

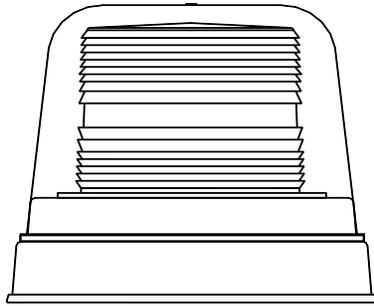
INSTALLATION AND INSTRUCTION MANUAL

200AHL and 200AH8L Series Halo™ LED Lights

(4-LED)

(8-LED)

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 Safety Technologies assumes no responsibility for the integrity of the installation for this or any of its products.



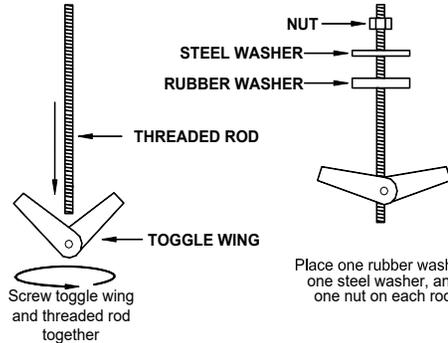
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STAR
Safety Technologies by *Crote*

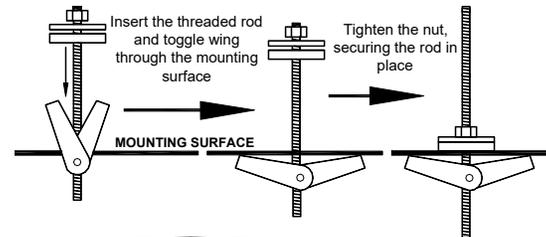
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Toggle Wing Mounted Models

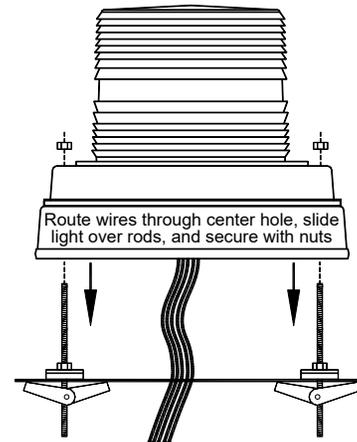
1. Your new warning light comes complete with a rubber mounting gasket, 2 toggle wings, 2 threaded rods, 2 neoprene washers, 2 steel washers, 2 nuts, and 2 self-locking nuts.
2. Mark two mounting holes on 7" centers and mark a spot for the wire hole centered directly between them.
3. Drill a 5/8" hole 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.

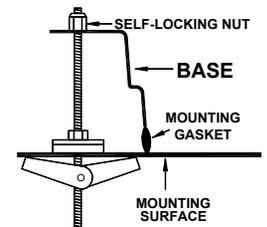


9. Tighten the nut down such that it seats the steel washer firmly against the rubber washer, and the mounting surface, holding the rod in place. Repeat this for each threaded rod.



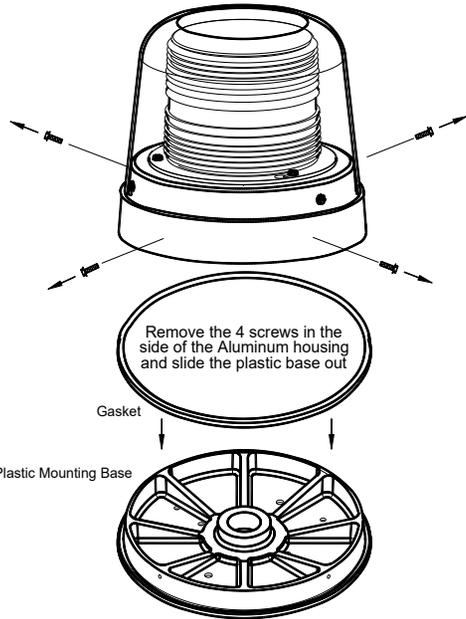
10. Route the wires through the center hole, align the outer holes in the base with the threaded rods and slide the base onto the rods.

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



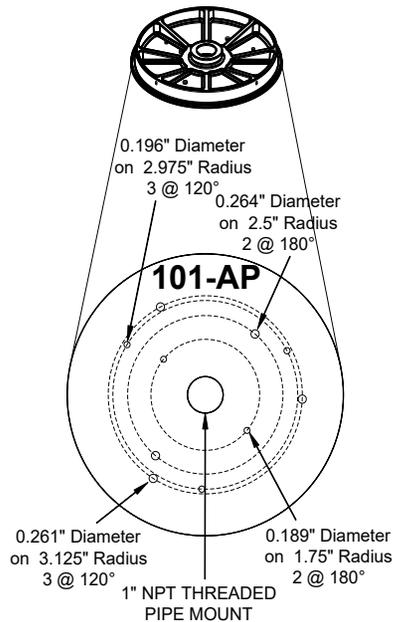
12. Once all of the nuts are tight and the base is secure, reattach the outer lens(es).

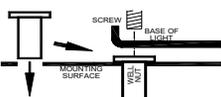
Plastic Base Mounted Models



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.

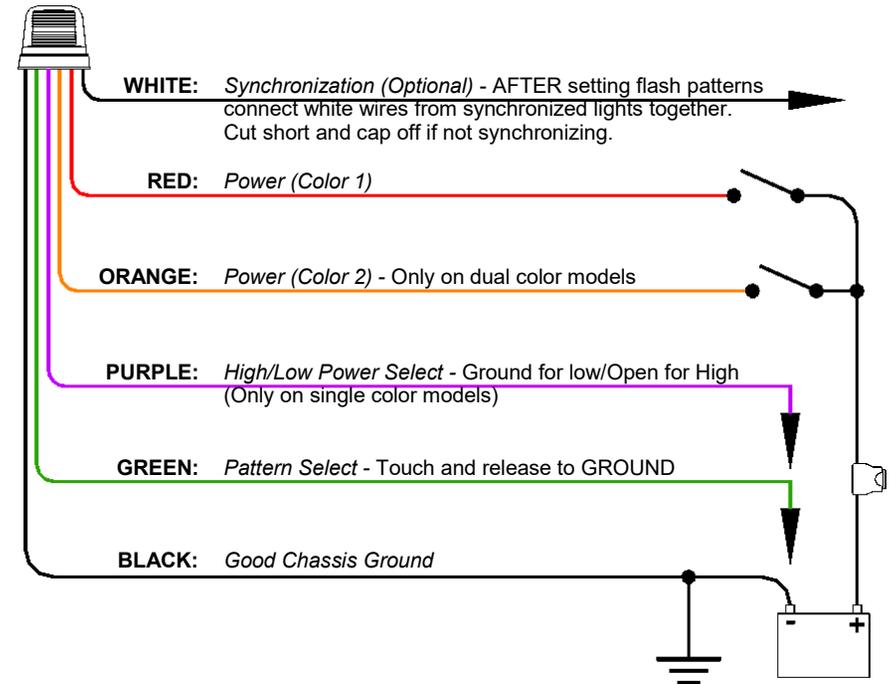


5. Remove the plastic mounting base and drill a 3/8" hole in the marked locations. Then, if applicable, drill a 3/8" hole for the wires in the center of the outer holes.
CAUTION: Take care not to drill through the headliner of the vehicle below.
6. Push the enclosed rubber well nuts through the outer 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 nuts 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.**



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.

High/Low Power Settings (single color lights only)

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

- **High Power Only:** Cut the Purple wire short and tape it off.
- **Low Power Only:** Connect the Purple wire to Ground.
- **Manually Switched High/Low Power:** Connect the Purple wire to Ground through a switch.

By default all single color 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):

Pattern Programming

- Set the flash pattern using any of the following:
 - Green wire (*permanent mount versions only*)
 - Pattern Select switch on the cig plug (single color mag mount versions)
 - Internal jumper (all versions).



- Power up the light by connecting the Red (and/or Orange, where applicable) and Black wires or by plugging the cig plug into a powered outlet and activating the Power switch(es).

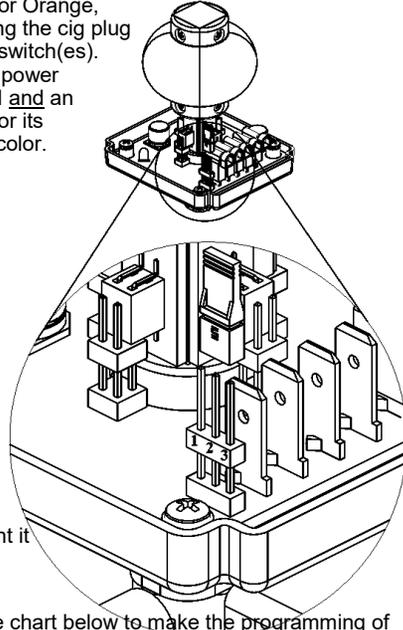
For dual color lights: The cig plug will have two power switches or hard wired versions will have a Red and an Orange wire. Each color can be programmed for its own pattern. Repeat the steps below for each color.

- You can program your light for any of the 12 different patterns in either of two "phases". (Refer to the pattern list below).

- The lights are preset at the factory for Pattern #6/Quadflash. Cycle through the patterns by:
 - Touching and releasing the green wire to ground.
 - Pressing and releasing the Pattern Select button.
 - Removing the jumper from pins 2&3 and touching and releasing it to pins 1&2.

- After the pattern has been set, tape or place a wirenut over the end of the green wire to prevent it from coming into contact with ground again or replace the jumper on pins 2&3.

- SHORTCUTS:** Use the "shortcuts" shown in the chart below to make the programming of your light easier: Hold the green wire to ground (or hold the Pattern Select Button or hold the Jumper to Pins 1 & 2) for the indicated amount of time to go directly to the indicated pattern.



Phase 1 Flash Pattern #	Phase 2 Flash Pattern #	Pattern Type	Pattern Description	CPS	Phase 1 Shortcut	Phase 2 Shortcut
1	13	K	Flicker †	1	3 Sec/1 Blink (Dual Color)	9 Sec/3 Blinks (Dual Color)
2	14	L	Fast Doubleflash	3.3		
3	15	M	Tripleflash †	2.5		
4	16	A5	CCW Rotation 1 †*	1.3	3 Sec/1 Blink (Single Color)	9 Sec/3 Blinks (Single Color)
5	17	A6	CCW Rotation 2	2.7		
6	18	F	Quadflash †‡ (Default Pattern)	1	6 Sec/2 Blinks	12 Sec/4 Blinks
7	19	G	Quadflash w/Post-Pop †‡	1		
8	20	H	Singleflash †‡	1		
9	21	I	Doubleflash †‡	1		
10	22	J	Variable AKA Delta-Omega	0.3		
11	23	C	Post pop 1.4CPS †	1.4		
12	24	E	Random 0.4CPS	0.4		
NA			Steady	NA	18 Sec/5 Blinks	

† - Approved patterns for SAE J845

* - SAE J845 approved pattern only in 8-LED versions

‡ - California Title 13 when properly configured

(Pattern Programming Cont'd)

Steady Burn Mode

To access the Steady Burn pattern, perform any of the following for 18 seconds, until the light blinks 5 times:

- Hold the Pattern Select Button
- Hold Green wire to Ground
- Hold the jumper over pins 1 & 2

Low Voltage Detection

All of these 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.

Dual Color Operating Modes (Dual Color Lights Only)

Dual-Color Mode

By default, each switch or wire on the Dual color light will control one color. If you would like to have one of the switches or wires activate both colors, perform the following:

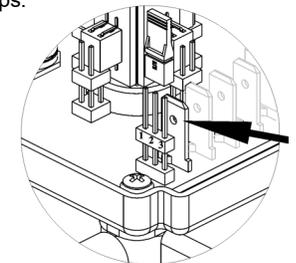
- Activate the switch/wire that you want to be dual color.
- Hold the Pattern Select button or hold the Green wire to Ground for 21 seconds, until the light blinks 6 times.
- Deactivate the light.

When you now activate that switch/wire, the selected pattern will cycle back and forth, once in one color, then once in the other color.

Priority Modes

Dual color lights have the ability to allow for different priority options when you activate both colors/functions at the same time. By default, if you activate both functions, they will alternate. Optionally, you can have one mode override the other, or you set an integrated "steady-burn" mode. To change this setting follow these steps:

- Activate either function/color.
- Apply **power** to the White wire or to the terminal pictured to the right (the light will stop flashing).
- Hold the Pattern Select button/jumper (or hold the Green wire to **Ground**) for the corresponding length of time indicated in the chart below.
- Deactivate the light.



Mode	Description	Shortcut	Flashes
0	No priority, Alternating functions	3 sec.	1
1	Enable 1 overrides Enable 2 when both are active	6 sec	2
2	Enable 2 overrides Enable 1 when both are active	9 sec	3
3	Integrated Steady Burn *	12 sec	4

* Integrated Steady Burn only works if one function is set to steady burn, otherwise it will act like Mode 1. In this mode, when both functions are activated the light will run the flashing pattern, and in the long off times it will have the steady color dimly lit.

Synchronization of Multiple Lights

(Permanent Mount Versions Only)

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



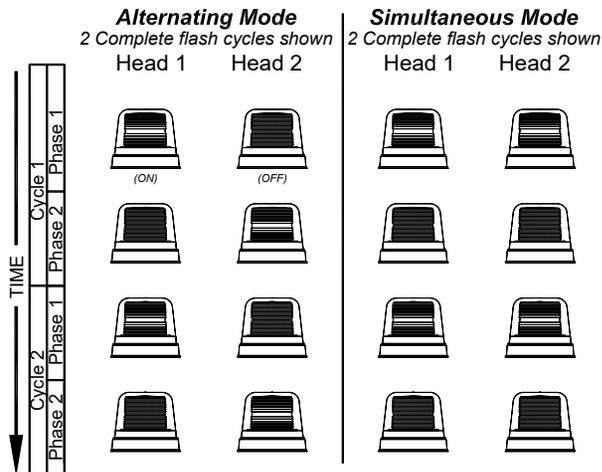
If you will be synchronizing two or more units together, leave the white wires disconnected until programming for each has been completed. Connect the white wires from the units together **ONLY AFTER PROGRAMMING** them all for the same **Pattern Type** (Phase MAY differ).

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.



Service

LED FIVE YEAR LIMITED WARRANTY

Star Safety Technologies warrants this LED light against factory defects in material and workmanship for five years after the date of manufacture. 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.** Star 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.

NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Star Safety Technologies, Inc. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Star shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

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