

FleetLokator Quick Installation Guide

ver 6.0



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When selecting a location to install the device in a vehicle, Note that the device is NOT waterproof. Ensure the unit is not installed where it can get wet. Use commercial strength two-way tape (such as 3m MMM110P), Velcro or if need be, use tie wraps to secure the unit to a good stable location. For covert installations you can mount the unit under the dash or behind the glove compartment. Be sure to secure the unit so it does not vibrate or come loose during vehicle operation.

NOTE: This device DOES NOT REQUIRE EXTERNAL ANTENNAS. THE ANTENNAS ARE INTERNALLY MOUNTED. YOU MUST INSTALL THIS DEVICE WITH THE LABEL SIDE UP. FAILURE TO INSTALL IT PROPERLY WILL RESULT IN POOR PERFORMANCE AND SIGNAL DEGRADATION WILL OCCUR.

IMPORTANT NOTE:

Label Side MUST face UP towards the SKY
for optimal Signal Strength operation

Note that label may not appear as shown



Above shows a GPS device (2" W x 4" L x 13/16" H) mounted inside the steering column compartment

Typical Mounting Options



This view shows space behind the glove box compartment where you can place the GPS device

Note: be extremely careful not to affect the Safety Airbag circuitry or deployment when installing the device or removing access panels.

!! Warning: do not install the device as shown below

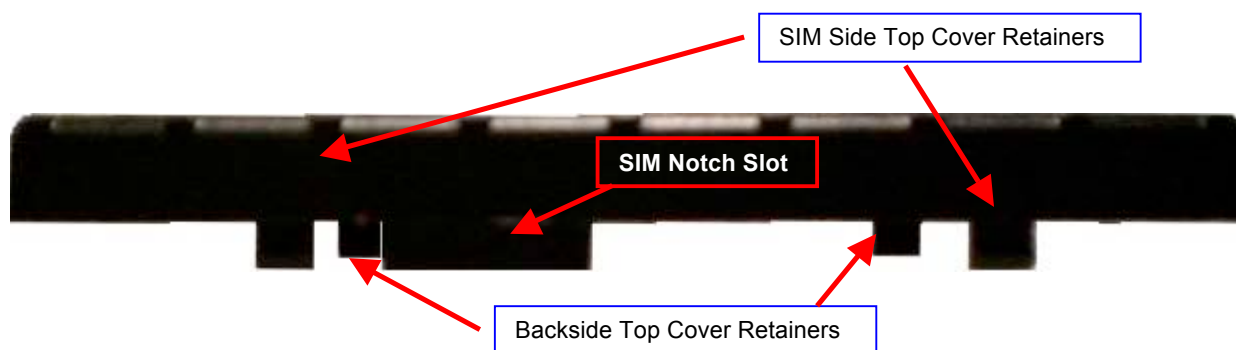


The GPS device is mounted discreetly in the in dash compartment with label side facing up. However there is a Metal frame over the device which will act as a shield and block the RF signal.

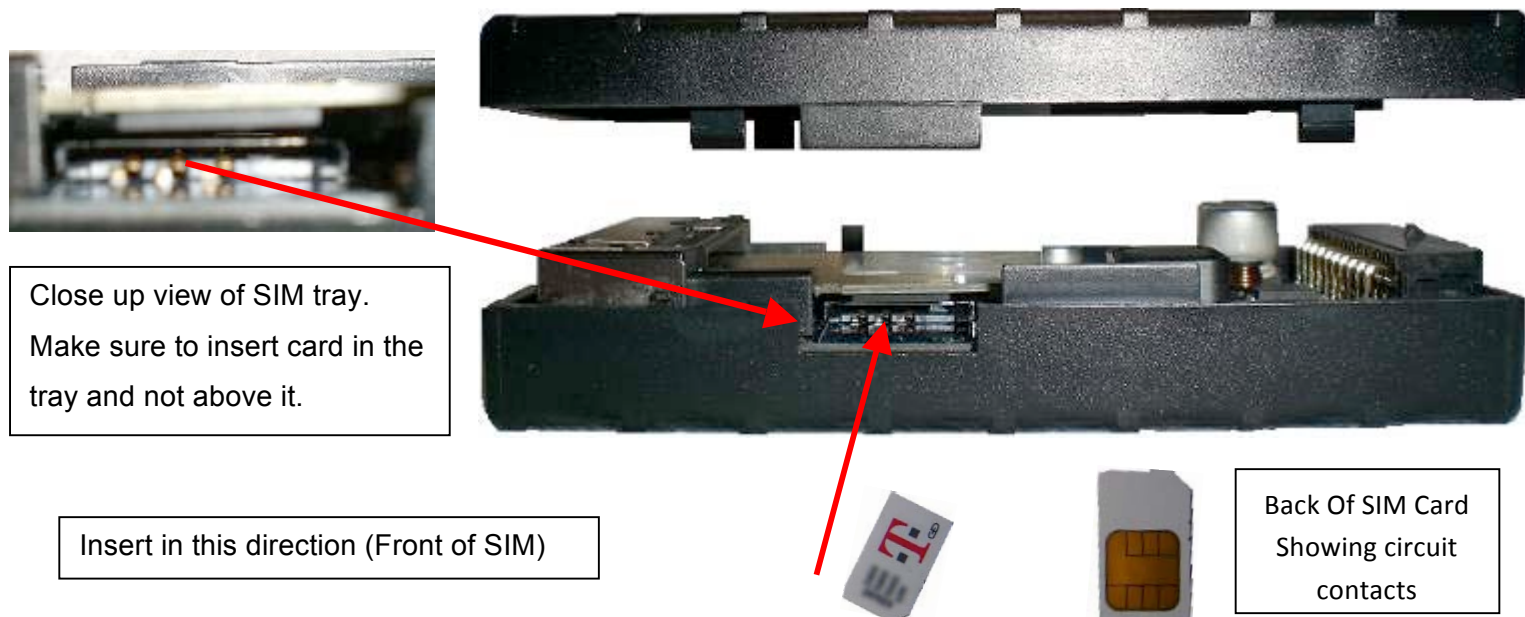
Inserting the SIM

! Note: The SIM card is not always provided with the GPS devices. The SIM must be obtained from the local GSM/GPRS service provider or your GPS Distributor and, must be provisioned by the operator for GPRS data, and SMS messaging. Always take care to protect the SIM. **Ensure the power to the FleetLokator is disconnected before inserting the SIM card.** Failure to do so may result in damage to the GPS device or SIM card. For further information check with your GPS distributor for further information on SIM issues.

To insert a SIM Card: If the device is closed you will need to open it to insert the SIM card. Note that there is a notch slot on one of the sides of the device. Carefully push in the areas indicated by the arrows (below) on the side of the device with the notched slot while prying apart the two halves (top cover and bottom cover). Be patient and pry gently (screw driver will work) so that you do not break off the four retainers that are holding the device intact. **Note:** you do not have to remove the cover entirely to insert the SIM. Simply prying open the notched side cover is enough for you to access the SIM tray.



Insert the SIM into the SIM tray slot with the notched end facing out from the device and the front of the SIM card facing up. The back of the SIM card has the circuit contacts on it.



Power Cable Installation

CAUTION: If you disconnect the vehicle battery, note that doing so may cause a warning light to be displayed which may require a trip to the dealer or might disable the antitheft-coded radio or airbag. This action may also require entering the correct code upon reconnecting the battery for the vehicle Stereo to function again as well as this action may de-program any memory functions programmed into the Stereo or other on-board electronics. Check with the vehicle owner, check with the manufacturer or look in the owner's manual for further information.

Install the power cable as described in the following procedure:

1. Connect the device to a 6-18 Vdc power source and apply power as follows:
 - a. **Red (pin 14)** wire- positive constant voltage (with engine off)
 - b. **Black (pin 15)** wire- negative ground
 - c. **Blue (pin 8)** or **Brown** wire (**color depends on harness model**)- ignition sense (make sure this is wired to “true” ignition sense by checking that you have voltage when ignition is engaged and stays on when key is returned to “RUN” position. Also make sure voltage goes off when engine is turned off.

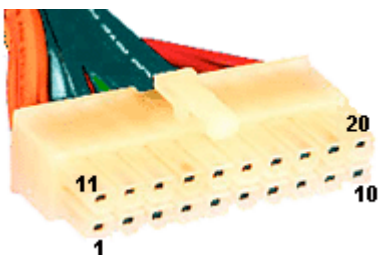


20 (nc)	19 (nc)	18 Red	17 Green	16 Black	15 Black	14 Red	13 (nc)	12 Orange	11 Yellow
10 (nc)	9 (nc)	8 Blue or Brown	7 (nc)	6 Brown	5 Red	4 (nc)	3 Violet	2 Green	1 Black

Power Connector Viewed from the wire side



20 Pin Molex Power Connector



Molex pin	Designator	Description	Lockator II Harness with Relay
1	GND	Test Light (installer) ground	BLK
11	OUT-2	OUTPUT 2 -- toggles to Gnd trigger- Door Unlock Relay	YELLOW
2	OUT-0	Output 0 - toggles to Gnd trigger- Starter Disable Relay	GREEN
12	IN-2	Triggers on low (GND) INPUT 2 - SOS Button	ORANGE
3	IN-1	Triggers on high (+12V) INPUT 1 - Self Geofence	VIOLET
13	RxD	RxD	NC
4	TxD	TxD	NC
14	VCC	Primary Power Input	RED
5	VBAT	Backup Battery Input	RED
15	GND	Primary ground (Main Ground)	BLACK
6	ADC-1	Reserved	BROWN
16	GND	Backup Battery Ground	BLACK
7	RTS	Reserved	NC
17	LED-1	GSM/Status Alert 1 LED Output	GREEN
8	IN-0	INPUT 0 --IGNITION / Digital Input w/Fixed Bias	BLUE or Brown
18	LED-2	GPS/Status Alert 2 LED Output	RED
9	VDD	VDD Reference Output - max 20 mA	NC
19	NC	not connected	NC
10	CTS	Reserved	NC
20	GPTX	Reserved	NC

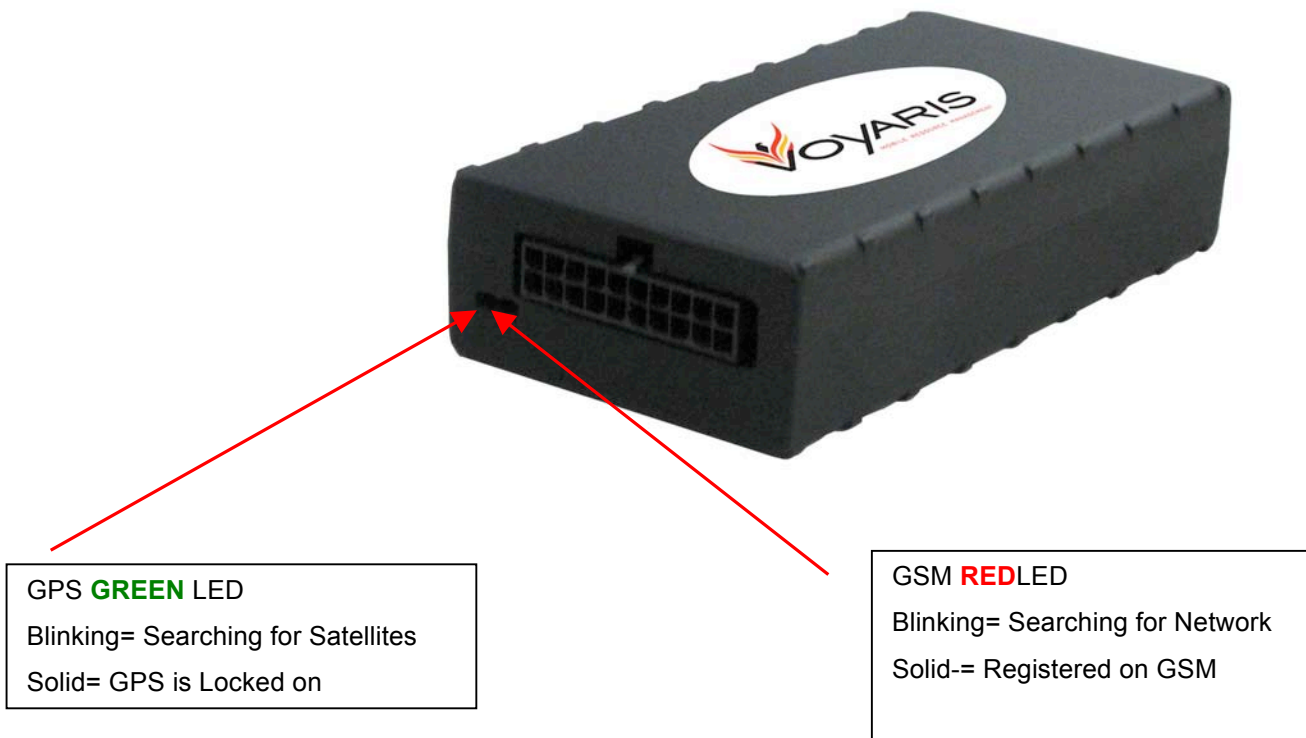
Status LED Operation

When you first power up the device BOTH LEDS will blink once very quickly then turn off.

The **RED** GSM light (LED) is the one closest to the edge of the device. After a minute or sometimes up to 2-3 or so, the **RED** (GSM) LED should start blinking then stay on solid once the device has registered on the GSM network.

The **GREEN** GPS light (LED) is located next to the GSM LED and is the one closest to the 20 pin Molex connector. It will stay off for over a minute (or longer) then start blinking once it starts to acquire Satellite signals. It will stay on solid **GREEN** once it has finished acquiring all its information from the Satellites and is ready for operation.

NOTE: If after waiting 3-4 minutes the LEDS do not stop blinking or do not turn on, the device is possibly being shielded from the Radio Frequency signals. Try repositioning the device from where it is located and test again.



Important: This last step MUST be done BEFORE the vehicle is returned to the owner!!

Once the installation is complete, go to the hosted website (ex: www.voyaris.com) login to the fleet account of the device you just installed (you will need a user name and Password) and check to make sure you can locate the device.

You can also send the GPS device an SMS text message from your cell phone and the unit will reply with its status to confirm the device is working. Following is the procedure.

You will need to know the device's phone number. On a cell phone type in the following command to send to the device using SMS text messaging: **! R0** (the last digit is a zero). The device will reply with the following:

An example for ZL-MB1000:

APP: 086 12a

COM:-51 10.112.189.49

GPS: 3D-RTIME 6

INP: 011 12.0V

MID: 1030000155 ESN or IMEI

INB: 167.234.155.230:20505

Example for ZL-MB2500

APP:121 10g

COM-55 D internet.movistar.com.co

GPS:3D-RTIME 6

INP: 11011100 14.4v

MID: 354745030138806 IMEI: 011573185738249

INB: 72.35.68.78:5557 LMD

APP :(appid) - (Firmware version)= application identification and Current device Firmware version *(In example's above for the ZL-MB1000 the application ID is 086 and the Firmware is 12a)*

For the ZL-MB2500: Application=121 and Firmware= 10g

COM :(rssi) - (Device address: port) = the RSSI is the signal strength of the GSM network it needs to read above -90 (I.E.: -80 or -70 – the lower the number the better) in a good coverage area. The LMU address/port is the GPRS network IP address and the port assigned to the device by the GSM network. If you get an IP address of 192.168.0.0 the device is NOT on the GPRS network. The "D" indicates the device has an active data session.

(ZL-MB1000 Above ex: RSSI= -51 (very good), IP= 51.10.112.189 on port #49)

(ZL-MB2500 Above ex: RSSI= -55 (very good), D= device is currently in a data session IP= internet.movistar.com.co- this means the GSM provider has masked the IP and is not publishing the info.

GPS :(fix status) - (satellite count) = the fix status field should read "3D-RTIME (or Diff) followed by the number of satellites the device is seeing (usually 4 or more)

ZL-MB1000 and 2500: 3D-RTIME (3D mode means you can see at least 4 satellites, actual # the device can see in this example is 6. Diff means the signal is a differentially corrected value for better accuracy)

INP: (input states) - (vehicle voltage) = starting from left to right: for the MB 1000: Status of Input 2 (low/high- zero or one), Status of input 1, Status of Ignition sense, and voltage getting to the device from the vehicle source. For MB200: Status of Input 8, Input 7, etc. Last digit is the state of the ignition- 1=ignition on, 0=ignition off.

ZL-MB100=: 011= Input2 is low (orange wire), Input1 is high (violet wire), Ignition sense = 1 high (on zero would be ignition off), & the vehicles battery voltage=12.0 v)

ZL-MB2500= 11011100= Input state 7 is high, etc. Please note the last input is Input 0 and in this case the ignition is off. The vehicle's battery voltage is 14.4 volts.

MID :(mobile ID) - (mobile ID type) = the devices electronic serial number (ESN) or IMEI

ZL-MB1000: 1030000155

ZL-MB2500: MID: 354745030138806 IMEI: 011573185738249

INB :(inbound address) = the IP Address and Port number the device is sending its communications to. Note: This can also be a URL such as "MyTrackingCompany.com"

ZL-MB1000: IP=167.234.155.230 on port # 20505)

ZL-MB2500: INB: 72.35.68.78:5557 LMD (note that LMD will appear in the MB2500 and refers to the communications protocol in use and should always be LMD.

Note: Additional option wiring diagrams and the Software user guide are also available in separate manuals.

Feature / Script Options Chart

Option / Feature	Molex Contact	Input / Output	# GPIO	Type	Special Script Req.	On Screen Alarm	SMS/Email Capability	Specific Report Option	Sensor Required	Equipment Sold by C3
Panic Button	Pin 12	Input	#2	Ground	Yes	Yes	Yes	Yes	Yes	Yes
PTO Activity	Pin 12	Input	#2	Ground	Yes	No	No	Yes	Yes	No
Buzzer	Pin 11	Output	#2	Ground	Yes	No	No	Yes	Yes	No
Impact Sensor	Pin 12	Input	#2	Ground	Yes	Yes	Yes	Yes	Yes	No
Vehicle Alarm Trigger	Pin 12	Input	#2	Ground	Yes	Yes	Yes	Yes	Yes	No
Starter Motor Disable	Pin 2	Output	#0	Ground	No	No	No	No	Yes	Yes
Door Unlock	Pin 11	Output	#2	Ground	No	No	No	No	Yes	Yes
Door open/close Sensor	Pin 3	Input	#1	+12V	Yes	No	No	Yes	Yes	No
Unauthorized Move	N/A	N/A	N/A	N/A	No	Yes	Yes	Yes	No	N/A
Power Cut- (requires optional Battery)	Pin 14 or 15	Input	VBAT / GND	N/A	Yes	Yes	Yes	Yes	No	N/A
Speeding	N/A	N/A	N/A	N/A	No	No	Yes	Yes	No	N/A
Geofence	N/A	N/A	N/A	N/A	No	Yes	Yes	Yes	No	N/A
Idling	N/A	N/A	N/A	N/A	No	No	Yes	Yes	No	N/A
Working Schedule	N/A	N/A	N/A	N/A	No	Yes	Yes	Yes	No	N/A
Other Ground Input to device	Pin 12	Input	#2	Ground	Yes	N/A	N/A	N/A	N/A	N/A

Note: Default script has the following features

Engine disable/enable, Door unlock, SOS, Self Geofence (GeoGuard) and Auto track plan of every 5 minutes

Recommended Tools and Supplies

Installation requirements vary from vehicle to vehicle and may result in the need for different or specialized tools and supplies for your specific application. Following is a list of recommended tools and supplies that are commonly used in many installations. Tessco is a wholesale supplier of products – part numbers are provided for reference only.

www.tessco.com

Test Bench Equipment:

12 volt DC output 3-4 amp minimum
(Astron RS4L Tessco# 66540)

Supplies:

Insulated male quick slides

16-14 gauge blue Tessco # 70624
22-18 gauge red Tessco # 59338

Butt Connectors

22-18 gauge red Tessco # 55062
16-14 gauge blue Tessco # 31132

Misc. spare fuses

ATC blade fuse assortment
Mini blade
AGC glass

Installation Tools:

Portable drill
Assorted std.& auto torque bits
File set
Flashlight
Assorted pliers
Mini drill set
Terminal crimpers
Wire strippers
Door upholstery remover Tessco # 52983
Socket set with 1/4" drive
Screw driver slotted
Screw driver Phillips
Portable soldering iron
Ford removal tools Tessco# 46901

Hardware & Fasteners :

3M double adhesive tape
3M Velcro 1" hook and loop
Electrical tape
Misc.tie wraps (Black)
Pan head screw #8 32x3/4" Black Tessco # 68348
Pan head screw #8 32x1/2" Black Tessco # 81562
Keep nuts #8-32 black Tessco # 33702
TEK screws (self drilling) Phillips #8-1/2" black
Tessco # 79788
Self tap screws #8-1/2" Phillips black Tessco # 31928
Self tap screw #8-3/4" Phillips black Tessco # 18714

Misc. Items

Digital Multi meter
Shop towels
Surface/ detergent cleaner
Isopropyl alcohol

Specifications ZL-MB1000 / **ZL-MB2500**

Characteristics

Dimensions (L x W x H)	2 x 4 x 13/16 in ; 51 x 102 x 13mm.	(Same for ZL-MB2500)
Housing	Polycarbonate	(Same for ZL-MB2500)

Radio Performance

Frequency (MHz)	850/9800/1800/1900 (Quad Band GSM)	(Same for ZL-MB2500)
Receiver Sensitivity	-160dbm	

GPRS Packet Data

Up to class 12	UDP	(Same for ZL-MB2500)
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GSM Functionality

Release 99 compliant / certifications:	GSM SMS- FCC & PTCRB (FCC Parts 22, 24; PTCRB)
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Antennas

Internal both GSM and GPS	(Same for ZL-MB2500)
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Over-the-Air Commands

All Scripting and Firmware is done over-the-air (OTA) (Same for ZL-MB2500)

SIM Cards/Interface/I/O

SIM Access	Internal sim socket	(Same for ZL-MB2500)
I/O Connector (Same for MB2500)	20-pin Molex	2 user selectable (high/low) inputs, 2 user fixed outputs
Serial Data I/O	Yes	(Same for ZL-MB2500)
Ignition Sense	Yes	(Same for ZL-MB2500)

Environment

Operating Temperature-	30C to 70C	(30°C to 75°C)
Storage	-40C to 85C	(Same for ZL-MB2500)
Humidity	5% to 90% relative humidity, Non-condensing	(95% RH @ 50° C non-condensing)
Shock & Vibration	compliant with SAE J1455	(US Military Standards 202G and 810F, SAE J1455)

Power

DC voltage	7 - 18VDC Negative Ground Vehicles ONLY	(7-32 VDC)
	850/900 (Class 4): 2 watts & 1800/1900 (Class1): 1 watt	(Same for ZL-MB2500)
Current	Peak: 500mA for 50ms transmit burst (0.1% transmit duty cycle typical)	
	Average: 100 mA @ 13.8 VDC	
	(Active :<75 ma @ 12v, standby: <20 ma@ 12v, deep sleep<3ma @ 12v)	

ZL-MB1000, ZL-MB4100, ZL-MB2500 Series models debug and programming codes

NOTE: Commands will work with all devices unless otherwise noted.

To use AT command codes (at\$) you must use a Hyper Terminal. Program directly connected to the device via the serial cable.

To use SMS codes (! R) you send the device a cellular text message over the air just as if you were sending a text message to a cellular phone.

Clear the ack log - stops device from sending gibberish signals: **At\$app clear log**

Check device status: **!R0**

Forces the device to send current location to server: **!R5**

Forces device to check in with our programming server (puls) to check for updates: **at\$app peg 49 149**

SMS equivalent of above: **!R3,49,129**

MB 2500/MB4100 ONLY to force device to check in with programming server: **at\$app peg sndid 149**

Force device to reset: **!R3,70,0**

Set the excess Speed violation parameter: **!R1,237,0,Speed in centimeters/second**

Set the current Odometer reading: **!R1,2560,1,Odometer/meters**

Change the URL: **!R1,2319,0,URL** IE: !R1,2319,0,72.35.68.78

Change the APN: **!R1,2306,0,APN** IE: !R1,2306,0,internet.mycel.com

Query GPS status: **at\$app gps status?**

Query Communications Status: **at\$app comm status?**

MB1000 only debug for 1000s: **at\$app debug gsm 5**

ZL-MB1000, ZL-MB4100, ZL-MB2500 Series models debug and programming codes (cont'd)

These are the commands to turn off any non-standard debug strings.

Turn off Main debug mode: **at\$app debug MAIN 0**

Turn off import log debug mode: **at\$app debug LMPORT 0**

Turn off GSM debug mode: **at\$app debug GSM 0**

Turn off GPS debug mode: **at\$app debug GPS 0**

Turn off Programming interface debug mode: **at\$app debug PEG 0**

Turn off SMS debug mode: **at\$app debug SMS 0**

Turn off UDP debug mode: **at\$app debug UDPTRANSPORT 0**

To query the configuration use the following commands:

Note: The next 2 command can be used in conjunction to find out what script the device has programmed.. C3 can then check these numbers in PULs (the programming server)

To Query device for PEG Script ID: **At\$app param? 1024,1**

To query the device for Configuration version: **At\$app param? 1024,23**

To query firmware use the following command: **Ati0**

To query the device for gps status: **ati3**

Below are programming and troubleshooting AT command codes using Hyper Terminal.

NOTE: Use the quotation marks where shown and do not use them where it is NOT shown.

Enter APN---**at\$app param 2306,0,"Your carriers APN goes here "**

IE: **-at\$app param 2306,0,"INTERNET.ITELCEL.COM"**

Enter gprs user name--**at\$app param 2314,0,"your gprs use name here"**

IE: **at\$app param 2314,0,"webgprs"**

Enter gprs password-- **at\$app param 2315,0,your gprs password goes here**

IE: **at\$app param 2315,0,webgprs2002**

Enter ip or url---**aat\$app param 2319,0,your ip goes here.**

IE: **aat\$app param 2319,0,72.35.68.78**

Enter SIM pin number---**at\$app param 1285,0,your pin number goes here**

IE: **at\$app param 1285,0,1111**

Enter port no---**at\$app param 769, 0, port number that device will communicate on goes here**

IE: **-at\$app param 769,0,5557**

Check the communications status of the device--**at\$app comm status?**

Turn on debug mode--**ats125=7**

Turn off debug mode or to turn off the screen scrolling: **ats125=0**

Set factory default parameters--**at#factory**

reset device--**atreset**