OMEN WARNING LIGHTBAR SERIES INSTRUCTION MANUAL

OMEN Warning Lightbar

FT-HVC-OMEN Models

MANUAL VERSION 1.2 (March 25, 2024)

HiViz Lighting, Inc
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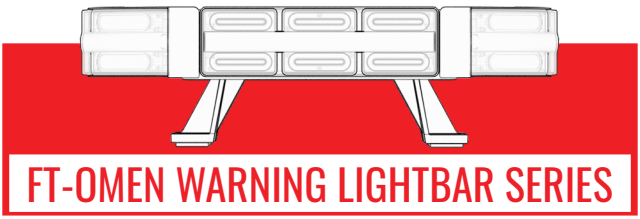

FT-OMEN WARNING LIGHTBAR SERIES

SAFETY NOTICE & WARRANTY

WARNING: INSTALLATION MUST BE CONDUCTED BY A QUALIFIED TECHNICIAN.

IMPROPER INSTALLATION CAN RESULT IN INJURY OR DEATH.

- Installation must be conducted by a qualified automotive electrician or emergency vehicle technician in accordance with the applicable NFPA standard(s) and procedures (Including but not limited to NFPA 1901, 1906, 1911, 414, 1900)
- Improperly installed, aimed, or operated lights can create significant hazard to motorists which can result in collision. Ensure light fixtures are installed and operated such that their beam does not shine into oncoming traffic
- All circuits must be fused at 125% of the rated power consumption of the loads on the circuit
- A voltage drop greater than 10% in the power feed to a fixture could be an indicator of an under-sized conductor. Use of improperly sized conductors will, at a minimum, result in poor performance, and at a maximum could result in fire
- Verify input voltage is within fixture range before installation. Voltage range information can be found in this manual or printed on the fixture body
- The use of personal protective equipment (safety glasses and gloves) is highly recommended
- Allow proper cooling time before handling the fixture if it has been installed & powered to prevent burns
- Any modifications to the fixture will void warranty and are not authorized by the manufacturer
- Always inspect the fixture for any damage prior to installing and DO NOT install if any damage is present

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

Warranty Information: Full policy available Online at hivizleds.com/warranty

- Proof of purchase may be required to validate warranty. All FireTech products are warranted for the useful service life of the vehicle for which they were first installed
- Improper installation, accident, physical damage, neglect, and normal wear and tear are not covered under warranty
- Lights operated in environments over 150° Fahrenheit are not covered under warranty
- All advance-exchange warranty claims must be validated with HiViz Technical Support prior to issuance of a shipping label. Failure to return defective product will result in an invoice for the full replacement value of the product
- HiViz Lighting will repair or replace defective product at its discretion. Replacement product will be in similar or better cosmetic condition than the defective part.
- Warranties should be handled through the dealer/reseller the product was purchased from; customer is responsible for delivery
- If product is found to have damage not covered under warranty, customer will be responsible for return shipping charges and/or cost of repair
- Non-warranted items can be repaired at the customer's expense of parts and labor, at the discretion of HiViz LED Lighting, who will provide an estimated repair cost before proceeding with the repair.

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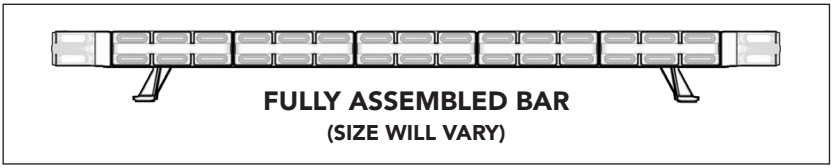
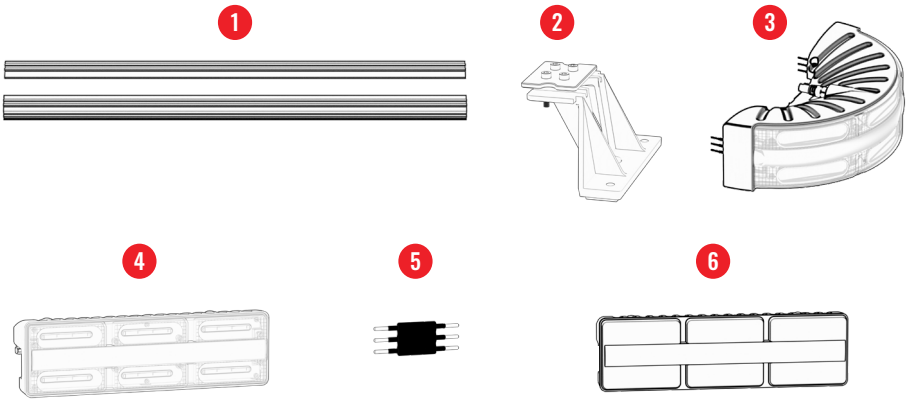
OMEN LIGHTBAR ASSEMBLY





PIECES INCLUDED

1. **Extrusion (1)**
2. **Mounting Foot* (2)**
3. **8” Side module Module (2)**
   P/N: FT-HVC-OMEN-MOD-SIDE
4. **12” Module (amount will vary)**
   P/N: FT-HVC-OMEN-MOD-12
5. **3 Pin Connector**
   P/N: ACNBG2MOD6P
6. **12” Dummy Module**
   P/N: FT-HVC-OMEN-MOD-12-0

NOTE:
Tighten screws by hand/screwdriver.
Power-tools can cause damage to isolators and cause an insecure attachment.

*Alternative mounting designs available by request; contact HiViz for information about custom mounting brackets.

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WIRING TOOLS & PARTS NEEDED

Generic Needle Nose Pliers

Machined Pin Crimp Tool
HDT-48-00

Generic Wire Stripping Tool

Wedgelock & Pin Removal Tool
DT-RT1

(Assorted) DEUTSCH Size 16 Gold Plated Solid Socket; 20-16 AWG
0462-201-1631

Misc. Shielded Twisted Pair J1939 CAN Wire

(4) DEUTSCH DT 3 Way Gray J1939 "Y" Receptacle Connector
DT04-3P-P007

(6) DEUTSCH DT 3 Way Blue J1939 Plug Wedgelock (backbone)
W3S-1939

(2) DEUTSCH DT 3 Way J1939 Terminating Plug Connector with 120 Ohm Resistor
DT06-3S-P006

(10) DEUTSCH DT 3 Way Plug Connectors
DT06-3S

(4) DEUTSCH DT 3 Way Orange Plug Wedgelock
W3S-AS

These items are not included. Contact your preferred supplier for pricing and availability. If you do not have a supplier visit waytekwire.com.
Deutsch or Amphenol products can be used.

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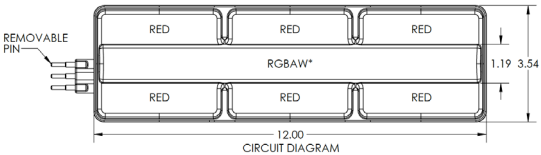
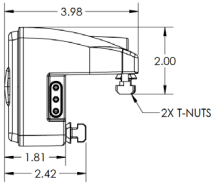
TECHNICAL SPECIFICATIONS

OMEN 12” MODULE DATA

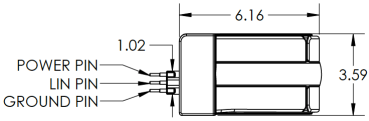


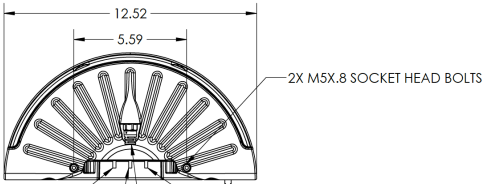
CIRCUIT DIAGRAM
*RGBAW DENOTES MULTICOLORED CIRCUIT:
RED / GREEN / BLUE / AMBER / WHITE

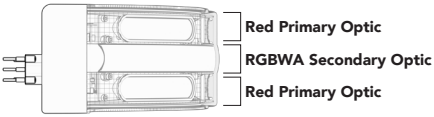


AVG. WATTAGE	29.3W
PEAK WATTAGE	76.1W
AVG. AMP DRAW (@12V)	2.3A
PEAK AMP DRAW (@12V)	5.7A
INPUT VOLTAGE	9-32V DC
WEIGHT	4.4 LBS.

OMEN 6” SIDE MODULE DATA







AVG. WATTAGE	29.3W
PEAK WATTAGE	73.1W
AVG. AMP DRAW (@12V)	2.3A
PEAK AMP DRAW (@12V)	5.7A
INPUT VOLTAGE	9-32V DC
WEIGHT	6.0 LBS.

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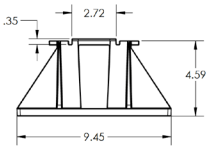
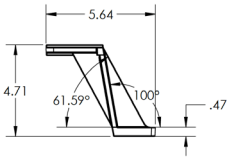
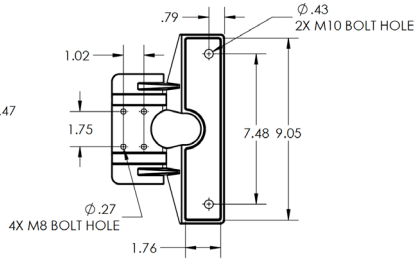
TECHNICAL SPECIFICATIONS CONT.

OMEN FACTORY MOUNTING FOOT*





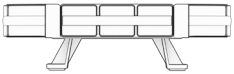


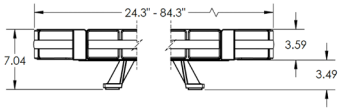
*Alternative mounting designs available by request; contact HiViz for information about custom mounting brackets.

OMEN FULL BAR SIZES

FT-HVC-OMEN-24

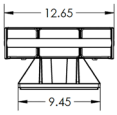
24”





FT-HVC-OMEN-36

36”



FT-HVC-OMEN-48

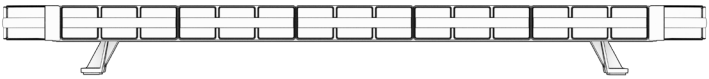
48”

FT-HVC-OMEN-60

60”

FT-HVC-OMEN-72

72”



FT-HVC-OMEN-84

84”

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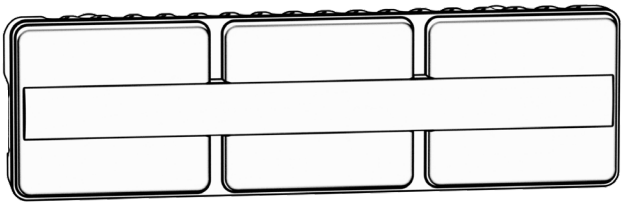
DUMMY MODULE & OUTER PLUGS

DUMMY MODULE

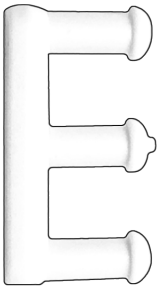
The OMEN warning lightbar comes standard with three sides having warning light functionality, with the rear having blank 12" light modules. These blank light modules carry no power or data across them, and are not connected using a 3-pin connector.



WEATHER SEALING OUTER PLUGS

The interface between the dummy warning light modules and the 6" side module light module has no three-pin connector. To eliminate any water ingress into the 6" side module light module that can damage internal components, a 3-prong weather sealing plug is placed in the area where the connector would be present.

Additionally, the OMEN 6" and 12" warning light bar are available as a rear beacon offering. When utilizing these configurations, it is critical that a 3-prong weather sealing plug is placed in the area where the connector would be present to connect another warning light module.



NOTE: While this weather sealing plug ships pre-installed on all OMEN products that require this component, a quick inspection is recommended to ensure that no accidental unseating of the plug has occurred. This component is critical to ensure a lifetime of service on all OMEN products.

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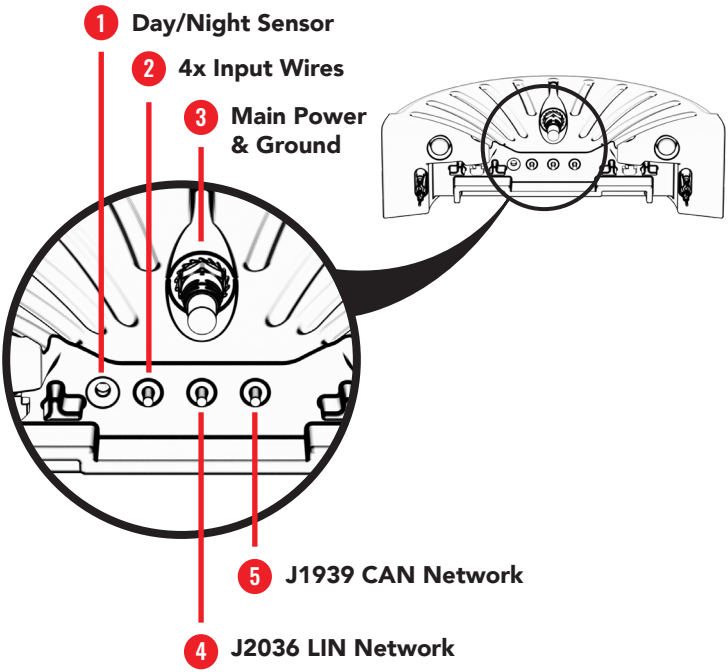
SIDE MODULE EXTERNAL NETWORK ARCHITECTURE

EXTERNAL NETWORKS - SIDE WARNING MODULES

Day/Night Sensor: Each of the two side modules of an OMEN warning light bar have a sensor. By comparing data between the two sensors, the fixture is able to determine more accurately if it is truly "night" outside, or if part of the bar is simply in the shade on-scene.

Wiring: There are several wire bundles coming off each end-cap of the OMEN warning light bar. These include an input trigger wire bundle of 4 wires, a LIN harness, a CAN harness, and the main power wires for the fixture.

Bluetooth: There is a bluetooth module built in for communications.



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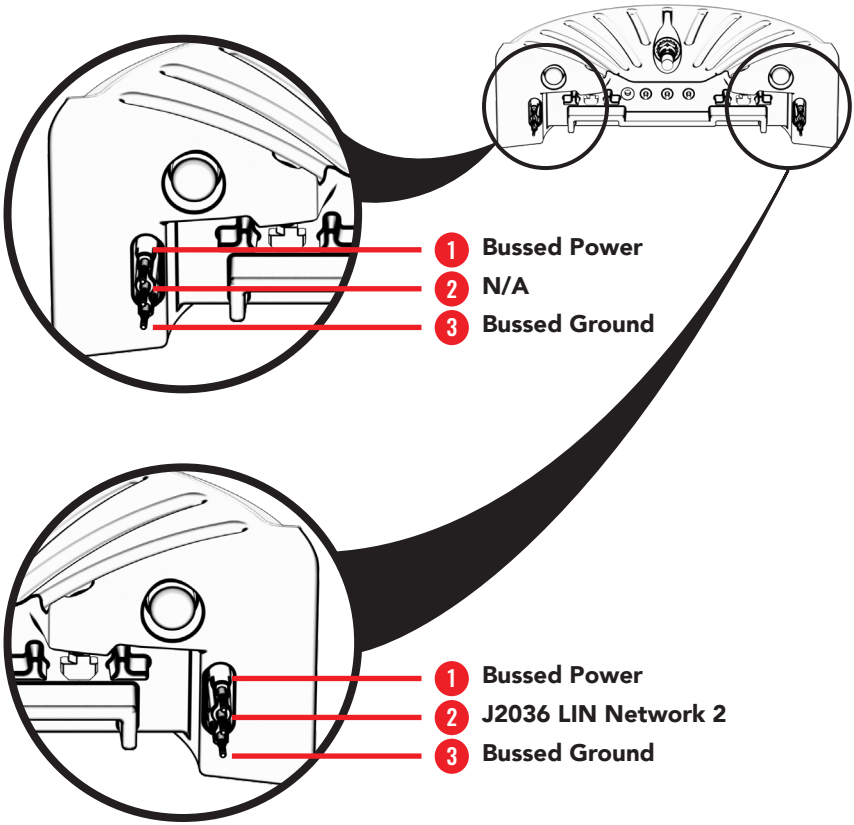
SIDE MODULE INTERNAL NETWORK ARCHITECTURE

INTERNAL NETWORKS - SIDE WARNING MODULE



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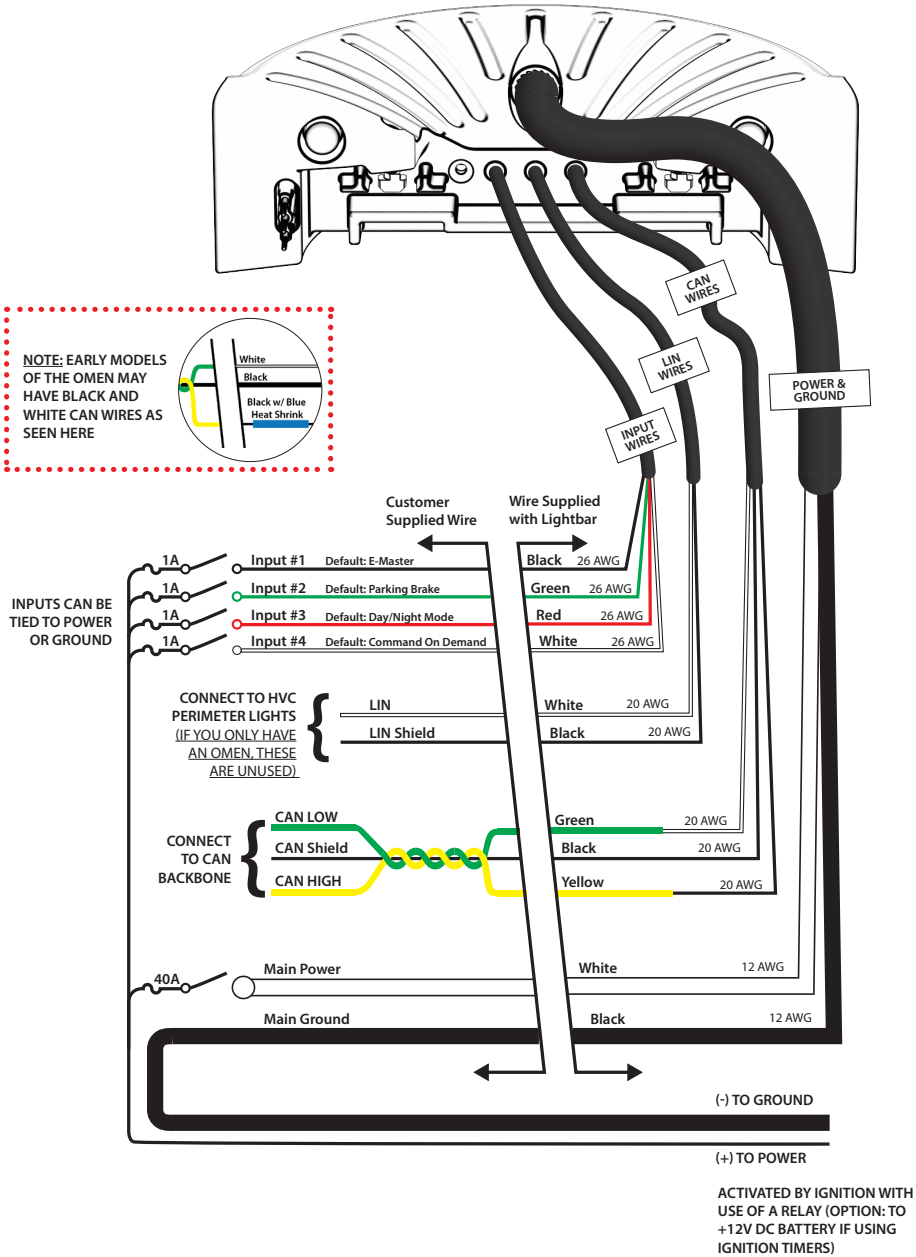
WIRING INFORMATION (PER SIDE MODULE)



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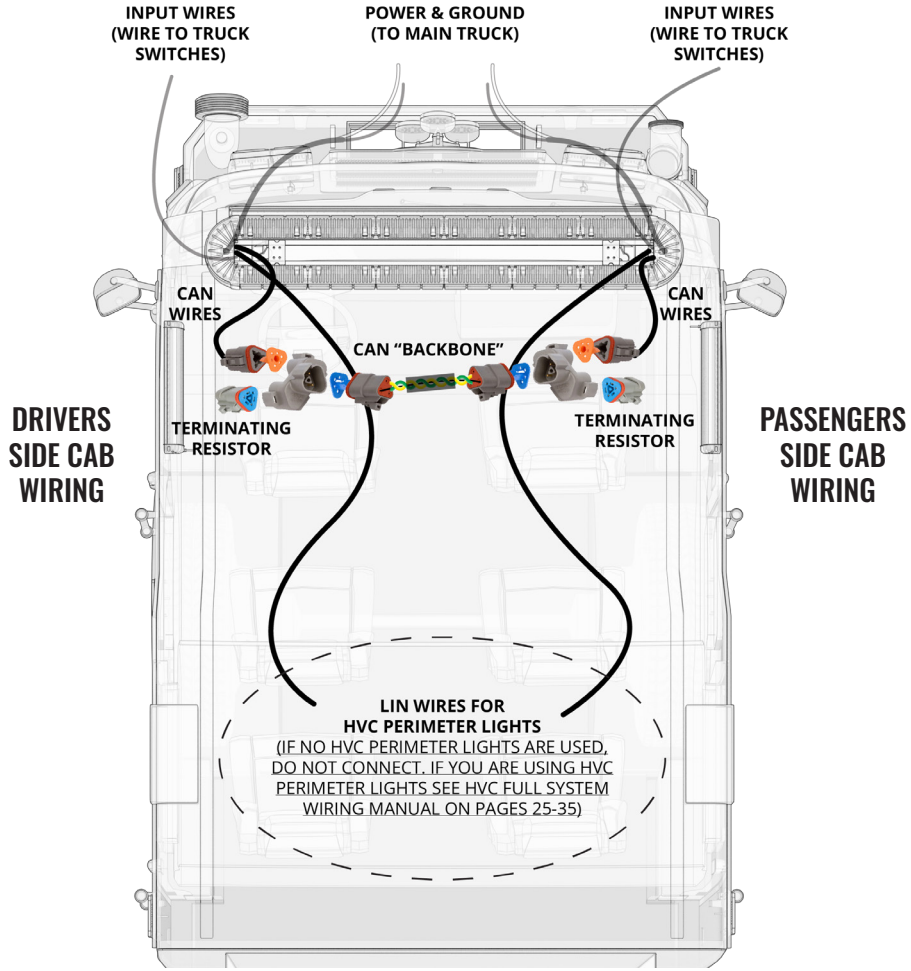
WIRING INSTRUCTIONS
HVC (OMEN ONLY) CAN/LIN ARCHITECTURE



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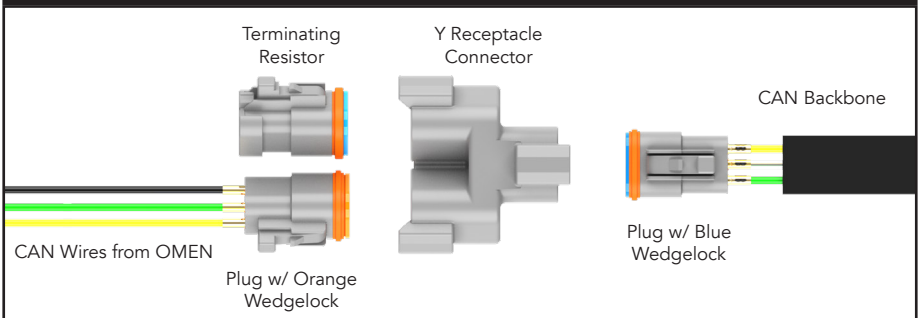
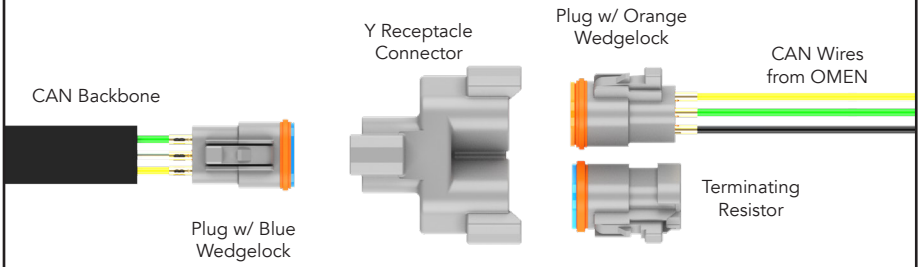
WIRING INSTRUCTIONS (CONT.)
CLOSE UP OF WIRING ARCHITECTURE

DRIVERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



PASSENGERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



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WIRING INSTRUCTIONS

Figure A: Visual of which traditional twisted shielded CAN conductors should be inserted into the proper A, B, and C slots of the plugs.

Figure B: When assembling the CAN system you will see that the Y receptacle connector will have compatibility with triangle wedgelock plugs and a circle wedgelock plug. The triangle wedgelock connectors should be used with the CAN backbone and the terminating resistors. The circle wedgelock connector should be used with the CAN conductors coming off of the OMEN and HVC Zone Modules.

Figure C: Shows the components and arrangement required to build a CAN backbone for an OMEN warning lightbar. These components are not included with your lightbar but are avaliable from a variety of manufacturers including waytekwire.com.

FIGURE A:
CAN WIRING

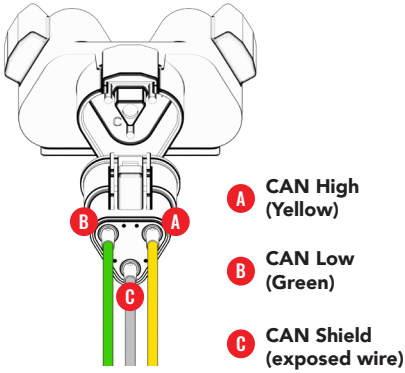

FIGURE B:
WEDGELOCK KEY

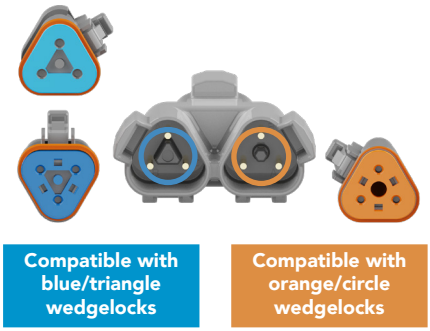

FIGURE C:
CAN BACKBONE FOR A SINGLE OMEN LIGHTBAR WITH NO HVC PERIMETER LIGHTS

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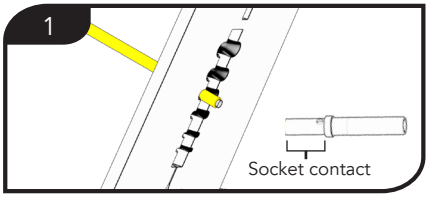
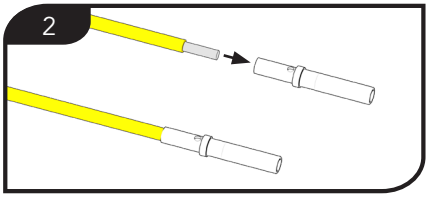
WIRING INSTRUCTIONS (CONT.)

HOW TO ASSEMBLE DEUTSCH CONNECTORS

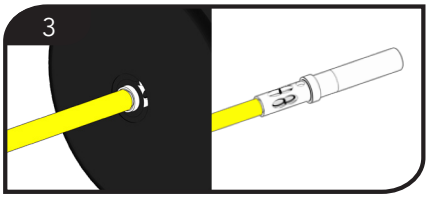
WARNING: TURN OFF POWER BEFORE WIRING



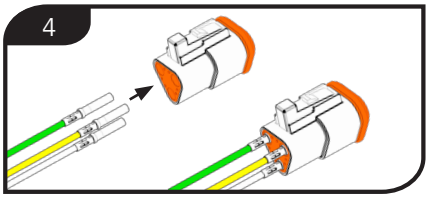
Strip the conductor with your wire strippers just enough so that it will fit inside the socket contact. Ensure that none of the wires inside of the conductor were nicked or broken off.



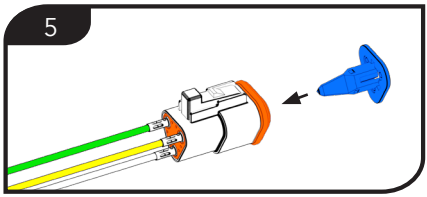
Insert the wire into the socket contact and ensure there are no stray wires sticking out from the socket. You want to see the wires from the hole in the side of the socket. Make sure you don't have wire exposed at the bottom of the socket as well.



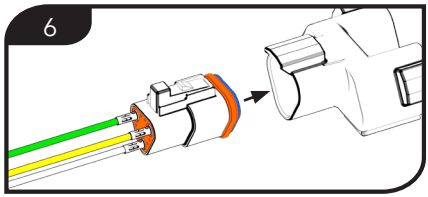
Once you have done the above steps: crimp the socket contact onto the stripped conductor per your crimp tool's instructions.



Insert the socket contact with attached conductor into the rear of the Deutsch connector (see Figures A and B for proper layout). Push until a click is heard and felt. A slight tug will confirm it is in place.



Once all contacts are in place, the wedgelock may be inserted by hand. Press until it clicks into place. The arrow on the wedgelock should point towards the exterior locking mechanism.



Insert the assembled plug into the correct receiving section of the Y Receiver.

NOTE: Use blank sealing plugs (PN A114017) for any holes not used to keep water from entering the connectors. These are available through waytekwire.com and other suppliers.

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WIRING TROUBLE SHOOTING

- Check for any missing wedgelocks.
- Check to make sure the sockets are all the way seated and latched before wedgelocks are installed, a small tug on the conductor should confirm.
- Check to make sure sealing plugs are installed to any open holes in the connectors, if they are not installed water gets inside and kills the connection.
- Check to make sure your sockets haven't been crimped too tight, if they are crimped too tight it will break the wire off in the terminal contact.
- Check to make sure your twisted shielded CAN wires are all in their correct seats in the plugs (see figure A on page 14).

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INSTALLATION INSTRUCTIONS

IDENTIFY THE MOUNTING LOCATION

The OMEN warning light bar is designed to be mounted to a flat surface, such as the roof of a custom or commercial cab fire apparatus. To achieve the greatest flexibility in mounting to different cabs, two mounting feet come with all OMEN warning light bars greater than 12 inches.

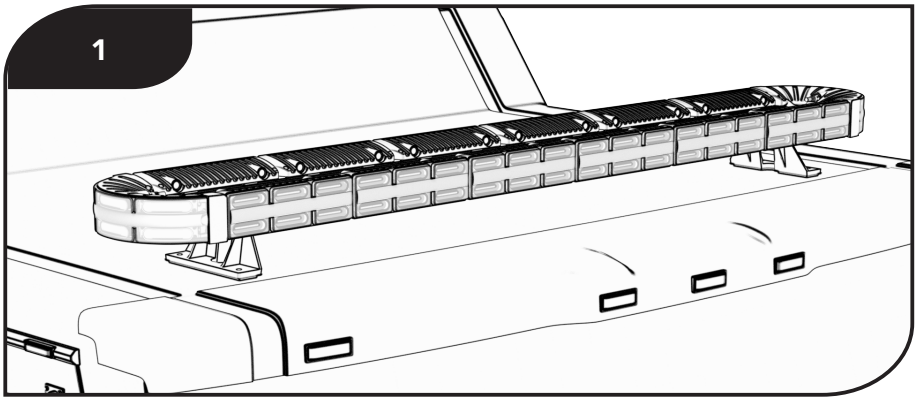
Each mounting foot has two .43" holes for mounting onto a flat cab roof or other flat surface.

Each mounting foot is designed with the ability to be moved along the entire length of the extruded mounting rail. This is completed by loosening the four .43" bolts that are used to clamp the mounting foot and integrated plate to the extruded mounting rail.

NOTE: For customers that have special geometry with respect to their cab roofs, please reach out to HiViz Lighting at **support@hivizleds.com**. We are happy to work with you to develop a sheet metal bracket to allow for mounting in these cases.

INSTALLATION STEPS

If you are retrofitting a truck: Remove old warning light bar. Scrape any adhesive and remove old wiring so that you have a clean work surface.



Set new warning light on roof of apparatus cab and align bar left/right so that center of bar is in the center of the cab.

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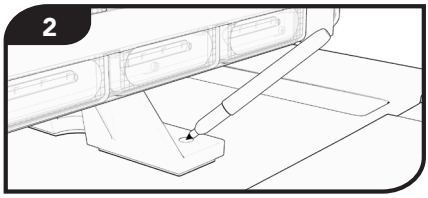
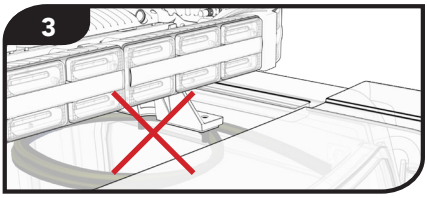
INSTALLATION INSTRUCTIONS

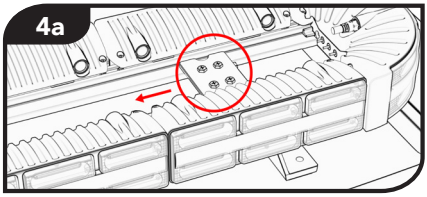
WARNING: TURN OFF POWER BEFORE WIRING



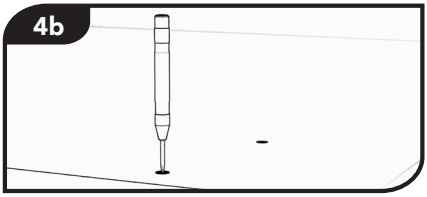
Mark location of mounting holes with sharpie.



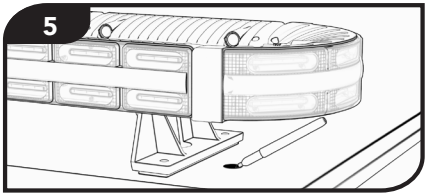
Check under the roof to see if there are any obstructions, wiring, or HVAC plenum. If there is anything obstructing follow step 4a, if it is clear continue to step 4b.



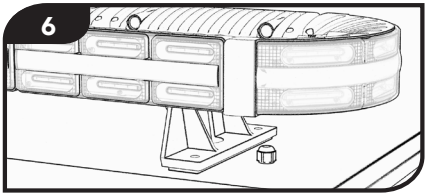
If obstructions exist or mounting feet need adjustment for any other reason, loosen the four bolts on top of mounting plate and slide mounting feet left/right to desired location. Once set, tighten mounting foot to 10.7 ft. lbs.



If no obstructions are present, use a center punch, punch center of mounting holes.



Mark location for wire passages. *Note: you can use 3/4" 3:1 adhesive lined heat shrink to reduce the number of holes in the cab. If used make sure to run the cables out and then down.*



Choose a cable-gland and install per manufacturer in desired location.

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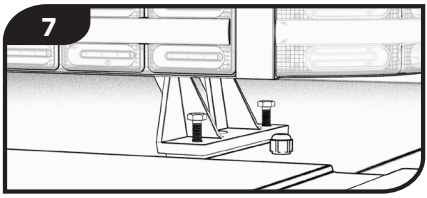
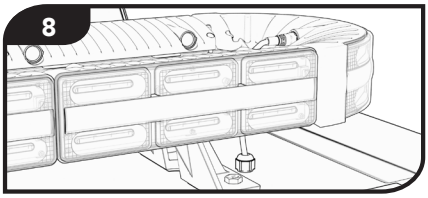
INSTALLATION INSTRUCTIONS

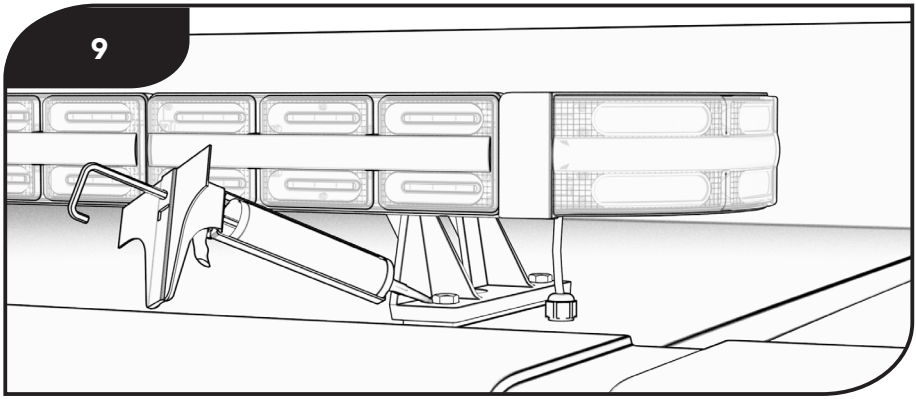
WARNING: TURN OFF POWER BEFORE WIRING



Through-bolt lightbar to apparatus cab. If sheet metal is thin, consider using fender washers or other backer plate on inside of apparatus cab if needed. Consult your apparatus manufacturer with questions.



Run wiring through cable gland and pull through to back side.



Seal bolt holes and fasteners with RTV silicone.

FINAL INSTALL STEPS

Connect wiring and build CAN and LIN Networks (see pages 12-15).

Initialize system and set base configuration as needed (see page 24).

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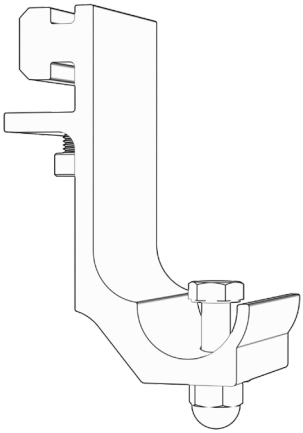
OPTIONAL OMEN ACCESSORIES

J-FOOT MOUNTING FEET



The OMEN warning light bar is optionally available with a FireTech Brow or MiniBrow light included. If ordering this option, this scene light fixture should be mounted to the forward portion of the OMEN extruded mounting rail with the use of the FireTech J-Foot. The J-Foot is designed to attach a FireTech Brow Light along the length of the extrusion in several instances, in line with our mounting recommendations for all Brow and MiniBrow light fixtures.

NOTE: *Generally, FireTech recommends mounting a brow light as far forward as practicable to eliminate any shadowing on the ground in front of the fire apparatus. While easily achieved on most custom cabs in the fire apparatus industry, it is often more difficult on common commercial cabs. This option is especially geared towards customers that have an OMEN warning light bar mounted atop a commercial cab, such as a Freightliner, International, Peterbilt, Kenworth, Ford, Chevy, or RAM, where mounting a standard FireTech Brow Light can be difficult.*

NOTE: *All FireTech Brow Light options recommended to be mounted on an OMEN DO NOT INCLUDE a marker light option.*

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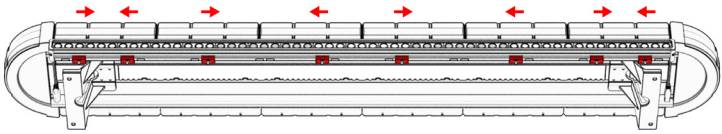
OMEN + BROW LIGHT COMBOS WITH J-FEET

(1) FT-HVC-OMEN-84
(1) FT-B-72-FT
(8) FT-MB-JFOOT-B



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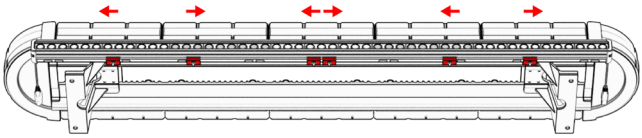
(1) FT-HVC-OMEN-72
(1) FT-B-65-FT
(6) FT-MB-JFOOT-B



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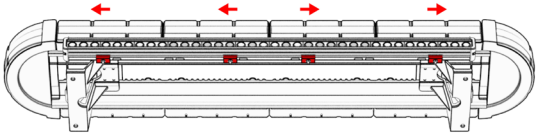
(1) FT-HVC-OMEN-60
(1) FT-B-46-FT
(4) FT-MB-JFOOT-B



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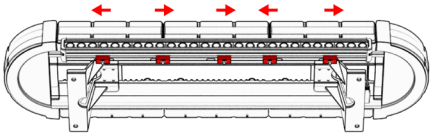
(1) FT-HVC-OMEN-48
(1) FT-MB-27-FT
(5) FT-MB-JFOOT-B



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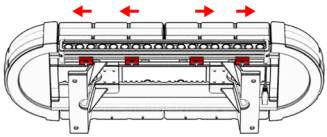
(1) FT-HVC-OMEN-36
(1) FT-MB-18-FT
(4) FT-MB-JFOOT-B



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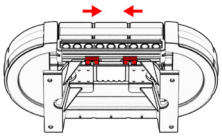
(1) FT-HVC-OMEN-24
(1) FT-MB-9-FT
(2) FT-MB-JFOOT-B



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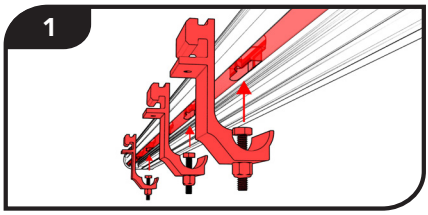
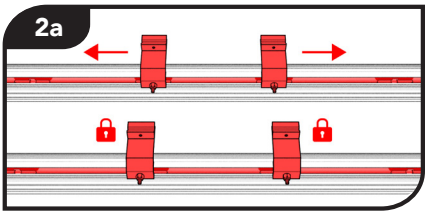
INSTALL BROW LIGHT TO OMEN WITH J-FEET

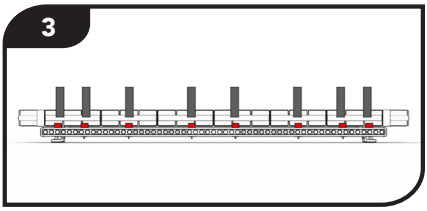


Insert J-foot bottom bolts into the slots at the bottom of the brow light. The back of the J-feet should be on the back of the brow light.

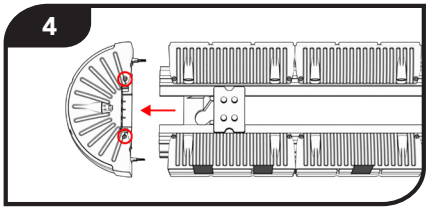


Slide each J-foot (reference the red arrows on page 21 of your OMEN & brow light configuration to see which direction to slide each J-foot), make sure the bolt is all the way inserted to slide across. Tighten the J-foot bolts to hand tight.

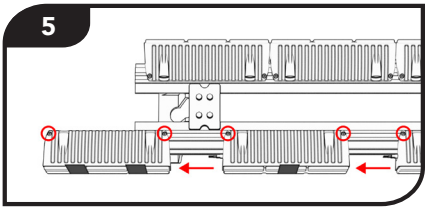
If you have a 72" OMEN: For the center slot you will want 2 J-feet in the same slot. To do this remove the bottom bolts from feet, insert bolts into brow light railing slot and slide one to each end. Then reattach each foot to the bolts.



Hold the brow light with J-feet centered to the front of your OMEN lightbar and use a piece of masking tape to mark approximately where each J-foot will go on your OMEN extrusion.



Loosen OMEN light module bolts with 4mm allen key on one side module and remove it from the extrusion.



Loosen OMEN light module top bolts (on front modules only) with 4mm allen key and remove them from the extrusion.

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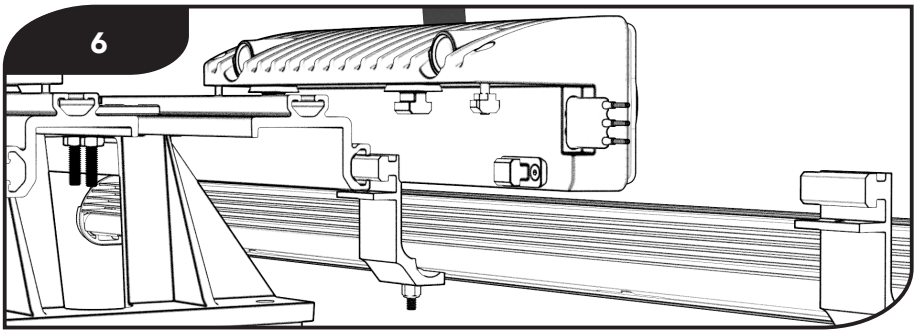
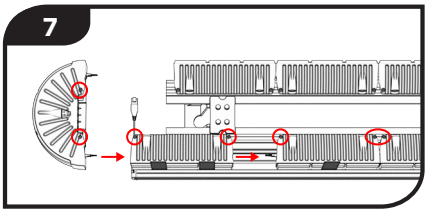
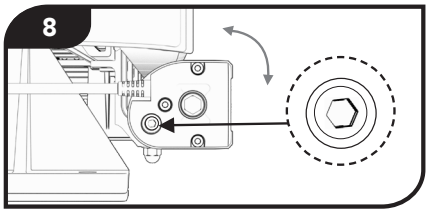
INSTALL BROW LIGHT WITH J-FEET (CONT.)



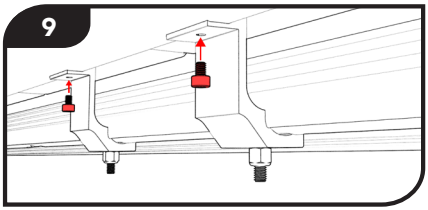
Slide each 12” front module partially on the extrusion adding a J-foot on the extrusion in between the light (only where you marked with tape) then continue to slide the module on.
It is important to keep the light modules in order!



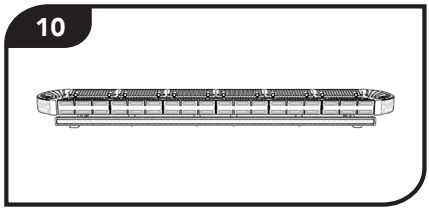
Repeat process until all modules are tightly back on the extrusion with the J-feet in place. Tighten the OMEN light module top bolts with a 3 ft-lbs. torque wrench.



Before tightening, make sure your brow light is pointed forward and aimed at the best angle for your apparatus. You can adjust it by loosening the side bolt of your brow light with an allen key and loosening the bottom J-feet bolts and manually adjusting it to the desired angle.



Insert the top bolts into each J-foot and finish tightening all nuts and bolts on each J-foot (and on the side of your brow light if you adjusted it to angle your light).



Remove tape and installation is complete. For wiring instructions please see the appropriate brow light or minibrow instruction manual (available on our website).

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PROGRAMMING - FIELD SUPPORT TOOL

FireTech "Smart" products like our HiViz Connect warning lights and OMEN warning lightbar are all programmable. Currently the system in programmed using a product called the Field Support Tool, this tool allows you to configure these products as well as install software updates as they become available. This tool is also extremely helpful in diagnosing problem areas, even connecting back to the HiViz engineering team to "talk to your truck" and see exactly what sort of messages are being sent/ received by the lighting system. Future software updates will enable bluetooth functionality on all fixtures and this tool will be replaced by a bluetooth mobile app for most customers.

This tool is NOT required to use our systems, only to configure it. As such, training is required and this tool is restricted to dealers, OEMs, and up-fitter partners who are in good standing with HiViz. If you are an end-user looking to make updates to your system, contact HiViz and our team will provide more information about shipping a loaner field support tool or scheduling a visit from a qualified HiViz smart product technician.

Field Support Tool
P/N: FT-FIELDSUPPORTTOOL

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HIVIZ CONNECT FULL SYSTEM WIRING MANUAL

CAN/LIN HiViz Connect Wiring Information

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Email: firetech@hivizleds.com
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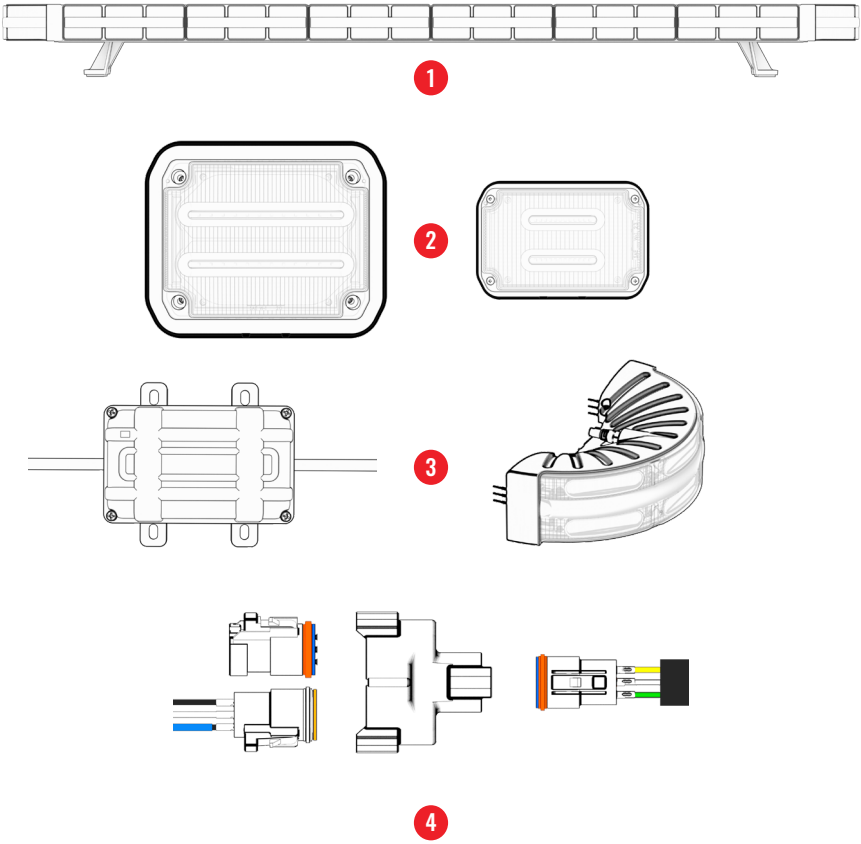
HVC WARNING LIGHT SYSTEM
BASIC COMPONENTS NEEDED



COMPONENTS

1. **OMEN Warning Lightbar**
2. **HVC Guardian Perimeter Lights**
3. **HVC Zone Modules or OMEN Beacons/Half Beacons**
4. **CAN Wiring Components (see next page for more)**

NOTE:
Tighten screws by hand/screwdriver.
Power-tools can cause damage to isolators and cause an insecure attachment.

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WIRING TOOLS & PARTS NEEDED

Generic Needle Nose Pliers

Machined Pin Crimp Tool
HDT-48-00

Generic Wire Stripping Tool

Wedgelock & Pin Removal Tool
DT-RT1

(Assorted) DEUTSCH Size 16 Gold Plated Solid Socket; 20-16 AWG
0462-201-1631

Misc. Shielded Twisted Pair J1939 CAN Wire

(4) DEUTSCH DT 3 Way Gray J1939 "Y" Receptacle Connector
DT04-3P-P007

(6) DEUTSCH DT 3 Way Blue J1939 Plug Wedgelock (backbone)
W3S-1939

(2) DEUTSCH DT 3 Way J1939 Terminating Plug Connector with 120 Ohm Resistor
DT06-3S-P006

(10) DEUTSCH DT 3 Way Plug Connectors
DT06-3S

(4) DEUTSCH DT 3 Way Orange Plug Wedgelock
W3S-AS

These items are not included. Contact your preferred supplier for pricing and availability. If you do not have a supplier visit waytekwire.com.
Deutsch or Amphenol products can be used.

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WIRING INSTRUCTIONS

Figure A: Visual of which traditional twisted shielded CAN conductors should be inserted into the proper A, B, and C slots of the plugs.

Figure B: When assembling the CAN system you will see that the Y receptacle connector will have compatibility with triangle wedgelock plugs and a circle wedgelock plug. The triangle wedgelock connectors should be used with the CAN backbone and the terminating resistors. The circle wedgelock connector should be used with the CAN conductors coming off of the OMEN and HVC Zone Modules.

FIGURE A:
CAN WIRING

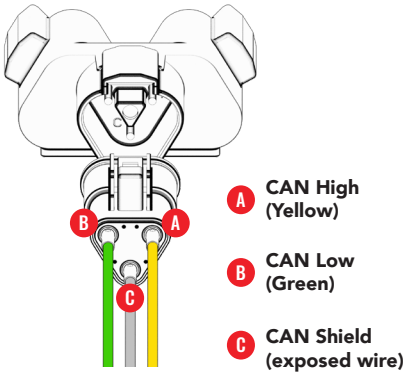
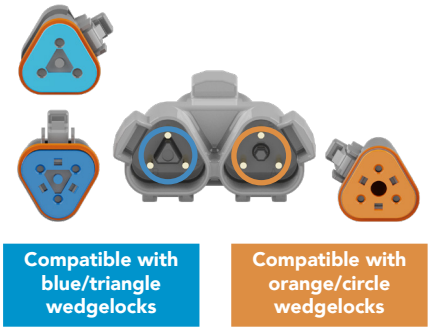


FIGURE B:
WEDGELOCK KEY



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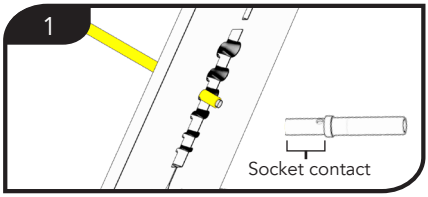
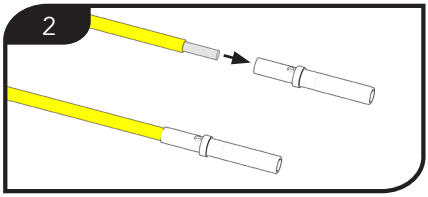
WIRING INSTRUCTIONS (CONT.)

HOW TO ASSEMBLE DEUTSCH CONNECTORS

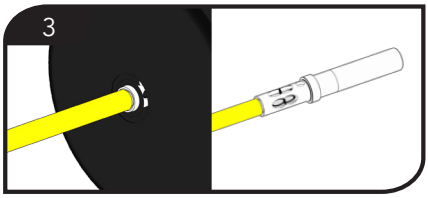
WARNING: TURN OFF POWER BEFORE WIRING



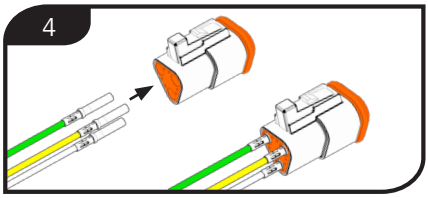
Strip the conductor with your wire strippers just enough so that it will fit inside the socket contact. Ensure that none of the wires inside of the conductor were nicked or broken off.



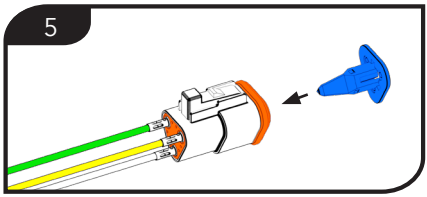
Insert the wire into the socket contact and ensure there are no stray wires sticking out from the socket. You want to see the wires from the hole in the side of the socket. Make sure you don't have wire exposed at the bottom of the socket as well.



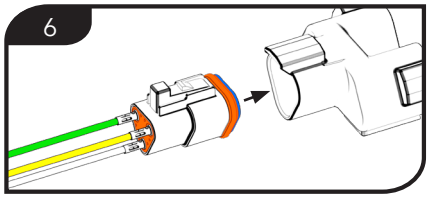
Once you have done the above steps: crimp the socket contact onto the stripped conductor per your crimp tool's instructions.



Insert the socket contact with attached conductor into the rear of the Deutsch connector (see Figures A and B for proper layout). Push until a click is heard and felt. A slight tug will confirm it is in place.



Once all contacts are in place, the wedgelock may be inserted by hand. Press until it clicks into place. The arrow on the wedgelock should point towards the exterior locking mechanism.



Insert the assembled plug into the correct receiving section of the Y Receiver.

NOTE: Use blank sealing plugs (PN A114017) for any holes not used to keep water from entering the connectors. These are available through waytekwire.com and other suppliers.

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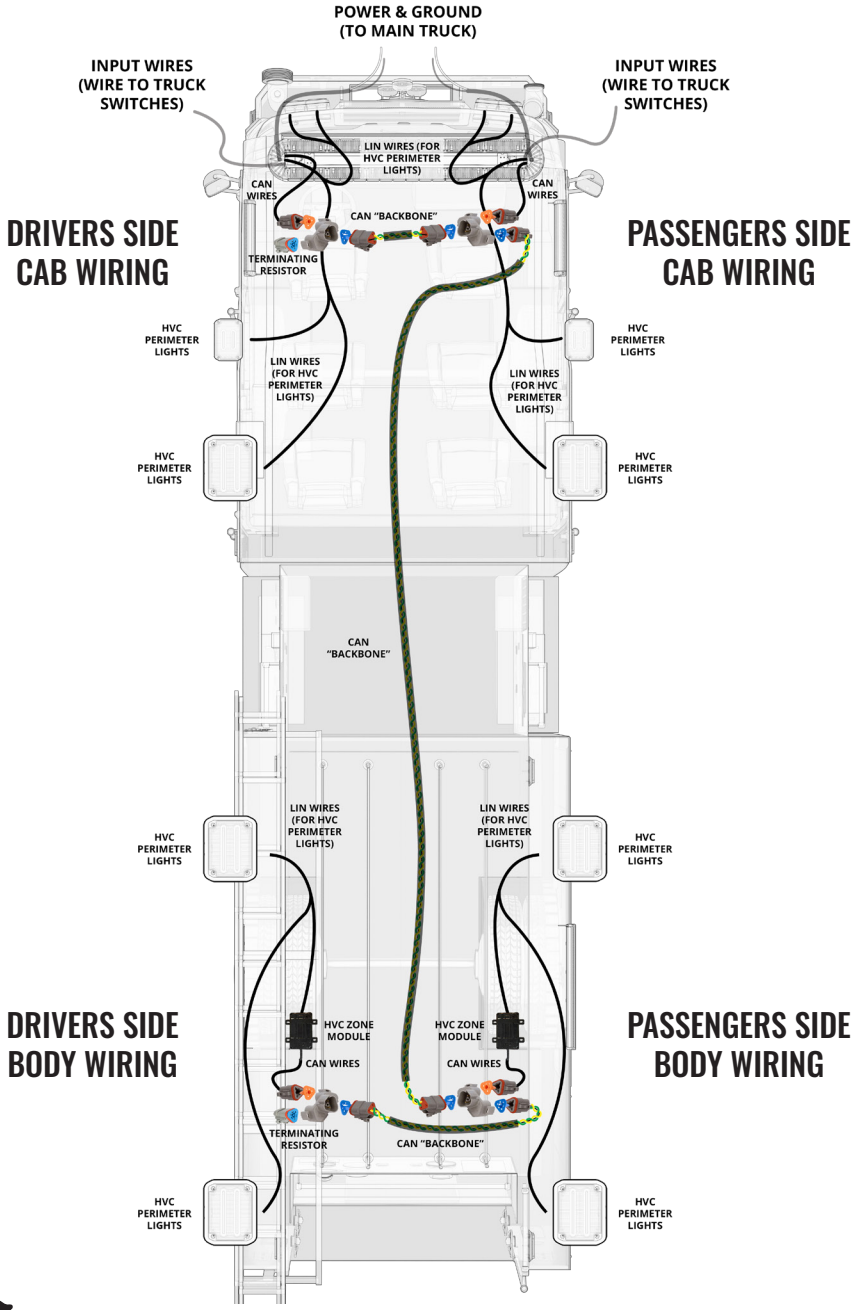
EXAMPLE #1: CAN/LIN HVC ARCHITECTURE*



* These are just examples to show basic CAN/LIN wiring. Each trucks lighting layout will be different.

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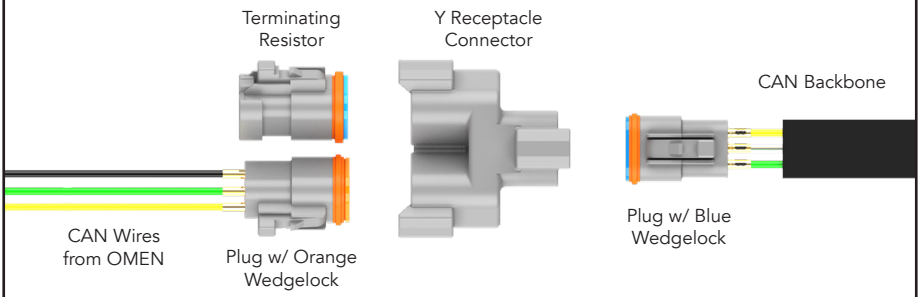
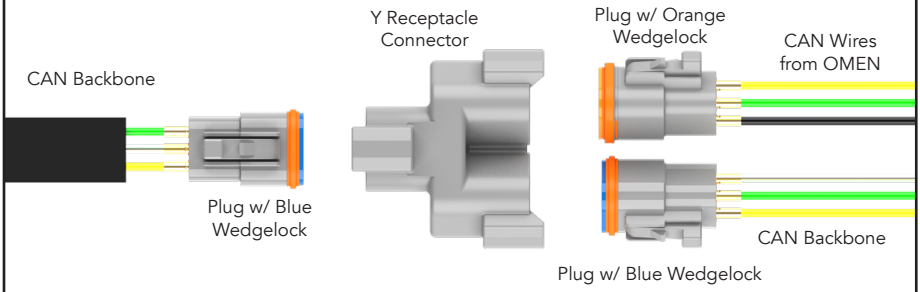
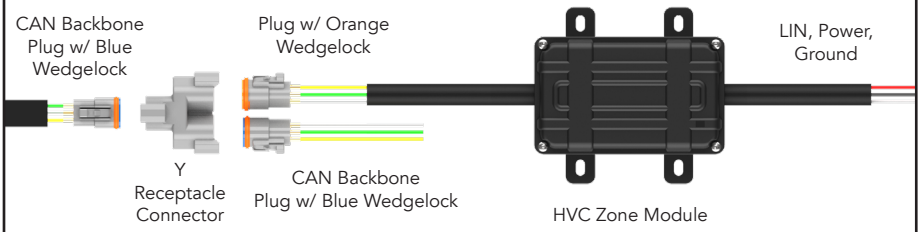
DRIVERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



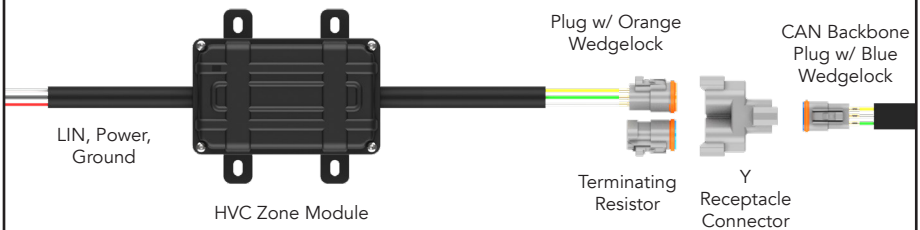
PASSENGERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



PASSENGERS SIDE BODY WIRING - Y RECEIVER CLOSE UP



DRIVERS SIDE BODY WIRING - Y RECEIVER CLOSE UP



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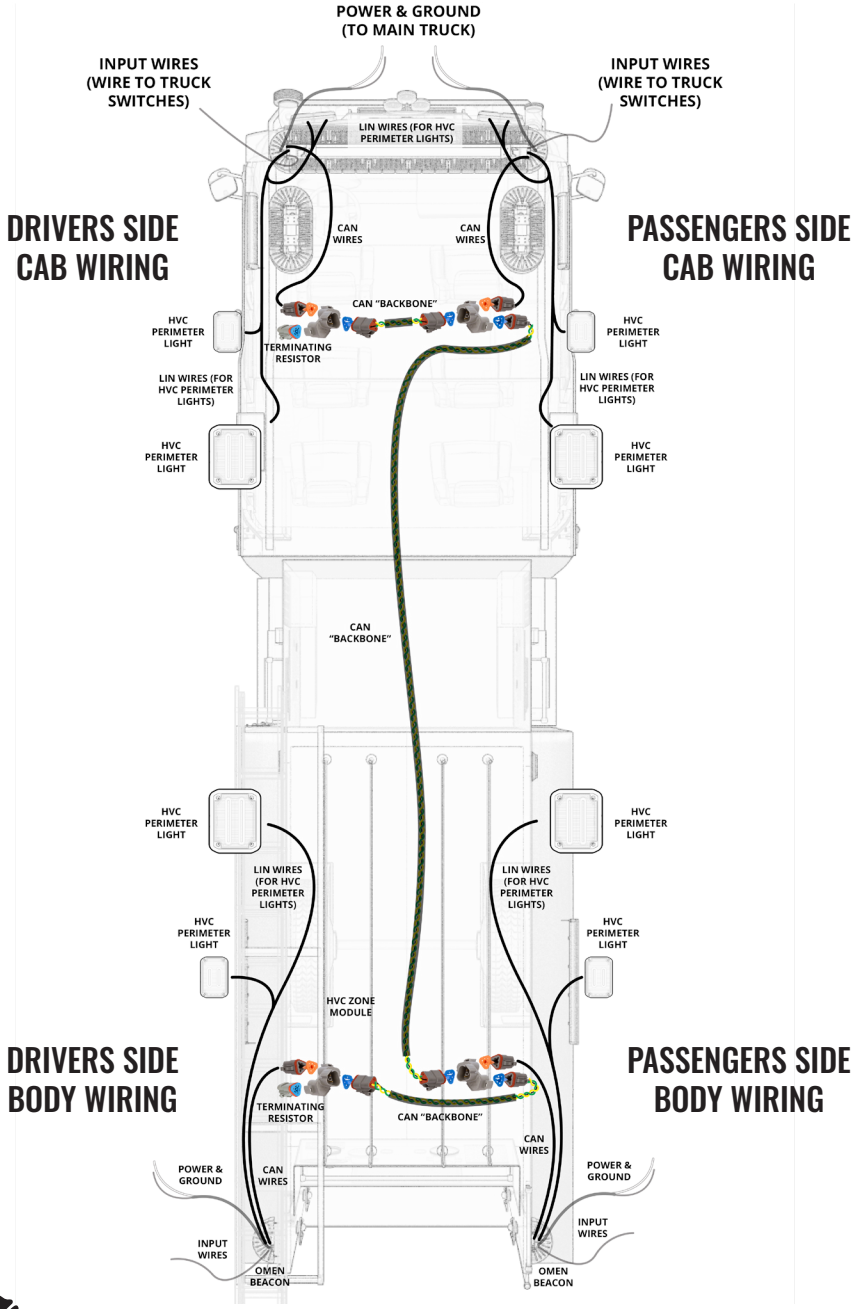
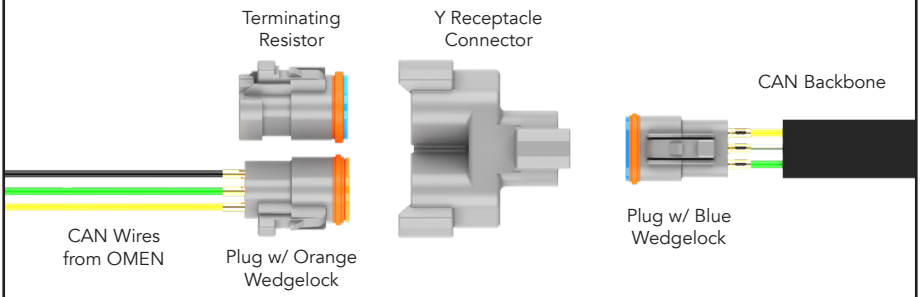
EXAMPLE #2: CAN/LIN HVC ARCHITECTURE*

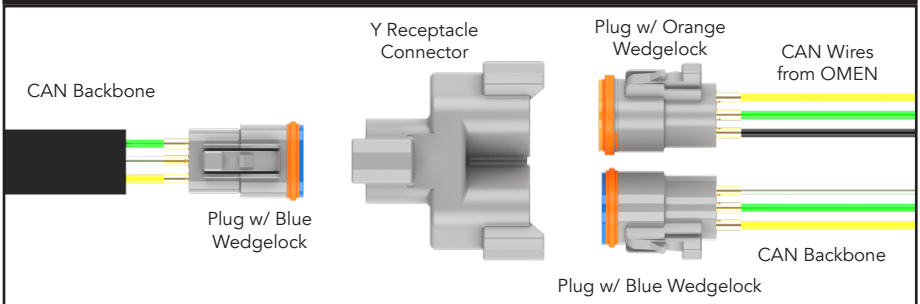


* These are just examples to show basic CAN/LIN wiring. Each trucks lighting layout will be different.

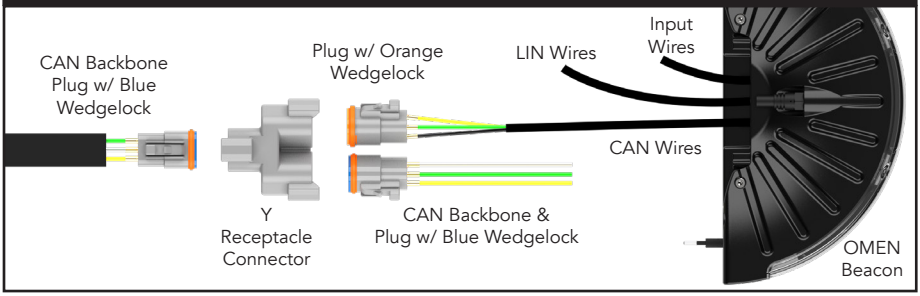
DRIVERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



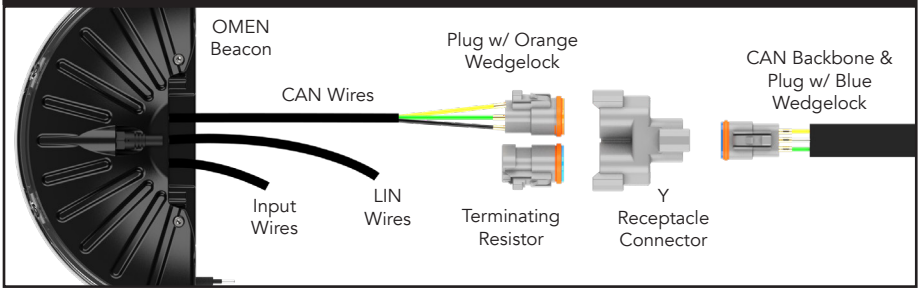
PASSENGERS SIDE CAB WIRING - Y RECEIVER CLOSE UP



PASSENGERS SIDE BODY WIRING - Y RECEIVER CLOSE UP



DRIVERS SIDE BODY WIRING - Y RECEIVER CLOSE UP



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THINGS TO KNOW

- If you have multiple OMENs in the front two cab zones you can choose any one OMEN side module to connect your perimeter lights to as long as it is in the same zone as your perimeter lights (see Figure D below).
- All HVC perimeter lights must be tied to the LIN network in their zone. They should be bussed together like a traditional sync wire would.
- Each zone must have some form of zone module to allow system communication. Zone modules can either be integrated or external:

  Integrated: OMEN side modules/beacons double as zone modules and are most commonly used to communicate with the "driver cab" and "passenger cab" zones.

  External: In body zones where no OMEN side modules/beacons exist, an additional HVC Zone Module is required per zone (typically 2 per truck).

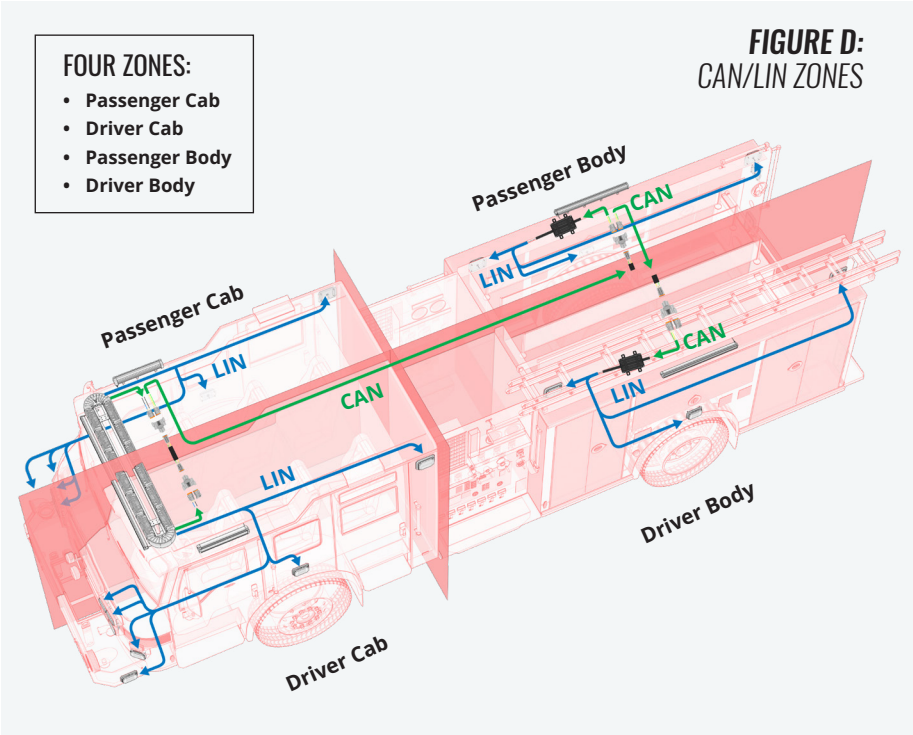

FIGURE D:
CAN/LIN ZONES

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WIRING TROUBLESHOOTING

- Check for any missing wedgelocks.
- Check to make sure the sockets are all the way seated and latched before wedgelocks are installed, a small tug on the conductor should confirm.
- Check to make sure sealing plugs are installed to any open holes in the connectors, if they are not installed water gets inside and kills the connection.
- Check to make sure your sockets haven't been crimped too tight, if they are crimped too tight it will break the wire off in the terminal contact.
- Check to make sure your twisted shielded CAN wires are all in their correct seats in the plugs (see figure A on page 28 for details).

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