SWS
SAFETY WARNING SPECIALISTS
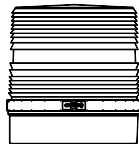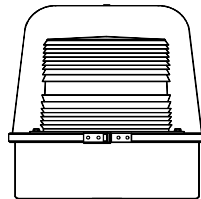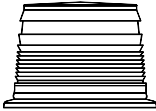### THE LEADERS IN PROFESSIONAL WARNING LIGHTS

INSTALLATION AND INSTRUCTION MANUAL

Halo™ LED Lights
200, 240, 250, 255, 257, and 258 Series
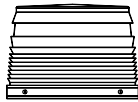**featuring the**
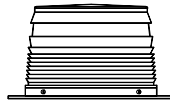
STAR Halo

S-LINK SYSTEM

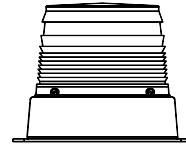200SHL/200SH8L
SERIES

200BHL/200BH8L
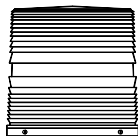SERIES

255/257/258
"S" Series

240HSL / 240H8SL
Series

240HSFL / 240H8SFL
Series
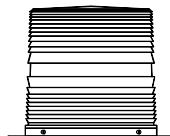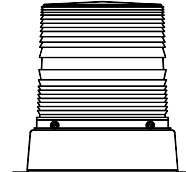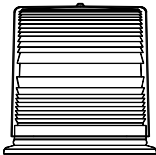
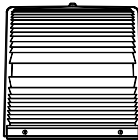250HSL / 250H8SL Series

255/257/258
"C" Series
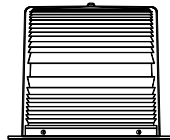
240HCL / 240H8CL
Series
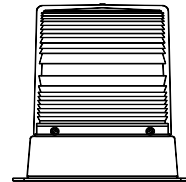
240HCFL / 240H8CFL
Series

250HCL / 250H8CL Series

255/257/258
"A" Series

240HAL / 240H8AL
Series

240HAFL / 240H8AFL
Series

250H8AL Series

Magnet Mounting

If you are mounting the light on the roof of your vehicle, take extreme care to ensure that the magnet is firmly seated on your roof, and that the pull of the magnet is sufficient to secure the light in place. As the composition of the metal in the roofs of different vehicles may vary, as well as the contour, texture and/or condition, Star cannot guarantee the ability of the light to remain in place upon a moving vehicle. <u>It is the sole responsibility of the owner to ensure the warning light is secure.</u>

> <u>WARNING!!!</u>! Care should be taken when positioning any warning light on the roof, dash, or instrument panel of the vehicle, so that the light and/or cord does not interfere with the proper operation of any airbags! Failure to heed this warning may result in serious or fatal injury.
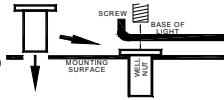
- **CAUTION:** Please be sure to check that your cigarette plug outlet is properly fused. ***Testing the light before this fuse is properly installed will void the warranty on the light.***

- Once the light is secured, route your cord such that it does not interfere with the vision of the driver or the operation of any controls, including, but not limited to, the steering wheel, gear shifter, and/or airbag.

- This light has been factory tested and approved. If the light fails to work when the plug is inserted into the cigarette plug socket, twist the plug a few times to remove any ash or other deposits which might be preventing a good contact from being made. If the problem persists, check for a fuse inside of the plug itself. If present, remove the fuse from the circuit, check to see if it has blown, and clean the lighter socket and contact surfaces. Reconnect the fuse and test the light again.

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. Your new warning light comes complete with a foam mounting gasket, mounting screws, lock washers, and well nuts.

3. If you will be utilizing a **flange mount base,** please skip to Step 6.

4. Many of these warning lights come equipped with a combination base, allowing the light to be either mounted on threaded conduit pipe or permanently mounted. For NPT pipe, mount the light using the threaded entrance hole in the base of the light, then skip to the ***Wiring Instructions***. For the permanent mount, proceed to Step 5.

5. Carefully remove either the clamp ring or the three or four screws near the base of the lens and lift off the lens (simply unscrew the dome for the 255 series). Examine the inside of the base and use a punch or drill to remove the knock-outs present.

6. Next, you will need to drill the holes in your mounting surface. Place the gasket in the exact position the light is to be mounted, and mark the holes on the mounting surface. *(NOTE: You might have to stretch the gasket slightly to find the location of the holes in the gasket.)* Take care to ensure that the gasket does not move while you are marking each of the holes. Be sure to mark the center hole if you will be running your wires through the mounting surface.

7. Remove the gasket and drill your holes using an appropriate 3/8" drill bit. ***CAUTION: If you are mounting the light on a vehicle, and plan to wire it through the roof of the vehicle, remove the headliner from the inside of the vehicle. If you do not remove the headliner, take care so that you do not drill through it.***
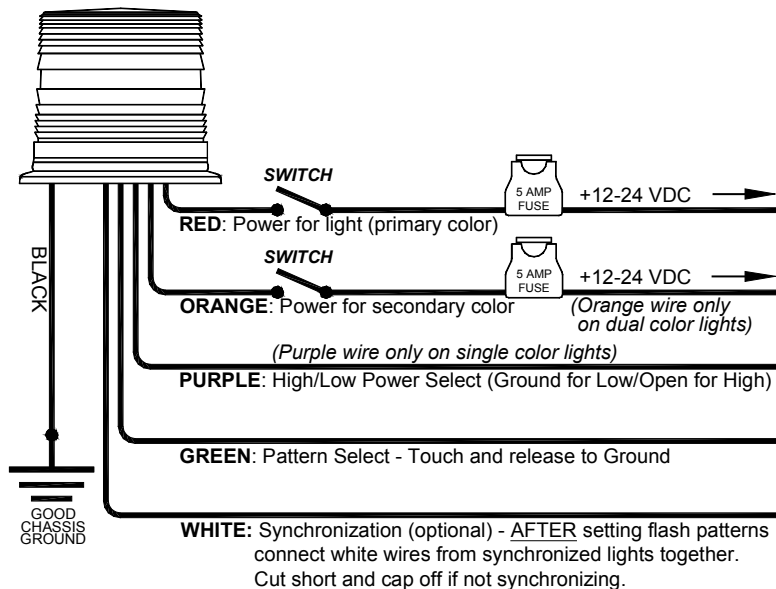
8. After the holes have been drilled, push the enclosed rubber well nuts through the outer holes until the bottom side of the wider lip rests on the surface of the vehicle.

9. Place the light on the surface of the vehicle, routing the wires through the center hole, if applicable, align the holes with the well nuts, install the screws through the base, into the well nuts, and tighten until snug.

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.**

RED: Power for light (primary color)

ORANGE: Power for secondary color *(Orange wire only on dual color lights)*

(Purple wire only on single color lights)

PURPLE: High/Low Power Select (Ground for Low/Open for High)

GREEN: Pattern Select - Touch and release to Ground

WHITE: Synchronization (optional) - <u>AFTER</u> setting flash patterns connect white wires from synchronized lights together. Cut short and cap off if not synchronizing.

High/Low Power Settings *(single color lights only, excluding BK models)*

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

- *Underline 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):
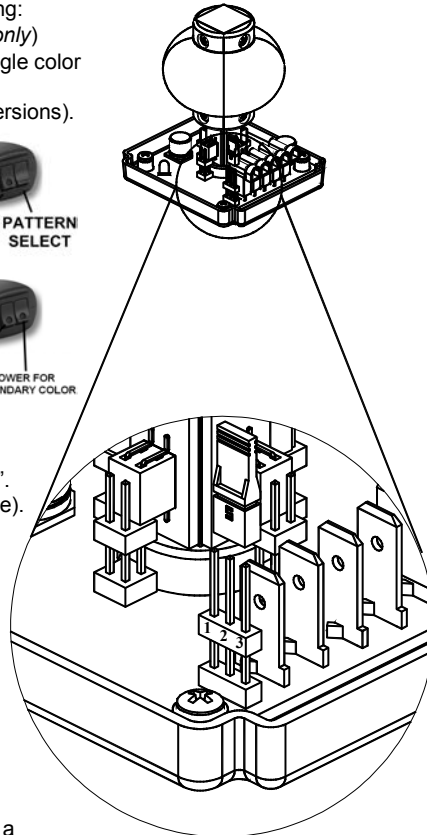
Pattern Programming

1. 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 (dual color mag mount versions).

2. Power up the light by connecting the red and black wires or by plugging the cig plug into a powered outlet and activating the Power switch. For dual color lights, the cig plug will have two Power switches. Each color can be programmed separately, or you can activate both switches to program both colors to the same pattern.

   POWER   PATTERN SELECT

   POWER FOR PRIMARY COLOR   POWER FOR SECONDARY COLOR

3. 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).

4. The lights are preset at the factory for Pattern #6/Quadflash *(4-LED versions)* or Pattern #4/CCW Rotation 1 *(8-LED versions)*. 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.

5. 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.

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 touch the green wire to ground (or hold the jumper on pins 1 and 2) to go to the desired pattern.

Length of Hold	*Unit Blinks*	*Models Jump 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	Shortcut
1	K	1	Flicker †	1	
2	L		Fast Doubleflash	3.3	
3	M		Tripleflash †	2.5	
4	A5		CCW Rotation 1 †* *(Default pattern for 8-LED versions)*	1.3	**3Sec**
5	A6		CCW Rotation 2	2.7	
6	F		Quadflash †‡ *(Default pattern for 4-LED versions)*	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	2	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		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*
* - *SAE J845 approved pattern only in 8-LED versions*
‡ - *California Title 13 when properly configured*

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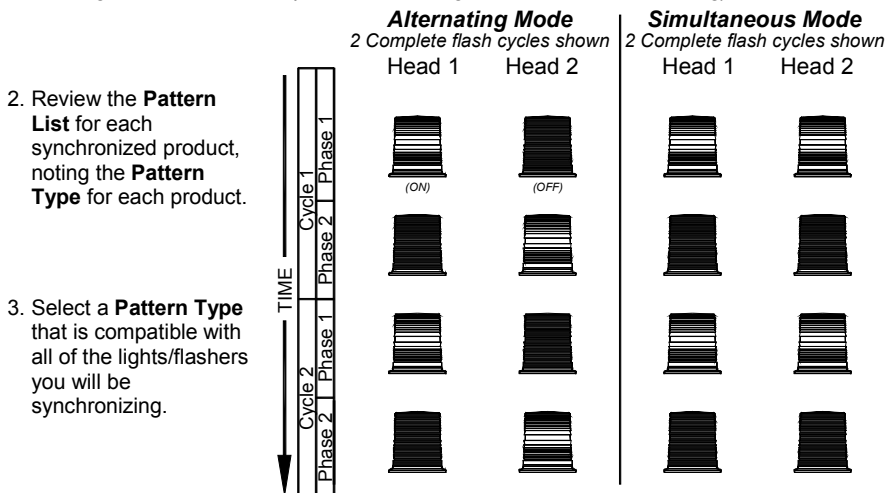
> ⚠ If you will be synchronizing two or more units together, _leave the white wires disconnected until programming for each has been completed_. Connect the white wires from the units together **_ONLY AFTER PROGRAMMING_** them all for the same **Pattern Type** (Phase MAY differ).

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. All lights programmed for the same Phase will flash ON and OFF at the same time (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.**

Photocell (255TCL-TX only)

255HTCL-TX- Models Only*

The 255HTCL-TX versions have a built in photocell that can detect the ambient light and automatically switch the light between high power (day mode) and low power (night mode).
Please note: By default the 255HTCL-TX-* light is set to auto-switch between Day and Night mode. To change this, proceed below.

To Deactivate Day/Night Auto-Switching:

1. Activate the light.
2. Apply +12V to the White wire.
3. Hold Green wire to Ground for 3 sec. (Unit will respond by flashing once).
4. Disconnect White wire from +12V.

The light will now be configured with Day/Night auto-switching deactivated.

To Activate Day/Night Auto-Switching:

1. Activate the light.
2. Apply +12V to the White wire.
3. Hold Green wire to Ground for 6 sec. (Unit will respond by flashing two times).
4. Disconnect White wire from +12V.

The light will now be configured with Day/Night auto-switching activated.
Please note: Although the light is set to auto-switch, Grounding the Purple wire will still force the light into night mode (low power)

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.