Clarity Edge install guide, Cleanaway

Technical support

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FCC ID: 2AM6L-ADP2

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Workflow overview

To work correctly, **EROAD Clarity Edge** (“the unit”) must be mounted and calibrated, but mounting the unit and its optional accessories can affect the calibration. To combat this potential ‘chicken and egg’ scenario, EROAD mandates this general workflow:

1. If applicable, load approved miniSD card(s) and SIM cards and remove the protective lens films.
2. Mount the unit in the position indicated by the following instructions.
3. Roughly position optional accessories into their likely positions, and connect them together.
4. Connect the system to power, and calibrate the system’s components with the Clarity Edge Installer app. The app generates video feedback to see camera views, so you may firm up the position of optional cameras.
5. Troubleshoot where necessary.
6. Tidy cables and cab; photo-document the install.

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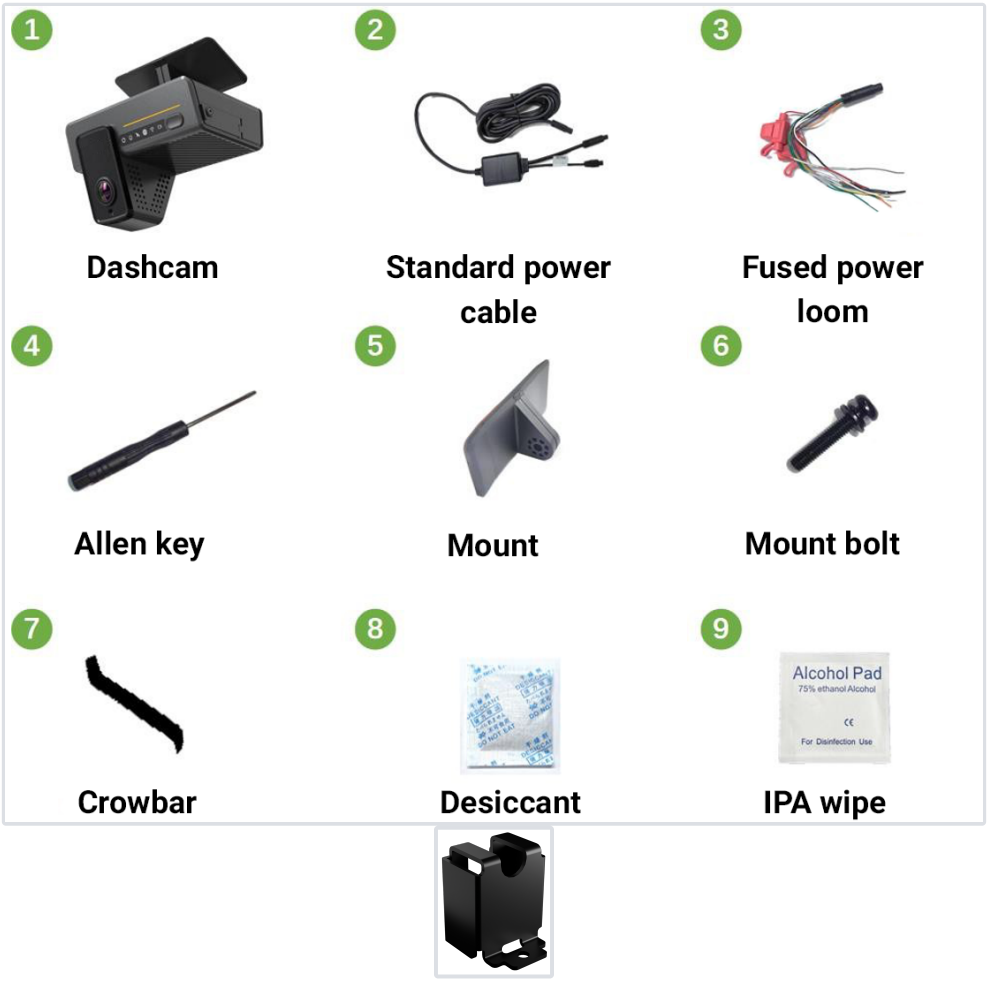
Parts



Fatigue cable clamp

- Regulatory card
- Window sticker
- Lens cover

Optional extras

- Standard-to-OBDII connector kit (comes with Y-splitter to allow additional OBD device)
- Fatigue Camera kit (Optional)
- Remote button kit (Optional)
- Seatshaker (Optional)
- Various cable extensions

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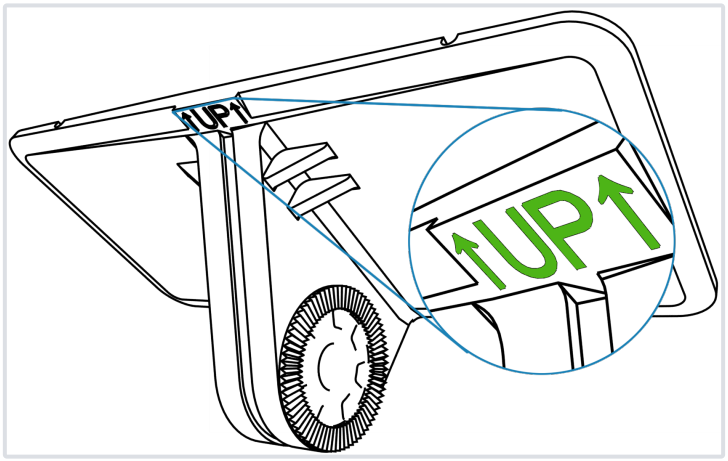
Pre-install instructions

Deviations from these instructions may result in a re-installation callout at the Installer's expense.

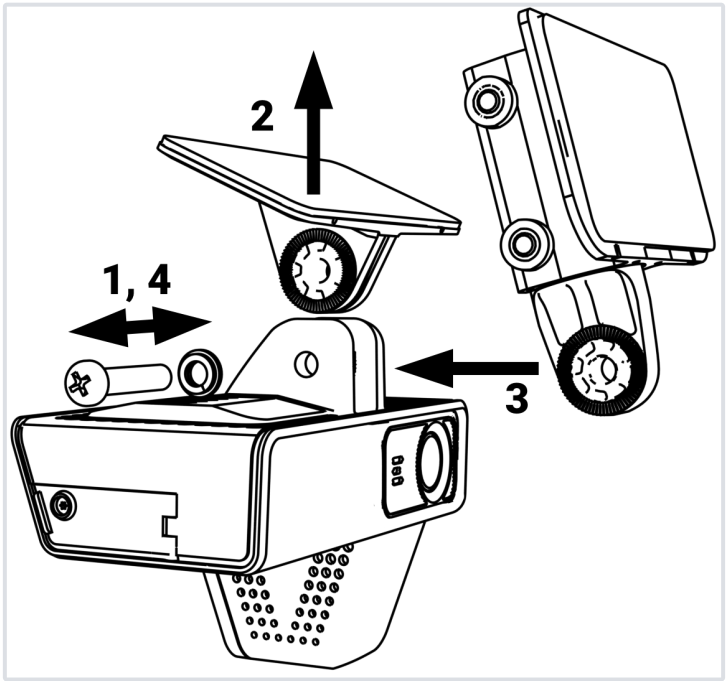
Following this guide means the mounting location will comply with local regulations.

Mounting Clarity Edge

The Clarity Edge unit comes with the Standard mount bracket. This bracket allows for up to 80° of tilt in common raked windshields.



Also available is a Swivel mount bracket. This bracket allows for up to 15° of twist in split-angled windshields to aim the road-facing camera directly forward.



To change out the brackets, remove the pivot bolt and washer **(1)**, swap the brackets out **(2-3)** and replace the washer-bolt **(4)**.

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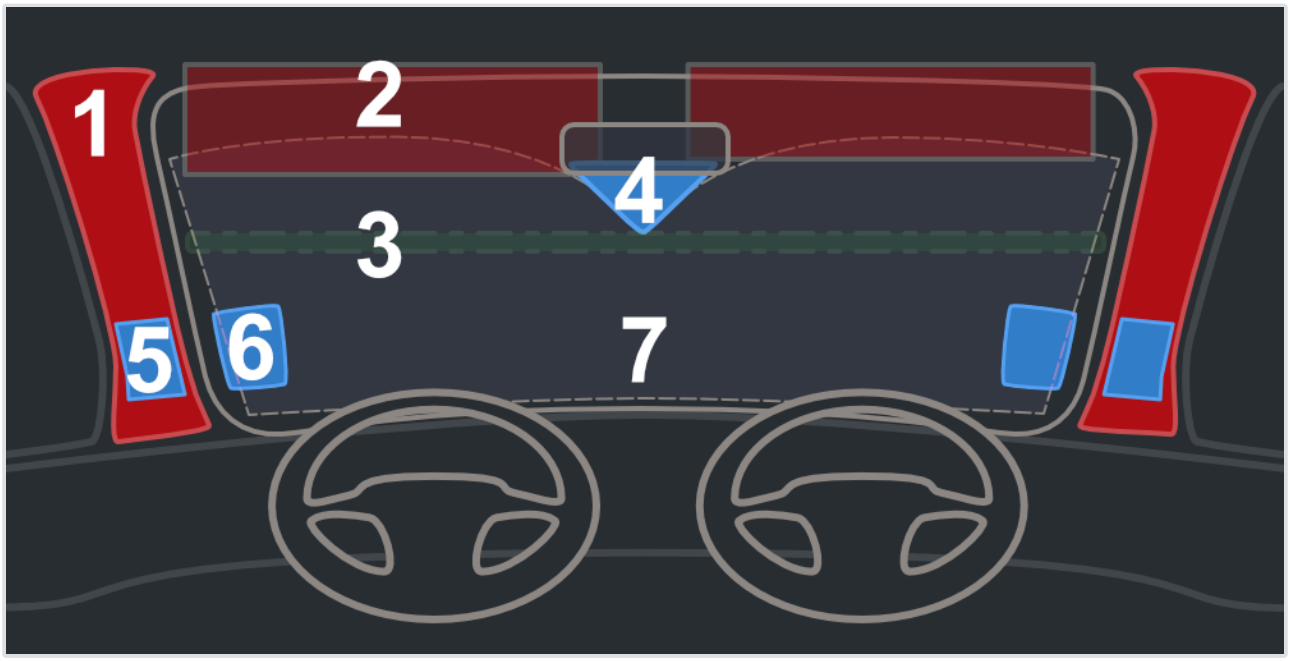
Placement

Provided the vehicle is parked on level, flat ground, position the Clarity Edge dashcam:

- parallel to the ground (level with the horizon). Use a spirit level or reliable guide for alignment assistance.
- below the lowest point of the sun visor
- slightly higher than the driver's head
- outside the windshield wiper swept area, and;
- as centered as possible



Red zones - DO NOT MOUNT HERE. Blue zones - Optimum mounting positions

1. A-Pillar trim
2. Sun visor
3. Estimated driver eye level
4. Optimum **Clarity Edge** mounting location
5. Optimum **Fatigue camera** A-Pillar mount, OR;
6. Optimum **Fatigue camera** windshield mount
7. Windshield wiper region

Clarity Edge site preparation

1. Clean the intended windshield area with the IPA wipe.
2. Rewipe with a clean cloth, to remove any IPA residue.
3. Remove the 3M adhesive backing tape.
4. Align the long ‘UP’ edge horizontally, and press the bracket into the windshield for 10s such that no air bubbles are trapped between the windshield and bracket.
5. Connect the unit to the bracket with the front side facing inward (teeth on the right side of the bracket engaged with those on the right inner side of the unit).

6. Orient the unit so its top is level. Tighten the bracket stud with a PH2 Phillips screwdriver.

Cable routing

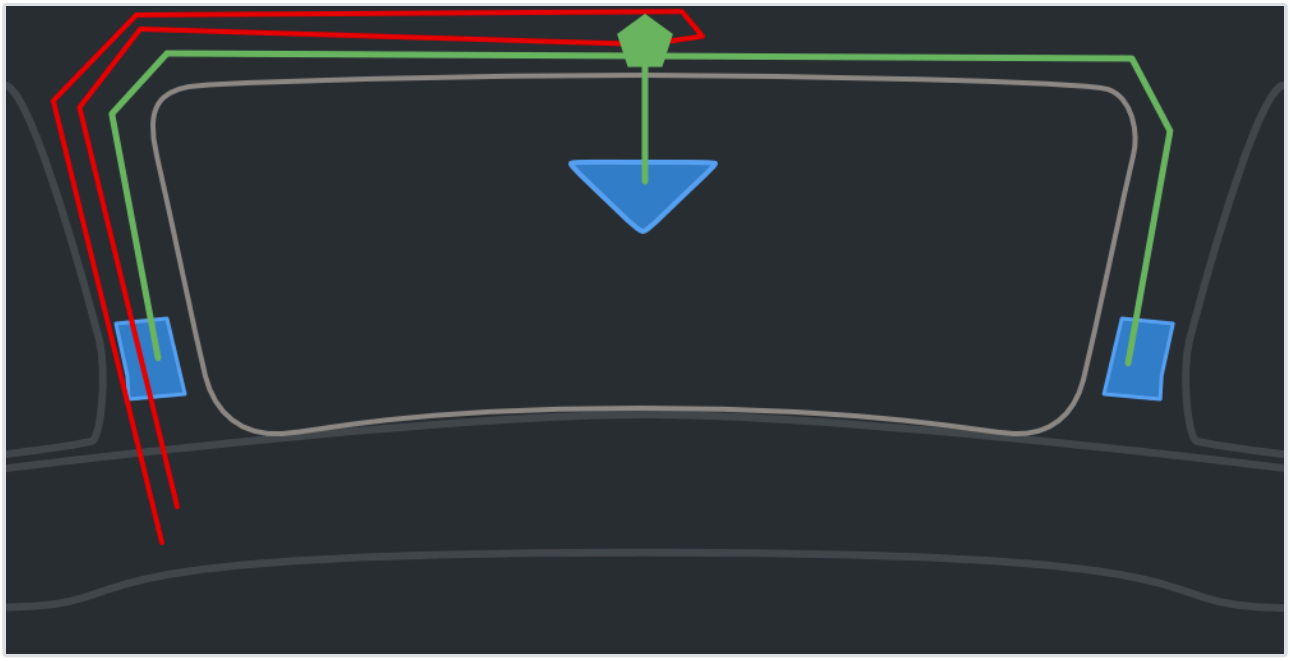
EROAD recommends following standard OEM cable routing practices. Cable tie the unit's cable at regular intervals.

- Tuck all cabling out of sight along the windshield, and/or behind the roof and A-Pillar trim.
- Extra cable is **tidied securely behind the dash.**
- Extra Fatigue camera cable should be **tidied securely behind the roof trim,** close to the Clarity Edge camera.

> In some vehicles (eg. late model Scanias) there is a cable-tidy shroud for use within the passenger-side A-Pillar.

The basic route of the unit's loom runs from the **mounting location, under the roof and passenger-side A-Pillar trim, to behind the dash**.

Green: IPC video cable to Fatigue cameras. Red: Power cables routed to respective Seatshaker PSUs.



IPC loom cable run (Dual Fatigue install). Cables could run evenly down both A-Pillars with excess cabling stored in the roof trim, or from below-up, depending on the vehicle. Usually it's convenient to route cables to the same location near a fusebox on the vehicle's passenger side.

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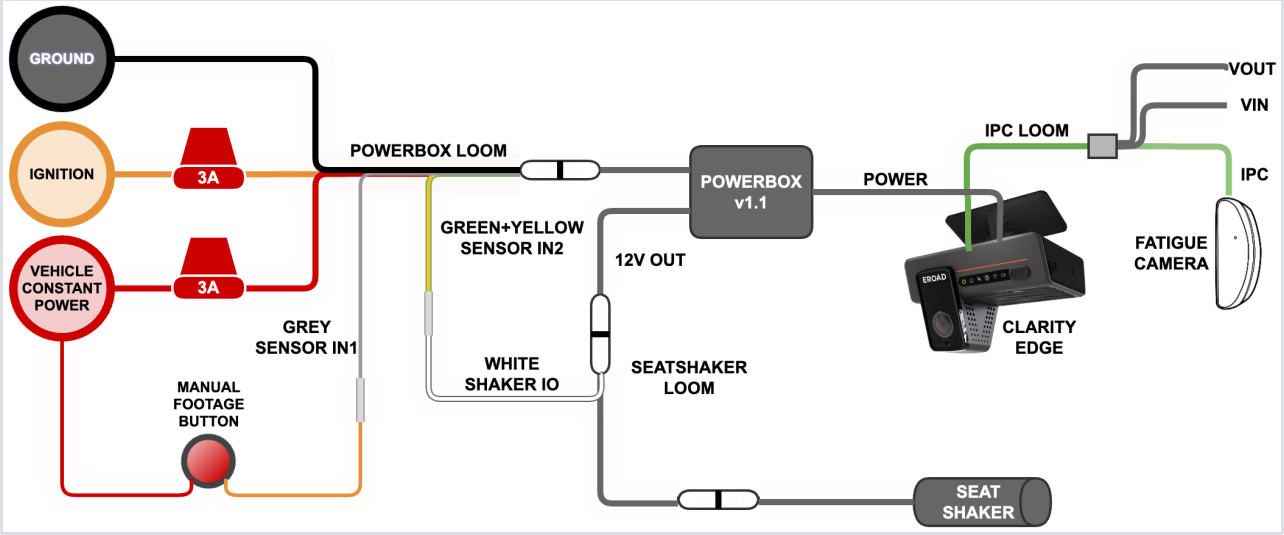
Vehicle power (3-wire) install

With optional Fatigue camera and optional Seatshaker.

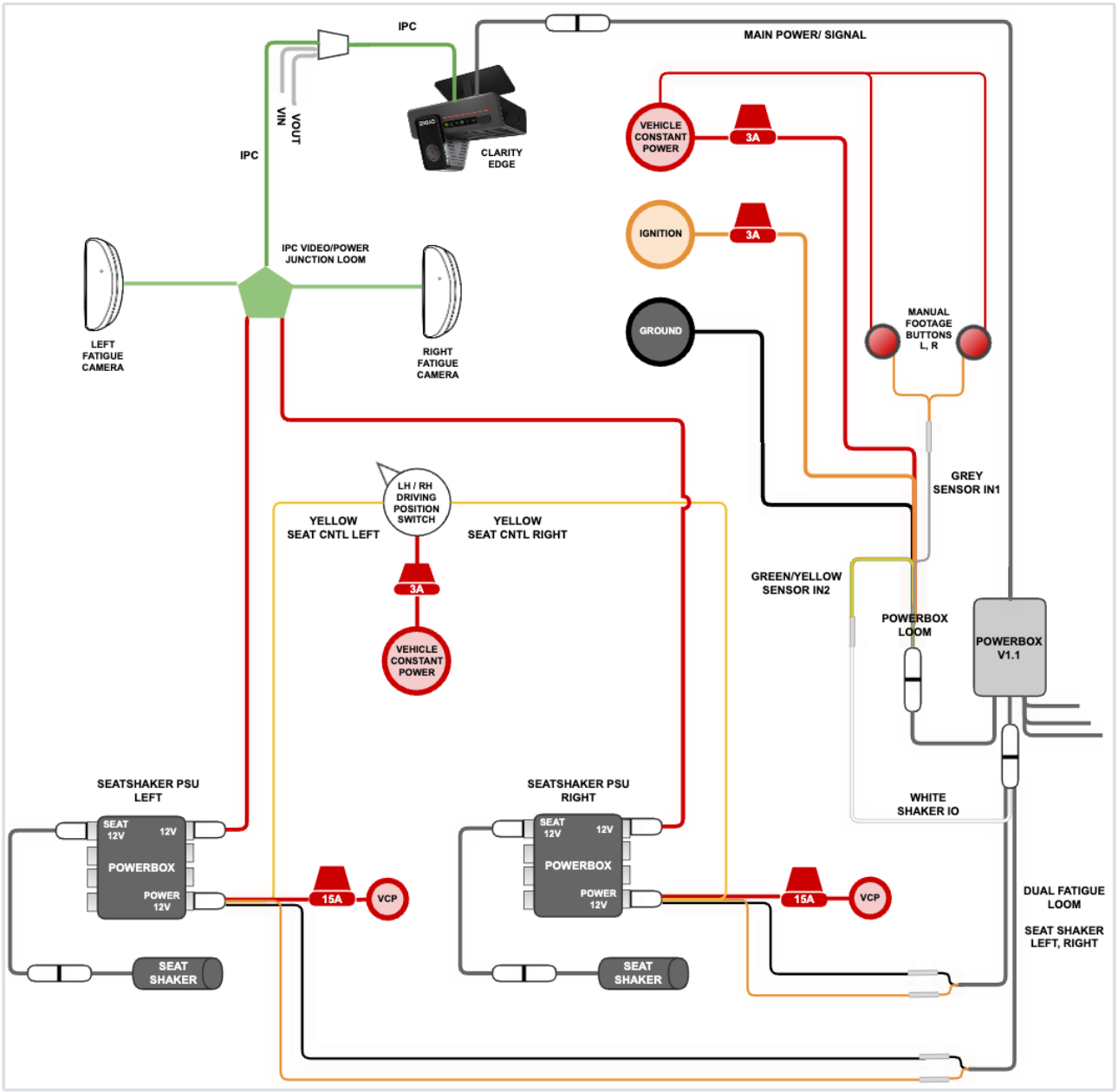


Single fatigue and Seatshaker install

1. Connect the Clarity Edge to the Powerbox v1.1 using whichever length extension you've been issued, and then into the Powerbox loom.
2. Run the cables under trimmings and behind the dash. Avoid loops and pinches in the cable.
3. Solder the Seatshaker cable's White SENSOR IO to the Green+Yellow SENSOR IN2 wire of the Powerbox loom.
4. Connect the fused powerbox loom to the standard cable.
5. Connect **Power** (fused), **ACC** (Ignition, fused) and **GND** to the corresponding correct vehicle connection points for the vehicle.
6. Use the EROAD recommended connection method of solder, tape & cable tie.

- **The power supply box MUST be firmly mounted in place via cable ties/ double sided tape**. secure it clear of any excessive shake or vibration locations (loudspeakers, engine, etc.)

Dual Fatigue + Seatshaker install



Dual fatigue and seatshaker install

1. Connect the Clarity Edge to the Powerbox v1.1 using whichever length extension you've been issued, and then into the Powerbox loom.
2. The Fatigue – Seatshaker pairs are identical in function.
   a. Each Seatshaker runs to the SEAT 12V socket of its Seatshaker PSU.
   b. Seatshaker PSU connects to its Seatshaker loom, where:
      i. Red wire is fused to 15A, connecting the Vehicle Constant Power
      ii. Yellow wire connects to Driving position switch
      iii. Black and Orange wires paired and soldered to the correct arm of the Dual Fatigue Loom
      iv. 12V on the Seatshaker PSU connects to the IPC Loom, to the correct L-R connection

3. Connect the Fatigue cameras to their respective cables of the IPC Loom, and run the loom to the IPC port on top of the Clarity Edge. Secure the cable to the Clarity Edge with the IPC Fatigue cable clamp.
4. Run the cables under trimmings and behind the dash. Avoid loops and pinches in the cable.
5. Solder the Seatshaker cable's White SENSOR IO to the SENSOR IN2 wire of the Powerbox loom.
6. Connect the fused powerbox loom to the standard cable.
7. Connect **Power** (fused), **ACC** (Ignition, fused) and **GND** to the corresponding correct vehicle connection points for the vehicle.
8. Use the EROAD recommended connection method of solder, tape & cable tie.

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Mounting the Fatigue Camera(s)

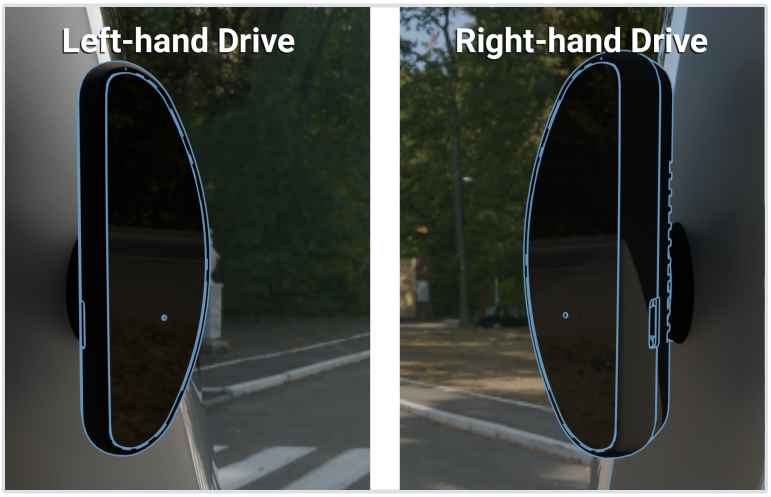
Video

Fatigue Camera install video - https://vimeo.com/955628260/5b4d861ea3

Each Fatigue camera will come with the ordered mounting option: A-Pillar, or Windshield.

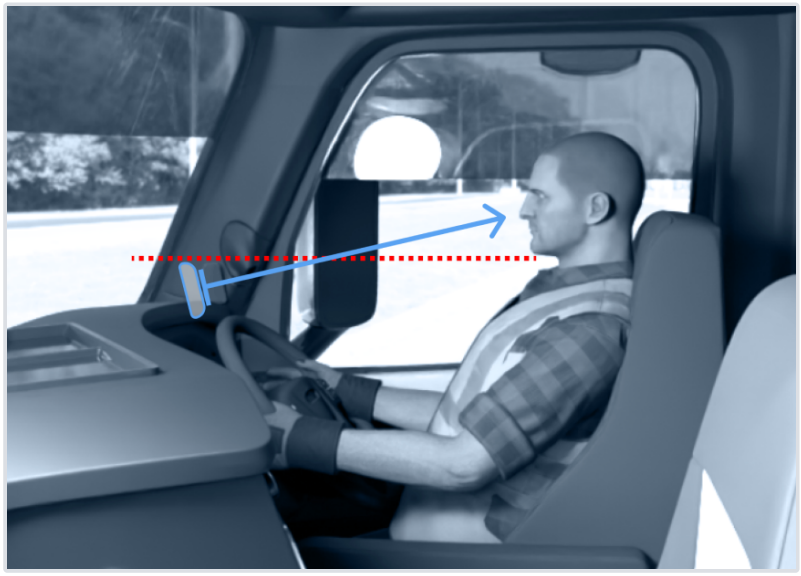
If the customer has ordered mounts that are inappropriate or dangerous for Fatigue camera installation, inform the customer before proceeding.

Check the vehicle for side-curtain airbags. If present, the Fatigue camera MUST NOT be fitted to the A-Pillar frame or trim.



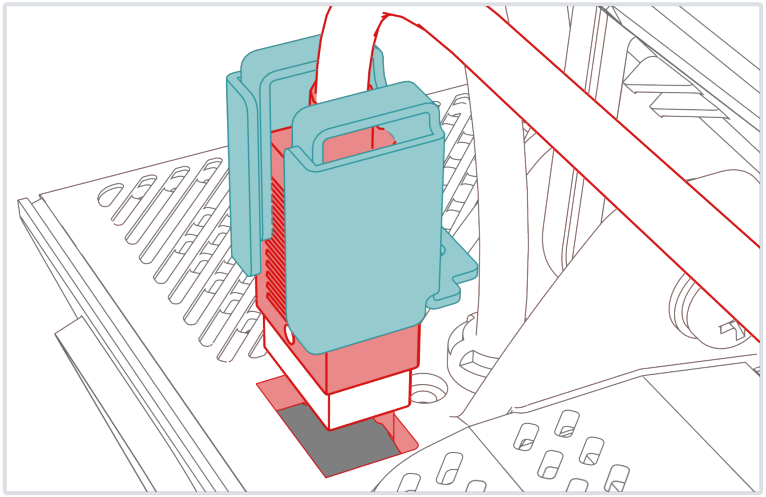
Fatigue camera

1. The previous video link showed how to install, including drilling 2 holes for the mount.
2. If the vehicle's A-Pillar does features air-bags, alternate locations are the windshield, or the dash.
3. Each location has a specific mount. If the correct mount is missing, inform the customer.
4. Orientation: The Fatigue camera is D-shaped. The flat face of the 'D' faces the A-Pillar (or dash, if dash-mounted); Curved side generally faces mid-windshield.
5. Distance: 50-100cm from common Driver-position face.
6. Vertical Height: above steering wheel; no more than 30 cm vertical below driver's chin.
7. Angle: Tilt the flat, reflective front of camera to Driver-position face (should see your own reflection when in Driver-position).
8. After mounting, use the Installation App's Live View assist to ensure the camera is:
   a. free from blue protective lens film
   b. centered on Driver-position face
   c. mounted BELOW Driver-position face (red dotted line)



d. angled, looking UP to Driver-position face (blue arrow)
e. lower edge of frame includes view of Driver chest
f. clear of visual obstructions (inc. steering wheel, levers, etc)
g. clean of fingerprints, oil, etc.

9. Connect the Fatigue camera cable to the IPC connection of the IPC loom.
10. Assuming A-Pillar installation is OK, you should be able to tuck the cable under the A-Pillar trim, with no need for an additional drill hole. Run the cable behind the A-Pillar, along the cab roof trim, to the Clarity Edge.
11. Thread the Fatigue camera cable through the Fatigue camera cable clamp, such that the white dot faces through the gap, and near the eye end.
12. Using the screw near the Clarity Edge's main cable exit, screw in the Fatigue camera cable clamp.



IPC connection port; cable clamp (Green)

You can rough-adjust the camera to face the driver's head restraint (headrest). The Clarity Installer app will provide more accurate alignment.

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Fatigue camera Windshield Installation

1. **Ensure you have used the Clarity Edge Installer to determine the best position, and use a black marker to mark that location. That location must allow 100% adhesion of the double sided tape on the base.**

Windshield mount

2. **Ensure two grub screws are tightened fully, one as pictured above and one on the rear of the mount.**
3. Connect the Fatigue camera cable to the IPC connection of the 3-way extension cable.
4. You should be able to tuck the cable under the A-Pillar trim without having to drill an extra hole.
5. Tuck and fit the cable behind the A-Pillar, run it up and along the cab roof trim, to the Clarity Edge unit.

Aligning the Fatigue camera

After the device is powered on, perform the adjustment with the assistance of Clarity Edge Installer’s real-time preview screen.

1. Adjust the angle (up, down, left, and right) of the Fatigue camera so that the driver's face appears in the middle of the video screen, the driver's face and body are vertical on the video screen, and the lower edge of the screen is below the driver's chest.
2. in the FATIGUE video feed, no object (for example, the steering wheel) should obstruct the driver's face or seat belt features.
3. Lock the final position of the camera with the supplied Allen key.

Installing the EROAD Seatshaker

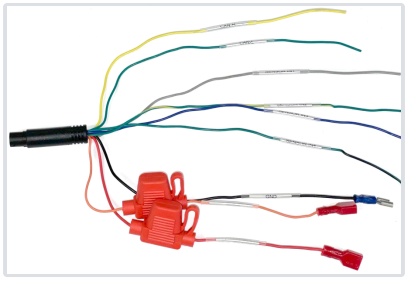
Pre-installation notes

1. **The EROAD Seatshaker requires an EROAD Fatigue Camera for operation.**
2. **When installing the Seat Shaker as an independent job item after a Clarity Edge install, Installers are still required to run the Clarity Edge Installer app to ensure connectivity and registration issues are tested and documented.**

Parts

Seatshaker

Seatshaker connector



Powerbox loom

Seatshaker loom

Seatshaker PSU

Hose clip

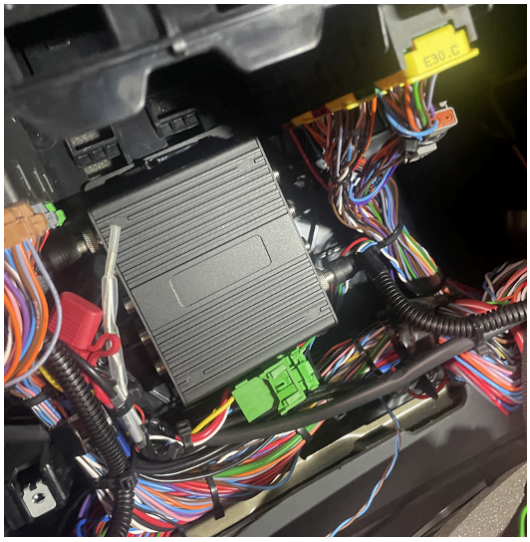
Process

> ⚠ The Seatshaker must be secured DIRECTLY to the chair frame of the seat, **NOT** the air seat below it, or any other shock absorbing seat system.

The Seatshaker secured firmly, on the steel strut bar, chair frame base (highlighted in blue).

1. Unzip/Release the chair fabric from the back. No cutting or tearing should be required.
2. Using the supplied hose clip, fit the seat shaker securely to the steel strut bar, chair frame base of the driver's seat. The unit should not touch the driver's seat fabric.
3. Connect the Seatshaker cable and run it under the floor covering to the dash, avoiding chafing or damage.
4. Solder the Seatshaker cable's White SENSOR IO to the SENSOR IN2 wire of the Powerbox loom.
5. Secure the devices under the dash, close to the power source.
6. Plug looms and cables into their appropriate sockets, following the Standard Install, or Dual Fatigue and Seatshaker install diagram.
7. Wrap and tidy unused wires and excess cabling.

Seatshaker mounted to chair's steel strut bar, ABOVE the airseat.



Powerbox for Seatshaker secured under the dash.

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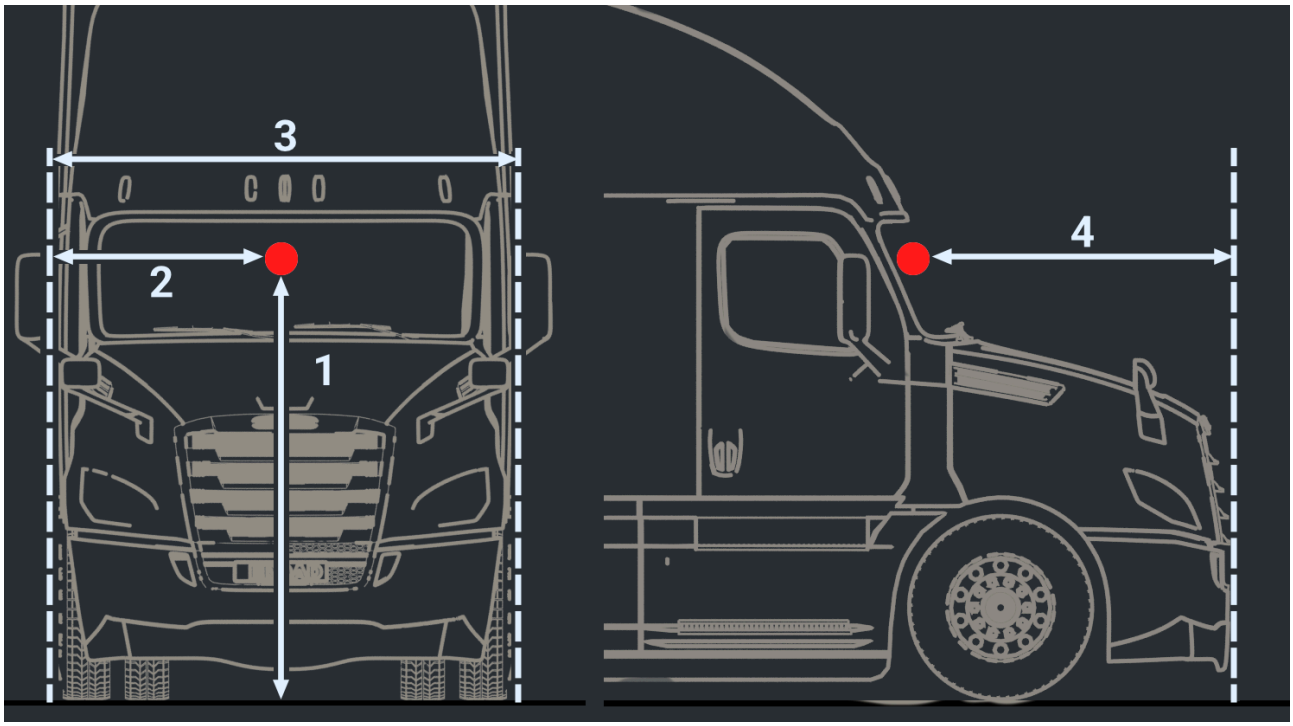
Calibrating the Clarity Edge

To calibrate the road-facing camera, **you need to first accurately measure** the following distances from the road-facing camera lens position. You will need to enter these measurements in the Clarity Installer app fields.



Height to Camera (1); Distance from camera lens to left of truck excluding wing mirrors (2); Width of truck, excluding wing mirrors (3); Distance from frontmost bumper/grill to camera (4)

1. **HEIGHT**: the vertical height (accurate to cm/inch) from the ground to the lens with a tower ruler or tape. This is the ADAS lens installation height.
2. **LEFT MARGIN**: the horizontal distance from the lens to the outermost edge of the LEFT tire.

> LEFT is left from viewing the vehicle from the **outside,** front. Always. It doesn't matter which side the steering column is: left is from the outside front.
>
> **Side mirrors are NOT considered in measuring width or margin**, even if they extend past the main body sides.

3. **FRONT-END WIDTH**: the distance between the outermost edges of opposite tires. (Side mirrors are NOT appropriate points, even if they extend beyond the cab width.)
4. **FRONT LENGTH**: the horizontal distance from the camera lens to the frontmost point of the vehicle.

> **Accurate measurements are crucial, or the unit could generate false lane departure warnings or similar.**

Tilt angle

The app will allow you to adjust the unit's camera for optimum performance. Once the correct angle is found, tighten the mounting bracket screw to lock the position in place.

Windshield replacement note

The Clarity Edge system may have Fatigue camera(s) installed on the A-Pillars. Unless damaged or pulled out of alignment, all that's required is plugging the Fatigue camera(s) back into the Clarity Edge once the Clarity Edge has been re-mounted.

Remote record button install (Kit HR003107A) - Optional

The remote record button provides a more conveniently-placed way to trigger a manual record event on the Clarity Edge, if the unit is out of reach, or if tapping the unit's button risks knocking the camera out of alignment.

1. Drill a 14 mm (0.55 in) diameter hole into a dashblank (or similar site within comfortable reach of the driver).
2. Ensure the O-ring remains near the head of the button-thread while removing the nut and washer.
3. Thread the wires through the washer and nut.
4. Wire in the fuseholder with a 2A fuse on the RED wire.
5. Wire in the remote button **ORANGE** wire to **SENSOR IN 1 (Grey).**
6. Tighten the nut and washer.
7. Heatshrink the join, use cable ties to coil and tie away any excess cable.

   Ensure there is a constant 12-24 V when the key is inserted with the engine running, and also when the key is not inserted and the engine is off.

Clarity Edge Installer app

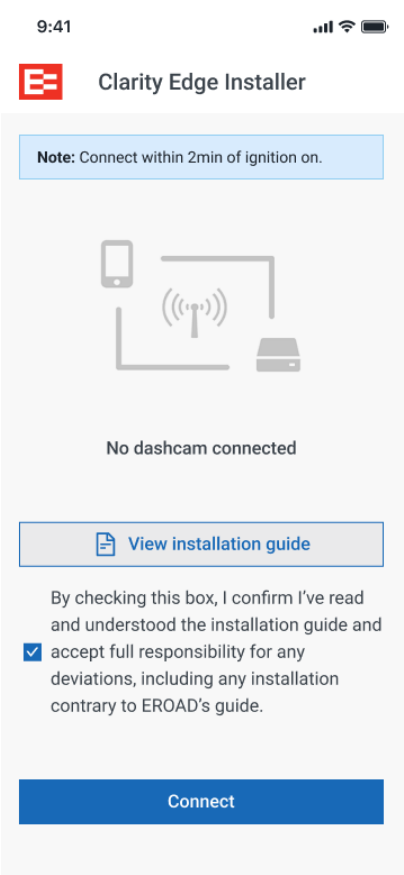
Download and install **Clarity Edge** installer from the Apple store or Google Play.

> There are several apps on the Apple Store or GooglePlay with the words ‘Clarity’ or ‘Edge’ in their titles. EROAD mobile apps feature simple red/white icons, and are made by EROAD.

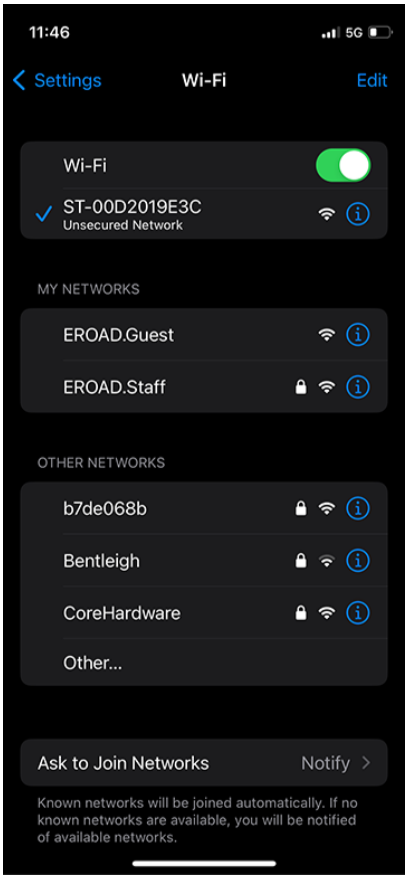
- If you haven’t already, remove the blue protective film from both camera lenses.
- Assemble the unit’s WiFi address, QR codes, or other reference material ready to enter.

When powered, each unit generates its own WiFi network. You will connect to this network on your device for setup and calibration.

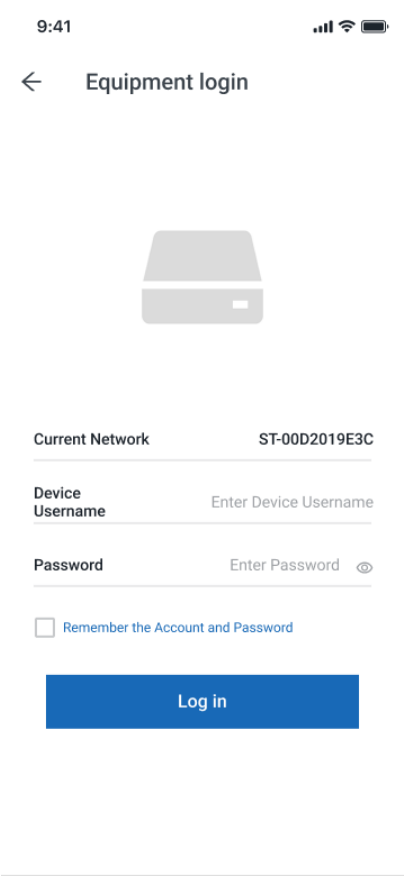
> There are minor variations between the iOS and Android versions of Clarity Edge Installer, but they do not affect the process.



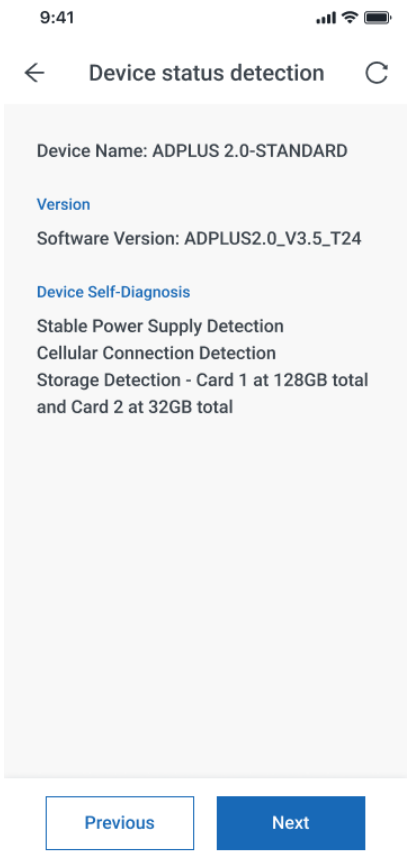
1. The start screen requires you confirm you have read and understood the process found in this guide.



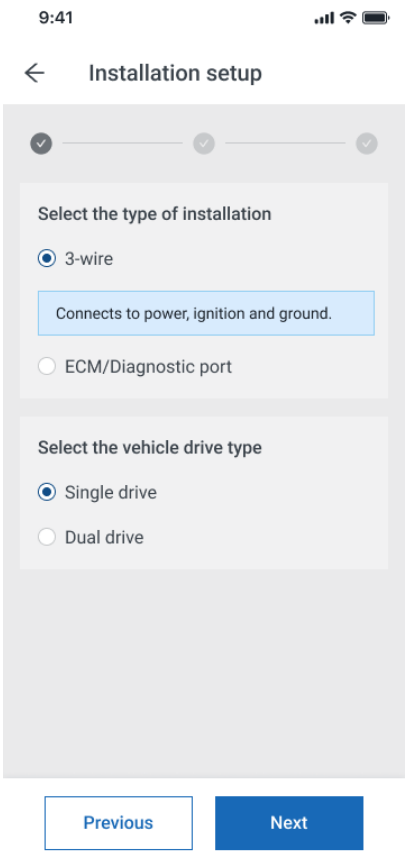
2. Select the unit's WiFi ID. This is found on the Clarity Edge sticker.



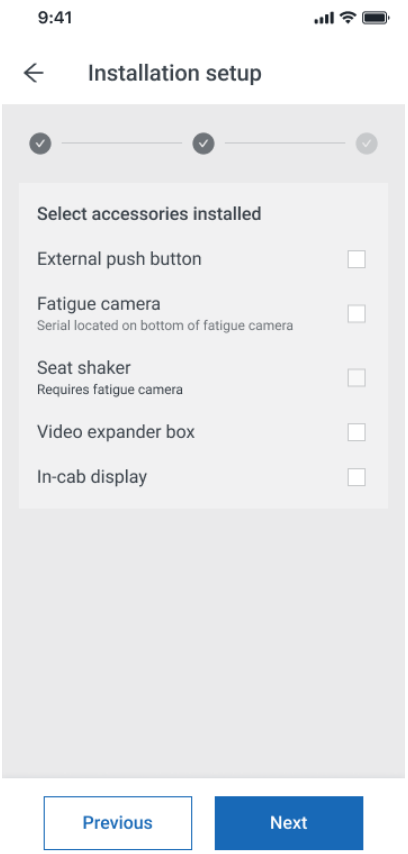
3. Device Username: adminPassword: admin



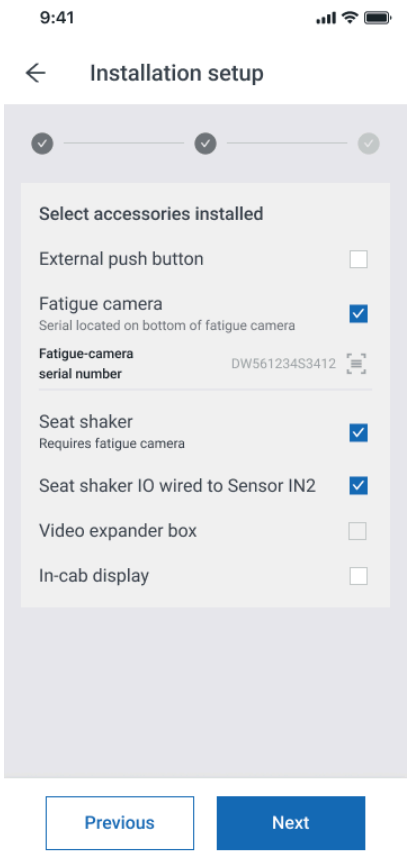
4. Review and confirm connection statuses



5. A 3-wire single drive install is common; Dual drive for twin steering setups.



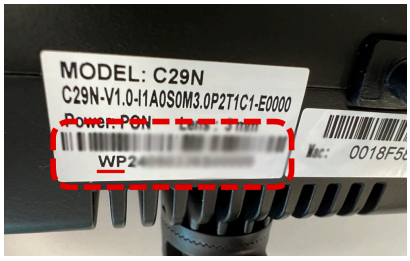
6. Accessories. For Edge + Fatigue + Seatshaker installs, the expander and display options are not required.



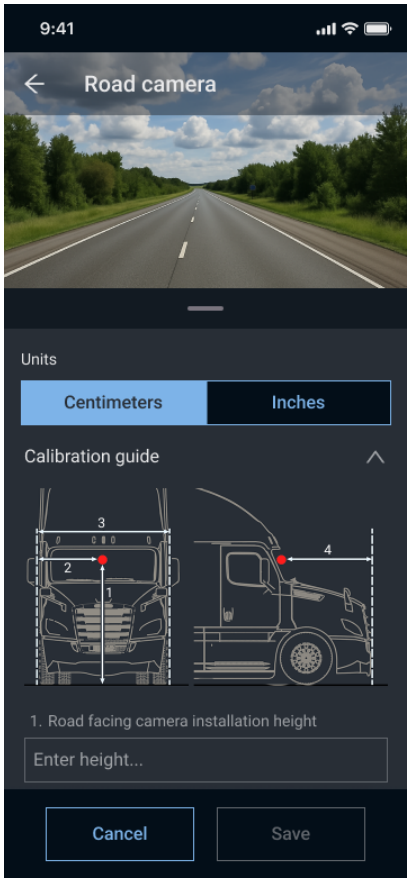
7. Select the gear to be installed. Selecting 'Fatigue' enables the serial# scanner for its barcode.The Shaker IO wire will be connected to the Powerbox v1.1 SENSOR IN2 wire.

8. Unless there is an additional camera to install, this screen may be skipped.

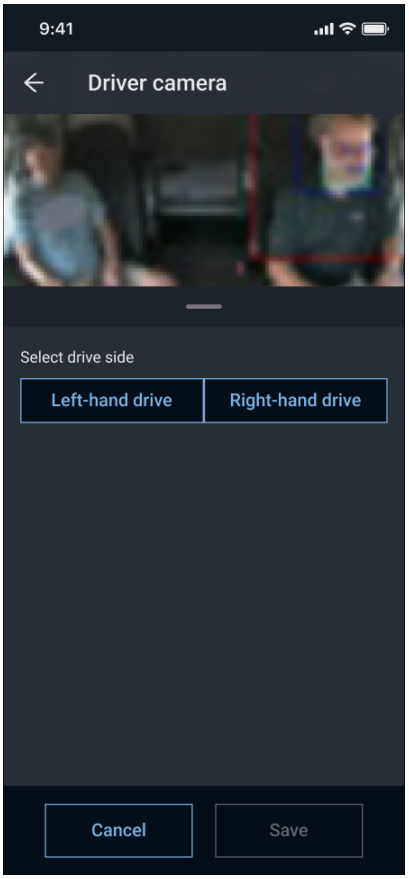
9. Go through each camera to configure. (For Dual Drive, Channel 4 will have 2 Fatigue cameras to configure.)



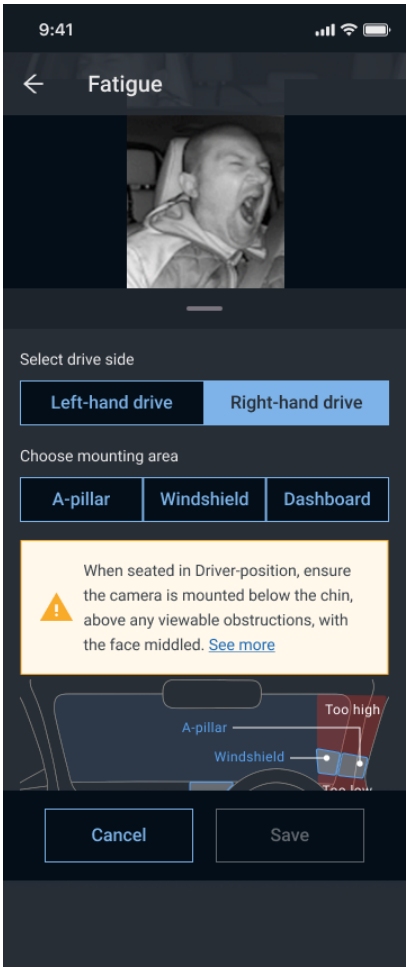
Fatigue camera serial#.



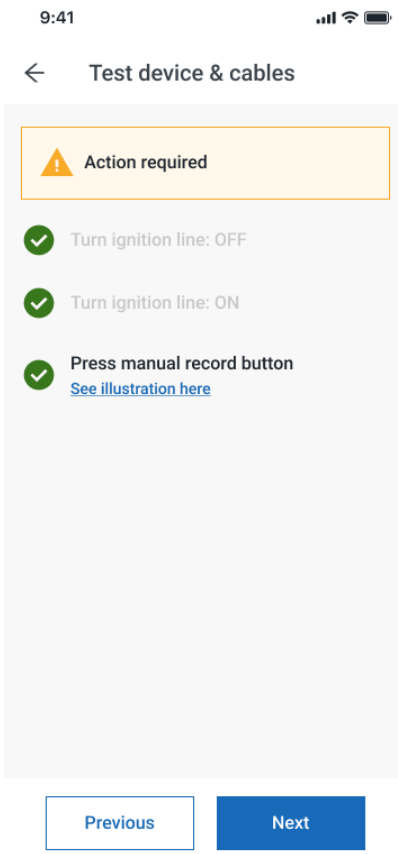
10. Road cam config. Measurements must be within 2 cm precision to mitigate false lane departure alerts. Camera view must be level with the horizon.



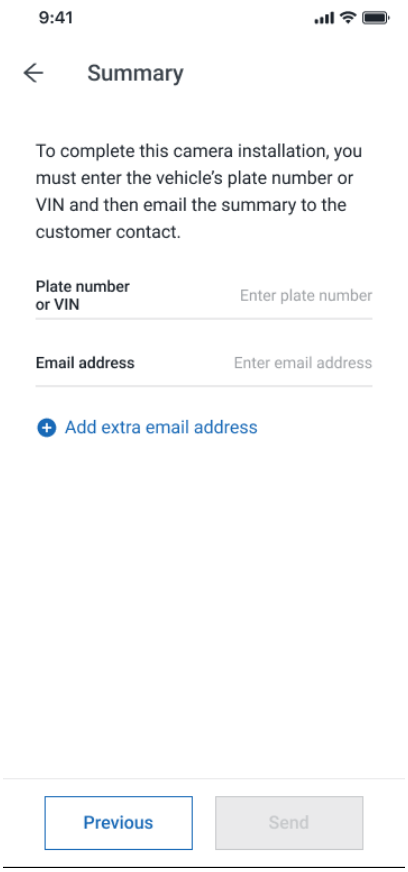
11. Driver cam config (Single drive only). This sets US/ ANZ driving sides.(Dual Drive installs will skip this screen.)



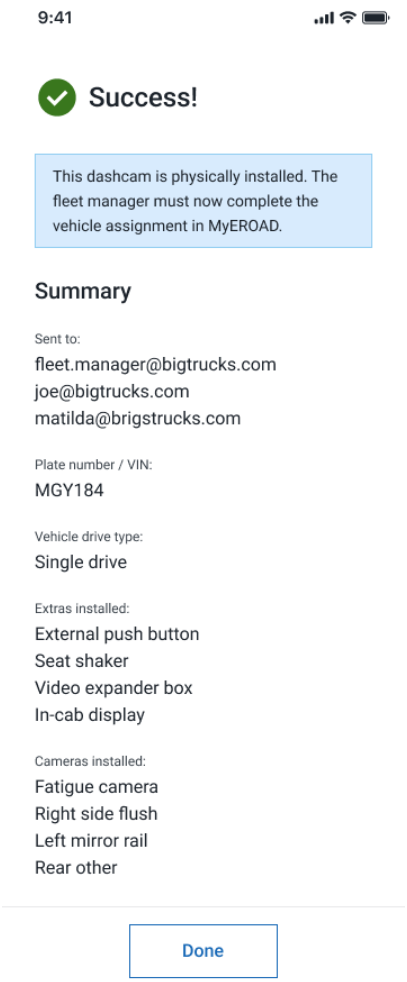
12. Fatigue cam config (Single drive selected). If installing Dual fatigue, this screen will have a second positioning option and a mirrored positioning diagram.'See more...' provides a side-on diagram and detailed descriptions to position the Fatigue camera.



13. Testing. The app will lead you through a multi-staged connectivity test, with recommendations if a test fails.



14. Enter the vehicle's VIN and customer email.



15. Success summary. Done.

Troubleshooting

LED indicators

During normal operation all the unit's status lights are off, except the Power icon (Green).

Power 	**Off**: The unit is not powered on **Green**: The unit is powered normally
Alarm 	**Off**: The unit is operating properly **Red flashes x3**: The unit generates an alarm
GPS 	**Off**: GPS is operating properly **Red**: The unit is out of coverage; module fault **Red, flashing**: The unit has poor coverage
Network 	**Off**: The unit is connected to the server properly **Red**: The unit is connecting intermittently, or through unverified hotspots **Red, flashing**: The unit is in Flight mode (operating properly, but offline)
WiFi 	**Off**: No WiFi connection. **Green**: Ready for WiFi connection. WiFi connection is only used for unit configuration.
Record 	**Off**: No triggered recording in operation. **Red**: Recording/ SD Card error: unable to read/write.

Hardware faults

Device startup failure

- Check that the power cable is well connected, the fuse intact and is fully inserted.

Device Networking Failure after Startup

Make sure that the SIM card is inserted before device startup. If it is inserted after device startup, please power off and restart the device.

- Check whether the SIM card is installed correctly.
- Check whether the network signal at the current position is good.
- Check the condition of the SIM card.

Device Recording Failure after Startup

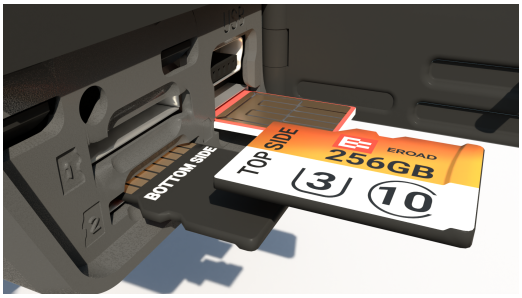
- Make sure that the SD card is inserted before unit startup. If it is inserted after unit startup, please power off and restart the unit.
- Check whether the SD card is installed correctly.
- After the SD card is inserted into the unit, format it before use.

Camera cards

Cards can be inserted incorrectly, yet feel correct.

The trimmed corner edge always goes in first, but:

- Topmost MiniSD card: gold contacts face DOWN
- Bottommost MiniSD card and SIM card: Gold contacts face UP



MiniSD cards

Clarity Edge units are shipped with MiniSD cards pre-installed.

Slot 1 MiniSD cards are for day-to-day writing/recording of trips. Typically, these cards are 128 GB or greater.

Slot 2 MiniSD cards are for low-res backups of requested or triggered/archived video. These cards are typically smaller - between 32–128 GB.

If EROAD-approved cards are not present, cards must be:

1. Type SDXC
   a. Class 10 / UHS-I / V30
   b. Of a capacity specified in the job order.

- Use the supplied Torx screwdriver to unscrew the card slot door.
- Seat the cards.
- Close and screw the door closed when finished.
- Remove the protective film on the lenses and the LED panel.

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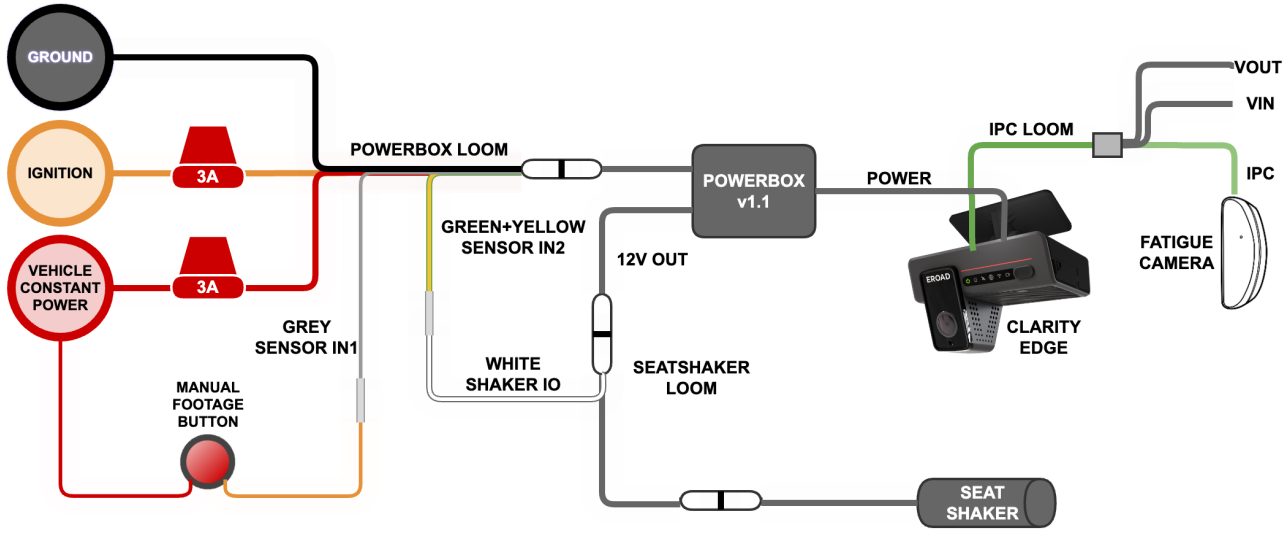
Technical info

3-wire power, Fatigue camera, seatshaker



Single fatigue and Seatshaker install

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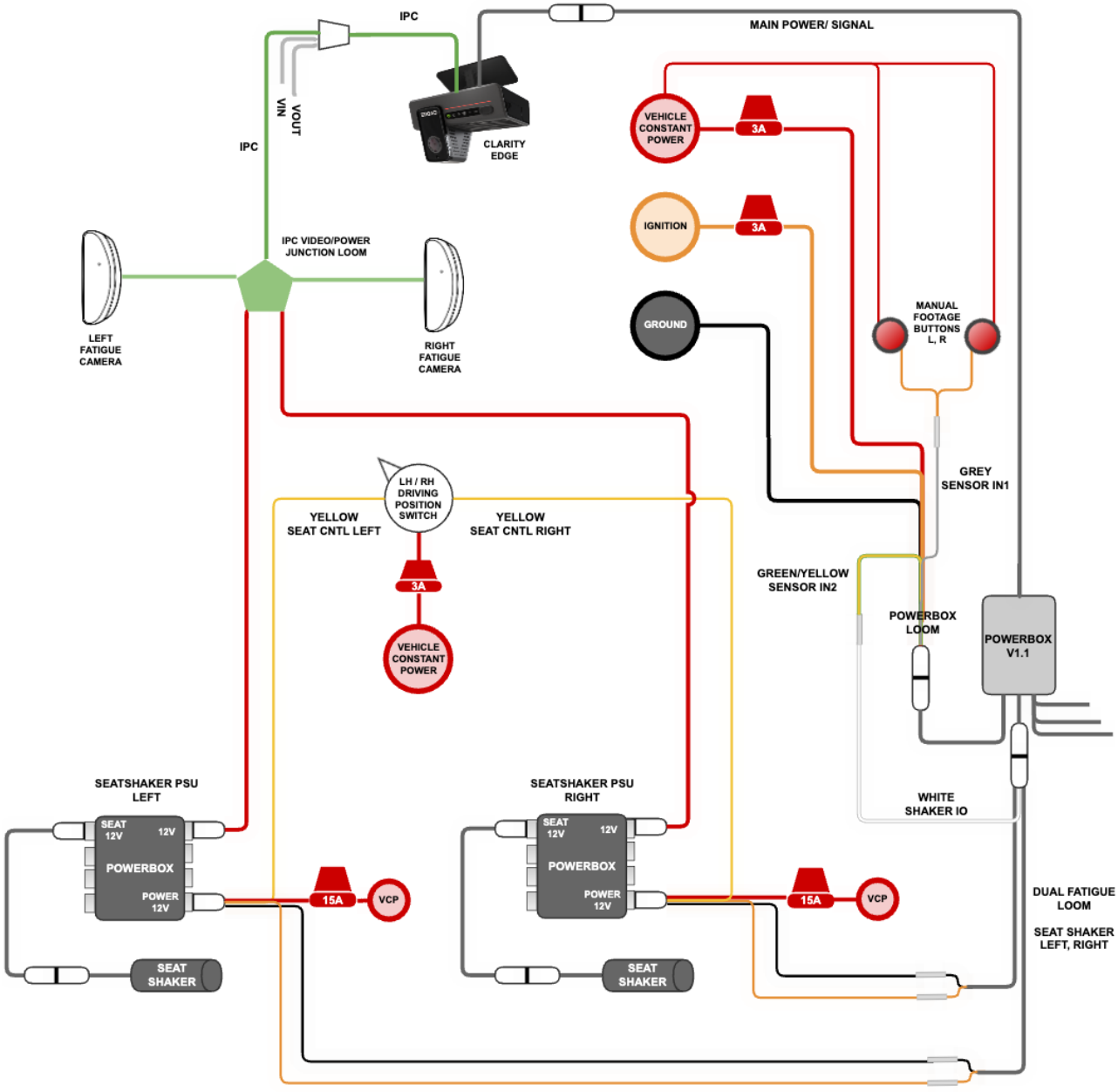
3-wire power, Dual fatigue, Dual Seatshaker



Dual fatigue and seatshaker install

Powerbox loom cable pinouts

Signal	Color	10-pin DIN male
ACC	Orange	6 (3A fused)
CAN-L	Yellow	1

Signal	Color	10-pin DIN male
CAN-H	Green	2
Sensor IN3	Blue	8
Sensor IN2	Green+Yellow	7 (Shaker IO loopback)
Sensor IN1	Grey	5 (Remote Trigger)
Sensor IN4	Green+Black	9
Power	Red	3 (3A fused)
GND	Black	10

Specifications

Clarity Edge

Input voltage	12 / 24V
Power consumption	• Standby: 13.5 V @ 5.67 mA, 27 V @ 3.39 mA • Sleep: 13.5 V @ 62~124 mA, 27 V @ 32~61 mA • Between 7-12 W, depending on Camera/SD/SIM/sensor load.
Camera resolution	Front-facing: 1080p@25fps; Driver-facing: 720p@20fps
Field of view	• Front horizontal: 123° • Front vertical: 65° • Driver: 140°
Audio	• Built-in mic (default OFF) • Speaker power: 3W, with adjustable volume
Status lights	Power: Green On/ Off Alarm: Triple-Flash Red (Alarm)/ Off GPS: Red (Abnormal)/ Red flash (Poor positioning)/Off (normal) Network: Red (Abnormal/ Off (Normal) Wi-Fi: Green (AP mode)/ Red (Abnormal)/ Off (Normal) Camera: Red (Fault, Privacy mode fail)/ Off (Normal)
Storage	MicroSD card×2 (SDXC 256GB), Class 10 or above
Recording time	Dependent on MicroSD card size and additional cameras (eg. Fatigue camera)
Sensors	• 6-axis IMU for acceleration/rotation • ambient light for day/night switching

Ports	USB Mini, MP2 SIM Card x2, RS232, I/O, CAN
GPS	GPS L1, GALILEO, GLONASS, SBAS: WAAS, EGNOS, MSAS, GAGAN
Cellular networks	• USA: AT&T, T-Mobile, Cincinnati Bell, Immix, CommNet Wireless • CAN: Bell Mobility, Telus, Videotron, SaskTel • MEX: Telcel, IUSACell • AUS: Telstra • NZL: Vodafone GDSP
Dimensions	113.0 × 67.8 × 88.2 mm (4.5 x 2.7 x 3.5 in), excluding bracket
Weight	300 g (10.5 oz)
Ingress Protection	IP30 (Not waterproof)
Operating temp.	-40°C ~ +70°C (-40°F ~ +158°F)

Powerbox

Power Input	9-36 V
12V Power Out *3	12 V @1 A
12V Power Out *2	12 V @1.5 A
'SEAT' port	12 V @3 A (Only seat vibrator. It can control the switch through the control line)
24 V Power Out*2	24 V @1.25 A
IN	PIN9-M16
OUT	PIN4-M12, PIN6-M12
Dimension	149 x 99 x 43.3 mm
Operating Temperature	-30℃ — +70℃

EROAD Fatigue camera

Input voltage	PON（DC9-16V)
Consumption	~ < 2.4 W
Dimensions	98H x 30W x 43D mm (excluding mounting options)
Weight	230 g
Resolution	800 x 1280 px @20 fps
Network port	10M/100M Adaptive Ethernet Port（Six core aviation head and car connector head optionally)
Infrared lighting	940 nm
Ingress Protection	IP53

Operating temp	-40℃ — ＋70℃

EROAD Seat shaker

Input voltage	12 V
Dimensions	132 x 60 x 78 mm (inc. molded mounting plate)
Resolution	600x800 px @20fps
Weight	580 g
Ingress Protection	IP54