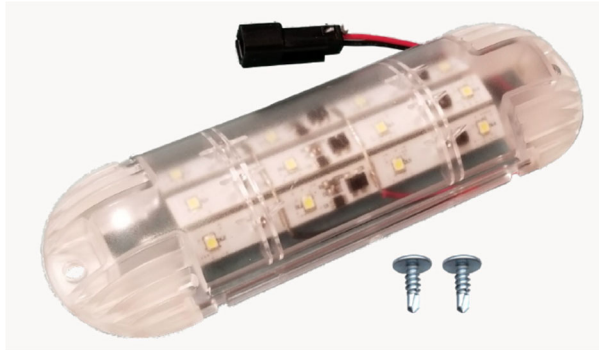


Part Number

68947

Module LED Light (63480)



**Roof Bow Harness #2-4
(63482, 63483, & 63484)**



Light Kit Installed

Product Features

- This kit is compatible with the Ford Transit low roof.
- Included in this kit is three (3) module LED lights (63480), roof bow harness #2-4 (63482, 63483, 63484), power harness (65793), switches, and various fasteners.
- There are no OEM options that this product is not compatible with and there are no OEM options that are required for this product.

Model Year Validated:

2023

Introduction / Comments:

Install Instructions For Interior Plug & Play Lights For Transit

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.

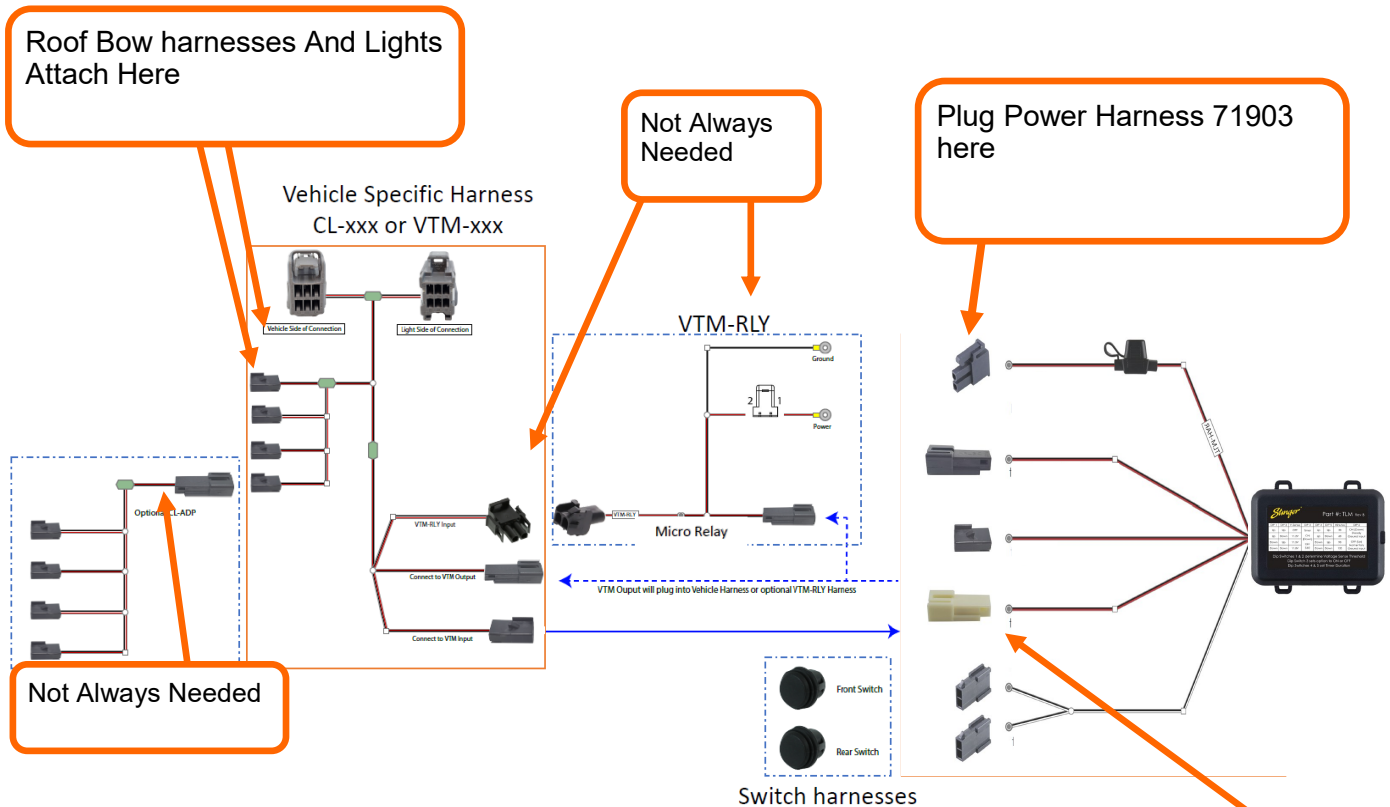


Installation Instructions For Interior Plug And Play Lights For Transit

****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. The only harness that is specific to the transit vehicle are the power harnesses 65793 and 65794 (depending on roof bow height). Routing will be very standard across all kits, but placement of lights and switches are subject to be different from these instructions if called out on the order drawing differently.

Overall Harness Diagram



Tools required:

Crimpers

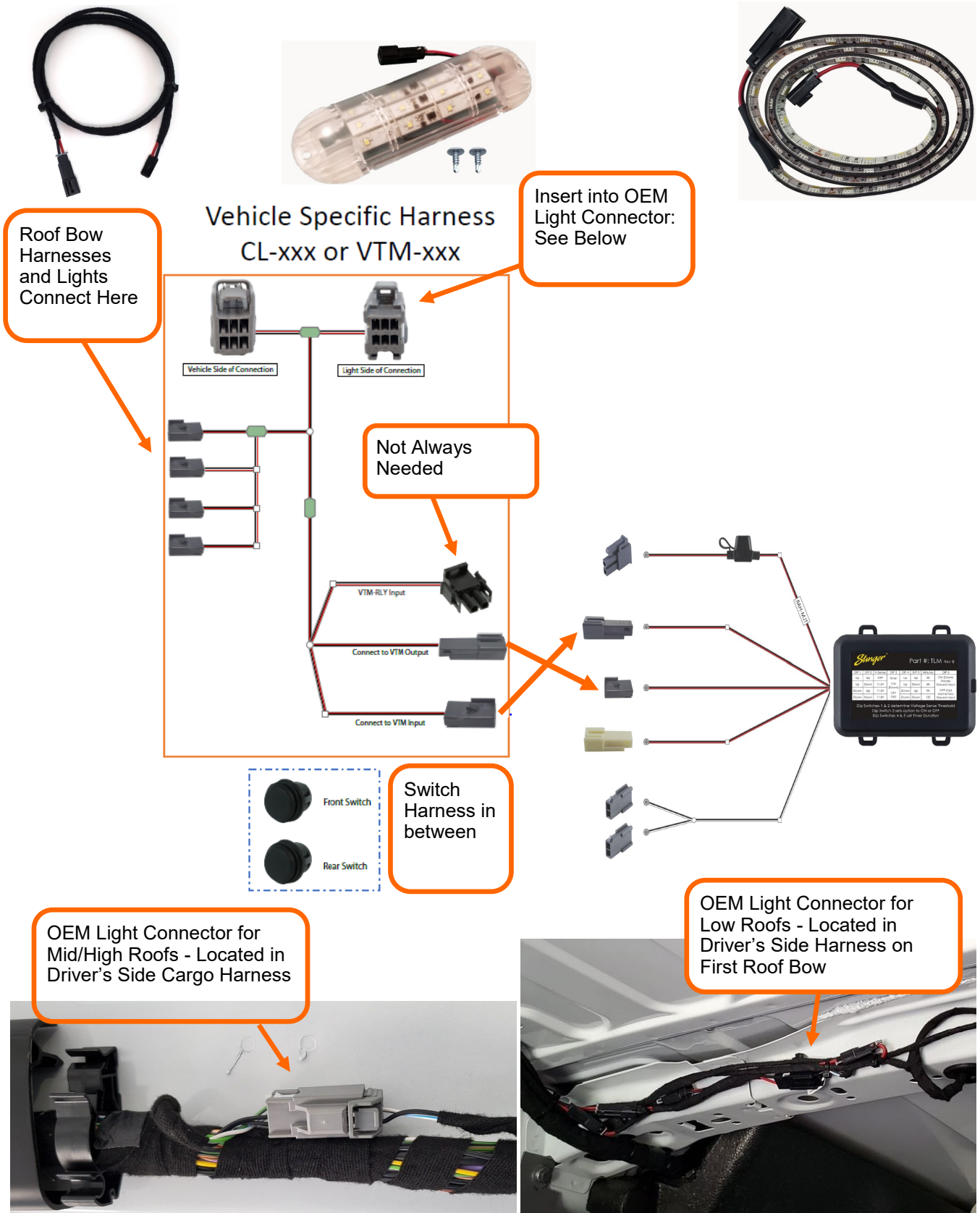
#10 and 1/4" wrench/
drive socket

Power drill, 3/8" step drill
bit, Philips head bit (if in-
stalling dome lights)

For all vehicles that are
NOT RAM. This con-
nector will be black.
RAM vehicles, this will
be white.
See page 4 for more
details.



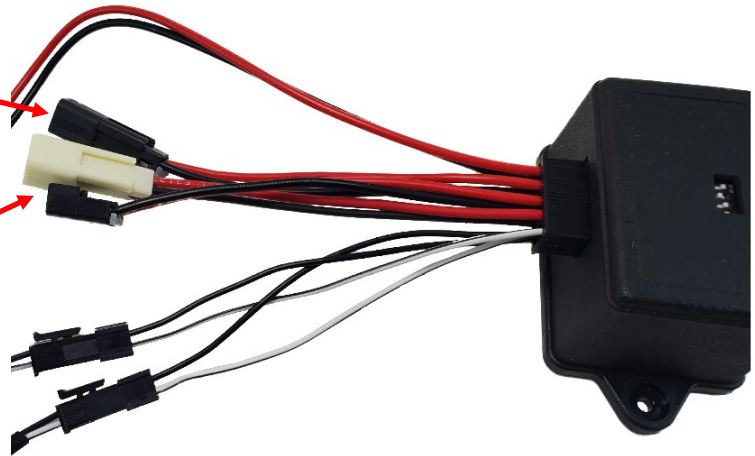
Specific Harness Diagram



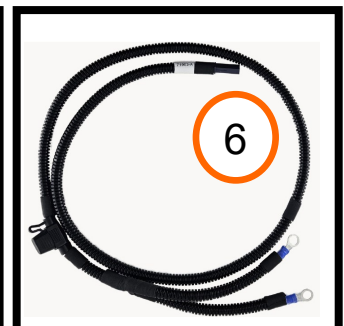
Time / Low Voltage Module (TLM) Harness Reference

For all vehicles except RAM, the black input connector will be used to plug into the vehicle specific harness. The white connector will NOT be used.

For all RAM vehicles, the white connector will be used to plug into the vehicle specific harness. The black connector will NOT be used.

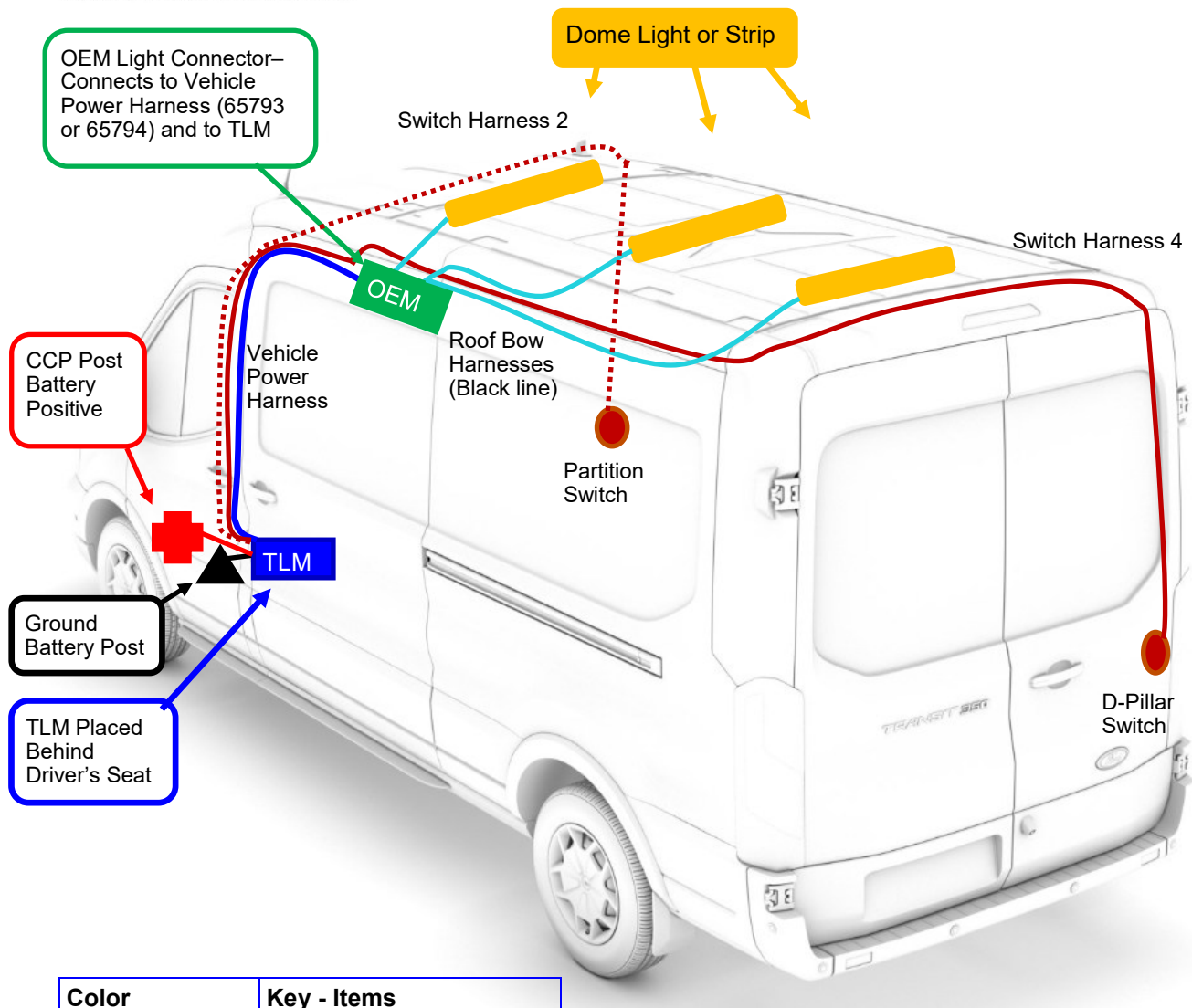


Harnesses Needed



	Part Number	Description
1	71902	Timer / Low Voltage Module (TLM)
2	63480 Or/And 64222, 65346, 65347, 65348	Dome Light Or/And Strip Lights
3	63481 Or/And 63842, 63483, 63484	Roof Bow Harnesses 1 through 4
4	65793 or 65794	Power Harness: Depending on roof height
5	65787 Or/And 65788, 65789, 65790	Switch Harness 1 through 4 for TLM
6	71903	Battery Power Harness

Harness pictures are for reference only.

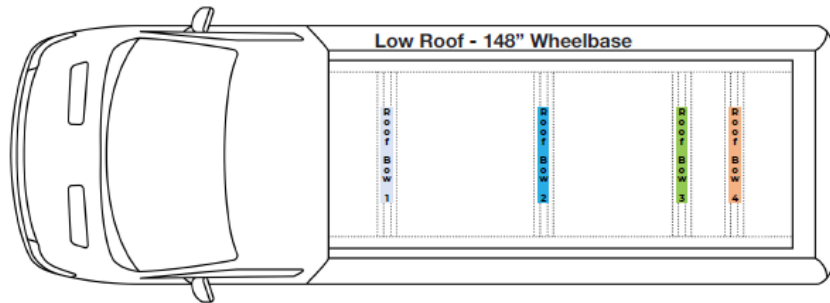
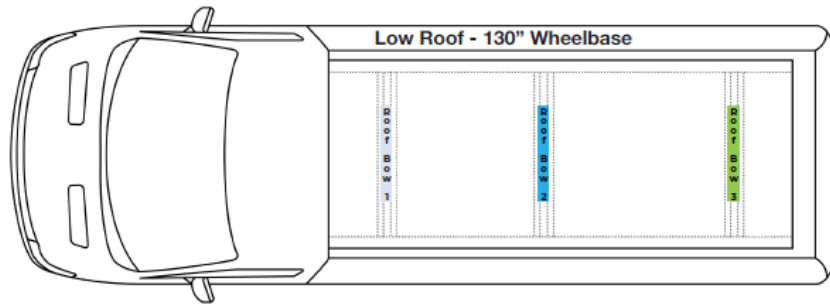


Color	Key - Items
Blue	TLM/Harness
Green	Vehicle Specific Power Harness
Black	Ground Location
Red	12V location
Redish/Brown	Switch Harnesses
Yellow	Dome or Strip Lights
Teal	Roof Bow Harnesses

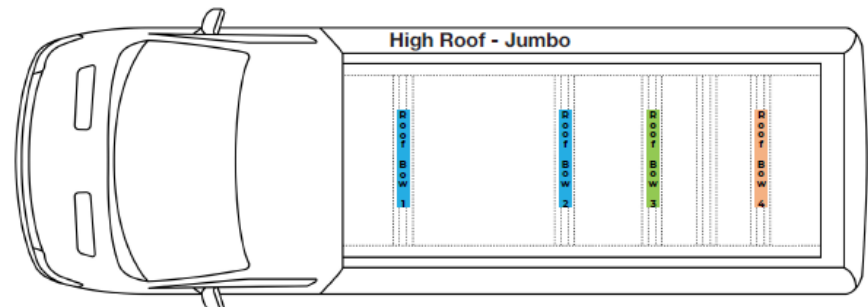
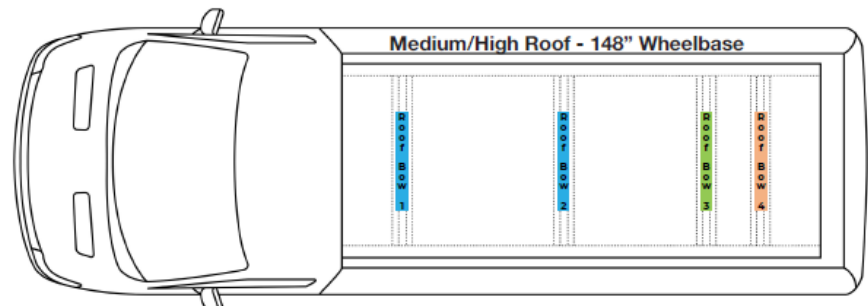
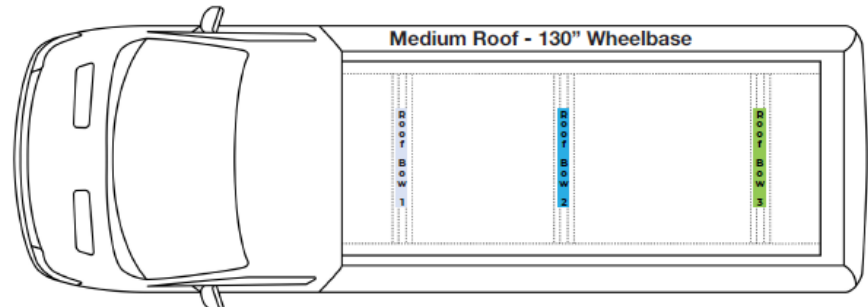
The purpose of plug and play lighting is to be completely modular. Due to this feature, refer to the order drawing for all exact lighting placements. These installation instructions are for most cases and for reference.

Vehicle	Roof Bow 1	Roof Bow 2	Roof Bow 3	Roof Bow 4
Transit - Low Roof 130" WB	P-HARRB1	P-HARRB2	P-HARRB3	N/A
Transit - Low Roof 148" WB	P-HARRB1	P-HARRB2	P-HARRB3	P-HARRB4

**Roof bow
placements with
harness reference**



Vehicle	Roof Bow 1	Roof Bow 2	Roof Bow 3	Roof Bow 4
Transit - Med Roof 130" WB	P-HARRB1	P-HARRB2	P-HARRB3	N/A
Transit - Med/High Roof 148" WB	P-HARRB2	P-HARRB2	P-HARRB3	P-HARRB4
Transit - High Roof (Jumbo)	P-HARRB2	P-HARRB2	P-HARRB3	P-HARRB4



Optional Required Harnesses:

64244: This adapter harness allows for extra extensions to be added (if needed).



Be sure not to overload the OEM circuit by putting too many lights on the circuit. Consult ASCO Electrical Engineering team for application advice if using more than 4 lights.

Add Relay Harness 65791 for extra amperage. (Not always needed)

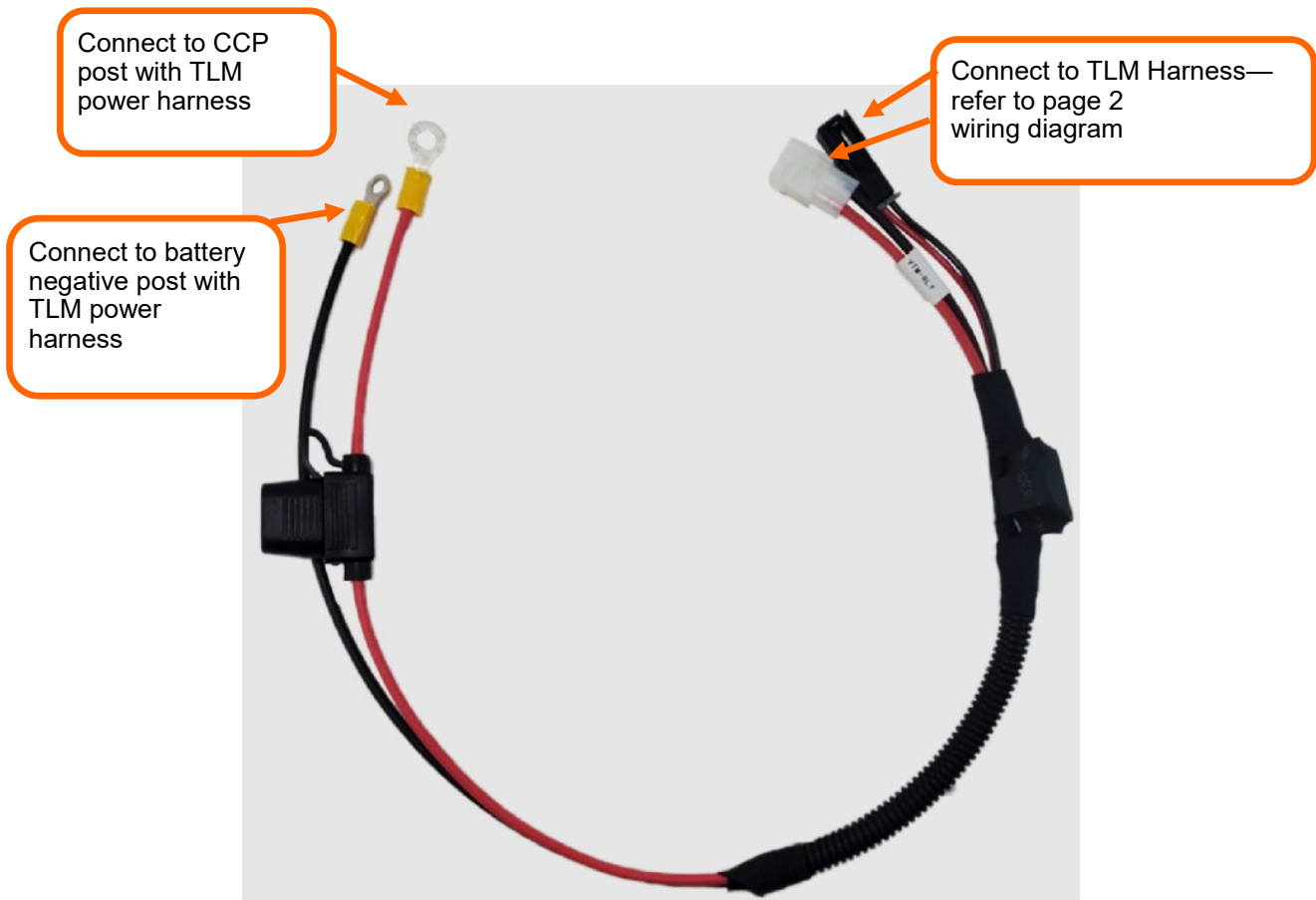
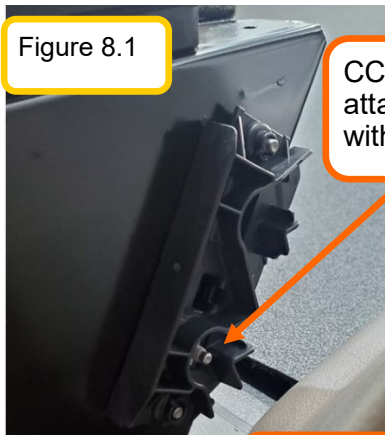
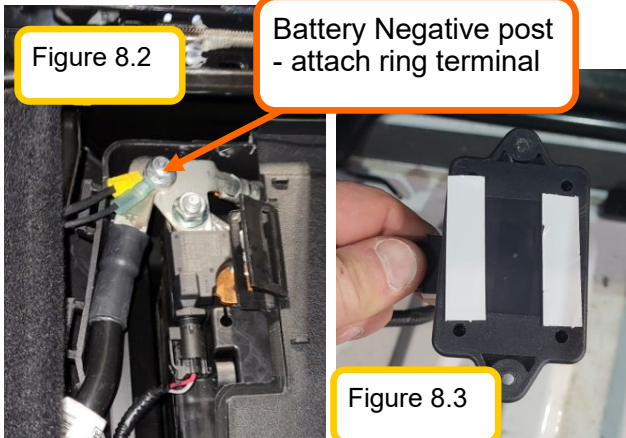


Figure 8.1



CCP positive post - attach ring terminal with FAS0159 nut

Figure 8.2



Battery Negative post - attach ring terminal

Figure 8.3

Figure 8.4



TLM harness routing and zip tied

TLM Dip Switch Settings

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

Step 1: Locate the power harness #71903

Remove the fuse from the inline fuse holder until the end of the install.

Plug the harness connector into the timer / low voltage module (TLM).

Step 2: Attach the positive (red) wire to the CCP on the driver's seat post. Secure with the supplied nut (FAS0159). See Figure 8.1.

Attach the ground ring terminal (black) to the battery negative post. See Figure 8.2.

Route the wires to the back of the driver's seat. Bundle up the extra wire and zip tie below the seat.

Step 3:

Refer to the bottom picture for dip switch settings. If the customer would like a different amount time other than 90 minutes, use the dip switches to set the time.

Apply the VHB tape the back of the TLM (timer/low voltage module). See figure 8.3.

Stick the TLM to the back of the seat base and secure with a zip tie. See figure 8.4.

Plug the switch harnesses (65789 & 65790) into the TLM harness. See pages 2 & 3 for reference.

Stinger Part #: TLM Rev B

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	
Down	Up	11.5V	OFF (Up)	Down	Up	90	OFF (Up) Momentary Ground Input
Down	Down	11.8V		Down	Down	120	

Dip Switches 1 & 2 determine Voltage Sense Threshold
Dip Switch 3 sets option to ON or OFF
Dip Switches 4 & 5 set Timer Duration

Figure 9.1



Step 4:

Plug the vehicle specific power harness into the OEM connector:

Medium/High roof vehicles: The connector is located along the driver's side OEM wire harness. See figure 9.1.

Figure 9.2



Low roof vehicles: The connector is located on the first roof bow. See figure 9.2.

Route the power harness down the partition to the TLM module, and plug it in. Be sure to use the black colored TLM input connector referenced on page 4. The white connector will NOT be used for this install.

Figure 9.3



Step 5:

Connect the roof bow harnesses (63481 Or/And 63842, 63483, 63484 all that are applicable) to their desired light locations.

Use zip ties/fir trees to secure all wiring. See figure 9.3.

Overall roof bow routing reference.





Figure 10.1

Step 6:

Before mounting any lights, prep the surface where the light will be placed with the supplied alcohol pad. Let dry for a few minutes, then mount the light.

Be sure the surface is clean before applying the VHB tape. Read the supplied instructions in the lighting boxes.

Mount the strip/dome lights to their desired locations: Refer to the order drawing.



Figure 10.2

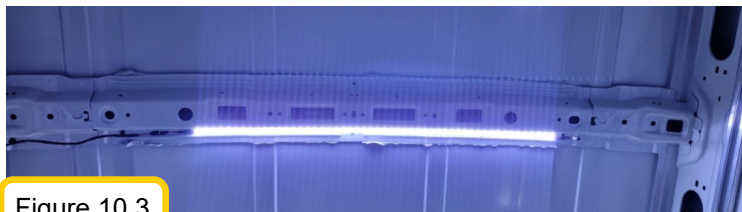


Figure 10.3

For dome lights, use the VHB tape already on the back of the light, and also secure with the supplied tek screws.

Dome lights are to be placed as close to the center of the roof bow as possible, while straddling the gaps in the roof bow. Figure 10.1.

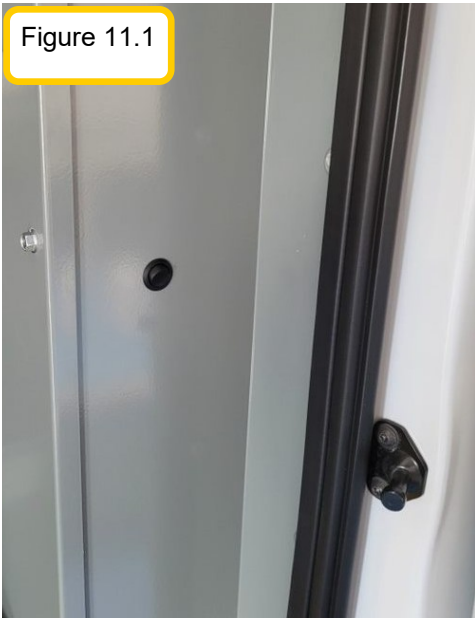


Figure 10.4

For the strip lights, use the VHB tape supplied on the back of the lights, and use the little square sticky backs with zip ties that are supplied in the box.

Strip lights are to be placed on the front side of the roof bow, between the channel/groove. You will see that these lights fit almost perfectly in the channel. Refer to figures 10.2, 10.3, and 10.4 for placements.

Figure 11.1



Partition Switch

Locations:

Switch hole in steel partition (figure 11.1) or drill out switch hole in composite partition (figure 11.2).

This location will require harness #65788

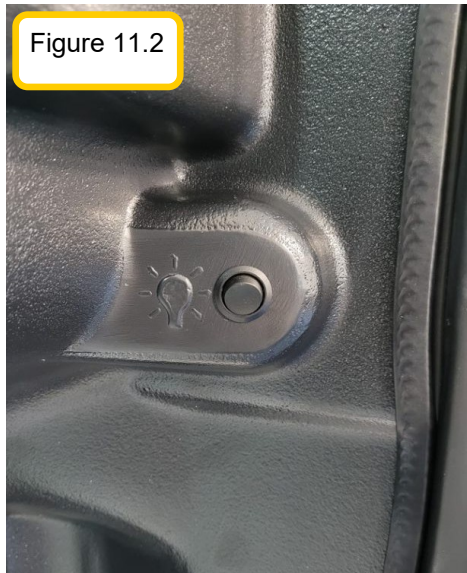
Rear Switch Location:

Passenger side rear D-pillar

See figure 11.3 below for reference.

This location will require harness #65790

Figure 11.2



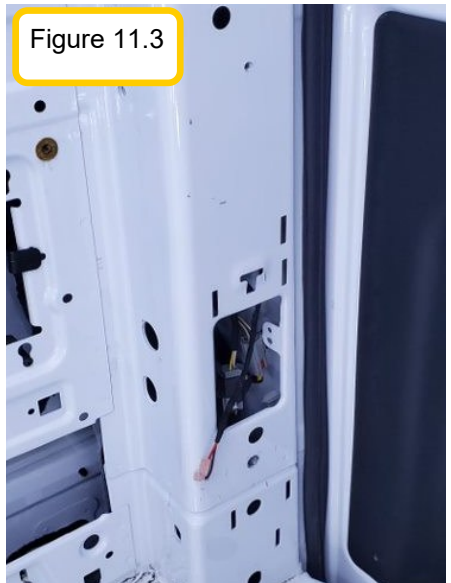
Step 7:

Route the 65788 harness from the TLM harness location (above the drivers seat in the headliner - see routing diagram for reference) to the partition switch location.

Do the same with harness 65790 to the D-pillar switch location.

Use Zip ties to secure wiring.

Figure 11.3



Drill needed holes for the switches in rear D pillar panel, and composite partition (if applicable).

Insert the switches into the holes with the "1" in the 12:00 position, connect the harness (the connection orientation does not matter).

Final install reference pictures



Insert the fuse into the inline-fuse holder on the power harness. The install is now complete. Secure all wiring with zip ties. Re-attach all trim. Double check the functionality of the lights and switches.

2020 Ford Transit



Module to be placed under and behind driver seat on back of seat mount.



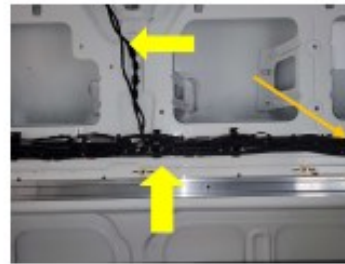
Vehicle specific harness routing will be up street B pillar and connected at first junction point to left of B pillar on factory harness.



CL-36BLED lights added to top and middle shelves of cargo rack. Note P-HARRB4 ends and P-HARRB1 is added for an extension



CL-48BLED lights added to rear street side cargo racks on 3 of the top shelves, and CL-36BLED added to front 3 of the top shelves



CL-ADP added to HARRB2 harness. This is a junction point to run wires to STL-40489-2, curb side bin lighting, and rear street side bin lighting

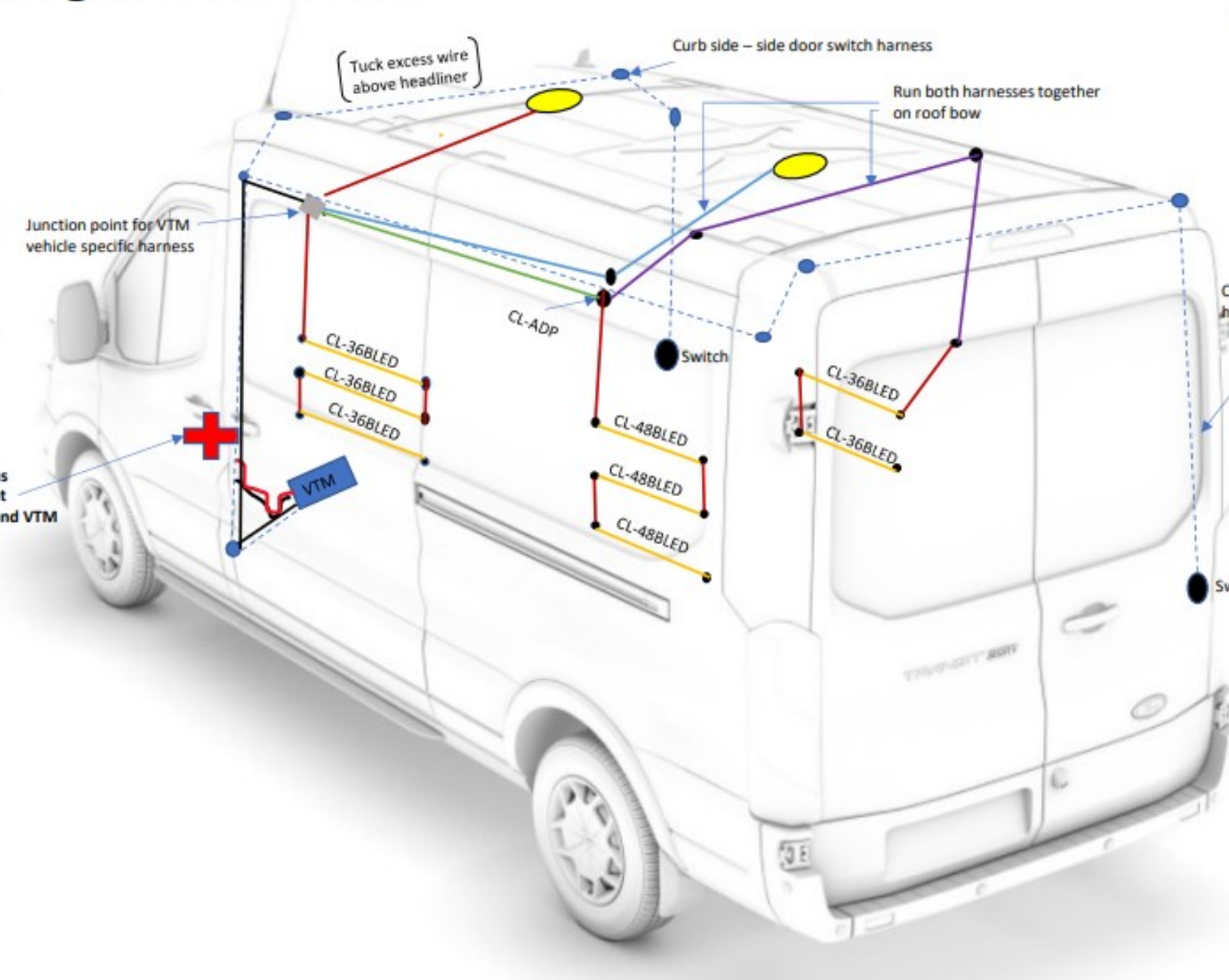


Excess rear curb side switch wiring will be coiled up and placed in rear cavity at D pillar.

Parts List

- Timer module (657)
- VTM relay and vehicle specific harness (657)
- 5 – CL-36BLED (653)
- 3 – CL-48BLED (653)
- 2 – STL-40489-2 (634)
- 1 – CL-ADP (642)
- 9 – P-HARRB1 (634)
- 1 – P-HARRB2 (634)
- 1 – P-HARRB3 (634)
- 1 – P-HARRB4 (634)

Diagram for install



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 quantity
 21093C = 100 quantity

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
MDG

DATE DRAWN
10/26/2006

ECN NUMBER
18021

ECN DATE
11/13/2015

PART WEIGHT
0.01 LBS.

REV. LEVEL
D

PART NUMBER
13905-0

PURCHASED COMPONENT KEY FEATURES

DESCRIPTION OF REQUIREMENTS

DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)

Base is a 0.975 inch square

LOAD/RATING REQUIREMENT

N/A

MATERIAL REQUIREMENT

N/A

PACKAGING REQUIREMENT

N/A

OTHER REQUIREMENTS

Black adhesive wire tie mounting base.

Cure Time: Bond 15 Min., Max
Adhesion 1 Hr.

Max. Operating 158

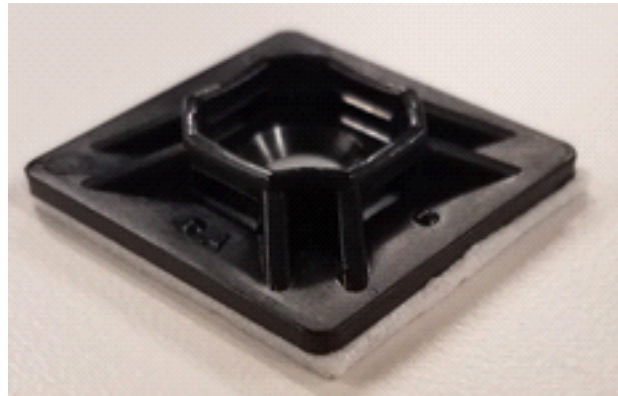
Temp. F:

Max. Operating 70

Temp. C:

Min. Installation 65

Temp. F:



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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: 17429

CURRENT ECN: 22185

ECN DESCRIPTION:

**Size of the base changed with a
change in supplier**

REVISED BY: D. LaCroix

PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER

Midstate

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER

49401

COLOR (ONLY LIST IF COLOR SPECIFIC)

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

YES

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Sheet 1 of 1

PART / PRODUCT IDENTIFICATION



ADRIAN STEEL

ADRIAN STEEL COMPANY
906 JAMES STREET, ADRIAN, MI 49221

REVISION LEVEL

B

MAT'L USED:

DESIGNED BY: **RJB**

DESCRIPTION:

Adhesive wire tie base

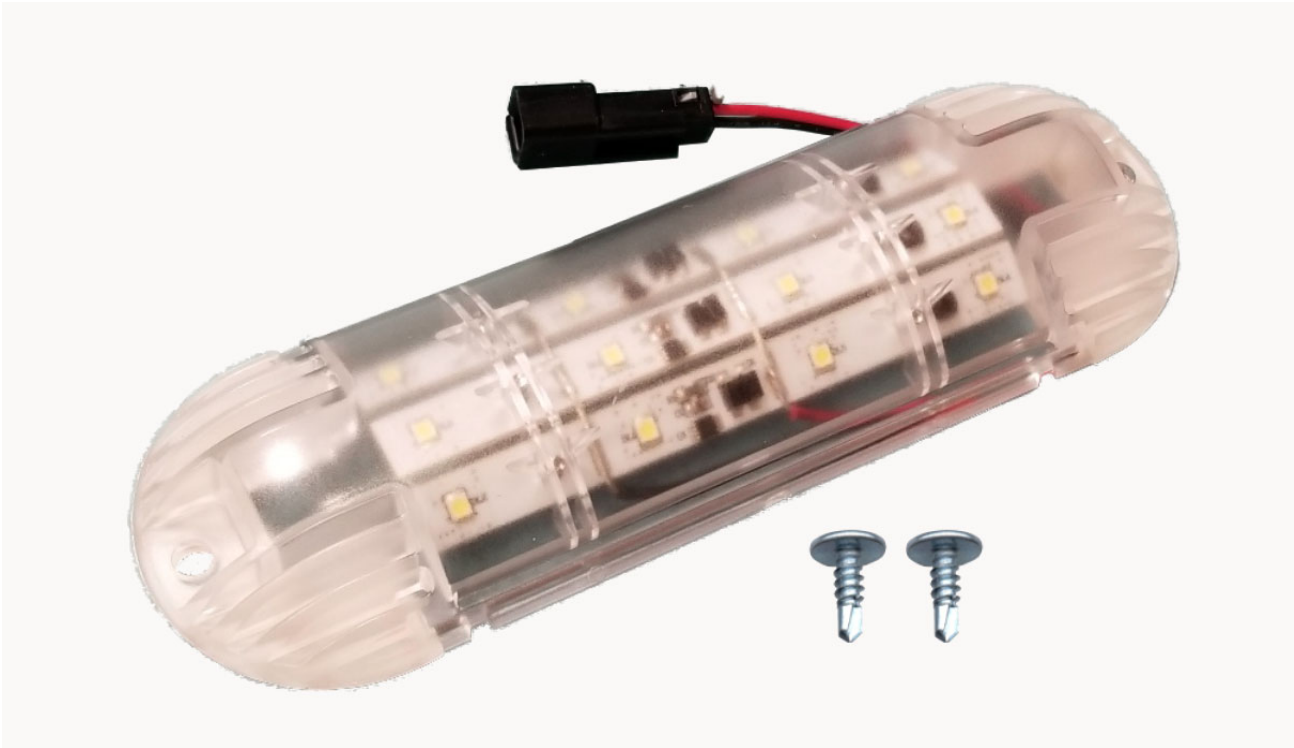
WEIGHT
(Lbs.): **0.05**

SEGMENT
CODE: **HDW**

PART NUMBER: **49401**

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
(1) LED LIGHT WITH 12 LED GROUPED IN THREE ROWS
(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 REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)

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Sheet 1 of 1

PART / PRODUCT IDENTIFICATION		
	ADRIAN STEEL®	
	ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221	
MAT'L USED:	PURCHASED	DESIGNED BY: A. ELLISON
DESCRIPTION:	MODULE DOME LED LIGHT	
WEIGHT (Lbs.):	.50	PART NUMBER: 63480
SEGMENT CODE:	EAU	

REVISION LEVEL
B

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

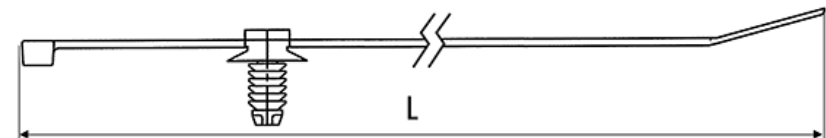
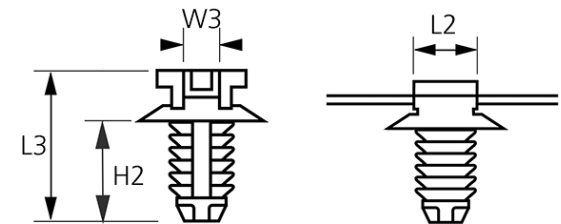
OTHER REQUIREMENTS

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



P-HARRB2

(5x)



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TOLERANCES & INSPECTION

UNLESS OTHERWISE SPECIFIED

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: 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 REFERENCE)
(NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)

YES

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Sheet 1 of 1

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)

N/A

LOAD/RATING REQUIREMENT

N/A

MATERIAL REQUIREMENT

N/A

PACKAGING REQUIREMENT

N/A

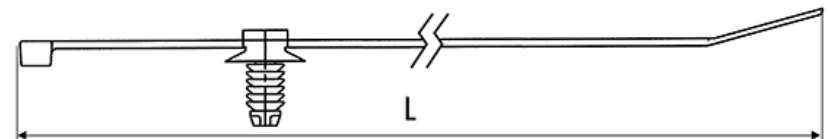
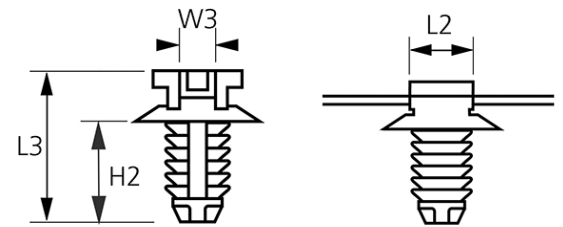
OTHER REQUIREMENTS

- **Roof Bow #3**
- **(5x) WIRE TIE W/CHRISTMAS TREE**
- **2570mm Length**



P-HARRB3

(5x)



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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: 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-HARRB3

COLOR (ONLY LIST IF COLOR SPECIFIC)

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

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Sheet 1 of 1

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 #3**

WEIGHT
(Lbs.):

.50

SEGMENT
CODE: **EAU**

PART NUMBER: **63483**

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

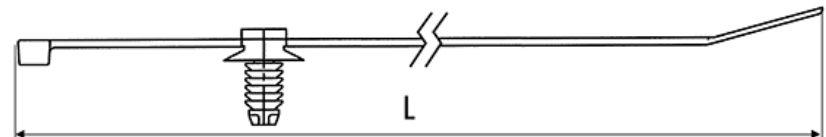
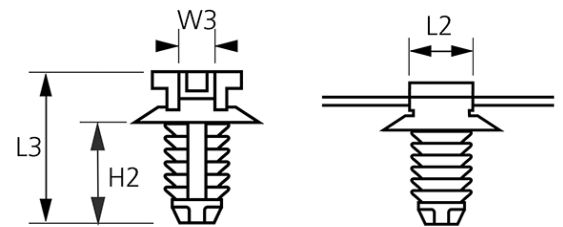
OTHER REQUIREMENTS

- **Roof Bow #4**
- **(5x) WIRE TIE W/CHRISTMAS TREE**
- **3470mm Length**



P-HARRB4

(5x)



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DETRIMENTAL TO THE INTERESTS OF ADRIAN STEEL COMPANY

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: 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-HARRB4

COLOR (ONLY LIST IF COLOR SPECIFIC)

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

YES

PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

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 #4**

WEIGHT
(Lbs.):

.50

SEGMENT
CODE: **EAU**

PART NUMBER: **63484**

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	



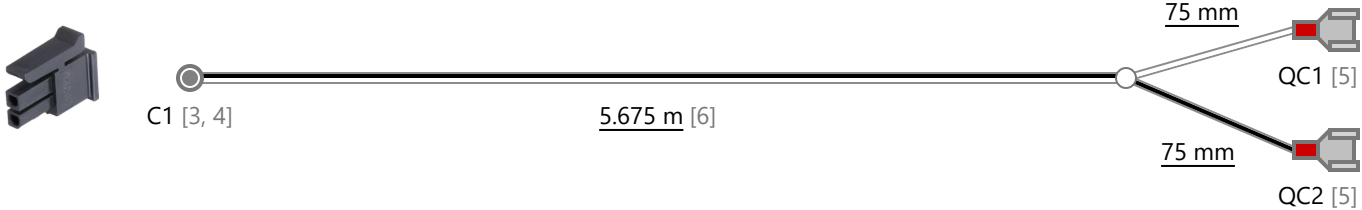
THIS DRAWING IS THE PROPERTY OF ADRIAN STEEL COMPANY AND IS NOT TO BE USED IN ANY MANNER DETRIMENTAL TO THE INTERESTS OF ADRIAN STEEL COMPANY	
TOLERANCES & INSPECTION	RELEASE & REVISIONS
UNLESS OTHERWISE SPECIFIED	INITIAL ECN: 25377
ALL BEND ANGLES ARE 90 DEGREES	CURRENT ECN: 25377
ALL DIMENSIONS ARE IN INCHES.	ECN DESCRIPTION:
REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION	RELEASE FOR PRODUCTION
FEATURES 0.0 = ± .125 0.00 = ± .062 0.000 = ± .031	
HOLES/SLOTS 0.0 = ± .062 0.00 = ± .031 0.000 = ± .015	
ANGLES 0° = ± 2° 0.0° = ± 1°	
Material Thickness: per ASTM Std. Weld Callouts per AWS	REVISED BY:

PURCHASED COMPONENT	
REFERENCED SUPPLIER AND/OR MANUFACTURER	
AAMP GLOBAL	
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER	
VTM-SW2 OR 65788	
COLOR (ONLY LIST IF COLOR SPECIFIC)	
COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)	
NO	

PRINTED DOCUMENT IS UNCONTROLLED			Sheet 1 of 1
PART / PRODUCT IDENTIFICATION			
	ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221
	DESIGNED BY: E.BURKE		REVISION LEVEL A
MAT'L USED:	PURCHASED	DESCRIPTION: SWITCH 2 HARNESS FOR VTM	
WEIGHT (Lbs.):	0.2	SEGMENT CODE: ELE	PART NUMBER: 65788

Coverings	
Id	Assembly
[6]	

From	To	Color	Gauge
C1.1	QC1		20 AWG
C1.2	QC2		20 AWG



From	To	Color	Gauge
QC1	C1.1		20 AWG

From	To	Color	Gauge
QC2	C1.2		20 AWG



Revisions			
Rev.	Date	Author	Description
1	6/10/21	Bennet Fisher	Initial Drawing

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS [INCHES] TOLERANCES: ±5MM PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF AAMP GLOBAL. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF AAMP GLOBAL IS PROHIBITED.		Name	Date	 — ADVANCING VEHICLE TECHNOLOGY —	
	Designed By	Bennet Fisher	6/10/2021		
	Engineering Approval				
	Manufacturing Approval				
	Revision Approval			Part Number: VTM-SW2	
	Quality Assurance			Description: 5.675 Meter Switch Harness	
				Revision: 1 Sheet: ----	

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	

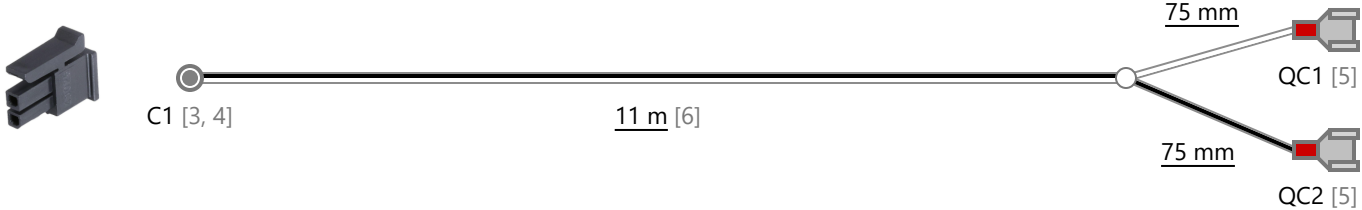


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TOLERANCES & INSPECTION		PART / PRODUCT IDENTIFICATION		
UNLESS OTHERWISE SPECIFIED		AS ADRIAN STEEL® ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221		REVISION LEVEL
ALL BEND ANGLES ARE 90 DEGREES				A
ALL DIMENSIONS ARE IN INCHES.				
REFERENCE 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		PURCHASED COMPONENT		
INITIAL ECN: 25377		REFERENCE SUPPLIER AND/OR MANUFACTURER AAMP GLOBAL		
CURRENT ECN: 25377		REFERENCE SUPPLIER AND/OR MANUFACTURER PART NUMBER VTM-SW4 OR 65790		
ECN DESCRIPTION:		COLOR (ONLY LIST IF COLOR SPECIFIC)		
RELEASE FOR PRODUCTION		COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.) NO		
REVISED BY:		NO		
		NO		

ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221	
PURCHASED		DESIGNED BY: E.BURKE	
SWITCH 4 HARNESS FOR VTM			
0.2		ELE	
65790			

Coverings	
Id	Assembly
[6]	

From	To	Color	Gauge
C1.1	QC1		20 AWG
C1.2	QC2		20 AWG



From	To	Color	Gauge
QC1	C1.1		20 AWG

From	To	Color	Gauge
QC2	C1.2		20 AWG

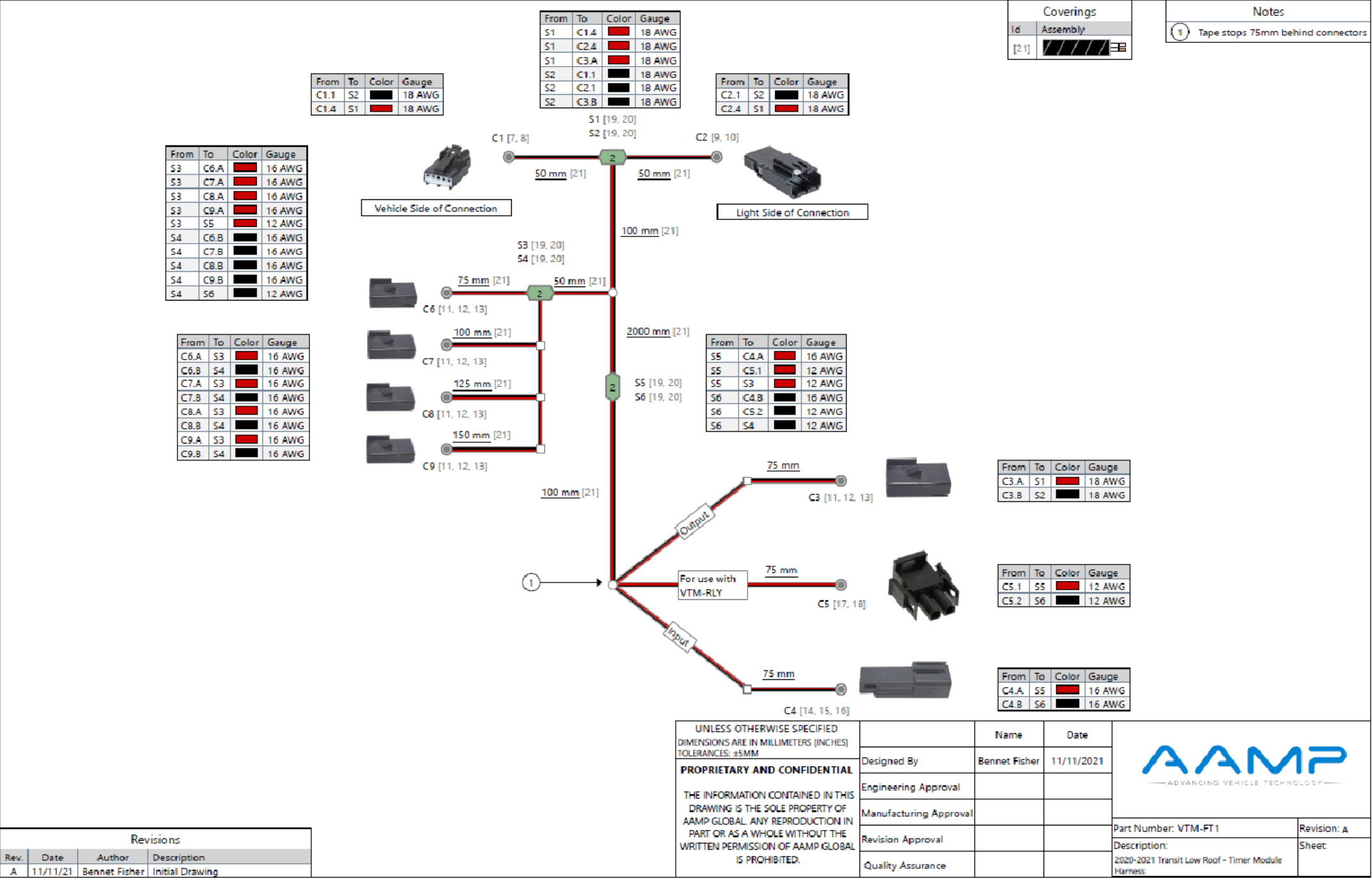


Revisions			
Rev.	Date	Author	Description
1	6/10/21	Bennet Fisher	Initial Drawing

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	Designed By	Bennet Fisher	6/10/2021			
	Engineering Approval					
	Manufacturing Approval					
	Revision Approval			Part Number: VTM-SW4		Revision: 1
	Quality Assurance			Description: 11 Meter Switch Harness		Sheet: ----

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



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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: 25377
CURRENT ECN: 25377
ECN DESCRIPTION: RELEASE FOR PRODUCTION
REVISED BY: EMB

PURCHASED
COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
AAMP GLOBAL

REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
VTM-FT1 OR 65793

COLOR (ONLY LIST IF COLOR SPECIFIC)
NO

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

PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

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 VTM FT1**

WEIGHT (Lbs.): **0.2**

SEGMENT CODE: **ELE**

PART NUMBER: **65793**

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
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
AAMP
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
71902
COLOR (ONLY LIST IF COLOR SPECIFIC)
COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
NO

PRINTED DOCUMENT IS UNCONTROLLED			Sheet 1 of 1
PART / PRODUCT IDENTIFICATION			
 ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221	
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

Stinger[®]



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 ON (Down) OFF (Up)	Up	Up	30	ON (Down) Steady Ground Input
Up	Down	11.2V		Up	Down	60	
Down	Up	11.5V		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 second 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.

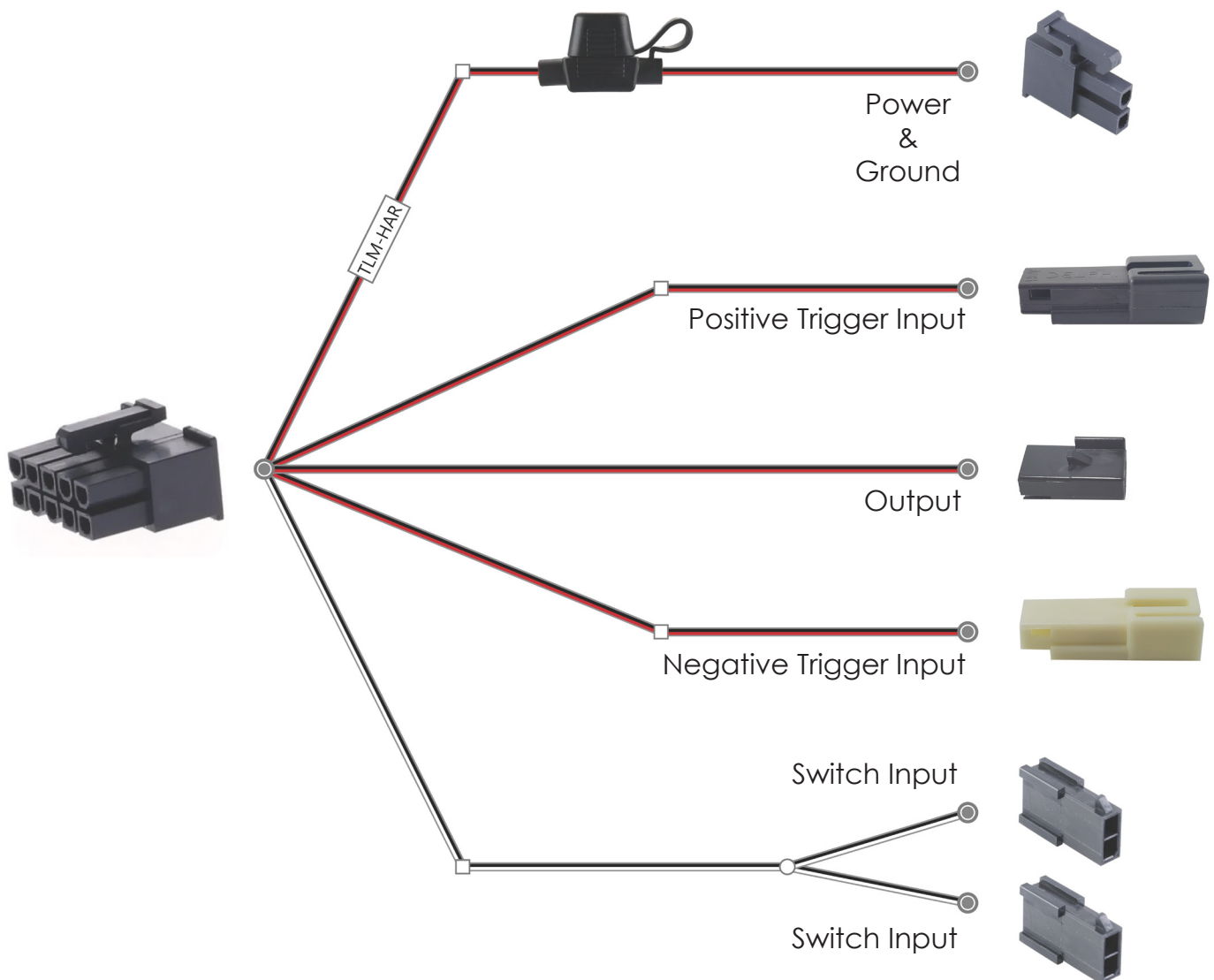
If a Trigger Input is active, its function takes precedence. Attempting to activate the Switch Input while a Trigger Input is active will have no effect on the modules output.





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

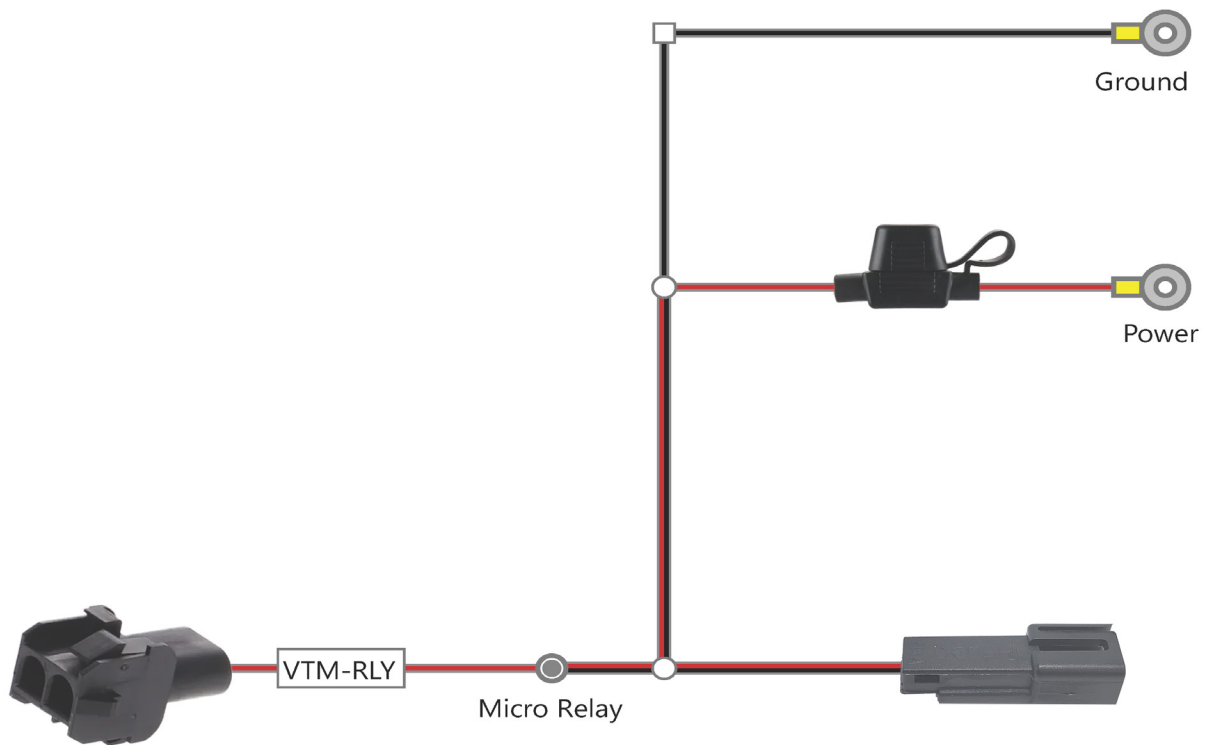
Switch Input: Closing loop between switch input wire leads will activate output





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





Stinger[®]

Phone – 866-931-8021 (option 3)

E-Mail – support@stingersolutions.com

StingerSolutions.com

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
PLUG AND PLAY POWER HARNESS FOR TOPPER SILVERADO AND RAM KITS
POWER FROM BATTERY TO TLM MODULE



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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: 26830
ECN DESCRIPTION:
RELEASE FOR MARKET FILL
REVISED BY: FMB

PURCHASED COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
AAMP
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
71903
COLOR (ONLY LIST IF COLOR SPECIFIC)
COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
NO

PRINTED DOCUMENT IS UNCONTROLLED

Sheet 1 of 1

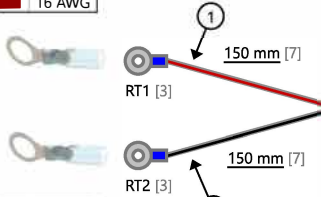
PART / PRODUCT IDENTIFICATION		
 ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221
MAT'L USED: PURCHASED	DESIGNED BY: E.BURKE	REVISION LEVEL A
DESCRIPTION: HARN,POWER TLM BATTERY 4'		
WEIGHT (Lbs.): 0.2	SEGMENT CODE: ELE	PART NUMBER: 71903

Bill of Materials				
Id	Type	Manufacturer	Part Number	Quantity
1	Wire		16 AWG Red GXL	1220 mm
2	Wire		16 AWG Black GXL	1220 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	1370 mm
8	Fuse	Littelfuse	297010.WXNV	1
9	Cable Tie	Hellerman nTyton	T30LL0M4	5
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

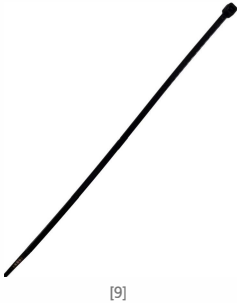
From	To	Color	Gauge
RT1	Fuse_Holder1	Red	16 AWG



From	To	Color	Gauge
RT2	C1.2	Black	16 AWG

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

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



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

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	Designed By	Bennet Fisher	10/29/2023		
	Engineering Approval				
	Manufacturing Approval			Part Number: 71903-A	
	Revision Approval			Description: HARN, PWR TLM BATTERY 4'	
	Quality Assurance			Revision: A	
				Sheet: 1	