

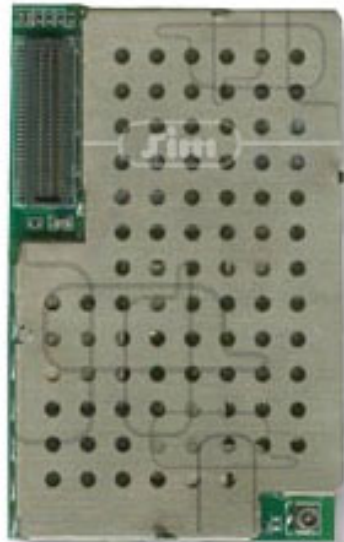


## iTrac with SIM100 GPRS Module Manual

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## I. Introduction

iTrac is designed with GSM and GPRS tracking unit. All options on the iTrac unit can be updated using GPRS or direct connection with USB data cable, control output by sending an SMS message or use remote controller.



### Features:

SMS, GPRS  
Support TCP/IP  
Support 16 GPS channels “all in view” tracking  
User password management  
Battery Backup  
Warning alarm on low battery(default <11.5V)  
I/O circuit protection  
Remote control

## II. Getting Started

### Warning

FCC regulations state that:

1. The Grantee of a license has the responsibility of assuring that all equipment operated under that license conforms to the specifications of the license.
2. The RF power output of a radio transmitter shall be no more than that required for satisfactory technical operation considering the area to be covered and local conditions.
3. The frequency, deviation, and power of a radio transmitter must be maintained within



specified limits. It is recommended, therefore, that these three parameters be checked before the station is placed in service.

#### REMEMBER

The efficiency of the equipment depends upon a good installation. Telstar recommends that adjustments to this equipment be made **ONLY** by a certified technician.

#### CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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The equipment accessories are approved by FCC and only accessories from Telstar Telecom Inc. are qualified for this equipment applications. Detail information see FCC part 15.27.

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#### IMPORTANT

- (a) Only shielded cables, antennas, and special connectors from Telstar Telecom Inc. can be used in this system. Information detailing any alternative method used to supply the special accessories shall be must be approved by FCC and included in the application for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of the text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.
- (b) If a device requiring special accessories is installed by or under the supervision of the party marketing the device, it is the responsibility of that party to install the equipment using the special accessories. For equipment requiring professional installation, it is not necessary for the responsible party to market the special accessories with the equipment. However, the need to use the special accessories must be detailed in the instruction manual, and it is the responsibility of the installer to provide and to install the required accessories.
- (c) Accessory items that can be readily obtained from multiple retail outlets are not considered to be special accessories and are not required to be marketed with the equipment. The manual included with the equipment must specify what additional components or accessories are required to be used in order to ensure compliance with this part, and it is the responsibility of the user to provide and use those components and accessories.
- (d) The resulting system, including any accessories or components marketed with the equipment, must comply with the regulations.



## IMPORTANT INFORMATION

### (FCC Part 15.105)

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.

#### Start Operation:

1. Plug in the USB data cable in both computer and iTrac. Go to device manager and click "COM and LPT" to see which com port the USB data is in (example: got com port 8)
2. Plug in the USB smart driver and see which two com port is generated (example got com port 5 & 6)

please change COM5, COM6 and COM8 baud rates to 4800.

- A. Double click "Prolific USB-to-Serial Comm Port (COM5)"
- B. Select COM Setting icon and change it's baud rate to 4800 and "flow control (F)" to "Non"

Repeat the step to change COM6 and COM8 baud rate setting

3. Turn on iTrac power, the LED for USB set up would be ON then enter into the software. A window will appear with red cursor.
4. Go to ITrac+ on the tool bar of the software

Output port 1(pink): OFF → deactive ; ON → active

N.B. please note that for safety reasons, when send command Output 1(immobiliser) ON the immobilising effect can only direct activated when ACC is OFF! Or immobilising active after ACC turned OFF

Output port 2(blue): OFF → deactive ; ON → active

Remote Controller: Disable → remote control disable ; Enable → remote control enable

Remote Control With Mobile Phone: Disable → can't control unit use mobile phone



Enable → can control unit use mobile phone by send text message (command code) to iTrac.

Arm: OFF → disarm ; ON → arming.

When arming mode, NO real time data send back to base(stop send data position).

NOTE: At ARM mode when input 1 or input 2 is activated, output 1 will automatically be triggered.

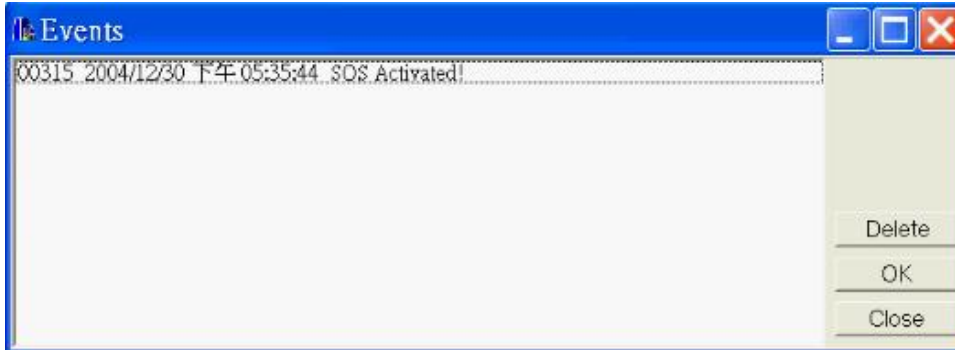
Data Sends through GPRS: Stop → unit stop send data use GPRS ; Go → Unit send data use GPRS

Data Sends through SMS: Stop → unit stop send data use SMS ; Go → Unit send data use SMS

Restart: restart iTrac

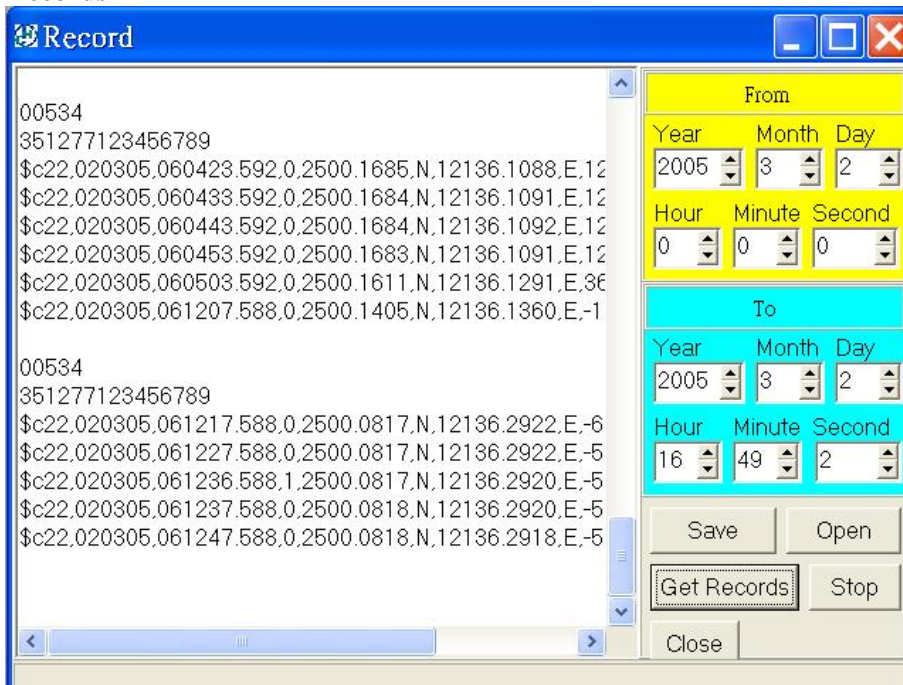
Get Current Position: request current position, speed and course

### Events



Warning alarm shown in “Events” when one of “SOS, low battery, input 1, input2 have been activated”

### Records



Get Records from iTrac memory

## III. Upgrade iTrac with new OS



For iTrac OS V1.0 or higher allow upgrade it's OS firmware use USB cable

How to know your current iTrac OS version

1. Enter to "USB SETUP mode"
2. open hyperterminal with 4800 8-N-1
3. enter code **C18** and press enter, eTrac will show you its current OS version

**Please check the "PC board number"**

If the number appears to be "931001D2" please use the "ITrack5a\_V12.upd" file to upgrade  
if the number appears to be "931001D1" please use the "ITrack5\_V12.upd" file to upgrade  
you can find it on our ftp site

In order to upgrade the firmware, you have to down load the latest iTrac software V3.201 "SBoxServer050408" or higher. you can also find the file on our ftp site

Please follow the steps below to upgrade the firmware

1. Extrac and install the file
2. A short cut "SboxServer3.101.exe"will appear on the desktop
3. open the file and get into USB mode (as what you would do when you try to configure iTrac at the start)
4. Go to "Command" on the tool bar
5. Click "update firmware" in the command window
6. Select the appropriate firmware file according to your PC board number and click open
7. Click "Yes" to send the updated firmware to the unit
8. Update should finish in less than 2 minutes

#### **IV. GPRS Data Setup and Operation**

It is very important to understand the basic operation of **GPRS** network and how the data is sent. We suggest you to check with your GSM service provider for the charges and availability of GPRS data transfer. Charges for sending data are different in every country in the world.

For sending data we use **TCP/IP** protocol. This protocol uses **complete handshaking** (No data can get lost or corrupted while sending).

It is very cost effective to send data with GPRS as 10,000 bytes of data will only cost about 10 cents, but sending 1 text message (only 160 bytes) will cost about 20 cents (cost depends on country and GSM service provider). GPRS is more than 124 times cheaper than using SMS messages!

**i. Before you can use GPRS**

Before you can use GPRS you need to find out from your GSM provider the following information:

1. ISP login and password name.
2. APN(Access Point Name)

If GPRS is not available by your GSM provider than enable SMS only.

#### **V. Command Activation Codes and Data Format**

When iTrac receives SMS messages it will only accept messages that come from the 1<sup>st</sup> mobile phone number preset in call parties.

Note: it needs a space between c1 and x; c2 and x; c3 and x; c5 and x



**Functions and options that can be set remotely by text messages(SMS)!**

iTrac only listens command code that comes from the 1<sup>st</sup> preset number in **Called parties for the following cases** and confirm message will be sent back after one below command codes

c1 x → ( x=0 Output 1 OFF  
x=1 Output 1 ON)

c2 x → ( x=0 Output 2 OFF  
x=1 Output 2 ON)

c3 x → ( x=0 Remote Controller Disable  
x=1 Remote Controller Enable)

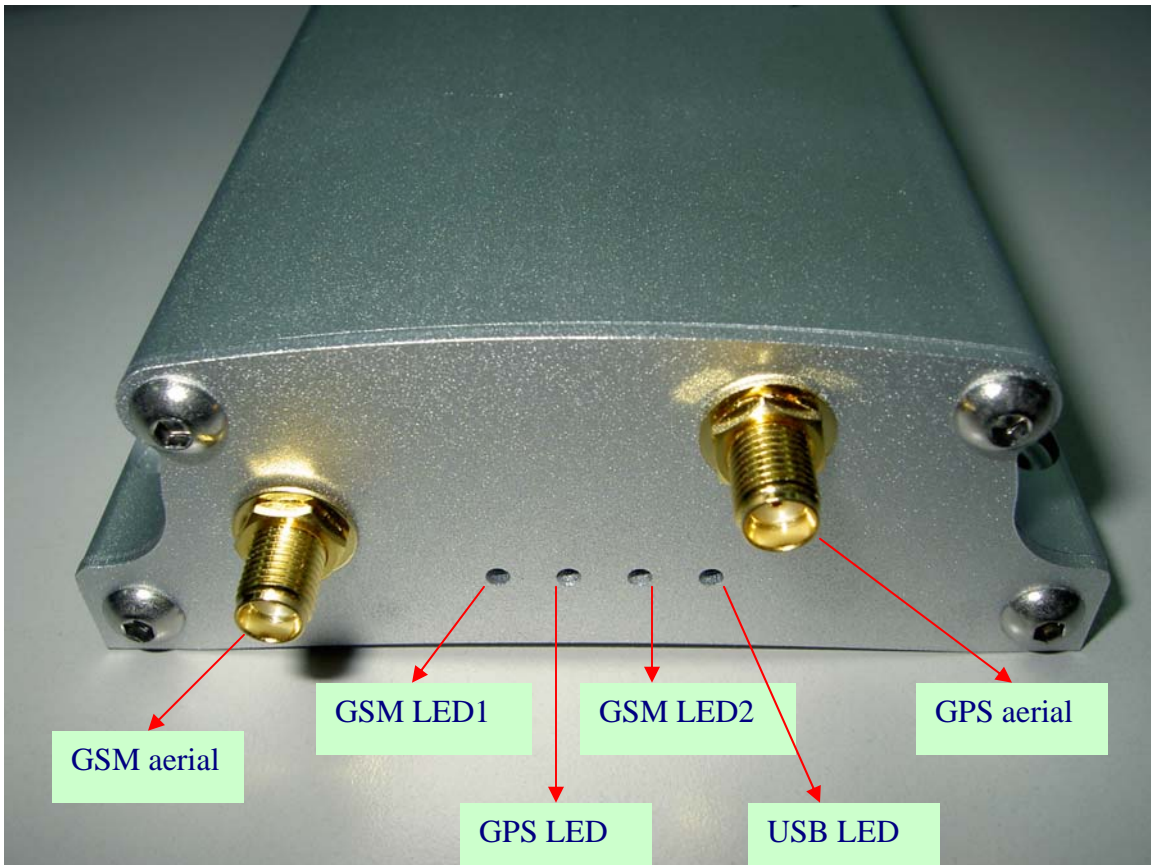
c5 x → ( x=0 Arm OFF  
x=1 Arm ON)

c8 → Reset

a **confirm message will be sent back** to 1<sup>st</sup> preset number after one of command codes above send successful to unit.

Ex: c1ok

**VI. iTrac LED status Indication**





**Please Check your iTrac GPS Chipset at PCB:**

**With FORMAX GPS module**

<b>GSM LED1 status</b>	<b>Functions</b>
90 ms ON/ 180 ms OFF (quick flash)	No SIM card present / No PIN entered / Network login in progress
90 ms ON/ 3 sec OFF (slow flash)	GSM connected

<b>GPS LED status</b>	<b>Functions</b>
90 ms ON/ 90 ms OFF (quick flash)	No GPS satellite signal received
ON	GPS ready

<b>GSM LED2 status</b>	<b>Functions</b>
ON	No SIM card present / No PIN entered / Network login in progress
OFF	GSM connected and start to use

<b>USB LED status</b>	<b>Functions</b>
OFF	No USB connected
ON	USB connected, enter USB setup*

When the unit is in USB status, GSM is offline.

\*To enter USB status: Must connect USB data cable to iTrac before power ON

**With NEMERIX GPS module**

<b>GSM LED1 status</b>	<b>Functions</b>
90 ms ON/ 180 ms OFF (quick flash)	No SIM card present / No PIN entered / Network login in progress
90 ms ON/ 3 sec OFF (slow flash)	GSM connected

<b>GPS LED status</b>	<b>Functions</b>
90 ms ON/ 90 ms OFF	No GPS satellite signal received
30 ms ON/ 90 ms OFF	GPS ready

<b>GSM LED2 status</b>	<b>Functions</b>
90 ms ON/ 90 ms OFF	GPRS login in progress
OFF	GPRS connected and start to use

<b>USB LED status</b>	<b>Functions</b>
OFF	No USB connected
ON	USB connected, enter USB setup*





## VII. iTrac Connections

**Red → +12Volt ONLY** –input power for the unit must be in the range of +9 to +24 volts for the unit to operate correctly. **A direct connection to the vehicles fuse box is preferable.** There is a fuse in this cable to protect the +12 volt input on the unit.

**Black → Earth** –connected to car chassis ground

**Orange → Internal Battery Switch**

**Yellow (input 1) → ACC**, connect to ground, active when High

**Blue(Input 2)→ Door**, connect to ground, active when Low

When input 1 or input 2 is activated, output 1 will automatically be triggered only if ACC is off.

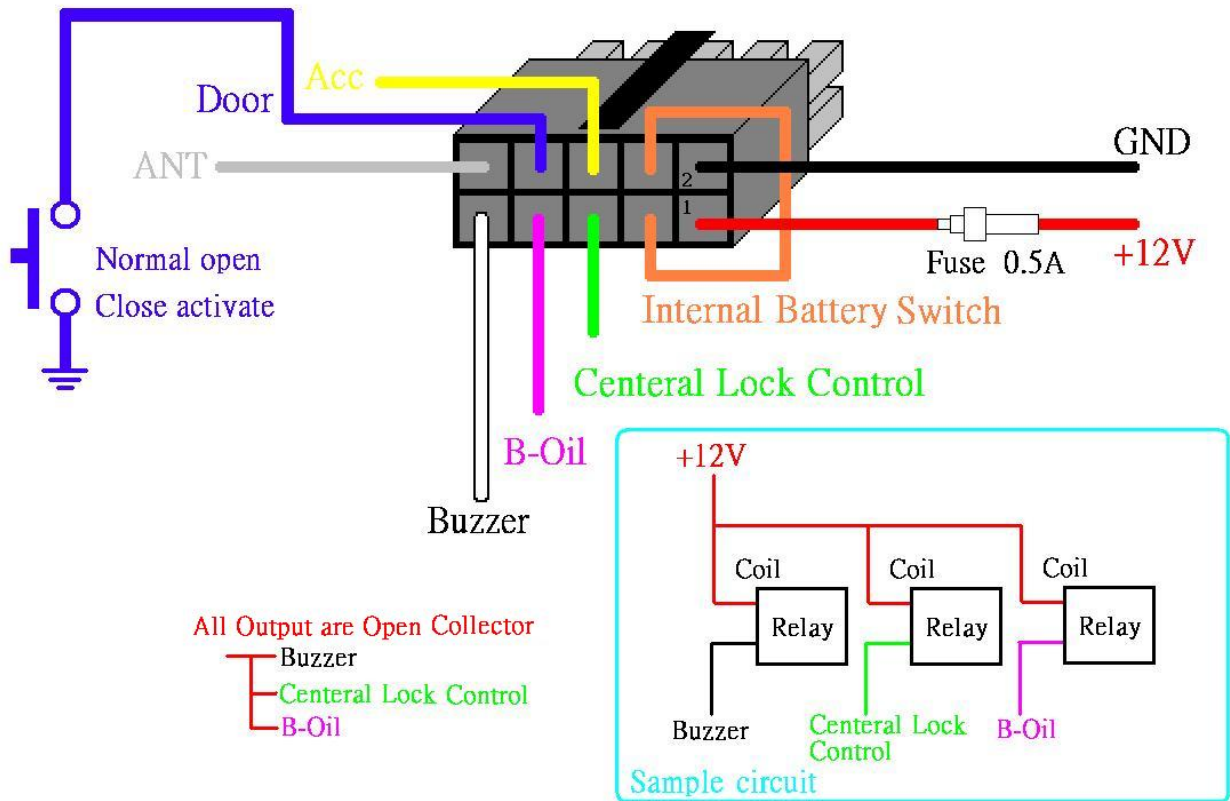
**Pink(Output 1)→ B- Oil**, connect through a relay (500mAmp) to fuel pump.

**Green(Output 2) → Central Lock Control**, connect through a relay (500mAmp) to open car doors

**White → Buzzer**

**Gray → ANT**

## VIII. iTrac Main Connector Pinout



## IX. Technical Specifications (Main Unit)

The GPS and GSM modules are integrated inside the tracking unit case.



### Physical Characteristics:

Unit size: 95L \* 89W \* 35H (mm)

Weight: 300 g

Aluminium

Interface: 2 I/Os, 1 Mini USB port, 4 LED lights for GPS,GSM and USB status

### Case Environmental Characteristics:

Operational Temperature: -35C to +75C (board temperature)

Storage Temperature -45C to +90C



**Electrical Characteristics:**

GSM: 900/1800 or 850/1800/1900

Input Voltage: + 12V DC

Power Consumption: Standby: 12 Volt – 20 mA ; 12 Volt – 30 mA (Peak)

Transmitting: 12 Volt – 100 mA ; 12 Volt – 130 mA (Peak)

Backup Battery: Rechargeable Li Battery at 1000 mA

Backup Battery life: 6 Hours with GPS and Communication ONLINE -- **Depends on battery age, last charge, approximate only**

Memory Backup: Flash Memory 1MB (1000000 \* 8 Bits data)

Up to 10000 individual locations can be saved

Two negative outputs (200mA max per output).

Two inputs (active low/high to activate input).

Detects external power loss.

\* Power input protected against wrong connection and voltage >24 Volt

\* All Inputs are protected against high voltage

**GPS Specifications:**

Frequency L1, 1575.42 MHz

GPS gain: -152 dbm

Protocol: NMEA0183

Channels 16 Accuracy

Position 25 meters CEP without SA

Hot start <10 sec., average

Warm start <38 sec., average

Cold start <45 sec., average

**Remote Controller**

Remote controller frequency: 434Mhz

**GPS / GSM Antenna Specifications:**

GAA11

MGA300 / CH621