

User Guide

GenTrack 23e



Reference : EG_GenTrack_23e_997_UG_005_UK

Revision : 005

Date : 09/03/2010

Document history

Revision	Modifications	Author	Date
000	CREATION	Y. STROMBONI	30/10/07
001	Updating	Y. STROMBONI	27/06/08
002	Updating	Y. STROMBONI	20/10/08
003	Updating	F. LE BRETON	14/05/09
004	Updating	BBO	18/06/09
005	New keypad with three buttons. Introduction on the configuration tool : GenTrack Config Updated WARNING section Updated new messages with the embedded application EaseTrack V1.10	BBO	09/03/10

The main modifications in this document compared to its previous version are easily identifiable on a screen by the blue color of the text.

TABLE OF CONTENTS

PRESENTATION 5

WARNING 6

COPYRIGHT 7

1 REFERENCES 8

1.1 REFERRED DOCUMENTS 8

1.2 APPELLATIONS AND ABBREVIATIONS 8

2 PACKAGING 10

2.1 GENTRACK 23E (ONLY) 10

 2.1.1 Content 10

 2.1.2 Cardboard packaging 10

 2.1.3 Casing labels 11

2.2 STARTER KIT GENTRACK 23E 11

 2.2.1 Content 11

 2.2.2 Cardboard packaging 12

2.3 OPTION LEATHER BAG FOR BELT 12

3 GENERAL PRESENTATION 13

3.1 DESCRIPTION 13

3.2 EXTERNAL CONNECTIONS 14

 3.2.1 GenTrack 23e connections 14

 3.2.2 Charger connections 14

 3.2.2.1 Micro Fit connector 14

 3.2.2.2 USB connector 14

 3.2.3 Accessories supplied in the Starter-Kit 15

 3.2.3.1 Supply cable 15

 3.2.3.2 USB 2.0 type A Male and type B Male cable 15

 3.2.3.3 Power supply 16

 3.2.3.4 Fixing clip 16

4 CHARACTERISTICS AND SERVICES 17

4.1 GSM / GPRS FUNCTIONS: 17

4.2 GPS FUNCTION 17

4.3 FUNCTIONS 18

4.4 INTERFACES 18

4.5 AUTONOMY 18

5 USING THE GENTRACK 23E 20

5.1 STARTING WITH THE GENTRACK 23E 20

 5.1.1 Installation de the SIM card 20

 5.1.2 GenTrack 23e status when powering on 21

 5.1.3 GenTrack 23e configuration (by default) 21

 5.1.4 GenTrack 23e installation 21

 5.1.4.1 Installation of the GenTrack 23e on a USB port 21


 5.1.4.2 USB Drivers Installation 21


 5.1.5 Checking the USB communication with the GenTrack 23e 25


 5.1.5.1 With the configuration tool "GenTrack Config" 25

 5.1.5.2 With a software Terminal like Hyper Terminal® 25




5.2 BUTTONS OF THE GENTRACK 23E 26

 5.2.1 Button  26

 5.2.2 Button  26

 5.2.3 Red button "SOS"  26

5.3 LEDS OF THE GENTRACK 23E 27

5.3.1 GPS led 	27
5.3.2 GSM led 	27
5.3.3 CPU Led 	28
6 CHARGER SUPPLY.....		29
6.1 GENERAL PRESENTATION		29
6.2 TIME OF CHARGE.....		30
7 TROUBLE SHOOTING.....		31
7.1 COMMUNICATION PROBLEM BETWEEN THE GENTRACK 23E AND THE USB LINK		31
8.1 ARCHITECTURE		32
8.2 INTERNAL PROCESSOR		33
8.2.1 EGM presentation		33
8.2.2 EGM Architecture.....		33
9 TECHNICAL CHARACTERISTICS		34
9.1 ELECTRICAL CHARACTERISTICS OF THE BATTERY CHARGE		34
9.1 AUDIO CHARACTERISTICS (OPTION).....		35
9.3 MECHANICAL CHARACTERISTICS		35
9.4 ENVIRONMENTAL CHARACTERISTICS.....		36
9.4 STANDARDS/CONFORMITIES		36
10 SECURITY RECOMMENDATIONS.....		37
11 RECOMMENDED ACCESSORIES.....		38
12 CLIENT SUPPORT.....		38
DECLARATION OF CONFORMITY.....		39

Presentation

Entirely dedicated to goods and isolated persons tracking, the GenTrack 23e combines GSM/GPRS and GPS functions in a single robust casing. With its function of verticality loss coupled with the Audio option (microphone + loudspeaker), it provides a real protection of isolated persons.

Autonomous and discreet, the GenTrack 23e integrates GSM and GPS antennas as well as new technology rechargeable batteries, associating an optimized management of the energy. The GPS data may be transmitted by SMS, data GSM or GPRS.

The GenTrack 23e is Quad-Bands (850/900/1800/1900 MHz) GSM/GPRS Class 10. Its GPS solution, with high sensitivity and quick acquisition, ensures data collection in difficult environmental conditions.

Its IP connectivity (TCP, UDP, FTP) integrated in the embedded application, locally or remotely programmable, allow a quick installation of embedded telematic solutions with high added value.

[The GenTrack 23e is delivered with an integrated rechargeable battery LiPolymer 3.7 Vdc / 2.6 Ah](#)

The GenTrack 23e provides an operating system '**EGM**' (Erco & Gener Middleware) which allows the development of its own applications.

For more information concerning this document, ERCO & GENER puts at your disposal the following elements:

- Commands List
- Application Note
- Release Note
- Client Support (Hot-Line)

Warning

- Erco&Gener advises to read carefully all the documents concerning the GenTrack products (User Guide, Application Notes, Command List).

 - ERCO & GENER cannot be held responsible for :
 - The problems due to an inappropriate use of the GenTrackxxe.
 - The problems due to a wrong configuration
 - The problems due to a wrong use of an embedded software application developed and supplied by a third party.
 - The dysfunctions due to the absence or a bad coverage of the GSM, GPRS and GPS networks.
 - The dysfunctions if the product is used for the watching of physical persons where human life is engaged.

 - ERCO & GENER reserves the right to modify the functions of its products "GenTrackxxe", "EaseTrack" and "GenTrack Config" without previous notice.
-
- The casing can be opened by the user only to insert or remove the SIM card.
 - For any functioning, the casing must be closed.
 - No internal part can be repaired by the user. The **GenTrack 23e** must be returned to the factory for any repair.
 - The **GenTrack 23e** must be placed in a normally ventilated area, out of sources of heat.
 - In order to guarantee the electromagnetic compatibility, the length of the USB cable and the supply cable of the charger, must not exceed 3 meters.
 - The **GenTrack 23e** must not be connected directly to the mains supply; a voltage adapter must be used through its base only.

 - SCRAP THE WORN BATTERIES ACCORDING TO INSTRUCTIONS.

Copyright

The reproduction, transfer, distribution or storage of part or the totality of the contents of this document, in any form, without the prior written authorization of ERCO & GENER is strictly prohibited.

GenTrack 21e and **GenTrack 23e** are trademarks of ERCO & GENER.

Hayes is a registered trademark of Hayes Microcomputer Product Inc. The names of products and companies mentioned in this document may be names or trademarks of their respective holders.

The use of some products or services described in this document may require a paying subscription. The availability of some products or services described in this document may change, depending on the configurations and the materials.

In some countries, restrictions of use of the devices may be applied. For more information, thank you to contact your nearest legally qualified local government representative.

ERCO & GENER follows a method of continuous development. Consequently, ERCO & GENER reserves the right to change and improve any of its products described in this document, without previous notice.

The contents of this document are provided "as it is". Except for the applicable obligatory laws, no guarantee in any form, explicit or implicit, including but without being limited to it the implicit guarantees of aptitude to marketing and of appropriateness to a particular use, is granted concerning the precision, the liability or the contents of this document. ERCO & GENER reserves the right to revise or withdraw this document at any time and without notice.

In any case, ERCO & GENER cannot be held responsible for any loss of data or income, as well as particular damage, incidental, consecutive or indirect.

1 References

1.1 Referred documents

Commands List of the embedded application EaseTrack developed by ERCO & GENER:
[EG_EaseTrack_01_CL_xxx_UK.pdf](#)

Software updating procedure:

[EG_GenTrack23e_997_UP_xxx_yy](#)

EGM Commands List of ERCO & GENER:

AOB Products Technical Document ([EG_AOB_xxx_UG_xxx_UK](#) revision x).

GSM reference documents:

- GSM 07.05.
- GSM 07.07.

1.2 Appellations and Abbreviations

The terms "**Unit or Module or GenTrack**" refer to a **GenTrack 23e**

The terms "**Base, Charger**" refer to the GenTrack base which is necessary to charge the battery and to dialog / set the parameters via USB.

AC	Alternative Current
ACM	Accumulated Call Meter
A-GPS	Assisted GPS
AMR	Adaptive Multi-Rate
AOB	Application On-Board
AT	Attention (prefix for modem commands)
BTS	Base Transceiver Station
CLK	Clock
CMOS	Complementary Metal Oxide Semiconductor
CS	Coding Scheme
CTS	Clear To Send
dB	Decibel
dBc	Decibel relative to the Carrier power
dB_i	Decibel relative to an Isotropic radiator
dB_m	Decibel relative to one milliwatt
DC	Direct Current
EFR	Enhanced Full Rate
EGM	Erco Gener Middleware
E-GSM	Extended GSM
EMC	ElectroMagnetic Compatibility
EMI	ElectroMagnetic Interference
ESD	ElectroStatic Discharges
ETSI	European Telecommunications Standards Institute
FIT	Series of connectors (micro-FIT)
FR	Full Rate
FTA	Full Type Approval
FTP	File Transfert Protocol
GCF	Global Certification Forum
GND	GrouND
GPIO	General Purpose Input Output
GPRS	General Packet Radio Service

GPS	Global Positioning System
GSM	Global System for Mobile communications
HR	Half Rate
I	Input
IEC	International Electrotechnical Commission
IMEI	International Mobile Equipment Identification
I/O	Input / Output
LED	Light Emitting Diode
LLC	Low Level Command
MAX	MAXimum
ME	Mobile Equipment
MIC	MICrophone
Micro FIT	Family of connectors from Molex
MIN	MINimum
MNP	Microcom Networking Protocol
MO	Mobile Originated
MS	Mobile Station
MT	Mobile Terminated
NOM	NOMinal
O	Output
Pa	Pascal (for speaker sound pressure measurements)
PBCCH	Packet Broadcast Control Channel
PC	Personal Computer
PCL	Power Control Level
PDP	Packet Data Protocol
PIN	Personal Identity Number
PLMN	Public Land Mobile Network
PUK	Personal Unblocking Key
RF	Radio Frequency
RFI	Radio Frequency Interference
RI	Ring Indicator
RMS	Root Mean Square
RTS	Request To Send
RX	Receive
SIM	Subscriber Identification Module
SMA	SubMiniature version A RF connector
SMB	SubMiniature version B RF connector
SMS	Short Message Service
SNR	Signal-to-Noise Ratio
SNTP	Simple Network Time Protocol
SPI	Serial Peripheral Interface
SPL	Sound Pressure Level
SPK	SpeaKer
SRAM	Static RAM
TCP/IP	Transmission Control Protocol / Internet Protocol
TDMA	Time Division Multiple Access
TU	Typical Urban fading profile
TUHigh	Typical Urban, High speed fading profile
TX	Transmit
TYP	TYPical
UTC	Universal Time Clock
VSWR	Voltage Stationary Wave Ratio

2 Packaging

2.1 GenTrack 23e (only)

2.1.1 Content

The GenTrack 23e is supplied with:

- The GenTrack 23e with its protecting cap,
- A technical sheet (Instructions Sheet),
- A fixing clip.



2.1.2 Cardboard packaging

External dimensions of the modem packaging:

- Width : 73 mm,
- Height : 73 mm,
- Length : 145 mm.

A packaging label is stuck on the case. It shows:

- The ERCO & GENER logo,
- The product reference : GenTrack 21e or GenTrack 23e,
- The CE and RoHS Compliant marks,
- The IMEI barcode with 15 digits.

Dimensions of the label:

- Height: 37 mm,
- Length: 70 mm.

2.1.3 Casing labels

On the casing, the production label shows the following information:

- The mark GenTrack 21e or GenTrack 23e,
- The barcode of the IMEI with 15 digits.

The marks MADE IN FRANCE, CE and crossed bin (DEEE standards) are also marked inside the casing.

2.2 Starter Kit GenTrack 23e

The GenTrack 23e can be directly supplied packaged in Starter Kit with all the accessories under the reference: **4408100017**

2.2.1 Content

By default, the Starter Kit is supplied with:

- a GenTrack 23e equipped with a cap protecting the connector,
- a technical sheet (Instructions Sheet),
- a fixing clip,
- a charger
- an external power supply 230VAC 15W on μ Fit 4 points connector (ref : 0471210705),
- a DC supply cable on μ Fit 4 points with fuse (ref : 4402000100),
- a USB-A / USB-B M-M / 2m cable (ref : 1104000400).



2.2.2 Cardboard packaging

The external dimensions of the modem packaging are:

- Width : 154 mm,
- Height : 80 mm,
- Length: 208 mm.

A label is stuck on the rear side of the packaging. It shows:

- The logo ERCO & GENER,
- The product reference : GenTrack 21e or GenTrack 23e,
- The mark CE and RoHS Compliant,
- The IMEI barcode with 15 digits.

The dimensions of the packaging label are:

- Height: 37 mm,
- Length: 70 mm.

2.3 Option leather bag for belt

ERCO & GENER has developed a leather transport bag especially adapted to the GenTrack 23e. This bag is equipped with a belt clip.

Contact us

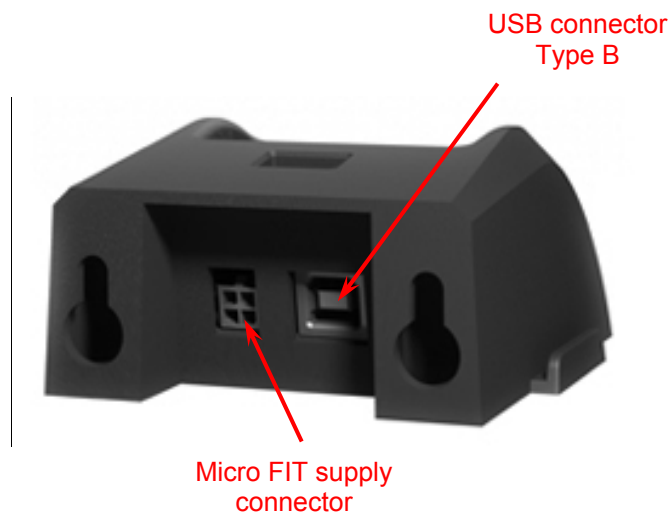
3 General Presentation

3.1 Description

Description of the front side of the GenTrack 23e with audio option:



Description of the charger:



3.2 External connections

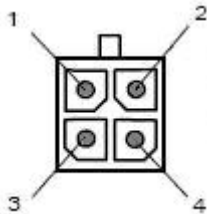
3.2.1 GenTrack 23e connections

WARNING: The GenTrack 23e can be powered to charge their battery only through their charger base.

3.2.2 Charger connections

3.2.2.1 Micro Fit connector

The Micro Fit 4-point connector is used to connect the external DC supply, used to charge the GenTrack.



Pin N°	Signal
1	+VDC
2	GND
3	NC
4	NC

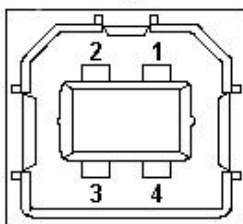
WARNING: The power voltage must be between 5 VDC mini and 15 VDC maxi.

3.2.2.2 USB connector

The USB connector (type B) is used for the connection of the USB 2.0 link (Full Speed compatible). The USB port is used to program and to recover the data stored in the GenTrack23e.

When there is no external supply connected on the Micro-Fit 4-point connector, the USB supply can be used for a slow charge of the unit (the time of charge depends on the voltage available on the USB output)

USB type B



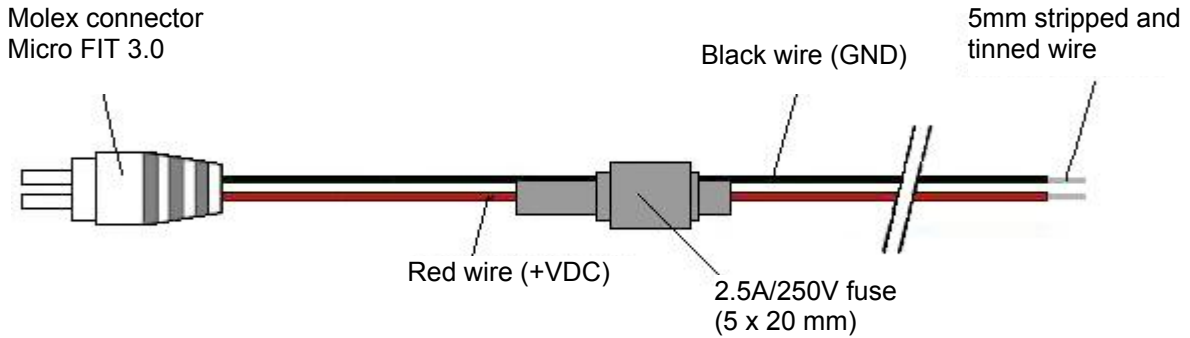
Pin N°	Name
1	Supply +5V (VBUS) 500mA max.
2	Data (D-)
3	Data (D+)
4	Ground (GND)

3.2.3 Accessories supplied in the Starter-Kit

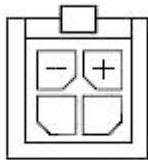
3.2.3.1 Supply cable

The 2-wire Micro Fit cable allows to supply the charger base from an external DC source.

WARNING: The power voltage must be between **5 VDC mini and 15 VDC maxi.**



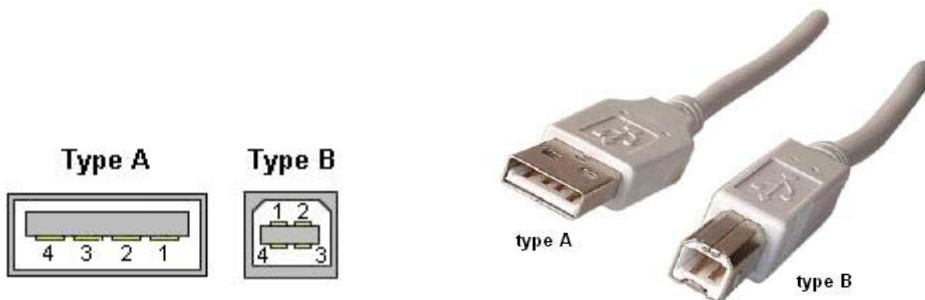
View from cable side



Component	Characteristics
4-pin Micro FIT connector	Supplier : MOLEX
Cable	Length ≈ 1.5m
Wire	Tinned copper 24 x 0.2 mm Section : 0.75 mm ²
Fuse	L2.5A L250V

3.2.3.2 USB 2.0 type A Male and type B Male cable

The USB type A Male et type B Male cable allows the dialog via the USB port between the GenTrack 23e and a communication terminal type USB-A.



Pin N°		Description
Type A	Type B	
1	1	Power supply +5V (VBUS) 500mA max.
2	2	Data (D-)
3	3	Data (D+)
4	4	Ground (GND)

Component	Characteristics
Cable USB 2.0	Length ≈ 2 m
	USB type A Male USB type B Male

3.2.3.3 Power supply

This power supply 230 Vac / 12 Vdc – 1.2 A (15W) with 4-pin Micro-Fit connector allows to supply the charger base.

This external power supply is compact and light it is equipped with a European plug and a Micro-Fit connector to connect directly to the GenTrack 23e base.

Description :	Protected against short-circuits.
AC input voltage	100-240 Vac / 0,4 A à 50-60 Hz
DC output voltage	12 Vdc ± 5% 1250 mA
Operating temperature	0 to +40 °C
Relative humidity	30% - 85%RH
Standards	CE – CB - EN60950 (VDE)- T MARK – UL1310 – UL1950 – CSA 22.2,NO.950
Cable length	2m ±15cm
Output connector	4-pin Micro-Fit connector for GenTrack 23e
Dimensions	78 x 53 x 34 mm
Weight	140 gr

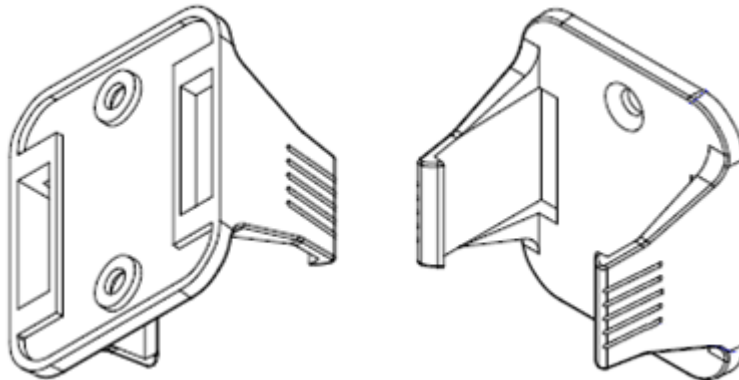


3.2.3.4 Fixing clip

This clip allows to fix the GenTrack 23e on a wall support for example.

Diameter of the 2 fixing holes: Ø 5,8 mm

Pitch between the 2 fixing holes: 40 mm



4 Characteristics and Services

The GenTrack 23e is a portable equipment that transmits a GPS position via the GSM network, with a SMS or a GPRS link.

By default, the GenTrack 23e is supplied with an embedded application "**EaseTrack**" developed by ERCO & GENER which allows, after having set the parameters, a use in Tracking mode or people tracking (Vocal option necessary) or PDS (Prise de Service)

ERCO & GENER also proposes an operating system '**EGM**' (ERCO & GENER Middleware) which allows the development of embedded applications for the GenTrack 23e.

***EGM** development kit and trainings, contact us*

4.1 GSM / GPRS functions:

- E-GSM Quad-bands 850/900/1800/1900 MHz
- ETSI GSM Phase 2+
- Class 4 (2W @ 850 / 900 MHz)
- Class 1 (1W @ 1800 / 1900 MHz)
- GPRS Class 10 (Up to 4Rx / 2Tx)
- Supports PBCCH, Coding scheme: CS1 to CS4
- Library (PPP, TCP, UDP, FTP)
- Asynchronous data circuit, transparent and non-transparent up to 14400 bits/s
- SMS point to point MT/MO and SMS CB (Cell Broadcast)

4.2 GPS function

- 50-channel μ Blox NEO5 receiver
- Precision:
 - 2,5 meters CEP
 - 2m CEP (DGPS SBAS)
 - A-GPS
- Acquisition time:
 - Hot start: < 3 sec
 - Cold start: < 32 sec
- Reacquisition time after loss of signal: < 1 s
- High sensitivity: -160 dBm in Tracking
- Protocols: NMEA-0183 Input/output - UBX

WARNING: The GPS module has a clock and a real time calendar (RTC).

To calibrate this date and this hour, the GPS module must have captured a valid position.

This clock is saved as long as the battery is not disconnected.

4.3 Functions

- A-GPS (Assisted GPS)
- Management of energy and programmable events
- 3 axis accelerometer ($\pm 2g$ / $\pm 8g$) :
 - Verticality
 - Movements
 - Shocks
- Storage capacity: 10 000 frames with the current basic application **EaseTrack** (changing with EGM development)
- Zones management (Géofencing)
- AT Commands
- Vocal functions
- Watchdog

4.4 Interfaces

- Integrated GSM / GPS antennas
- Rechargeable integrated battery : LiPolymer 3.7 Vdc / 2,6 Ah
- SIM reader (SIM 1,8 / 3V)
- Configurable buttons
- Microphone
- Loudspeaker / Transducer
- 3 configurable LEDs (GSM, GPS, Processor)
- Supplied with fixing clip
- Charger base:
 - Smart charge
 - Configuration (USB link)

4.5 Autonomy

IMPORTANT : The GenTrack autonomy mainly depends on the functioning mode and the selected parameters.

In the basic application **EaseTrack**(*) provided with the GenTrack 23e, the unit can be programmed according to several criteria like for example sending or not the data in GPRS TCP/IP, keeping it on or not between two measures of the GPS module, the use of not of the audio functions (buzzer, vocal mode) ...etc. The autonomy also depends on the GPS coverage. The use in "open sky" and the activation of the A-GPS (Assisted GPS) are strongly recommended.

Examples of autonomy (information given as an indication)

Mode	GenTrack 23e
TRACKING mode without sending data with a GPS capture every 60 mn.	60 days
TRACKING mode without sending data with a GPS capture every 1 mn.	60 hours

(*) The functioning of the basic application "**EaseTrack**" is described in the document "Command List" : [EG_EaseTrack_01_CL_xxx_UK.pdf](#) and in the associated application notes,

Note: A software for autonomy simulation will be soon available.

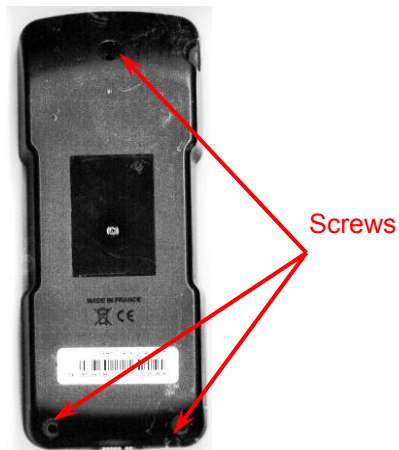
5 Using the GenTrack 23e

5.1 Starting with the GenTrack 23e

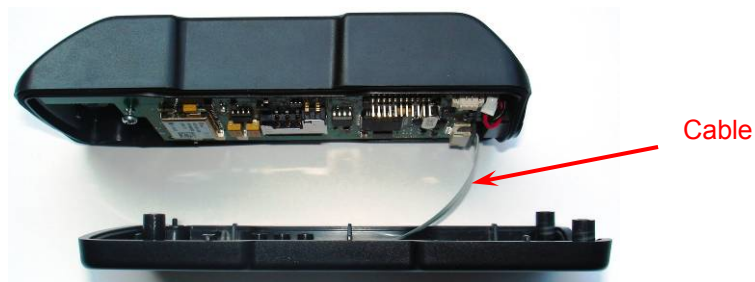
5.1.1 Installation de the SIM card

The GenTrack 23e is supplied without SIM card. The installation of the SIM card requires the opening of the unit.

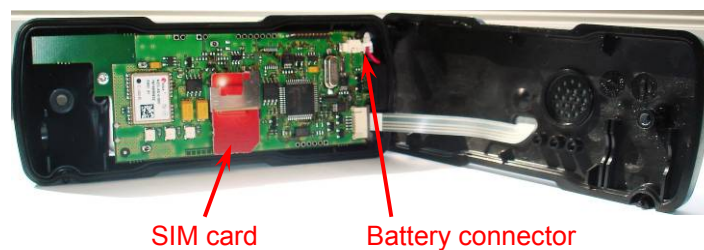
- Remove the 3 locking screws on the rear side of the equipment.



- Separate the front face delicately in order not to pull the keyboard cable out.



- Insert the SIM card, the SIM contacts bellow and the cut angle towards the outside of the casing.



WARNING: The PIN code of the SIM card must be unlocked (Cancel the request for PIN code).

- Check that the battery is correctly connected.
- Close the device.

5.1.2 GenTrack 23e status when powering on

When powering on (battery connection) and the unit put on the base charger, the EGM heart is operational and the lower Led is flashing (1hz) 

5.1.3 GenTrack 23e configuration (by default)

By default, the GenTrack 23e is configured as follows:

- Bits per second : **115200 bps,**
- Data Bits : **8 bits,**
- Parity : **without parity,**
- Stop Bits : **1,**
- Flow control : **None.**

5.1.4 GenTrack 23e installation

To install the GenTrack 23e on an USB port, we advise you to have the accessories supplied by ERCO & GENER in the Starter Kit.

5.1.4.1 Installation of the GenTrack 23e on a USB port

The accessories to use with the GenTrack 23e are:

- The base charger
- The USB cable Full Speed type A Male and type B Male,
- The referenced external power supply or the fuse-support external supply cable with Micro-Fit connector.

We advise you to do the following operations in the right order:

- For the Drivers installation and the powering on, see the following paragraph.

5.1.4.2 USB Drivers Installation

It is necessary to use the Drivers available on our website when using and installing the GenTrack 23e associated to a USB port.

The USB / GenTrack 23e Drivers are available on our website www.ercogener.com in the section: Support/ Utilities.

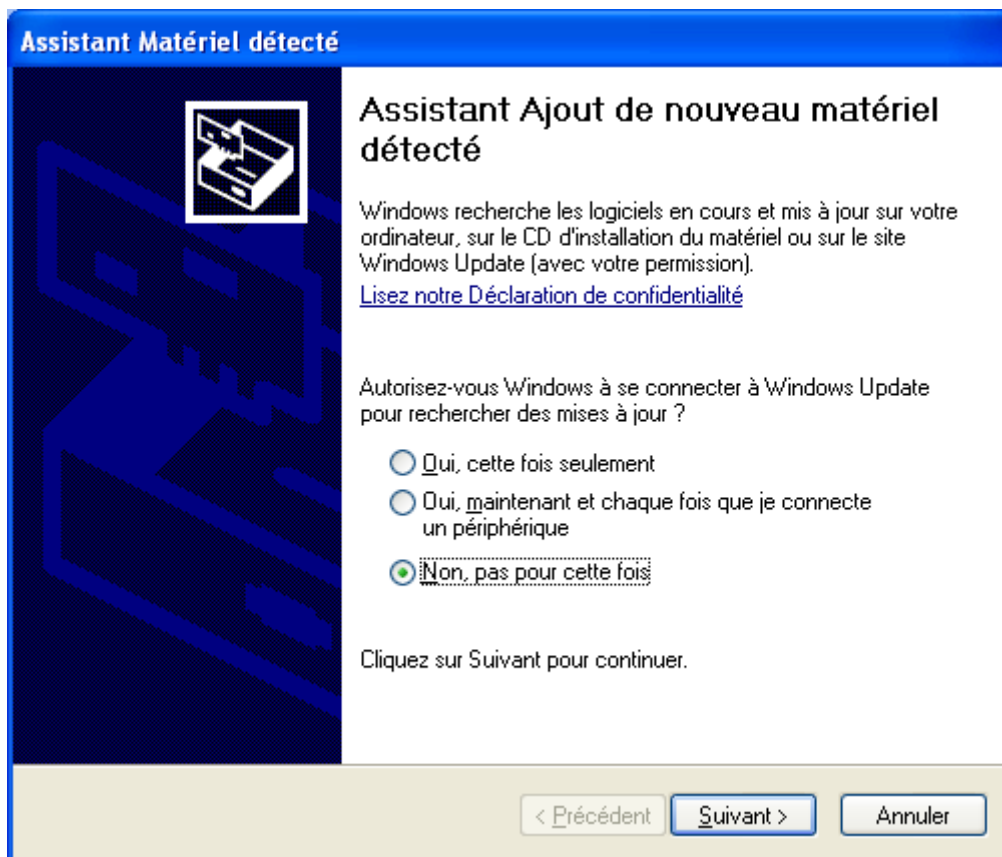
Depending on the different USB Drivers already made on your computer, the installation of the USB Driver (FT232R USB UART) for the GenTrack 23e will not be automatic and necessary.

For the installation, download and extract the file that contains the Drivers in a directory on the Hard Disk of the PC (example: C:\Drivers_GenTrack23e).

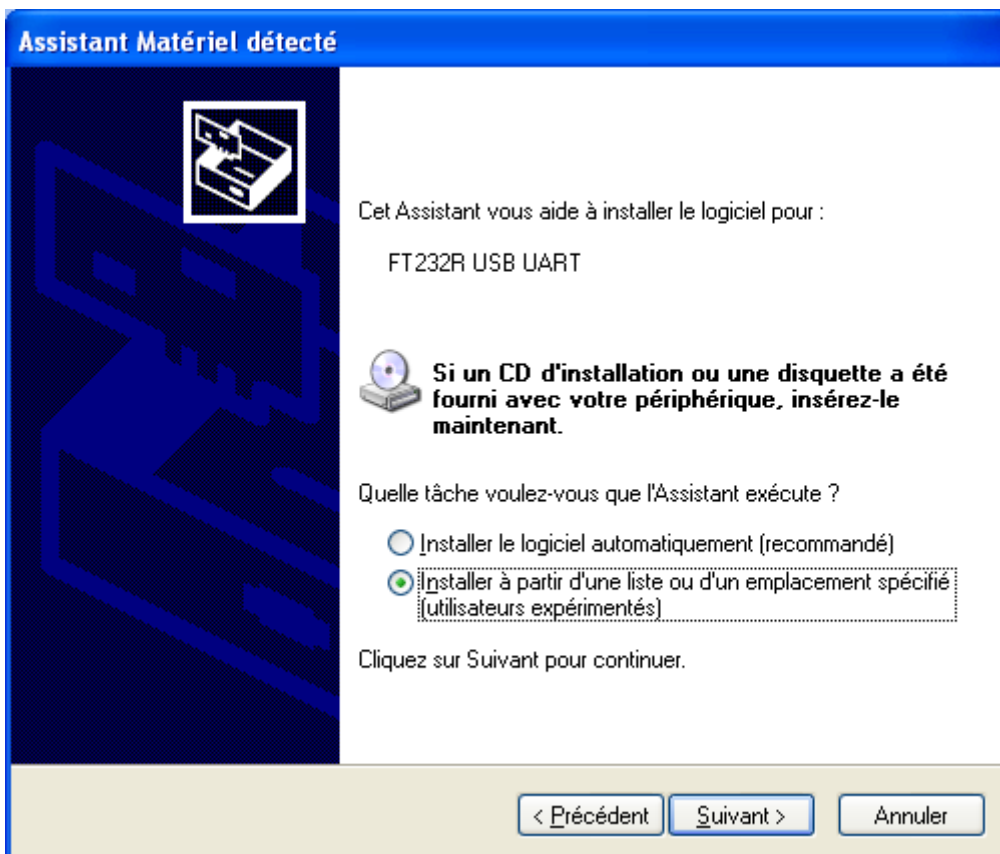
It is recommended to do the following operations in the right order:

- Connect the DC regulated external power source to the GenTrack 23e.
- For the connection to the DTE (PC), connect the USB cable.

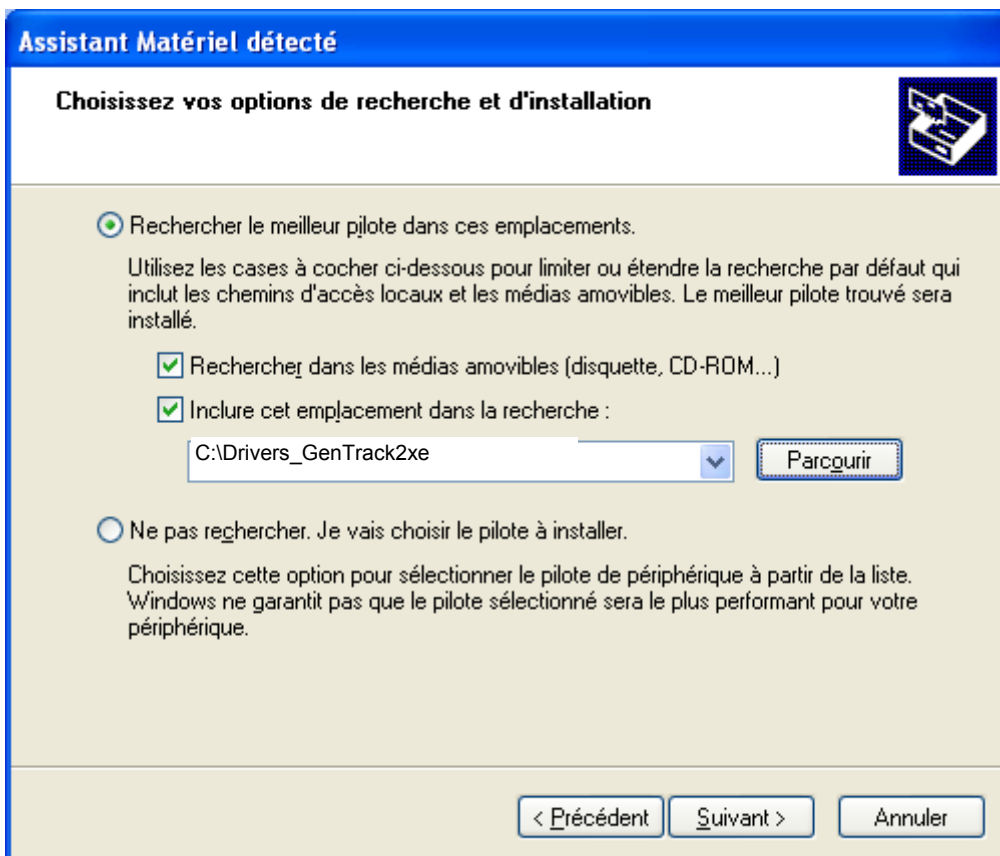
The following windows appear. It is recommended to follow the instructions in the following order:



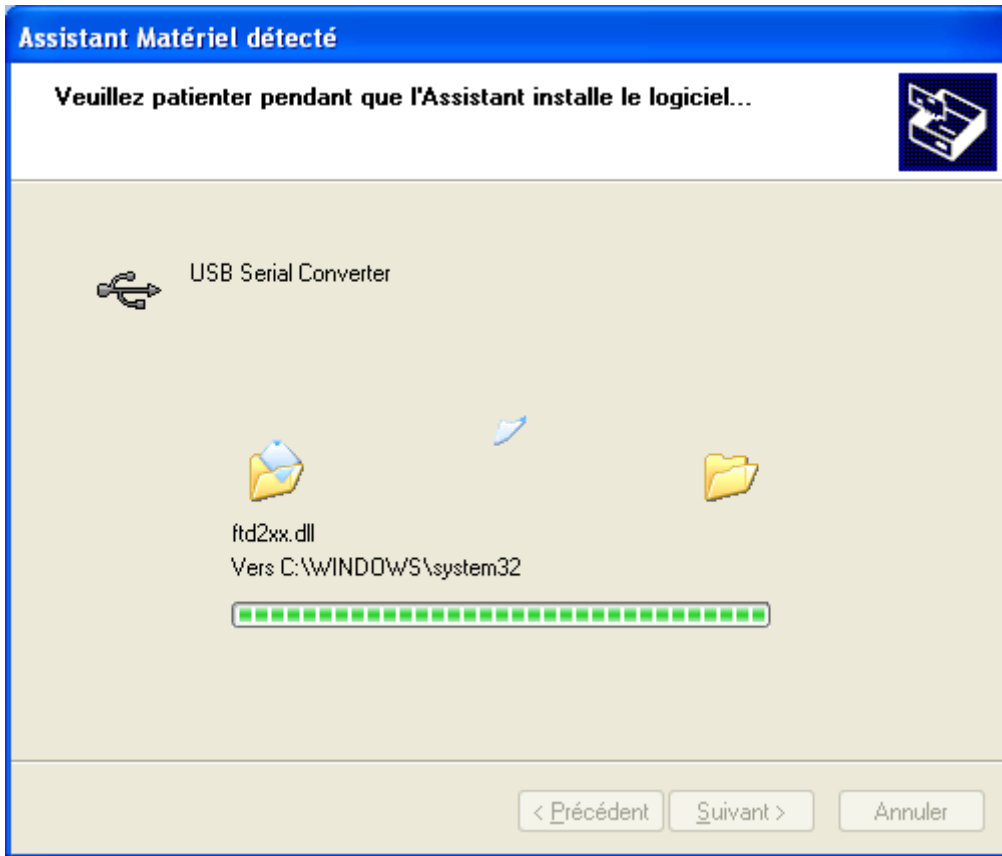
Click on "Suivant" ("Next")



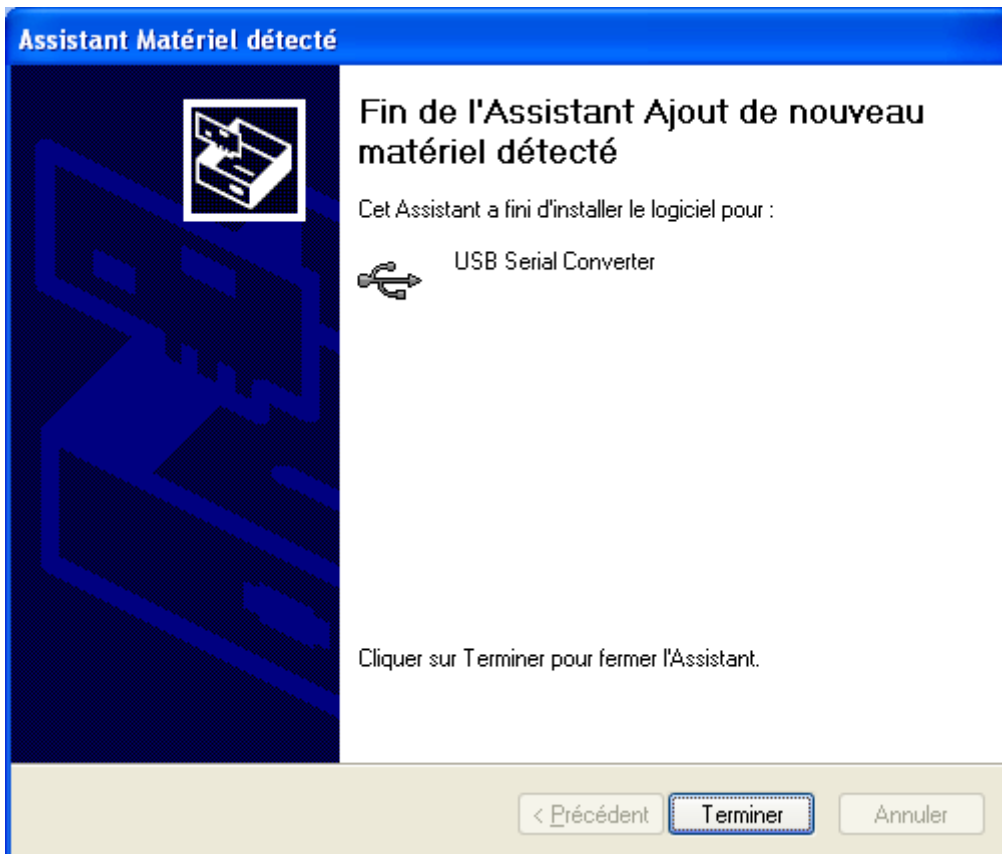
Click on "Suivant" ("Next")



Click on "Suivant" ("Next")



Wait while installing



Click on "Terminer" ("End"). The USB Driver is now installed.

5.1.5 Checking the USB communication with the GenTrack 23e

5.1.5.1 With the configuration tool "GenTrack Config"

Please, refer to the User Guide of the configuration tool "GenTrack Config":

EG_GenTrack Config_UG_xxx_yy.pdf

5.1.5.2 With a software Terminal like Hyper Terminal®

Connect the USB link between the terminal (DTE) and the charger support of the GenTrack 23e (DCE).

Configure the COM port of the DTE as follows:

- Bits per second : **115200 bps,**
- Data Bits : **8 bits,**
- Parity : **without parity,**
- Stop Bits : **1,**
- Flow control : **None.**

Use a communication software like Windows HyperTerminal®.

- Put the unit on the charger and wait for the initialization time of the CPU processor (less than 8 seconds).

Two possible displays are possible:

A – If the unit already contains an application:

The unit returns the following signature: (example of display):

```
*****
EaseTrack-01 V1.10, Date: Thu Jan 28 14:19:53      2010: initType = 0x0000
*** BALISE READY - active = 0, func = 2 ***
```

To read again the version of the embedded application:

Command	Response	Interpretation
ATi8	API: EaseTrack-01 V1.10, Date: Thu Jan 28 14:19:53 2010 OK	The activated and loaded version is V1.10

When the GenTrack 23e replies to the activated version, we can consider that the communication with the GenTrack 23e has been correctly established.

For more information about AT the commands proposed by the application **EaseTrack**, see the document "Command List" of the **GenTrack 23e** :
[EG_EaseTrack_01_CL_011_UK.pdf](#)

B – If the unit does not contain any application, it will return the du Boot-Loader menu Menu by default when there is no application in the unit (example of display):

```
Bootloader V2.31T2 UK Gentrack v2 (HW02)
Ren v2.21 hw 23
Power supply voltage = 4,15 V
1 - Update application
2 - Erase objects
M - GSM direct access
A - Advanced
P - Power off
E - Exit
```

For more information about the loading of an application in the GenTrack 23e, see the document "Upgrade Procedure" (EG_GenTrack23e_997_UP-AE_xxx_UK.pdf)

5.2 Buttons of the GenTrack 23e


Important:

The role of the buttons and the Leds entirely depends on the embedded application present in the unit.
In the basic application **EaseTrack** supplied with the GenTrack 23e, the roles are:

5.2.1 Button

This button  is the ON/OFF, it is mainly used to activate and to stop the unit.

5.2.2 Button

This button  is the TELEPHONE button; it is used for example to launch or cancel a vocal call or to launch a manual position capture.

5.2.3 Red button "SOS"

This button  is the emergency button; it can be used to launch or cancel a vocal call or to launch a manual position capture with a specific alarm login code.



For more information about the buttons management with the basic application of the GenTrack 23e, see the document "Command List" of the **GenTrack 23e** (EG_EaseTrack_01_CL_011_UK.pdf) and the application notes available for this product.


5.3 Leds of the GenTrack 23e

Important:

The role of the buttons and the Leds entirely depends on the embedded application present in the unit. In the basic application **EaseTrack** supplied with the GenTrack 23e, the roles are:



5.3.1 GPS led


The powering-on status of the GPS module is given by the GPS LED  situated on the front face. The table hereunder explains the signification of the different available status of the GPS LED .

LED status 	GenTrack 23e status
Off	The GPS module of the GenTrack 23e is off.
Slow flashing	(100ms / 1s) The GPS module of the GenTrack 23e is ON and tries to get a Fix GPS position.
Fast flashing	(100ms / 500ms) The GPS module of the GenTrack 23e is ON and a fix GPS position has been found.

This led is available for the user through the operating system 'EGM'.


5.3.2 GSM led


The powering-on status of the GSM module is given by the GSM LED  situated on the front face. The table hereunder explains the signification of the different available status of the GSM LED .


LED status 	GenTrack 23e status
Off	The GSM module of the GenTrack 23e is off.
Fix ON	The GSM module of the GenTrack 23e is ON, without any attachment to the GSM/GPRS network.
Slow flashing	(200ms / 2,2s) The GSM module of the GenTrack 23e is ON and attached to the GSM/GPRS network.
Fast flashing	(200ms / 800ms) The GSM module of the GenTrack 23e is ON and in communication mode.

This led is available for the user through the operating system 'EGM'.

5.3.3 CPU Led

The status of the embedded processor is given by the CPU LED  situated on the front face.

The table hereunder explains the signification of the different available status of the CPU LED .

LED status 	GenTrack 23e status
Off	The embedded processor of the GenTrack 23e is off.
Very slow flashing	(100ms / 10s) The balise is activated (running mode) and processor is in idle mode.
Fast flashing	(100ms / 1s) The embedded processor of the GenTrack 23e is running.

This led is available for the user through the operating system '**EGM**'.

6 Charger supply

6.1 General presentation

The base must be supplied by a regulated filtered stabilized DC external tension (+VDC) between +5Vdc and +15VDC via the micro Fit connector.

The base integrates the charge management system of the battery.

When there is no external supply connected to the 4-pin Micro-Fit connector, the USB supply can be used for a slow charge of the unit (the time of charge will depend on the voltage available on the USB output)



- Remove the protecting cap of the connector situated under the unit.
- Place the cap on its site on the charger.
- Place the GenTrack 23e on the charger.
- Check the LEDs status (see table hereunder).
- Once the charge is done, reinstall the protecting cap of the connector situated under the unit.

Table: LEDs status of the charger

LED	Status	Interpretation
External supply	Off	Charger off
	On (always fix)	Charger on (external supply or USB)
Charge of the GenTrack 23e battery	Flashing	Battery not detected.
	On (fix)	Battery detected and in charge.
	Off	Battery detected and charge finished.

6.2 Time of charge

The times of charge are given when the charger base is connected with external power supply referenced by ERCO & GENER.

During the first charge, it takes more or less :

GenTrack 23e
4 h 30 mn for 80% of the charge
9 h 00 mn for 100 % of the charge

The battery is completely charged when the charging led is off (see previous chapter).

WARNING: The times may vary and are given for the following conditions :

- EGM heart not operational.
- GPS module off.
- GSM module off.

Important:

When the application **EaseTrack** is present in the unit, putting the unit on the charger base will systematically turn the unit on (CPU only active).

To put the unit completely off and minimize the time of charge, wait around 10 seconds after having put the unit on the charger and push simultaneously on the two buttons.

The unit will then produce a decrescendo melody and will turn off.


7 Trouble shooting

This part of the document describes the problems that may be encountered during the GenTrack 23e configuration.

7.1 Communication problem between the GenTrack 23e and the USB link

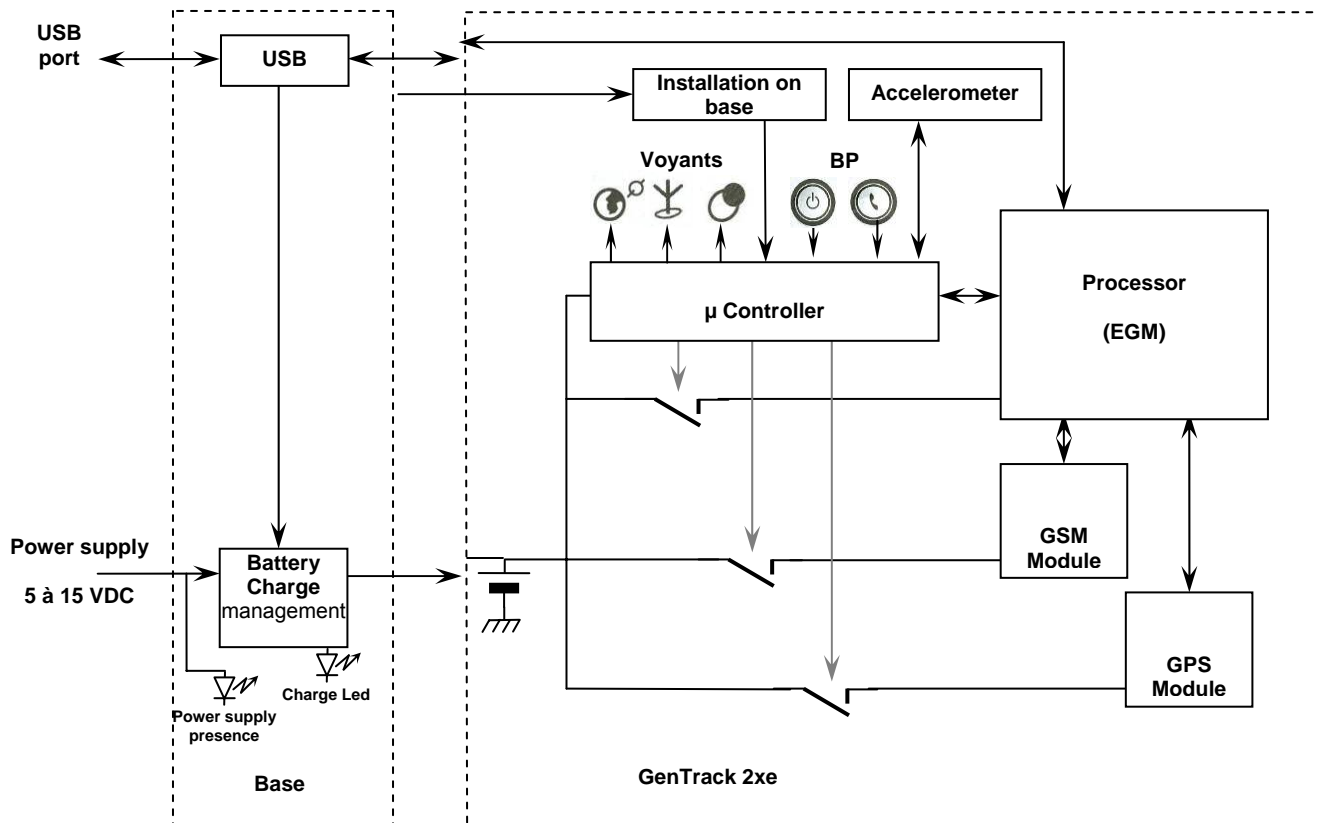
If the GenTrack 23e does not reply to the AT commands via the USB link, see the table hereunder for the possible causes and solutions.

Table: Solutions when there is no connection between the GenTrack 23e and the USB link

If the GenTrack 23e	Check :	Action
Returns nothing	Is the GenTrack 23e correctly positioned on the charger?	Re-place the unit on the charger in order to stop the quick flashing of the charge Led situated on the charger base. Ensure that the CPU Led  is flashing (1hz) few seconds after having put it on the charger.
	Is the GenTrack 23e correctly powered?	Ensure that the modem is connected to an external regulated power source and supplies a tension in the correct range (paragraph 9.1 Electrical characteristics).
	Is the USB cable connected on both sides (PC side and multi-functions connector)?	Check the connection of the USB cable.
	Is the virtual COM port affected to the USB port correctly selected in the communication terminal?	Check the affectation of the COM port used and the possible conflicts identified by the operating system.
Returns nothing or random characters	Is the communication terminal correctly configured on the PC?	Ensure that the configuration of the communication terminal corresponds with the one of the GenTrack 23e : Speed = 115200 bps Data bits = 8 Parity = none Stop bits = 1 Flow control = None
	Is there another application running that creates a conflict during the access to the communication port?	Close the conflicting application.

8 Functional description

8.1 Architecture



8.2 Internal processor

8.2.1 EGM presentation

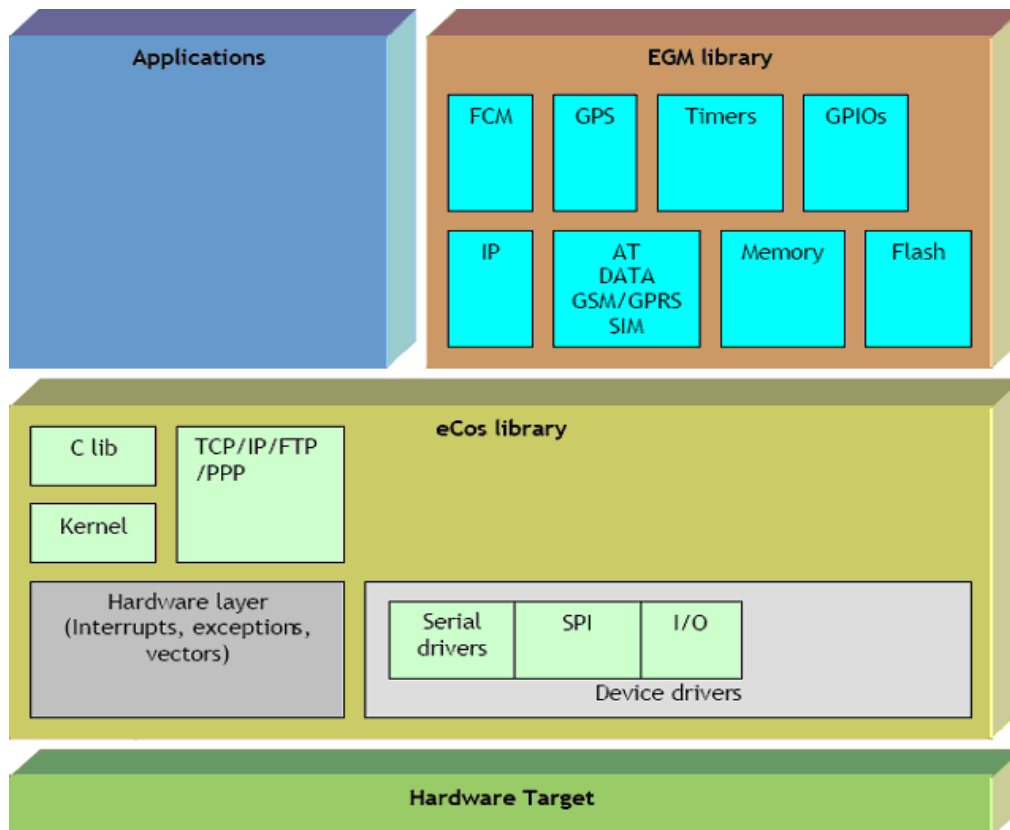
The GenTrack 23e has a processor that allows to have an embedded application developed from the EGM and eCos libraries.

The EGM libraries supplied by ERCO & GENER contain the following elements:

- EGM software library,
- eCos software library,
- A set of header files (.h) defining the EGM API functions,
- Source code samples.

8.2.2 EGM Architecture

The software architecture is described hereunder.



For more information about EGM and the possible trainings, please contact our Sales Department

9 Technical Characteristics

9.1 Electrical characteristics of the battery charge

Table: Electrical characteristics of the battery charge

Battery charge range	+5 to +15 VDC
----------------------	---------------

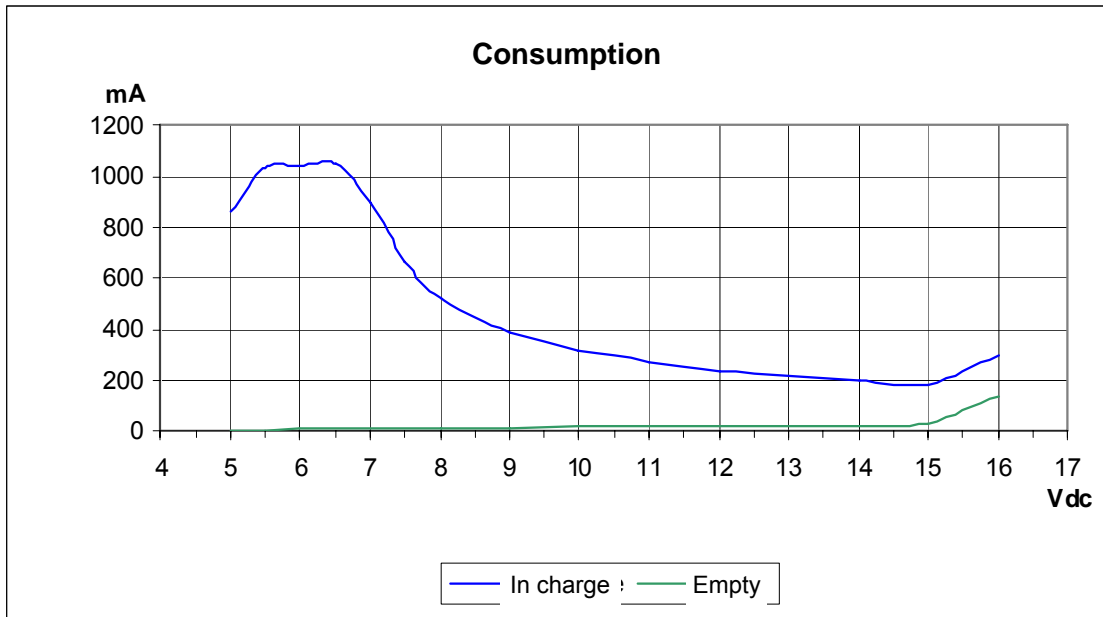


Table: Consumptions (1*)

(1*) The consumptions in charge are given as a rough guide with:

- A new battery.
- All GPS, GSM and EGM heart modules off.

The consumptions may vary depending on the temperature range (-20°C to +55°C) and the previous charge status of the battery.

Average consumption (without USB connected)	Empty	In charge (2*)
@ 5 Vdc	7 mA	860 mA
@ 12 Vdc	21 mA	240 mA
@ 15 Vdc	34 mA	190 mA

(2*) The power supply consumptions are given as a rough guide with

- A new battery.
- All GPS, GSM and EGM heart modules off.

The following table describes the consequences of over-voltage and drop of voltage of the GenTrack 23e.

Table : Effects of power supply defect

If	Then :
▪ Drop of voltage under 5 Vdc	▪ The functioning is not guaranteed .
▪ Voltage above 15 Vdc	▪ Risk of destruction of the protection elements .

9.1 Audio characteristics (option)

Table: Audio characteristics

Microphone	Type : Electret Sensitivity : -40dB +-3 Bandwidth : 20Hz à 20Khz
Loudspeaker	Nominal power : 0,3W Accoustic pressure : 92,5=-3dB pour 0.3W à 10 m

9.3 Mechanical characteristics

Dimensions without the cap	Height 120 mm x Width 48.5 mm x Thickness 27 mm
Dimensions with the cap	Height 122 mm x Width 48.5 mm x Thickness 27 mm
Weight	≈ 105 grams (only) for the GenTrack 21e ≈ 120 grams (only) for the GenTrack 23e
Volume	159.7 cm ³ (max.)
Casing	Material Ps UL 94 VO in 3mm – Color Ral 5004
Waterproof level	IP65 Important: The waterproof level IP65 is assured only when there is no audio option and when the protection button of the serial link connector is in place.

9.4 Environmental characteristics

To ensure a correct functioning of the GenTrack 23e, the limits listed in the table hereunder must be respected.

Table: Environmental characteristics

Operating temperature range	- 20°C to + 55°C
Storage temperature range	- 25°C to + 60°C
Operating humidity without condensation	90 % ± 10 %
Atmospheric pressure	Normal

9.4 Standards/Conformities

The product complies with the following requirements:

- Regulations of standard ETSI EN 300 440-1 V1.3.1 (2001-09)
- Regulations of standard ETSI EN 300 440-2 V1.1.2 (2004-07)
- Regulations of standard ETSI EN 301 489-3 (2002),
- Regulations of standard ETSI EN 301 489-7 (2002),
- Regulations of standard ETSI EN 301 511 V9.0.2 (2003-03)
- ROHS Compliant : Directive 2002/95/CE,
- 2002/96/CE DEEE (Crossed out wheelie bin).

The following marking appears under the device.



10 Security recommendations

This device is a product of high-technology design. This equipment is under your responsibility and must be handled with care.

It is important to respect the specific regulations concerning the use of this device.

The following suggestions will allow you to preserve your warranty.

- In case of technical incidents, contact the technical department and give them the references of your device situated on a label under the product.
- Your equipment must be held out of violent shocks. Do not drop or shake the device. A violent shock could destroy the different internal circuits and the small mechanical parts. The device has to be kept in a safety place out of children's reach.
- The device must be placed in a dry and ventilated area.
- The device must be kept out of humidity. In case of contact with liquids, the circuits could be damaged and the device could break down. If the device is humid, let it completely dry.
- Do not use or store the device in a dusty or dirty place. Its components and the electronic components could be damaged.
- Do not store the device in areas with high temperature. High temperatures could reduce the life of electronic devices and damage or melt the plastic components.
- Do not store the device in areas with low temperature. When normal temperature comes back, there may be some humidity inside the device and it can damage the electronic circuits.
- Do not use hard chemical products, solvents or strong detergents to clean the device.

In certain countries, some restrictions of use may exist. Please consult your nearest legally qualified local government representative.

The use of other equipments or accessories not made or authorized by ERCO & GENER can cancel the modem warranty.

11 Recommended accessories

The accessories recommended by ERCO & GENER for the GenTrack 23e are shown on our website in the section Products/Accessories.

For more information, contact our sales department.

12 Client support

ERCO & GENER ensures the client support for all its equipments sold. You will then have access to:

- The datasheet of the product,
- The latest version of this document,
- The Application Notes and the update procedures,
- The Certificates.

DECLARATION OF CONFORMITY

Manufacturer: ERCO & GENER

Address: Rue des petites Granges
Z.I. de Saint Lambert des Levées
B.P. 30163
49412 SAUMUR CEDEX – France

Website: <http://www.ercogener.com>

declares that the product :

Name:	GenTrack 21e	Type:	GPS Position Transmitter
Name:	GenTrack 23e	Type:	GPS Position Transmitter

Telecom : ETSI EN 301 511 V9.0.2
3GPP TS 51.010-1 V7.4.0

Safety : CEI 60950-1 : 2001

EMC : EN 300 440-1 V1.3.1 (2001-09)
EN 300 440-2 V1.1.2 (2004-07)
ETSI EN 301 489-3 (2002)
ETSI EN 301 489-7 (2002)
EN 301 511 V9.0.2 (2003-03)
Council Recommendation 1999/519/EC of 12 July 1999



The corresponding markings appear under the appliance.

Saumur, June 2nd 2008

Charles CHAUSSONNIER
Managing Director

A handwritten signature in blue ink, appearing to be 'C. Chaussonnier'.