INSTALLATION AND INSTRUCTION MANUAL

9200 HALO Series
Dual Color LED Minibars
featuring the

S-LINK SYSTEM
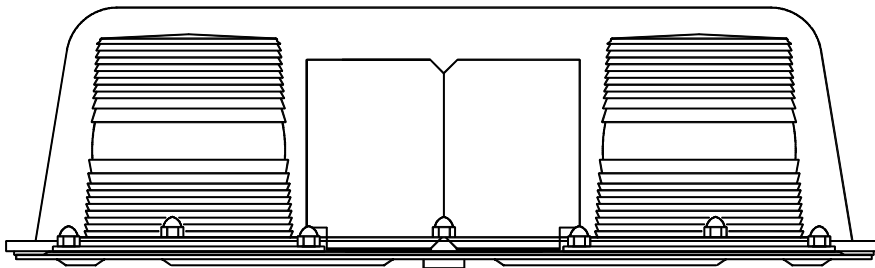
PROUDLY MADE IN THE USA
An ISO 9001:2008 Certified Company

IMPORTANT: Please read all of the following instructions before installing your new warning light.

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.

Star Headlight & Lantern Co., Inc.

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

STAR
WARNING
SYSTEMS

STARSIGNAL
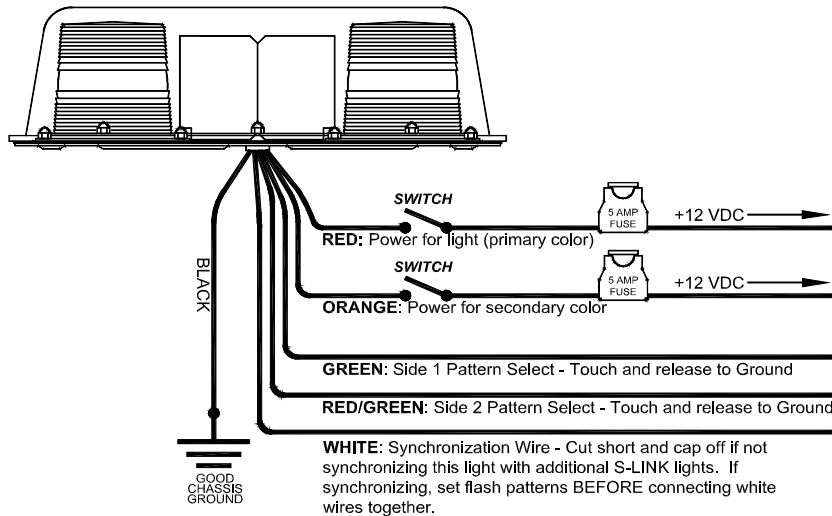VEHICLE PRODUCTS

BRADFORD
Vehicle Solutions

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SINCE 1889 ®

Permanent Mounting

1. **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 <u>at the battery</u> for their rated load. **Testing the light before this fuse is properly installed will void the warranty on the light.**

2. Remove the dome from your mini-bar. Take care not to damage the gasket. Place the light in the exact position it is to be mounted.

3. Using the base as a template, mark four holes on the mounting surface. Take care to ensure that the base does not move while you are marking each of the four holes.

4. Remove the base and drill a 3/8" hole in the four marked spots.
CAUTION: Take care not to drill through the headliner below.

5. Push the enclosed rubber well nuts through the holes until the bottom side of the wider lip rests on the surface of the vehicle.

6. *For external wiring of your new Star mini-bar skip to Step 8.* *For internal wiring, proceed as follows:* Remove the headliner from the inside of the vehicle. Draw two diagonal lines between the well nuts in the opposite corners. Mark the location at which they cross. Drill a 3/8" hole in the center marked location. Place the light on the surface of the vehicle, routing the wires through the hole. Align the four other holes with the well nuts, install the screws, and tighten until snug. Skip to Step 8.

7. *For external wiring,* place the light on the mounting surface and align the holes with the well nuts. Install the screws and tighten until snug.

8. Replace the dome on your mini-bar.

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 <u>at the battery</u> for their rated load. **Testing the light before this fuse is properly installed will void the warranty on the light.**

SWITCH

5 AMP FUSE   +12 VDC

RED: Power for light (primary color)

SWITCH

5 AMP FUSE   +12 VDC

ORANGE: Power for secondary color

BLACK

GREEN: Side 1 Pattern Select - Touch and release to Ground

RED/GREEN: Side 2 Pattern Select - Touch and release to Ground

GOOD CHASSIS GROUND

WHITE: Synchronization Wire - Cut short and cap off if not synchronizing this light with additional S-LINK lights. If synchronizing, set flash patterns BEFORE connecting white wires together.

Pattern Programming

Please note the following when programming:

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

- Set the flash pattern using the Green wire and the Green/Red wire, or by using the internal jumper on each head.

- The pattern will be the same for both the primary and secondary colors.

- Although the power wire(s) activate both sides of the minibar, each side must be programmed separately.

- Each side of the light must be programmed for the same *Pattern Type* *(see Pattern List)*.

- If each side is programmed for the same **phase**, the lights will flash at the same time (simultaneous). If the two sides are programmed for different phases, they will flash opposite one another (alternating).
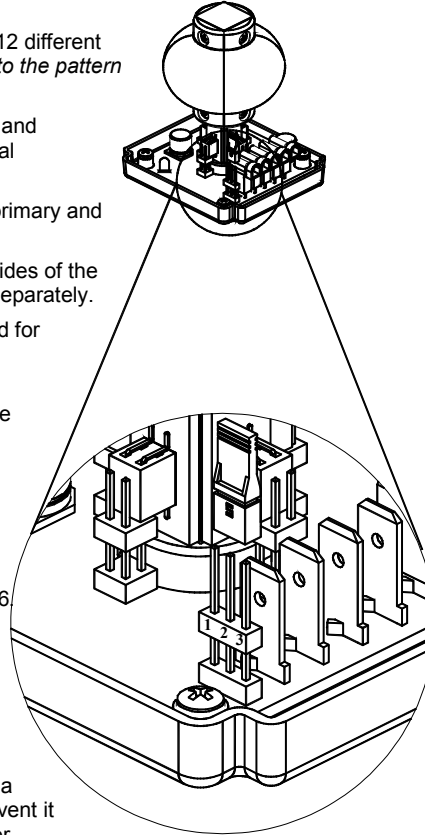
1. Power up the light by connecting the red and black wires.

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

3. 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.

4. Repeat steps 2 and 3 using the Red/Green wire to program side 2 for a pattern with the exact same *Pattern Type*.

5. *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 or green/ red wire to ground (or hold the jumper on pins 1 and 2) to go to the desired pattern.

Length of Hold	Unit Blinks	Pattern Jumps To
1 second	Does Not	Next Pattern
3 seconds	1 time	Pattern 4
6 seconds	2 times	Pattern 6
9 seconds	3 times	Pattern 16
12 seconds	4 times	Pattern 18
18 seconds	5 times	Steady Burn

			Pattern List		
Flash Pattern #	**Pattern Type**	**Phase**	**Pattern Description**	**CPS**	**Pattern Defaults**
1	K		Flicker †	1	
2	L		Fast Doubleflash	3.3	
3	M		Tripleflash †	2.5	
4	A5		CCW Rotation 1 †	1.3	**3Sec**
5	A6		CCW Rotation 2	2.7	
6	F	1	Quadflash †‡	1	**6Sec**
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		Flicker †	1	
14	L		Fast Doubleflash	3.3	
15	M		Tripleflash †	2.5	
16	A5		CW Rotation 1 †	1.3	**9Sec**
17	A6		CW Rotation 2	2.7	
18	F	2	Quadflash †‡	1	**12Sec**
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	**18Sec**

† - *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.**
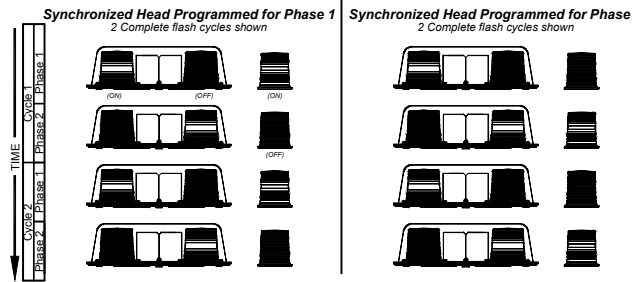
> ⚠️ If you will be synchronizing two or more units together, _leave the white wires disconnected until programming for each has been completed_. Connect the white wires from the units together **_ONLY AFTER PROGRAMMING_** them all for the same **Pattern Type** (Phase MAY differ).

If you will be synchronizing your light with any of our S-LINK SYSTEM products, please note the following:
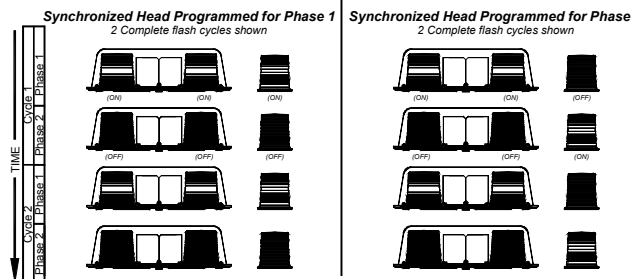
- All units that are to be synchronized MUST have the same **Pattern Type**.

- 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.

Please Note: Most of our S-LINK SYSTEM compatible products have patterns that can be programmed for Phase 1 or Phase 2. Typically, One side of the 9200 HALO minibar flashes in Phase 1, while the other flashes in Phase 2. When synchronizing any other S-LINK SYSTEM light (excluding 9200 HALO), the Phase of the additional light being synchronized will determine which half of the minibar the additional light flashes in conjunction with.

Minibar Programmed for Alternating Pattern

Synchronized Head Programmed for Phase 1
2 Complete flash cycles shown

Synchronized Head Programmed for Phase
2 Complete flash cycles shown

Minibar Programmed for Simultaneous Pattern (Phase 1)

Synchronized Head Programmed for Phase 1
2 Complete flash cycles shown

Synchronized Head Programmed for Phase
2 Complete flash cycles shown

1. Review the **Pattern List** for each synchronized product, noting the **Pattern Type** for each product.

2. Select a **Pattern Type** that is compatible with all of the lights/flashers you will be synchronizing.

3. 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).

4. ***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**.**

5. 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

These units have low input voltage detection. With this feature the light senses the input voltage and if the battery voltage is low (less than 10V) it will flash a fast pattern (approximately 16 cycles per second). Once the input voltage returns to normal (greater than 12V) the unit will return to the normal flashing.

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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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