# KIT,P&P TOP LIGHTING FORD LIGHTNING

***CATALOG NUMBER***

**74486**

Driver Side



Passenger Side



Center Ceiling



***PRODUCT FEATURES***

**Integrated Truck Solution Lighting Kit For 2023+ Ford Lightning Trucks.**

- **This kit includes: (2) 24” strip lights on the driver’s side door, (2) 24” strip lights on the passenger’s side door, and (2) dome lights on the ceiling of the topper.**
- **The new Timer Lighting Module (TLM) is also included for battery protection in the event that the lights are left on for too long.**
- **This kit is the ideal lighting kit for all Lightning toppers, especially in concurrence with the Integrated Truck Solution HVAC Package.**
- **The lights will turn on with opening any of the topper doors.**



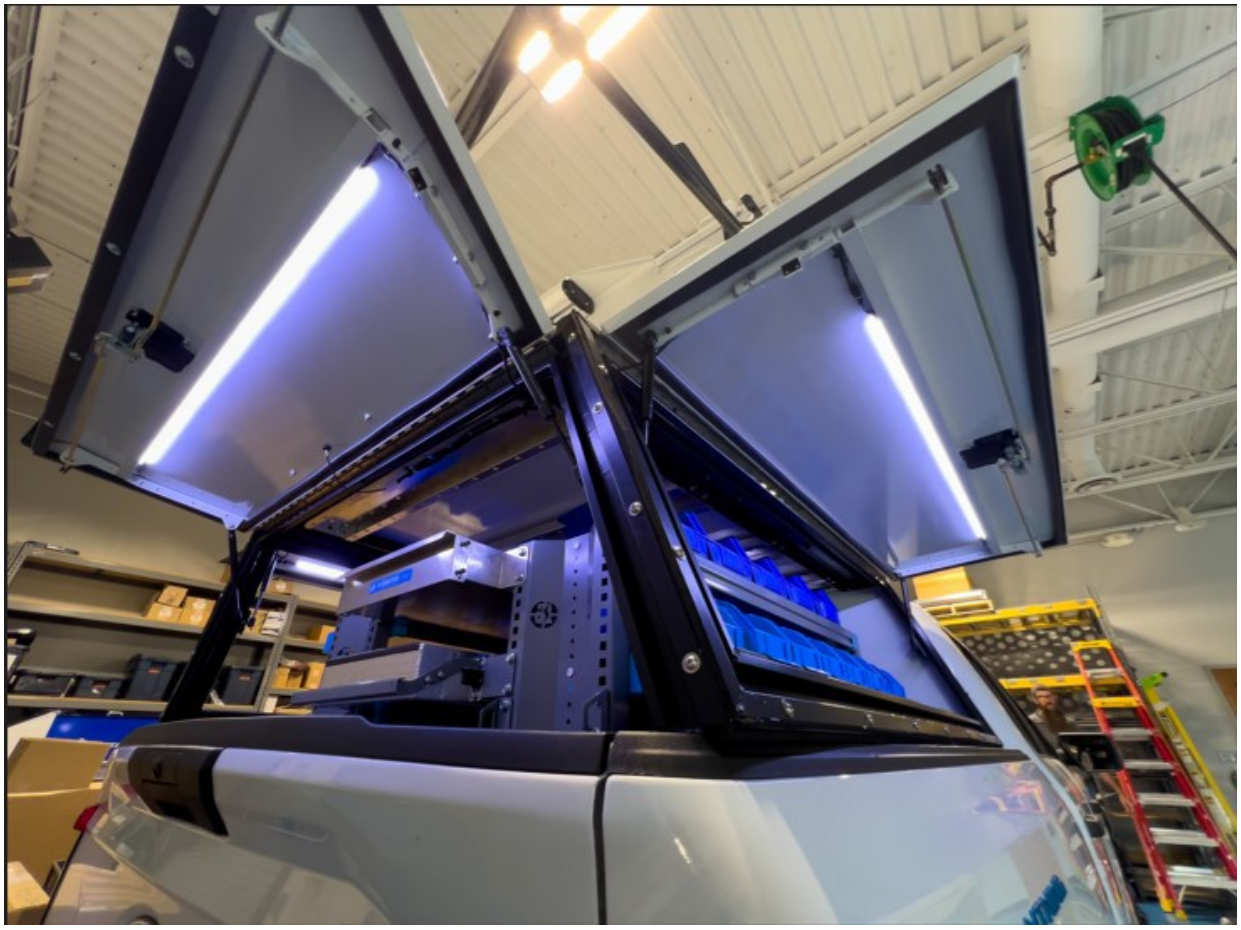
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## Introduction / Comments:

Install Instructions For Interior Lighting In Topper For Ford Lightning

### Note:

Read all instructions prior to installation. Review the Adrian Steel **GENERAL PRECAUTIONS PAGES (56638**) before attempting installation. Only personnel familiar with using electrical best practices should perform this install. Reference **ELECTRICAL BEST PRACTICES MANUAL (54479)** before attempting installation.



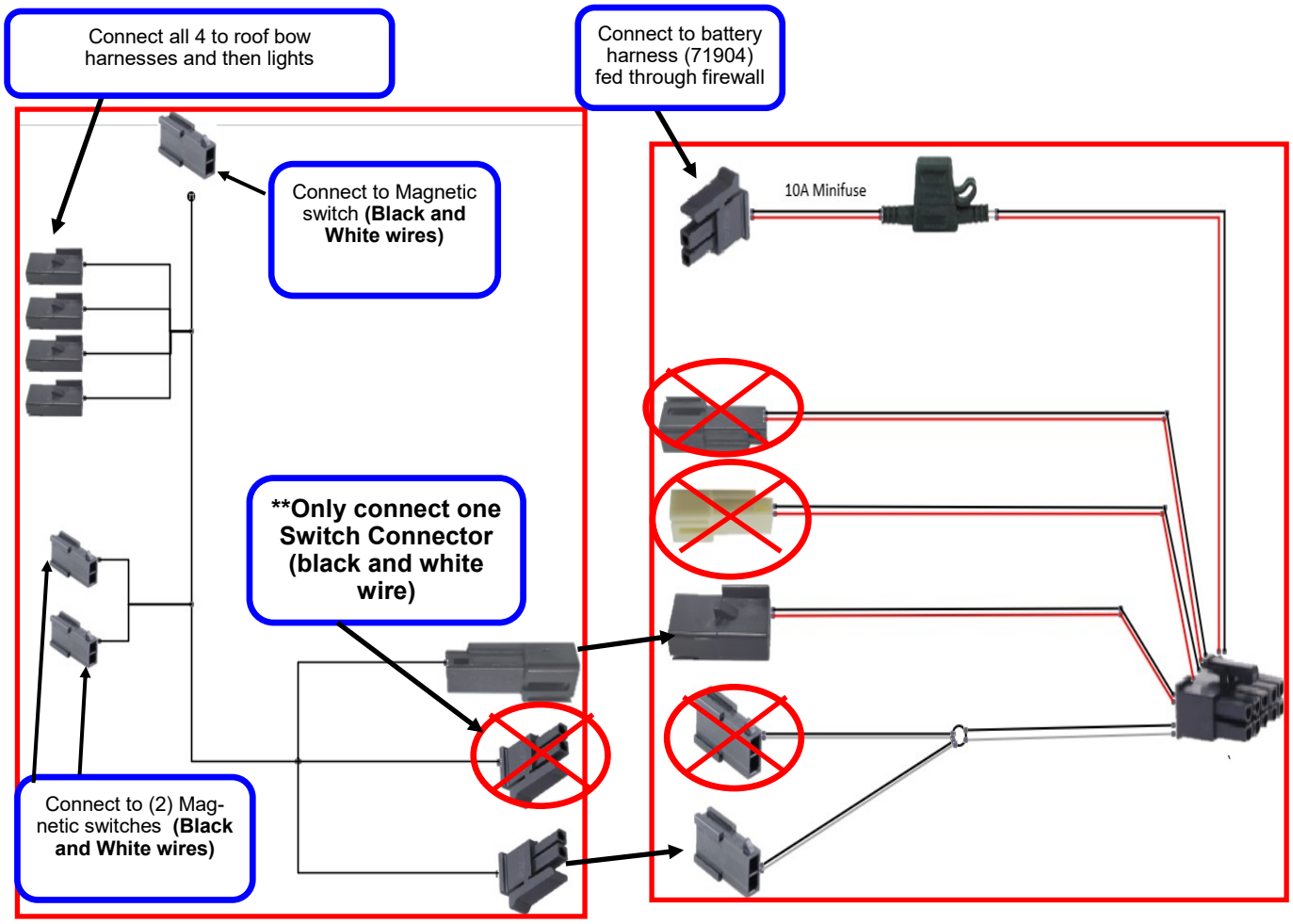
# Installation Instructions For Interior Lighting In Topper For Ford Lightning

****Please read statement below before moving forward****

These plug and play kits are completely modular and can be configured in many different ways. Placement of lights will be determined by sales order drawings/customer ask. Therefore, these instructions are for the most standard configurations, and for reference only.

# Overall Harness Diagram

**71905 Harness** **71902 TLM Harness**




# Tools Required:





Screwdriver

Power drill, 3/8” step drill bit



# Components:

Please note all these components may not be used in every install.
Only install what you have. Refer to the order drawing.
Integrated Truck Solution Kit 72548 components are denoted with a red star.















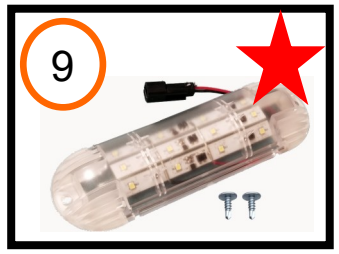


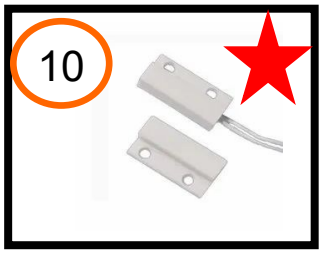




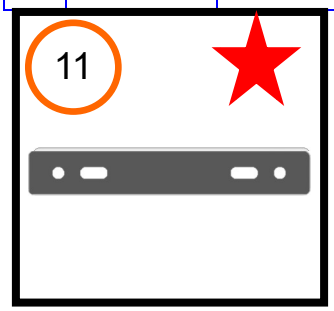


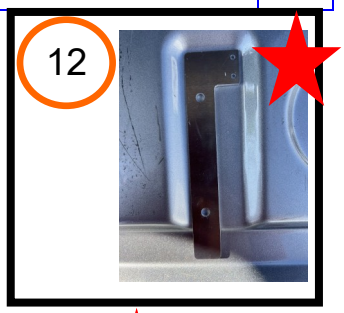


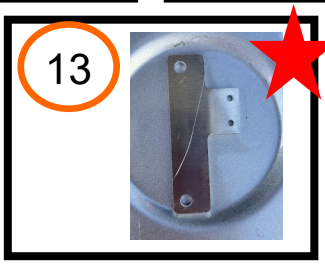



| | Part Number | Description | Qty |
|---|---|---|---|
| 1 | 71902 | TLM Module/Harness | 1 |
| 2 | 71904 | TLM To Battery Harness F1LT | 1 |
| 3 | 71905 | TLM To Lights Harness | 1 |
| 4 | 63481 | Roof Bow Harness #1 | 3 |
| 5 | 63482 | Roof Bow Harness #2 | 1 |
| 6 | 65346 | 24” Strip Light | 4 |
| 7 | 65347 | 36” Strip Light | |
| 8 | 65348 | 48” Strip Light | |
| 9 | 63480 | Dome Light | 2 |
| 10 | 71907 | Magnetic Switches | 3 |
| 11 | 73414-W | Magnetic Switch Bracket Spacer | 3 |
| 12 | 73415-W | Magnetic Switch Rear Bracket | 1 |
| 13 | 73416-W | Magnetic Switch Side Bracket | 2 |




**The purpose of plug and play lighting is to be completely modular. Due to this feature, refer to the order drawing for all exact lighting placements. These installation instructions are for most cases and for reference. Not all installs will have strobes, beacons, and lightbars. Reference the instructions for only what you are installing. Harness pictures are for reference only.**

# Light Kit's Offered

## Part Numbers/Kit Contents:

**74486 Integrated Truck Solution:** ★
Includes: (2) 24" strip lights on both sides of the side doors and 2 dome lights in the top, on the roof bows. Refer to all components denoted with a ★ and quantity in blue parenthesis on page 3.

**74564 (1) 48" Rear strip light on the back door**
Includes: (1) 48" strip light, (1) roof bow harness #1, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

**74496 (1) 48" Strip light on the driver side only**
Includes: (1) 48" strip light, (1) roof bow harness #1, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

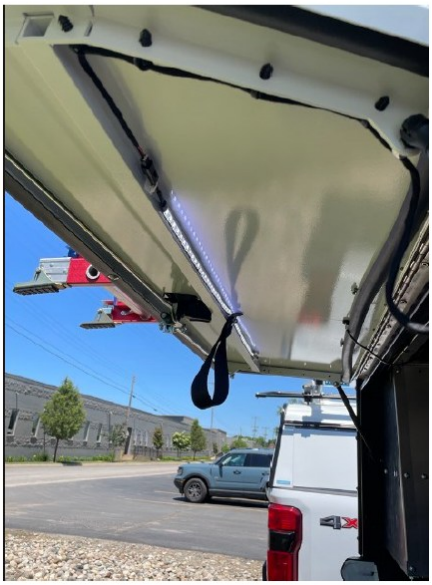
**74491 (1) 48" Strip light on the passenger side only**
Includes: (1) 48" strip light, (1) roof bow harness #2, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

**74560 (3) 48" Strip lights—rear, driver, and passenger side**
Includes: (3) 48" strip light, (1) roof bow harness #2, (2) roof bow harness #1, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

**Driver's Side Strip Lights**



Rear Side



**Passenger's Side Strip Lights**



# Walk In Light Kit's Offered

**Part Numbers/Kit Contents:**

**77624 Integrated Solution Kit**
Includes: (4) 24" strip lights on both sides of the side doors and 2 dome lights in the top, on the roof bows.

**77625 (1) 48" LED Light Strip for Passenger Side Only**
Includes: (1) 48" strip light, (1) roof bow harness #2, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

**77626 (1) 48" LED Light Strip for Passenger Side Only**
Includes: (1) 48" strip light, (1) roof bow harness #2, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1) Magnetic Switches Bag

**77627 (2) 48" LED Light Strip for both Passenger & Driver Sides**
Includes: (2) 48" strip light, (1) roof bow harness #2, (2) roof bow harness #1, (1) TLM Module, (1) TLM to Battery Harness, (1) TLM to Lights Harness, (1)Magnetic Switches Bag

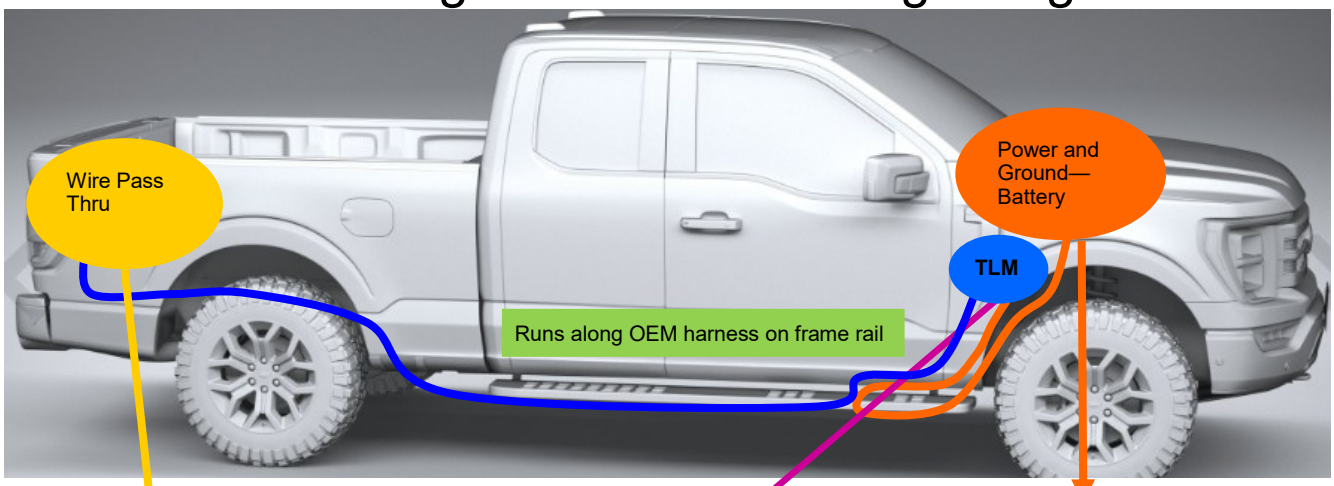
Driver Side



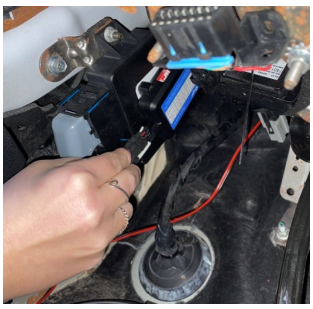
Passenger Side

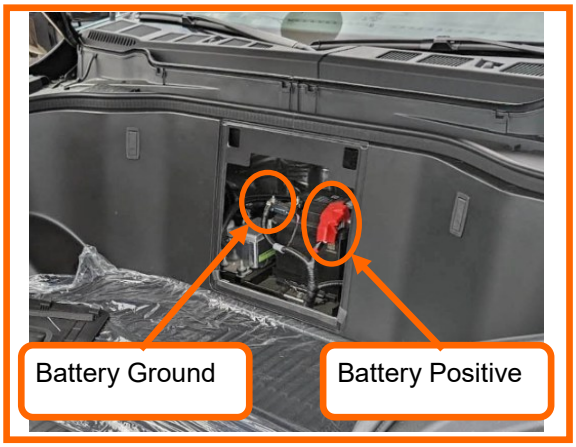


# Routing Overview: Ford Lightning



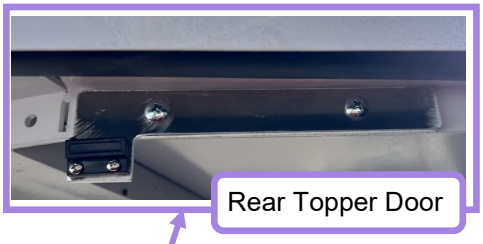


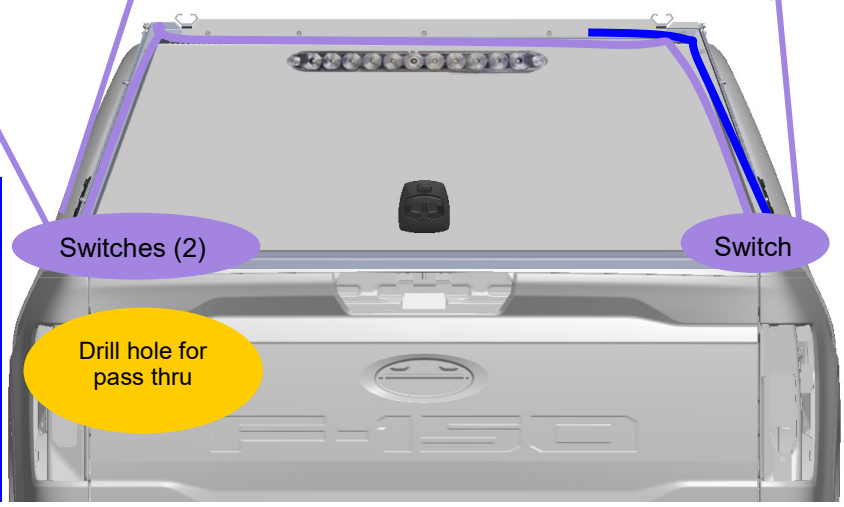










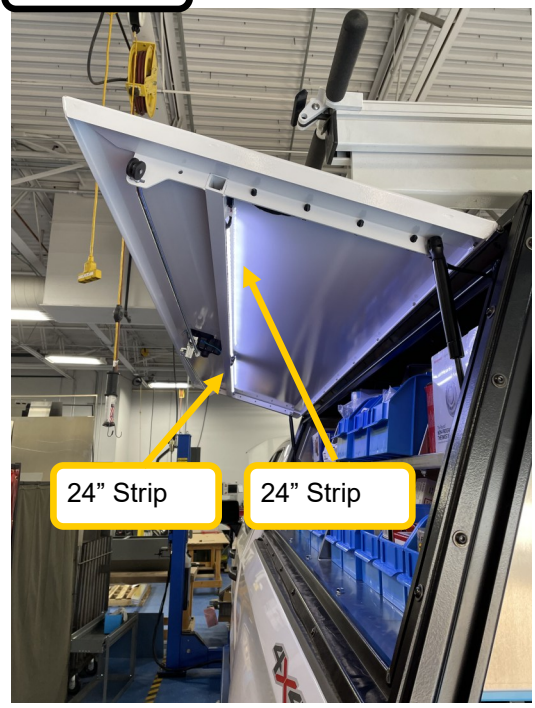



| Color | Key - Items |
|---|---|
| Orange | Power and Ground Location |
| Blue | Harness Routing From TLM To Topper |
| Purple | Switches And Switch Harness |
| Yellow | Bed Wire Pass Thru |

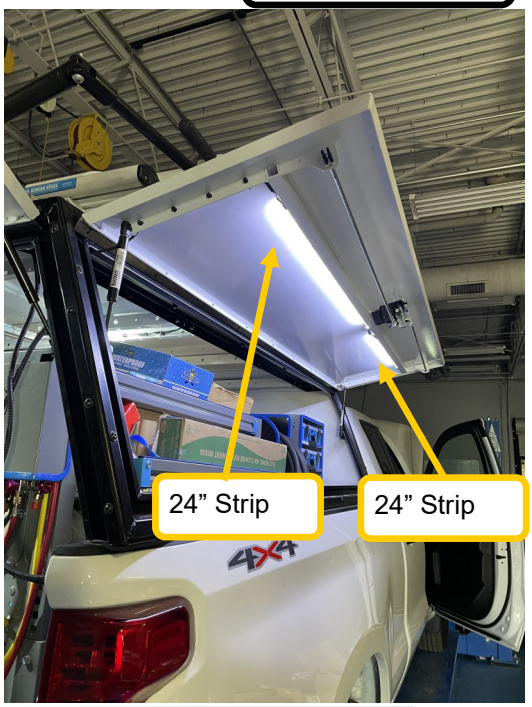
# Light Placements:

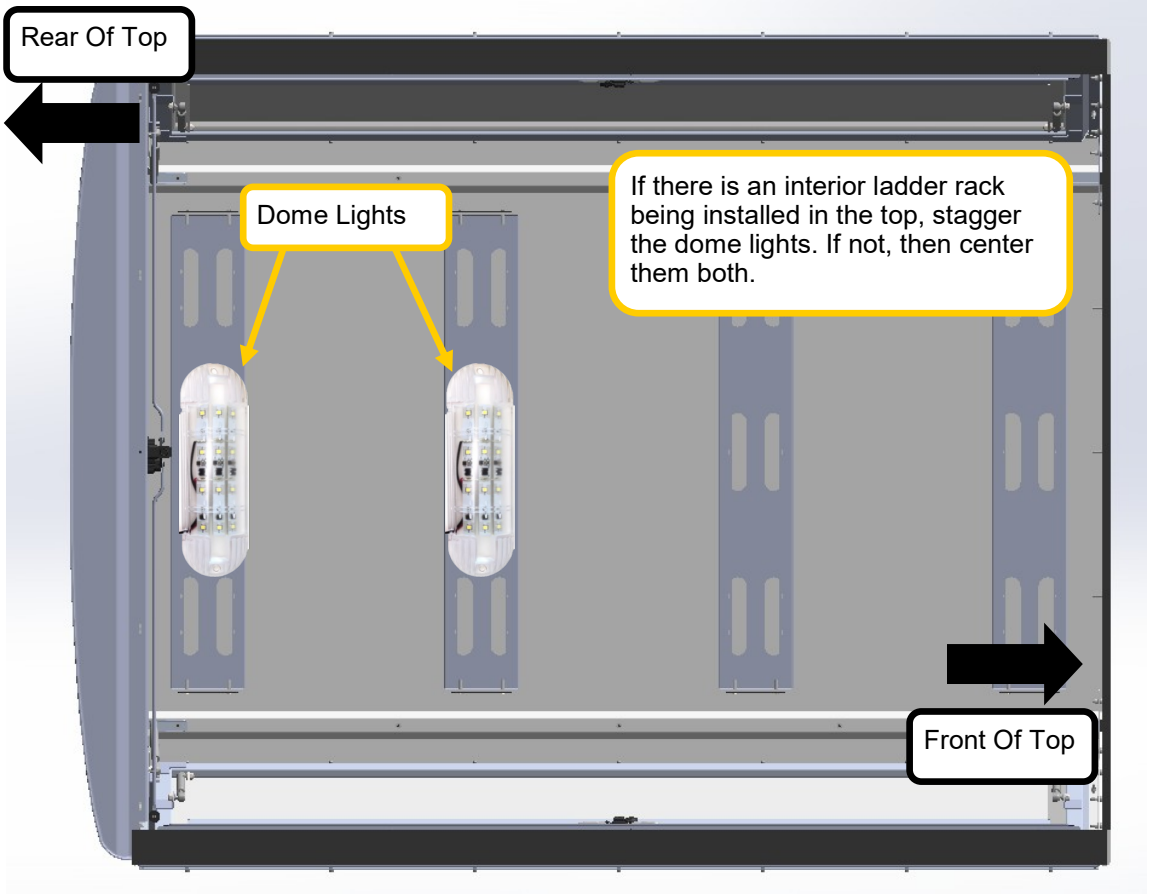
Please refer to the order drawing—not all lights will be used every install.
These are modular and created to work depending on customer needs.

Driver's Side

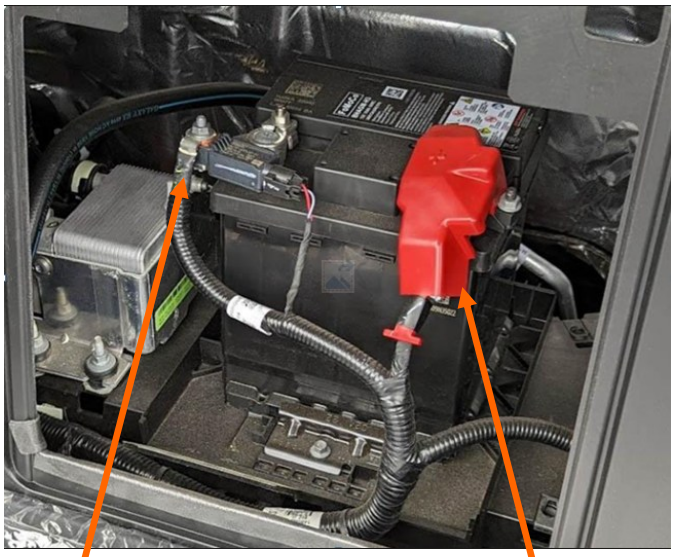



Passenger's Side



# FORD LIGHTNING




**Step 1:**

**Battery -**
Open the hood and locate the battery behind a panel in back of the frunk.

Locate the power harness 71904.

Remove the inline fuse in the fuse holder. Do not place fuse back into holder until after the install is complete.

Connect the **RED** wire ring terminal to the positive battery post shown in the picture to the left. Torque the nut to 55 lb.in (6.2 Nm). Do not over tighten,

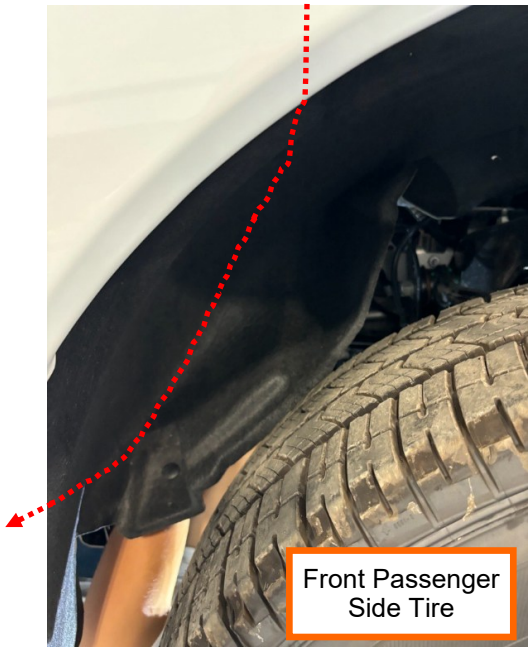
Connect the **BLACK** wire ring terminal to the negative battery post shown in the picture to the left. Torque the nut to 97 lb.in (11 Nm). Do not over tighten.

**Do not un-bolt the battery terminal clamps from the battery.**



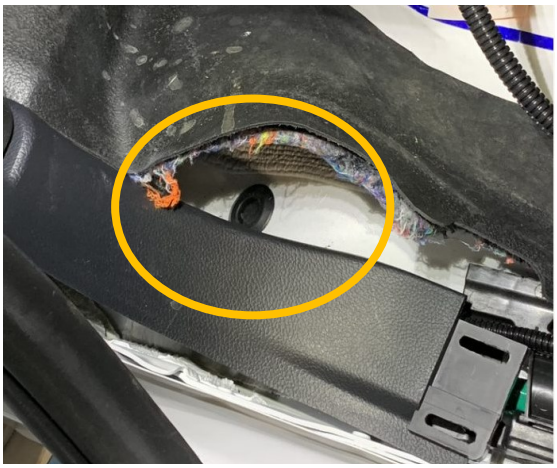
Remove left side panel next to frunk (circled to the left)

You will be routing harness down through this area to get to the wheel well under the vehicle

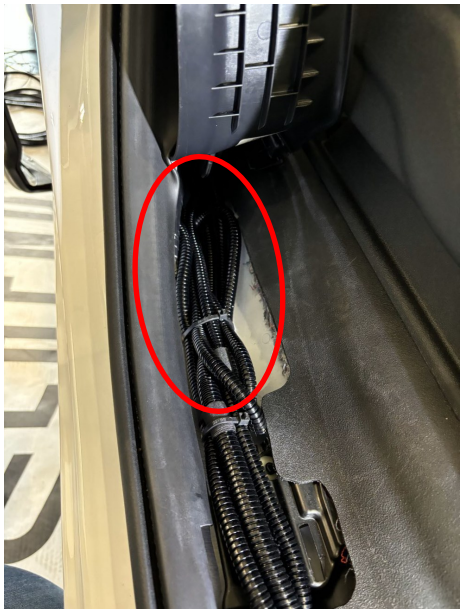



**Step 2:**

Feed harness completely to underside of vehicle to then be routed to the grommet under the passenger's side of the vehicle.



**Step 3:** Locate the passenger's side grommet. (Image to the left). Cut an "X" in the grommet to create opening for wiring. Feed harness completely through grommet up into the cab.



Route excess wire to be coiled underneath trim towards the middle of the cab as shown in the image to the left. Make sure you leave enough harness to get to the Timer Location Module under the passenger's side step well.

**For Rev A follow steps below:**





**Step 4:** Locate the Timer Low-Voltage Module (TLM) and harness — Part number: 71902

First, plug the harness into the module.

**Note:**
You will NOT use the cream colored connector or the matching black connector. You will be using the smaller black module output connector, one(1) switch harness connectors (black and white wires), and the black power supply connector.

*** Ensure that the fuse from the inline fuse holder has been removed until the end of the install.

Bring TLM to driver side, where power harness is fed through.



71904 fed through passenger seat grommet, connected to TLM



71905 and 71902 Connections

Please reference page 2 for the following connection information.

Locate the TLM to battery harness (71904) that has been routed through the firewall grommet and TLM power to light harness (71905).

On the 71904 harness, connect the black connector to the blunt red wire on the TLM. (Circled in red in first image, on top).

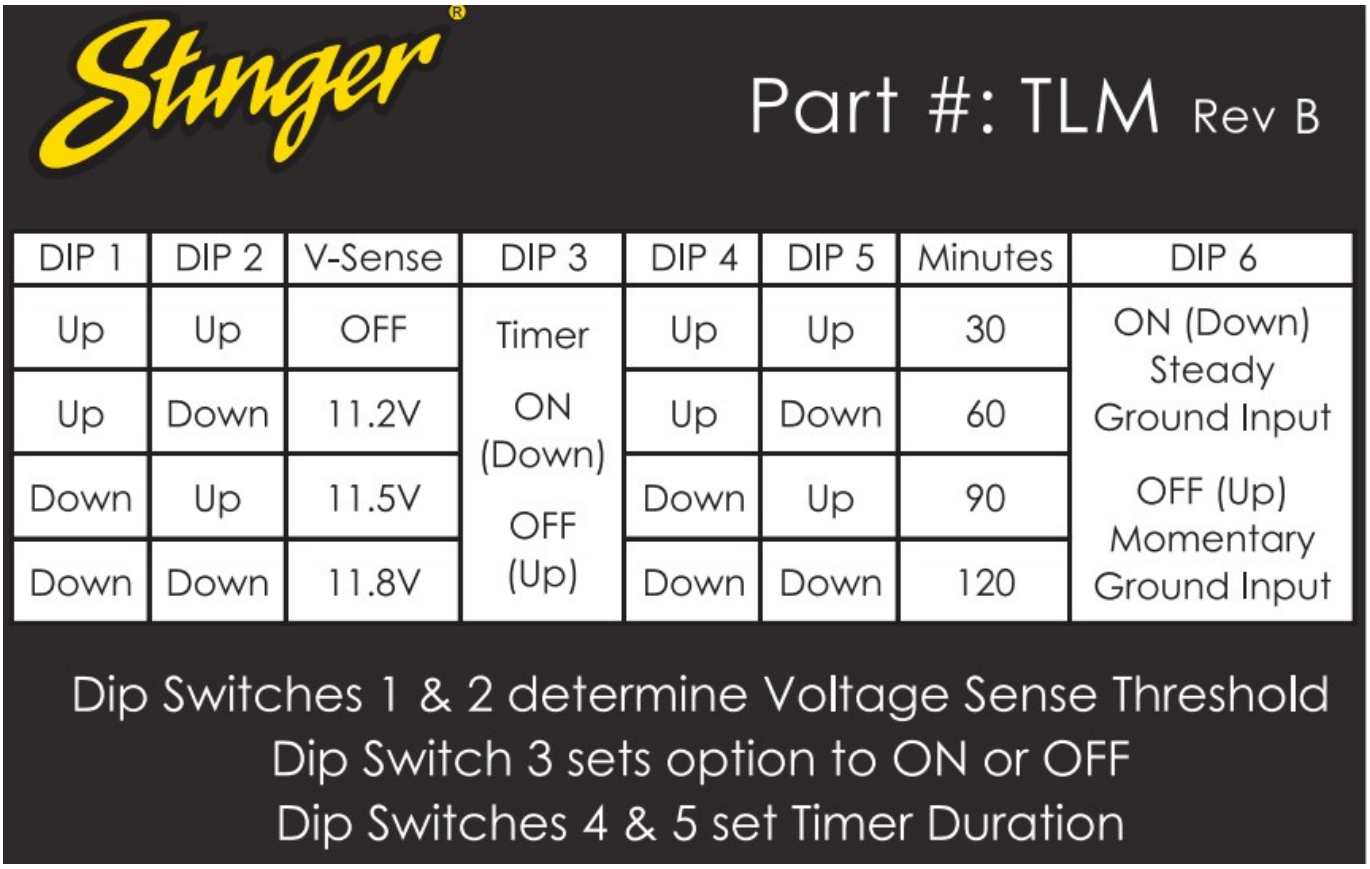
Plug the red and black connector on the 71905 to the mating connector on the 71902 (TLM), shown in the blue circle. Next, connect one of the switch connections (black and white wires) to one of the mating connections on TLM. Circled in yellow. The rest of the connectors will not be used.

***** You do NOT need to connect both switch connections.**
To set the dip switch to 90 minutes (default) follow the chart below:
If customer would like a time different that 90 minutes, use the dip switches to set the time. Chart is as follows:

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Down | Down | Down | Up | Up | Down |

| DIP 1 | DIP 2 | DIP 3 | DIP 4 | DIP 5 | Minutes | DIP 6 |
|---|---|---|---|---|---|---|
| Voltage Sense ON (Down) OFF (Up) | Timer ON (Down) OFF (Up) | Up | Up | Down | 30 | ON (Down) Steady Ground Input |
| | | Up | Down | Up | 45 | |
| | | Up | Down | Down | 60 | |
| | | Down | Up | Up | 90 | OFF (Up) Momentary Ground Input |
| | | Down | Up | Down | 120 | |
| | | Down | Down | Up | 150 | |

# TLM Rev B:

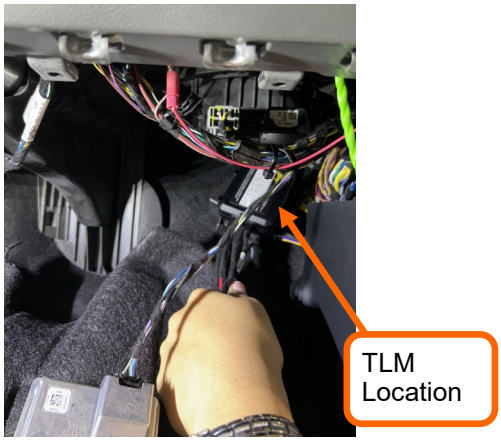



If topper lighting consists of only **1 Light Strip**, place dip switches in the following order:
(This is set for 90 minutes, if customer would like 30,60, or 120 minutes please refer to the chart above to set dip switches accordingly)

| 1 | 2 | V-Sense | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Down | Down | 11.8 | Down | Down | Up | Down |

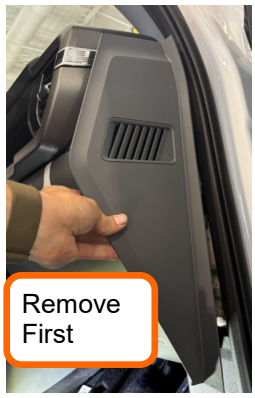
If topper lighting consists of only **more than 1 Light Strip (all other light kits)**, place dip switches in the following order:
(This is set for 90 minutes, if customer would like 30,60, or 120 minutes please refer to the chart above to set dip switches accordingly)

| 1 | 2 | V-Sense | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Up | Down | 11.2 | Down | Down | Up | Down |



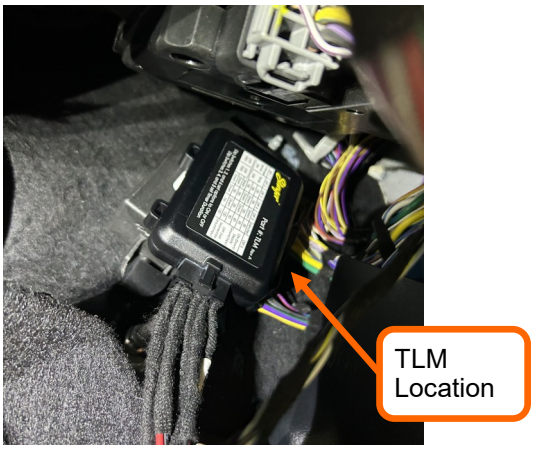

**Step 5:** Locate the **passenger's side door** sill area.

Use a trim tool to remove the trim panels in the passanger's step well and dash/kick panel.










Use the adhesive tape supplied in the kit to stick the TLM to the bottom of the step well as far back and up as you can. Refer to the picture to the left for the TLM placement.

Secure the TLM and wires with zip ties.

Be sure the TLM is secured.

*** Picture is for location reference only.



**Step 6:** Once TLM is secured into its position continue routing harness 71905 through trim along the passenger side doors as shown.

Ensure harnesses are completely tucked and secured under trim supports so that wires are not pinched once trim pieces are reinstalled





**Step 7:** Once Harness 71905 has been routed to the backseat remove the trim piece shown to the left to access the gray plastic cover under the seat that we will be routing our Harness though. Plastic cover circled in red.

Use a step drill bit to drill a 11/16'' sized hole to allow the harness to be routed through it to the underside of the vehicle. Once harness has been completely routed through plastic cover silicone the hole for water sealing.







**Step 8:** Begin routing harness to the back of the vehicle on the passenger's side while staying away from the rear passenger's side wheel. Find mounting points on the vehicle's frame or thicker OEM harnesses to secure harness with zip ties.

Once harness has been routed and secured to the back of the vehicle, move to the bed of the truck.

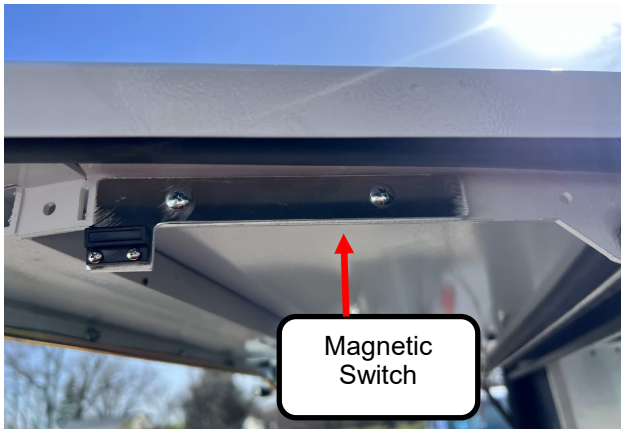


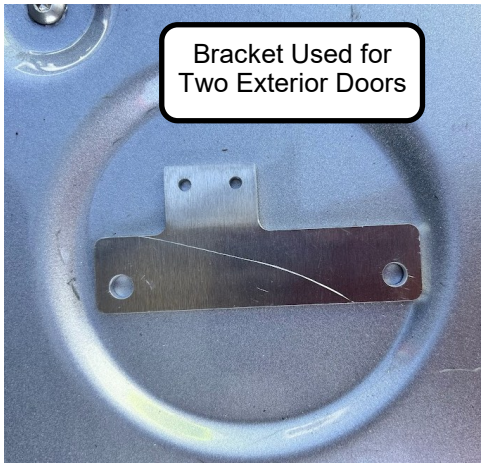
**Step 9:** Locate the rear passenger's side bed area. There is an oval shaped grommet for a pass thru. Using a 3/8" step drill bit, drill a hole into the plastic grommet and route the harnesses through the hole. Insert the bigger grommet supplied in the Brake Light kit into the bed frame pass through, this will be used for the interior light harness and Brake Light harness together.
Tuck any excess wiring into the empty cavity underneath the bed frame.
Use the supplied Tek screw and P-clip to secure the wire harness to the frame.




**Step 10:**
Locate BAG71907, magnetic switches PN 71907 and magnetic switch brackets PN: 73414-W, 73415-W, 73416-W.

Two small mounting brackets with two switch mounting points, will be used for exterior doors.








**Step 11:**
Obtain two magnetic switches. Using a magnet without wires, remove plastic covering from the back side. Clean the surface of mount using an alcohol pad. Once the surface is clean, position the magnetic switch on the bracket, aligning it with the pre-drilled holes.

Secure the magnetic switch to bracket using the two 4-40x.50 Round Head Phillips screw and two 4-40 hex nuts. Ensure proper orientation by referring to the provided image.

Repeat this process to other brackets. Be sure to install a magnet without wires to all 3 brackets.





**Step 12:**
Identify the door shocks on the topper doors. Both the driver and passenger sides should have pre-existing holes on the shock mounts for placing the magnetic switch.

Start by cleaning the shock mount using an alcohol pad and remove any plastic film covering the back of switch.



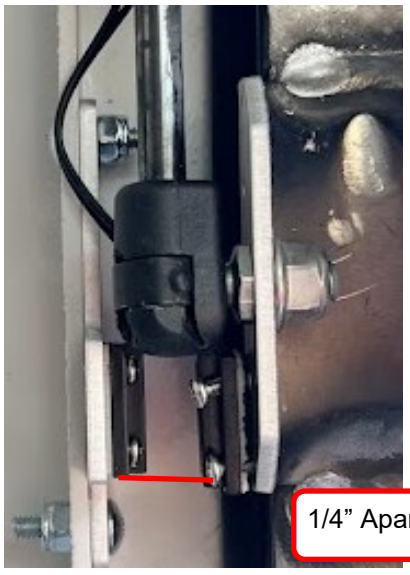


**Step 13:**
Locate driver's side door shock mounts. There will be two magnetic switches mounted to each side of the driver's side door shock mount.

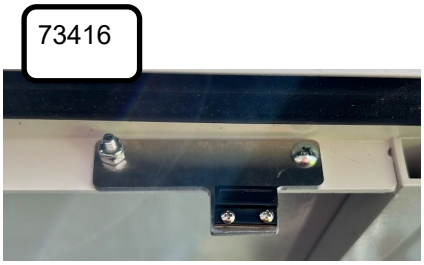
Position the magnetic switch along with its wires and connector. Secure two switches to the door shock, one magnetic switch with wires facing upward, and the other with wires facing downward.

Using a screw driver secure the magnetic switches are in proper position.

Use the provided image as reference.




**Step 14:**
Locate side door magnetic switch mounts, PN 73416. Begin to position magnetic switch on exterior door, aligning with opposite magnetic switch connected to door shock mount. Make sure magnetic switches are face to face with one another, approximately 1/4" apart or closer.









**Step 15:**
Locate magnetic switch mount for the rear door. PN 73415 Repeat **Step 12**. Aline mount with magnetic switch on door shock mount. Secure mount with 10-24x.75 button head cap screws and 10-24 hex nuts.







**Step 16:**
Moving to the passenger side, secure magnetic switch on PN 73416. Mount magnetic switch to door shock mount, facing the side door, not the rear door.
Mount PN 73416 to the driver side door, aligning the two magnetic switches, same as before.
Use the images as reference.

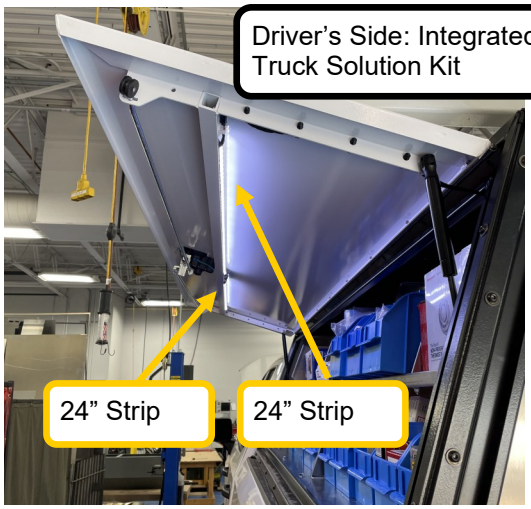


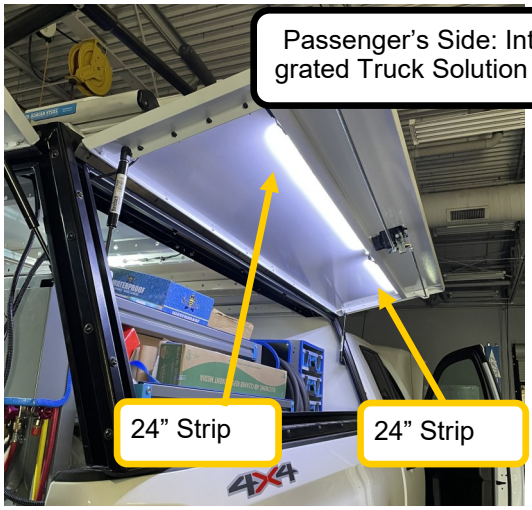



**Step 17:**
Pull the wiring upward to secure along the inside with zip ties. Continue routing the harnesses in the corner of the topper, to the top front of the first roof bow. (Shown in red)

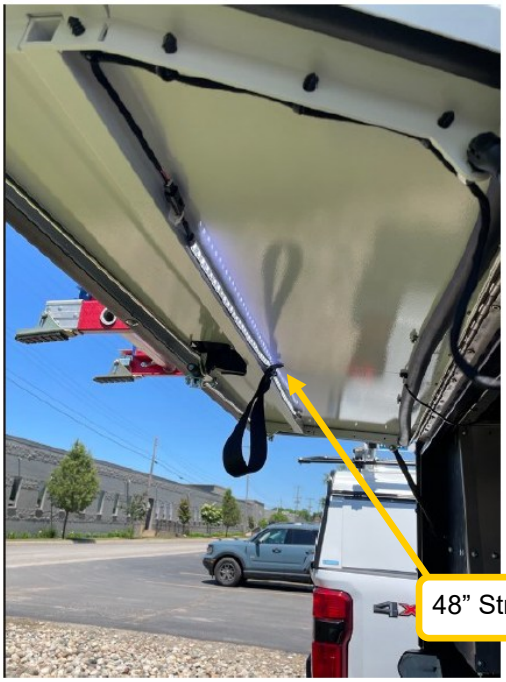
The harness end with connectors should end up between the first roof bow and the door frame on the driver side. See picture below for reference. Use the holes in the roof bows to secure wiring with zip ties.






Driver's, Passenger, or Rear Door: Other Interior Light Kits




**Step 18:** Install the lights.
Locate the lights for the install. This will vary with customers so grab only what is called out on the sales order per vehicle.

*** **Please note:** If there is an added door handle strap, the lights will need to be installed as high up on the channel as possible, to avoid the nut and bolt clamping on the light strip.

Open the topper doors that are requiring lights. Locate the square tube running horizontal across the door. The side facing the interior of the top will be the side you will secure the lights to.

**Using the alcohol pads provided in the boxes, clean the entire inside wall of the square tube where the lights will stick to before installing. Be sure to let the tube dry.**

**Be sure to have the larger connector end of the lights towards the rear for connecting into the roof bow harnesses.**

**If installing the integrated Truck Solution (74486):**
Connect (2) 24" strips together, and remove sticky tape on the back.

On the drivers side, install (2) 24" strip lights as center as possible between the front and rear sides of the door.

For the passenger side, install (2) 24" strips, following the same instructions as above.

Follow the same mounting location/procedure for any other strip lights being mounted (48"). Lights will mount on the interior side of the channel that runs along the door.

Only install the lights on the sides that are needed. Not every door will always have lights. These will vary on customer asks. Refer to page 4 for kit part numbers and components.

**Be sure to have the larger connector end of the lights towards the rear for connecting into the roof bow harnesses.**

**Place a small sticky back square zip tie mount at each end of the strips to secure the connector to the topper.**

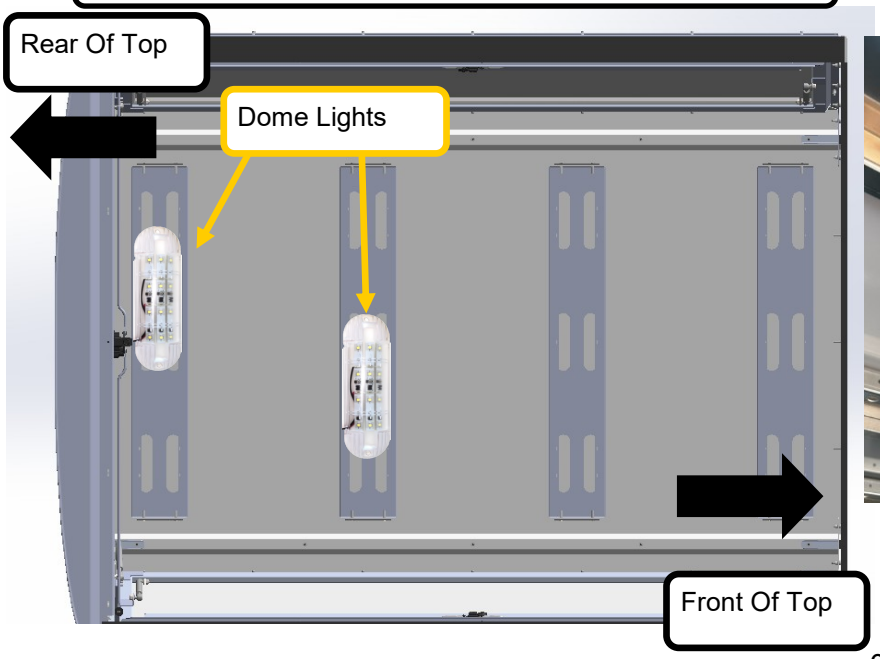
**Step 19:**
**For the Integrated Truck Solution (74486)**
Locate the (2) dome lights.

**Be sure to clean the area that the lights will stick to carefully before installing. Use the alcohol pad provided in the boxes and let it dry before installing.**

If there will be an interior ladder rack installed, stagger the dome lights on the roof bows like shown. If not then please center the lights.

Note: Don't use the self tapper screws. Drill 2 holes and use nuts and bolts to secure Dome lights.

Integrated Truck Solution Kit With Interior Ladder Rack

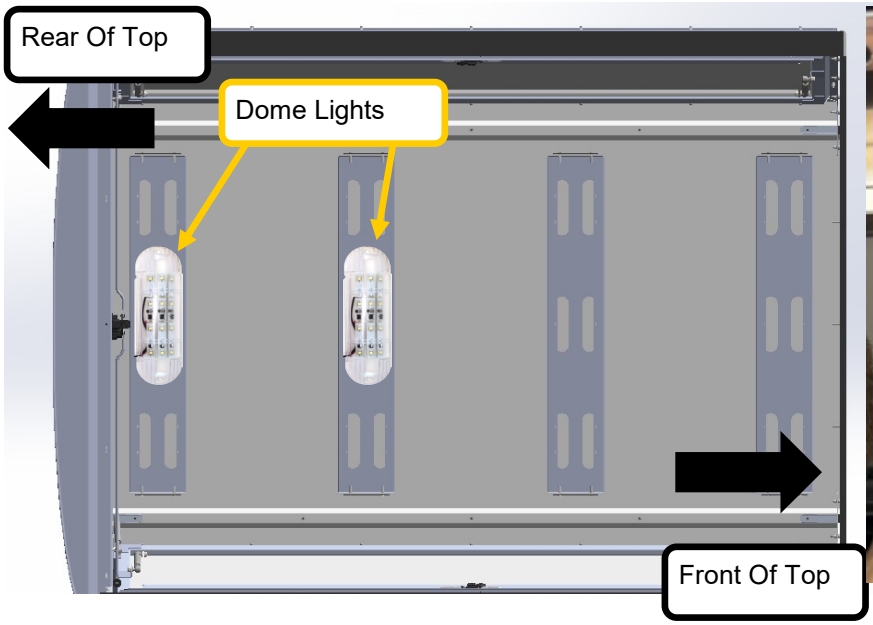



**Place dome light on roof bow as shown in images below:**

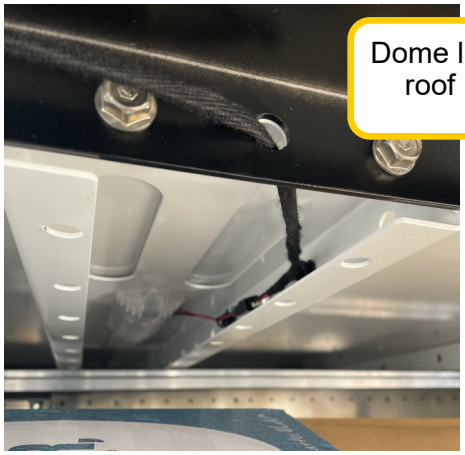


Please secure dome lights with (FAS-0022 10-24X0.75) screw, (FAS-0029 10-24) nut, and (FAS-0027) washer on roof bow.

Integrated Truck Solution Kit With No Interior Ladder















## Step 20: Roof Bow Harness Routing

Use roof bow harness #1 (63481) for routing the 2 dome lights and the strip lights on the driver's side door.

Use roof bow harness #2 (63482) for routing to the strip lights on the passenger side.

Utilize the existing holes in the doors and roof bows for securing the zip ties to. Clean topper surface in corner areas with alcohol pads. Begin to secure the harness using provided self adhesive tie mounts where necessary.

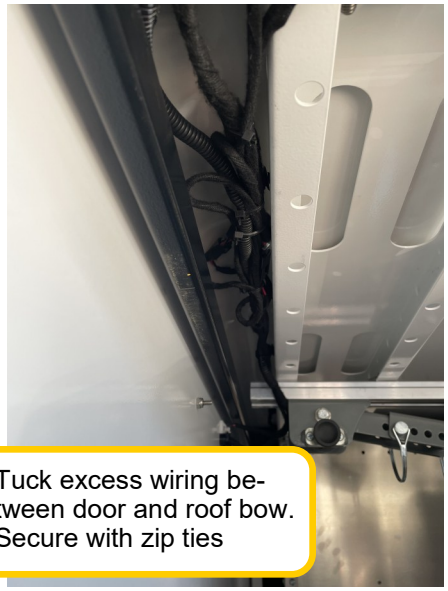
*****IMPORTANT:**
Ensure while securing wiring to avoid all sharp edges. (Shown in image 3, circled in red). When wiring from the light strips to the roof bow, avoid sharp edges at the ends.

When both side doors are open, allow very little slack on the wire, ensuring it is taut. However, while pulling wiring taut on the strip lights ensure the doors open and close without damaging the wires.

Route the harnesses to the TLM harness (71905) and plug them in.

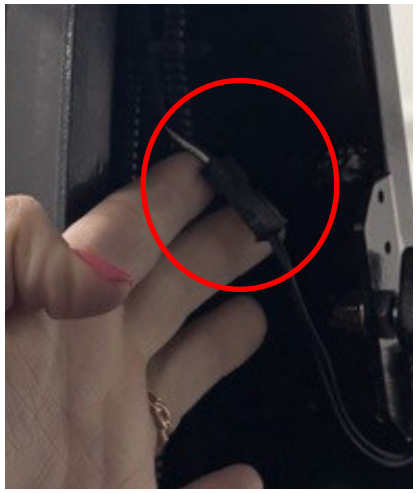
Secure all the wires with zip ties and tuck neatly as possible between the first roof bow and the rear door edge.

Be sure all wiring is secured with zip ties.









**Step 21:**
**A)** After routing 71905 underneath the vehicle, towards the rear, secure the bundle in the middle of the roof bows closest to the doors.

Route the longest lead of magnetic switch harness to the **driver side** switch mount. Image to the left.

When routing keep the harness tucked up into the area with the harness. Use stud mounts to secure harness, if there is no stud mounts to connect to, use sticky back mounting.

Connect end of magnetic switch to matting connector end on harness. (Shown in Red)



**B)** With the two short leads plug one end into the rear magnetic sensor, the other add 80371 extension harness to it to reach the passenger side magnetic sensor. (Shown in Red)



80371







**Step 22:** *** Testing of magnetic switches ***

Continue to route power to light harness PN 71905 to magnetic switches mounted on door shock mounts.

After plugging in the magnetic switches, be sure to secure the excess wiring using provided cable ties.

Once magnetic switches and all lights are plugged in, lights should be on.

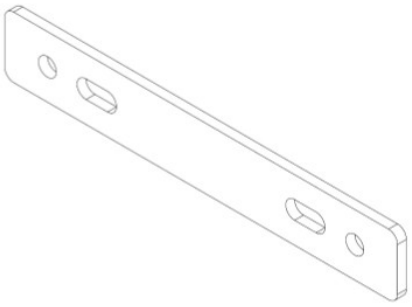
To test and see if the magnetic switches are close enough to one another, open the tailgate of the truck and shut all of the topper doors.

Once all of the topper doors are shut, all of the lights should be off. If one topper door is open, the lights will remain on. In order for the lights to turn off, all of the topper doors must be shut.

Magnetic switches should be no more than 1/4” of an inch away from one another.

*** If the lights do NOT turn off when all of the doors are shut, preform next step below.

---





**Step 23:** Locate magnetic switch bracket spacer PN 73414-W.

Place one **or two bracket(s)** behind the pre-existing bracket on the topper door. This can be placed behind one bracket and then tested again.

Utilizing hardware provided, secure bracket behind magnetic switch bracket. This is ensure the magnetic switches are close enough for connectivity.

A spacer may be placed behind all magnetic switch brackets on the rear door and two side doors if deemed necessary.

Magnetic switches mounted on topper door must be **NO MORE** than 0.3” apart from each when the door is shut.







**Insert the fuses into the inline-fuse holders on the TLM harness (71905) and the power harness (71904).**

**The install is now complete.**

**Check that the lights come on when any of the 3 doors open.**

PART NUMBER
13905-0

## ITEM DESCRIPTION: WIRE TIE, NYLON 40Lb, 8.5” BLACK



MANUFACTURER: WAYTEK, INC. or equivalent
MANUFACTURERS PART NUMBER: 21093M or 21093C

SPECIFICATIONS: STANDARD CABLE TIE
BLACK, NYLON
8-1/2” LONG
TENSILE STRENGTH: 40.0 LBS
21093M = 1,000 quanity
21093C = 100 quanity

SPECIAL NOTES: PART NUMBER IS BLACK.

# SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!

## PURCHASED PRODUCT DATA SHEET (PPDS)

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ADRIAN STEEL
VAN AND PICKUP EQUIPMENT

**906 JAMES STREET**
**ADRIAN, MI 49221**
**517-265-6194**
**WWW.ADRIANSTEEL.COM**

**⚠ CAUTION ⚠**

**WHEN INSTALLING EQUIPMENT IN OR ON VEHICLES CHECK FOR FUEL TANKS, FUEL LINES, CONTROL LINES AND ELECTRICAL WIRING BEFORE DRILLING! ALWAYS USE DRILL BITS WITH INTEGRAL STOPS WHENEVER POSSIBLE!**

| DRAWN BY | DATE DRAWN |
|---|---|
| MDG | 10/26/2006 |
| ECN NUMBER | ECN DATE |
| 18021 | 11/13/2015 |
| PART WEIGHT | REV. LEVEL |
| 0.01 LBS. | D |

PART NUMBER
**13905-0**

PART NUMBER
**26618-0**

## ITEM DESCRIPTION: SILICONE, 1oz. TUBE



SPECIFICATIONS:
SU5005 RTV SILICONE
1oz. TUBE
CLEAR OR EQUIVILENT
SELF PIERCING CAP

SPECIAL NOTES:

## SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!

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517-265-6194
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**⚠ CAUTION ⚠**

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| DRAWN BY | DATE DRAWN |
|---|---|
| JLC | 7/21/2001 |
| ECN NUMBER | ECN DATE |
| 16551 | 7/22/2014 |
| PART WEIGHT | REV. LEVEL |
| 0.02 LBS. | C |

PART NUMBER
**26618-0**

PART NUMBER
**26618-0**

## ITEM DESCRIPTION: SILICONE, 1oz. TUBE



SPECIFICATIONS:
SU5005 RTV SILICONE
1oz. TUBE
CLEAR OR EQUIVILENT
SELF PIERCING CAP

SPECIAL NOTES:

## SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!

## PURCHASED PRODUCT DATA SHEET (PPDS)

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ADRIAN, MI 49221
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**⚠ CAUTION ⚠**

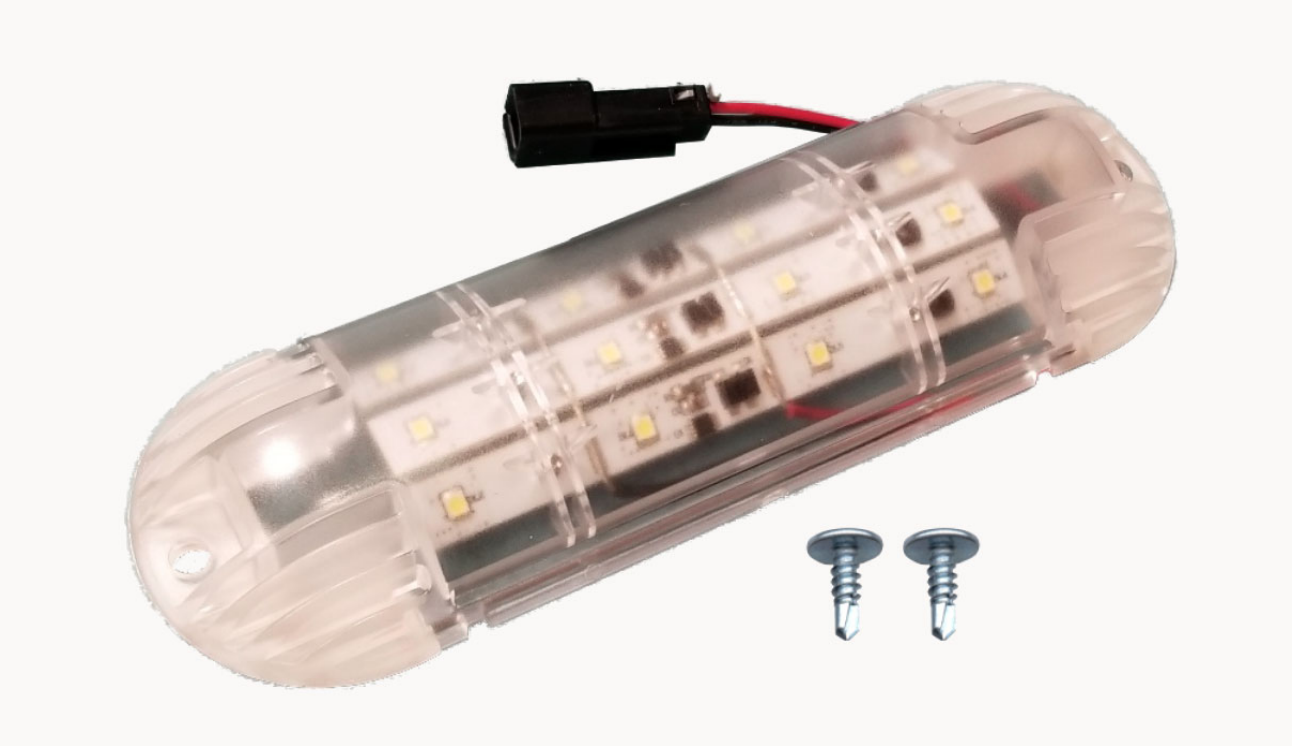
WHEN INSTALLING EQUIPMENT IN OR ON VEHICLES CHECK FOR FUEL TANKS, FUEL LINES, CONTROL LINES AND ELECTRICAL WIRING BEFORE DRILLING! ALWAYS USE DRILL BITS WITH INTEGRAL STOPS WHENEVER POSSIBLE!

| DRAWN BY | DATE DRAWN |
|---|---|
| JLC | 7/21/2001 |
| ECN NUMBER | ECN DATE |
| 16551 | 7/22/2014 |
| PART WEIGHT | REV. LEVEL |
| 0.02 LBS. | C |

PART NUMBER
**26618-0**

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**(1) LED LIGHT WITH 12 LED GROUPED IN THREE ROWS**<br>**(2) TEK SCREWS INCLUDED** |



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## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

**ALL BEND ANGLES ARE 90 DEGREES**

**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std. Weld Callouts per AWS**

## RELEASE & REVISIONS

INITIAL ECN: **24359**

CURRENT ECN: **25886**

ECN DESCRIPTION:

**UPDATE SUPPLIER PART #**

REVISED BY: **A. ELLISON**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER

**OBERTON ELECTRONICS / ECHOMASTER FLEET SOLUTIONS**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER

**8018-6000 / STL40489-3**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL: **B**

MAT'L USED: **PURCHASED**

DESIGNED BY: **A. ELLISON**

DESCRIPTION: **MODULE DOME LED LIGHT**

WEIGHT (Lbs.): **.50**

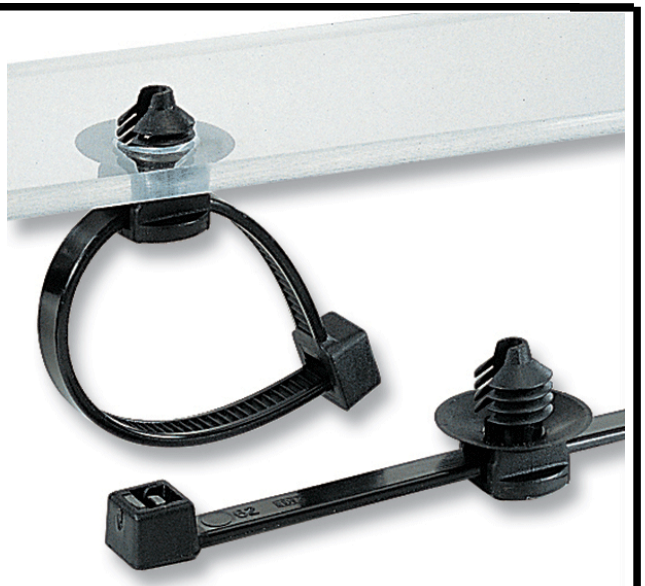
SEGMENT CODE: **EAU**

PART NUMBER: **63480**

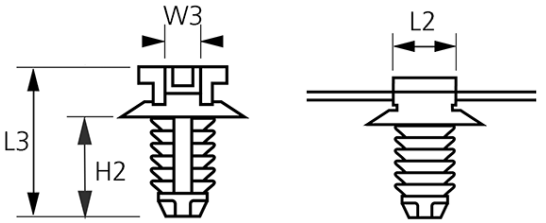
# PURCHASED COMPONENT KEY FEATURES

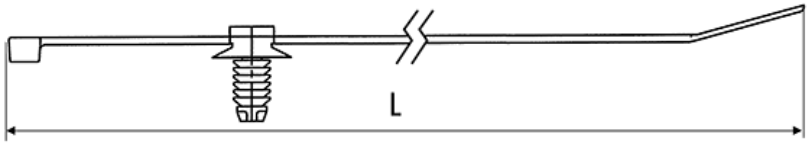
| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>• **Roof Bow #1** ***(Cargo area, first Roof bow after partition)***<br>• ***(5x) WIRE TIE W/CHRISTMAS TREE***<br>• ***1100mm Length*** |



***(5x)***




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**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
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| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std.**
**Weld Callouts per AWS**

## RELEASE & REVISIONS

**INITIAL ECN:** 24359

**CURRENT ECN:** 24359

ECN DESCRIPTION:

**QE8539 RELEASE MODULAR DOME LIGHTING**

REVISED BY: **MJF**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**ECHOMASTER FLEET SOLUTIONS**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**P-HARRB1**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**YES**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **A**

MAT'L USED: **PURCHASED**

DESIGNED BY: **MJF**

DESCRIPTION: **ROOF BOW HARNESS #1**

WEIGHT (Lbs.): **.50**

SEGMENT CODE: **EAU**

PART NUMBER: **63481**

# PURCHASED COMPONENT KEY FEATURES

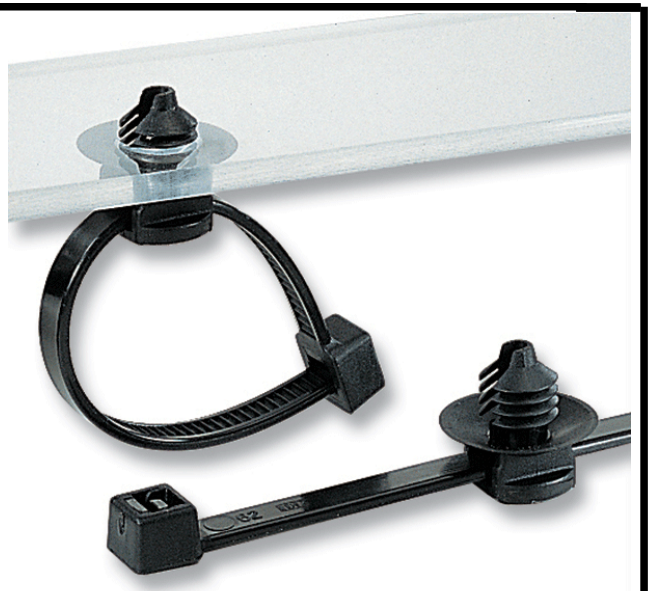
| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING) |
| **N/A** |
| LOAD/RATING REQUIREMENT |
| **N/A** |
| MATERIAL REQUIREMENT |
| **N/A** |
| PACKAGING REQUIREMENT |
| **N/A** |
| OTHER REQUIREMENTS |

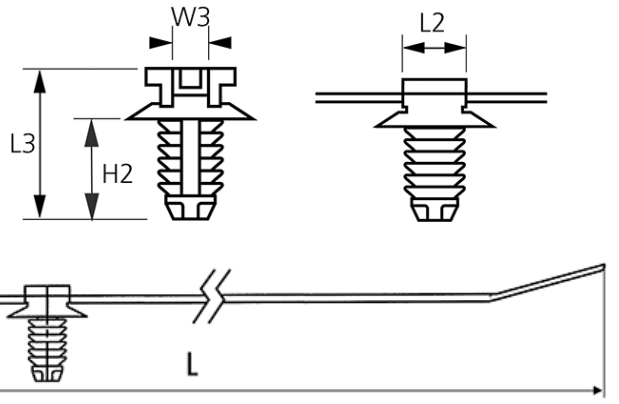
- **Roof Bow #2**
- **(5x) WIRE TIE W/CHRISTMAS TREE**
- **1570mm Length**



***P-HARRB2***

***(5x)***






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## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

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**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
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| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std. Weld Callouts per AWS**

## RELEASE & REVISIONS

**INITIAL ECN:** 24359

**CURRENT ECN:** 24359

ECN DESCRIPTION:

**QE8539 RELEASE MODULAR DOME LIGHTING**

REVISED BY: **MJF**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**ECHOMASTER FLEET SOLUTIONS**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**P-HARRB2**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**YES**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **A**

MAT'L USED: **PURCHASED**

DESIGNED BY: **MJF**

DESCRIPTION: **ROOF BOW HARNESS #2**

WEIGHT (Lbs.): **.50**

SEGMENT CODE: **EAU**

PART NUMBER: **63482**

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**Note:**<br>**Connector / Terminal Configuration:**<br>**• MALE 2 PIN ON ONE END**<br>**• FEMALE 2 PIN ON THE OPPOSITE END.** |

**BOM:**

| Item | Qty. | Description |
|---|---|---|
| 1 | 1 | 24" WHITE LED STRIP LIGHT W/ADHESIVE |
| 2 | 2 | 4" ZIP TIE |
| 3 | 2 | CABLE TIE MOUNT |
| 4 | 1 | ALCOHOL PAD |




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## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

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ALL DIMENSIONS ARE IN INCHES.

REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

Material Thickness: per ASTM Std.
Weld Callouts per AWS

## RELEASE & REVISIONS

INITIAL ECN: **24697**

CURRENT ECN: **25778**

ECN DESCRIPTION:
**Revise Modular Lights With New 3M Adhesive**

REVISED BY: **JLT**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**AAMP**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**CL-24BLED rev.B**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**YES**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

ADRIAN STEEL COMPANY
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL **B**

MAT'L USED:

DESIGNED BY: **J. TYNER**

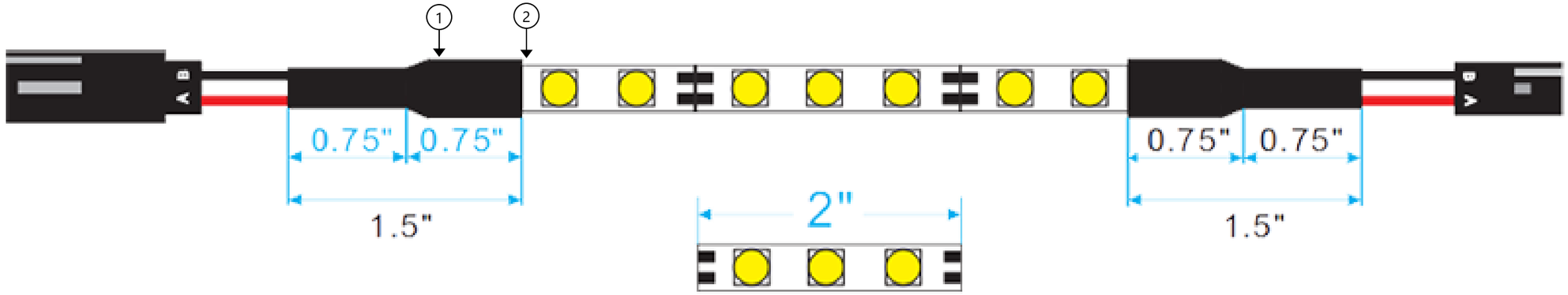
DESCRIPTION: **MODULE DOME LED STRIP 24"**

WEIGHT (Lbs.): **0.2**

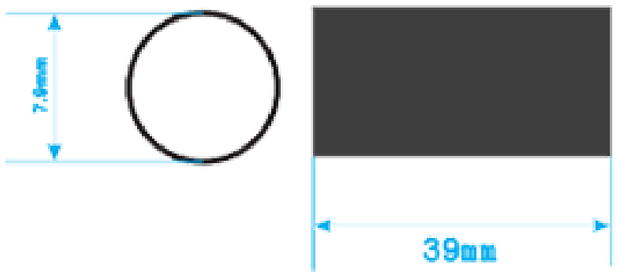
SEGMENT CODE: **EAU**

PART NUMBER: **65346**

| Notes | |
|---|---|
| 1 | 3:1 Adhesive Heat Shrink to be placed over LED Solder Joints |
| 2 | 5925 Adhesive Liner Edges to be exposed next to heat shrink |




12"=6X
24"=12X
36"=18X
48"=24X




| Revisions | | | |
|---|---|---|---|
| Rev. | Date | Author | Description |
| A | 11/1/21 | Bennet Fisher | Initial Drawing |
| B | 7/27/2022 | Bennet Fisher | Adhesive changed to VHB 5925 |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS [INCHES]
TOLERANCES: ±5MM

**PROPRIETARY AND CONFIDENTIAL**

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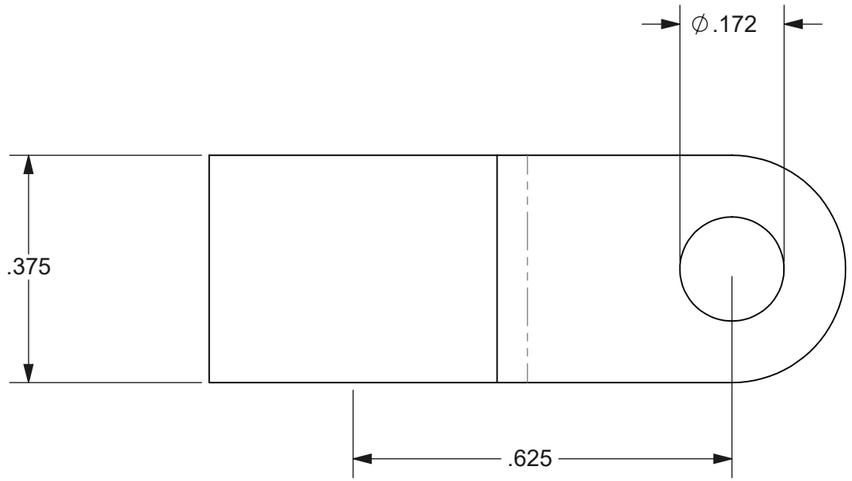
| | Name | Date |
|---|---|---|
| Designed By | Bennet Fisher | 11/1/21 |
| Engineering Approval | | |
| Manufacturing Approval | | |
| Revision Approval | | |
| Quality Assurance | | |

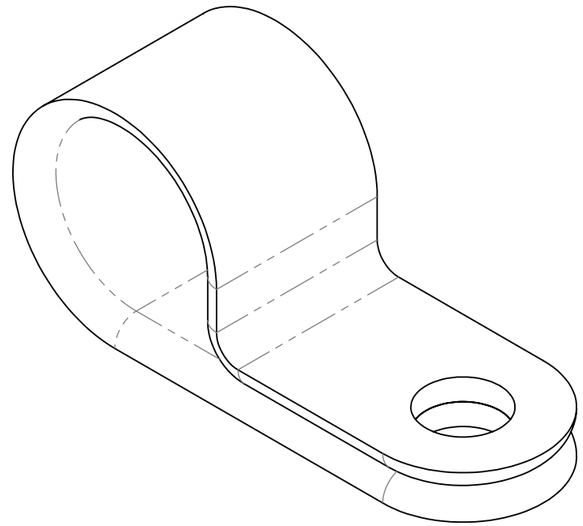
AAMP
ADVANCING VEHICLE TECHNOLOGY

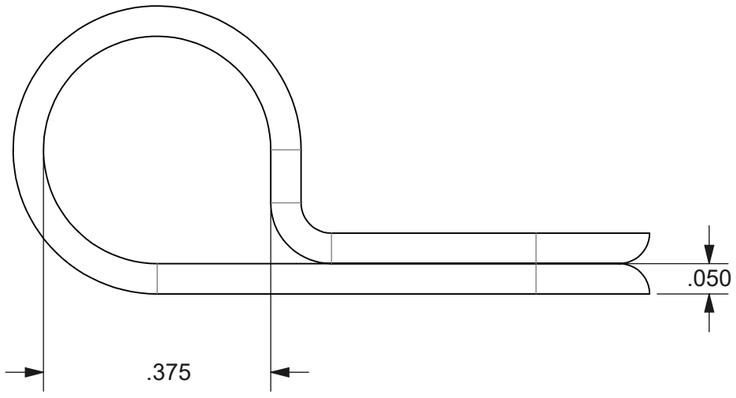
| | |
|---|---|
| Part Number: CL-24BLED | Revision: B |
| Description: 24" LED Strip | Sheet: 1 |

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING) **N/A** |
| LOAD/RATING REQUIREMENT **N/A** |
| MATERIAL REQUIREMENT **N/A** |
| PACKAGING REQUIREMENT **N/A** |
| OTHER REQUIREMENTS **N/A** |






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PRINTED DOCUMENT IS UNCONTROLLED



## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

**ALL BEND ANGLES ARE 90 DEGREES**

**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std.**
**Weld Callouts per AWS**

## RELEASE & REVISIONS

INITIAL ECN: **25297**

CURRENT ECN: **25334**

ECN DESCRIPTION:

**UPDATE SUPPLIER TO SAY EQUIVALENT**

REVISED BY:

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**MCMASTER-CARR OR EQUIVALENT**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**8876T38 OR EQUIVALENT**

COLOR (ONLY LIST IF COLOR SPECIFIC)
**BLACK**

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**NO**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **B**

MAT'L USED:

DESIGNED BY: **E.BURKE**

DESCRIPTION: **Nylon Plastic Loop Clamp**

WEIGHT (Lbs.): **0.001**

SEGMENT CODE: **HDW**

PART NUMBER: **66843**

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**TIMER LIGHTING MODULE FOR INTERIOR PLUG AND PLAY LIGHTING ON TOPPERS** |







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## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

**ALL BEND ANGLES ARE 90 DEGREES**

**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std.**
**Weld Callouts per AWS**

## RELEASE & REVISIONS

INITIAL ECN: **26830**

CURRENT ECN: **27950**

ECN DESCRIPTION:

**Update to REV B**

REVISED BY: **JJC**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**Stinger**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**71902**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**NO**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **B**

MAT'L USED: **PURCHASED**

DESIGNED BY: **E.BURKE**

DESCRIPTION: **TIMER LIGHTING MODULE**

WEIGHT (Lbs.): **0.2**

SEGMENT CODE: **ELE**

PART NUMBER: **71902**









# TLM

## Timer/Low Voltage Module

### INSTALLATION MANUAL

# Thank you for purchasing the TLM

## WHAT'S INCLUDED:

- Timer/Low Voltage Module
- Module Harness
- Cable Ties

## COMPATIBLE ACCESSORIES:

- Vehicle-specific harness (P-VTM-xxx)
- Switch harness (VTM-SWx)
- High current harness (VTM-RLY)

## FEATURES:

- Selectable timer durations - 30, 60, 90, and 120 minutes
- Selectable Low Voltage Sense shut off - 11.8V, 11.5V, and 11.2V
- Timer and Low Voltage sense work independently of each other
- Inputs for 2 momentary switches or a steady ground input
- 10A max current output

# OPERATING INSTRUCTIONS:

| DIP 1 | DIP 2 | V-Sense | DIP 3 | DIP 4 | DIP 5 | Minutes | DIP 6 |
|---|---|---|---|---|---|---|---|
| Up | Up | OFF | Timer | Up | Up | 30 | ON (Down) Steady Ground Input |
| Up | Down | 11.2V | ON (Down) | Up | Down | 60 | |
| Down | Up | 11.5V | OFF (Up) | Down | Up | 90 | OFF (Up) Momentary Ground Input |
| Down | Down | 11.8V | | Down | Down | 120 | |

**DIP 1-2**
If Voltage Sense feature is turned ON, low voltage shut down will occur when the input voltage to the TLM module drops below the V-Sense setting. To eliminate false triggers, there is a 20 second delay before shut down.
If Voltage Sense is turned OFF, input voltage level will not be monitored.

NOTE: Voltage Sense takes precedence over Timer.

**DIP 3**
If the Timer feature is turned ON and switch input is activated, output voltage will be provided for specified timer duration.

**DIP 4-5**
Switch settings will determine how long output will be active after the switch input is activated.

NOTE: If an invalid time is selected (e.g. Up, Up, Up or Down, Down, Down) the output will turn off 10 seconds after the switch input is activated.

**DIP 6**
Steady Ground Input Applications:
Applying ground to the switch input will activate the output, removing ground from switch input will disable the output. If ground is applied once again, the output will be re-activated, and the timer will reset/start over.

Momentary Ground Input Applications:
Applying a pulsed ground to the switch input will activate the output, a seond pulsed ground to the switch input will disable the output. If a pulsed ground is applied once again, the output will be re-activated, and the timer will reset/start over.

## Steady Ground Input Applications

| Trigger Input | Switch Input | Output | Voltage Sense (ON) | Timer (ON) |
|---|---|---|---|---|
| Active | N/A | ON | Monitoring Input Voltage | N/A |
| Not Active | N/A | OFF | N/A | N/A |
| Not Active | Activated (Input Grounded) | ON | Monitoring Input Voltage | Timer Starts |
| Not Active | Deactivated (Ground Removed) | OFF | N/A | Timer Off |
| Not Active | Activated (Input Grounded) | ON | Monitoring Input Voltage | Timer Starts |

## Momentary Ground Input Applications

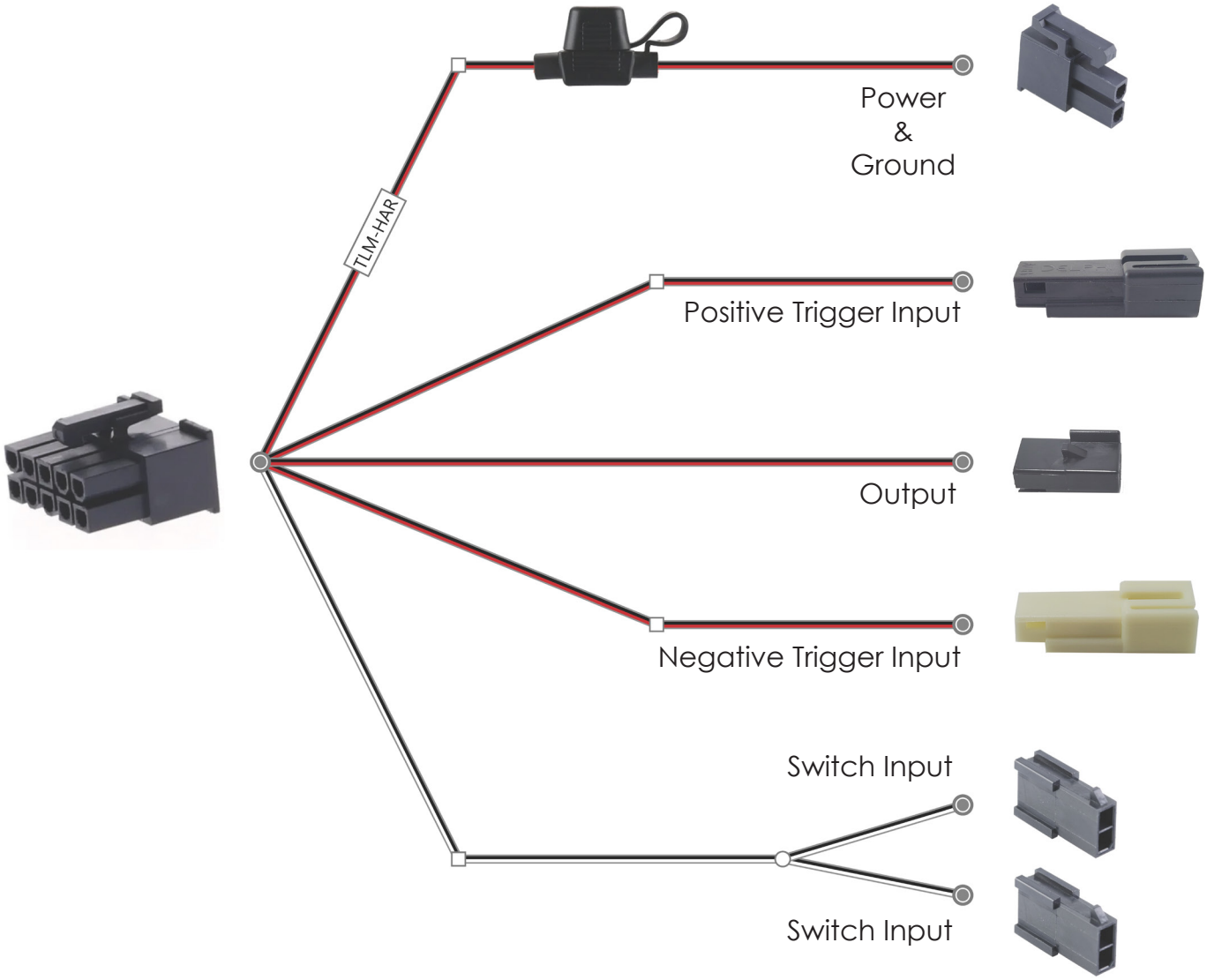
| Trigger Input | Switch Input | Output | Voltage Sense (ON) | Timer (ON) |
|---|---|---|---|---|
| Active | N/A | ON | Monitoring Input Voltage | N/A |
| Not Active | N/A | OFF | N/A | N/A |
| Not Active | Activated (Pulsed) | ON | Monitoring Input Voltage | Timer Starts |
| Not Active | Activated (Pulsed) | OFF | N/A | Timer Off |
| Not Active | Activated (Pulsed) | ON | Monitoring Input Voltage | Timer Starts |

In the tables above "Trigger Input" refers to the Positive Trigger Input and Negative Trigger Input of the module.

If a Trigger Input is active, its function takes precedence. Attempting to activate the Switch Input while a Trigger Input is active will have no effect on the modules output.

# WIRING DIAGRAMS:

## TLM Harness

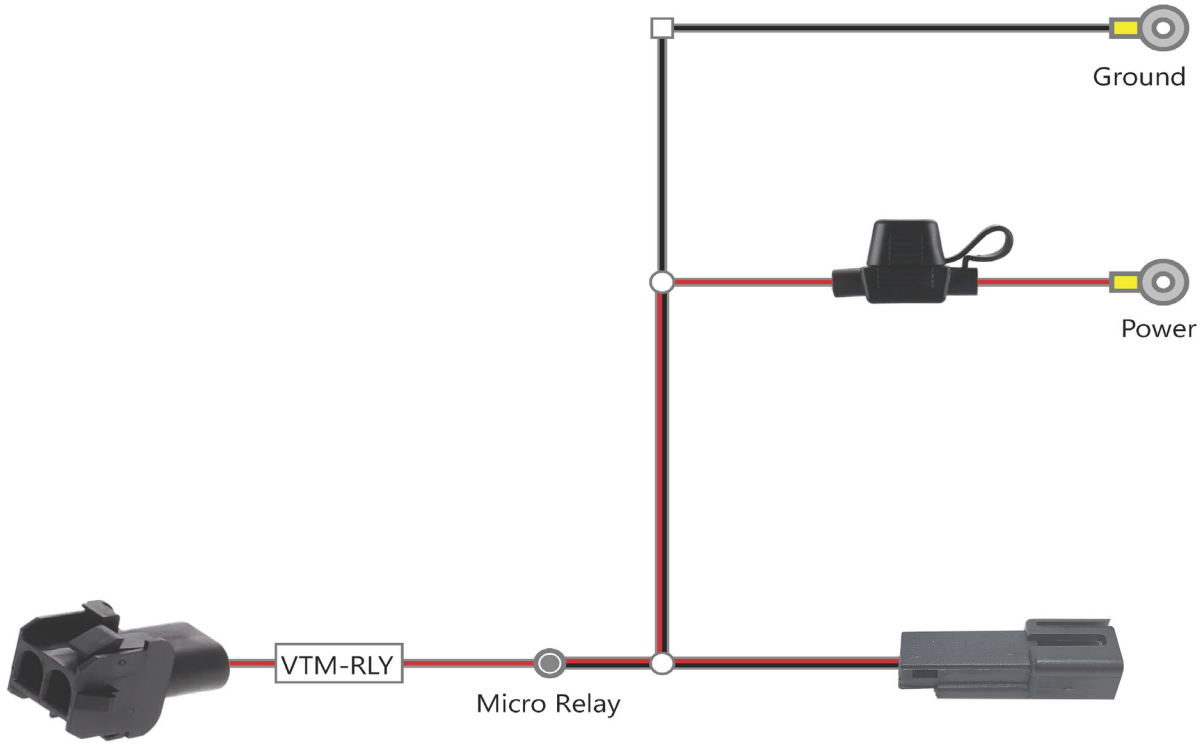



If necessary, connectors may be removed for hardwire applications.

Positive Trigger Input: Applying 12V to Red wire will activate output
Negative Trigger Input: Applying ground to Black wire will activate output
Switch Input: Closing loop between switch input wire leads will activate output

# VTM-RLY (Optional Harness)

For larger current demands, use the optional VTM-RLY and connect to power and ground, along with the TLM harness. VTM-RLY supports up to 15A.




VTM-RLY Output connects to P-VTMxxx harness for vehicle lighting

VTM-RLY Input connects to the output from the TLM harness

## Troubleshooting Table:

| | | |
|---|---|---|
| Output does not activate when Positive or Negative Trigger Input is activated | Check fuse on TLM harness | Replace fuse if it is bad |
| | Check power and ground connections | Fix loose or bad wire connection |
| | Confirm module has power and ground at its input | Replace module or damaged harness if necessary |
| Output does not activate when Switch Input is activated | Confirm DIP 6 on module matches switch type being used | Change DIP 6 setting to match switch type |
| | Confirm switch being used is not defective | Replace bad switch if necessary |
| Switch Input - Irregular behavior | Output does not turn off with switch | Check DIP 6 and confirm it matches switch type |
| | | Confirm switch is not damaged or defective; replace if necessary |
| | Output activates for 5 seconds then turns off | Input voltage to module is below Voltage Sense setting |




**Phone – 866-931-8021 (option 3)**

**E-Mail – support@stingersolutions.com**

**StingerSolutions.com**



**REV. B**

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**PLUG AND PLAY POWER HARNESS FOR TOPPER FORD KITS**<br>**POWER FROM BATTERY TO TLM MODULE** |




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## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

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**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std.**
**Weld Callouts per AWS**

## RELEASE & REVISIONS

INITIAL ECN: **26830**

CURRENT ECN: **26830**

ECN DESCRIPTION:

**RELEASE FOR MARKET FILL**

REVISED BY: **EMB**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**AAMP**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**71904**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**NO**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **A**

MAT'L USED: **PURCHASED**

DESIGNED BY: **E.BURKE**

DESCRIPTION: **HARN, PWR TLM BATT 16.8'**

WEIGHT (Lbs.): **0.2**

SEGMENT CODE: **ELE**

PART NUMBER: **71904**

## Bill of Materials

| Id | Type | Manufacturer | Part Number | Quantity |
|---|---|---|---|---|
| 1 | Wire | | 16 AWG Red GXL | 5130 mm |
| 2 | Wire | | 16 AWG Black GXL | 5130 mm |
| 3 | Ring Terminal | Molex | 19164-0027 | 2 |
| 4 | Connector | Molex | 46993-0211 | 1 |
| 5 | Contact | Molex | 39-00-0081 | 2 |
| 6 | Splice | | ATM Fuse Holder | 1 |
| 7 | Corrugated Tubing | | 0.25" Nylon Split Wall | 5435 mm |
| 8 | Fuse | Littelfuse | 297010.WXNV | 1 |
| 9 | Cable Tie | HellermannTyton | T30LL0M4 | 10 |
| 10 | Label | | Heat Shrink Style Label | 1 |

## Coverings

| Id | Assembly |
|---|---|
| [7] | |

## Notes

1. Lock tape loom behind connector with Tesa 51036
2. Tape knuckle with Tesa 51036
3. Install 10A Mini Fuse

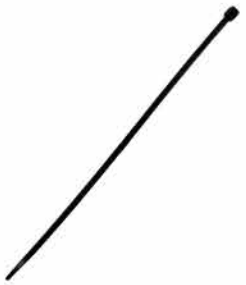
| From | To | Conductor | Color | Gauge |
|---|---|---|---|---|
| Fuse_Holder1 | C1.1 | W2.Red | | 16 AWG |
| Fuse_Holder1 | RT1 | W1.Red | | 16 AWG |

| From | To | Color | Gauge |
|---|---|---|---|
| RT1 | Fuse_Holder1 | | 16 AWG |




| From | To | Color | Gauge |
|---|---|---|---|
| RT2 | C1.2 | | 16 AWG |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C1.1 | Fuse_Holder1 | | 16 AWG | 39-00-0081 |
| C1.2 | RT2 | | 16 AWG | 39-00-0081 |



[9]

## Revisions

| Rev. | Date | Author | Description |
|---|---|---|---|
| A | 10/29/2023 | Bennet Fisher | Initial Drawing |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS [INCHES]
TOLERANCES: ±5MM

**PROPRIETARY AND CONFIDENTIAL**

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| | Name | Date |
|---|---|---|
| Designed By | Bennet Fisher | 10/29/2023 |
| Engineering Approval | | |
| Manufacturing Approval | | |
| Revision Approval | | |
| Quality Assurance | | |

AAMP
ADVANCING VEHICLE TECHNOLOGY

| | |
|---|---|
| Part Number: 71904-A | Revision: A |
| Description: HARN, PWR TLM BATT 16.8' | Sheet: 1 |

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**PLUG AND PLAY TIMER LIGHTING MODULE**<br>**POWER HARNESS TO LIGHTS** |




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## TOLERANCES & INSPECTION

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**ALL DIMENSIONS ARE IN INCHES.**

**REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION**

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

**Material Thickness: per ASTM Std.**
**Weld Callouts per AWS**

## RELEASE & REVISIONS

INITIAL ECN: **26830**

CURRENT ECN: **26830**

ECN DESCRIPTION:

**RELEASE FOR MARKET FILL**

REVISED BY: **EMB**

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
**AAMP**

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
**71905**

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
**NO**

## PART / PRODUCT IDENTIFICATION

**ADRIAN STEEL®**

**ADRIAN STEEL COMPANY**
**906 JAMES STREET, ADRIAN, MI 49221**

REVISION LEVEL **A**

MAT'L USED: **PURCHASED**

DESIGNED BY: **E.BURKE**

DESCRIPTION: **HARN,POWER TLM LIGHT SIF1**

WEIGHT (Lbs.): **0.2**

SEGMENT CODE: **ELE**

PART NUMBER: **71905**

## Bill of Materials

| Id | Type | Manufacturer | Part Number | Quantity |
|---|---|---|---|---|
| 1 | Wire | | 20 AWG White-Black | 10520 mm |
| 2 | Wire | | 20 AWG Black | 10520 mm |
| 3 | Wire | | 16 AWG Red GXL | 11470 mm |
| 4 | Wire | | 16 AWG Black GXL | 11470 mm |
| 5 | Connector | Aptiv | 12047663 | 1 |
| 6 | Contact | Aptiv | 12047581 | 2 |
| 7 | Lock | Aptiv | 12047665 | 1 |
| 8 | Connector | Molex | 43025-0210 | 2 |
| 9 | Contact | Molex | 43030-0001 | 4 |
| 10 | Connector | Molex | 43020-0201 | 3 |
| 11 | Contact | Molex | 43031-0001 | 6 |
| 12 | Connector | Aptiv | 12047662 | 4 |
| 13 | Contact | Aptiv | 12047767 | 8 |
| 14 | Lock | Aptiv | 12047664 | 4 |
| 15 | Splice | | Generic Splice | 6 |
| 16 | Heat Shrink | CYG | CB-DWT-3/16 | 6 |
| 17 | Corrugated Tubing | | 0.25" Nylon Split Wall | 6960 mm |
| 18 | Tape | Tesa | 51608 | |
| 19 | Cable Tie | HellermannTyton | T30LL0M4 | 35 |
| 20 | Cable Tie with Mount | Hellermann Tyton | T50RTM250HSM4 | 10 |
| 21 | Cable Tie Mount | Panduit | SGABM25-AV-C300 | 10 |
| 22 | Label | | Heat Shrink Style Label | 1 |

## Coverings

| Id | Assembly |
|---|---|
| [17] | |
| [18] | |

## Notes

1. Lock tape end of loom with 51608

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C1.A | S3 | | 16 AWG | 12047581 |
| C1.B | S4 | | 16 AWG | 12047581 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C2.1 | S1 | | 20 AWG | 43030-0001 |
| C2.2 | S2 | | 20 AWG | 43030-0001 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C3.1 | S1 | | 20 AWG | 43030-0001 |
| C3.2 | S2 | | 20 AWG | 43030-0001 |

| From | To | Color | Gauge |
|---|---|---|---|
| S3 | C1.A | | 16 AWG |
| S3 | C6.A | | 16 AWG |
| S3 | C7.A | | 16 AWG |
| S3 | C8.A | | 16 AWG |
| S3 | C9.A | | 16 AWG |
| S4 | C1.B | | 16 AWG |
| S4 | C6.B | | 16 AWG |
| S4 | C7.B | | 16 AWG |
| S4 | C8.B | | 16 AWG |
| S4 | C9.B | | 16 AWG |

| From | To | Color | Gauge |
|---|---|---|---|
| S1 | C2.1 | | 20 AWG |
| S1 | C3.1 | | 20 AWG |
| S1 | S5 | | 20 AWG |
| S2 | C2.2 | | 20 AWG |
| S2 | C3.2 | | 20 AWG |
| S2 | S6 | | 20 AWG |

| From | To | Color | Gauge |
|---|---|---|---|
| S5 | C4.1 | | 20 AWG |
| S5 | C5.1 | | 20 AWG |
| S5 | C10.1 | | 20 AWG |
| S5 | S1 | | 20 AWG |
| S6 | C4.2 | | 20 AWG |
| S6 | C5.2 | | 20 AWG |
| S6 | C10.2 | | 20 AWG |
| S6 | S2 | | 20 AWG |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C7.A | S3 | | 16 AWG | 12047767 |
| C7.B | S4 | | 16 AWG | 12047767 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C9.A | S3 | | 16 AWG | 12047767 |
| C9.B | S4 | | 16 AWG | 12047767 |

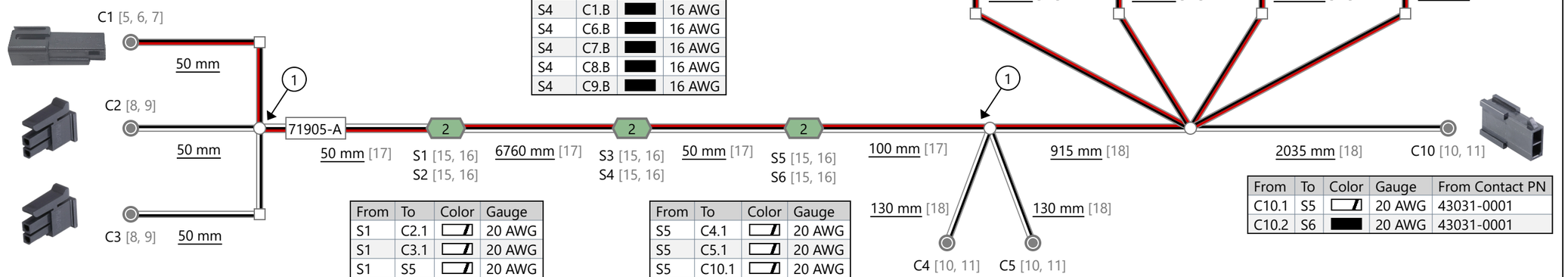
| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C6.A | S3 | | 16 AWG | 12047767 |
| C6.B | S4 | | 16 AWG | 12047767 |

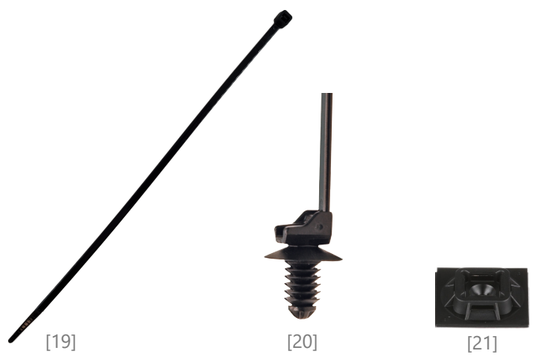
| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C8.A | S3 | | 16 AWG | 12047767 |
| C8.B | S4 | | 16 AWG | 12047767 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C10.1 | S5 | | 20 AWG | 43031-0001 |
| C10.2 | S6 | | 20 AWG | 43031-0001 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C5.1 | S5 | | 20 AWG | 43031-0001 |
| C5.2 | S6 | | 20 AWG | 43031-0001 |

| From | To | Color | Gauge | From Contact PN |
|---|---|---|---|---|
| C4.1 | S5 | | 20 AWG | 43031-0001 |
| C4.2 | S6 | | 20 AWG | 43031-0001 |





[19]


[20]


[21]

## Revisions

| Rev. | Date | Author | Description |
|---|---|---|---|
| | 10/29/2023 | Bennet Fisher | Initial Drawing |
| | 12/29/2023 | Bennet Fisher | Added fourth 12047662 (C9) connector, modified length to C10 |
| A | 1/16/2024 | Bennet Fisher | Modified lengths to C4, C5, and C10 |

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS [INCHES]
TOLERANCES: ±5MM

**PROPRIETARY AND CONFIDENTIAL**

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| | Name | Date |
|---|---|---|
| Designed By | Bennet Fisher | 10/29/2023 |
| Engineering Approval | | |
| Manufacturing Approval | | |
| Revision Approval | | |
| Quality Assurance | | |

Stinger® Commercial

| | |
|---|---|
| Part Number: 71905 | Revision: A |
| Description: TLM - Switch & Light Extension Harness | Sheet: 1 |

# PURCHASED COMPONENT KEY FEATURES

| DESCRIPTION OF REQUIREMENTS |
|---|
| DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)<br>**N/A** |
| LOAD/RATING REQUIREMENT<br>**N/A** |
| MATERIAL REQUIREMENT<br>**N/A** |
| PACKAGING REQUIREMENT<br>**N/A** |
| OTHER REQUIREMENTS<br>**PLUG AND PLAY MAGNETIC SWITCHES FOR TOPPER INTERIOR LIGHTING**<br><br>**BAG INCLUDES:**<br>**3 MAGNETIC SWITCH SETS WITH WIRE LEADS AND CONNECTORS** |



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PRINTED DOCUMENT IS UNCONTROLLED



## TOLERANCES & INSPECTION

*UNLESS OTHERWISE SPECIFIED*

ALL BEND ANGLES ARE 90 DEGREES

ALL DIMENSIONS ARE IN INCHES.

REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION

| FEATURES | HOLES/SLOTS | ANGLES |
|---|---|---|
| 0.0 = ± .125 | 0.0 = ± .062 | 0° = ± 2° |
| 0.00 = ± .062 | 0.00 = ± .031 | 0.0° = ± 1° |
| 0.000 = ± .031 | 0.000 = ± .015 | |

Material Thickness: per ASTM Std.
Weld Callouts per AWS

## RELEASE & REVISIONS

INITIAL ECN: 26830

CURRENT ECN: 26830

ECN DESCRIPTION:

RELEASE FOR MARKET FILL

REVISED BY: EMB

## PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
AAMP

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
71907

COLOR (ONLY LIST IF COLOR SPECIFIC)

COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERANCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
NO

## PART / PRODUCT IDENTIFICATION

ADRIAN STEEL®

ADRIAN STEEL COMPANY
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL
A

MAT'L USED: PURCHASED

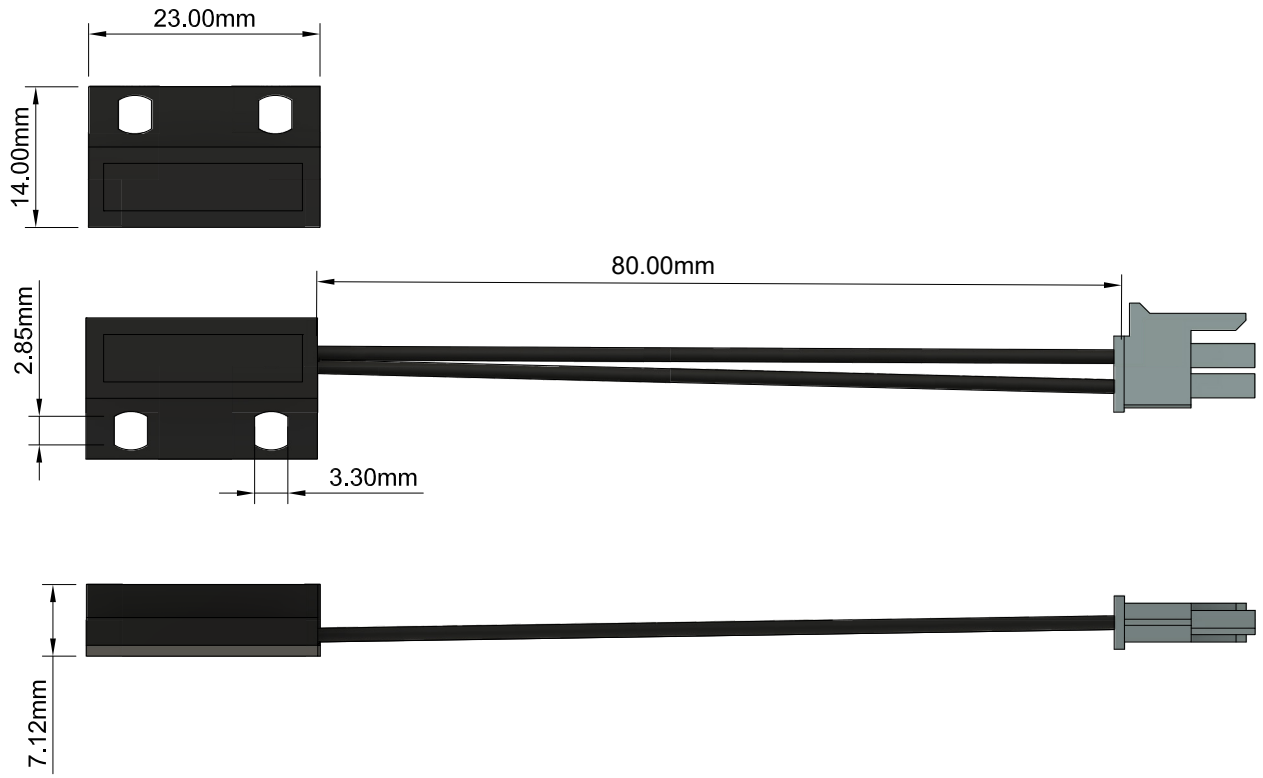
DESIGNED BY: E.BURKE

DESCRIPTION: TLM MAGNETIC SWITCH P&P

WEIGHT (Lbs.): 0.02

SEGMENT CODE: ELE

PART NUMBER: 71907




Magnetic Switch Type: N.O. (Normally Open)
Housing: Black ABS 15E1
Wire: 22AWG Black
Operating Distance: 15-20mm
Working Current: 0.5A
Operating Voltage: 0-110Vdc
IP Rating: IP67
Operating Temperature: -40 ~ 110°C
Reed Operating Temperature: -40 ~ 125°C
ABS Operating Temperature: -40 ~ 110°C
Package: 3pcs/kitted set

| Dept. | Technical reference | Created by Bennet Fisher 4/12/2024 | Approved by |
|---|---|---|---|
| | | Document type | Document status |
| | | Title: Magnetic Switch Part # 71907 | DWG No. |
| | | | Rev. / Date of Issue / Sheet 1/1 |

OKI Open up your dreams

# Reed Switch

Issue Date: Mar. 25, 2008

# ORD324

## ■Features

- In order to achieve high electrical capacity and long, uses iridium with high harness and high melting point.
- When power is turned on maximum voltage can reach 200V.
- To maintain the contact stability of the contacts, the contacts are sealed in a glass tube filled with inert gas.

## ■Applications

- Position detection machine
- Rotation detection machine
- Vehicle electrical equipment
- Civil products

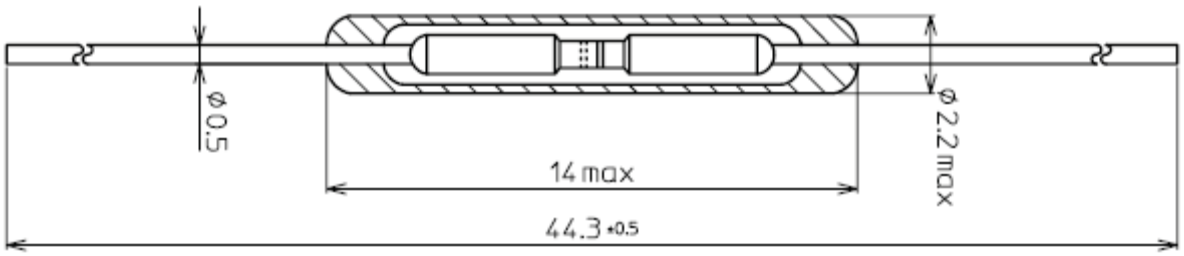
## ■Appearance



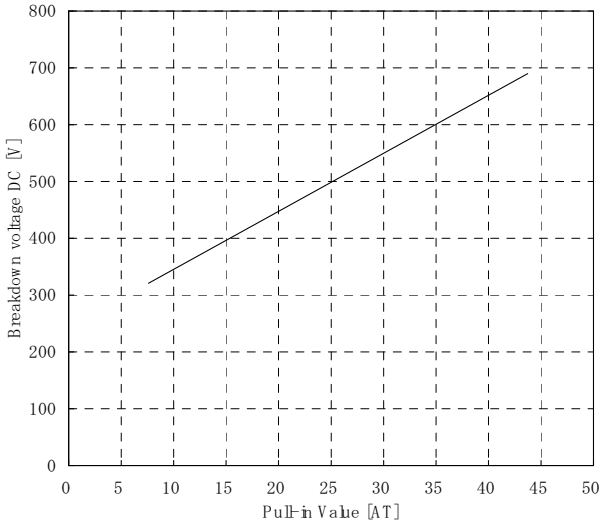
## ■Features

| Contact material / contact form | Iridium / 1A | Unit |
|---|---|---|
| Pull in value (PI) | 10 ~ 40 | AT |
| Disconnect value (DO) | 5 min | AT |
| Contact resistance value (CR) | 100max | mΩ |
| Withstand voltage between contacts | 250min | Vdc |
| Insulation resistance | $1 \times 10^{10}$ min | Ω |
| Electrostatic capacity between contacts | 0.3max | pF |
| Contact rating | 10 | W |
| Maximum switching voltage | 200 | Vdc |
| Maximum switching current | 0.5 | A |
| Maximum power current | 1 | A |
| Release time | 0.4max | ms |
| Bounce time | 0.3max | ms |
| Recovery time | 0.05max | ms |
| Shock proof | 100G-6ms | --- |
| Vibration resistance | 50G (10 ~ 2kHz) | --- |
| Operating temperature range | -40 ~ +125 | °C |
| Life (5Vdc-1mA, impedance load) | $1 \times 10^{8}$ | --- |

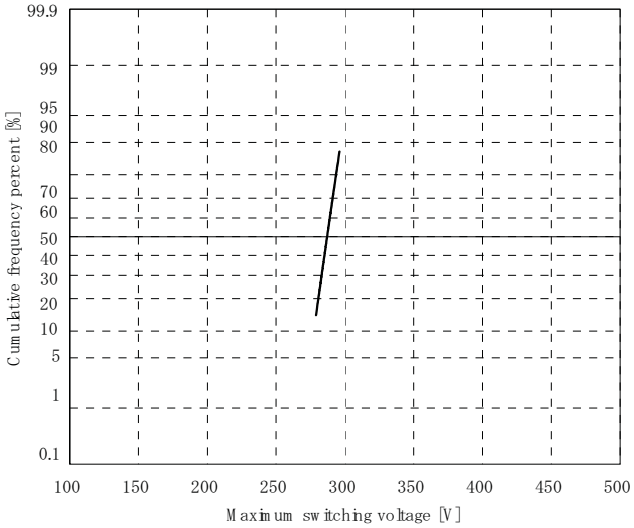
## ■Dimensions (unit: mm)



## ■Withstand voltage between contacts




## ■Maximum switching voltage




## ■Life test data: 5Vdc-1mA

