AirIQ®

AirIQ OnBoard™ Installation Guide

GPR1 / AirIQ Online

11/2009

AirIQ®

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WARNING:

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WARRANTY:

AirIQ warrants the use of AirIQ OnBoard™ against defects in material and workmanship, with the exception of defects caused by abuse, misuse, accident, alteration, modification, neglect, incorrect installation, operation or removal of the equipment, for a period one year from the date of purchase. During this period, any defective units will be either replaced or repaired by AirIQ, at its sole option. Any repairs or replacements to the equipment after the applicable warranty period shall be at the sole expense of customer. In the event that any equipment is installed, removed or tampered with in any manner by a person who has not been trained and certified by AirIQ, then this warranty shall be null and void and of no effect whatsoever.

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LIMITATION OF LIABILITY:

Occasional interruption or irregularities in the AirIQ system (including, without limitation, AirIQ OnBoard™ and AirIQ OnLine™) may occur due to defects in the hardware or software provided by AirIQ and/or its suppliers, or from limitations of the technology, and that, except as limited by law, AirIQ and its suppliers or any of its officers, directors, employees or agents or any of the officers, directors or employees or agents of its suppliers shall not be liable to customer or to any other person with respect to any claim for direct, indirect, incidental, punitive, special or consequential damages arising out of mistakes, omissions, interruptions, delays, errors or defects in the AirIQ system, hardware or software, in the application(s), or in the provision of related services, or for losses or damages arising out of the failure to maintain proper standards of maintenance and operation or for service or equipment interruptions, delays in transmission, or errors or defects in service or equipment when caused by acts of God, fire, war, riots, government authorities, default of supplier, or other causes beyond the control of AirIQ and/or its suppliers.

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1. Introduction

Satellites are in a 12-hour orbit at 12,000 miles above the earth. There are 24 satellites in the system and generally there are at least 5 satellites orbiting overhead at any one time. AirIQ relies on the signal from multiple satellites to determine its location on earth. The satellite signal is received via the combination GPS / Cellular antenna supplied with AirIQ. This antenna must be installed in a location with an unobstructed view to the outside of the vehicle to receive signals from these satellites.
This network covers virtually the entire population of U.S, Canada,and Mexico that is within reach of a cellular network.

1.1 General Safety

This installation manual covers the installation of AirIQ. This manual is for the professional and novice installer and should be used to ensure a safe and functional install of AirIQ.
The following information should be noted with respect to operating AirIQ in various environments, since the cellular transceiver component works through RF (Radio Frequency).

Vehicles Equipped with AirBags

- DO NOT place objects, including communication equipment, in the area over the airbag or in the air bag deployment area.
- If the communications equipment is improperly installed and the airbag inflates, this could cause serious injury.
- Contact the vehicle manufacturer's corporate headquarters, if necessary, for specific airbag information for the vehicle.
- DO NOT run cables under the area reserved for the driver’s feet.

Damage to the equipment can occur if dropped

- DO NOT install components that have been dropped, even if they appear to be ok.
- Internal damage is likely to occur.

2 Vehicle Activation Form

Each time AirIQ is installed or removed completion of the Vehicle Activation Form is required.
Submit the Vehicle Activation Form before beginning the installation by either fax (905-831-5174) or email (clientcare@airiq.com). This will ensure AirIQ is associated with the correct vehicle.
A copy is available at the end of this guide.

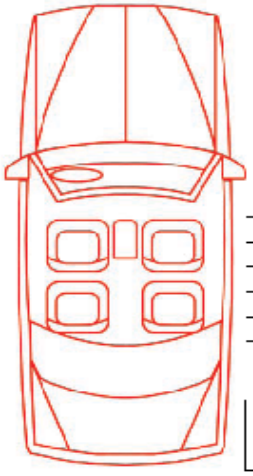
Vehicle Activation Form

AirIQ CONFIDENTIAL

Customer Name:	Date (Month / Day / Year)
Installers Name:	Installation ❑
Contact # :	De-Installation ❑
City, State:	OBC Swap ❑
	REASON:

Vehicle Information		Device Serial Number	
Make:		Installed:	
Model:	Year:	DeInstalled:	
Color:	Plate:		
Customer Unit ID:			
VIN:			

Equipment Location Diagram



Legend
P = Power Source
O = Device
A = Antenna

Wire Color Codes

+12 VDC	
Ignition	
Starter	

Comments:

FAX TO AIRIQ AT: (905) 831-5174 email "client care@airiq.com"
Client Care Assistance: (888) 302-6445

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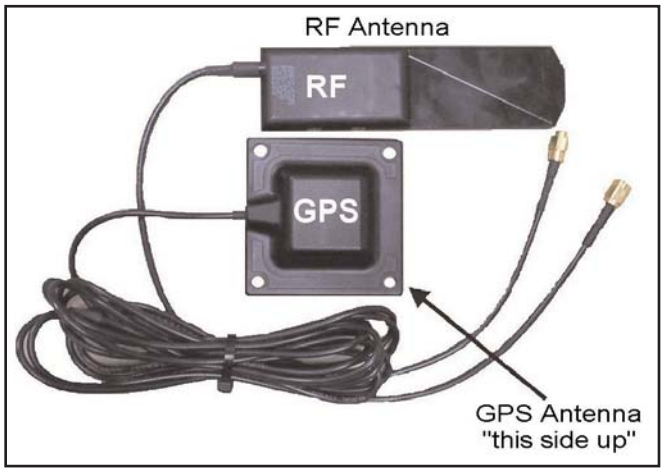
3. AirIQ Device

AirIQ may be installed in any type of vehicle. The unit should be mounted so it will not be exposed to damage from people or objects. AirIQ has four mounting holes. Use nylon tie straps to firmly mount AirIQ. Some examples of mounting locations include under the dash above the knee bolster, under the centre console, side kick panel and behind the glove compartment. The back-up battery (if option available) should be mounted in the same manner, close to AirIQ .

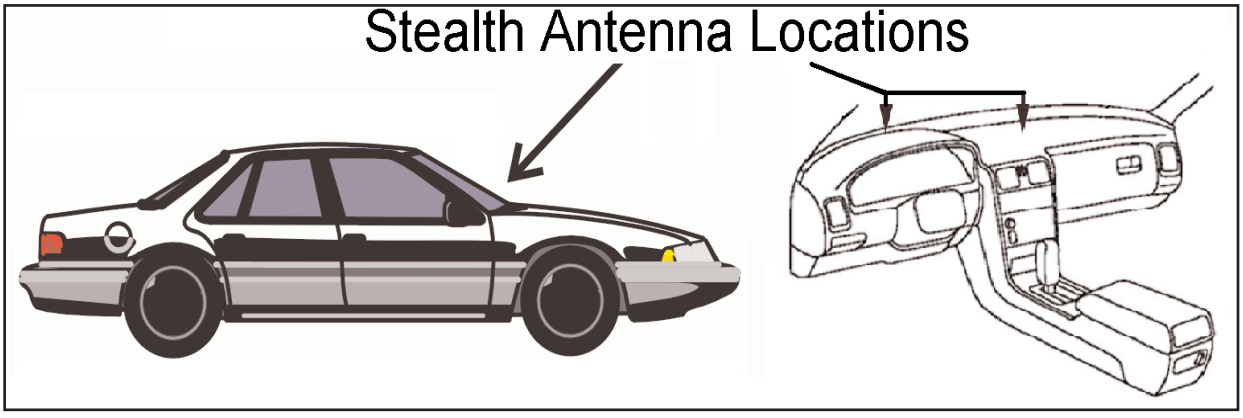
4. Antenna

Antenna location is critical to the operation of the system. The antenna provided can be installed as a combined GPS/RF antenna or separately for easy installation. *The GPS antenna must be mounted flat with the GPS receiver facing up (square portion of antenna, see picture)*. Ensure excess antenna cables are wrapped in a figure eight and mounted away from the device and antenna (see picture).



4.1. Stealth Antenna Mounting

The best location for a stealth antenna installation is beneath dash of the vehicle in a concealed location. The GPS/RF combination antenna will work best if it has a clear view to the sky and as much of the horizon visible to the antenna as possible. The GPS signals will travel through the clear glass, plastic and non metallic materials. Any metallic objects between the antenna and the satellites will degrade the signal and reduce the overall performance when trying to locate your vehicle.



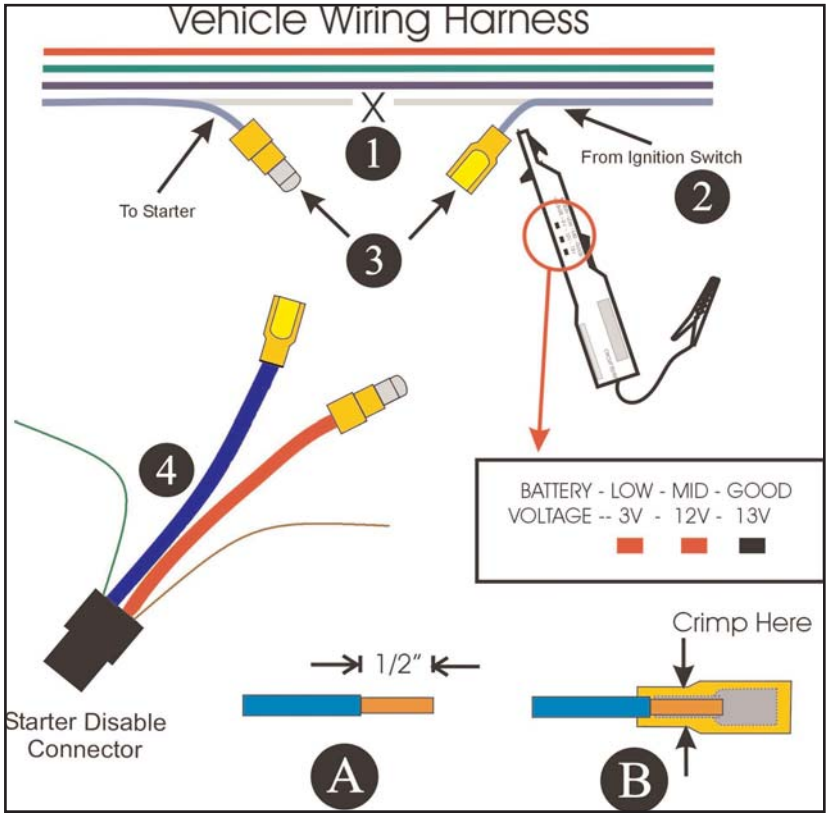
- The antenna must be mounted securely so that it does not become a projectile in an accident.

5. Connecting the Starter Disable Relay (if option available)

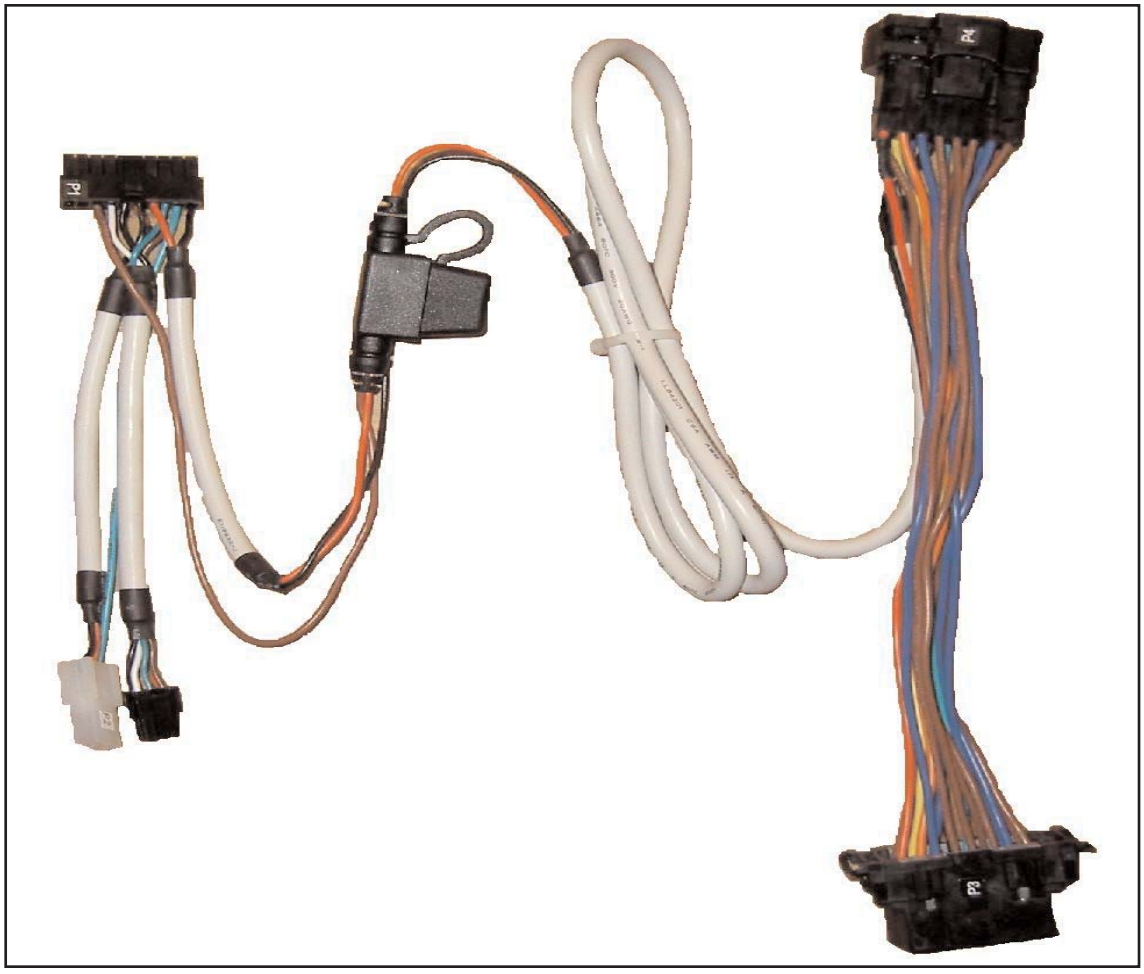
The Starter Disable option uses a 12 volt relay to make or break the starter wire at the ignition switch. In most cases, the starter wire runs directly from the ignition switch to the starter solenoid and may be located on either side of the steering column. This wire will have +12VDC present only when the ignition switch is in the (Engine Cranking) position.

Not all ignition systems in every vehicle will allow for the Starter Disable option to be connected. If a 12 volt starter wire is not present from the ignition switch to the starter solenoid the Starter Disable option may not be available. There are two primary systems that this includes; Electronic or Infrared ignition systems.

1. Cut the starter wire in a location that allows easy access to both ends for stripping and adding a crimp connector. Strip each end with the recommended wire stripper.
2. Place the key in the ignition switch and rotate to the start position. Use a voltage tester to determine which wire has +12VDC in the start position (normally the wire that leads to the ignition switch).
3. Using the recommended crimper, crimp the female bullet connector onto the wire with +12VDC; crimp the male bullet connector to the other wire.
4. Attach the Starter Disable Relay at the bullet connectors (blue and red).

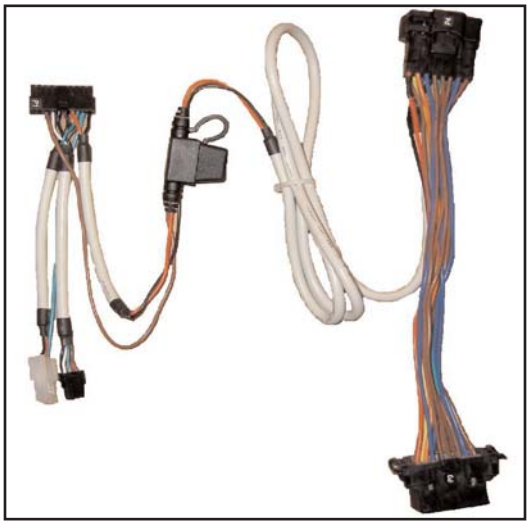


Section 6
OBDII Wire Harness



6.1. OBDII / Power Only

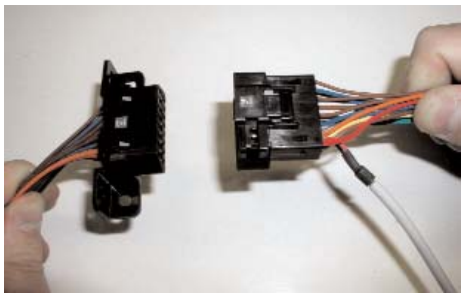
The OBDII requires connection to the vehicle OBDII diagnostic connector. This connection will provide constant power and ground to AirIQ.



Connection Sequence

1. 

   The OBDII connector is typically located on the drivers side, under the dash. Remove the OBDII connector from the current vehicle mounting position.

2. 

   Plug the OBDII wire harness into the vehicles OBDII connector.

3. 

   Remount the OBDII that is on the OBDII harness to the vehicles original mounting position.

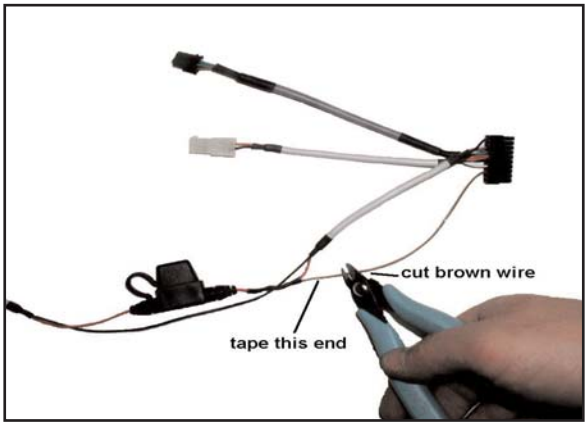
   Note: The green wire is not used for the power only installation.

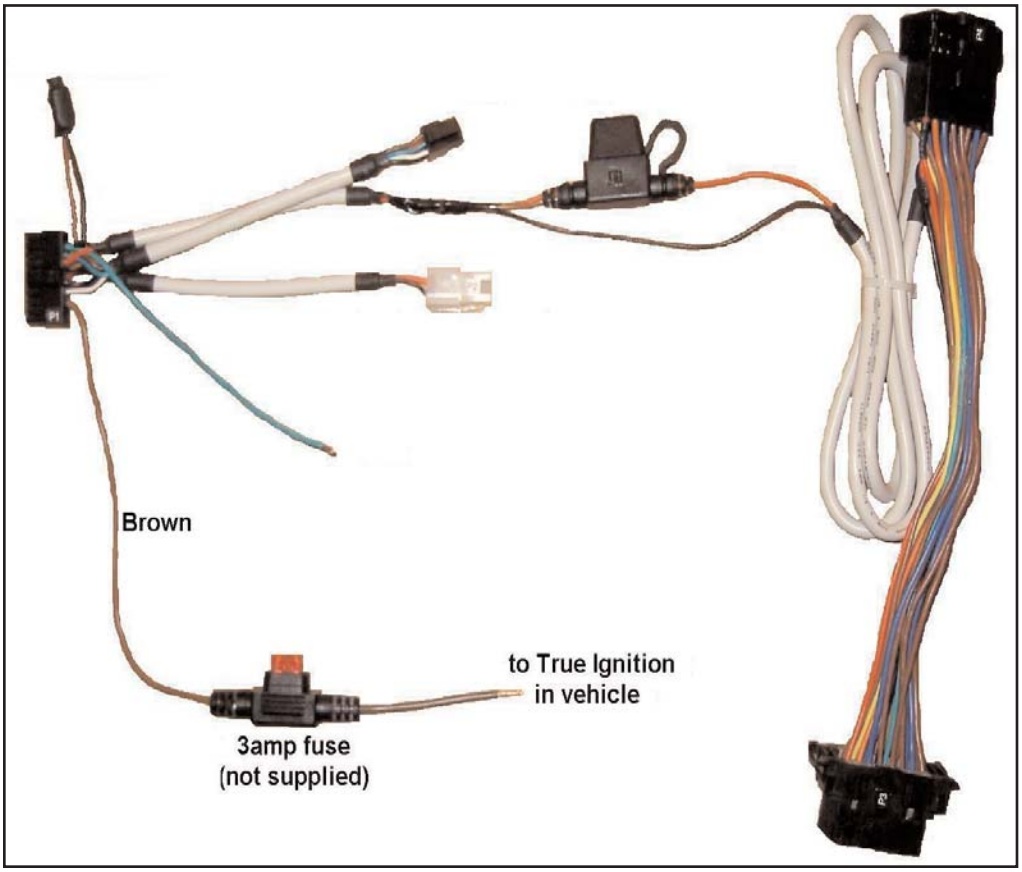
6.2. OBDII / Ignition Wire Connection (if options available)

If options such as; Boundary Crossing, Excessive Speed, Stationary Status, Destination Arrive, Destination Leave, Destination Tracking are available, the ignition wire (brown) on the wiring harness will need to be cut, an in line fuse (3amp max) added and connected to vehicle ignition power.

1. Cut the ignition wire (brown) on the power harness close to the fuse, and tape the exposed end by the fuse with electrical tape to ensure there is no bare wire exposed.

2. The exposed brown wire coming from the 20pin connector will connect through a fuse (3amp max.) *"not supplied"* to true ignition in the vehicle.

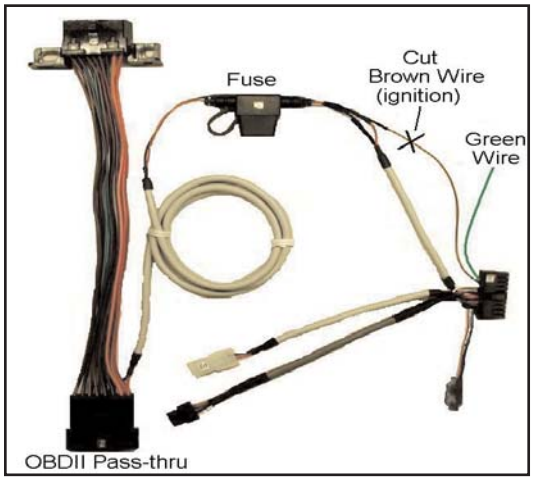


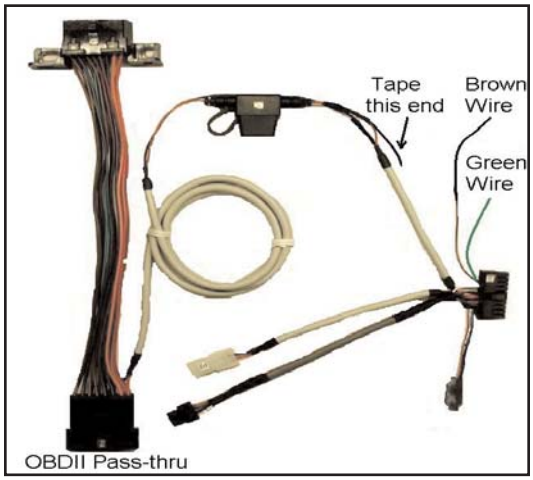


6.3. OBDII / Adding Starter Disable

The Starter Disable feature requires true ignition power **(a wire with +12VDC when the engine is cranking and running**) for proper operation. In order to have ignition power the ignition wire (brown) on the wiring harness will need to be cut, an in-line fuse (3amp max) "not supplied" added and connected to vehicle ignition power.

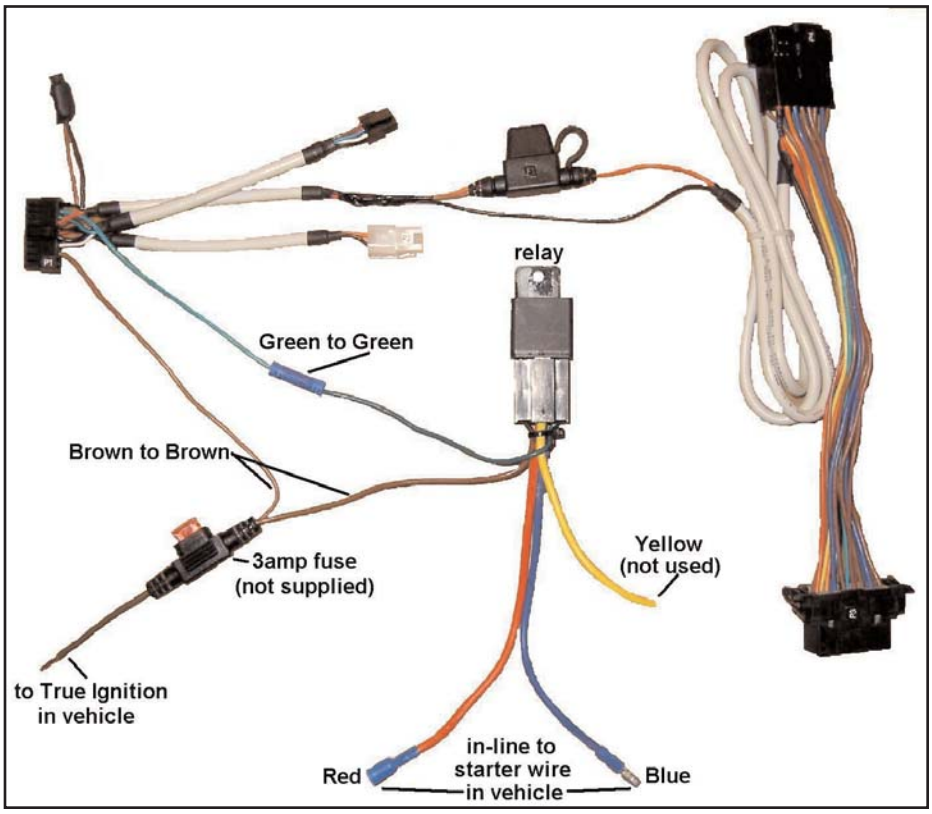
1. Cut the ignition wire (brown) on the power harness close to the fuse, and tape the exposed end by the fuse with electrical tape to ensure there is no bare wire exposed.





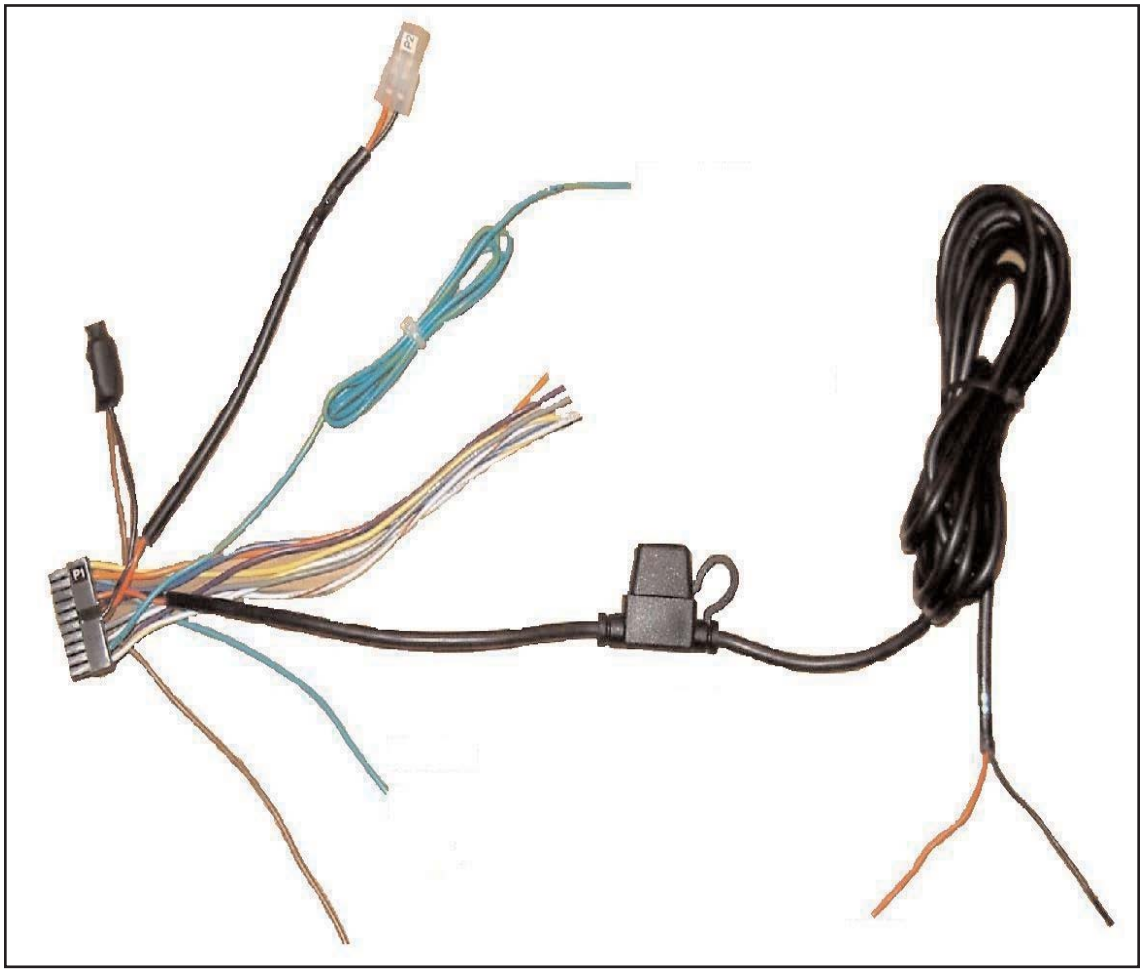
2. Tie the brown wires from the disable relay and the power harness together. This end connects through a fuse (3amp max.) *"not supplied"* to true ignition in the vehicle.

3. Crimp the green wires from the power harness and the disable relay together.



PROCEED TO PAGE 15 "Powering the AirIQ"

Section 7
Standard Wire Harness



7.2. Standard / Power Only

The Standard Wire Harness requires connection to power in the vehicle This connection will provide constant power, ignition and ground to AirIQ.

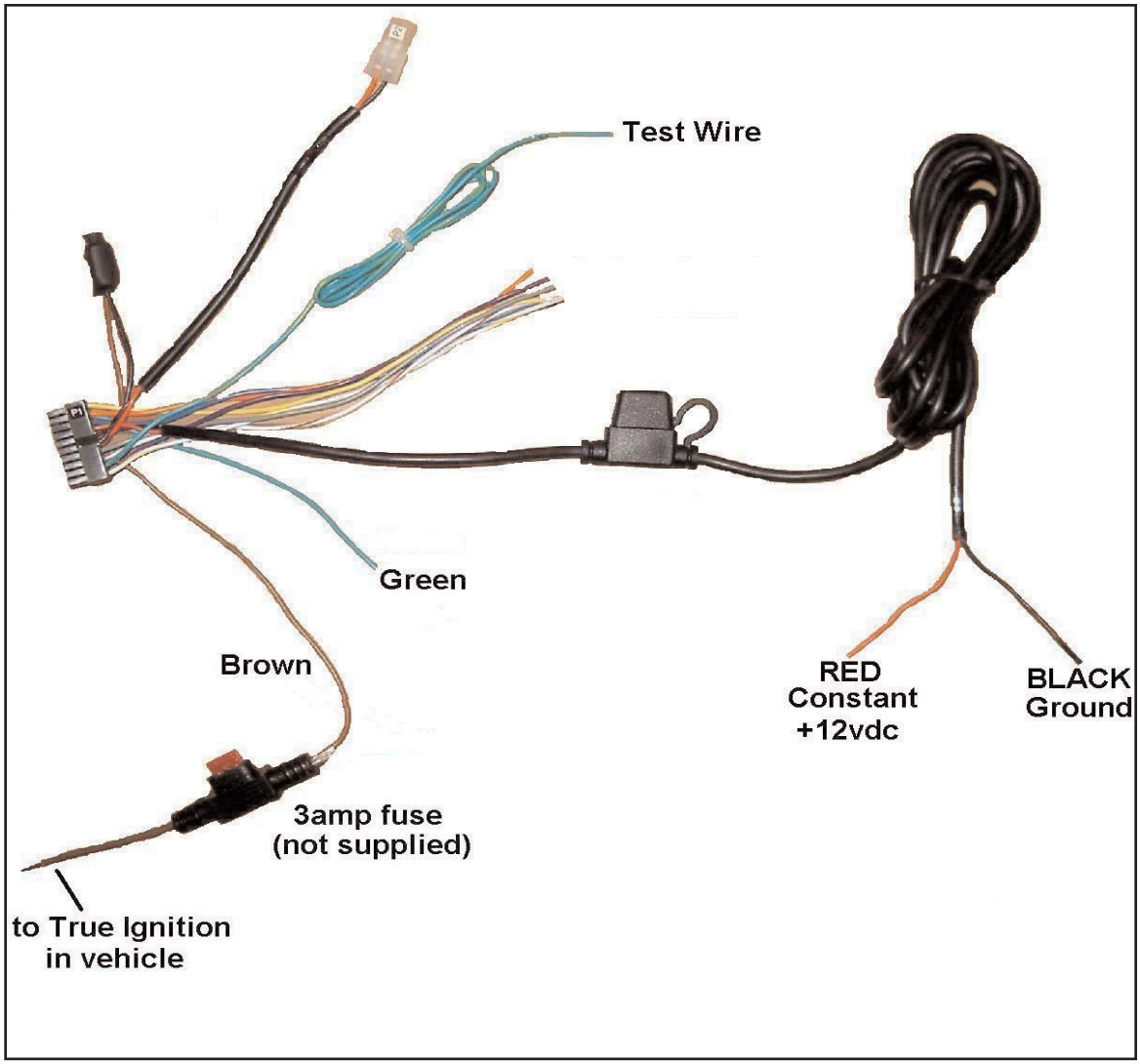
Power Only

The following requires connection to the vehicle wiring harness.

- **Constant +12 VDC Power Wire (red)** +12VDC when the key is removed from the ignition.

  Note: There is one 3amp fuse inline.
- **Ignition Wire (brown)** +12VDC source of TRUE IGNITION.

  Note: It is recommended to install a fuse in-line (3amp max) “not supplied”.
- **Ground Wire (black)** to a metal surface on the vehicle frame.

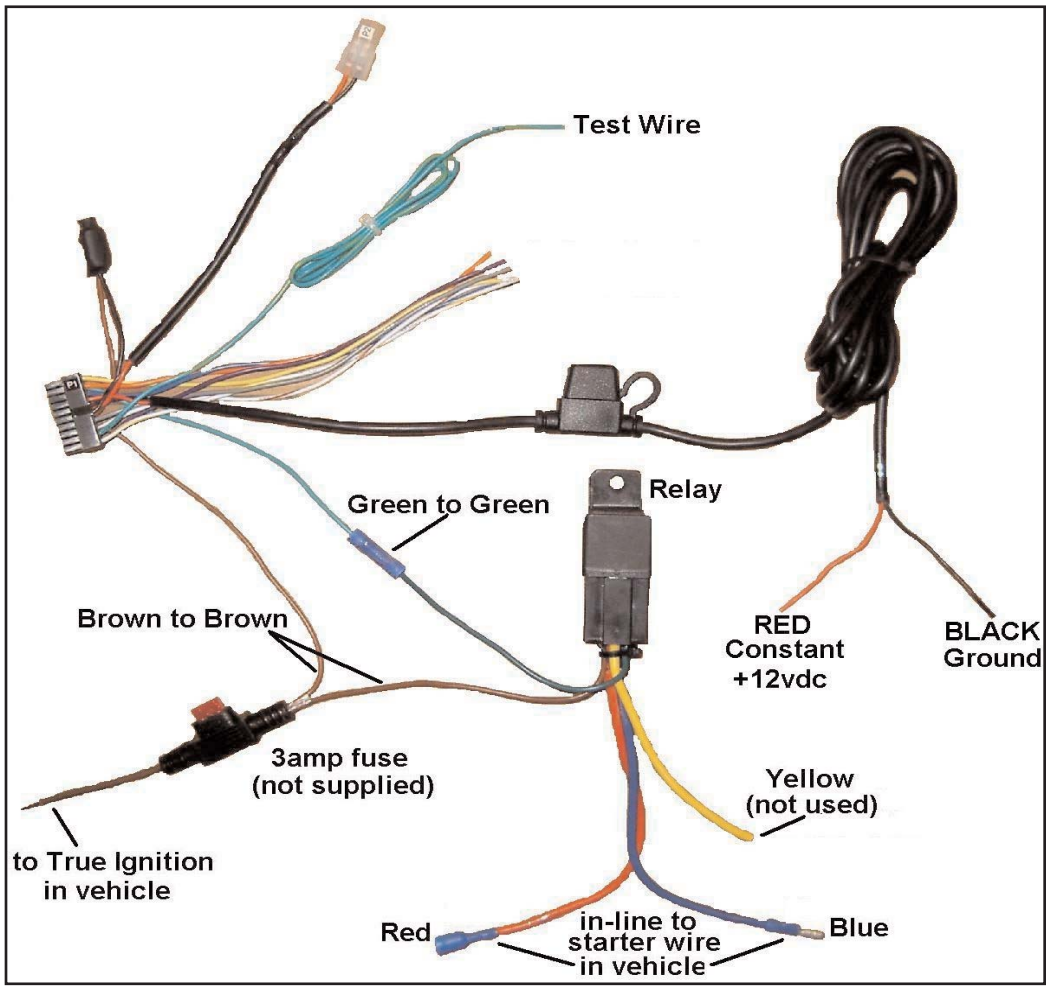


7.3 Standard / Adding Starter Disable (if option available)

The Starter Disable feature requires true ignition power **(a wire with +12VDC when the engine is cranking and running**) for proper operation.

1. Tie the brown wires from the disable relay and the power harness together. This end connects through a fuse (3amp max.) *"not supplied"* to true ignition in the vehicle.

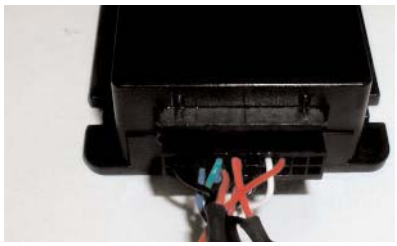
2. Crimp the green wires from the power harness and the disable relay together.



8. Powering AirIQ

1. 

Connect the two coax cables from the combination GPS/RF antenna to the AirIQ.

2. 

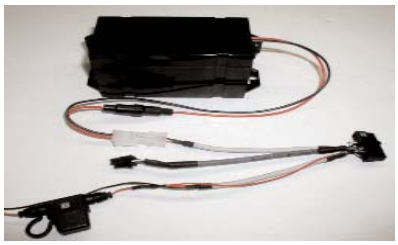
Plug the main harness into the AirIQ.

NOTE: The AirIQ should now be powered. There is a LED on the AirIQ that should now be flashing.

Bi-Colored LED Normal Operation:
This should happen within 5 minutes of power up, ensure the vehicle is outside with a clear view of the sky.

- ***Blinking Green every 1 second:*** GPS FIX / Communication Service Available.

If the LED is consistently showing any other operation for an extended period of time, please contact Client Care for further assistance (1-888-302-6445).

3. 

Plug the back-up battery into the wiring harness (if option available).

9. Confirming Proper Operation

Note: It is highly recommended to perform an Action request from the AirIQ OnLine website or through Client Care (1-888-302-6445) to confirm GPS Fix with current location and test other optional features before releasing the vehicle.

OBDII Wire Harness

Starter Disable Test (if option available)

1. With the engine running, send a disable command from the AirIQ OnLine website.

   NOTE: The vehicle should be disabled, and the engine should still be running. If the engine turned off when disabled, the wrong wire was used for the Disable feature.

2. Turn ignition "OFF", and restart the vehicle.
   The engine should NOT start.

3. Send a enable command from the AirIQ OnLine website. The engine should start.

Standard Wire Harness

Installation Test Mode (test wire green/yellow)

The Test Wire on the Standard Wire Harness can be used to test the Starter Disable feature.
If the test wire is grounded the device will enter installation test mode until the ground is removed from the test wire.

Starter Disable Test (if option available)

1. With the engine running, ground the test wire(green/yellow).

2. Within 10 seconds the disable relay will trip and the vehicle should be disabled.
   NOTE: If this option is available the vehicle should be disabled, and the engine should still be running. If the engine turned off when disabled, the wrong wire was used for the disable feature.

3. Within 30 seconds, turn ignition "OFF" and restart the vehicle.
   The vehicle should NOT start.

4. Remove the Test Wire from ground.
   The engine should start.

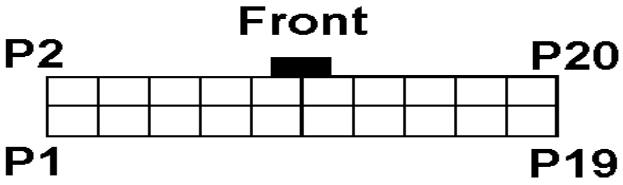
NOTE: Exiting Test Mode causes any triggered outputs to reset and causes the LED to return to its normal (blinking) display. When testing is complete ensure the Test Wire is wrapped with electrical tape and does not make contact with ground during normal operation of AirIQ.

10. Troubleshooting

This section provides detailed instructions to assist in identifying the root cause of issues related to AirIQ or associated accessories. If you are unable to identify the root cause of the problem after following the steps in sequence, contact AirIQ Client Care at 1-888-302-6445.

- AirIQ equipment has no serviceable parts.
- Service is based solely on the substitution method; a faulty unit is replaced by a working one.

20 Pin wire harness connector



1. No LED operation:

There is a LED on AirIQ, normal operation is with the LED flashing green 1 second “on” and 1 second “off”. this indicates GPS Fix and Communication Service. This should happen in 5 minutes.
The most common problem is related to the wiring harness power and ground connections.

	Possible Cause	Action Required
i.	Main power.	Verify there is constant power on the wiring harness at pin 8 of the 20 pin connector to the AiriQ.
ii.	Poor or no ground.	The (black) wire must be attached to a good ground source. The OBDII wire harness has the ground in the connector.

2. No GPS Fix or Incorrect vehicle location:

The vehicle must be outside and have a clear view of the sky in order to get a GPS Fix with current location. There is a LED on AirIQ, normal operation is with the LED flashing green 1 second “on” and 1 second “off”. this indicates GPS Fix and Communication Service. This should happen within 5 minutes of power up.

	Possible Cause	Action Required
i.	Vehicle inside building or near obstructions.	Move the vehicle to a new location that does not have obstacles directly in front of the vehicle or directly overhead.
ii.	Antenna buried too deep under vehicle dash, or upside down.	The GPS module on the antenna must point up. Try using another temporary antenna in a different location. If this antenna works, reconnect the original antenna. If it doesn’t work, relocate or replace antenna.

3. Vehicle starts when “Disabled”: (if option available)

If the vehicle engine starts when the “Vehicle Disabled” option is selected, the wrong wire may have been chosen in the vehicle. Confirm the right wiring in the vehicle has been selected. Ensure the disable wires have been connected, and the (brown) wires are to a source of True Ignition.

4. Vehicle engine shuts off when “Disabled”: (if option available)

If the vehicle engine shuts off when the “Vehicle Disabled” option is selected, the Ignition wire has been chosen instead of the Starter wire for the “Starter Disable” feature. If the correct wire has been chosen, the vehicle engine should remain running when the “Disable” option is selected.

6. Vehicle engine will not start:

If the vehicle engine cranks over, or the starter solenoid makes a clicking sound, the issue is normally related to the vehicle and not AirIQ.

Wireless Coverage Area:

Wireless technology is required to access AirIQ. AirIQ utilizes the broadest coverage area networks. There are areas within North America that have not yet been included in the wireless coverage area. If a vehicle travels out of coverage, or is in a poor coverage area, communication with that vehicle is unavailable until it returns to the coverage zone. From time to time, poor coverage areas ("holes") occur even in fully developed areas, thereby limiting system performance.

Wireless Network Service Problem:

Wireless network service problems may affect the communications link between the vehicle and AirIQ OnLine. Service problems include, service interruptions and network congestion, a busy network, or wireless roaming issues.

GPS Drift, Urban Canyon:

GPS is a satellite based positioning system providing the greatest coverage available, but there are still some circumstances that can hinder the performance of the system. The GPS antenna must have a direct line of sight to the satellites. If the path is blocked or obstructed by underground parking lots, or the shadow of tall buildings, it can affect the GPS receiver. What typically occurs in this case is the system will recognize that it is not receiving a clear GPS signal, and will report the last known clear location of that vehicle.

Tampering with the Unit - Human Intervention:

If the unit is tampered with - antennas (GPS or wireless) or wires disconnected, or the unit completely removed, the functionality of the system will be jeopardized. However, steps can be taken to prevent this from occurring. Upon installation, the components should be hidden, making the system difficult to detect and tamper with.

Defective Units:

All AirIQ's are tested at the AirIQ facility prior to being shipped and installed. The AirIQ has a built-in diagnostic test that initiates each time the unit is powered on. If the AirIQ detects an irregularity, it has the ability to send notification of the problem and the vehicle's location, (if power and a communication link are present) so that the situation can be rectified immediately.

Vehicle Activation Form

AirIQ
CONFIDENTIAL

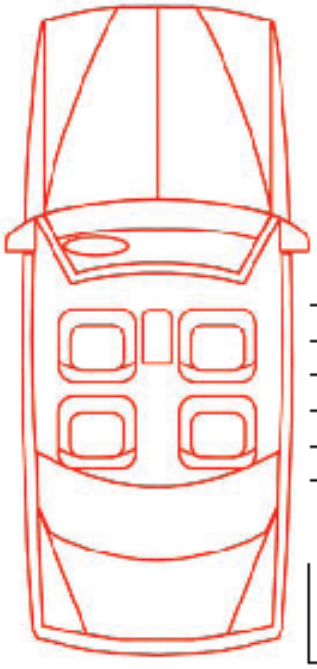
Customer Name:	
Installers Name:	
Contact # :	
City, State:	

Date ____ (Month) ____ (Day) ____ (Year)

Installation	❑
De-Installation	❑
OBC Swap	❑
REASON:	

Vehicle Information		Device Serial Number	
Make:		Installed:	
Model:	Year:	DeInstalled:	
Color:	Plate:		
Customer Unit ID:			
VIN:			

Equipment Location Diagram



Legend
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Wire Color Codes

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Comments:

FAX TO AIRIQ AT: (905) 831-5174 email "client care@airiq.com"
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