Installation Instructions

3EC With External Cam & Viewing Monitor Installation

Window Unit (WU)

Under Dash Unit (UDU)

Required Tools

- Drill (Cordless)
- Wire Strippers
- Crimper Plier
- Driving Bit Set
- Magnetic Drive Guide
- Burr Tool
- Step Drill Bits (3/16 in.-7/8 In.)
- Digital Multimeter
- Plastic Antenna Tool
- Panel Popper
- End Wire Brush (3/4 In.)
- Magnetic Tray

Additional Items (optional)

- Wire Connectors
- Zip Ties
- Wire (18 Gauge)
- Replacement Fuses (5,10,15,20 amp)
- Star Washers
- Grease Marker
- Tamper Seal
- Alcohol Wipes
- Self-Tapping Screws

Hardware

- UDU
- WU
- Power Cable
- HDMI
- DVI Cable
- Expansion
- Event Button
- 10 ft. Extension
- AV Splitter Cable
- External Cam & Monitor
- Antenna (MA240.LBI.012) [Length=15feet]

FCC Caution:

FCC Compliance statements:
This equipment complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION:
The changes or modifications not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment and The antennas for this transmitter must be installed to provide a separation distance of 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Canadian Notice:

IC Compliance statements:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with radio frequency exposure limits set forth by Industry Canada for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the device and the user or bystanders.

CAUTION:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Déclarations de conformité IC:

Cet appareil est conforme aux normes RSS exonérées de licence d'Industrie Canada. L'opération est soumise à En suivant deux conditions: (1) cet appareil ne doit pas provoquer d'interférence, et (2) cet appareil doit accepter tout Les interférences, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Cet équipement est conforme aux limites d'exposition aux fréquences radio établies par Industrie Canada pour une incontrôlée environnement. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le L'appareil et l'utilisateur ou les spectateurs.

ATTENTION:
Toute modification ou modification non expressément approuvée par la partie responsable de la conformité pourrait annuler l'autorisation de l'utilisateur d'utiliser l'équipement.

⚠ Antenna must be mounted on glass surface only for the compliance with FCC and IC standards. Installation on a different surface is prohibited.

⚠ L'antenne doit être montée sur la surface de verre uniquement pour la conformité aux FCC et IC normes. L'installation sur une surface différente est interdite.

Pre-installation Checklist:
The 3rd Eye Cam is programmed by serial number/mac address to a specific vehicle. Prior to installation, the following steps should be taken for proper documentation of equipment.

1. Open the box with a 3rd Eye Cam kit.
2. Gather all necessary hardware listed above.
3. Take photo of vehicle ID #, it will be located on the chassis as well as body of the vehicle.
4. Record Vehicle body or truck ID number and Vehicle Identification Number (VIN)
5. Record installer name

Safety Information

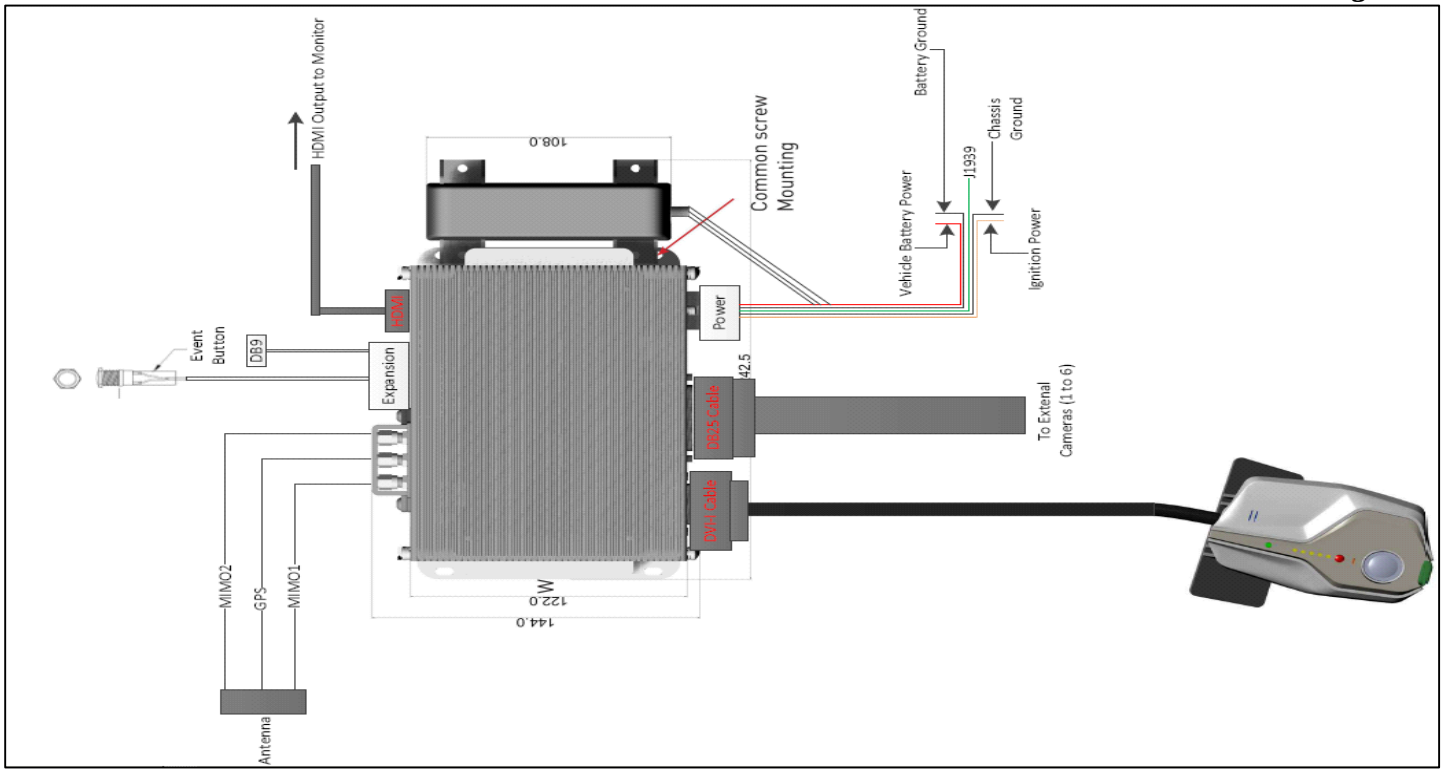
The 3rd Eye Cam installation requires attentiveness. Please be sure to abide by the following guidelines. Failure to do so may result in property damage and or personal injury.

Precaution prior to installation of the 3rd Eye Cam system:

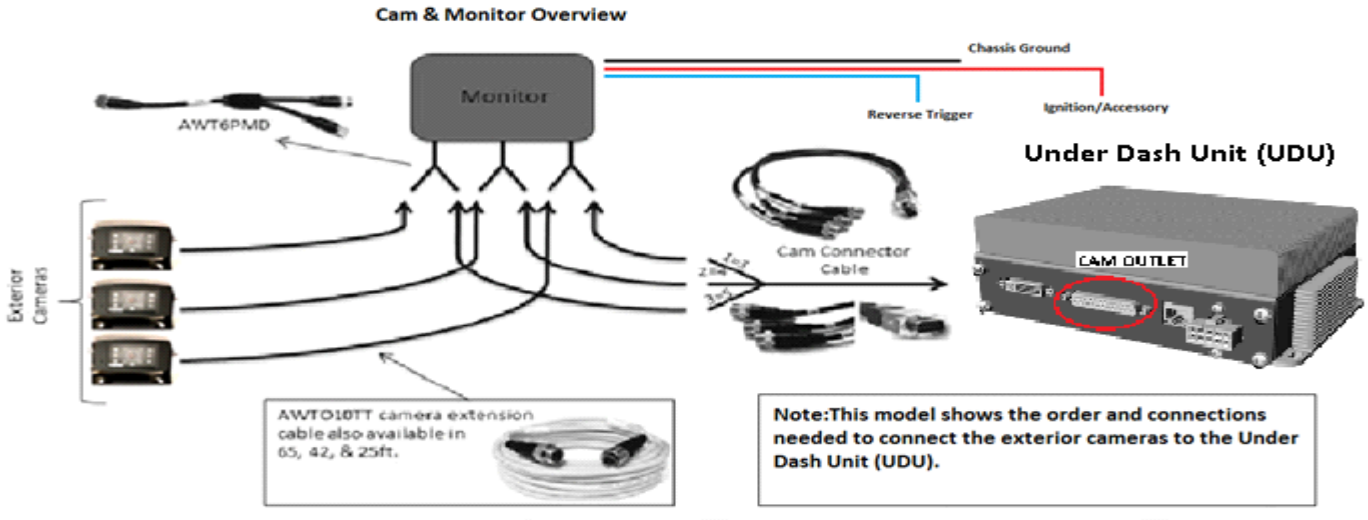
1. Turn off the engine before installing the system.
2. Remove all power to all areas where wires will be connected.
3. Install the product in a location where Wi-Fi and GPS signals can transmit effectively (not blocked by solid material other than windshield glass).
4. Before permanently mounting the camera, make sure the camera interior view is not blocked by the rearview mirror or other objects located inside vehicle.
5. The customer must approve the camera mounting location.
6. The unit must be installed level both horizontally and vertically for best results.
7. The on-site mechanic or vehicle manufacturer must approve wiring connections.

Installation Diagrams

DS3 Diagram



Cam/Monitor Diagram



Location Recommendations

Installing the Under Dash Unit

The UDU (under dash unit) can be mounted in various places inside the cab such as, under the cabs bench seating, in the overhead compartment above the windshield, in the console, or under the vehicles dash.

UDU under bench seating

- With a step drill bit, drill a hole into the back of the bench base so that wires may be run directly to the UDU. ***Tip:*** Always check your surroundings and look twice then drill once.
- Use a burr tool or insert a rubber grommet into the hole so that the edges will not remain sharp.
- Feed all wire connections to the UDU under the floor side paneling leading to the back of the bench seat where the drill hole is located.
- Connect all necessary cabling and mount the UDU to the floorboard under the bench seat.
- Position of antenna should be high on the windshield surface.

UDU in overhead compartment

- Disassemble panel between the headliner and windshield.
- Feed cabling through the “A” pillar between the windshield and the door.
- Using a step drill, drill a hole and insert a rubber grommet in the corner of the overhead unit between the windshield and side paneling.
- Feed cabling through the hole and make all necessary connections to the UDU.
- Be sure to mount the UDU so that it is secure against the head compartment.
- Position of antenna should be high on the windshield surface.

UDU in "Dog House" center console

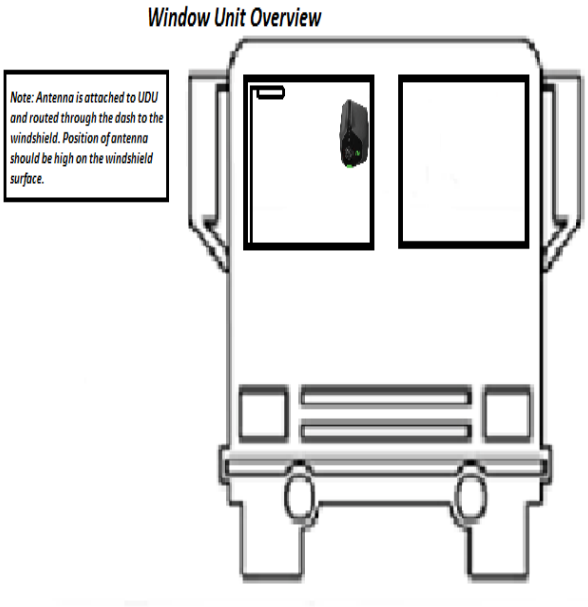
- Disassemble the middle paneling that contains controls (i.e. parking brake).
- Run all cabling from under the dash through the bottom of the center console.
- Make all necessary connections to the UDU.
- When installing the UDU under the console, it is not crucial to have a completely secure mount. Attempt to find an area within the console where either one screw can mount the UDU or can be zip tied to an existing brace.
- Position of antenna should be high on the windshield surface.

UDU under the vehicles dash

- Locate an area under the dash were the UDU can be securely mounted. ***Tip:*** Often the best place for this is on the driver's side behind the axel of the steering wheel near the J-1939 factory outlet.
- After making all connections securely mount the UDU so that it is flush against the under dash wall.
- Position of antenna should be high on the windshield surface.

Installing the Window Unit

WU Diagram



- The window unit must be mounted in a location that provides an unobstructed view of the interior and exterior (front) of the vehicle.
- Verify that the placement does not block the driver's primary field of view.
- The camera lens facing the interior should capture an internal view from the outside shoulder of the driver to the outside shoulder of a front-seat passenger.
- Sedans, pickups, and light-duty trucks usually have a traditional rear-view mirror. Position the window unit so that the outer ring of the camera lens is visible when the mirror is adjusted to its lowest position. Remember that the mirror usually pivots on two points: one on the glass and one on the back of the mirror.
- Buses and large trucks often have nonstandard windshields and mirrors. Choosing a location too high on the windshield can keep the driver out of view, cause a loss of vision in front of the vehicle, and push the unit's accelerometers further away from the vehicle's center of mass.
- Look for potential obstructions such as windshield wipers, tinted window, sun visors, circulation fans, and the rear-view mirror itself when it is in its lowest position. Aftermarket window tint may not support the weight of the 3rd Eye unit and may result in separation from the glass.
- Position of the antenna should be high on the windshield surface.

Installation Instructions

This section provides installation instructions to 3rd Eye Cam, along with operation verification.

1. ***Disassembling Side Floorboard Paneling***

   The vehicles side floorboard panels need to be disassembled in order to gain easy access to needed areas during the installation.
   - Using a cordless drill, disassemble both the driver and passenger side floorboard panels.
   - Place paneling and screws in magnetic tray for reassembling.

2. ***Disassembling the Dash Board***

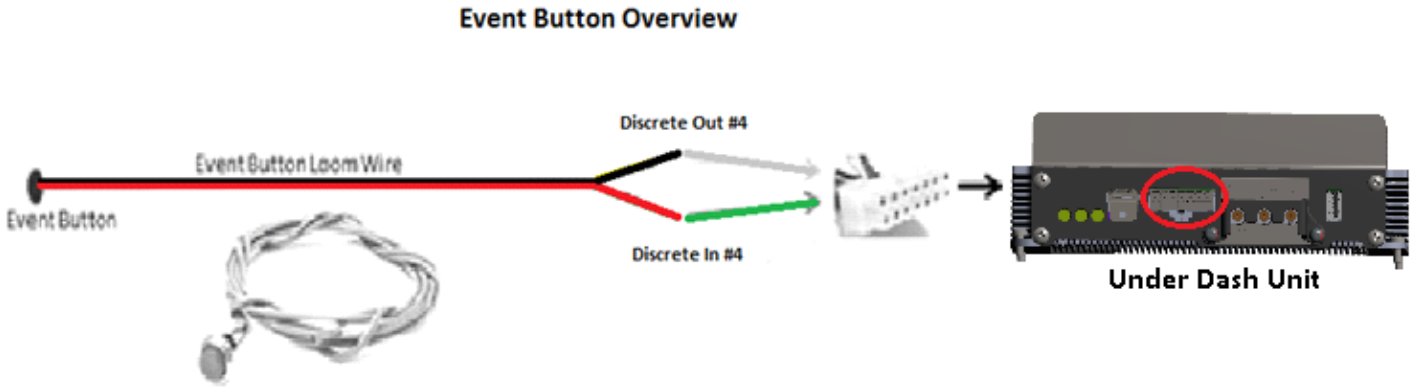
   The vehicles dashboard needs to be disassembled in order to prepare for wiring of the Under Dash Unit (UDU) installation.
   - Using a cordless drill disassemble the dashboard along with any plating to allow for complete access.
   - Place all dashboard parts and screws in a safe place for reassembling.

3. ***Disassembling Button Paneling***
   - The button paneling is located under the dashboard in the center of the cab.
   - Remove parking brake and place in magnetic tray to reattach later.
   - Carefully remove all screws in order to take off paneling using an electric drill.
   - Once all screws have been removed, pull paneling away from dash and let it hang in a relaxed position to prevent any strain on the existing wiring.

4. ***Event Button***

   Finding a suitable event button location.
   - The button paneling that has been detached from the vehicles dashboard is where the Red Event Button is recommended to be installed.
   - Choose a spot on the vehicles button paneling where the driver will have easy access to the panic button in case of emergency.
   - Using a Step Drill create a 5/8” hole in the spot you have chosen for the event button.
   - The event button that has been provided with the system contains black and red wiring.
   - Take the end of the cable that is not attached to the panic button and feed it through the 5/8”hole.
   - Once the wire has been fed all the way through the hole, the face of the red button should be able to fit flush against the front face of the dash.
   - Now that the button is ready to be secured against the dash panel, locate the (spec.) washer and (spec.) nut for the panic button.
   - Starting at the end of the wire, slide the (spec.) washer with the (spec.) nut through to the back of the button.
   - Once the two pieces have reached the back side of the event button behind the dash paneling rotate the (spec.) nut and (spec.) washer clockwise until both are firmly flush against the back of the button paneling.
   - The event button should now be securely in place on the dash panel.
   - Locate expansion cable.
   - Connect red and black wires on event button to green and white wires (Discrete Input 4) on the expansion cable. (See below image).

Event Button Diagram



5. ***Connecting 3rd Eye Cam Window Unit***

   DVI Cable Connection

   - Locate the hinge door on the top side of the window unit which contains the HDMI connection.
   - Insert the HDMI cable into the top of the window unit until it is plugged into the outlet.
   - Connecting the HDMI to the WU (widow unit) socket may be difficult at times. Be sure not to put too much force on the connection to avoid damaging the socket.
   - Close the hinge door to secure the HDMI connection.
   - Match the security screw that is attached to the door hinge with the pre-made hole that is directly below the hinge.
   - Use the appropriate spanner drive to fasten the U-screw into the threaded hole. Do not over tighten.

6. ***Mounting Window Unit***

   - Once an area for mounting has been chosen, clean desired area with alcohol wipes and allow to dry for proper adhesion of the window unit bracket.
   - Once area is dry, slowly peel away the plastic lining protecting the adhesive on the back of the window unit bracket.
   - The camera's position must be **vertical and pointing straight back.**
   - Apply window unit to glass and continue applying pressure for a minimum of 30 seconds for proper adhesion to the glass.
   - Once the Window Unit has been mounted, mount the antennas. The antenna needs to be mounted one on either side of the windshield as high on the glass as possible for minimal interference.

7. ***Connecting Window Unit to UDU***

   - After attaching the 3rd Eye Cam to the windshield be sure to hide any extra wire that may obstruct the view of the driver and window unit.
   - If extra wire length is present, loop excess wire in small 4" diameter loops and zip tie together.
   - Slightly pull the edge of the interior headliner down and insert the excess wire.
   - Insert the DVI cable into headliner and run it across the edge until it reaches the "A" pillars.
   - Disassemble the desired "A" pillar paneling and run DVI cable behind it.
   - Disassemble the desired kick panel if needed to route DVI cable (depending on UDU location).
   - Run the DVI cable behind all the paneling guiding it to the Under Dash Unit.
   - Insert the DVI cable with UDU outlet using mounting screws on DVI cable overmold.

8. Connecting Antenna to UDU

- After attaching antenna to appropriate position on Windshield, connect 15 feet long antenna cable with UDU as per instruction below:

As shown in above image,

- Connect antenna MIMO1 cable with MIMO1 location (Transmit Port) indicated on antenna door
- Connect antenna MIMO2 cable with MIMO2 location (Rx Diversity Port) indicated on antenna door
- Connect GPS cable with GPS location indicated on antenna door

9. *Connecting to Power Source*

The V3 requires the new power board in order to provide “clean power” for optimum performance. Connect the power cable to the input side of the power board unit and connect the jumper cable to the output of the power board directly to the UDU.

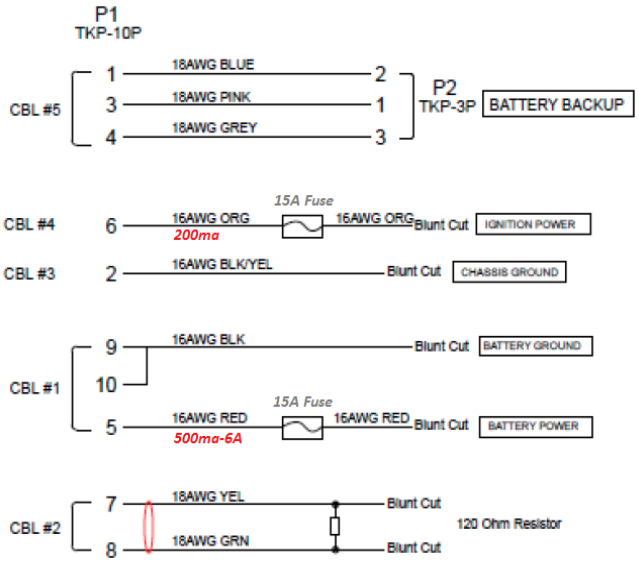
Power Cable Side

Power Cable w/Backup Battery (Top)

Power Cable w/Backup Battery (Front)

The power wires consist of multiple intertwined wires that are individually colored red, black, black/yellow and orange. Connector P2 (see below) with wire colors blue, pink and grey are for the battery backup system (not supplied/optional).

Color Code Diagram



- In order to reach a power source these wires need to reach from the UDU to the exterior of the truck where the battery is located.
- ***Note:*** To make it easier while maneuvering the wires through the dash do not separate the wires from one another.
- Starting with the bare wire ends insert the wires below the dash on desired side (passenger/driver). ***Tip:*** Applying electrical tape near the end of the wires makes it easier to keep them all together while maneuvering through the dash.
- Once the wires are near either kick panel look for a point of entry, preferably with a rubber grommet, leading to the exterior of the vehicle.
- If no grommet is present, find a discrete location away from other major wiring or mechanical components to drill a pass through whole. ***Tip:*** Remember to look twice and drill once before drilling into any surface to avoid property damage or personal injury.
- Once a hole has been made, use burr tool to eliminate any sharp edges and insert rubber grommet.
- Feed the wires through the opening. ***Note:*** Leave black/yellow, orange, and green/yellow braided wires leading into the interior of the vehicle.
- Once wires have been passed through, locate the wires on the exterior of vehicle.
- Without losing the ability to connect the other end to the UDU gain a comfortable amount of slack so the wires can be worked on.

- Begin unbraiding the wires from one another while keeping them intertwined in the cab.
- Now that the wires are individualized outside the cab into three separate red, black, and orange wires add appropriate diameter wire loom to each pair.
- This wire loom should start from the point of wire separation up to 3 to 4 inches from end.
- Be sure to wrap all the wire loom ends to the wire with electrical tape to avoid displacement.

Wiring Connection/Descriptions

Note: Wires are in order of required connection.

Black/Yellow Wire

The black/yellow wire needs to be connected to the chassis ground.

- Locate black/yellow wire in interior of vehicle. (wire end was left in interior)
- Since chassis ground is susceptible to corrosion from exterior elements, it is best to find chassis ground on interior of vehicle.
- Locate an empty area of chassis. The wire can be grounded to several parts of the vehicle as long as it is mounted to a large all metal part. The vehicles frame, firewall, or chassis are all appropriate places for grounding.
- Verify that there are no moving components or electrical wiring on either side.
- If all is clear, using an end wire brush, strip desired grounding point of paint or oxidation.
- Using the appropriate ring terminals, crimp a ring terminal to the end of the wire.
- Using a self-tapping screw and star washers ground ring terminal to chassis. ***Note:*** When grounding, use a star washer below the ring terminal. Doing this will provide multiple grounding points instead of a single point in case oxidation ever does become an issue.

Black Wire

The black wire needs to be connected to battery ground because electrical currents will leak into a non-insulated metal part of the vehicle and cause a serious electrical shock.

- Remove the negative battery post clamp.
- Using the appropriate ring terminals, crimp a ring terminal to the end of the wire and attach securely to the battery post clamp.
- Re-connect the positive clamp to the positive post.
- Secure wire to existing positive wire with a zip tie to avoid movement and possible loose connections in the future.

Orange Wire

The orange wire power needs to be connected to a true ignition source in the vehicle along with an inline fuse leading to the UDU.

- Locate the orange wire in interior of vehicle.
- Using a digital multimeter locate a true ignition source. ***Tip:*** The steering column will be the easiest place to find a true ignition.
- ***Warning:*** A digital multimeter is the ***ONLY*** appropriate tool for testing wires in any vehicle. ***Test lights and or test probes are prohibited.***
- Failure to use a digital multimeter can cause extensive damage to the onboard computers in a vehicle and or cause personal injury.

- ***Note:*** A true ignition source will only show 12v when the key is in the ***ACC*** and ***ON*** position. 12v will not be present when the vehicle is cranking.
- Using the appropriate size wire tap, install the wire tap to end of orange wire.
- Tap the orange wire to the ignition wire that was located.
- 3 to 4 inches away from the end of orange wire place a zip tie and fasten to existing vehicle harness to avoid movement and possible loose connections in the future.

Red Wire

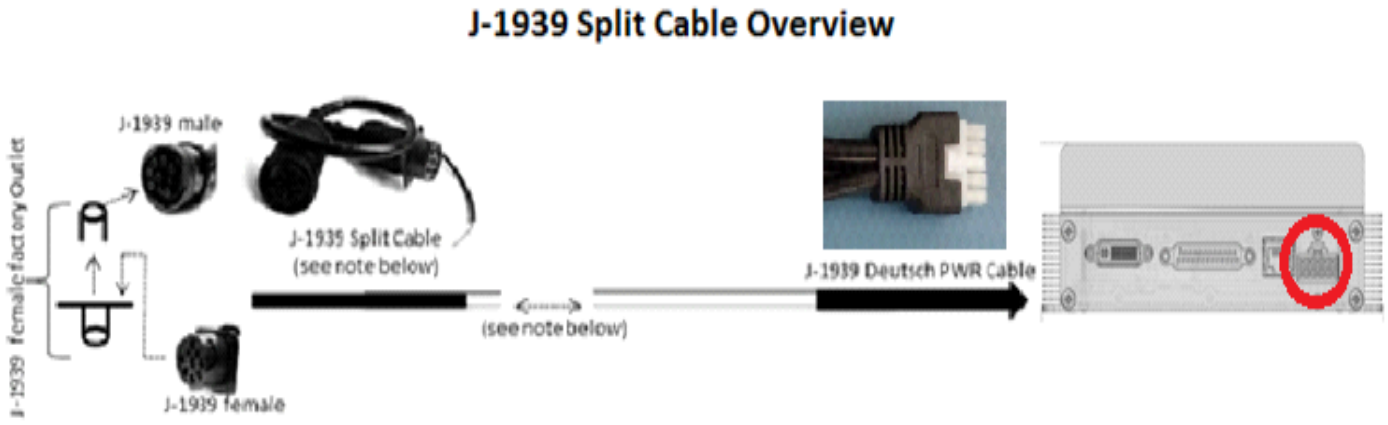
The red power wire needs to be connected directly to the battery of the vehicle in order for the 3rd Eye Unit to maintain a constant 12v source.

- Remove the positive battery post clamp.
- Using the appropriate ring terminals, crimp a ring terminal to the end of the wire and attach securely to the battery post clamp.
- Re-connect the positive clamp to the positive post.
- Secure the wire to an existing positive wire with a zip tie to avoid movement and possible loose connections in the future.

Green & Yellow Wires 9'

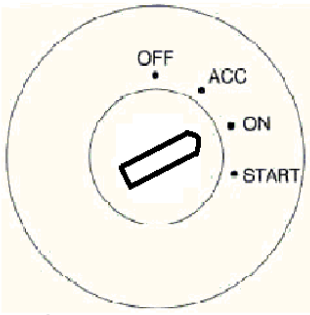
- Locate the green and yellow braided wires (J1939 Data) on power cable.
- Locate the J-1939 Y-Splitter. (See below)
- Connect the vehicles J-1939 connector to the stem of the J-1939 Y Splitter. (This is usually in the upper "dog house" center console area).
- There will be a dead end terminating resistor. Unplug the terminating resistor and install the 3EC1939Y-M1 or 3EC1939Y-AUTOCAR cable.
- Install the terminating resistor back into the 1939Y cable.
- Connect the green & yellow wires from power cable to the green and yellow wires on the J1939-Y Splitter (color to color) using appropriate connectors.
- Once connections have been made, do a "U" loop on the green and yellow wires and zip tie both ends to give the wires stress relief to avoid movement and possible loose connections in the future.

J1939 Diagram



Component Connection

- At this point of the installation all components have been mounted and wire connections made.
- Next, connect all the components to the UDU in the following order.
    - **Expansion**
    - **AV Splitter Cable**
    - **HDMI to Monitor**
    - **DVI to WU**
    - **Power Cable**
- Locate the disconnect switch on the exterior of vehicle (normally near battery)
- Turn disconnect switch to ON position.
- Turn ignition to ON and RUNNING position.
- The 3rd Eye unit normally takes 45-90 seconds to boot up from a "cold boot". Allow this amount of time to generate a 3G lock "solid orange" and GPS lock "solid green"
- Once locks are generated, visit http://awti.3rdeyecam.com/tem/installer/search?t=1da77663-a9b5-46ae-8cae-f01519d4d67f from your mobile device and follow the steps provided in the Micro-Site Guide.
- Once all the steps have been followed call the 3rd Eye Hotline @ ***(281) 977-0858*** to receive the final "All Systems Up" confirmation.



- Once confirmation has been received, all the panels in the vehicle can be reassembled.

Installation Completion

- Complete a vehicle walk-through to make sure all panels have been reassembled correctly.
- Check for any loose or extra screws.
- Make sure no tools have been left behind.
- Make sure all notes and pictures of the install have been uploaded to the micro-site before exiting vehicle.

This 3rd Eye Cam equipped vehicle is now ready for monitoring.

Additional Information

3rd Eye Cam support is available 24 hours/7 days @ ***(281) 977-0858*** for any 3rd Eye related product needs. You can also reach us @ drivesupport@awti.net

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