# Installation and Operation Instructions
# Outliner Series

**IMPORTANT! Read all instructions before installing and using. Installer: This manual must be delivered to the end user.**

**WARNING!**
**Failure to install or use this product according to manufacturer's recommendations may result in property damage, serious injury, and/or death to those you are seeking to protect!**

**Do not install and/or operate this safety product unless you have read and understood the safety information contained in this manual.**

1. **Proper installation combined with operator training in the use, care, and maintenance of emergency warning devices are essential to ensure the safety of emergency personnel and the public.**
2. **Emergency warning devices often require high electrical voltages and/or currents. Exercise caution when working with live electrical connections.**
3. **This product must be properly grounded. Inadequate grounding and/or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.**
4. **Proper placement and installation is vital to the performance of this warning device. Install this product so that output performance of the system is maximized and the controls are placed within convenient reach of the operator so that they can operate the system without losing eye contact with the roadway.**
5. **Do not install this product or route any wires in the deployment area of an air bag. Equipment mounted or located in an air bag deployment area may reduce the effectiveness of the air bag or become a projectile that could cause serious personal injury or death. Refer to the vehicle owner's manual for the air bag deployment area. It is the responsibility of the user/operator to determine a suitable mounting location ensuring the safety of all passengers inside the vehicle particularly avoiding areas of potential head impact.**
6. **It is the responsibility of the vehicle operator to ensure daily that all features of this product work correctly. In use, the vehicle operator should ensure the projection of the warning signal is not blocked by vehicle components (i.e., open trunks or compartment doors), people, vehicles or other obstructions.**
7. **The use of this or any other warning device does not ensure all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection, drive against traffic, respond at a high rate of speed, or walk on or around traffic lanes.**
8. **This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding emergency warning devices. Therefore, the user should check all applicable city, state, and federal laws and regulations. The manufacturer assumes no liability for any loss resulting from the use of this warning device.**

## Specifications:

Extreme Voltage: 10-16VDC
Temperature: -40C to 65C

| | Max Current @ 12VDC Nominal (A) | Max Power @ 12VDC Nominal (W) |
|---|---|---|
| **ED3724XX-L** | 0.5 | 6.4 |
| **ED3724XX-R** | 0.5 | 6.4 |
| **ED3736XX-L** | 0.7 | 9.2 |
| **ED3736XX-R** | 0.7 | 9.2 |
| **ED3760XX-L** | 1.1 | 13.8 |
| **ED3760XX-R** | 1.1 | 13.8 |
| **ED3772XX-L** | 1.3 | 16.6 |
| **ED3772XX-R** | 1.3 | 16.6 |

## 2013-2019 FORD EXPLORER

The Running Board lights for the 2013-2019 Ford Explorer fit under the vehicle's running board and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Note: Position brackets to avoid cutouts in pinch weld for jack clearance.**

**Step 2.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 3.** Using the provided screws, securely mount the bracket to the vehicle and the unit as shown in Figure 1.

**Step 4.** Repeat the process for the opposite side running board.

**Step 5.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

## 2015-2020 CHEVY TAHOE / 2014-2019 CHEVY SILVERADO

The Running Board lights for the 2015-2020 Chevy Tahoe / 2014-2019 Chevy Silverado fit under the vehicle's running board and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Remove three (3) 13mm bolts and one (1) 10mm bolt from under the rocker panel. (See Figure 1 & 2)

**Step 2.** Loosen, without removing, three (3) 13mm bolts (See Figure 3). Allowing the rocker panel assembly to lower ~1/4" (See Figure 4).

**Step 3.** Using the provided screws, mount the provided brackets to the unit where shown in Figure 5.

**Note: Bracket is slotted in order to use existing holes on the unit.**

**Step 4.** Slide the unit into position while guiding brackets to approximate locations (See Figure 6).

**Step 5.** Align brackets to existing mounting holes and fasten using three (3) 13mm bolts removed in Step 1.

**Step 6.** Fasten remaining bolts removed in Step 1 and tighted bolts loosened in Step 2.

**Step 7.** Repeat the process for the opposite side running board.

**Step 8.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

Figure 1


Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

## 2017 & 2019 DODGE RAM SERIES

The Running Board lights for the 2017 & 2019 Dodge Ram Series fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Note: Position brackets to avoid cutouts in pinch weld for jack clearance.**

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, mount the bracket to the vehicle using mount shown in Figure 2.

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

**Figure 2**

## 2020 CHEVY SILVERADO

The Running Board lights for the 2020 Chevy Silverado fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Note: Position brackets to avoid cutouts in pinch weld for jack clearance.**

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, mount the bracket to the vehicle using mount shown in Figure 2.

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

## 2015-2020 FORD F-SERIES

The Running Board lights for the 2015-2020 Ford F-150 fit under the vehicle's doors and above the running board (if equipped) and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Step 3.** Drill the mounting holes into the vehicle using a 1/4" drill bit.

**Step 4.** Using the provided screws and binding barrels, securely mount the bracket to the vehicle using mount shown in Figure 2.

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

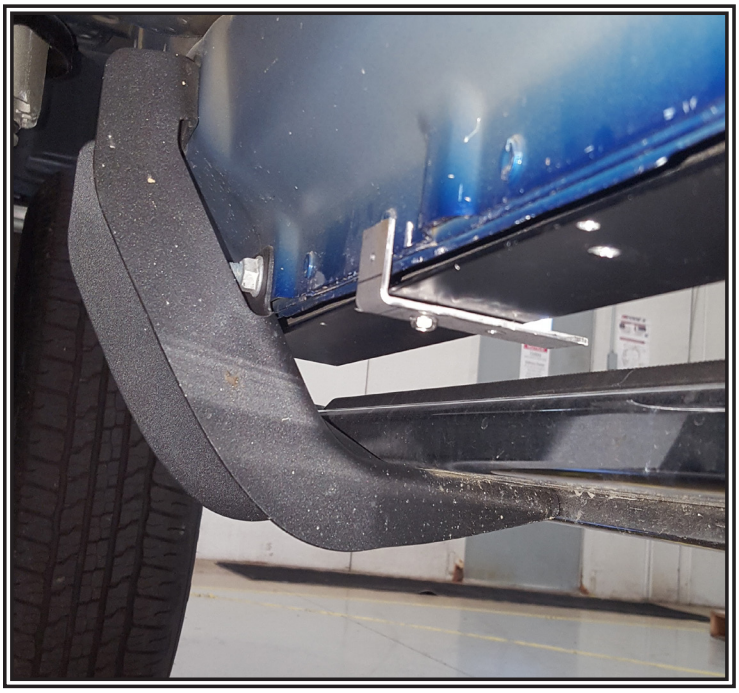

**Figure 2**

## 2019+ FORD RANGER

The Running Board lights for the 2019+ Ford Ranger fit under the vehicle's doors and above the running board (if equipped) and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Step 3.** Drill the mounting holes into the vehicle using a 1/4" drill bit.

**Step 4.** Using the provided screws and binding barrels, securely mount the bracket to the vehicle using mount shown in Figure 2.

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

## 2017 FORD FUSION

The Running Board lights for the 2017 Ford Fusion fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, securely mount the bracket to the vehicle using mount shown in Figure 2 (Bracket will be oriented so that the slot is on the light side and the single hole on the vehicle side as shown in Figure 1).

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

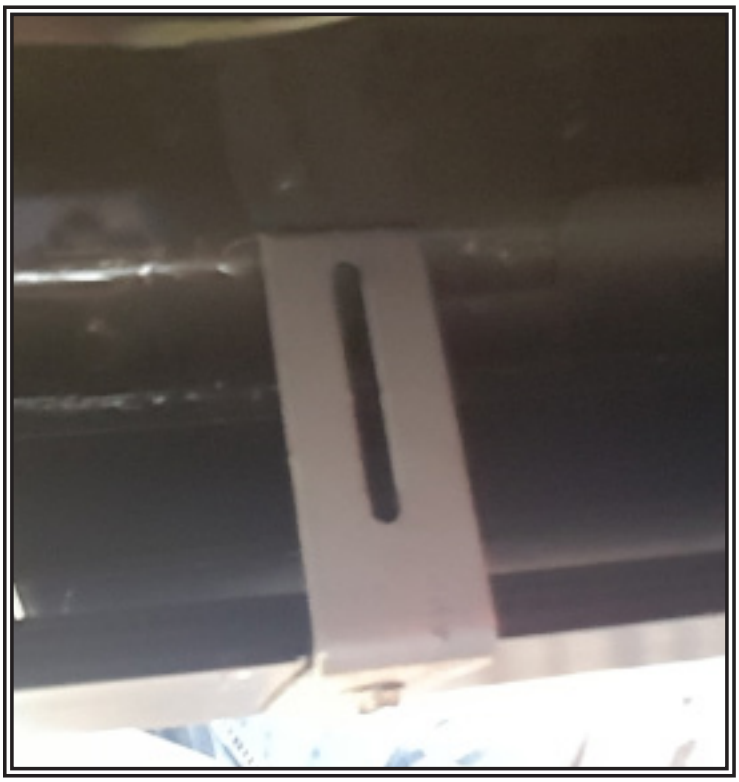

**Figure 2**

## 2016 FORD TAURUS

The Running Board lights for the 2016 Ford Taurus fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed (~1" of the light will be tucked behind plastic molding; See Figure 3).

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, securely mount the bracket to the vehicle using mount shown in Figure 2 (Bracket will be oriented so that the slot is on the light side and the single hole on the vehicle side as shown in Figure 1).

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

OPTIONAL: Plastic Molding concealing lights, shown in Figure 3, can be cut to reveal remaining LEDs.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

**Figure 2**

**Figure 3**

## 2018 DODGE DURANGO

The Running Board lights for the 2018 Dodge Durango fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws (See Figure 1).

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, securely mount the bracket to the vehicle using mount shown in Figure 2 (Bracket will be oriented so that the slot is on the light side and the single hole on the vehicle side as shown in Figure 1).

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

**Figure 2**

## 2020 FORD EXPLORER

The Running Board lights for the 2020 Ford Explorer fit under the vehicle's rocker panels and provide a lateral facing signal from the side of the vehicle.

### Installtion and Mounting Instructions:

**Step 1.** Mount the brackets to the light unit using the provided screws. (See Figure 1)

**Step 2.** From under the vehicle: Test fit the provided brackets to achieve the location needed for the mounting hole on the vehicle. Mark all four (4) hole positions needed.

**Step 3.** Drill the mounting holes into the vehicle using a #34 drill bit.

**Step 4.** Using the provided screws, mount the bracket to the vehicle using mount shown in Figure 2.

**Step 5.** Repeat the process for the opposite side running board.

**Step 6.** Route the lights wiring as desired.

**Note: Instructions are made using Driver's Side as example. To Reproduce results, revisit each step for Passenger Side.**

**Figure 1**

**Figure 2**

## Wiring Instructions:

Red - Positive (12V)
Black - Negative
White - Steady Secondary Color Override (Cut white wire for all models WITHOUT white lights)
Yellow - Synchronized Function
Blue - Pattern Select to negative
Green - Phase Select to positive(with Synchronized Function activated using yellow wire)
Red/White - Dim Control to positive

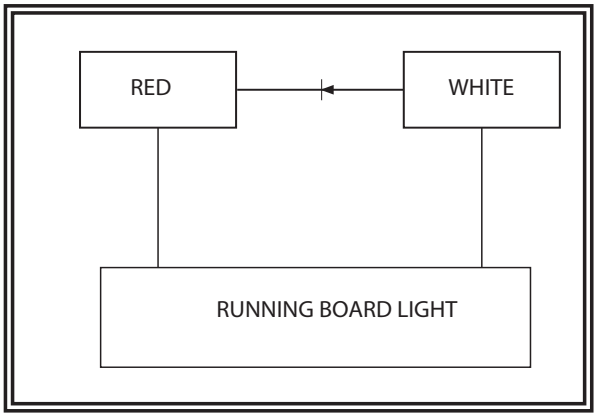


**Figure 1**

**To be able to run steady secondary color without having red wire activated, a diode will need to be installed according to the diagram. Suggested part: SB3100 from Diodes Incorporated (3AMP, 100V Schottky Diode) OR EQUIVALENT.

## Flash Patterns:

| Flash Pattern # | Description | FPM | Color | SAE J595 | | | | CA T13 |
|---|---|---|---|---|---|---|---|---|
| | | | | Yellow | Blue | Red | White | Red |
| 1 | Quint | 70 | Color 1, Color 1 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 2 | | | Color 1, Color 2 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 3 | | | Color 2, Color 1 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 4 | Single | 350 | Color 1, Color 1 | - | - | - | - | - |
| 5 | | | Color 1, Color 2 | - | - | - | - | - |
| 6 | | | Color 2, Color 1 | - | - | - | - | - |
| 7 | Double | 70 | Color 1, Color 1 | - | - | - | - | - |
| 8 | | | Color 1, Color 2 | - | - | - | - | - |
| 9 | | | Color 2, Color 1 | - | - | - | - | - |
| 10 | Quad | 80 | Color 1, Color 1 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 11 | | | Color 1, Color 2 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 12 | | | Color 2, Color 1 | CLASS 2 | - | CLASS 2 | CLASS 3 | - |
| 13 | Single | 180 | Color 1, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | - |
| 14 | | | Color 1, Color 2 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | - |
| 15 | | | Color 2, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | - |
| 16 | Single | 113 | Color 1, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 17 | | | Color 1, Color 2 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 18 | | | Color 2, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 19 | Quint | 60 | Color 1, Color 1 | - | - | - | - | - |
| 20 | | | Color 1, Color 2 | - | - | - | - | - |
| 21 | | | Color 2, Color 1 | - | - | - | - | - |
| 22 | Double | 95 | Color 1, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 23 | | | Color 1, Color 2 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 24 | | | Color 2, Color 1 | CLASS 2 | CLASS 3 | CLASS 2 | CLASS 2 | CLASS E |
| 25 | Arrow | 117 | Color 1, Color 1 | - | - | - | - | - |
| 26 | | | Color 1, Color 2 | - | - | - | - | - |
| 27 | | | Color 2, Color 1 | - | - | - | - | - |
| 28 | Cycle | 50 | Color 1, Color 1 | - | - | - | - | - |
| 29 | | | Color 1, Color 2 | - | - | - | - | - |
| 30 | | | Color 2, Color 1 | - | - | - | - | - |
| 31 | Steady Burn | N/A | Color 1, Color 1 | - | - | - | - | - |
| 32 | | | Color 2, Color 2 | - | - | - | - | - |

**Troubleshooting:**

| PROBLEM | QESTIONS | POSSIBLE CAUSE | SOLUTION |
|---|---|---|---|
| **Module Not Operating** | N/A | a. Bad power/ground connection<br>b. Defective module | a. Fix connection<br>b. Replace module |
| **Single Function not working** | N/A | Bad connection for that function | Fix wire connection for the corresponding function |
| **No functions** | N/A | a. Bad power/ground connection<br>b. Defective module | a. Fix connection<br>b. Replace module |