

# *Lineum Star Split Phantom®*

## **Model ULB28**

**Dual Color Undercover Interior LED Lightbar**



**Please Note:** These instructions are provided as a general guideline only. Specific mounting and/or wiring, 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.



This light utilizes high-intensity LED Lamps.  
DO NOT stare directly into the light while it  
is on, as momentary blindness and/or  
permanent eye damage may occur.



PROUDLY MADE IN THE USA  
An ISO 9001:2000 Certified Company



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**STAR**  
WARNING  
SYSTEMS

**STAR SIGNAL®**  
VEHICLE PRODUCTS

**BRADFORD**  
Vehicle Solutions

PLIT507 REV. C 1/3/20

**IMPORTANT:** Please read all of the following instructions before installing your new **Star Half Phantom™** LED undercover lightbar.

**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.**

**WARNING!!!!** *Care should be taken when positioning this warning light so that the light and/or cord does not interfere with the proper operation of the driver-side or passenger-side airbag! Failure to heed this warning may result in serious or fatal injury.*



**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.**

## Gasket Installation

Before installing any of the brackets, slide the enclosed rubber channel over the front edge of the baffle .



## Mounting

There are several optional mounting brackets that can be used to mount your **Star Half Phantom™**. Each light is packaged with the bracket that was selected at the time the light was ordered. Please review the separate mounting instructions that are included with each bracket. You can visit [www.star1889.com](http://www.star1889.com) for a detailed list of available mounting brackets and their known vehicle compatibility.



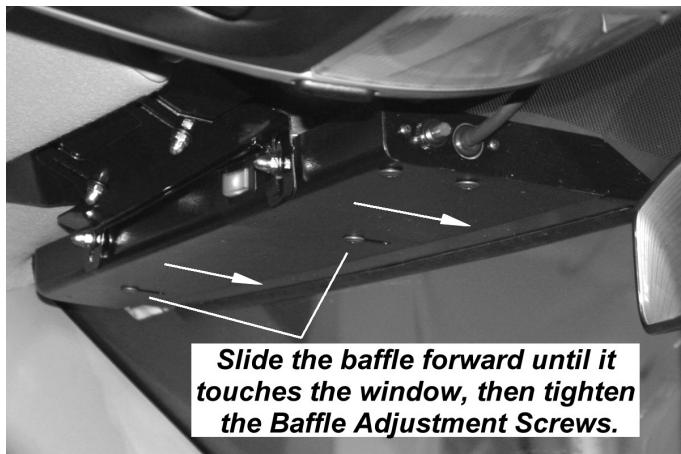
*The Half Phantom™ is designed to be mounted on the inside of your vehicle. It is not intended for exterior applications and is not warranted against water damage.*

*It is the sole responsibility of the owner to ensure the warning light is secure. Check your light every time you enter the vehicle to ensure that it is mounted securely. The manufacturer assumes no responsibility for the secure mounting of this light.*

## Baffle Adjustment

1. After the light has been mounted (see separate mounting instructions), if adjustments permit, slide the light forward until the top of it is touching the windshield.
2. Loosen the baffle screws and carefully slide the baffle forward until the gasket is forced slightly downward by the pressure of the windshield.
3. Tighten the Baffle Adjusting Screws to secure the baffle in place .

**CAUTION:** Take extreme caution not to over tighten the screws!!! Over tightening of the screws can strip the holes.



***Slide the baffle forward until it touches the window, then tighten the Baffle Adjustment Screws.***

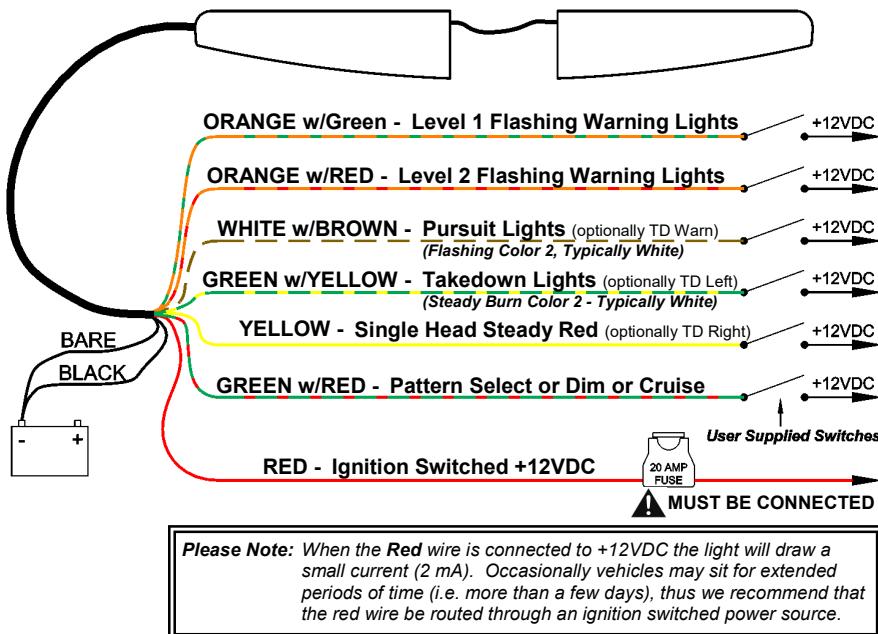
4. Once all of the brackets are securely tightened, check your mount to ensure the desired angle is achieved. Stand in front of the vehicle and inspect the light through the front windshield. The screws may be loosened slightly to allow for any final adjustments necessary.



## Wiring

For proper installation and full operability, this light requires a 20A ignition switched power source, connections to the negative terminal of the battery, and 4-6 external switches rated for a minimum 1A (*user supplied*).

These lights come with a pre-installed 8-conductor harness. In addition, the cable also contains a bare drain wire and foil shielding.



**!** 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.

## Programming

Programming is optional. If the default settings are acceptable, skip to the Operation section.

If you will be changing any of the options on your lightbar, this should be done prior to installation. Programmable features include the following:

- Pattern Selection
- Traffic Director or Takedown Mode
- Phase Selection (which heads alternate)
- Head Enable (which heads activate)
- Single Steady Head Option
- Dim Option (High-Low)
- Cruise Mode
- Resetting to Factory Defaults

*Programming (CONT'D)*

**Pattern Programming**

Not only does this light have several Patterns to select from, but it also incorporates advanced programming that allows you to select which heads flash On and Off with one another (Phase), and which heads are active in any of the functions (Head Enable).

The first step in programming is to select a basic pattern for each function:

- Level 1 Warning Lights (*Orange w/Green*)
- Level 2 Warning Lights (*Orange w/Red*)
- Pursuit (*White w/Brown*) or Traffic Director Warn Lights, if applicable
- Traffic Director L, C-O, R (*Yellow or Green w/Yellow*) \* **ONLY IF USING THIS MODE**

**Patterns for Warning Lights**  
*(Level 1, Level 2, and Pursuit)*

- 1 Flicker \*
- 2 Slow Singleflash
- 3 Fast Singleflash
- 4 Slow Doubleflash
- 5 Fast Doubleflash
- 6 Slow Tripleflash
- 7 Fast Tripleflash (*Level 2 default*)
- 8 Quadflash
- 9 Quintflash
- 10 Tripleflash w/Post Pop
- 11 Quadflash w/Post Pop
- 12 Quintflash w/Pre Pop
- 13 Singleflash Flicker \*\*
- 14 Doubleflash Flicker
- 15 Single, Quad w/Post Pop, Flicker
- 16 Delta-Omega
- 17 Moving Delta-Omega \*\*\*
- 18 Random 1
- 19 Random 2
- 20 Random 3
- 21 Flashing Bounce
- 22 Full Bounce (*Level 1 default*)
- 23 Split Bounce
- 24 Half Bounce
- 25 Bounce w/End Pop
- 26 Search Lights
- 27 Eyeballz
- 28 Fade Invert
- 29 Singleflash w/Alternating Ends
- 30 Triple In/Triple Out
- 31 Two Speed (*Pursuit default*)

\* Shortcut Pattern #1 (3 sec/1 flash)

\*\* Shortcut Pattern #2 (6 sec/2 flashes)

\*\*\* Shortcut Pattern #3 (9 sec/3 flashes)

1. Connect the Red wire to power and the Black wire to Ground.

2. Activate the function you wish to program by connecting the corresponding wire to +12VDC.

3. Touch and release the Green w/Red wire to +12VDC to scroll through the patterns shown to the left. (*Traffic Director L, C-O, R shown below.*)

*Note: At any time you can shortcut to the patterns indicated with the asterisks by holding the pattern select wire to +12VDC for the indicated time.*

4. Repeat for each function you wish to program.

**Patterns for Traffic Director**

*(Left, Right, and Center Out functions all use the same pattern)*

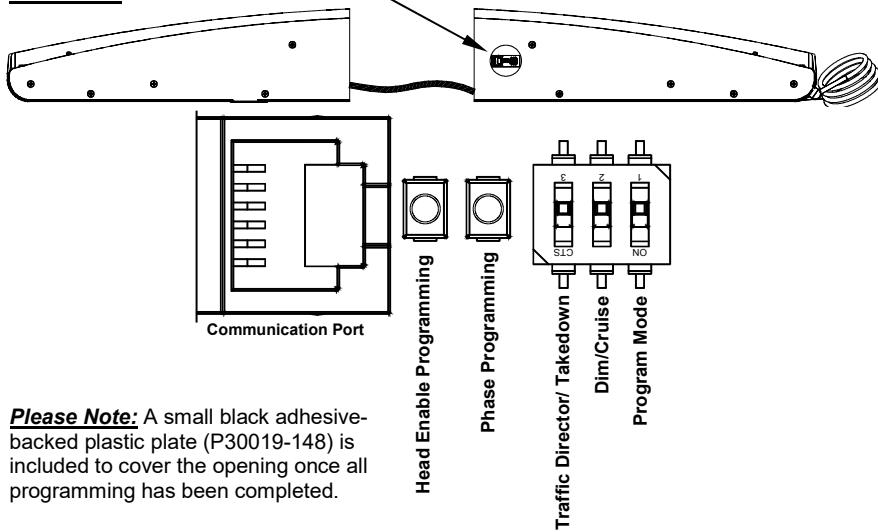
- 1 Standard \*
- 2 6-Head TD with End Flash
- 3 Standard w/End Blink
- 4 Two-Head Traveling
- 5 Fast \*\*
- 6 Ultra Fast
- 7 Four Head Traveling
- 8 Snake
- 9 Pop

\* Shortcut Pattern #1 (3 sec/1 flash)

\*\* Shortcut Pattern #2 (6 sec/2 flashes)

### **Programming (CONT'D)**

There are three DIP switches, two push-button switches, and a telephone-style jack, all located on the top of the light, that should be used to set any of these options **prior to installation.**



### **Traffic Director/Takedown DIP Switch**

This light has the option to operate in either Traffic Director Mode or Takedown Mode.

By default, these lights will be shipped with the Traffic Director Mode DIP switch **OFF** (UP in the picture above), thus enabling the Pursuit, Takedown, and the Single Steady Head functions.

If you will wish to use the Traffic Director functions of this bar (Warn, Left, Right, and C-O), you can move this DIP switch into Traffic Director Mode (DOWN/ON) which will replace the Pursuit, Takedown, and Single Steady Head functions with the Traffic Director Functions.

**Please Note:** *This switch does NOT change the colors of your LEDs. Depending upon the LED colors you ordered in the light, the color of the Traffic Director may not be desirable.*

### **Phase Selection (Programmable for Patterns 1-16 only)**

Each flashing head has two Phases, an "On" phase and an "Off" phase. You can program each head for either Phase, allowing you to customize which heads flash On together and which are Off together. This can be done for your **Level 1**, **Level 2**, and **Pursuit** functions.

1. Connect the **Red** wire to power and the **Black** wire to Ground.
2. Activate the function you wish to program by connecting the corresponding wire to +12VDC.
3. Press the **Phase Programming** button to scroll through the five optional Phase variations.
4. Repeat for each function you wish to program.

	Head 1	Head 2	Head 3	Head 4	Head 5	Head 6	Head 7	Head 8	Head 9	Head 10
Standard 1	Phase 1	Phase 2	Phase 1	Phase 2			Phase 2	Phase 1	Phase 2	Phase 1
Simultaneous 2	Phase 1	Phase 1	Phase 1	Phase 1			Phase 1	Phase 1	Phase 1	Phase 1
CAL T13 3	Phase 1	Phase 1	Phase 1	Phase 1			Phase 2	Phase 2	Phase 2	Phase 2
Alt Pairs 4	Phase 1	Phase 1	Phase 2	Phase 2			Phase 2	Phase 2	Phase 1	Phase 1
Center Two 5	Phase 1	Phase 1	Phase 1	Phase 1			Phase 1	Phase 1	Phase 1	Phase 1

Full-Size  
Phantoms  
Only

### ***Programming (CONT'D)***

#### **Head Enable**

This light also has the ability for the installer to select which heads are active for any given function. You may wish to de-activate several heads in your Level 1 Pattern to indicate less urgency. Or you may wish to have a 6 or 8 head Traffic Director pattern with the end heads flashing the Level 1 or 2 patterns. This option can be programmed for any of the functions.

1. Connect the **Red** wire to power and the **Black** wire to Ground.

2. Activate the function you wish to program by connecting the corresponding wire to +12VDC.

3. Press the **Head Enable Programming** button to scroll through the 13 optional variations. (*Note: only options 1-3 are available for the Traffic Director Functions.*)

	Head 1	Head 2	Head 3	Head 4	Head 5	Head 6	Head 7	Head 8	Head 9	Head 10
1	ON	ON	ON	ON						
2		ON	ON	ON						
3			ON	ON						
4				ON						
5										
6	ON									ON
7	ON	ON								ON
8	ON	ON	ON							ON
9	ON	ON	ON	ON						ON
10				ON						ON
11	ON	ON	ON							ON
12			ON	ON						ON
13	ON	ON								ON

Full-Size  
Phantoms  
Only

4. Repeat for each function you wish to program.

#### **Single Steady Head Programming** (Available in TAKEDOWN mode only - pg. 5)

Some applications (such as Cal. Title 13) require the use of a single steady head. If you are using this feature (Yellow wire) and wish to change the head location, proceed as follows:

1. Connect the **Red** wire to power and the **Black** wire to Ground.
2. Connect the **Yellow** wire to power and press and release the **Head Enable Programming** button to scroll through the various positions for the steady burn head.

	Head 1	Head 2	Head 3	Head 4	Head 5	Head 6	Head 7	Head 8	Head 9	Head 10
1										ON
2										ON
3										ON
4										ON
5										ON
6										ON
7										ON
8										ON
9										ON
10										ON

Full-Size  
Phantoms  
Only

#### **Dim Option** (cannot be used with Cruise Mode)

By default, the **Green w/Red** wire is normally used for Pattern Programming. This light also has the option of allowing you to use it to dim the light for nighttime operation. If you do not need this feature, skip this section.

If you wish to use the **Green w/Red** wire for the **Dim** function, proceed below:

1. AFTER PROGRAMMING YOUR FLASH PATTERNS, flip the **Dim/Cruise** DIP switch into the ON position (DOWN in the diagram on the previous page).
2. Connect the **Red** wire and the **Green w/Red** wire to power and the **Black** wire to Ground to activate Cruise Mode.
3. Press the **Phase Programming** button once. Now when a function is activated and +12VDC is applied to the **Green w/Red** wire, the light will dim.

### ***Programming (CONT'D)***

#### ***Cruise Mode*** (*cannot be used with Dim Option*)

This light has the option of allowing you to use the **Green w/Red** wire to activate Cruise Mode. Cruise Mode is a dim steady burn mode that can be enabled on some or all of the heads. If you do not need this feature, skip this section.

By default, the **Green w/Red** wire is normally used for Pattern Programming. If you wish to utilize Cruise Mode, proceed as follows:

1. AFTER PROGRAMMING YOUR FLASH PATTERNS, flip the **Dim/Cruise** DIP switch into the ON position (DOWN in the diagram on the following page).
2. Connect the **Red** wire and the **Green w/Red** wire to power and the **Black** wire to Ground.
3. Select which Cruise Mode option that you want:
  - **Low Priority (All other functions override Cruise):** Hold the **Phase Programming** button until the light flashes once.
  - **High Priority (Cruise overrides all other functions):** Hold the **Phase Programming** button until the light flashes twice.

To change the **Green w/Red** wire to Dim functionality, activate Cruise Mode and press the **Phase Programming** Button once.

#### **Cruise Mode Head Selection**

By default Cruise Mode will illuminate all of the heads of one color in a dim steady burn mode. If desired, you can change which heads will be activated in Cruise Mode, and which color will be activated. ***Please Note:*** Although you can program each head to activate both colors and it will not harm the heads, it is not recommended that you do so.

1. Connect the **Red** wire to power and the **Black** wire to Ground.
2. Activate Cruise Mode by connecting the **Green w/Red** wire to +12VDC.
3. Decide which color you would like to program:
  - To program Color 1: Press and hold the **Head Enable Programming** button until the light flashes once.
  - To program Color 2: Press and hold the **Head Enable Programming** button until the light flashes twice.
4. Press and release the **Head Enable Programming** button to scroll through the 14 optional variations shown below.
5. If needed, repeat for the other color.

	Head 1	Head 2	Head 3	Head 4	Head 5	Head 6	Head 7	Head 8	Head 9	Head 10
1	ON	ON	ON	ON			ON	ON	ON	ON
2		ON	ON	ON			ON	ON	ON	
3			ON	ON			ON	ON		
4					ON					
5										
6	ON									ON
7	ON	ON							ON	ON
8	ON	ON	ON					ON	ON	ON
9	ON	ON	ON	ON			ON	ON	ON	ON
10					ON					
11	ON	ON	ON					ON	ON	ON
12				ON	ON			ON	ON	
13	ON	ON							ON	ON
14										

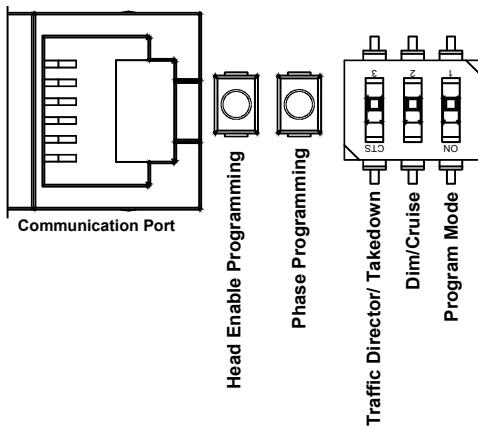
Full-Size  
Phantoms  
Only

***Programming (CONT'D)***

**Factory Default Settings**

To reset the light to all of the factory default settings, proceed as follows:

1. Flip the **Program Mode** switch ON position (DOWN in the diagram below). All Traffic Director (or Pursuit) lights should start flashing.
2. Press and hold the **Head Enable Programming** button until the Traffic Director (or Pursuit) lights go off and all of the heads light up sequentially from left to right.
3. Once all of the heads are illuminated, release the **Head Enable Programming** button and the light will be restored to the factory default settings.
4. Flip the **Program Mode** DIP switch into the OFF position. Reprogramming should be completed.



## ***Operating Instructions***

Main control of this light is done through the wires in the harness. They should be connected to +12VDC through several switches (*user supplied*) as described in the ***Wiring*** section.

### **Level 1 Flashing Mode (Orange w/Green)**

This is usually intended as a slower, less urgent mode typically used when parked. The colored lights will flash in the pattern you have them programmed for. If Pursuit Mode or TD Warn is already activated, those lights will continue to flash, along with the Level 1 lights.

### **Level 2 Flashing Mode (Orange w/Red)**

This mode is intended for high-urgency situations, such as a high speed chase, requiring significant warning power. It is usually a faster pattern than Level 1. The colored lights will flash in the pattern you have them programmed for. Level 2 will override Level 1 lights. If Pursuit Mode or TD Warn is already activated, those lights will continue to flash, along with the Level 2 lights.

### **Functions Only Available with DIP switch in TAKEDOWN Mode (default setting)**

#### **Pursuit Mode (White w/Brown)**

Usually activated when in pursuit of another vehicle. These lights (typically white) will flash in the pattern you have them programmed for.

#### **Takedowns (Green w/Yellow)**

These are steady burn lights (typically white) that are used to illuminate the scene once a vehicle has been pulled over. This mode will override all others, stopping all flashing for heads that have Takedown mode enabled.

#### **Single Head Steady (Yellow)**

When activated, the preprogrammed light will be activated in a steady burn mode.

#### **Burst Mode (Green w/Yellow and Green w/Red)**

***Please Note:*** This mode is only available in Takedown Mode AND if you have the Dim/Cruise Option disabled (see pages 6-7).

This mode will temporarily "burst" the steady burn lights (typically white) into an "extra bright" mode for 30 seconds. A 30 second cool down period is then required before the Burst Mode can be activated again.

### **Functions Only Available with DIP switch changed to TRAFFIC DIRECTOR Mode**

#### **TD Warn (White w/Brown)**

Usually activated when a vehicle has been pulled over. The amber lights will flash in the WARN pattern you have them programmed for.

#### **TD Left (Green w/Yellow)**

Applying +12VDC to this wire will produce a pattern directing traffic left.

#### **TD Right (Yellow)**

Applying +12VDC to this wire will produce a pattern directing traffic right.

#### **Center-Out (Green w/Yellow) and (Yellow)**

Applying +12VDC to BOTH of these wires will produce the Center-Out Pattern.

### **Functions Available Only with DIP switch set for DIM/CRUISE Mode**

#### **Dim or Cruise (Green w/Red)**

If the Dim/Cruise Switch is set for ON, then, depending upon the Dim/Cruise programming described on pages 6-7, applying +12VDC will either dim the light (typically used in nighttime applications) or it will activate Cruise Mode.

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 Star Headlight 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.

**NOTE:** Most failures can be traced to wiring and battery problems. Check "quick-connects" and wiring to insure that correct voltage/polarity is reaching the electronic strobe light/LED beacon.

#### **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.

### NOTICE

Due to continuous product improvements, we reserve the right to change any specifications and/or information contained in this manual at any time without notice. Star Headlight & Lantern Co., Inc. makes no warranty of any kind with regards to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Star Headlight & Lantern Co., 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.



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