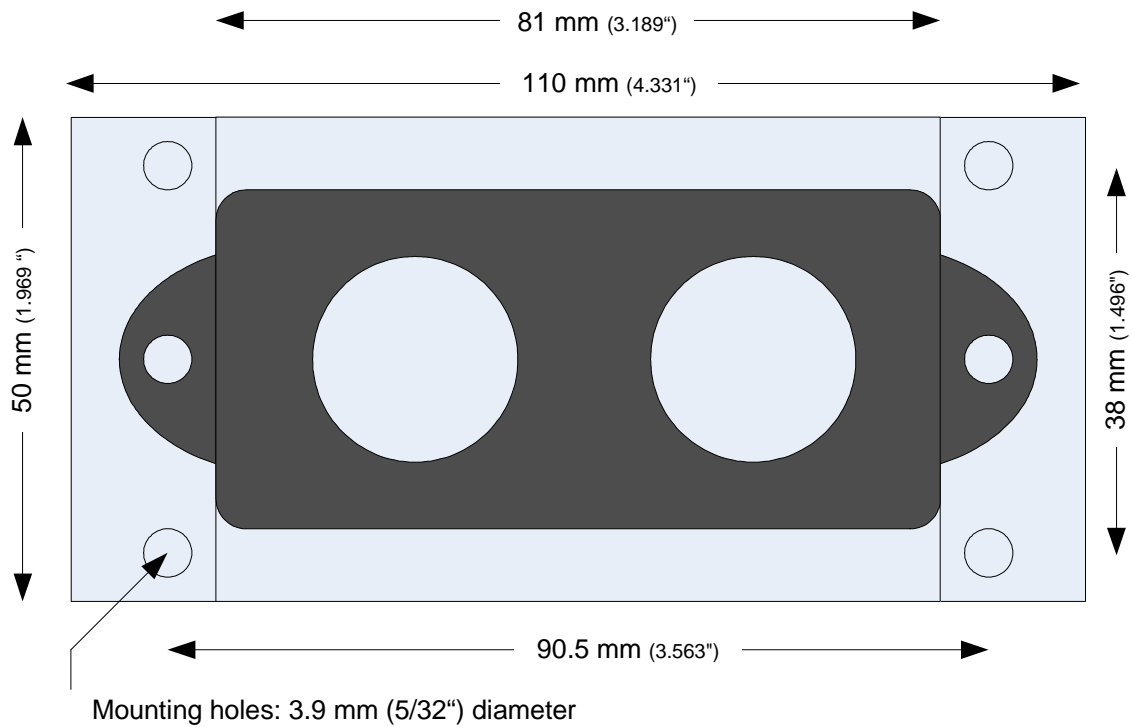
Because these units are LED solid-state, they are extremely reliable and have life times in years not hours as do conventional lamps.

Recognition mode operates with output modulation for highly observable operation. Two units automatically adjust and sync their modulation pattern.

The ZL-LL15B are only sold and wired as a pair.

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Mounting (each)



The ZL-LL15 is meant to be mounted nearly flush with a surface, using 4 x 6-32 bolts. The use of spacers/washers will allow some adjustment of the light beam angle, however, most of the angle should be done by previous preparation of the attachment surface.

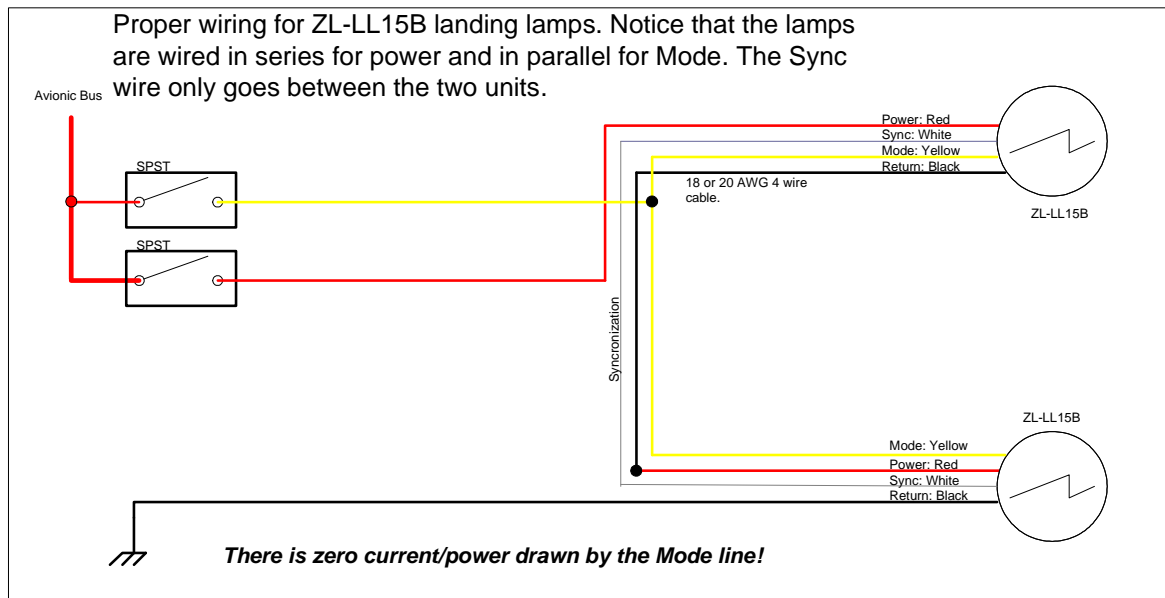
- 1) Cut out a hole 81 mm x 50 mm for the heat-sink to couple to cooling air.
- 2) Drill 4 x 5/32" (4.0 mm) holes for the 6-32 bolts used to attach the heat-sink.

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Wiring

There are four wires out of each ZL-LL15 unit. They are:

- 1) Black - power return/ground
- 2) Red – power supply +10 to +15 V
- 3) White – sync; connect to another unit
- 4) Yellow – Recognition modes enable; connect to switch from supply (can be grounded if feature is not wanted).



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ZL-LL15B Combined Specifications

Dimensions (each)	4.33"x 1.97"x 1.57" (110 x 50 x 40 mm)
Weight (each)	4.75oz (135 grams)
Current Draw (combined)	2.5 A maximum ₂
Power (combined)	34 Watts maximum ₁
Light Output	2700 (1350 each) Lumens
Operating voltage (combined)	10 – 15 V ₃
Beam angle (each)	14 ° ₄
Recognition Mode	1.4 CPS sine wave, 50% +/- 50 % intensity
LED lifetime	> 30,000 hours _{5,6}
Ambient Temperature	< 50°C (122°F)
Warranty	3 years

Important: These units cannot be powered separately. They must be wired in series as a pair. Failure to do so will result in damage to the units!

- Notes:
- 1 At 13.6 V operating voltage (combined power, two units in series)
 - 2 Design maintains constant current over supply voltage variation
 - 3 Supply is **NOT** polarity reversible.
 - 4 Beam diameter, intensity > ½
 - 5 Lifetime is total operating time at full intensity; LEDs are thermally limited to less than 80 °C junction. Operation above 50°C air temperature will cause the unit to dramatically reduce its light output, while hot conditions persist.
 - 6 Warranty and LED lifetimes require installation with suitable airflow.

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Appendix 1 Special Requirements

The 34 Watts of the two ZL-LL15B must be dissipated or the units will have reduced lifetime and/or the units will automatically reduce their power draw via reducing light output to prevent over-heating. The ZL-LL15B design assumes that there is an infinite volume of air to heat, i.e. not enclosed. A heated enclosed space must have a mechanism to remove the heat. In a wingtip this can be done by ensuring that there is substantial mixture of air behind the unit where the heat-sink is and the air that is chilled by the wing itself (assuming metal wings).

Under **no** circumstances should the ZL-LL15B be mounted in the engine compartment. If the intention is to mount the unit in the nose of the aircraft, ensure the following:

- 1) There is no mixture of the air in the engine compartment and the air behind the unit.
- 2) There is some air from the outside that can enter and exit into the area behind the unit.

When installed into fiberglass wingtip coves, such as are used in many RV-X aircraft, there must be an access hole into which the heat-sink can be placed so that heat can be transferred into the air behind. Do **NOT** mount the units raised above any non-metal surface.

Though initially designed to be a replacement system for PAR36 reflector systems in RV-X aircraft using Duckwork Aviation brackets, the ZL-LL15B can be installed in most wings with a suitable bracket. Most systems in any aircraft that use a PAR36 reflector bulb where the lamp is enclosed and environmentally safe and where the unit's attachment plate can be mounted to a metal surface can be retrofitted with our ZL-LL15B.