Global Fox Installation Manual

(All Models)

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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. This antenna must be positioned to receive signals from these satellites. The antenna location must be selected carefully so that the antenna can receive the satellite signals. The standard GPS antenna is designed to be located inside the vehicle. The ideal location is in a place that allows line of sight reception from the GPS satellites in orbit above. The satellite signals will pass through glass if it is not coated with a metallic film. Both the radio transceiver antenna and GPS antenna is designed to be mounted inside the vehicle, **(not exposed to the outside weather)**.

Through formal agreements with cellular carriers throughout north America enabling the wireless transmission of data. This network covers virtually the entire population of the U.S, Canada, and Mexico that is within reach of cellular network.

1.1 Safety Statement

This installation manual covers the installation of the Mobile Location Unit (VTU). This manual is for the professional and novice installer and should be used to ensure a safe and functional install of the VTU.

***Always a suggested practice to disconnect the vehicle battery while installing this or any other automotive electronic product.

This product is connected directly to the vehicle's 12-volt system. There is no on-off switch on the unit. The installed unit operates 24 hours a day and must be energized to log vehicle events or send data as required by anyone using the service.

The VTU is shipped with one in-line 3-amp fuse attached to the power cable. This fuse must be installed as close as possible to the primary 12-volt source connection. The fuse protects the power cable should there be a short in the cable between the fuse and the VTU. <u>This fuse must be installed properly.</u> If the fuse is replaced, it should be of the same type as originally supplied from the factory. The original fuse supplied is a 3 amp 125-volt type 3AG (Little Fuse 321 Series).

Failure to use the proper fuse or to install the fuse in the recommended location could cause a vehicle fire hazard. The fuse provides overload protection for the power cable and VTU. The wiring installed between the fuse and primary vehicle power is not protected from overheating if a short should occur. Use care when routing the power cable and fuse. Route the cables where they will be protected and use commonly accepted install practices for after market automotive electronic devices.
There are two acceptable methods of making a wire connection:

- Soldering your connections (recommended)
- Crimp connectors (with the use of the proper crimping tool)

Regardless of the method you choose, ensure that connection is mechanically sound and properly insulated. Use high quality electrical tape or shrink tubing, cheap tape will unravel in hot weather making it a poor insulator.

Never use "t-tap" connectors (poor quality mechanical type connection)
Never "twist and tape" without soldering your connection

*** Before attempting to add anything electrical to your vehicle check the Owner's Manual**

1.2 Additional Support

* Over the phone training is available (recommended). See activation worksheet for detail (Page 9).

2. Tool List

- Power drill AC/DC (Cordless recommended)
- Magnetic bit holder that houses Phillips and flat-head bits
- Wire stripper and cutters
- Crimpers for insulated connectors
- Electronic voltage meter (Digital display recommended)
- Tools to disconnect and reconnect vehicle battery (Crescent wrench, open end wrenches, etc.)
- Tools to remove internal vehicle trim (Panel poppers, sockets, ratchet, screwdrivers, torx bits, hex bits, etc.)
- Butt connectors (Various sizes)
- Ring terminal connectors (For grounding wire)
- Self tapping screws (Various sizes)
- Star washers for grounding (Strongly recommended)
- Electrical tape (Black)
- Wire 18 gauge
- Velcro and/or double sided tape (For mounting antenna)
- Wire ties (Various sizes)
- Soldering iron & solder

Using Your Digital Multi Meter

We at Tri Global Inc Technical Support hear more often about damaged computers and air-bag systems as a result of probing with a test light Not all air bag wires are in yellow tubing, and not all transistorized outputs can light a test light bulb without shorting out! The best solution, as it has always been, is a good digital multi meter.

How to Find (+) 12V Ignition with Your Multi Meter

1. Set your meter to DCV or DC voltage (12V or 20 V is fine)
2. Attach the (-) probe of the meter to chassis ground.
3. Probe the wire you suspect of being the ignition wire. The steering column is an excellent place to find this wire. Your meter should read (+) 0V.
4. Turn the ignition key to the "ON" position. If your meter reads (+)12V go to the next step. If it doesn't probe another wire.
5. Now turn the key to the start position. The meter display should stay steady(+) 12V, not dropping by more than a few tenths of a volt. If it drops close to or all the way to zero, go back to step 3. If it stays steady at (+) 12V you have the ignition wire.

How to Find the (+) 12V Starter Wire with Your Multi Meter

1. Set your meter to DCV or DC voltage (12V or 20 V is fine)
2. Attach the (-) probe of the meter to chassis ground.
3. Probe the wire you suspect of being the starter wire. The steering column is an excellent place to find this wire. Your meter should read (+) 0V. Note: Remember you do not have to interrupt the starter at the same point you test it. Hiding the starter kill is always recommended.
4. Turn the key to the "ON" position, your meter should still read (+) 0V. Not: Make sure the car is not

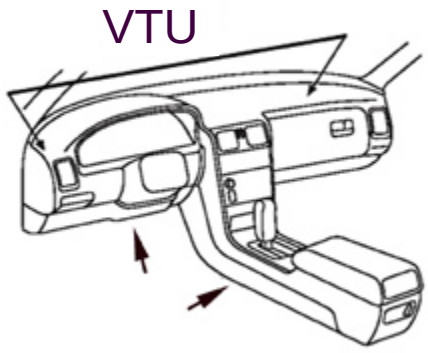
in gear. Now turn the key to the "START/RUN" position if the meter reads (+) 12V when the engine is cranking. Go to the next step. If it doesn't probe another wire.

5. Cut the wire you tested and attempt to start the car. If the starter will not turn over you have the right wire. If it still starts reconnect it and go back to step 3.

3. Selecting the Mounting Location for the VTU

The Mobile Location Unit (VTU) is supplied with a 6 ft. power cable. The unit should be mounted so it will not be exposed to damage from people or objects. The cables that connect to the unit should also be routed to protect them from possible damage. The VTU has a mounting base or flange with four mounting holes. Normal installation is with these four holes and #6 or #8 sheet metal screws. The unit must be mounted where it will not be exposed to direct sunlight or excessive heat generated by the vehicle operation. Some examples of mounting locations include under the dash above the knee bolster, under center console, behind glove compartment, and in the trunk. If the optional battery is to be installed there should be room to mount the battery within 1 ft of the VTU.

The unit has a diagnostic wire and LED that will be used to verify operation by the installer. These items are normally not used by the owner.



4. Selecting the Antenna Locations

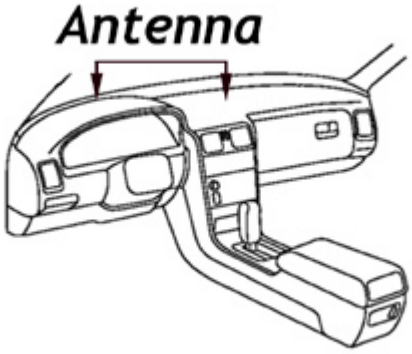
The VTU requires two antennas elements. One antenna is for receiving GPS signals from The Navistar GPS satellites. The second antenna is a radio transceiver antenna that communicates with the Cellular network. The antenna does not require a ground plane to function properly.

There are two antenna cables in addition to the main power harness that must be connected to the VTU, so be sure there is room to access the connectors for installation and service. If an exterior installation location is required you will need to use the optional antennas designed for exposure to the outside elements.

The GPS/RF Combo antenna must be mounted flat with the GPS Receiver faced up.
The ideal location is under the dashboard. It can be placed under the dash pad as long as the pad or covering is not metallic or a barrier to the GPS satellite signals.

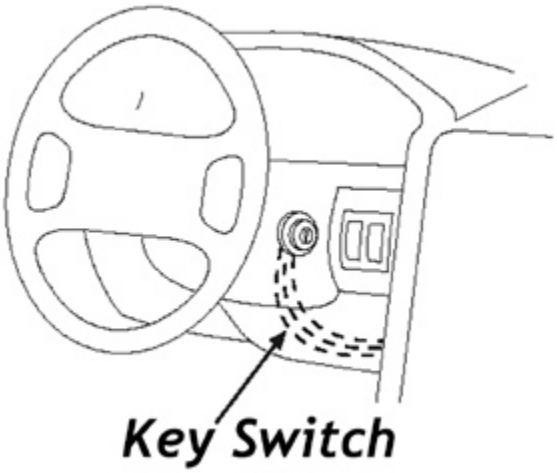
If the vehicle window has a solid dark coating around the edge, do not place the GPS antenna behind the coating. The GPS signals will travel through the clear glass but will be reduced if the window has any metallic coating or tint applied.

The GPS/RF Combo antenna will work best if it has a clear view to the sky and as much of the horizon as possible. Any metallic objects between the antenna and the satellites will degrade the signal and reduce the overall performance.



5. Locating Vehicle Power

The VTU has an internal power management program that monitors the vehicle power at all times. The internal power management program is continuously looking at the condition of the vehicle battery in order to detect the state of the vehicle operation. The VTU determines the state of the vehicle power by detecting changes in the battery voltage over time. It is critical in this installation that the vehicle power be taken from a source as close to the battery as possible. Possible sources besides the direct connection to the battery are the main fuse block panel or the point where the vehicle charging circuits are connected to the 12-volt system.



Connect the red lead or fuse end of the power cable to the +12 volt vehicle power. The power cable can be shortened if needed but be sure to also install the in line fuse. Connect the black lead to the vehicle chassis (ground).

If you need to shorten the power cable or reconnect the in-line fuse, the wires can be removed and reattached by unscrewing the ends of the fuse holder and inserting the new wire. The holder accepts a 1/4-inch striped stranded wire. Tighten the fuse holder ends by securely tightening by hand.

***Improper connection could result in numerous "Start up test" notifications, and increased usage on monthly billing.**

6. Powering the Unit for the First Time

Basic Installation / No Output Options
Refer to page 9, Section 10.1 Wiring Schematic (View #1).

Basic Installation Plus Output Options
Refer to page 9, Section 10.2 Wiring Schematic (View #2).

***Disconnect the backup battery if it is installed**. Connect the two coax cables from the combo antenna (securely) and connect the vehicle's 12-volt power and observe the LED on the VTU. During the initial 15 minutes after +12 volts is connected to the VTU, the LED should flash green at the rate of 1 second "on", 5 seconds "off", this feature is designed for installation test purposes (15 minute Start-Up).

Within five minutes the flash rate will change to approximately one second on and one second off to indicate that the GPS Receiver has established a location "lock". Within 1 minute the flash color should be green to indicate good cellular coverage. If you do not get the results above, refer to page 13, Section 13 – Troubleshooting

7.1 Confirming Proper Operation

The Test wire (see wiring diagram) on the VTU is for testing the internal functionality of the hardware. Running tests with this wire grounded will not send data to the call center. The user account does not need to be activated to run the tests. Grounding the wire will start test mode function. If the wire is not removed from ground the unit will remain in the test modeVTU 5 minutes and then return to normal operation. To start the tests again you must ground the test wire again. If you want the VTU to function normally after testing, remove the test wire from ground and tape the end to prevent the device from going into test mode during normal operation.

Remember that the VTU will remain in the test mode for only 5 minutes at a time and you will need to cycle the test wire to re-enter the test mode. The VTU interface circuits are all pre-wired in the cable harness. Table 1 also shows the wire colors associated with the input and output circuits. The digital outputs are provided to switch optional external devices. Each can sink 1 amp at 35 volts. The outputs are voltage protected so they can sink current from inductive loads. If the individual sink current is allowed to exceed 1 amp, the outputs could be damaged. The digital inputs are triggered by a contact closure or short of less than 100 ohms from the contact to ground on their inputs.

7.2 LED Operation

BI-COLOR ON-BOARD LED: Each device is equipped with one bi-colored LED.

SOLID LED COLOR:

SOLID GREEN - Device is in Test Mode; no inputs are currently being triggered.
SOLID ORANGE - Device is in Test Mode; at least one input is currently being triggered.
SOLID RED - Device is in Setup Mode.

BLINKING LED COLOR:

BLINKING GREEN: Microburst and Cellular Service are available.
BLINKING ORANGE: Cellular Service, but not Microburst Service is available.
BLINKING RED: Neither Cellular Service nor Microburst Service is available.

BLINKING LED TIMING:

OFF FOR 1 SECOND - GPS Module is powered and signal is Valid, Cell Module is powered.
OFF FOR 5 SECONDS - GPS Module is powered and signal is Invalid, Cell Module is powered.
OFF FOR 10 SECONDS - GPS Module is turned off, Cell Module is powered.
OFF FOR 21 SECONDS - GPS Module is powered and signal is Valid, Cell Module is turned off.
OFF FOR 25 SECONDS - GPS Module is powered and signal is Invalid, Cell Module is turned off.
OFF FOR 30 SECONDS - GPS Module is turned off, Cell Module is turned off.

Note: It is **highly recommended to perform a location request and other optional features before releasing a vehicle.**

8. VTU Activation Worksheet

Check one:

____ I.e. accept over the phone web and installation training by Tri Global Inc.

To complete activating my account...

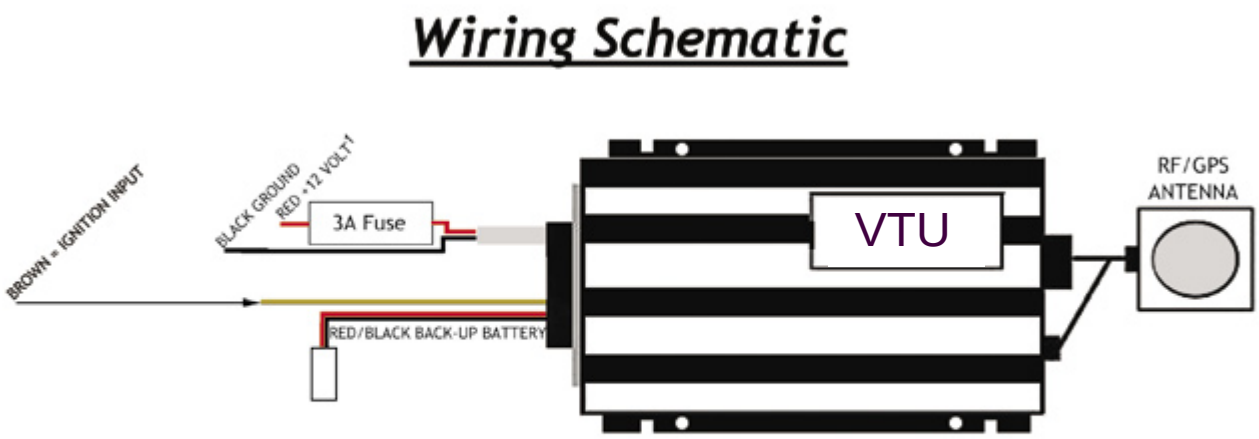
____ I.e. do not need training of any kind, please activate my account.

Printed Name/Company: _____ / _____

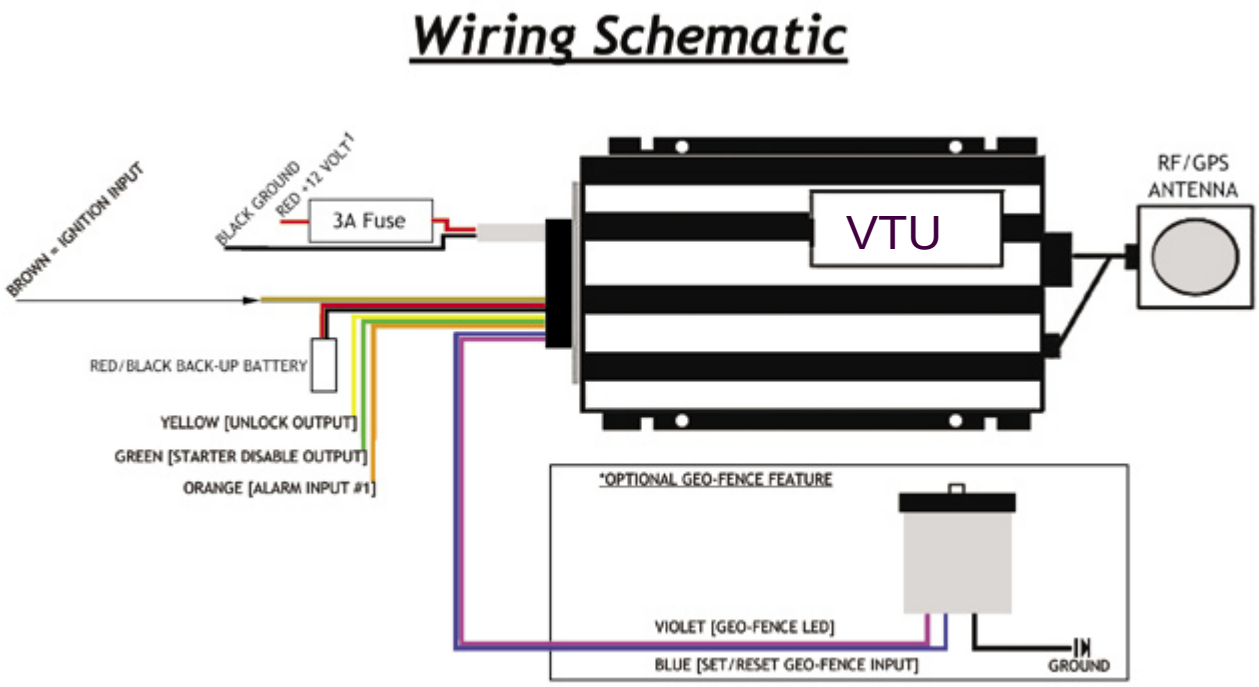
Signature: _____

Please choose one of the above sign and fax copy to 949-705-6951
To schedule a training time or activate your account please call 949-705-6946
Hours of Operation: 8:00 AM to 5:00 PM [EST]

9.1 Wiring Schematic [View #1]

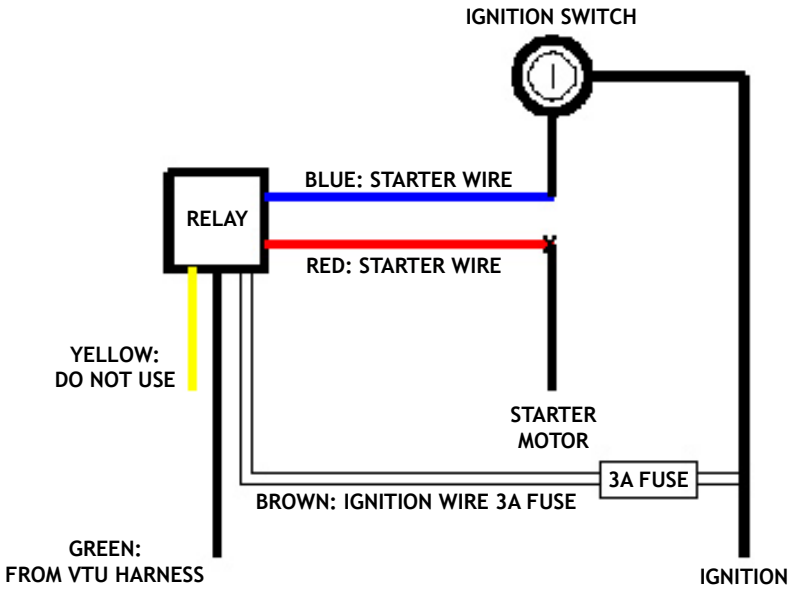


9.2 Wiring Schematic [View #2]



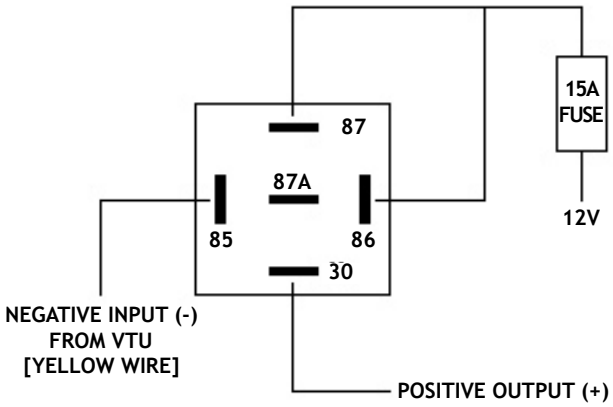
Note: RED +12 VOLT[1] = Failure to properly identify or connect to a constant power source may result in excessive "Start-Up" messages.

10.1 Starter Disable Diagram



10.2 Invert Polarity Diagram

Change polarity from negative to positive, used mainly for door unlock wires in vehicle that are positive trigger. Diodes and resistors may be required for some applications.



11. Wire Harness Pin Connection

PIN#	WIRE COLOR	DESCRIPTION	MESSAGE YOU RECEIVE WHEN TRIGGERED
P3-1	BLACK	RSA Ground/ Extra Ground	NONE
P3-2	YELLOW	Remote Door Unlock (Output #1)	Doors Unlocked
P3-3	GREEN	Starter Disable Output (Output #2)	Vehicle Disabled(If car is on) Starter Disabled (When car is off) Starter Enabled
P3-4	ORANGE	Alarm 1(15 sec to trigger) OR Door Open/Closed (Input #1)	Alarm 1 Triggered Door Open/Door Closed
P3-5	BLUE	Geo-Fence Button (2sec to trigger)/Alarm 2 (15 sec to trigger) (Input #2)	(If Geo button is used no message will be generated) Alarm 2 triggered
P3-6	NOT USED	NOT USED	NONE
P3-7	NOT USED	NOT USED	NONE
P3-8	RED	Primary Battery +12.6vdc	Start up Test (only on power up)
P3-9	RED	Back-up Battery +12vdc	NONE
P3-10	BLACK	Primary Ground	NONE
P3-11	WHITE	Overheat (2min to trigger) or RSA (2sec to trigger) (Input #3)	Engine Over Heat Road Side Assistance
P3-12	BLACK	Back-up Battery Ground	NONE
P3-13	NOT USED	NOT USED	NONE
P3-14	GREY	N/A	N/A
P3-15	BROWN	ANA (Input #4) Alternate Ignition Sense/ Ignition On/Off	(If not programmed for ignition on/off no message will be generated) Ignition On/Ignition Off
P3-16	WHITE / BROWN	Extra Output Trigger (Output #3)	Extra Output Triggered
P3-17	NOT USED	NOT USED	NONE
P3-18	GREEN / YELLOW	Test	NONE
P3-19	VIOLET	Geo-Fence or RSA LED	NONE
P3-20	WHITE / YELLOW	N/A	NONE

Note: Please refer to your Configuration Sheet to determine if any of the above listed output messages apply to your account.

12. Trouble Shooting

PROBLEM	CAUSE	SOLUTION
I CANNOT POLL MY VEHICLE?	1. NO POWER TO UNIT	1. CHECK FOR GOOD GROUND AND GOOD POWER SOURCE
	2. BLOWN/LOOSE FUSE	2. REPLACE/TIGHTEN FUSE
	3. LOW CAR BATTERY	3. REPLACE OR RECHARGE BATTERY
	4. CAR IN GARAGE OR OVERHEAD ROOF RACK	4. MOVE THE CAR TO AN OPEN AREA
	5. BAD CELL COVERAGE	5. MOVE CAR A BLOCK OR TWO AWAY FROM THE AREA
	6. BAD ANTENNA LOCATION	6. MOVE TO ANOTHER LOCATION IN VEHICLE INSURING NO METAL ABOVE
	7. WRONG ESN NUMBER	7. VERIFY ESN# ON UNIT WITH NUMBER ON WEBSITE
	8. TEST WIRE IS GROUNDED (GREEN/ YELLOW)	8. REMOVE TEST FROM GROUND
UNIT RESPONDS BUT I GET NO MAP OR THE LOCATION IS NOT BEING UPDATED?	1. BAD ANTENNA LOCATION	1. MOVE TO ANOTHER LOCATION IN VEHICLE INSURING NO METAL ABOVE OR ANTENNA IS FLAT WITH THE GPS RECIEVER FACING UPWARD
	2. NOT ENOUGH VOLTAGE TO UNIT WHEN CAR IS OFF	2. IF BROWN WIRE IS CONNECTED TO IGNITION TURN THE CAR ON AND IT SHOULD SUPPLY THE CORRECT AMOUNT OF VOLTAGE FOR A CLEAR LOCATE
	3. BUILDING COVERING GPS RECEPTION	3. MOVE CAR ABOUT 10 TO 20FT FROM THE BUILDING
	4. CAR IN GARAGE OR OVERHEAD ROOF RACK	4. MOVE THE CAR TO AN OPEN AREA
STARTER DISABLE WONT WORK?	1. WRONG WIRES ARE CONNECTED	1. MAKE SURE THE CORRECT WIRES ARE CONNECTED (i.e. GREEN WIRE NOT GREEN/YELLOW)
	2. I NCORRECT POWER SOURCE	2. ESTABLISH GOOD POWER SOURCE BEFORE CRANK AND DURING CRANK
DOOR UNLOCK WONT WORK?	1. WRONG WIRES ARE CONNECTED	1.MAKE SURE THE CORRECT WIRES ARE CONNECTED(i.e. YELLOW NOT ORANGE)
	2. VEHICLE DOOR UNLOCK IS (+) POSITIVE	2. ADD A RELAY TO SWITCH (-) NEGATIVE TO A (+) POSITIVE
	3. SOME VEHICLES REQUIRE A CAR MANUFACTURER MODULE INTERFACE	
WEB ISSUES		
WHEN I TRACK A VEHICLE NO MAP COMES UP, IT TAKES ME TO THE CONTROL PANEL.	POP-UP BLOCKER	DISABLE POP-UP BLOCKER OR BROWSERS LIKE AOL MAY CAUSE THIS, THEREFORE IF YOUR ISP IS AOL - USE THE LATEST VERSION OF INTERNET EXPLORER OR NETSCAPE WHEN YOU ARE LOGGED ON TO THE NET.
I LOG IN, BUT WHEN I TRY TO USE ANY FEATURES IT TAKES ME BACK TO THE LOGIN PAGE.	ALL COOKIES ACCEPTED IS DISABLED.	DISABLE ANY COOKIE BLOCKER OR WHILE USING IE BROWSERS - UNDER THE PRIVACY TAB IN YOUR INTERNET OPTIONS, BY CLICKING THE TOOLS MENU, ACCEPT ALL COOKIES BEFORE ACCESSING WEB APPLICATION ON COMPUTER/S BEING USED.

13. Access Information

Congratulations, you have just installed the Internet based vehicle telematics system. Now that it's installed, here's how to use your system.

Turn on your computer and log on to the Internet using your standard Internet browser.

- Go to the Tri Global Inc home page at www.triglobalinc.com
- Choose the applicable site from the drop down menu.
- Enter customer login and password. Then click login.

You will now be on the Control Panel page.

Select the vehicle which will be tested.

Click on the Vehicle Location Request button to obtain a location, speed and direction. This step is to ensure proper functionality of the VTU.

A map will generally appear on average of about 2 min. Make sure the information on the map is correct.

Zoom in/out on the map by using the circular buttons located on the bottom right hand corner.

Optional features to test are located on the Control Panel (i.e. Door unlock, Starter Disable, and GEO-FENCE).

FCC Certifications

FCC ID: xxxx xxxxxxxxx

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

The equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a common environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment can cause harmful interference in which case user will be required to correct the interference at their own expense.

Changes or modifications not expressly approved by Tri Global Inc.Com, Could void the user's authority to operate the equipment.