

# SB44-8

## Advanced Programmable Switchbox w/Optional Traffic Director Controller



**Important:** This product is used to **direct** traffic. Improper use may result in vehicular collision, personal injury and/or death. Star Safety Technologies and its subsidiaries shall not be held responsible for damages directly or indirectly caused by improper use of this product. Always carefully consider the effect on traffic that the selected light pattern will have before engaging the lights.



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An ISO 9001:2015 Certified Company

### 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.



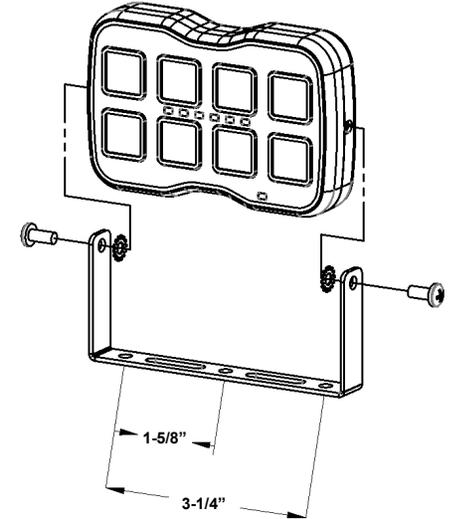
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## Mounting

- Select a place to mount your controller that is a dry location out of direct sunlight, free of dirt and dust. Under the vehicle's instrument panel is usually the best choice.
- After identifying where your lights will be mounted, determine the path(s) the wires will take.

A U-bracket (P/N 274-SB44-U) is included for mounting.

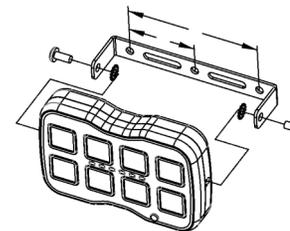
Attach the U-Bracket to the controller as shown to the right. The bracket is designed such that it can be swiveled in any direction depending upon your mounting location. Use appropriate hardware (not included) to attach the U-Bracket to your mounting surface.



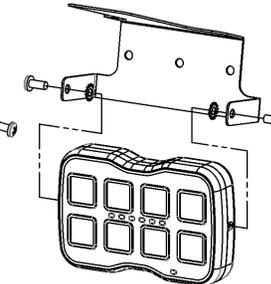
### Optional Mounts

(Sold Separately)

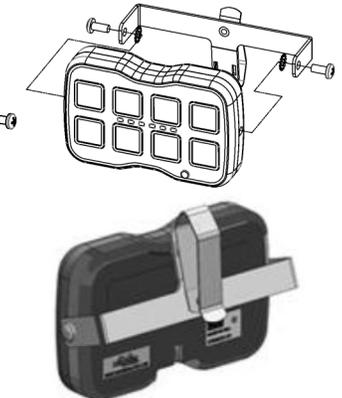
#### Low Profile U-Bracket 274-SB44-ULP



#### Headliner Bracket 274-SB44-H



#### Visor Clip Bracket 274-SB44-VC

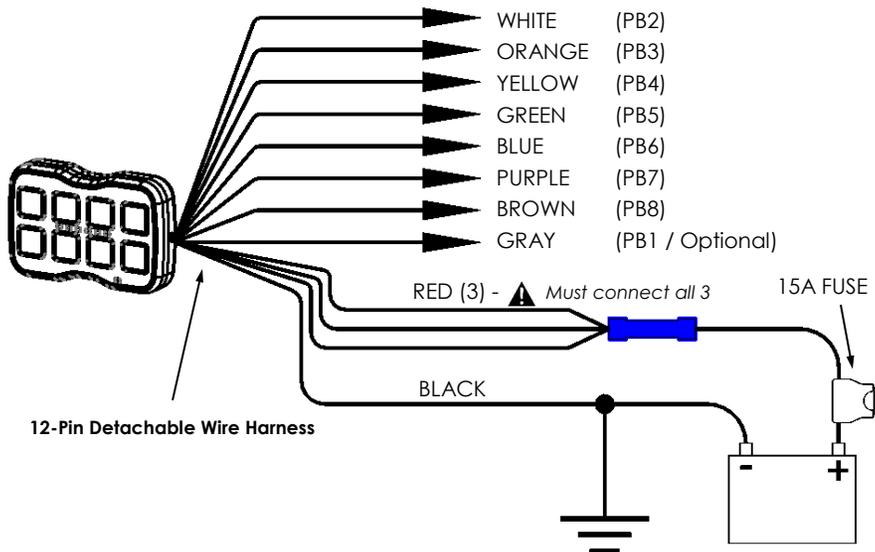


## Electrical Connections

### SPECIFICATIONS

**Operating Voltage:** 10-16VDC  
**Max Total Output:** 15A  
**PB2-PB7 Max Output (each):** 2.5A avg. (5.0A peak)  
**PB8 (and PB1, if used) Max Output:** 60mA  
**Standby Current (Off):** <1mA  
**Operating Temperature:** -40° to 55°C

<u>Wire Color</u>	<u>Button</u>	<u>Standard Function</u>	<u>Optional Function</u>
WHITE	2	Auxiliary Device +12VDC	Flashing Output
ORANGE	3	Auxiliary Device +12VDC	Flashing Output
YELLOW	4	Auxiliary Device +12VDC	Flashing Output
GREEN	5	Auxiliary Device +12VDC	Flashing Output or Traffic Director Left or Wait
BLUE	6	Auxiliary Device +12VDC	Flashing Output or Traffic Director Right or Yelp
PURPLE	7	Auxiliary Device +12VDC	Flashing Output or Traffic Director Center-Out
BROWN	8	Low Current Auxiliary Device +12VDC	Flashing Output or Ground-side Switching or Traffic Director Warn
GRAY	1	N/A	Optional Output (See Advanced Programming to enable the Gray wire) or Flashing Output
BLACK	N/A	Ground/Battery Negative	N/A
RED (3)	N/A	Battery Positive (12VDC)	N/A



## Standard Programming Options

These controllers have several basic options that can be programmed by following the instructions below.

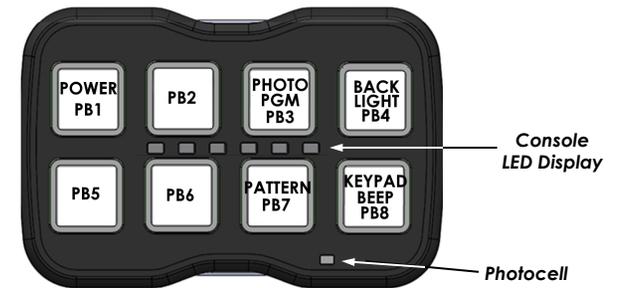
**PHOTO PGM:** Toggles smartphone programming mode On/Off (OFF by default) (See *Smartphone Programming* section)

**BACK LIGHT:** Scrolls through 14 options of brightness for the backlighting

**PATTERN:** Scrolls through 10 pattern options. This option only applies if you have enabled a flashing output (see *Advanced Programming*)

**KEYPAD BEEP:** Toggles keypad tones On/Off (ON by default)

1	FLICKER
2	FAST DOUBLE
3	TRIPLE Phase 1
4	PSEUDO-FLICKER
5	PSU RANDOM
6	QUAD
7	QUAD W/PP
8	SINGLE
9	DOUBLE
10	DELTA OMEGA



To program any of the options listed above proceed below:

1. To enter Programming Mode, press and hold the **POWER** button until you hear an oscillating tone and **PB2, PB5, and PB6** turn off.
2. Review the diagram above. While continuing to hold the POWER button, press and release the corresponding push button to toggle the option that you wish to change.
5. Once you have finished programming all of the desired options, release the **POWER** button.

### Smartphone Programming

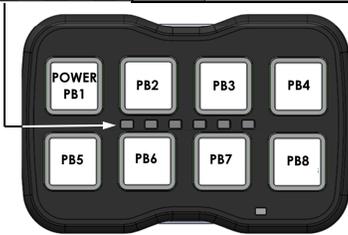
Programming of the controller can also be done using our smartphone app and any smartphone with a flash.

1. Download the SB44 programming app from the app store.
2. Select the desired options in the app.
3. Place the controller into *Smartphone Programming Mode* by holding the **POWER** button until you hear an oscillating tone and **PB2, PB5, and PB6** turn off, then, while continuing to hold the **POWER** button, press and release **PB3**.
4. Release the **POWER** button on the controller, hold the flash of your smartphone next to the photocell (see diagram above), and click Send. **PB3** will flicker as the controller receives the data.
5. Once the data has successfully uploaded, the six Console Display LEDs will flash quickly. If they do not flash, you will need to repeat steps 2-6.

## Advanced Programming

These controllers have a wide variety of advanced programming options available. Please review the chart below that summarizes the programming of these options. Detailed descriptions of each option can be found on pages 4-6.

CONSOLE LED DISPLAY	PUSH BUTTON								
1	2	3	4	5	6	7	8		
[LED]	N/A	Remember Last State	Active Beep	Siren Mode	N/A	Flashing Feedback TD Functions	Flash When Active PB7 Center-Out	PB8 Ground Switched	
[LED]	N/A	N/A	POWER = Output	N/A	N/A	N/A	N/A	N/A	
[LED]	N/A	Momentary PB2	Momentary PB3	Momentary PB4	Momentary PB5	Momentary PB6	Momentary PB7	Momentary PB8	
[LED]	N/A	Normally Open PB2	Normally Open PB3	Normally Open PB4	Normally Open PB5	Normally Open PB6	Normally Open PB7	Normally Open PB8	
[LED]	N/A	Flashing Output PB2	Flashing Output PB3	Flashing Output PB4	Flashing Output PB5	Flashing Output PB6	Flashing Output PB7	Flashing Output PB8	
[LED]	N/A	N/A	PB2 ↗ PB3	PB2 ↘ PB4	PB2 ↙ PB5	PB2 ↘ PB6	PB2 ↗ PB7	PB2 ↘ PB8	
[LED]	N/A	N/A	PB2 ↘ PB3	PB2 ↗ PB4	PB2 ↙ PB5	PB2 ↘ PB6	PB2 ↗ PB7	PB2 ↘ PB8	
[LED]	N/A	PB2 PHASE	PB3 PHASE	PB4 PHASE	PB5 PHASE	PB6 PHASE	PB7 PHASE	PB8 PHASE	
[LED]	N/A	Factory use only							



To program any of the Advanced Options listed above proceed below:

1. Press and hold the **POWER** button until you to enter Programming Mode. You should hear an oscillating tone and **PB2**, **PB5**, and **PB6** will turn off.
2. While continuing to press the **POWER** button, also press and hold **PB5** and **PB8** until the controller emits a tone. This will place the controller into Advanced Programming Mode and you can release all of the buttons.
3. Review the chart above. Press and release the **POWER** button to scroll through the Console LED Displays until you reach the one that corresponds to the option that you wish to reprogram.
4. Use the corresponding push button to toggle the option that you wish to change.
5. Once you have finished programming all of the desired options, hold the **POWER** button down until you hear a tone.

### Advanced Programming Option Descriptions

**Remember Last State:** (OFF by default) - Normally, when power is applied to the RED wires, the controller itself will be ON (all individual functions OFF though). If you want the controller to remember whether it was ON or OFF when power was removed from the Red wires, and then return to that state when power is applied again, activate this feature by toggling this option.

(Advanced Programming Option Descriptions CONT'D)

**Active Beep:** (OFF by default) - Unit will produce a slow beep whenever any function is active.

**Siren Mode:** (OFF by default) - PB5 and PB6 operate with “radio” functionality (activating one turns the other off). This is designed if you want to control the Wail (PB5) and Yelp (PB6) functions of a siren. *(Note: Cannot be used in conjunction with the Traffic Director option.)*

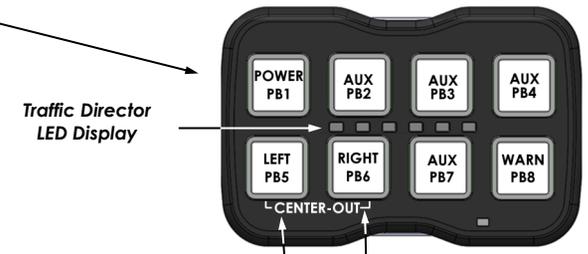
**Flashing Feedback:** (OFF by default) - Turns on button feedback (button light flashes) for any buttons programmed for Flashing Output (see next page).

**Flash When Active:** (OFF by default) - The end two LEDs of the Traffic Director LED Display on the controller will flash whenever any of the functions on the controller is activated.

**PB8 Ground Switched:** (OFF by default) - If you would like **PB8** to switch GROUND rather than POWER, activate this option. **(100mA max)**

**POWER = Output:** (OFF by default) - The **POWER** button (**PB1**) normally turns the controller on and off. If you would like to use the **POWER** button to control an additional output (the GRAY wire), activate this option. **(60mA max)**

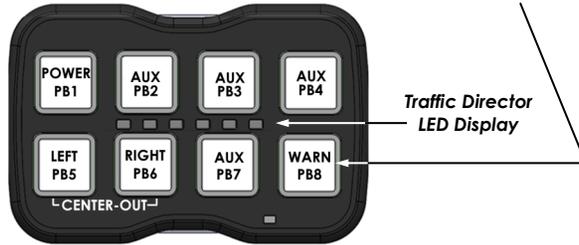
*Note: If you use this option, the controller will always be ON whenever power is supplied to any of the RED wires.*



**TD Functions:** (OFF by default) - Normally **PB5** and **PB6** are used to activate auxiliary devices. If you want to use these buttons to operate a Traffic Director, toggle this option ON. When this option is enabled, the LED display will mimic the Traffic Director output whenever buttons **PB5** (Left Arrow), **PB6** (Right Arrow), and **PB5+PB6** (Center Out) are pressed. This option also turns on the “radio” functionality of these buttons which allows only one of them to be active at a time. *(Note: Cannot be used in conjunction with the Siren Mode option.)*

**PB7 Center-Out:** (OFF by default) - Normally, if you enable the TD Function option, the controller will activate the Center-Out Traffic Director function by pressing **PB5+PB6** (Left+Right) simultaneously. If your Traffic Director utilizes a separate Center-Out wire, and you would like to utilize **PB7** to activate the Center-Out pattern, toggle this option. When **PB7** is pressed, the LED display on the controller will mimic a Center-Out pattern and **PB5**, **PB6**, and **PB8** will automatically turn off.

**PB8 Warn:** (OFF by default) - If you enable the TD Function option and want to utilize **PB8** to activate the Warn pattern on your Traffic Director, toggle this option ON. When PB8 is pressed, the LED display on the controller will mimic a Warning pattern and **PB5**, **PB6**, and **PB7** (if in C-O mode) will automatically turn off.



**PB# Momentary:** (OFF/LATCHED by default) - Normally each PB activates its corresponding function when pressed, then de-activates when pressed again (i.e. latched). Toggle this option if you would like the corresponding function to only activate while holding the button down.

**Normally Open PB#:** (ON/OPEN by default) - By default each PB is OPEN when the controller is powered up. When a button is pressed it CLOSES and applies power to that output. Toggle this option if you would like the corresponding output to automatically be CLOSED when the controller is activated and OPENED when you press the button.

*Note:* This will also increase the Standby Current load to  $\approx 20mA$  plus the loads of the connected accessories.

**Flashing Output PB#:** (OFF by default) - If you want the output tied to this PB to flash, toggle this option (typically used to flash dummy heads). Review the **Standard Programming Options** section of the manual to change the flash pattern.

**PB2 ↗ PB#:** (OFF by default) - Toggling this option will automatically activate the corresponding PB# whenever **PB2** is activated (applies to **PB3-PB8**).

**PB2 ↘ PB#:** (OFF by default) - Toggling this option will automatically de-activate the corresponding PB# whenever **PB2** is de-activated (applies to **PB3-PB8**).

**PB# PHASE:** (OFF/PHASE 1 by default) - Applies to only outputs with the Flashing Output enabled. Toggling this option will change the Phase of the flash (used to determine simultaneous or alternating flashing).

Once your controller is installed, please test all the functions to familiarize yourself with the operation of the controller.

## Reset to Defaults

You can reset this controller to the factory default setting by following these steps:

1. Hold the **POWER** button and you will hear an oscillating tone and **PB5** and **PB6** turn off.
2. While continuing to press the **POWER** button, hold **PB5** and **PB6** down until the TD LED Display flashes once, then twice, then three times.
3. Release all of the buttons to save your settings and exit Programming Mode.

## Troubleshooting

### Button Flashes Rapidly / No Output:

Individual over-current or short - If the controller detects a current greater than 4.5A (or a short) on any of the outputs, when that output is activated, the corresponding button will flash rapidly. Every few seconds the button will turn back on to check if the problem is resolved. If the controller still is over-current the button/output will error out again. If the over-current issue has been resolved the output will function normally.

### Controller Beeps And Deactivates One Or More Outputs:

System over-current - This controller has a maximum output of 15 amps. If this limit is exceeded, the system will beep and start turning off the outputs sequentially, starting with button 2, until the current is under 15 amps. Every few seconds the buttons will turn back on to check if the problem is resolved. If it has not, they will turn off again.

### Electrical Current Test:

While holding down the **POWER** button, the LED Display will indicate the amount of current being drawn by the currently active function.

**All Off** = ~ 0 amps  **All On** = Full Load/System Limit

## 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 a product must be returned for any reason, please contact our Repair Department at (585) 226-9500 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.