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# INSTALLATION AND INSTRUCTION MANUAL

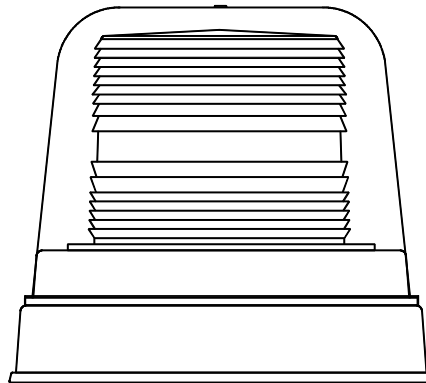
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## 200AHL and 200AH8L Series 360° LED Lights

(4-LED Non-Rotating)

(8-LED Rotating)

featuring the



**Please Note:** These instructions are provided as a general guideline only. Specific mounting, wiring, and/or weather-sealing may be necessary and are the sole responsibility of the installer. Star Headlight & Lantern Co., Inc. assumes no responsibility for the integrity of the installation for this or any of its products.

These lights are standard **negative ground**. Isolated or floating units for positive ground vehicles are clearly labeled and are available upon request. In this case connect the power to the proper polarity as marked on the wires.



**CAUTION:** All of our DC powered warning lights are polarity sensitive. These lights are polarity protected *only if the appropriate fuse* is used. All wires connected to the positive terminal of the battery should be fused at the battery for their rated load. **Testing the light before this fuse is properly installed will void the warranty on the light.**



PROUDLY MADE IN THE USA  
An ISO 9001:2008 Certified Company

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## Star Headlight & Lantern Co., Inc.

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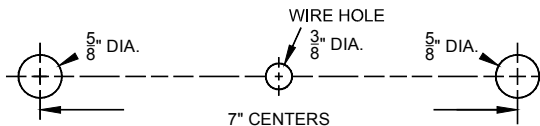
[www.starheadlight.com](http://www.starheadlight.com)

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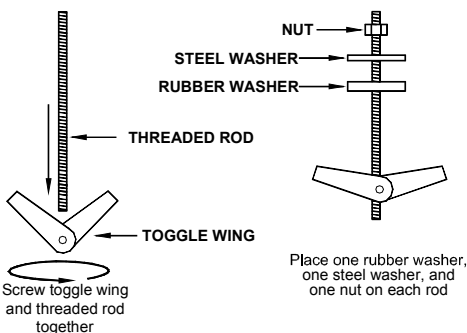
## Toggle Wing Mounted Models

1. Your new warning light comes complete with a rubber mounting gasket, 2 toggle wings, 2 threaded rods, 2 neoprene washers, 2 steel washers, 2 nuts, and 2 self-locking nuts.

2. Mark two mounting holes on 7" centers and mark a spot for the wire hole centered directly between them.

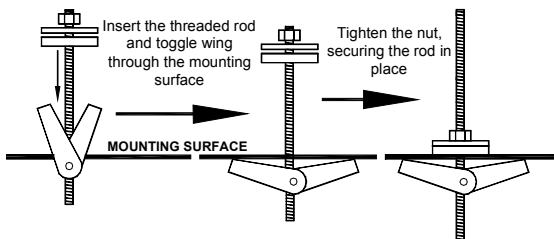


3. Drill a 5/8" hole in the outer two marked locations. Then drill a 3/8" hole in the center marked location for your wires to run through. **CAUTION:** Take care not to drill through the headliner of the vehicle.

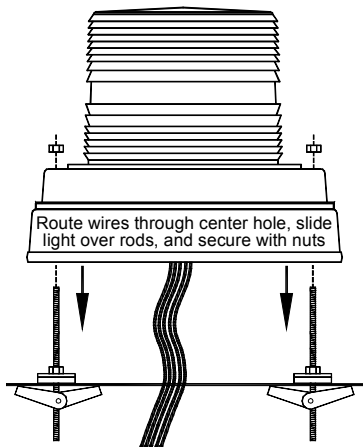


4. Attach the rubber mounting gasket around the base of the light.
5. Carefully remove the lens by removing the three screws at the base of the lens. Lift off the lens and remove it taking care to ensure you do not lose or destroy the lens gasket.
6. Attach a toggle wing to one end of one of each of the threaded rods.
7. Place the rubber and steel washers around each of the threaded rods according to the diagram to the left.

8. Then push the toggle wing through the top of one of the outer holes in the mounting surface until it opens under the mounting surface.

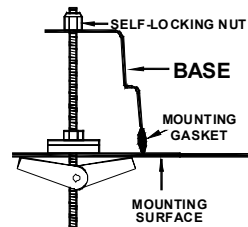


9. Tighten the nut down such that it seats the steel washer firmly against the rubber washer, and the mounting surface, holding the rod in place. Repeat this for each threaded rod.



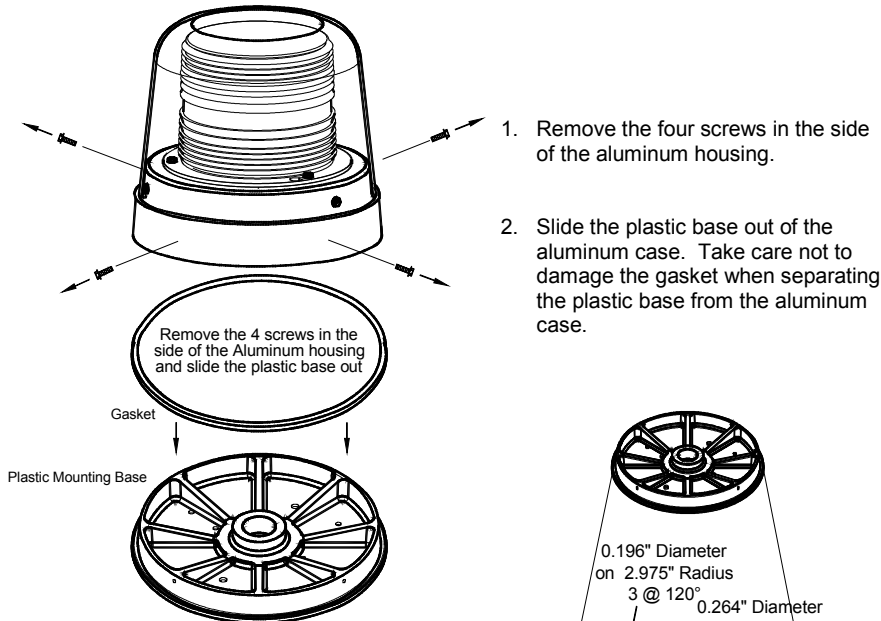
10. Route the wires through the center hole, align the outer holes in the base with the threaded rods and slide the base onto the rods.

11. Fasten one of the self-locking nuts to each of the threaded rods and tighten until snug.



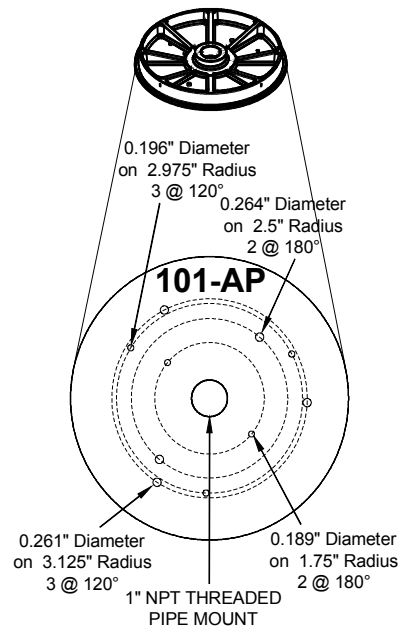
12. Once all of the nuts are tight and the base is secure, reattach the outer lens(es).

## Plastic Base Mounted Models

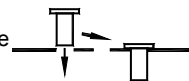


1. Remove the four screws in the side of the aluminum housing.
2. Slide the plastic base out of the aluminum case. Take care not to damage the gasket when separating the plastic base from the aluminum case.

3. Locate the various knockouts on the bottom of the base and determine which mounting holes will work best for your application. Clear the knockouts using a punch or other appropriate tool.
4. Using the plastic mounting base as a template, mark the appropriate holes on the mounting surface. Take care to ensure that the base does not move while you are marking each of the holes.



5. Remove the plastic mounting base and drill a 3/8" hole in the marked locations. Then, if applicable, drill a 3/8" hole for the wires in the center of the outer holes.  
**CAUTION: Take care not to drill through the headliner of the vehicle below.**
6. Push the enclosed rubber well nuts through the outer holes until the bottom side of the wider lip rests on the surface of the vehicle.
7. Route the wires through the center hole, if applicable and align the holes with the well nuts. Install the screws through the base, into the well nuts, and tighten until snug.
8. Once the plastic mounting base is installed on the vehicle, you may replace the light on the base and reinstall the four screws that affix the light to the plastic mounting base.



## Wiring

**CAUTION:** All of our DC powered warning lights are polarity sensitive. These lights are polarity protected *only if the appropriate fuse* is used. All wires connected to the positive terminal of the battery should be fused at the battery for their rated load. **Testing the light before this fuse is properly installed will void the warranty on the light.**

1. The black wire is the ground lead and should be connected to a good chassis ground.
2. The purple wire is used for High/Low power selection. Leave it disconnected for constant high power. Connect it to Ground for constant low power. Connect it to Ground through a switch for High/Low select.
3. Connect the red wire to the positive side of your power source (+12-24VDC) through a switch and a 5 Amp fuse. *Be sure to check your light for proper voltage.*

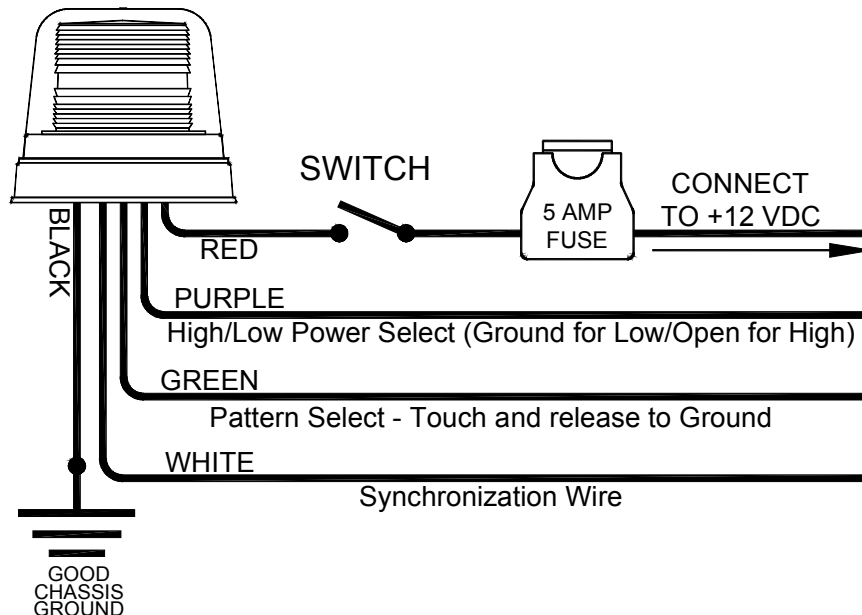
### High/Low Power Settings

There are 3 modes these lights can be set to work in:

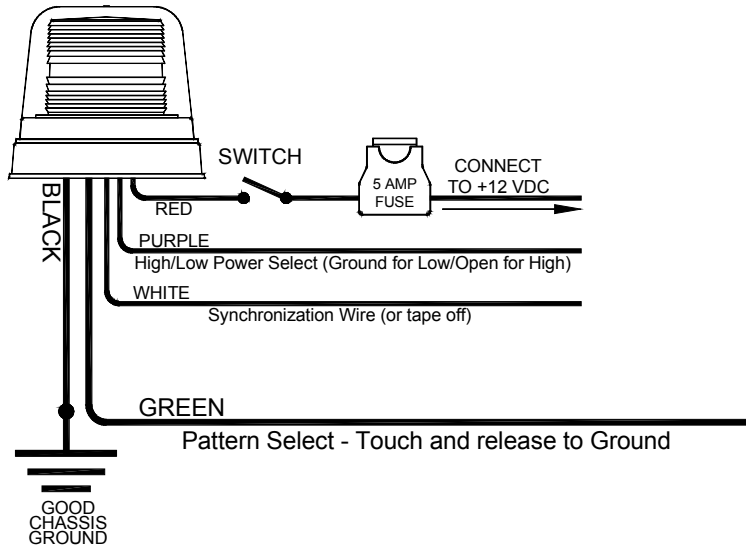
- **Constant High Power**
- **Constant Low Power**
- **Manually Switched High/Low Power**

By default all lights are set up for Manually Switched High/Low power. This means that you can use the Purple wire to control whether the light operates under high power (day mode) or low power (night mode):

- **Cut the Purple wire short and tape it off to run under constant High Power**
- **Connect the Purple wire to Ground to run under constant Low Power**
- **Connect the Purple wire to Ground through a switch for Manually Switched High/Low Power**



## Pattern Programming



1. If you will NOT be synchronizing two lights together, cut the white wire short and tape it off so that it does not come into contact with anything.
2. Connect the black wire to ground and the red wire to +12VDC to activate the light.
3. The lights are preset at the factory for Pattern #6 (*non-rotating versions*) or Pattern #4 (*rotating versions*). Cycle through the other patterns by briefly touching the green wire to ground for approximately 1 second and releasing it.
4. There are 12 different patterns in either of two “phases” (Refer to pattern list).
5. After the pattern has been set, tape or place a wrenut over the end of the green wire to prevent it from coming into contact with ground again (permanent mount). The light will “remember” the pattern when switched off and that pattern will be displayed the next time the light is switched on.
6. **SHORTCUTS:** There are a number of “shortcuts” available to make the programming of your light easier:  
Review the chart below for a list of how long you need to hold the green wire to ground to jump to the desired pattern.

<b><i>Length of Hold</i></b>	<b><i>Unit Blinks</i></b>	<b><i>Non-Rotating Models Jump To</i></b>	<b><i>Rotating Models Jump To</i></b>
1 second	Does Not	Next Pattern	Next Pattern
3 seconds	1 time	Pattern 1	Pattern 4
6 seconds	2 times	Pattern 6	Pattern 6
9 seconds	3 times	Pattern 13	Pattern 16
12 seconds	4 times	Pattern 18	Pattern 18
18 seconds	5 times	Steady Burn	Steady Burn

## Pattern List

Flash Pattern #	Pattern Type	Phase	Pattern Description	CPS	Pattern Defaults
1	K	1	Flicker †	1	<b>3Sec</b> <i>(Non-Rotating Only)</i>
2	L		Fast Doubleflash	3.3	
3	M		Tripleflash †	2.5	
4	N A5		PSU Flicker <i>(Non-Rotating Models)</i>	0.7	<b>3Sec</b> <i>(Rotating Only)</i>
			CCW Rotation 1 <i>(Rotating Models)</i> †	1.3	
5	O A6		PSU Random <i>(Non-Rotating Models)</i>	0.6	
			CCW Rotation 2 <i>(Rotating Models)</i>	2.7	
6	F		Quadflash †‡	1	<b>6Sec</b>
7	G		Quadflash w/Post-Pop †‡	1	
8	H		Singleflash †‡	1	
9	I		Doubleflash †‡	1	
10	J		Variable AKA Delta-Omega	0.3	
11	C	Post pop 1.4CPS †	1.4		
12	E	Random 0.4CPS	0.4		
13	K	2	Flicker †	1	<b>9Sec</b> <i>(Non-Rotating Only)</i>
14	L		Fast Doubleflash	3.3	
15	M		Tripleflash †	2.5	
16	N A5		PSU Flicker <i>(Non-Rotating Models)</i>	0.7	<b>9Sec</b> <i>(Rotating Only)</i>
			CW Rotation 1 <i>(Rotating Models)</i> †	1.3	
17	O A6		PSU Random <i>(Non-Rotating Models)</i>	0.6	
			CW Rotation 2 <i>(Rotating Models)</i>	2.7	
18	F		Quadflash †‡	1	<b>12Sec</b>
19	G		Quadflash w/Post-Pop †‡	1	
20	H		Singleflash †‡	1	
21	I		Double flash †‡	1	
22	J		Variable AKA Delta-Omega	0.3	
23	C	Post pop 1.4CPS †	1.4		
24	E	Random 0.4CPS	0.4		
NA		N/A	Steady	NA	<b>18Sec</b>

† - **Approved patterns for SAE J845**

‡ - **California Title 13**

To set the light to one of the **Pattern Defaults**, hold green wire to GROUND for the appropriate time as stated in pattern list.

To increment through pattern list, momentarily connect Green wire to GROUND and release.

# Synchronization of Multiple Lights

(Permanent Mount Versions Only)

You can synchronize up to six total **S-LINK SYSTEM** approved lights.

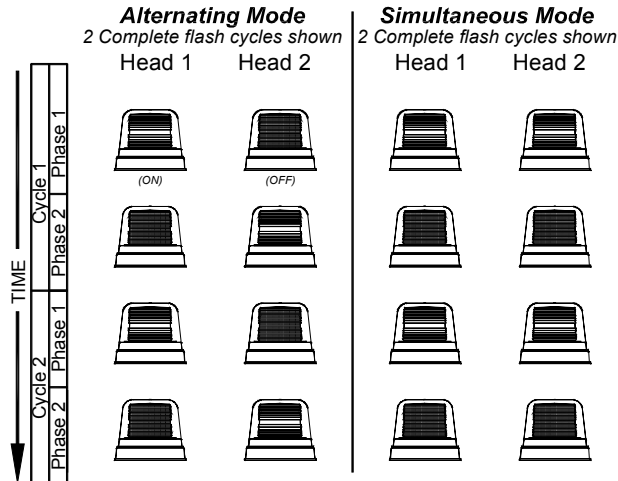


If you will be synchronizing two or more units together, leave the white wires disconnected until programming for each has been completed. Connect the white wires from the units together **ONLY AFTER PROGRAMMING** them all for the same **Pattern Type** (Phase MAY differ).

If you will be synchronizing your light with any of our **S-LINK SYSTEM** products, please note the following:

- All units that are to be synchronized **MUST** have the same **Pattern Type**.
  - To check pattern compatibility with other "S-Link" products, review the **Pattern List** for each product, noting the **Pattern Type**. Certain patterns are compatible with some lights, but not compatible with others.
  - Although the programmable **Flash Patterns** can vary between our different lights, Pattern Types F, G, H, I, & J are fully compatible patterns with ALL of our other "S-Link" products.
1. Determine whether you want the two lights to flash alternately or simultaneously (*Review the diagram below for examples of Alternating and Simultaneous flashing*).
  2. Review the **Pattern List** for each synchronized product, noting the **Pattern Type** for each product.
  3. Select a **Pattern Type** that is compatible with all of the lights/flashers you will be synchronizing.
  4. Program each light according to the instructions enclosed with each. **For lights that have patterns with a Phase:** All lights programmed for the same Phase will flash ON and OFF at the same time (flash simultaneously). Lights that are programmed for different phases will flash opposite one another (alternate).
  5. **After** you have the correct patterns programmed for ALL of the lights you wish to synchronize, **turn all of the lights off** and connect the white wires from all units together.

6. Power all of the lights up **at the exact same time** to verify they are flashing in the desired pattern. **Power MUST be applied to all synchronized lights simultaneously. Excessive switch bounce or attempting to power the units up independently will result in erratic operation.**



## Low Voltage Detection (Rotating Models Only)

These rotational beacons have low input voltage detection. With this feature the beacon senses the input voltage and flashes a fast pattern (approximately 16 cycles per second) to indicate to the user that the battery voltage is low (less than 10V). Once the input voltage returns to normal (greater than 12V) the unit will return to the normal flashing.

## Service

These lights use state-of-the-art Light Emitting Diode (LED) technology. These warning lights are comprised of ultra-high intensity LEDs that are controlled by a solid state flasher unit to efficiently produce light output with lifetimes up to 100,000 hours. Under normal circumstances, you will not need to replace any LEDs in this light. If any of the LED's in your light do fail, please contact your distributor for arrangements to have them repaired. The flasher unit and heads CANNOT be serviced in the field and any attempt to do so will void the warranty.

### LED FIVE YEAR LIMITED WARRANTY

The manufacturer warrants this LED light against factory defects in material and workmanship for five years after the date of purchase. The owner will be responsible for returning to the Service Center any defective item(s) with the transportation costs prepaid. The manufacturer will, without charge, repair or replace *at its option*, products, or part(s), which its inspection determines to be defective. Repaired or replacement item(s) will be returned to the purchaser with transportation costs prepaid from the service point. A copy of the purchaser's receipt must be returned with the defective item(s) in order to qualify for the warranty coverage. Exclusions from this warranty include, but are not limited to, domes, and/or the finish. This warranty shall not apply to any light, which has been altered, such that in the manufacturer's judgment, the performance or reliability has been affected, or if any damage has resulted from abnormal use or service.

There are no warranties expressed or implied (including any warranty of merchantability or fitness), which extend this warranty period. **The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages, including costs of any labor, are not covered.** The manufacturer reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured.

This warranty gives you specific legal rights. You might also have additional rights that may vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

If you have any questions concerning this or any other product, please contact our **Customer Service Department** at (585) 226-9787.

If a product must be returned for any reason, please contact our Customer Service Department to obtain a Returned Materials Authorization number (RMA #) before you ship the product back. Please write the RMA # clearly on the package near the mailing label.

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[www.starheadlight.com](http://www.starheadlight.com)