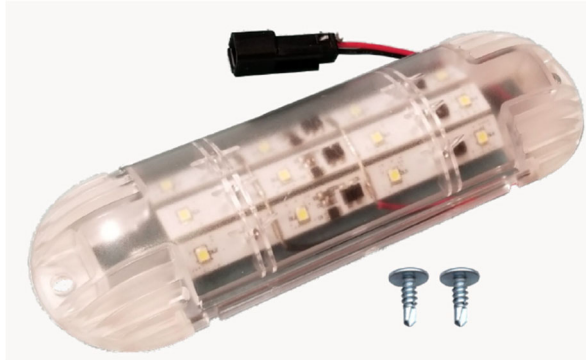


Part Number

68949

Module LED Light (63480)



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



LED Light Kit Installed

PRODUCT FEATURES

- This kit is compatible with the Ford Transit mid / high roof.
- Included in this kit is three (3) module LED lights (63480), roof bow harness #2-4 (63482, 63483, 63484), power harness (65794), two switches, and various fasteners.
- There are no OEM options that this kit is not compatible with and there are no OEM options this kit requires.

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.

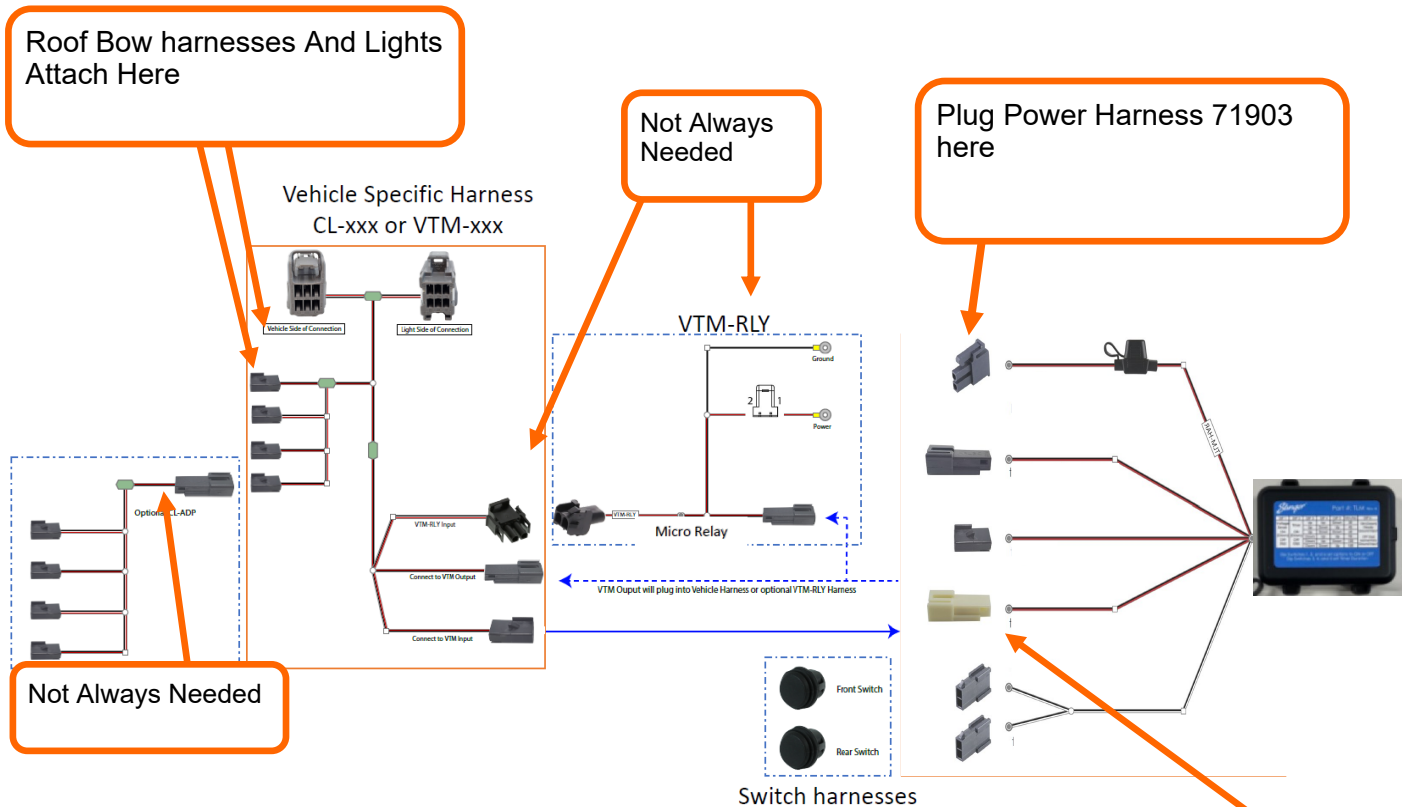


Installation Instructions For Interior Plug And Play Lights For Transit

****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

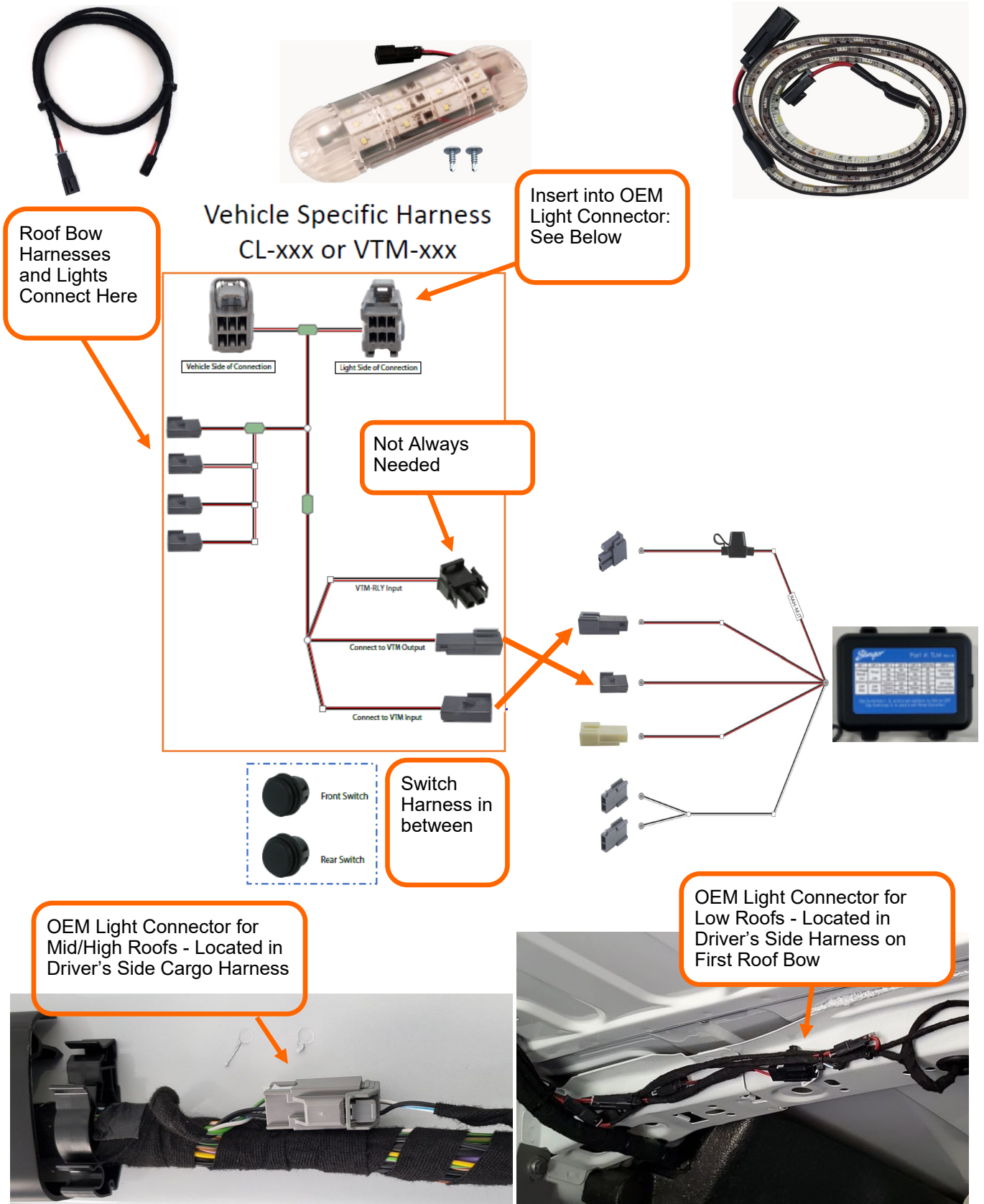
#10 and 1/4" wrench/
drive socket

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.



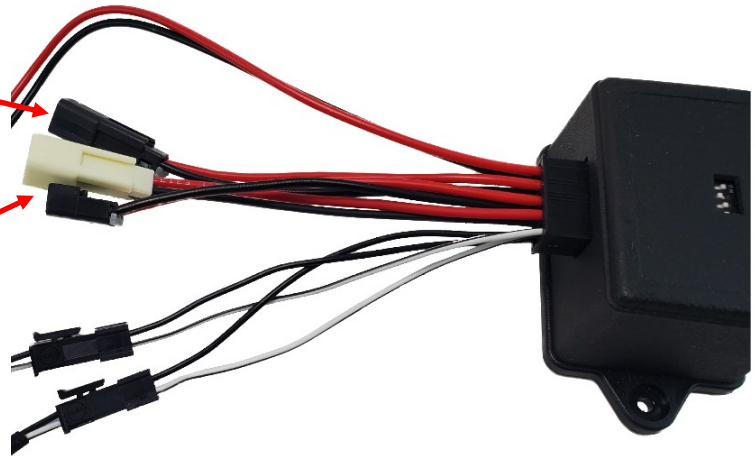
Specific Harness Diagram



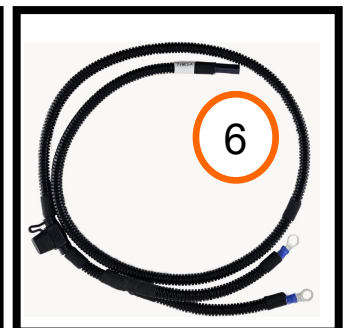
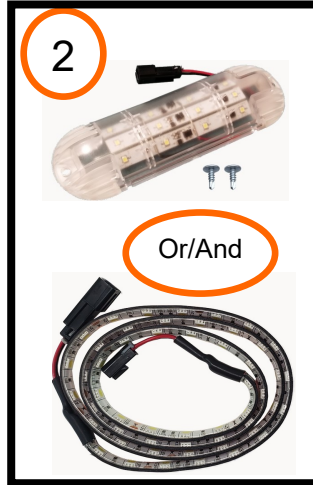
Time / Low Voltage Module (TLM) Harness Reference

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.

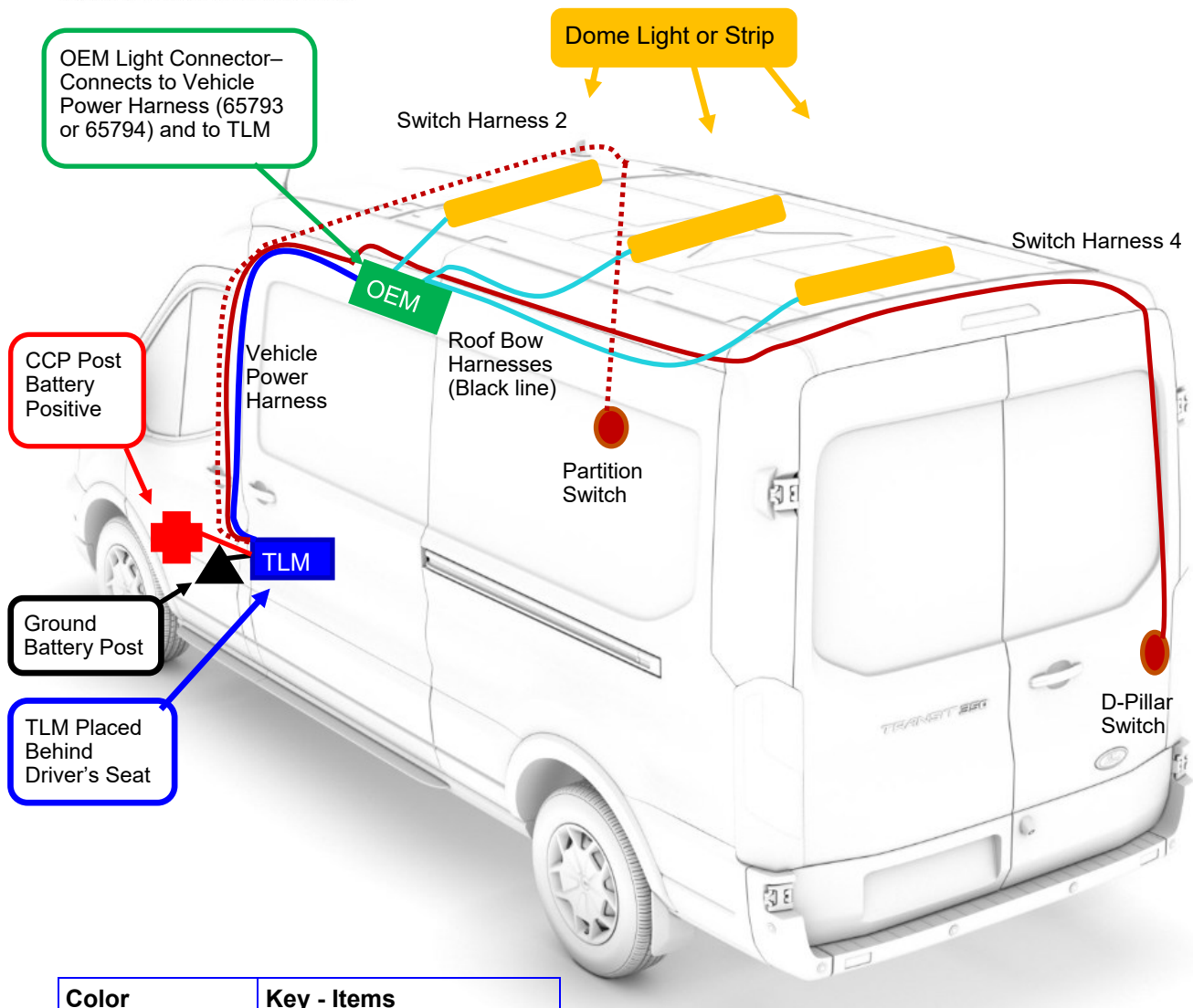


Harnesses Needed



	Part Number	Description
1	76654	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.

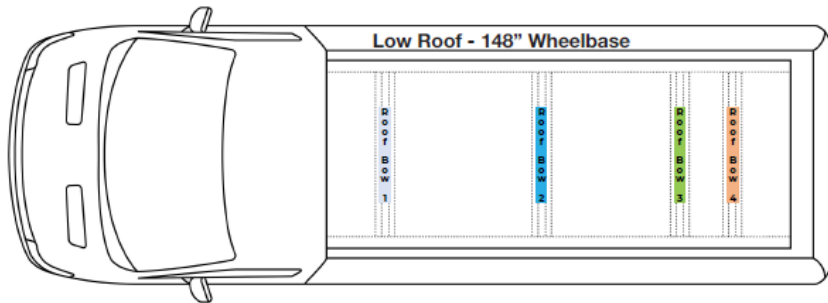
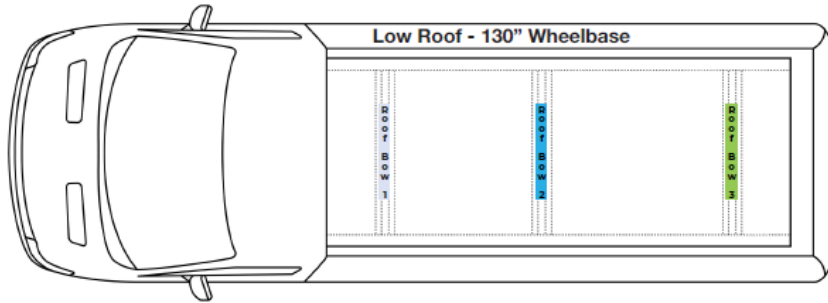


Color	Key - Items
Blue	TLM/Harness
Green	Vehicle Specific Power Harness
Black	Ground Location
Red	12V location
Redish/Brown	Switch Harnesses
Yellow	Dome or Strip Lights
Teal	Roof Bow Harnesses

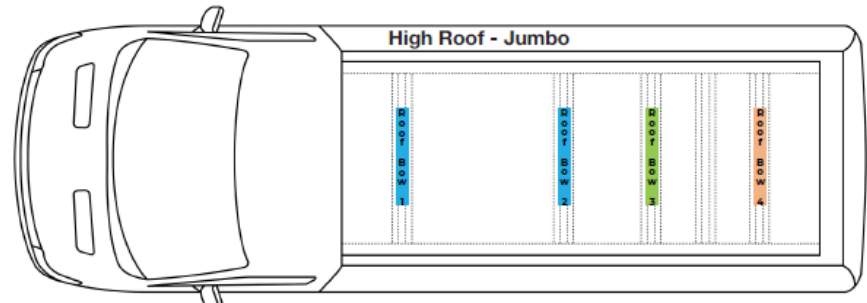
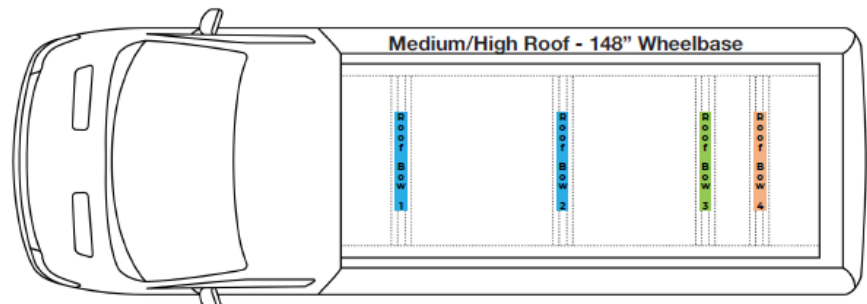
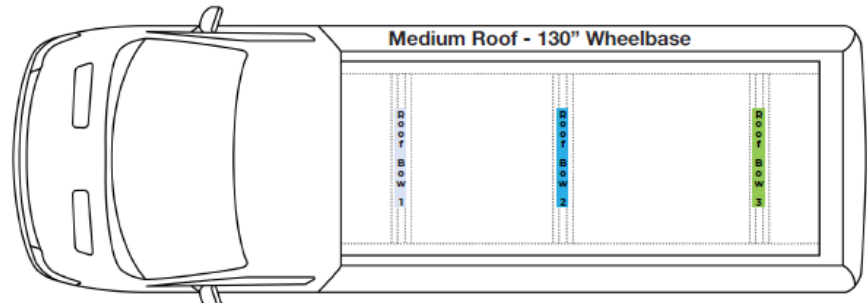
The purpose of plug and play lighting is to be completely modular. Due to this feature, refer to the order drawing for all exact lighting placements. These installation instructions are for most cases and for reference.

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)

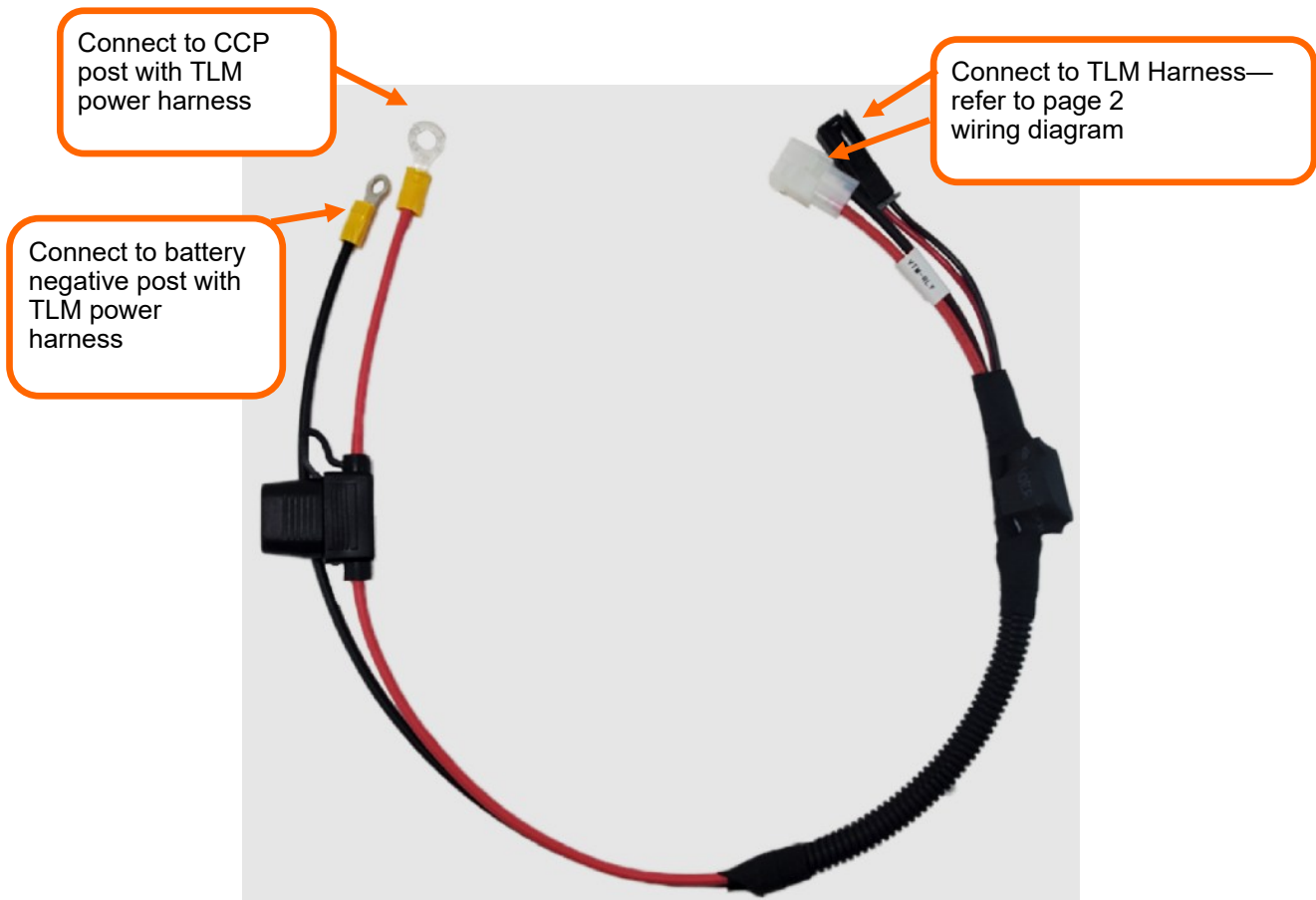
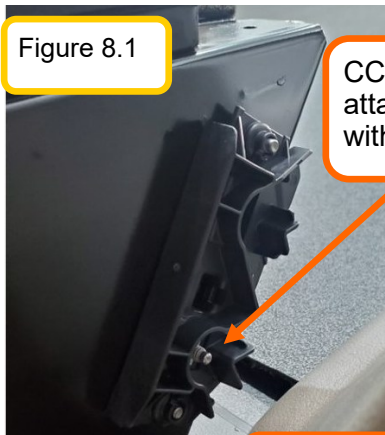
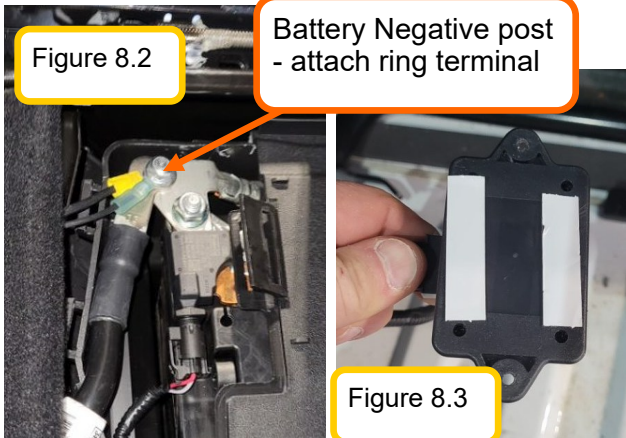


Figure 8.1



CCP positive post -
attach ring terminal
with FAS0159 nut

Figure 8.2



Battery Negative post
- attach ring terminal

Figure 8.3

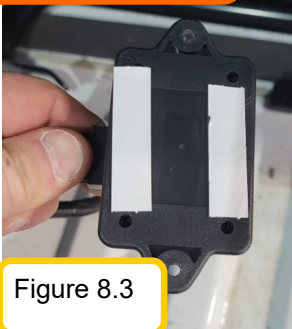


Figure 8.4



TLM harness routing
and zip tied



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: ***Please be sure to set all the dip switches on the TLM UP***

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.

TLM Dip Switch Settings

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	

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

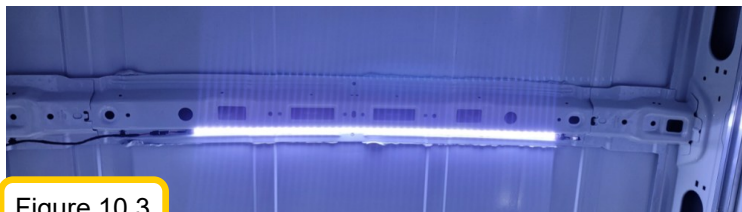


Figure 10.3

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.

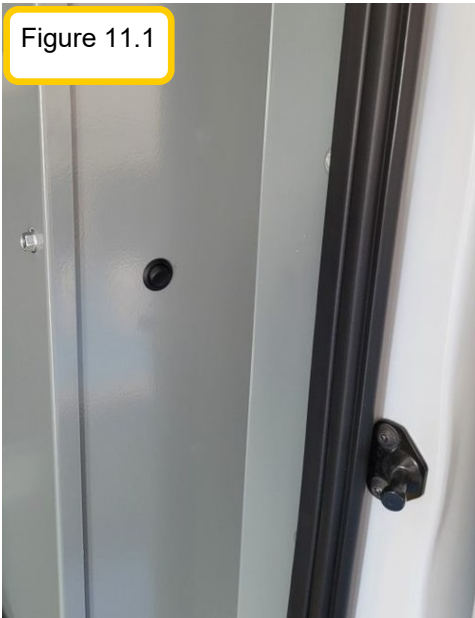


Figure 10.4

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

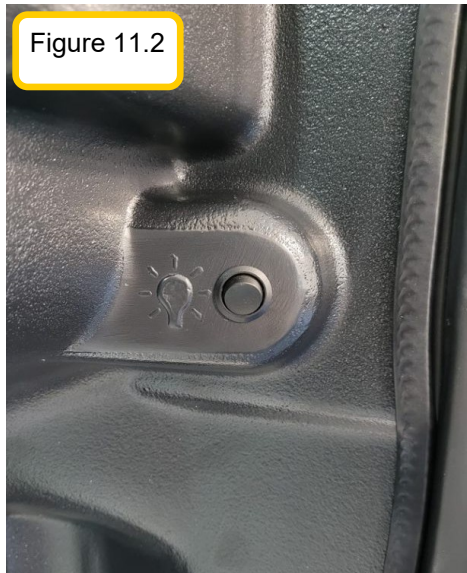
Rear Switch Location:

Passenger side rear D-pillar

See figure 11.3 below for reference.

This location will require harness #65790

Figure 11.2



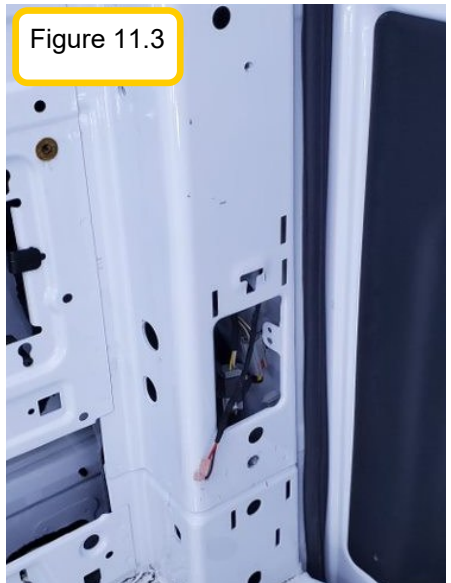
Step 7:

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.

Parts List

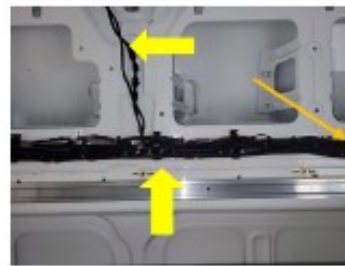
- Timer module (657)
- VTM relay and vehicle specific harness (657)
- 5 – CL-36BLED (653)
- 3 – CL-48BLED (653)
- 2 – STL-40489-2 (634)
- 1 – CL-ADP (642)
- 9 – P-HARRB1 (634)
- 1 – P-HARRB2 (634)
- 1 – P-HARRB3 (634)
- 1 – P-HARRB4 (634)



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.

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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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

ITEM DESCRIPTION: RING TERMINAL, 5/16"ID FOR 14-16 GA WIRE



Typical vinyl insulated

MANUFACTURER: WAYTEK or CTW

MANUFACTURERS PART NUMBER: #31505 or #60-14-16

SPECIFICATIONS: INSTALLER SUPPLIED RING TERMINAL
 14-16 GA WIRE
 5/16" ID
 BLUE VINYL INSULATED

SPECIAL NOTES:

SUPPLIED BY: THIS ITEM IS ADRIAN AVAILABLE!

PURCHASED PRODUCT DATA SHEET (PPDS)

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DRAWN BY
MDG

DATE DRAWN
10/01/2007

ECN NUMBER
13982

ECN DATE
06/27/2011

PART WEIGHT
0.01 LBS.

REV. LEVEL
B

PART NUMBER

35120-0

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

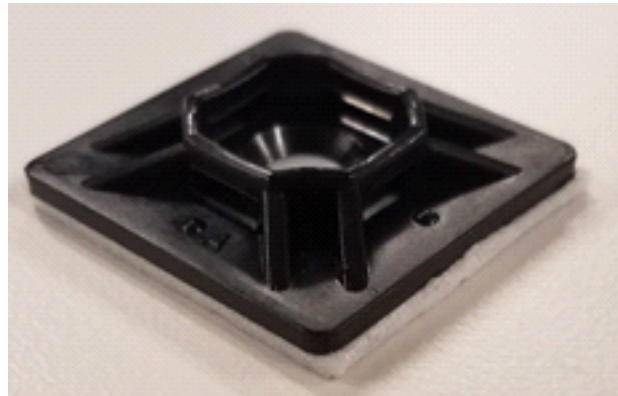
Temp. F:

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

PRINTED DOCUMENT IS UNCONTROLLED

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.):

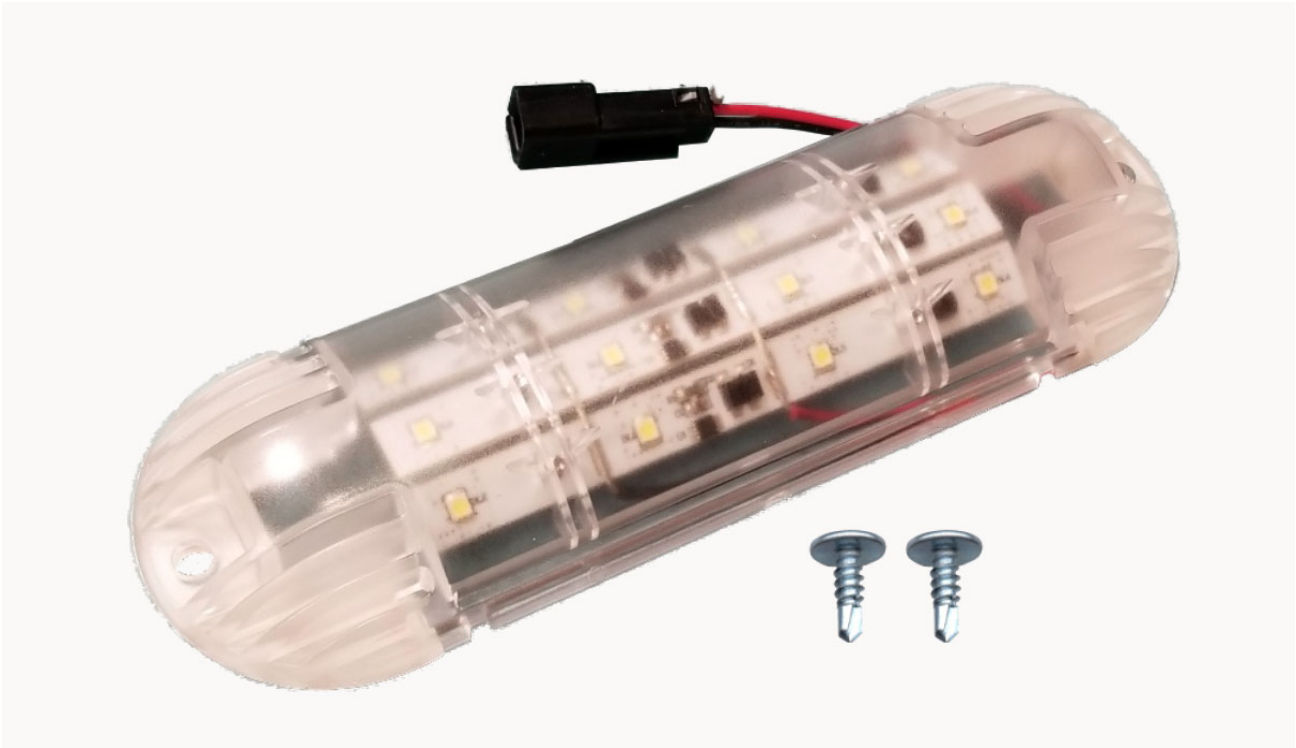
0.05

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	RELEASE & REVISIONS	
UNLESS OTHERWISE SPECIFIED	INITIAL ECN: 24359	
ALL BEND ANGLES ARE 90 DEGREES	CURRENT ECN: 25886	
ALL DIMENSIONS ARE IN INCHES.	ECN DESCRIPTION:	
REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION	UPDATE SUPPLIER PART #	
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		
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.)

PRINTED DOCUMENT IS UNCONTROLLED			Sheet 1 of 1
PART / PRODUCT IDENTIFICATION			
	ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221
	DESIGNED BY: A. ELLISON		REVISION LEVEL B
MAT'L USED:	PURCHASED	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)

N/A

LOAD/RATING REQUIREMENT

N/A

MATERIAL REQUIREMENT

N/A

PACKAGING REQUIREMENT

N/A

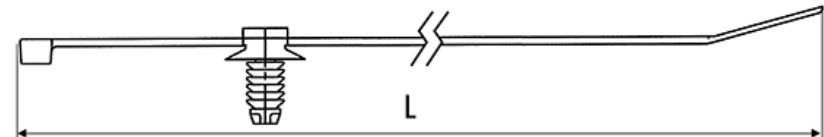
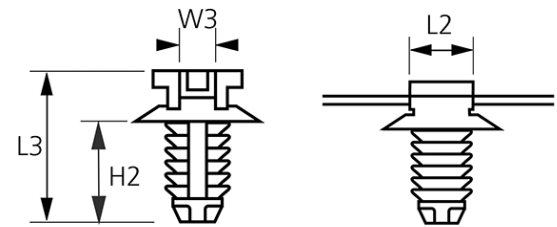
OTHER REQUIREMENTS

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



P-HARRB3

(5x)



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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-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.)

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 #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

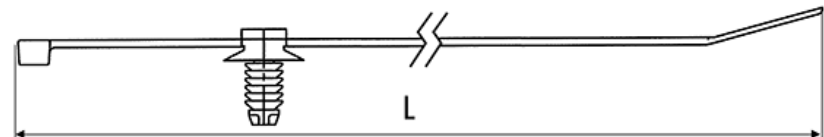
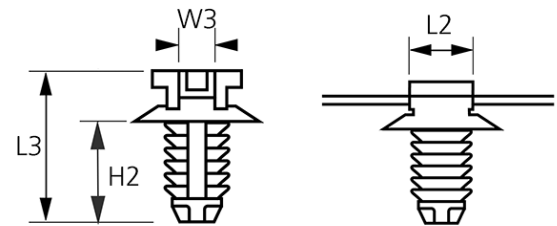
OTHER REQUIREMENTS

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



P-HARRB4

(5x)



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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

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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 #4**

WEIGHT
(Lbs.):

.50

SEGMENT
CODE: **EAU**

PART NUMBER: **63484**

PURCHASED
COMPONENT
KEY FEATURES

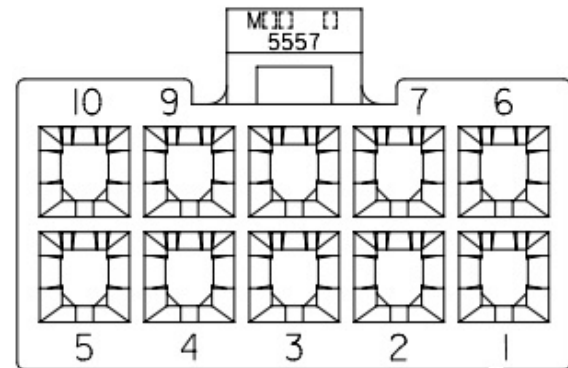
DESCRIPTION OF REQUIREMENTS
DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)
N/A
LOAD/RATING REQUIREMENT
N/A
MATERIAL REQUIREMENT
N/A
PACKAGING REQUIREMENT
N/A
OTHER REQUIREMENTS
INCLUDES HARNESS - "P-VTM-HAR"



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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:	

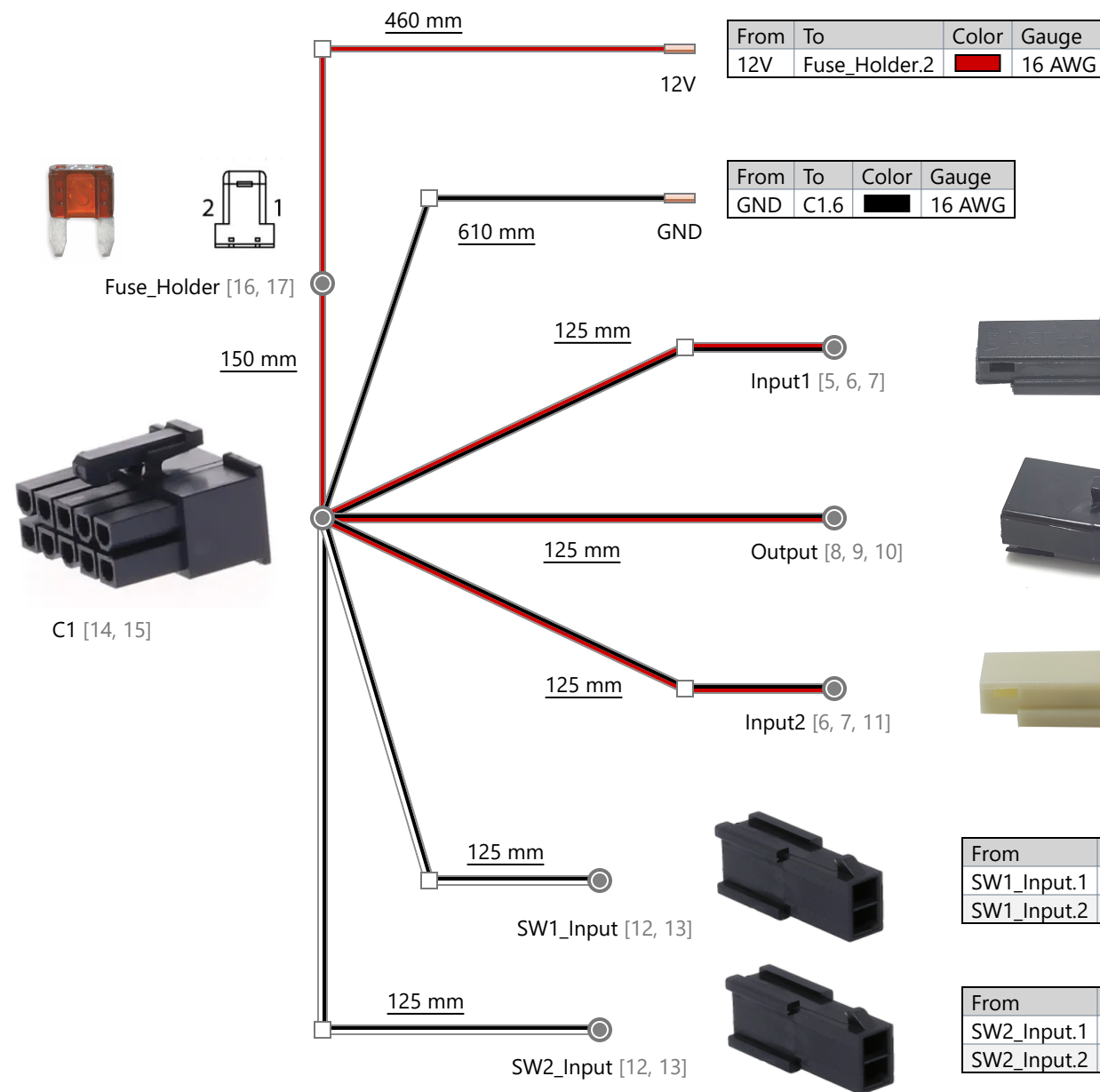
PURCHASED COMPONENT
REFERENCED SUPPLIER AND/OR MANUFACTURER
AAMP GLOBAL
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
VTM OR 65786
COLOR (ONLY LIST IF COLOR SPECIFIC)
COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.)
NO

PRINTED DOCUMENT IS UNCONTROLLED			Sheet 1 of 1
PART / PRODUCT IDENTIFICATION			
	ADRIAN STEEL®		ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221
	REVISION LEVEL		A
MAT'L USED:	PURCHASED	DESIGNED BY:	E.BURKE
DESCRIPTION:	VOLTAGE TIMER MODULE		
WEIGHT (Lbs.):	0.2	SEGMENT CODE:	ELE
		PART NUMBER:	65786



Rear View of Connector -
Wire Side of Connector

From	To	Color	Gauge
C1.1	Fuse_Holder.1	Red	16 AWG
C1.2	Input1.A	Red	16 AWG
C1.3	Output.A	Red	16 AWG
C1.4	Input2.A	Red	16 AWG
C1.5	SW1_Input.1	White/Black	20 AWG
C1.5	SW2_Input.1	White/Black	20 AWG
C1.6	GND	Black	16 AWG
C1.7	Input1.B	Black	16 AWG
C1.8	Output.B	Black	16 AWG
C1.9	Input2.B	Black	16 AWG
C1.10	SW1_Input.2	Black	20 AWG
C1.10	SW2_Input.2	Black	20 AWG



Input.1 for each switch is the ground signal that will be fed back to the timer module for activation

Input.2 for each switch is a ground that will be provided by the timer module

Revisions			
Rev.	Date	Author	Description
v1	03/26/21	Bennet Fisher	Initial Drawing
v2	7/1/2021	Bennet Fisher	Revised pin 4 and 9 connections; spliced switch inputs
v3	7/22/2021	Bennet Fisher	Changed second dome connector
v4	11/8/2021	Bennet Fisher	Eliminated White/Black and Black wire splices; Corrected contacts for C1.4, C1.5, C1.9, and C1.10

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		
	Designed By	Bennet Fisher	3/26/21		
	Engineering Approval	----	----		
	Manufacturing Approval	----	----		
	Revision Approval	----	----	Part Number: P-VTM-HAR_	
Quality Assurance		----	----	Description: Timer Module Harness	Sheet: 1 of 1



VTM

Voltage Timer Module

INSTALLATION MANUAL





Thank you for purchasing the **VTM**



WHAT'S INCLUDED:

- Voltage Timer Module
- Voltage Timer Module Harness
- Screws

COMPATIBLE ACCESSORIES:

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

FEATURES:

- Selectable timer durations - 60, 90, 120, and 150 minutes
- Low voltage shut off at 11.8V
- Timer and Low Voltage sense work independently of each other
- Inputs for 2 momentary switches
- 7.5A max current output





OPERATING INSTRUCTIONS:

DIP SWITCH 1 UP/DOWN	DIP SWITCH 2 UP/DOWN	DIP SWITCH 3	DIP SWITCH 4	Timer Duration (Minutes)
Voltage Sense ON/OFF	Timer ON/OFF	UP	DOWN	60
		UP	UP	90
		DOWN	UP	120
		DOWN	DOWN	150

If Voltage Sense is turned ON, low voltage shut down will occur when voltage input drops below 11.8V. 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. Voltage Sense is only active when the Switch Inputs are activated. Voltage Sense does not monitor VTM Trigger Input.

If Timer is ON and a switch input is activated, output voltage will be provided for specified timer duration.

While output voltage is active, pressing a switch will disable the output voltage. If pressed once again, output voltage will be re-activated and reset the timer.

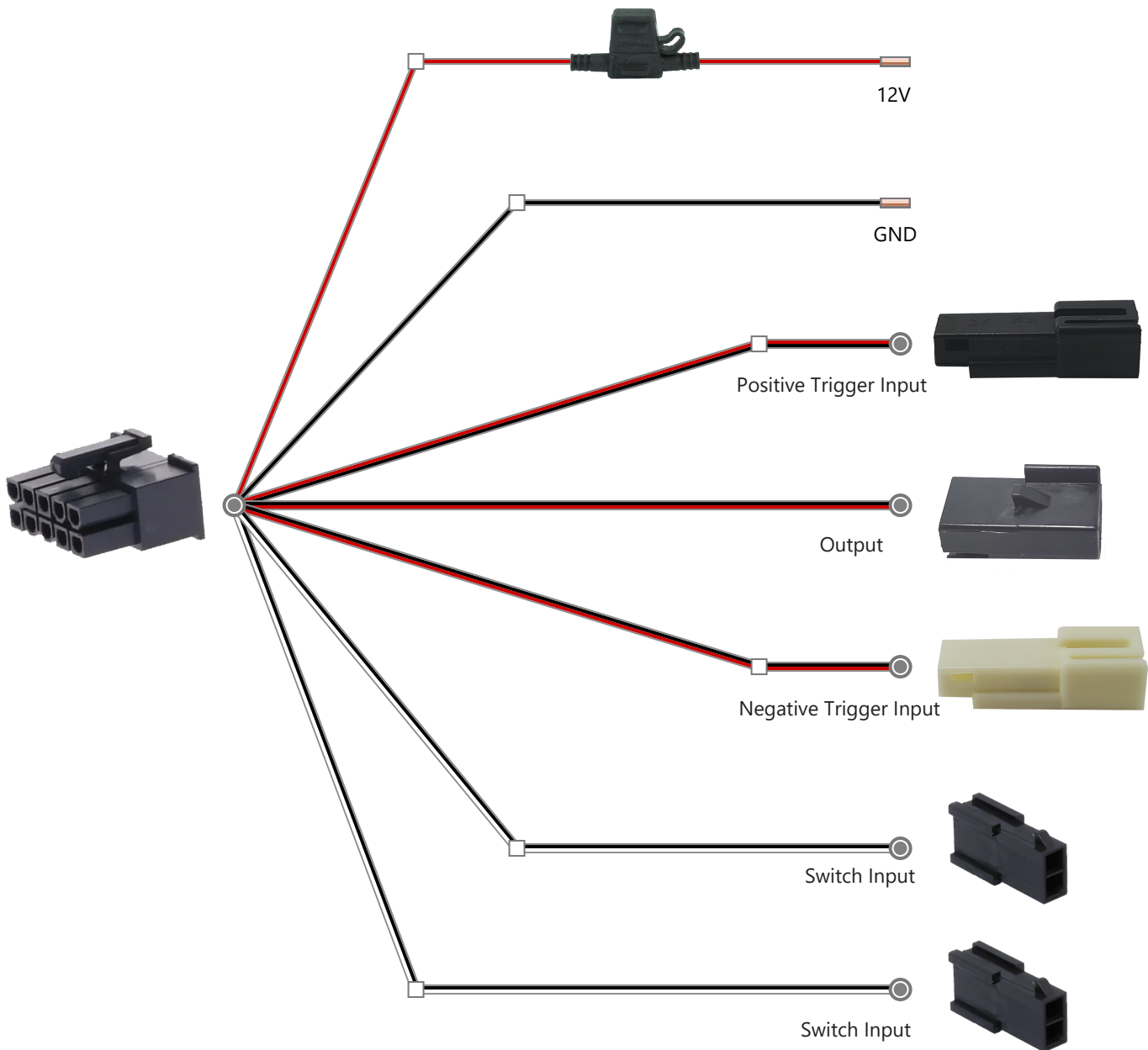
Trigger Input	Switch Input	Output	Voltage Sense (ON)	Timer (ON)
Active	N/A	ON	N/A	N/A
Deactivated	N/A	OFF	N/A	N/A
Not Active	Activated (Pressed)	ON	Monitoring Input Voltage	Timer starts
Not Active	Activated (Pressed)	OFF	N/A	Timer off
Not Active	Activated (Pressed)	ON	Monitoring Input Voltage	Timer resets

If VTM Trigger Input to the VTM module is active, its function takes precedence.



WIRING DIAGRAMS:

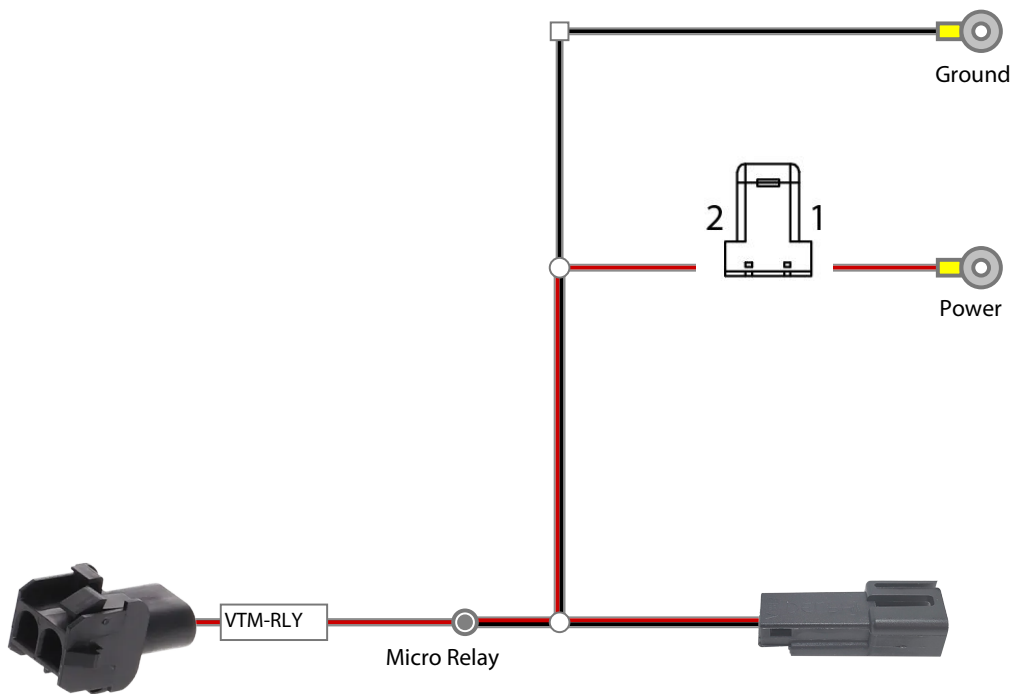
VTM Harness



.....

VTM-RLY (Optional Harness)

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



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

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



Phone – 866-931-8021 (option 3)

E-Mail – support@echomasterfleetsolutions.com



EchoMaster Fleet Solutions is a Power Brand of AAMP Global

EchoMasterfleetsolutions.com

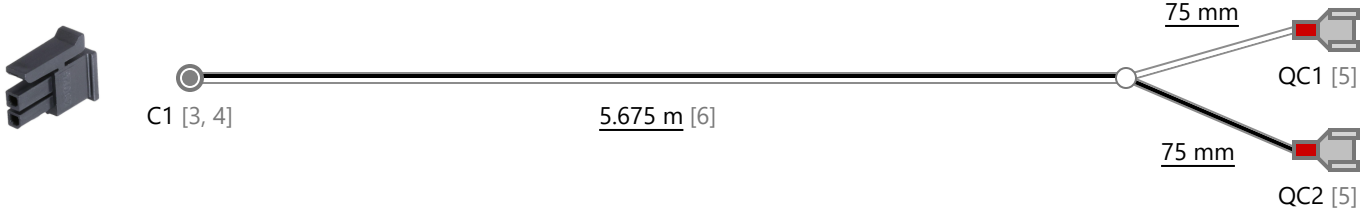
PURCHASED COMPONENT KEY FEATURES	
DESCRIPTION OF REQUIREMENTS	
DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)	
N/A	
LOAD/RATING REQUIREMENT	
N/A	
MATERIAL REQUIREMENT	
N/A	
PACKAGING REQUIREMENT	
N/A	
OTHER REQUIREMENTS	



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TOLERANCES & INSPECTION		PART / PRODUCT IDENTIFICATION		
UNLESS OTHERWISE SPECIFIED		AS1ADRIAN STEEL® ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221		REVISION LEVEL A
ALL BEND ANGLES ARE 90 DEGREES				
ALL DIMENSIONS ARE IN INCHES.		MAT'L USED: PURCHASED		DESIGNED BY: E.BURKE
REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION		DESCRIPTION: SWITCH 2 HARNESS FOR VTM		
FEATURES 0.0 = ± .125 0.00 = ± .062 0.000 = ± .031		WEIGHT (Lbs.): 0.2	SEGMENT CODE: ELE	PART NUMBER: 65788
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				
RELEASE & REVISIONS		PURCHASED COMPONENT		
INITIAL ECN: 25377		REFERENCED SUPPLIER AND/OR MANUFACTURER AAMP GLOBAL		
CURRENT ECN: 25377		REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER VTM-SW2 OR 65788		
ECN DESCRIPTION: RELEASE FOR PRODUCTION		COLOR (ONLY LIST IF COLOR SPECIFIC) NO		
REVISED BY:		COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.) NO		

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: ----	

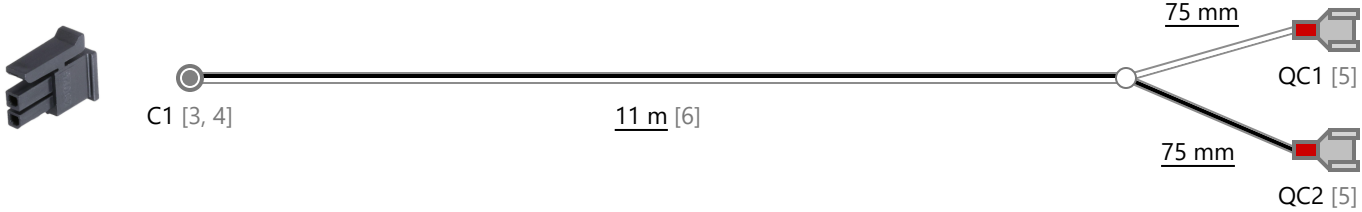
PURCHASED COMPONENT KEY FEATURES	
DESCRIPTION OF REQUIREMENTS	
DIMENSIONAL REQUIREMENTS (AS SHOWN ON DRAWING)	
N/A	
LOAD/RATING REQUIREMENT	
N/A	
MATERIAL REQUIREMENT	
N/A	
PACKAGING REQUIREMENT	
N/A	
OTHER REQUIREMENTS	



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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 A
ALL BEND ANGLES ARE 90 DEGREES					
ALL DIMENSIONS ARE IN INCHES.		DESIGNED BY: E.BURKE			
REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION		DESCRIPTION: SWITCH 4 HARNESS FOR VTM			
FEATURES		MAT'L USED: PURCHASED	WEIGHT (Lbs.): 0.2	SEGMENT CODE: ELE	PART NUMBER: 65790
HOLES/SLOTS					
ANGLES					
0.0 = ± .125					
0.00 = ± .062					
0.000 = ± .031					
0.0 = ± .062					
0.00 = ± .031					
0.0° = ± 2°					
0.0° = ± 1°					
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: RELEASE FOR PRODUCTION		COLOR (ONLY LIST IF COLOR SPECIFIC) NO			
REVISED BY:		COMODITY ITEM (Y/N) (YES = ALL DIMENSIONS AND NOTES ARE REFERENCE) (NOTE: DIMENSIONS AND FEATURES MAY VARY FOR A COMODITY ITEM.) NO			

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



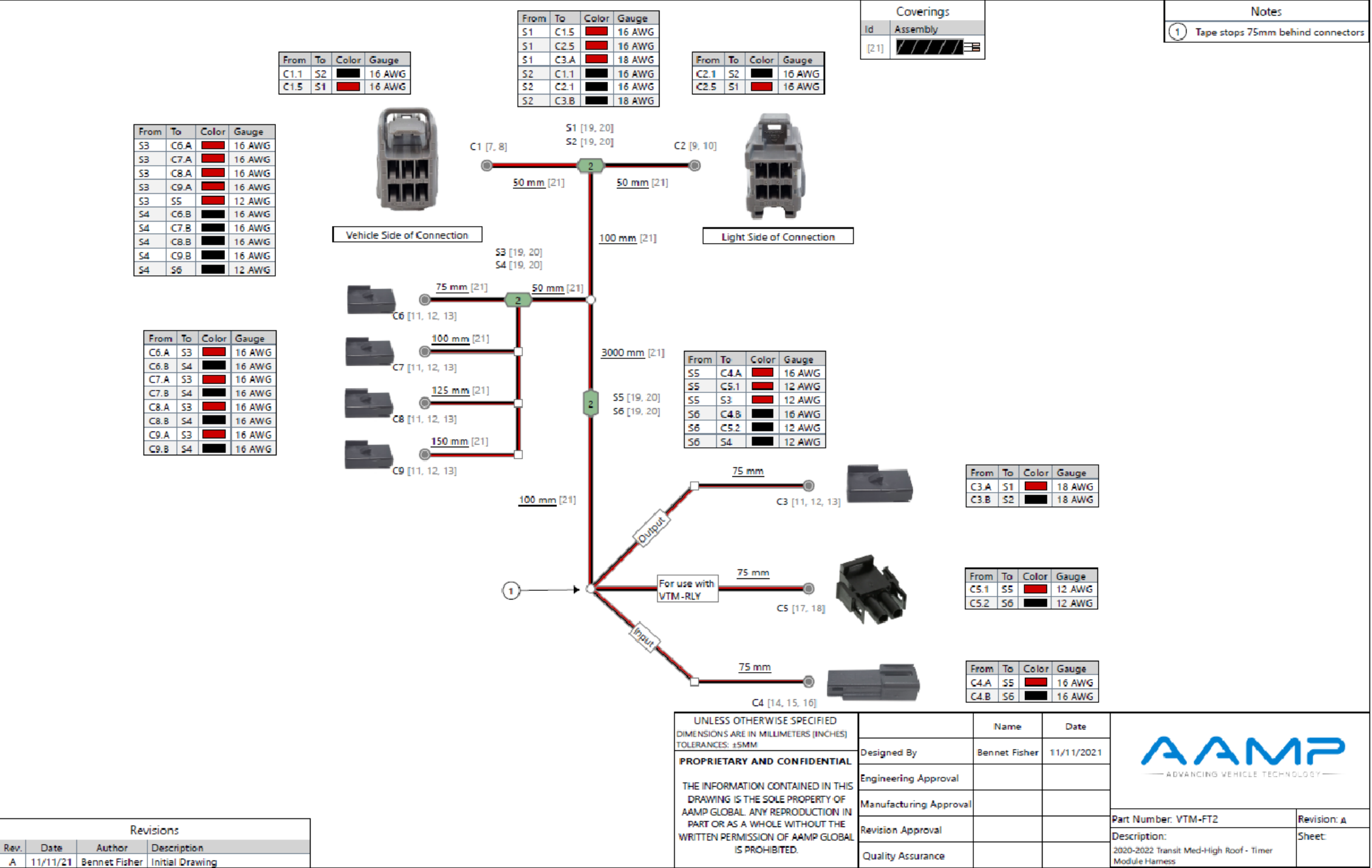
Revisions			
Rev.	Date	Author	Description
1	6/10/21	Bennet Fisher	Initial Drawing

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



TOLERANCES & INSPECTION	RELEASE & REVISIONS
UNLESS OTHERWISE SPECIFIED ALL BEND ANGLES ARE 90 DEGREES ALL DIMENSIONS ARE IN INCHES. REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION	INITIAL ECN: 25377 CURRENT ECN: 25377 ECN DESCRIPTION: RELEASE FOR PRODUCTION
FEATURES 0.0 = ± .125 0.00 = ± .062 0.000 = ± .031 Material Thickness: per ASTM Std. Weld Callouts per AWS	REVISD BY: EMB

PURCHASED
COMPONENT

REFERENCED SUPPLIER AND/OR MANUFACTURER
AAMP GLOBAL
REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER
VTM-FT2 OR 65794
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

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Sheet 1 of 1

PART / PRODUCT IDENTIFICATION

61

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 FT2

WEIGHT (Lbs.): 0.2

SEGMENT CODE: ELE

PART NUMBER: 65794

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	
RING TERMINAL: 16-14GA 1/4" STUD SIZE BLUE TIN PLATED COPPER	



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TOLERANCES & INSPECTION			PART / PRODUCT IDENTIFICATION				
UNLESS OTHERWISE SPECIFIED ALL BEND ANGLES ARE 90 DEGREES ALL DIMENSIONS ARE IN INCHES. REFERENCE DIMENSIONS (X.XXX) DO NOT REQUIRE INSPECTION			ADRIAN STEEL® ADRIAN STEEL COMPANY 906 JAMES STREET, ADRIAN, MI 49221			REVISION LEVEL A	
FEATURES 0.0 = ± .125 0.00 = ± .062 0.000 = ± .031			MAT'L USED: PURCHASED			DESIGNED BY: EMB	
HOLES/SLOTS 0.0 = ± .062 0.00 = ± .031 0.000 = ± .015			DESCRIPTION: WIRE TERM 1/4"RING 14-16G				
ANGLES 0° = ± 2° 0.0° = ± 1°			WEIGHT (Lbs.): 0.01		SEGMENT CODE: ELE		PART NUMBER: 69511
Material Thickness: per ASTM Std. Weld Callouts per AWS							
RELEASE & REVISIONS			PURCHASED COMPONENT				
INITIAL ECN: 25975			REFERENCED SUPPLIER AND/OR MANUFACTURER WAYTEK				
CURRENT ECN: 25975			REFERENCED SUPPLIER AND/OR MANUFACTURER PART NUMBER 37393				
ECN DESCRIPTION:			COLOR (ONLY LIST IF COLOR SPECIFIC) BLUE				
RELEASE TO 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: N/A							