



OBDtrac Dongle Getting Started

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1. OBDtrac Dongle Hardware Introduction

I. Package contents:

1. OBDtrac Dongle x 1 (with Li-ion backup battery)
2. OBDII Port Extension Y-Cable



*Y Cable PHOTO




II. Front panel:

1. OBDII Connection Jack

*PHOTO

III. Rear panel:

1. LED indicators

PWR		OFF: Power OFF Flash: Power ON
GSM		OFF: GSM module OFF or Error Flash: No SIM Card, Searching networks (0.25sec ON 0.5sec OFF) Flash: GSM registered (0.5sec ON 0.5sec OFF) Flash: GPRS connecting (0.25sec ON 0.25sec OFF) ON: Socket session online (connect to Gateway Server)
GPS		OFF: GPS module OFF or Error Flash: Searching GPS signal ON: GPS fixed

*PHOTO

IV. Product Installation:

- Remove the cover by gently sliding backwards from the device itself.
- Insert SIM card into the card holder.
- Secure the cover back to its original position.
- Since the GPS module is still being fine tuned, there may be position fix issues if the device is plugged directly onto the OBDII port and hidden within the vehicle. It is recommended to use the Y cable included to test the device for more exposure to open sky, once the device is plugged into the vehicle through Y cable, the device should power up immediately.



V. Basic Configuration

- Basic configuration of the device can be done by using the Orion protocol command \$SetCFG via SMS by a mobile device. The command syntax is as follows:

```
$SetCFG,<seq>,<pw>,<APN>,<GPRS username>,<GPRS password>,<server IP>,<server port>,<GPRS enable>,<GPRS report interval>,<GPRS data mode>,<power control>&
```

- Example of the \$SetCFG command would be:

```
$SetCFG,1234,0000,internet,,,211.79.38.93,9996,YES,START,30,0,0&
```

- Once device configuration setup is complete, send another command \$ATR to the device in order to search and reset the device for the vehicle's OBDII protocol. The command syntax is as follows:

```
$ATR,<seq>,<pw>,<Initial Mileage>&
```

- Example of the \$ATR command would be:

```
$ATR,1234,0000,1000&
```

Note: 1000 is an example value of initial mileage. Once entered, the total mileage counter shown in the event reports will start incrementing from 1000.

Important: The return message for the \$ATR command must display "DONE" (after an initial return of "OK" for receiving the command). If the message returns "MIL" or "FAIL", they both indicate failure to input the vehicle protocol or mileage value. The ATR return message can take up to 5 minutes to report back depending on the vehicle protocol search, do not send \$ATR again consecutively during this period of search process.

Example of \$ATR return messages:

```
$ATR,1234,DONE,020101000432& -> ATR command input is successful
```

```
$ATR,1234,MIL,020101000432& -> Previous input is not reset
```

```
$ATR,1234,FAIL,020101000432& -> ATR command input failed
```

- Use the command `$Actgetpos,1234,0000&` to double check if the mileage value has been properly entered. The mileage value within the returned LGPS message must be correct in order to deem the ATR configuration successful.

Note: \$ActGetPos return message will display not only the mileage value but also the speed, RPM, and coolant temperature as well. Make sure all the OBD values are correct when the vehicle is stationary before allowing the vehicle to begin its trip.

Example of \$LGPS return message:

```
$LGPS,120,261011092752,A,12131.0365,E,2502.9594,N,7,27,216,37.0,100  
0.0,6308,79C,8,0,111026092753&
```

1000.0 = Mileage input

6308 = RPM

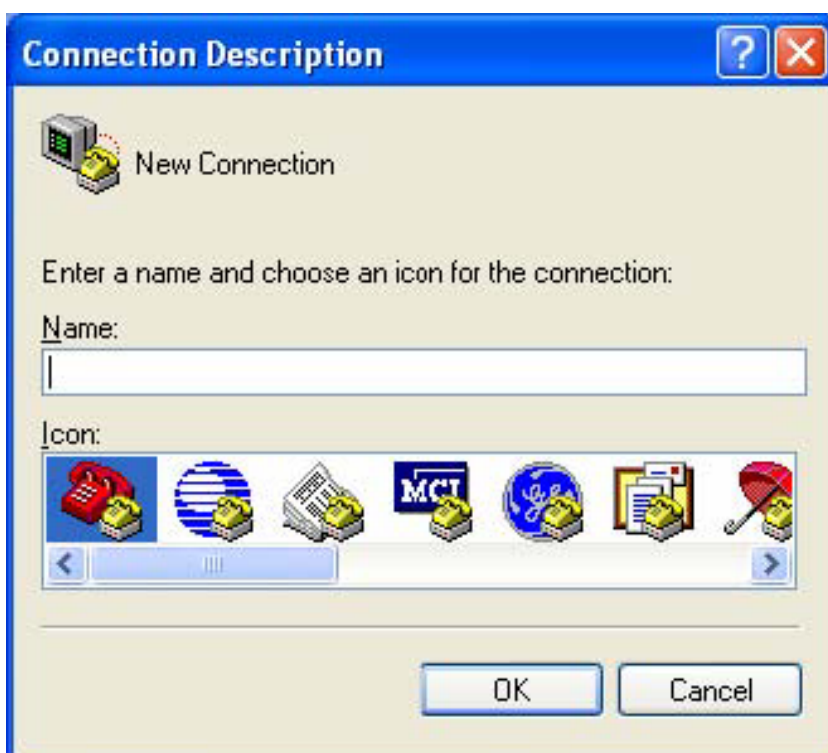
79C = Coolant temperature value

- Once all the configuration steps are completed, OBDtrac Dongle will begin tracking and sending position event reports along with the predefined OBDII information.

2. Configuration by Hyper Terminal

I. Hardware and Software preparation

1. Insert SIM card. Use the configuration RS-232 cable (DB-9) to connect OBDtrac Dongle to a PC COM port.
2. Open Hyper Terminal (or other terminal program) at Windows Start Menu:
All Programs\Accessories\Communications\Hyper Terminal.
3. Add a new connection, enter a name as desired. Click "OK" and select the COM Port for the OBDtrac connection.





4. Set the Baud rate as 115200 bps and Flow control as none. Press "OK".



5. Connect the 10pin cable to OBDtrac.
6. Connect the 10pin cable power-plug to the AC adapter and press the

'ESC' key of the PC keyboard within 3 second after the tracker is powered on and starts showing text messages on the Hyper Terminal screen (The tracker itself may need to be slightly shaken to power up if the tracker is originally set to vibration power control mode). In doing so, OBDtrac will enter 'Debug Mode' (Configuration Mode).

```
[]  
- Version : 0.12  
- Serial Number : BH1234567890  
- Unit ID : 1000000001  
- IMEI :  
  
$>
```

7. If you do not see the above messages on the Hyper Terminal screen, please check the settings of Hyper Terminal and reconnect the power adapter, or press the RESET button on the OBDtrac rear panel. Otherwise, please send an email to support@oriontech.com.tw for technical support.

II. Basic Configuration

1. Use 'SCFG' command to enter 'Main Setting Menu'. Then type '1' to enter 'Basic Setting Menu'. For initialization or regular application, no basic setting needs to be changed.

\$>scfg <Press Enter>

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection ? 1 <Press Enter>

Basic Setting Menu :

1. Firmware Version : 0.7
2. UnitID : 1000000001 : [0000000000-4294967296]
3. User Password : 0000
5. COM1 Baudrate : 38400 : [115200|38400|19200|9600|4800]
7. Sync RTC with GPS Time : YES
Time Zone of RTC : GMT+0
- C. GPS Fix Timeout : 300 : [60-65535]
- D. Vibration Timeout : 60 : [30-65535]
- G. Power Control : 1 : [0(Disabled)|1(PowerOff)|2(Standby)|3(Sleep)|4(Deep Sleep)]
- H. Event Mask(1) : FFFFFFFF
- I. Event Mask(2) : FFFFFFFF
- E. Exit

Selection ?

Basic Setting Menu :

Field	Mandatory	Description
UnitID	<input checked="" type="checkbox"/>	Device Unit ID. Default value is the same as the serial number. Range from '0000000000' to '4294967296'. Other characters are not allowed. Maximum: 10 digits
Password	<input checked="" type="checkbox"/>	Default value : "0000". Range from "0000" to "9999".
COM1	<input checked="" type="checkbox"/>	Default value: "38400"

Baud rate		[115200 57600 38400 19200 9600 4800]
Sync RTC with GPS Time	<input checked="" type="checkbox"/>	YES: To enable the tracker to synchronize RTC Time with GPS UTC Time according to the Time Zone Offset. NO: To disable the tracker to synchronize RTC Time with GPS UTC Time.
Time Zone Offset	<input checked="" type="checkbox"/>	Format is +hh:mm or -hh: mm
GPS Fix Timeout	<input checked="" type="checkbox"/>	GPS Timeout setting (sec) when every time the schedule timer wakes up the OBDtrac Basic
Vibration Timeout	<input checked="" type="checkbox"/>	Vibration Timeout to shut down OBDtrac Basic to enter deep sleep mode
Power Control	<input checked="" type="checkbox"/>	Control power off shut down mode, 0 = disable, 1 = enable power off mode, 2 = standby mode, 3=sleep mode, 4= deep sleep mode, functional only in conjunction with VACCON mode in GSM/GPRS connection settings.
Event Mask (1)	<input type="checkbox"/>	Configure event mask bits to enable/disable event transmissions. Details refer to 970817T007 Event Mask App Note
Event Mask (2)	<input type="checkbox"/>	Configure event mask bits to enable/disable event transmissions. Details refer to 970817T007 Event Mask App Note

2. When you finish the 'Basic Settings', type 'E' to return to 'Main Setting Menu'.

III. GPRS Connection Configuration

1. Type '2' to enter 'GSM/GPRS Connection Setting Menu'. For initialization or regular application, no setting of this menu needs to be changed.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection ? **2** <Press Enter>

GSM/GPRS Connection Setting Menu :

1. Switch Mode : [GPRS](#) : [[AUTO](#)|[GPRS](#)|[LOG](#)|[SMS](#)]
2. GPRS Reconnect (min) : [3](#) : [[2-65535](#)]
3. SMS Duration (sec) : [180](#) : [[180-65535](#)]
4. SIM PIN1&2 Setting
 - SIM PIN1 :
 - SIM PIN2 :
5. GPRS Connection Setting
6. SMS Connection Setting
7. Enable Roaming : NO : [[YES](#)|[NO](#)]
8. Roaming Profile Settings
- A. Enable RGTK/RMTK : YES : [[YES](#)|[NO](#)]
- E. Exit

Selection ?

GSM/GPRS Connection Setting Menu :

Field	Mandatory	Description
Switch Mode	<input checked="" type="checkbox"/>	<p>GPRS : Set the tracker to send reports by GPRS connection only. But the tracker can receive commands over GPRS from the server and to receive commands by SMS from the mobile phone as well.</p> <p>LOG : Set the tracker to send log reports only.</p> <p>SMS : Set the tracker to send reports and receive commands by SMS only. All event reports are supported in SMS mode. It helps to use the tracker in the area without GPRS coverage. Multiple protocol commands and event reports are can be in one SMS as long as the size less than 140 Bytes.</p> <p>AUTO : Set the tracker to send reports by GPRS mainly and to send reports by SMS as backup when the GPRS connection fails.</p>
GPRS Reconnect	<input checked="" type="checkbox"/>	<p>The reconnecting time duration to open GPRS connection. In GPRS Mode, After retrying N minutes with error, the tracker will reboot and do it over. In AUTO Mode, the tracker will switch to SMS mode and send '\$RMTK' SMS as a backup solution.</p> <p>Range from "2" to "65535". The unit is 'minute'</p> <p>Default Value="2"</p> <p>Tip: Enlarge this number properly according to the GSM/GPRS environment can reduce the rebooting. In some countries, it takes longer to open a GPRS connection.</p>
SMS Duration	<input type="checkbox"/>	<p>The time duration to stay in SMS mode when the SwitchMode is set to 'AUTO' mode. After the duration, the</p>

		<p>tracker will switch back to GPRS mode automatically.</p> <p>Default Value = "180". The unit is 'second'.</p> <p>Range from "180" to "65535"</p> <p>Tip: Set this number smaller will let the tracker back to GPRS mode as soon as possible. Enlarge the 'SMS Report Interval' in the meantime (Ex. 2 hrs = 3600 seconds). It can reduce SMS cost accordingly.</p>
SIM PIN1	<input type="checkbox"/>	<p>PIN1 of the SIM card to be used in the tracker</p> <p>Default Value = "".</p>
SIM PIN2	<input type="checkbox"/>	<p>PIN2 of the SIM card to be used in the tracker</p> <p>Default Value = "".</p>
Enable Roaming	<input checked="" type="checkbox"/>	<p>YES : Enable roaming to any network as long as the SIM card support it.</p> <p>NO : Disable roaming</p> <p>Default Value = "NO"</p>
Roaming Profile Setting	<input type="checkbox"/>	<p>Set roaming profile configurations and roaming event masks.</p>
Enable RGTK/RMTK	<input type="checkbox"/>	<p>YES: Generate the latest GPS position and send it as \$RGTK event with highest priority</p> <p>NO: No \$RGTK event will be generated because all GPS position will be \$LGTK and will be sent by FIFO sequence</p>

2. Type '5' to enter 'GPRS Connection Setting Menu'. The GPRS connection parameters are provided by the GSM operator. **Note: All GPRS connection parameters have to be correct, otherwise the tracker cannot open GPRS connection successfully.**

GSM/GPRS Connection Setting Menu :

1. Switch Mode : GPRS : [AUTO|GPRS|LOG|SMS]
2. GPRS Reconnect (min) : 3 : [2-65535]
3. SMS Duration (sec) : 180 : [180-65535]
4. SIM PIN1&2 Setting
 - SIM PIN1 :
 - SIM PIN2 :
5. GPRS Connection Setting
6. SMS Connection Setting

- 7. Enable Roaming : NO : [YES|NO]
- 8. Roaming Profile Settings
- A. Enable RGTK/RMTK : YES : [YES|NO]
- E. Exit

Selection ? **5** <Press Enter>

GPRS Connection Setting Menu :

- 1. GPRS Dial Number :
- 2. GPRS User Name :
- 3. GPRS Password :
- 4. GPRS APN : internet
- 5. GPRS Enable : START : [STOP|START|ACCON|VACCON]
- 6. GPRS Report Interval (sec) : 30 : [10-65535]
- 7. GPRS SYNC Interval (sec) : 300 : [0(Disable)|300-65535]
- 8. GPRS Resync Interval (min) : 1 : [0(Disable)|1(Once)|5-65535]
- 9. GPRS Filter : NO : [YES|NO]
- A. GPRS DNS : 0.0.0.0
- B. GSM Not Ready Re-Connect Time (sec) : 210 : [210-65535]
- C. GPRS Not Ready Re-Connect Time (sec) : 300 : [300-65535]
- D. Protocol : TCP : [TCP|UDP]
- F. Require Server ACK : NO : [YES|NO]
- G. Include Cell ID Info in Report : NO : [YES|NO]
- H. Nonstop GPRS Tracking: NO : [YES|NO]
- J. Binary Report: NO : [YES|NO]
- E. Exit

Selection ?

GPRS Connection Setting Menu :

Field	Mandatory	Description
Dial Number	<input type="checkbox"/>	GPRS dialup phone number.
User Name	<input type="checkbox"/>	GPRS Login User Name
Password	<input type="checkbox"/>	GPRS Login Password
APN	<input checked="" type="checkbox"/>	Access Point Name
GPRS Enable (Track Mode)	<input checked="" type="checkbox"/>	<p>STOP : Stop the GPRS tracking action. The tracker sends SYNC packet by SYNC interval to the Gateway server to keep alive.</p> <p>START : The tracker sends GPS data over GPRS as long as it is powered ON. No matter the ACC (Ignition) is ON or OFF.</p> <p>ACCON : The tracker sends GPS data over GPRS only when the ACC is ON. When the ACC is OFF, the tracker</p>

		<p>sends SYNC packet by SYNC interval to the Gateway server to keep alive.</p> <p>VACCON : Report RGTK at either LGSK (vibration on) or LACN (engine on), and stop reporting RGTK when both LGEK (vibration off) and LACF (engine off) events appear. If actual ACC is not connected, report RGTK between LGSK and LGEK vibration events.</p>
Report Interval	<input checked="" type="checkbox"/>	<p>GPS data Report Interval. The unit is 'second'.</p> <p>Default Value = "30".</p> <p>Range from [10-65535].</p>
SYNC Interval	<input checked="" type="checkbox"/>	<p>SYNC packet Interval: The unit is 'second'</p> <p>Range from [0(Disable) 300-65535]. "0" means to disable SYNC packet.</p> <p>Default = 300 Seconds. Set longer Sync Interval to save GPRS cost.</p> <p>Note: The SYNC packet is now only applicable in 'STOP' mode or when ACC=OFF in 'ACCON' mode or 'VACC' mode.</p>
Resync Interval	<input checked="" type="checkbox"/>	<p>Compulsory SYNC packet Interval: The unit is 'minute'</p> <p>Range from [0(Disable) 1(Once) 5-65535]. "0" means to disable SYNC packet. "1" means the tracker only sends a SYNC packet every time it open a new GPRS session.</p> <p>Default value = 1 (Once)</p> <p>The Resync packet is now applicable in 'START' mode or when ACC=ON in 'ACCON' more or 'VACC' mode.</p>
Filter	<input checked="" type="checkbox"/>	<p>YES : Filter the invalid GPS data. Only send the valid GPS data</p> <p>NO : Not Filter GPS data. Send all GPS data, no matter the GPS data is valid or invalid.</p>
DNS	<input type="checkbox"/>	DNS Server IP address
GSM Not Ready	<input checked="" type="checkbox"/>	If the device can't register to GSM network, the tracker will wait 'GSM Not Ready Re-Connect Time' to reboot.

Re-Connect Time		<p>The unit is 'second'.</p> <p>Default Value = "210".</p> <p>Range from "210" to 65535".</p>
GPRS Not Ready Re-Connect Time	<input checked="" type="checkbox"/>	<p>If the device register to GSM network but can't open GPRS connection successfully, the tracker will wait 'GPRS Not Ready Re-Connect Time' to reboot. The unit is 'second'.</p> <p>Default Value = "300".</p> <p>Range from "300" to 65535".</p>
Protocol	<input checked="" type="checkbox"/>	<p>TCP: To use TCP/IP in GPRS communication</p> <p>UDP: To use UDP/IP in GPRS communication</p> <p>Default = TCP</p>
Require Server ACK	<input checked="" type="checkbox"/>	<p>YES: To require the Gateway Server send back an ACK for every event report for confirmation to send next one.</p> <p>NO: Disable requiring Server ACK of every event report</p> <p>Default = NO</p>
ACK Timeout	<input checked="" type="checkbox"/>	<p>Time to wait for the Sever ACK. Everytime when timeout, the tracker will send the event report again. The unit is 'second'.</p> <p>Range from [5-65535]</p>
Retry	<input checked="" type="checkbox"/>	<p>How many times to retry to send the event report. If it keeps failing, the tracker will re-open the GPRS connection and do it over. The unit is 'count'.</p> <p>Range from [1-65535]</p>
Include Cell ID Info	<input checked="" type="checkbox"/>	<p>YES: To include Cell ID information in every event report. If enabled, two new columns [PLMN] (Network ID), [Cell ID] (Base station ID) will be added into every event report.</p> <p>NO: Not to include Cell ID information in all event reports.</p>
Nonstop GPRS Tracking	<input type="checkbox"/>	<p>This feature is applicable to Switch Mode = 'AUTO'.</p> <p>YES: When the tracker switches to SMS, it still logs GPS data in flash memory according to GPRS tracking interval. All data will be sent when the GPRS is back. This features helps to generate complete route even in the area without GPRS.</p> <p>NO: When the tracker switches to SMS, it only sends the GPS data according to SMS tracking interval</p>

Binary Report	<input type="checkbox"/>	YES: Enable binary encryption report mode NO: Disable binary encryption report mode For more details refer to “binary report app note”

Notes: This console menu corresponds to ORION Protocol commands:

\$SetGPRSConfig, \$SetConnection,

3. When you finish the ‘GPRS Connection Settings’, type ‘E’ to return to ‘GSM/GPRS Connection Setting Menu’. Then type ‘E’ to return to ‘Main Setting Menu’.

IV. Gateway Server Configuration

1. Type '3' to enter 'Gateway Server Setting Menu'. **Note:** The Gateway Server settings have to be 100% accurate, otherwise the tracker will be unable to open GPRS connections and build a socket session with the Gateway Server correctly.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection ? **3** <Press Enter>

Gateway Server Setting Menu :

1. Primary Gateway Server
 - IP : 220.128.135.215
 - Port : 9998 : [0-65535]
- E. Exit

Selection ?

Gateway Server Setting Menu :

Field	Mandatory	Description
Server IP	<input checked="" type="checkbox"/>	Primary Gateway Server IP address or Domain Name, if using Domain Name. DNS Server IP address of GPRS connection settings is needed.
Server Port	<input checked="" type="checkbox"/>	The port number of the Primary Gateway Server to receive GPS data

Notes: This console menu corresponds to ORION Protocol command: \$SetPriServer

2. When you finish the 'Gateway Server Settings', type 'E' to return to 'Main Setting Menu'.

V. Function Variables Configuration –

1. Use 'SCFG' command to enter 'Main Setting Menu'. Then type '4' to enter 'Function Variables Setting Menu'.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? 4 <Press Enter>

Function Variables Setting Menu :

1. Mileage Report Setting
4. Idle Report Setting
5. Speed Limit Report Setting
- E. Exit

Selection ?

VI. Function Variables Configuration – Mileage Report

1. Type '4' to enter 'Function Variables Setting Menu'. Then type '1' to enter 'Mileage Report Setting Menu'. The settings are to activate the 'Track by Distance' and 'Track by Angle Deviation' functions.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection ? **4** <Press Enter>

Function Variables Setting Menu :

1. Mileage Report Setting
4. Idle Report Setting
5. Speed Limit Report Setting
- E. Exit

Selection ? **1** <Press Enter>

Mileage Report Setting Menu :

1. Total Mileage (mile) : 0.0000
2. Mileage Limitation (mile) : 0.0000
3. Distance Interval Track (mile) : 0.0000
4. Deviation Angle Track (degree) : 0.0000
- E. Exit

Selection ?

Mileage Report Setting Menu :

Field	Mandatory	Description
Total Mileage	<input type="checkbox"/>	The accumulated mileages of the tracker.
Mileage Limitation	<input type="checkbox"/>	A mileage limitation to send a '\$LVML' Event Report when Total Mileage reaches this limitation. Then it will be reset to 0.
Distance Interval Track	<input type="checkbox"/>	A distance interval to send a '\$LDIS' event report. The unit is 'mile'
Deviation Angle Track	<input type="checkbox"/>	A deviation Angle of the tracker to send a '\$LANG' event report. "0" means disable to trigger it. The unit is 'degree'. Default = "0"

Notes: This console menu corresponds to ORION Protocol command: \$ActSetMileLimit, \$ActSetDistance, \$ActSetDevAng

2. When you finish the 'Mileage Report Settings', type 'E' to return to 'Main Setting Menu'. Then type 'YES' to apply all settings to the Flash Memory.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? **E** <Press Enter>

Write to the External FLASH [YES|NO]? **YES** <Press Enter>

VII. Function Variables Configuration – Idle Report

1. Type '4' to enter 'Function Variables Setting Menu'. Then type '4' to enter 'Idle Report Setting Menu'. The settings are to activate the 'Idle Alert and Move Alert' function.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? 4 <Press Enter>

Function Variables Setting Menu :

1. Mileage Report Setting
4. Idle Report Setting
5. Speed Limit Report Setting
- E. Exit

Selection ? 4 <Press Enter>

Idle Report Setting Menu :

1. Idle Report Enable : NO
2. Idle Duration (sec) : 0
3. Report Time Interval (sec) : 1 : [1(Once)|2-65535]
- E. Exit

Selection ?

Idle Report Setting Menu :

Field	Mandatory	Description
Idle report Enable	<input checked="" type="checkbox"/>	YES : Enable the tracker to generate '\$LIDL' and '\$LMOV' event reports. NO : Disable the tracker to generate '\$LIDL' and '\$LMOV' event reports. Default Value = "NO"
Idle Duration	<input checked="" type="checkbox"/>	If the GPS speed < 5mph for more than 'Idle Duration'. It sends a '\$LIDL' event report by every 'Report Time Interval'. The unit is 'second'. Range from "10" to 65535".
Report Time Interval	<input checked="" type="checkbox"/>	A time interval to keep sending '\$LIDL' event reports if the tracker keep idling. The unit is 'second'.

Notes: This console menu corresponds to ORION Protocol command: \$ActSetIdle

2. When you finish the 'Idle Report Settings', type 'E' to return to 'Main Setting Menu'. Then type 'YES' to apply all settings to the Flash Memory.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? **E** <Press Enter>

Write to the External FLASH [YES|NO]? **YES** <Press Enter>

[rd] 00430040
\$>

VIII. Function Variables Configuration – Speed Limit Report

1. Type '4' to enter 'Function Variables Setting Menu'. Then type '5' to enter 'Speed Limit Report Setting Menu'. The settings are to activate the 'Speeding Alert' function.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? 4 <Press Enter>

Function Variables Setting Menu :

1. Mileage Report Setting
4. Idle Report Setting
5. Speed Limit Report Setting
- E. Exit

Selection ? 5 <Press Enter>

Speed Limit Report Setting Menu :

1. Speed Limit Report Enable : NO
2. Speed Limitation (mph) : 0
3. Speed Limitation Duration (sec) : 0
4. Report Time Interval (sec) : 1 : [1(Once)|2-65535]
- E. Exit

Selection ?

Speed Limit Report Setting Menu :

Field	Mandatory	Description
Speed Limit Report Enable	<input checked="" type="checkbox"/>	<p>YES : Enable the tracker to generate '\$LSIN' and '\$LSUT' event reports</p> <p>NO : Disable the tracker to generate 'logSpeedIn' and 'logSpeedOut' event reports.</p> <p>Default Value = "NO"</p>
Speed Limitation	<input checked="" type="checkbox"/>	<p>A speed threshold to trigger '\$LSIN' event reports by every 'Report Time Interval' if the GPS speed > 'Speed Limitation' for more than 'Speed Limitation Duration'. Then it sends a 'logSpeedOut' when the GPS speed < 'Speed Limitation'. The unit is 'mph'</p>

Speed Limitation Duration	<input checked="" type="checkbox"/>	A time threshold to trigger '\$LSIN' event reports if the GPS speed > 'Speed Limitation' for more than 'Speed Limitation Duration'. It keeps sending 'logSpeedIn' event report by every 'Report Time Interval'. The unit is 'second'. Range from "10" to 65535".
Report Time Interval	<input checked="" type="checkbox"/>	A time interval to keep sending '\$LSIN' event reports if the tracker keep speeding. The unit is 'second'.

Notes: This console menu corresponds to ORION Protocol command: \$ActSetSpeed

- When you finish the '**Speed Limit Report Settings**', type '**E**' to return to '**Main Setting Menu**'. Then type '**YES**' to apply all settings to the Flash Memory.

Main Setting Menu :

1. Basic Setting
2. GSM/GPRS Connection Setting
3. Gateway Server Setting
4. Function Variables Setting
5. Report Settings Setting
- E. Exit

Selection [1-3]? **E** <Press Enter>




Write to the External FLASH [YES|NO]? **YES** <Press Enter>

[rd] 00430060




\$> **RUN** <Press Enter>

- Type '**RUN**' to let the tracker run in Normal Mode.

IX. Running in Normal Mode

1. When OBDtrac runs on normal mode. PWR  LED should be flashing periodically. This means OBDtrac is in POWER ON status and the GPS system is functioning. About 30 seconds later, GSM  LED will start flashing and then stays ON constantly, this means GPRS session is now online. The GPS  LED will also start to flash, showing the tracker is searching for a GPS signal. It will stay ON when GPS signal is fixed.

Note: The default Primary Gateway Server IP in the tracker is [220.128.135.215](#) that is one of ORION Testing Servers with a tcpserver.exe running on it. By connecting to ORION Testing Server allows you to verify the tracker and the SIM card very quickly.

PWR		Flash	GSM		ON	GPS		ON
-----	---	-------	-----	---	----	-----	---	----

Note: Before connecting OBDtrac to your server. A Gateway Server which runs the tcpserver.exe with a public IP address must be ready. The tcpserver.exe is basically a TCP socket listener that builds the socket sessions with multiple trackers via TCP/IP over GPRS and the Internet. To verify that your Gateway Server is working, you may use the “AVL Simulator” program to send simulated SYNC packets and GPS data to the Gateway Server.

2. After a few minutes, if the GPRS settings are correct with a working SIM card that has GPRS service enabled, OBDtrac will build a communication session with the Gateway Server over GPRS and starts to send GPS positions to the Gateway Server.

Note: If the Gateway Server is not ready, the GSM  LED will keep flashing.

3. If the OBDtrac and the Gateway Server are both working well. The following messages will be displayed on the Hyper Terminal window.

```
- Version : 0.12
- Serial Number : EH1234567890
- Unit ID : 1000000001
- IMEI : 123456789012345
```

GPRS Tracking Report Syntax :

Real time GPS Data Report format:

\$RGTK,[UnitID],[UTCTime],[A|V],[Longitude],[E|W],[Latitude],[N|S],[Satellite Numbers],[GSM Signal],[Angle],[Speed],[Mileage],[AI1],[AI2],[DI],[DO],[RTCTime]&

Resent format: (When the GPRS is recovered, the tracker will resend all GPS data logs to the Gateway Server automatically.)

\$LGTK,[UnitID],[UTCTime],[A|V],[Longitude],[E|W],[Latitude],[N|S],[Satellite Numbers],[GSM Signal],[Angle],[Speed],[Mileage],[AI1],[AI2],[DI],[DO],[RTCTime]&

Field	Description
Event Type	Event Type
UnitID	UnitID
UTC Time	GPS Date and Time. The format is DDMMYYHHmmss
A V	GPS Data is Valid or Invalid. "A" = valid, "V" = invalid.
Longitude	GPS Longitude
E/W	"E"= East, "W" = West.
Latitude	GPS Latitude
N/S	"N" = North, "S" =South
Satellite Numbers	Satellite Numbers acquired. The maximum satellite number is 12. Normally the SiRF Star III can receive about 6~8 satellites if the GPS antenna is in the open sky.
GSM Signal	GSM Signal strength, From 0 to 31, Unknown: 99 or other numbers The maximum GSM signal is 31. Normally it should be more than 20. If it is less than 20, it means poor GSM reception of OBDtrac in that particular area. Try to adjust the location of GSM Antenna for a stronger GSM signal
Angle	GPS Angle, unit = degree
Speed	GPS Speed, unit = knot
Mileage	Accumulated Mileage of the tracker. It is calculated by GPS data. Unit = 'mile'. Maximum value: 999999.99

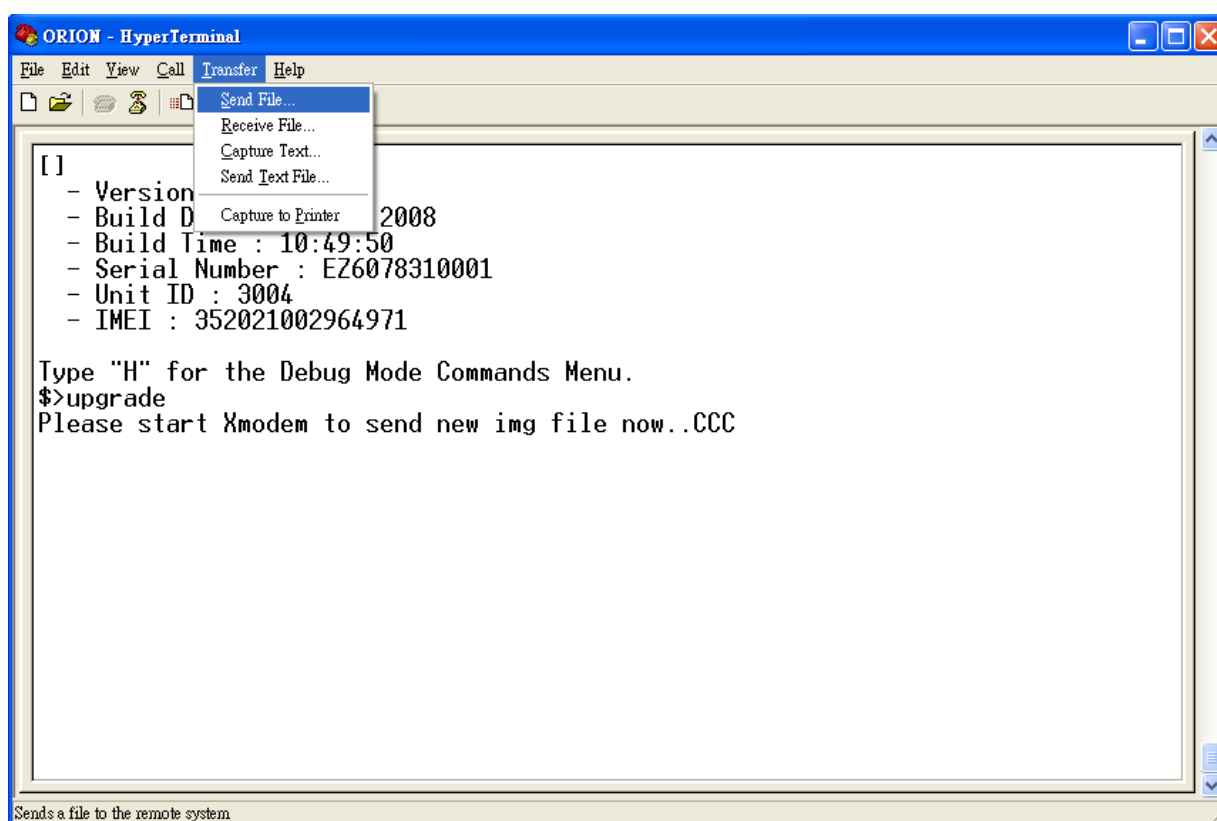
RTC Time	Device RTC (Real Time Clock) Date and Time. The format is YYMMDDHHmmss
----------	---

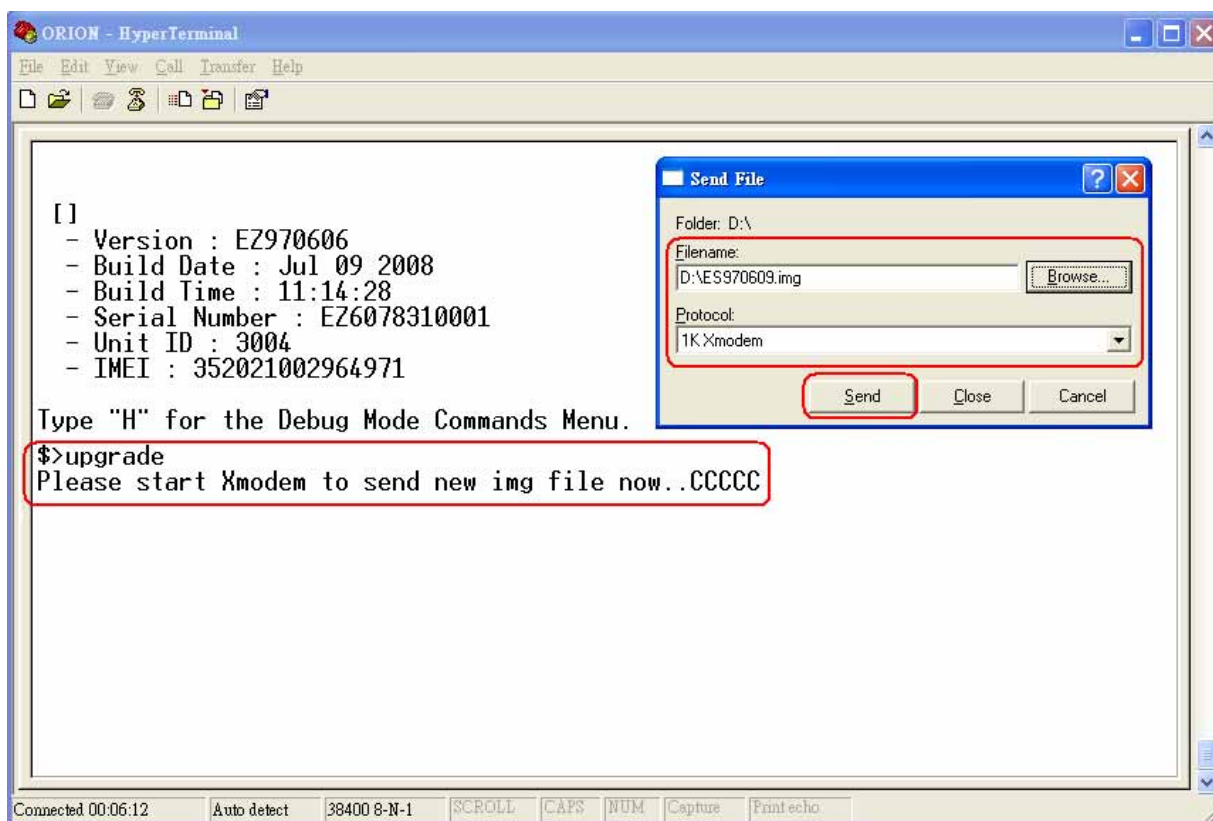
4. If the AVL Manager.exe and Gateway Server are working well, it shows the SYNC packet and GPS data on the Demo window too. You can compare them to those showing on the Hyper Terminal window.
5. If OBDtrac cannot connect to the Gateway Server and send GPS data, please check first if all the configurations are correct. Otherwise please copy the whole messages from the Hyper Terminal window and send an email to support@oriontech.com.tw for further technical support.

3. Update firmware by Hyper Terminal

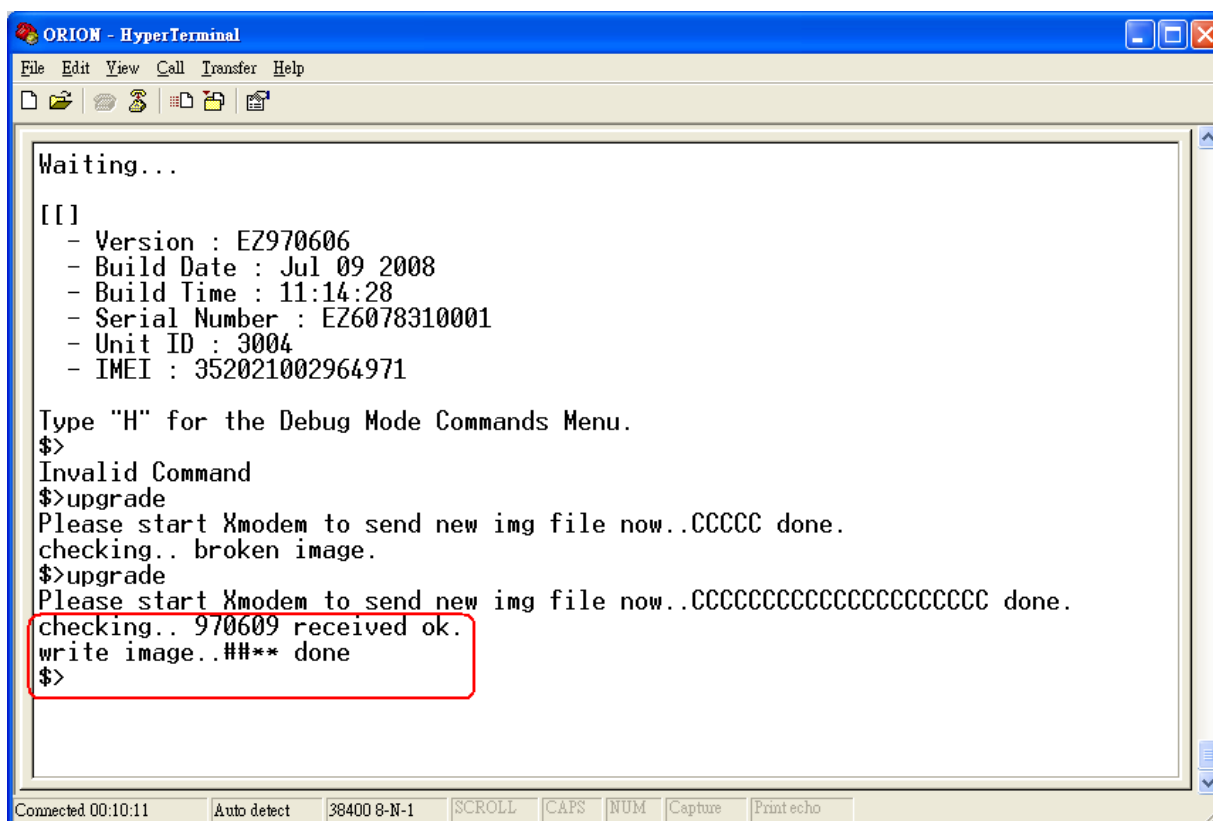
1. ET250 supports firmware upgrade by Hyper Terminal after firmware version 970603. ORION releases the .img file (Application code only) to allow our customers to update the firmware by Hyper Terminal or by GPRS.
2. It takes only 3 steps to update the firmware by Hyper Terminal, and the task can be done under the regular 'Debug Mode' via RS-232 connection to PC.
3. Please follow the instructions below to update firmware of the tracker.

Step 1: Power ON the tracker and type 'Esc' within 3 seconds to enter 'Debug Mode'. Type **UPGRADE** or **upgrade**, then click the menu bar to open 'Send File' window. Select the new .img file and '1K Xmodem' protocol to send the .img file.





Step 2: Wait until the file has been uploaded, the following messages should show up to indicate the new firmware is received successfully by the tracker.



Step 3: Type '**reboot**' command to reboot the tracker. Enter the debug mode again to check the firmware version. If it is correct, then the firmware update is complete.

4. Update firmware over the air (OTA) by GPRS

1. ORION OBDtrac supports over the air upgrade after firmware version 970708. Also the firmware replies each SMS protocol command to sender's phone number. It becomes much easier for the tracker maintenance.
2. ORION releases the .img file (Application code only) to allow our customers to update the firmware over the air by GPRS. The system administrator uploads the .img file to a web server, then sends a protocol command to the tracker by SMS or GPRS. Afterward the tracker will perform the firmware download and update by itself.
3. It takes only 3 steps to update the firmware over the air by GPRS. Please follow the instructions below to update the firmware of the tracker.

Step 1: Put the new firmware on a web server and come out the URL. (Ex. <http://211.79.38.93/970709.img> or <http://211.79.38.93:8080/970709.img>). Or you may use the URL provided by ORION. Please note that you may have to rename the .img to .zip or other file name in order to pass the firewall. (Ex. <http://211.79.38.93/970709.zip>). Note that only http is supported, not ftp.

Step 2: Send the protocol command **\$ActUpgradeFW,[Command S/N],[Password],[URL]&** by SMS or GPRS to the tracker to initiate the firmware update process.

Step 3: Verify if the firmware update is successful by its return message. Here are 4 cases of return messages.

1. When the tracker receives the command without problem, it will reply the following acknowledgement first.

\$ActUpgradeFW,[Command S/N],OK,[RTC Time]&

2. If the firmware download is in progress or parameters error, it replies:

\$ActUpgradeFW,[Command S/N],Param,[RTC Time]&

3. If the firmware download fails, it replies the following message. In this case, you have to send \$ActUpgradeFW again to do it over.

`$ActUpgradeFW,[Command S/N],FAIL,[RTC Time]&`




(Note: Weak GSM signal or broken image file may cause download problems. We recommend you to test and verify the firmware update process before mass deployment.)

4. If the firmware update is successful, it replies the following information after booting by the new firmware. All configuration will remain the same and will not be affected by the new firmware.




`$ActUpgradeFW,[Command S/N],DONE,<UnitID>,<IMEI>,<IMSI>,<HW VER>,<FW VER>,<RTC>&`

5. OBDtrac Dongle troubleshooting guideline

- When the OBDtrac Basic is installed and running in the vehicle. The LED indicators have to perform as indicated in the following table. Otherwise, it will require further inspections.


PWR		Flash
GPS		ON
GSM		ON

2. LED indicators

PWR		OFF: Power OFF Flash: Power ON
GSM		OFF: GSM module OFF or Error Flash: No SIM Card, Searching networks (0.25sec ON 0.5sec OFF) Flash: GSM registered (0.5sec ON 0.5sec OFF) Flash: GPRS connecting (0.25sec ON 0.25sec OFF) ON: Socket session online (connect to Gateway Server)
GPS		OFF: GPS module OFF or Error Flash: Searching GPS signal ON: GPS fixed


3. Troubleshooting of the GPS tracker:

- The tracker is disconnected to the server and the PWR LED is OFF or DIM.**

Problem	PWR  LED is OFF or DIM
Cause	Solution
No power supply to the tracker	<ol style="list-style-type: none"> Check the connector of the power cable connecting to the tracker correctly and securely. If not, reconnect the power cable to the tracker and secure it. Use a voltmeter to check if the power supply from the vehicle is between 9V to 30V. Check the black wire (Ground) connecting to the ground of the vehicle power circuit correctly.
The power cable is faulty	<ol style="list-style-type: none"> Check if there is any damage of the cable and the surge protector. If yes, the power cable needs to be replaced.


	<ol style="list-style-type: none"> 2. Check if there is vehicle power supplying to the power cable correctly, then use the voltmeter to check if there is correct power output more than 9V from the surge protector. 3. The surge protector has internal resettable fuse that will recover by itself couple minutes later when overloading. If there is no constant power supply from it, then the power cable may be damaged and needs to be replaced.
The tracker is faulty	<ol style="list-style-type: none"> 1. If there is correct power output from the power cable and the power LED is still OFF, maybe the tracker is faulty and needs to be replaced for further inspection. 2. When the tracker is back to the office. Use the AC adapter to supply power to the tracker and check the power LED again.

II. The tracker is disconnected to the server and the GSM LED is not constant ON.

Problem	GSM  LED is constant OFF or flashing
Cause	Solution
Poor GSM signal reception	<ol style="list-style-type: none"> 1. Use the cell phone to check if the GSM signal is weak there. If yes, move the vehicle for better GSM reception and check again. 2. Check the GSM antenna connects to the tracker correctly and securely. Sometimes it is switched with the GPS antenna connection intentionally. 3. Check if the GSM antenna is installed at a proper place to have a clear view of the sky. 4. Check if the GSM antenna cable is twisted or damaged. If yes, the GSM antenna needs to be replaced. 5. Change the GSM antenna and check again.
Poor internet connectivity	<ol style="list-style-type: none"> 1. The GSM network is busy. The tracker can't register to the GSM network. Press the reset button in the rear panel of the tracker. Wait for 5 minutes and check again. 2. The GPRS connection is not available or the GSM signal is too weak to open a GPRS connection. Press the reset button in the rear panel of the tracker. Wait for 5 minutes and check again. 3. The SIM card is invalid or blocked. Change a valid SIM card (from the same provider) and check again.

The Gateway Server is down	<ol style="list-style-type: none"> 1. The Gateway Server is down or the internet connection is blocked. Thus, the tracker can't build up a GPRS connection with the Gateway Server. Check with the MIS engineer. 2. The Gateway Server shuts off the socket connection or hang the connection due to poor socket management. Check with the MIS engineer.
The tracker firmware is faulty	<ol style="list-style-type: none"> 1. Press the reset button in the rear panel of the tracker. Wait for 5 minutes and check again. 2. When the tracker is back to the office. Check if the tracker remains all GPRS parameters and server settings correctly.
The tracker hardware is faulty	<ol style="list-style-type: none"> 1. If the GSM LED remains constant OFF after pressing the reset button, it means the tracker may be damaged and needs to be replaced. 2. When the tracker is back to the office. Use the AC adapter to supply power to the tracker and check the tracker by Hyper Terminal for further information.

III. The tracker connects to the server with invalid GPS all the time and the GPS LED is not constant ON.

Problem	GPS  LED is constant OFF or flashing
Cause	Solution
Poor GPS signal reception	<ol style="list-style-type: none"> 1. Check the GPS antenna connects to the tracker correctly and securely. Sometimes it is switched with the GSM antenna connection intentionally. 2. Check if the GPS antenna is installed at a proper place to have a clear view of the sky. 3. Check if the GPS antenna cable is twisted or damaged. If yes, the GPS antenna needs to be replaced. 4. Change the GPS antenna and check again.
The tracker firmware is faulty	<ol style="list-style-type: none"> 1. Press the reset button in the rear panel of the tracker. Wait for 5 minutes and check again. 2. When the tracker is back to the office. Check the tracker by Hyper Terminal for further information.
The tracker hardware is faulty	<ol style="list-style-type: none"> 1. If the GPS LED remains constant OFF or keeps flashing after pressing the reset button, it means the tracker may be damaged and needs to be replaced.

2. When the tracker is back to the office. Use the AC adapter to supply power to the tracker and check the tracker by Hyper Terminal for further information.

6. OBDtrac Dongle Wiring Diagram

IC:

This Class [*] digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe [*] est conforme à la norme NMB-003 du Canada.

Exposure of humans to RF fields (RSS-102)

The computers employ low gain integral antennas that do not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's Web site at <http://www.hc-sc.gc.ca/>

The radiated energy from the antennas connected to the wireless adapters conforms to the IC limit of the RF exposure requirement regarding IC RSS-102, Issue 4 clause 4.1.

Conformité des appareils de radiocommunication aux limites d'exposition humaine aux radiofréquences (CNR-102)

L'ordinateur utilise des antennes intégrales à faible gain qui n'émettent pas un champ électromagnétique supérieur aux normes imposées par Santé Canada pour la population. Consultez le Code de sécurité 6 sur le site Internet de Santé Canada à l'adresse suivante : <http://www.hc-sc.gc.ca/>

L'énergie émise par les antennes reliées aux cartes sans fil respecte la limite d'exposition aux radiofréquences telle que définie par Industrie Canada dans la clause 4.1 du document CNR-102, version 4.

Caution: Exposure to Radio Frequency Radiation.

To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes

FCC**Federal Communications Commission (FCC) Statement****15.21**

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

This equipment has been tested and found to comply with the limits for a Class B

digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.**
- Increase the separation between the equipment and receiver.**
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**

-Consult the dealer or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

CE

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters “CE”. The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0560 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

Marking: The product shall bear the CE mark, the notified body number(s) as depicted to the right. CE0560.



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