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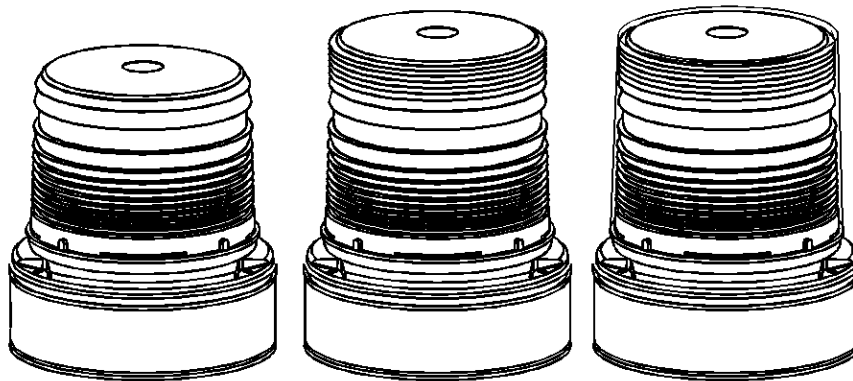
# INSTALLATION AND INSTRUCTION MANUAL

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## 360° LED Lights 251H Series

featuring the



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



**Star Headlight & Lantern Co., Inc.**

455 Rochester Street Avon, NY 14414 Phone: 585-226-9787 FAX: 888-478-2797

**STAR**  
WARNING  
SYSTEMS®

**STAR SIGNAL**  
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**BRADFORD**  
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PLIT472 REV. A 4/23/15

## Wiring Instructions

**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.*

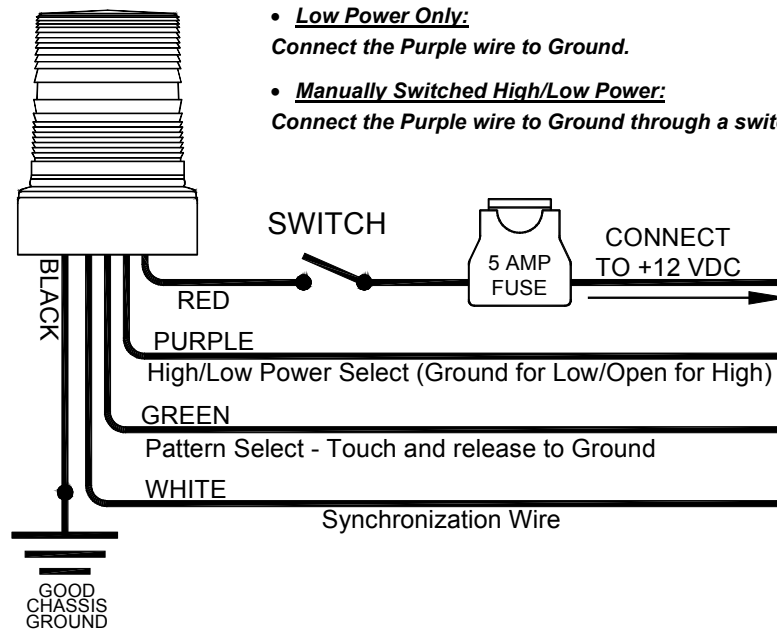
### High/Low Power Settings

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):

- **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.**

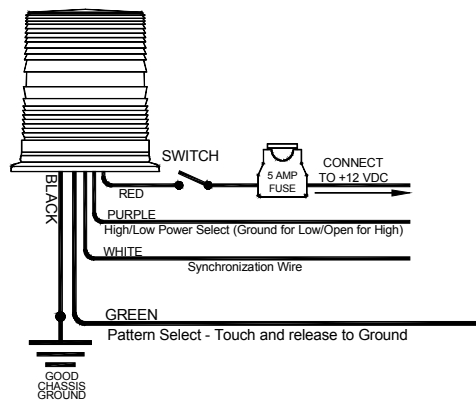


## Low Voltage Detection (Rotating Models Only)

All of the beacons that have the rotational patterns also 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.

## Pattern Programming

1. Setting the flash pattern of your light can be performed using the green wire.
2. 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.
3. After the black and red wires are connected you may set the flash pattern using the green wire.
4. You can program your light for any of the 12 different patterns in either of two "phases" (Refer to pattern list).



5. The lights are preset at the factory for Pattern #6 (*non-rotating versions*) or Pattern #4 (*rotating versions*). You can cycle through the other patterns by briefly touching the green wire to ground for approximately 1 second and releasing it.
6. 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 (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.
7. **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 touch the green wire to ground to go to the desired pattern.

<b>Length of Hold</b>	<b>Unit Blinks</b>	<b>Non-Rotating Models Jump To</b>	<b>Rotating Models Jump To</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.

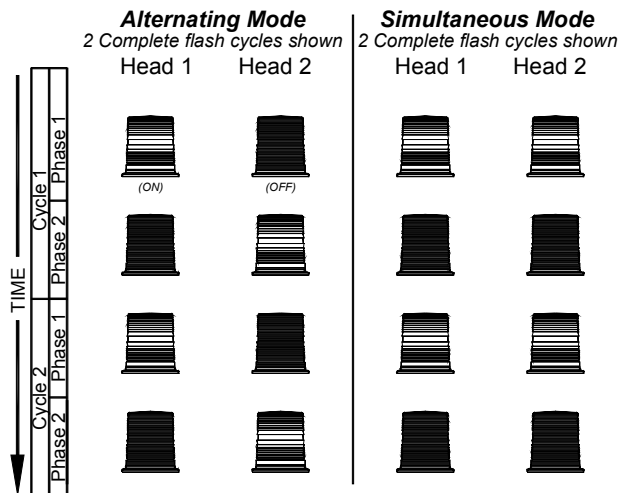


If you will be synchronizing two or more units together, leave the white wires disconnected until programming for each has been completed. Connect the white wires from the units together **ONLY AFTER PROGRAMMING** them all for the same **Pattern Type** (Phase MAY differ).

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.**

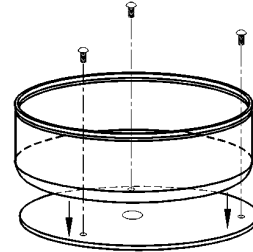


## Mounting

### Optional Dish Mounting (some models)

Some models may come with the "dish" part of the base included. If your model does NOT include the dish, please skip to the next section.

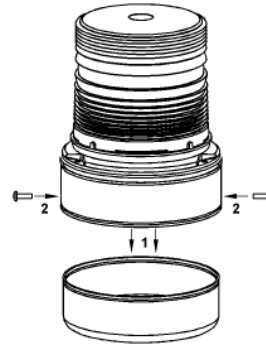
1. Use the base to mark your 3 mounting holes. Ensure the backside of the mounting surface is clear of wires and/or anything else that may become damaged.
2. Use a #19 (0.166") bit to drill the three holes..
3. Use 3 of the enclosed self-threading screws to affix the enclosed gasket and base to the mounting surface.



### Mounting to a Dish

These lights have been designed as a direct replacement similar type lights that install on a 6½-inch "dish" style base that is already mounted on the vehicle. If you are NOT mounting this light to a "dish" style base, please skip to the next section.

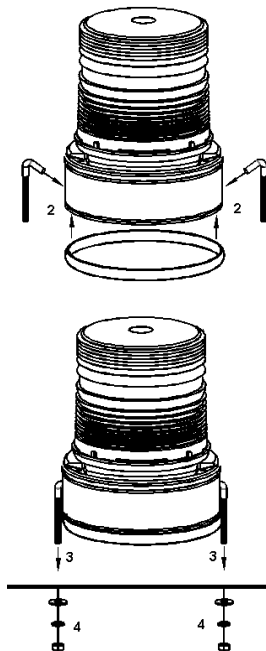
1. After making your electrical connections, simply slide the light over the top of the "dish" that is installed on the vehicle.
2. Align the holes in the base of the light with the holes in the "dish" and install the screws, securing the light to the "dish".



### Hook Mounting

If this is a new install, mount the light using the hook bolts as describe below.

1. Drill two 9/32" holes on 6-3/4" centers.  
**CAUTION:** Check your location PRIOR to drilling to ensure you do not damage anything on either side of the hole.
2. Install the gasket around the base of the light and place the hook bolts into the base of the light. The hook bolts will hang loose until the light is installed.
3. Push the hook bolts through the two holes you drilled in the mounting surface
4. Install a flat washer, split washer, and nut on each hook bolt. Carefully tighten each nut until the light is secure.



## 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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***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 assumes no responsibility for the integrity of the installation for this or any of its products.



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#### **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 Headlight & Lantern Co., 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. Signal Vehicle Products, Inc. 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.