

# Command List

## Configuration and user guide for Tracking, DATI and PDS functions

for

### EaseTrack 01

for the

### GenTrack 2xe GenTrack 35e

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Reference : EG\_EaseTrack\_01\_CL\_011\_UK

Revision : 011

Date : 28/01/2010

Document History

Revision	Modifications	Author	Date
001	Creation	MRE	06/05/2009
002	Corrections syntax and commands.	MRE	19/06/2009
003	Updated AT+EGAGPS command with description of A-GPS file update via GPRS TCP and V24 serial link. Update synoptic diagram with buttons and accelerometer. Updated AT+EGGPS command with option 5 to allow all GPS results to be saved to the flash memory. Updated AT+EGAGPS description notes with a warning concerning the use of a terminal capable of transferring the A-GPS binary data file via the V24 serial link without using a protocol.	MRE	22/07/2009
004	Added AT+EGMOVE command to manage accelerometer movement detection.	MRE	24/07/2009
005	Added AT+EGSHOCK command to manage accelerometer shock detection.	MRE	28/09/2009
006	Changed document title to include EaseTrack and reference to GenTrack 35e. Corrected description of AT+EGVERT command parameters. Added option to AT+EGVERT command to allow selection of default vertical reference position. Updated descriptions for AT+EGSHOCK and AT+EGMOVE commands. Updated logging codes and descriptions for GPS frame formats. Added confirmation responses when clearing GPS positions, geo-fence reference position and A-GPS file from flash memory. Added information about the number of unsent GPS positions to the AT+EGGPS=1 command. Added option 6 to AT+EGGPS command to limit GPS trace events.	MRE	16/10/2009
007	Updated AT+EGPHNV command with index and timeout descriptions. Updated AT+EGPHNS command with index description.	MRE	12/11/2009
008	Added AT+EGTCPF command to manage TCP/IP frame formats and server path. Updated GPS frame formats chapter with Deveryware format. Added option 7 to AT+EGGPS command to allow Balise to turn off immediately after having been armed instead obtaining a GPS position. Added option 4 to AT+EGPHNV command to allow voice-call volume to be modified. Added option 5 to AT+EGPHNV command to disable auto-call when detecting loss of verticality. Added option 2 to AT+EGAGPS command to disable A-GPS auto-update via TCP/IP. Updated description of LEDs operation for the command AT+EGLED. Added descriptions for AT18 and AT19 commands to display application and Renesas firmware version information. Added command AT+EGSIM to display SIM card presence or absence.	MRE	24/11/2009

009	<p>Removed option 2 (geo-fencing) from command AT+EGGPS.                  Added complete geo-fencing options to the AT+EGGEOF command.                  Can now manage multiple geo-fencing zones.                  Added option 2 to AT+EGVERT command to allow Balise to be automatically reinitialised and turned off when the Balise is returned to vertical.                  Added note to AT+EGMOVE and AT+EGSHOCK commands explaining that the accelerometer is guaranteed up to a minimum of 2g/8g (threshold = 111).                  Added options to the AT+EGBAT command to allow low battery alerts to be indicated.                  Changed AT+EGBUZZ command name to AT+EGBUZ and corrected syntax.                  Added description for BUTTON 3 to the BUTTONS and command AT+EGBUT chapters.</p>	MRE	14/12/2009
010	<p>Changed geo-fencing hysteresis limits to 5 min and 1000 max.                  Modified display for the AT+EGACK command.                  Added notes for the AT+EGGPS command to explain the operation of the NO_GPS event.                  Updated notes for the AT+EGGEOF command to explain the priority of the AT+EGGEOF=0,n logging parameter.                  Updated description of buzzer operating modes.                  Updated description for the AT+EGGPS=0 timeout command for an out-of-date A-GPS file.</p>	MRE	26/01/2010
011	<p>Updated description for the AT+EGGPS=0 timeout command for an out-of-date A-GPS file.                  Updated notes for the Deveryware frame format with frame acknowledgement description.</p>	MRE	28/01/2010

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# 1 INTRODUCTION

## 1.1 Important remarks

## 1.2 Restrictions

The current version of this application has the following limitations:

- Restriction 1.
- Text written like this means that the function is not implemented or managed.

## 1.3 References

[R1] – AOB Products Technical Document (EG\_AOB\_xxx\_UG\_xxx\_UK revision x).

## 1.4 Glossary and abbreviations

<b>AOB</b>	Application On-Board
<b>EGM</b>	Erco&Gener Middleware
<b>A-GPS</b>	Assisted GPS
<b>DATI / PTI</b>	Dispositif d'Alerte pour Travailleur Isolé / Poste de Travail Isolé
<b>PDS</b>	Prise De Service
<b>EASE</b>	Erco&Gener Application Software Embedded

## 2 DESCRIPTION

### 2.1 Presentation

The GenTrack is portable device capable of regularly acquiring and recording GPS positions and events. These positions may be downloaded to a terminal via a connected serial link or sent to a remote TCP/IP server via a GPRS link. A maximum of 10000 positions and events may be stored in the circular non-volatile flash memory.

The different modes of operation of the GenTrack allow it to be used for tracking control, personnel surveillance whilst working in remote areas and service personnel reporting control (security guard patrolling, cleaners etc.).

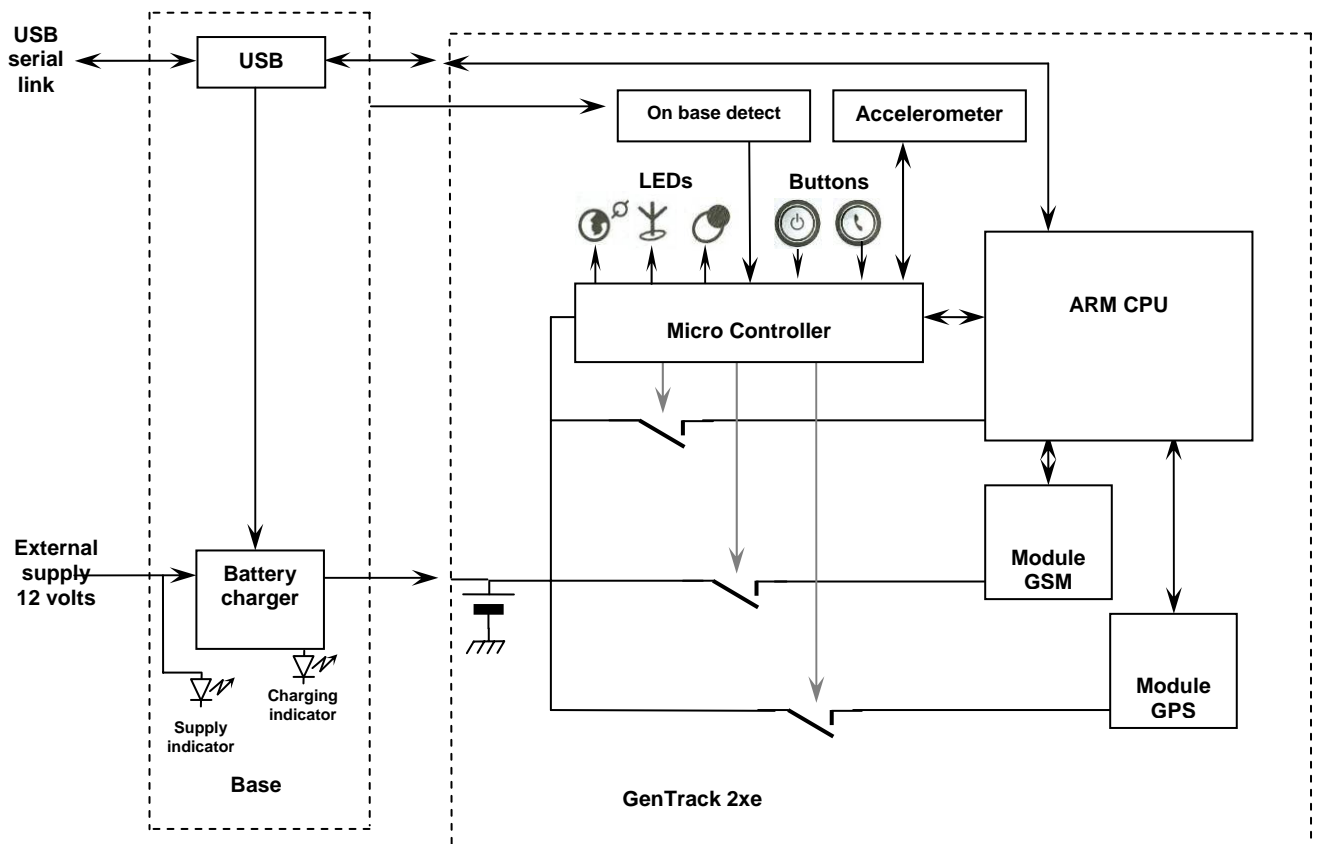
The GenTrack incorporates a 32 channel GPS receiver, GSM/GPRS transceiver, 3-axes accelerometer, flash memory, loudspeaker and microphone, three indicators, two buttons and rechargeable battery power pack.

The accelerometer may be used to detect a loss of verticality, movement or shock on the unit.

### 2.2 Synoptic

The synoptic of the GenTrack 23e and base-charger is shown in the diagram below.

The microcontroller is used to manage the on-base detection, the dialog with the accelerometer, the power switching of the ARM CPU and the GSM and GPS modules as well as the LEDs and the buttons:



## 2.3 Configuration

When the unit is placed on the base-charger, it may be configured by means of the AT commands sent to it via the serial link from a PC-based terminal application such as HyperTerminal. This is the principal and recommended method of configuration. The command line is accepted and the configuration updated as soon as the "CR" character is detected.

Alternatively, the unit may be configured from a remote terminal operating over a TCP/IP link. In this case normal AT command line syntax is used. The command line is accepted and the configuration updated as soon as the "CR" character is detected.

The unit may also be configured from received SMS messages. The following example shows the simple format of the SMS message:

```
"AT+EGWUP=0,1;AT+EGTSND=10"
```

This message shows the commands each separated by a ";":

```
AT+EGWUP=0,1  
AT+EGTSND=10
```

It is the responsibility of the user to ensure that the command syntax is correct since no error messages will be returned. Note that SMS message length is limited to 160 characters. SMS messages will only be received by the unit when ever the GSM module is on.

## 2.4 Acquiring a GPS position

A GPS position may be obtained regularly or following a particular event such as the activation of the unit, or the loss of verticality of the unit etc.

## 2.5 Memorising a GPS position

All acquired GPS positions are stored in the non-volatile flash memory for eventual transfer and/or downloading.

## 3 Operating modes

The unit may set to operate in one of the following modes.

### 3.1 TRACKING

These modes of operation may be used for simple tracking control (personnel, vehicles, containers etc.). These modes allow the use of geo-fencing control.

#### 3.1.1 Cyclic tracking mode

The unit will regularly wake up after a delay set with the command AT+EGWUP, obtain a GPS position and then turn off.

#### 3.1.2 Permanent tracking mode

In this mode the unit is always on. The unit will regularly obtain a GPS position after a delay set with the command AT+EGWUP.

### 3.2 DATI / PTI

This mode of operation is intended for use by personnel whilst working in remote areas.

After having programmed the unit to operate in the DATI mode, the unit must be activated with it in its normal physical operating position. This position will be the reference position.

When the unit is operating in the DATI mode and is off, if the angle of the unit exceeds the programmed trigger angle for at least the time T1 then the unit will wake up. The pre-alarm T2 will be started and a beep will be heard.

During the pre-alarm T2, if the unit is returned to its upright position then the pre-alarm is cancelled.

If, however, the unit has still lost verticality at the end of the pre-alarm T2, the unit will obtain a GPS position. If an SMS phone number has been programmed with the command AT+EGPHNS then an SMS containing the GPS position will be sent to that number. The unit will then remain on so as to receive or send a vocal phone call.

Pressing the PHONE button for 2 seconds will start the voice phone call cycle to the destination numbers set with the command AT+EGPHNV. Pressing the PHONE button for 2 seconds during the call will end the call.

Simultaneously pressing both the ON/OFF and PHONE buttons will turn the unit off. The unit must then be re-activated and the reference angle reacquired.

### 3.3 PDS

This mode of operation is intended for use by service personnel reporting control (security guard patrolling, cleaners etc.).

Pressing the PHONE button will result in the unit waking-up and obtaining a GPS position. If an SMS phone number has been programmed with the command AT+EGPHNS then an SMS containing the GPS position will be sent to that number. The unit will then turn off

## 4 Buttons operation

The buttons on the front of the unit may be enabled as required by the command AT+EGBUT. They will be operational once the operating mode of the unit has been set with the AT+EGRUN command and the unit is been removed from the base-charger.

### 4.1 ON/OFF

If the unit is off (asleep), pressing this button will wake it up.

#### 4.1.1 Unit not yet activated

If the button is still pressed, an initial beep-beep indicates that if the button is now released (short button press) then the unit will be activated. A rising musical sequence will indicate that the unit is now active. A GPS position will be obtained and the unit will turn off (sleep).

The operator has 60 seconds to activate the unit before it turns off.

#### 4.1.2 Unit already activated

If the button is still pressed (long button press), then a falling musical sequence will indicate that the unit has now been deactivated. The unit will then turn off.

If the button is quickly released then the unit will remain active and turn off.

### 4.2 PHONE

The PHONE button will only become active once the unit has been activated. The action taken will depend on the unit's operating mode.

#### 4.2.1 Cyclic tracking mode

Pressing the PHONE button will result in the unit waking up and obtaining a GPS position. The unit will then turn off. In this operating mode, pressing the PHONE button pre-empts the cyclic wake-up timer set with the command AT+EGWUP.

#### 4.2.2 Permanent tracking mode

In this mode the unit is permanently awake. Pressing the PHONE button for 2 seconds will start the voice phone call cycle to the destination numbers set with the command AT+EGPHNV. Pressing the PHONE button for 2 seconds during the call will end the call.

#### 4.2.3 DATI / PTI mode

In this mode, pressing the PHONE button for 2 seconds will start the voice phone call cycle to the destination numbers set with the command AT+EGPHNV. Pressing the PHONE button again will end the call.

#### 4.2.4 PDS mode

Pressing the PHONE button will result in the unit waking-up and obtaining a GPS position. If an SMS phone number has been programmed with the command AT+EGPHNS then an SMS containing the GPS position will be sent to that number. The unit will then turn off.

### 4.3 BUTTON 3


The BUTTON 3 will only become active for wake-up once the unit has been activated in the DATI mode. It has the same functions as the PHONE button except that it may not be used with the ON/OFF button to turn the Balise off.

## 5 LED indicators


Three LED indicators on the front panel of the unit provide information about the operation of the main ARM CPU, as well as the GSM and GPS modules.

The operating mode of the LED indicators may be modified with the command AT+EGLED (see chapter 7.227.22).


### 5.1 GPS

The GPS LED is shown by . When flashing then the GPS module is on.

### 5.2 GSM

The GSM LED is shown by . When flashing then the GSM module is on.

### 5.3 ARM

The ARM CPU LED is shown by . When flashing then the ARM CPU is on. This LED will flash at a rate of 1Hz.

## 6 Format of transmitted frames

### 6.1 V24 serial link

The format of the GPS position frame sent to the V24 serial link (see chapter 7.19) consists of information fields each separated by a comma ',' and is terminated by a CRC checksum and carriage return and line-feed characters.

Example:

011107000988691,TRACKING,270409,103743.50,4716.81475,N,00003.50289,W,04,00049,00009,0415,1F93

V24 serial link	
GPS POSITION FRAME FORMAT	
Field	Description
1	<b>Identifier</b> Device identifier. By default this will be the GSM IMEI code. The user may enter a personalized identifier with the command AT+EGIDT. Variable length : 20 characters max.
2	<b>Logging code</b> This code indicates the reason or nature of the GPS position frame: "ON BASE " : the device was placed on the base. "OFF BASE" : the device was removed from the base. "ON KEY " : the device was woken up by pressing the ON button. "TEL KEY " : the device was woken up by pressing the TEL button. "SOS KEY " : the device was woken up by pressing the SOS button. "WAKEUP " : the device was woken up by the RTC. "TRACKING" : a valid GPS position has been recorded. "NO GPS " : unable to obtain a valid GPS position. "VERT KO " : device has returned to normal vertical position. "VERT OK " : loss of verticality detected. "SERVICE " : a GPS position recorded by the PDS mode. "ACTIVE " : the device has been activated. "GEO >nn " : Enter geo-fencing zone nn. "GEO nn>" : Exit geo-fencing zone nn. "MOVEMENT" : the device has started moving. "MOVESTOP" : the device has stopped moving. "SHOCK " : the device has received a shock. "SMS " : the SMS was correctly sent. "SMS!" : an error occurred whilst trying to send an SMS. "GSM!" : an error occurred whilst trying to connect to the network. "TCP!" : an error occurred whilst trying to start a TCP session.
3	<b>Date</b> Format : <b>ddmmyy</b> . (Obtained from the GPS NMEA RMC frame.) Fixed length: 6 characters
4	<b>Time</b> Format : <b>hhmmss.00</b> . (Obtained from the GPS NMEA RMC frame. The time is UTC.) Fixed length : 9 characters
5	<b>Latitude</b> Format : <b>DDMM.mmmmm</b> Fixed length : 10 characters
6	<b>Latitude indicator</b> <b>North, South</b> Fixed length : 1 characters
7	<b>Longitude</b> Format : <b>DDDMM.mmmmm</b> Fixed length : 11 characters
8	<b>Longitude indicator</b> <b>East, West</b> Fixed length : 1 character
9	<b>Number of satellites</b> Number of GPS satellites detected whilst obtaining the GPS position. Fixed length : 2 characters
10	<b>Time for good GPS</b> Time to obtain a valid GPS position (base 100 msec).

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	<b>position</b>	Fixed length : 5 characters
11	<b>Time for good GSM signal</b>	Time to obtain a connection to the GSM network (base 100 msec). Fixed length : 5 characters
12	<b>Battery voltage</b>	Battery voltage (base 100 mV). Fixed length : 4 characters
13	<b>CRC-16</b>	Cyclic Redundancy Check using the polynomial generator : $X^{16} + X^{15} + X^2 + 1$ seeded with 0xFFFF. Fixed length : 4 characters This CRC may be returned by the TCP/IP server to acknowledge the frame if required.

## 6.2 TCP/IP server

The format of the GPS position frame sent to the TCP/IP server may be selected with the command AT+EGTCPF (see chapter 7.13).

### 6.2.1 Standard format

The standard format of the GPS position frame sent to the TCP/IP server consists of information fields each separated by a comma ',' and is terminated by a CRC checksum and carriage return and line-feed characters.

Example:

011107000988691,TRACKING,270409,103743.50,4716.81475,N,00003.50289,W,04,00049,00009,0415,1F93

TCP/IP		STANDARD FRAME FORMAT
Field	Description	
1	<b>Identifier</b>	Device identifier. By default this will be the GSM IMEI code. The user may enter a personalized identifier with the command AT+EGIDT. Variable length : 20 characters max.
2	<b>Logging code</b>	This code indicates the reason or nature of the GPS position frame: "ON BASE " : the device was placed on the base. "OFF BASE" : the device was removed from the base. "ON KEY " : the device was woken up by pressing the ON button. "TEL KEY " : the device was woken up by pressing the TEL button. "SOS KEY " : the device was woken up by pressing the SOS button. "WAKEUP " : the device was woken up by the RTC. "TRACKING" : a valid GPS position has been recorded. "NO GPS " : unable to obtain a valid GPS position. "VERT KO " : device has returned to normal vertical position. "VERT OK " : loss of verticality detected. "SERVICE " : a GPS position recorded by the PDS mode. "ACTIVE " : the device has been activated. "GEO >nn " : Enter geo-fencing zone nn. "GEO nn>" : Exit geo-fencing zone nn. "MOVEMENT" : the device has started moving. "MOVESTOP" : the device has stopped moving. "SHOCK " : the device has received a shock. "SMS " : the SMS was correctly sent. "SMS!" : an error occurred whilst trying to send an SMS. "GSM!" : an error occurred whilst trying to connect to the network. "TCP!" : an error occurred whilst trying to start a TCP session.
3	<b>Date</b>	Format : <b>ddmmyy</b> . (Obtained from the GPS NMEA RMC frame.) Fixed length: 6 characters
4	<b>Time</b>	Format : <b>hhmmss.00</b> . (Obtained from the GPS NMEA RMC frame. The time is UTC.) Fixed length : 9 characters
5	<b>Latitude</b>	Format : <b>DDMM.mmmmm</b> Fixed length : 10 characters
6	<b>Latitude indicator</b>	<b>North, South</b> Fixed length : 1 characters
7	<b>Longitude</b>	Format : <b>DDDMM.mmmmm</b> Fixed length : 11 characters
8	<b>Longitude indicator</b>	<b>East, West</b> Fixed length : 1 character
9	<b>Number of satellites</b>	Number of GPS satellites detected whilst obtaining the GPS position. Fixed length : 2 characters

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10	<b>Time for good GPS position</b>	Time to obtain a valid GPS position (base 100 msec). Fixed length : 5 characters
11	<b>Time for good GSM signal</b>	Time to obtain a connection to the GSM network (base 100 msec). Fixed length : 5 characters
12	<b>Battery voltage</b>	Battery voltage (base 100 mV). Fixed length : 4 characters
13	<b>CRC-16</b>	Cyclic Redundancy Check using the polynomial generator : $X^{16} + X^{15} + X^2 + 1$ seeded with 0xFFFF. Fixed length : 4 characters This CRC may be returned by the TCP/IP server to acknowledge the frame if required.

### 6.2.2 Deveryware format

Frame structure:

This format allows data to be constructed and sent in the following way:

**#<id>\$<selector>,<date>,<time>;<groupX>;<groupZ>;...**

**<id>** : the module identifier, normally the GSM IMEI code. May be configured with the AT+EGIDT command.

**<selector>** : indicates the groups that are present in the frame. This is a binary bitmap in ASCII hexadecimal format. For example, if groups 1 and 512 are present, then the selector is 1 + 512 = 513 which is coded as the hexadecimal value "0201", (see tables below).

**<date>,<time>** : frame timestamp. This is the system date and time (obtained from the GPS). If not yet available then this will be "00000.000000" to indicate that the system date and time has not yet been set. Note that date and time is in GMT.

**<group...>** : the groups of data in the frame. The groups may be selected with the command AT+EGTCPF (see chapter 7.13).

Group structure:

Useful data in the frame is collected into groups. Each may or may not be present in the frame. The order of the groups present is always the same. This order is defined by the group number. The groups are present in ascending order. The selector at the beginning of each frame indicated which groups are present.

Each group is separated by ';' (semi-colon).

There is no trailing ';' after the last group.

The different information in a group is separated by a ',' (comma).

Example group 1:

#358730000539767\$1,20091114,153151;A,N0048.2124,E00160.3670,00327,001.49,000,20091114,153151,05

Example group 1 and 512:

#358730000539767\$0201,20091116,163650;A,N4716.8136,W00003.5057,00041,000.01,000,20091116,163650,06;100,EaseTrack-01\_V1.10

Group 1 : POSITION		
Field	Description	
1	<valid>	Valid position ? [A V] (A: valid, V: invalid)
2	<latitude>	Latitude WGS84 in NMEA format: [N S]DDMM.mmmm Fixed length : 9 characters
3	<longitude>	Longitude WGS84 in NMEA format : [E W]DDDMM.mmmm Fixed length : 10 characters
4	<altitude>	Altitude in meters, format : xxxxx Fixed length : 5 characters
5	<speed>	Speed in knots, format : xxx.xx (floating point). Fixed length : 6 characters
6	<heading>	Heading in degrees, format : xxx Fixed length : 3 characters
7	<date>	Fix date, format : yyymmdd (obtained from the GPS NMEA RMC frame). Fixed length: 8 characters
8	<time>	Fix time, format : hhmmss (obtained from the GPS NMEA RMC frame. The time is UTC). Fixed length : 9 characters
9	<satnb>	Number of GPS satellites detected whilst obtaining the GPS position, format xx. Fixed length : 2 characters

Group 4 : BATTERY		
	Field	Description
1	<battery>	Percentage battery charge [0...100].
2	<charge>	Battery charging [0 1]. 0 : not charging (not on the base-charger). 1 : charging (on the base-charger).

Group 512 : VERSION		
	Field	Description
1	<version>	EGM version, format <b>xxx</b> (e.g. EGM V1.00 = <b>100</b> ) Fixed length : 3 characters.
2	<version id>	Application version, format ASCII data. Variable length : 255 characters max.

**Notes:**

When the Deveryware format is specified with the AT+EGTCPF command:

- If the frame format is completely accepted, the server will acknowledge the frame by returning the ASCII string "00\n". The command AT+EGACK should be configured for this response as follows: AT+EGACK=1,"00",15,1 (see chapter 7.12).
- If the frame format is only partially accepted or the server does not support a particular group then the server will return the ASCII string "01\n"
- If the frame format is not supported or is refused by the server, the server will return the ASCII string "10\n".

### 6.3 SMS

The format of the SMS message may be selected with the command AT+EGSMSF (see chapter 7.23).

#### 6.3.1 WGS 84

The format of the SMS containing the GPS position frame is shown below. Each of the information fields is separated by a comma ','.

Example:

359180010001441,TRACKING,110609,180958.00,4710.91228,N,00002.86429,E,08,0403

<b>SMS</b>	
<b>WGS84 FRAME FORMAT</b>	
<b>Field</b>	<b>Description</b>
1	<b>Identifier</b> Device identifier. By default this will be the GSM IMEI code. The user may enter a personalized identifier with the command AT+EGIDT. Variable length : 20 characters max.
2	<b>Logging code</b> This code indicates the reason or nature of the GPS position frame: "ON BASE " : the device was placed on the base. "OFF BASE" : the device was removed from the base. "ON KEY " : the device was woken up by pressing the ON button. "TEL KEY " : the device was woken up by pressing the TEL button. "SOS KEY " : the device was woken up by pressing the SOS button. "WAKEUP " : the device was woken up by the RTC. "TRACKING" : a valid GPS position has been recorded. "NO GPS " : unable to obtain a valid GPS position. "VERT KO " : device has returned to normal vertical position. "VERT OK " : loss of verticality detected. "SERVICE " : a GPS position recorded by the PDS mode. "ACTIVE " : the device has been activated. "GEO >nn " : Enter geo-fencing zone nn. "GEO nn>" : Exit geo-fencing zone nn. "MOVEMENT" : the device has started moving. "MOVESTOP" : the device has stopped moving. "SHOCK " : the device has received a shock. "SMS " : the SMS was correctly sent. "SMS! " : an error occurred whilst trying to send an SMS. "GSM! " : an error occurred whilst trying to connect to the network. "TCP! " : an error occurred whilst trying to start a TCP session.
3	<b>Date</b> Format : <b>ddmmyy</b> . (Obtained from the GPS NMEA RMC frame.) Fixed length: 6 characters
4	<b>Time</b> Format : <b>hhmmss.00</b> . (Obtained from the GPS NMEA RMC frame. The time is UTC.) Fixed length : 9 characters
5	<b>Latitude</b> Format : <b>DDMM.mmmmm</b> Fixed length : 10 characters
6	<b>Latitude indicator</b> North, South Fixed length : 1 characters
7	<b>Longitude</b> Format : <b>DDDMM.mmmmm</b> Fixed length : 11 characters
8	<b>Longitude indicator</b> East, West Fixed length : 1 character
9	<b>Number of satellites</b> Number of GPS satellites detected whilst obtaining the GPS position. Fixed length : 2 characters
10	<b>Battery voltage</b> Battery voltage (base 100 mV). Fixed length : 4 characters

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### 6.3.2 OVLS WGS 84

The format of the SMS containing the GPS position and optional timestamp and text is shown in the examples below:

Examples:

```
ALARM,A:321N471091E000028642 ;
ALARM,A:321N471091E000028642 A0906111809U;
ALARM,A:321N471091E000028642 A10906091106U<LF>HelpPlease;
```

**ALARM,A:** = opens the alarm message and is common to all alarms.  
**321** = 3 emergency, 2 machine interface, 1 packet contains position and text.

**N471091E000028642** = GPS position : 4710.912,N,00002.864,E.  
 " " = space characters.

**A10906091106U<LF>** = optional timestamp (A = identifier of revision state, 1 = updated GPS fix).  
 U = UTC time.  
 <LF> = linefeed character.

**HelpPlease** = optional text message.

**;** = ends the alarm message.

### 6.3.3 OVLS RT 90 2.5 gon V (West)

General Swedish maps are made with Gauss' conformation projection. Reference for general maps is RT 90 (Rikets coordinate 1990). The Transverse Mercator projection is used for mapping. The official Swedish name of the grid system is Rikets nät and the full notation is RT 90 2.5 gon V 0:-15.

The format of the SMS containing the GPS position and optional timestamp and text is shown in the examples below:

Examples:

```
ALARM,A:321=x5348669y0306905 ;
ALARM,A:321=x5348669y0306905 A0906111809U;
ALARM,A:321=x5348669y0306905 A0906111809U<LF>HelpPlease;
```

**ALARM,A:** = opens the alarm message and is common to all alarms.  
**322** = 3 emergency, 2 machine interface, 1 packet contains position and text.

**=x5348669y0306905** = GPS position : 4710.912,N,00002.864,E.  
 " " = space characters.

**A10906091106U<LF>** = optional timestamp (A = identifier of revision state, 1 = updated GPS fix).  
 U = UTC time.  
 <LF> = linefeed character.

**HelpPlease** = optional text message.

**;** = ends the alarm message.

## 7 Configuration Commands

### 7.1 ATi8 – Display application version

#### 7.1.1 Description

This command will display the application version information.

#### 7.1.2 Syntax

Command syntax : ATi8

Command	Possible Responses
ATi8	API: EaseTrack-01 V1.10, Date: Thu Jan 14 15:50:13 2010 OK <i>Note: Display application version.</i>

### 7.2 ATi9 – Display Renesas firmware version

#### 7.2.1 Description

This command will display the version of the Renesas firmware.

#### 7.2.2 Syntax

Command syntax : ATi9

Command	Possible Responses
ATi9	REN: V2.21, Platform: 23e OK <i>Note: Display Renesas firmware version.</i>

### 7.3 AT+EGVPAR – Display all parameters

#### 7.3.1 Description

This command will display the complete configuration of the unit.

#### 7.3.2 Syntax

Command syntax : AT+EGVPAR

Command	Possible Responses
AT+EGVPAR	OK <i>Note: Display all parameters.</i>

## 7.4 AT+EGWUP – Wake-Up timer

### 7.4.1 Description

This command will set the cyclic wake-up rate of the unit.

### 7.4.2 Syntax

Command syntax : AT+EGWUP=<mode>,<value>

Command	Possible Responses
AT+EGWUP=?	+EGWUP: (0-1) , (0-599999)  OK <i>Note: Display syntax.</i>
AT+EGWUP=0,1	OK <i>Note: Set cyclic wake-up interval to 1 minute.</i>
AT+EGWUP?	+EGWUP: 0 , 1  OK <i>Note: Display current value.</i>

### 7.4.3 Defined values

**<mode>**

- 0: cyclic wake-up specified by **value** (default).
- 1: ON permanent.

**<value>**

- 0 to 599999 minutes (default value = 0, no wake-up) .

## 7.5 AT+EGTSND – Timer Send positions via TCP/IP

### 7.5.1 Description

This command will determine the rate at which stored GPS positions are sent to the TCP/IP server. Setting the parameter to zero inhibits the function.

### 7.5.2 Syntax

Command syntax : AT+EGTSND=<value>

Command	Possible Responses
AT+EGTSND=?	+EGTSND: (0-120)  OK <i>Note: Display syntax.</i>
AT+EGTSND=10	OK <i>Note: GPS positions sent every 10 acquisitions.</i>
AT+EGTSND?	+EGTSND: 10  OK <i>Note: Display current value.</i>

### 7.5.3 Defined values

<value>

0 to 120 acquisitions (default value = 0)

## 7.6 AT+EGTSMS – Timer send SMS no GPS

### 7.6.1 Description

This command will set the number of successive bad GPS acquisitions allowed before sending an SMS indicating that no GPS coverage is possible. Setting the parameter to zero inhibits the function. A destination phone number for the SMS must be programmed with the command AT+EGPHNS.

### 7.6.2 Syntax

Command syntax : AT+EGTSMS=<value>

Command	Possible Responses
AT+EGTSMS=?	+EGTSMS: (0-120)  OK <i>Note: Display syntax.</i>
AT+EGTSMS=15	OK <i>Note: Send SMS if no GPS position after 15 successive attempts..</i>
AT+EGTSMS?	+EGTSMS: 30  OK <i>Note: Display current value.</i>

### 7.6.3 Defined values

<value>

0 to 120 acquisitions (default value = 0)

## 7.7 AT+EGPHNS – SMS phone number

### 7.7.1 Description

This command will set the list of phone numbers for sending an SMS. In the DATI mode, the SMS will be sent to all the phone numbers in the list. In the TRACKING and PDS modes, the SMS will be sent to the first valid phone number in the list only.

### 7.7.2 Syntax

Command syntax : AT+EGPHNS=<index>,<"tel">

Command	Possible Responses
AT+EGPHNS=?	+EGPHNS: (1-3) , (1-20)  OK <i>Note: Display syntax.</i>
AT+EGPHNS=1,"+33612345678"	OK <i>Note: Enter phone number.</i>
AT+EGPHNS=1	+EGPHNS: 1 , "+33612345678 "  OK <i>Note: Display current value.</i>
AT+EGPHNS?	+EGPHNS: 1 , "+33612345678 " +EGPHNS: 2 , " " +EGPHNS: 3 , " "  OK <i>Note: Display current values.</i>

### 7.7.3 Defined values

**<index>**

The index of the phone number to be modified or checked (1 to 3).

**<"tel">**

SMS destination phone number, maximum 20 characters (default value = empty).

## 7.8 AT+EGPHNV – Voice phone call number

### 7.8.1 Description

This command will set the list of phone numbers for a voice phone call. When making a voice phone call, each number in the list will be called in an attempt to establish a connection. If the timeout is reached during the call sequence then the next number is called. This will continue until all numbers have been tried or a connection is established.

For example, if valid phone numbers are present in positions 1 and 3, then phone number 1 will be called first followed by phone number 3 if the first does not reply. If phone number 3 replies then the sequence stops. If phone number 3 does not reply by the end of its associated timeout, then the sequence stops.

### 7.8.2 Syntax

**Command syntax :** AT+EGPHNV=<index>,<"tel">[,<timeout>]  
 AT+EGPHNV=4,<volume>  
 AT+EGPHNV=5,<autoCall>

Command	Possible Responses
AT+EGPHNV=?	+EGPHNV: (1-5) , ( 20 ) , (10-120)  OK <i>Note: Display syntax.</i>
AT+EGPHNV=1,"+33612345678"	OK <i>Note: Enter phone number.</i>
AT+EGPHNV=1	+EGPHNV: 1 , " +33612345678 " , 60  OK <i>Note: Display current value.</i>
AT+EGPHNV=2,"+33698765432",20	OK <i>Note: Enter phone number and timeout.</i>
AT+EGPHNV=2	+EGPHNV: 2 , " +33698765432 " , 20  OK <i>Note: Display current value.</i>
AT+EGPHNV=4,5	OK <i>Note: Enter speaker volume level.</i>
AT+EGPHNV=4	+EGPHNV: 4 , 5  OK <i>Note: Display current value.</i>
AT+EGPHNV?	+EGPHNV: 1 , " +33612345678 " , 60 +EGPHNV: 2 , " +33698765432 " , 20 +EGPHNV: 3 , " " , 60 +EGPHNV: 4 , 5 +EGPHNV: 5 , 0  OK <i>Note: Display current values.</i>

### 7.8.3 Defined values

**<index>**

The index of the phone number to be modified or checked (1 to 3).

**<"tel">**

Destination phone number for a voice call, maximum 20 characters (default value = empty).

**<timeout>**

Destination phone number for a voice call, 10 to 120 seconds (default value = 60 secs).

**<volume>**

Speaker volume during voice phone call (default value = 4):

0 = Mute

- 1 = -24 dB
- 2 = -18 dB
- 3 = -12 dB
- 4 = -6 dB (default)
- 5 = 0 dB

**<autoCall>**

- 0: Do not call all phone numbers when loss of verticality is detected (default).
- 1: Call all valid phone numbers when loss of verticality is detected.

## 7.9 AT+EGIDT – Identifier

### 7.9.1 Description

This command will set the unit's identifier. If empty then the GSM IMEI number will be used. This identifier will be inserted at the start of each transmitted GPS frame.

### 7.9.2 Syntax

Command syntax : AT+EGIDT=<identifier>

Command	Possible Responses
AT+EGIDT=?	+EGIDT: ( 20 )  OK <i>Note: Display syntax.</i>
AT+EGIDT?	+EGIDT: "12345678901234567890"  OK <i>Note: Display current value.</i>
AT+EGIDT="GenTrack 00001"	OK <i>Note: Enter user identifier.</i>
AT+EGIDT?	+EGIDT: "GenTrack 00001"  OK <i>Note: Display current value.</i>

### 7.9.3 Defined values

**<identifier>**

User identifier, maximum 20 characters (default value = empty, uses GSM IMEI number).

**Notes:**

If the identifier is empty then it will be filled with the IMEI obtained when the Balise is placed on the base-charger unit.

## 7.10 AT+EGSIM – Display presence of SIM card

### 7.10.1 Description

This command will display the presence or absence of the SIM card.

### 7.10.2 Syntax

Command syntax : AT+EGSIM

Command	Possible Responses
AT+EGSIM	+EGSIM: 0  OK <i>Note: SIM card is absent.</i>
AT+EGSIM	+EGSIM: 1  OK <i>Note: SIM card is present.</i>

**Notes:**

The status of the SIM card will always be updated when the Balise is placed on the base-charger unit. This information is then saved in the non-volatile flash memory for use when the Balise is active.

## 7.11 AT+EGRUN – Operating mode

### 7.11.1 Description

This command will set the unit's operating mode.

### 7.11.2 Syntax

Command syntax : AT+EGRUN=<activity>,<mode>

Command	Possible Responses
AT+EGRUN=?	+EGRUN: (0-2) , (0-3)  OK <i>Note: Display syntax.</i>
AT+EGRUN?	+EGRUN: 0 , 0  OK <i>Note: Display current value.</i>
AT+EGRUN=1,1	OK <i>Note: Select TRACKING operating mode.</i>
AT+EGRUN?	+EGRUN: 1 , 1  OK <i>Note: Display current value.</i>

### 7.11.3 Defined values

**<activity>**

- 0: Disabled.
- 1: Activated.
- 2: ON permanent (TRACKING mode only).

**<mode>**

- 0: Disabled.
- 1: TRACKING.
- 2: DATI (Dispositive d'Alerte pour Travailleur Isolé).
- 3: PDS (Prise De Service).

**Notes:**

The **<activity>** parameter will always be set to 0 (deactivated) when the unit is removed from the base-charger. The **<mode>** parameter remains as programmed. The user must then manually activate the unit (see chapter explaining activation of the unit).

The test mode may only be entered when the unit is on the base-charger. The test mode is initiated by setting **<activity>** to 1 and **<mode>** to 0 thereby activating the GPS and GSM modules. The GPS position may then be checked as well as all GSM/GPRS functions. The test mode will be automatically deactivated when the unit is removed from the base-charger.

## 7.12 AT+EGACK – TCP frame acknowledge

### 7.12.1 Description

This command will set the acknowledge mode when sending GPS position frames to the remote TCP/IP server.

### 7.12.2 Syntax

Command syntax : AT+EGACK=<mode>,<str>,<timeout>,<crldr>

Command	Possible Responses
AT+EGACK=?	+EGACK: (0-1), (10), (5-240), (0-1)  OK <i>Note: Display syntax.</i>
AT+EGACK?	+EGACK: 0, " ", 20, 0  OK <i>Note: Display current value.</i>
AT+EGACK=1,"",15,0	OK <i>Note: Enable acknowledge, use CRC, timeout = 15 seconds. Do not check CR-LF.</i>
AT+EGACK?	+EGACK: 1, " ", 15, 0  OK <i>Note: Display current value. Use CRC value.</i>
AT+EGACK=1,"OK",15,1	OK <i>Note: Enable acknowledge, acknowledge string = "OK", timeout = 15 seconds. Wait for &lt;CR&gt; and/or &lt;LF&gt;.</i>
AT+EGACK?	+EGACK: 1, "OK", 15, 1  OK <i>Note: Display current value.</i>

### 7.12.3 Defined values

**<mode>**

- 0: Disabled (default).
- 1: Activated.

**<str>**

The acknowledgement string to be returned by the remote TCP/IP server. If empty then the frame CRC must be returned (default).

**<timeout>**

Time to wait for valid acknowledge from remote TCP/IP server. (5 to 240 seconds, default = 20 seconds).  
If the acknowledge has not been received after this timeout then the frame is re-sent to the server. If no valid acknowledgement has been received after 3 attempts to send the frame, then the connection to the remote TCP/IP server is closed.

**<crldr>**

Wait for <CR> and/or <LF> after acknowledge string.  
0: Disabled (default).  
1: Enabled.

## 7.13 AT+EGTCPF – TCP frame format

### 7.13.1 Description

This command will set the format of the data frames sent to the remote TCP/IP server.

### 7.13.2 Syntax

Command syntax : AT+EGTCPF=<format>[,<groups>][,<path>]

Command	Possible Responses
AT+EGTCPF=?	+EGTCPF:(0-1),(0-1),(0-64)  OK <i>Note: Display syntax.</i>
AT+EGTCPF?	+EGTCPF:0  OK <i>Note: Display current value.</i>
AT+EGTCPF=1	OK <i>Note: format type 1.</i>
AT+EGTCPF=1,513	OK <i>Note: format type 1 with groups 1 and 512.</i>
AT+EGTCPF?	+EGTCPF:1,513,"GET /dwmtr1.0?p="
	OK <i>Note: Display current value.</i>
AT+EGTCPF=1,513,"GET /mypath1.0?p="	OK <i>Note: format type 1 with groups 1 and 512 and new path.</i>

### 7.13.3 Defined values

#### <format>

- 0: Standard (default, see chapter 6.2.1).
- 1: Deveryware (see chapter 6.2.2).

#### <groups>

When the Deveryware format is specified, the groups to be included in the frame may be selected from the following binary bitmap:

- 1: GPS position (default).
- 4: Battery status.
- 512: EGM and application version.

#### <path>

When the Deveryware format is specified, the path information may be used to send data to a specific destination on the server. The default value "GET /mypath1.0?p=" contains the HTTP GET request and server path.

#### Notes:

When the Deveryware format is specified:

- The GPS position (group 1) will always be present.

## 7.14 AT+EGBAT – Battery voltage

### 7.14.1 Description

This command will display the battery voltage and set the low-battery alert configuration (not available on the 35e).

### 7.14.2 Syntax

Command syntax : AT+EGBAT=<alert>[,<mode>][,<"tel">][,<voltage>]  
 AT+EGBAT=<alert>[,<mode>][,<voltage>]

Command	Possible Responses
AT+EGBAT?	+EGBAT: 4.13V (100%)  OK <i>Note: Display battery voltage.</i>
AT+EGBAT=0	+EGBAT:0,0,"",3600  OK <i>Note: Display alert 0 configuration.</i>
AT+EGBAT=0,1,"+33612345678"	OK <i>Note: Set alert 0 configuration.</i>
AT+EGBAT=0	+EGBAT:0,1,"+33612345678",3600  OK <i>Note: Display alert 0 configuration.</i>
AT+EGBAT=1	+EGBAT:1,0,3100  OK <i>Note: Display alert 1 configuration.</i>

### 7.14.3 Defined values

**<alert>**

0: Display or modify the operating mode for alert 0 (low battery SMS alert).

- =0 - Display current setting.
- =0,0 - Disable SMS (default).
- =0,1 - Enable SMS.

**<"tel">**

SMS destination phone number, maximum 20 characters (default value = empty).

**<voltage>**

Threshold voltage specified in mV. When the battery voltage falls below this value a "LOW BAT" SMS message will be sent to the destination telephone number specified above.

Default value = 3600mV. Adjustment range = default value ± 200mV.

1: Display or modify the operating mode for alert 1 (very low battery user alert).

- =1 - Display current setting.
- =1,0 - Disable user (default).
- =1,1 - Enable user alert.

**<voltage>**

Threshold voltage specified in mV. When the battery voltage falls below this value, the GSM and GPS will be turned off and all LED indicators will flash rapidly. The Balise will no longer be usable and must be replaced on the base-charger to recharge the internal battery.

Default value = 3100mV. Adjustment range = default value ± 200mV.

## 7.15 AT+EGTRA – Set trace

### 7.15.1 Description

When the unit is on the base-charger this command will set trace functions to allow the various modes and phases of operation to be followed. This is normally intended for test purposes only.

### 7.15.2 Syntax

Command syntax : AT+EGTRA=<mode>

Command	Possible Responses
AT+EGTRA=?	+EGTRA: ( 0-1 )  OK <i>Note: Display syntax.</i>
AT+EGTRA?	+EGTRA: 0  OK <i>Note: Display current value.</i>
AT+EGTRA=1	OK <i>Note: Enable trace.</i>

### 7.15.3 Defined values

**<mode>**

- 0: Disabled (default).
- 1: Enabled.

**Notes:**

This command is saved to the non-volatile memory.

## 7.16 AT+EGVERT – Loss of verticality

### 7.16.1 Description

This command will configure the loss of verticality parameters.

### 7.16.2 Syntax

Command syntax : AT+EGVERT=<mode>[[,<angle>,<Time1>,<Time2>][,<defpos>]  
 AT+EGVERT=<function>[,<value>]

Command	Possible Responses
AT+EGVERT=?	+EGVERT: (0-1) ,( 30-40-60 ) ,( 1-300 ) ,( 1-300 ) ,( 0-1 )  OK <i>Note: Display syntax.</i>
AT+EGVERT?	+EGVERT: 0 , 60 , 20 , 20  OK <i>Note: Display current value.</i>
AT+EGVERT=1	OK <i>Note: Enabled with current parameters.</i>
AT+EGVERT=1,60,15,15	OK <i>Note: Enabled, 60 degrees, 15 seconds T1 and 15 seconds pre-alarm T2 and use current vertical reference position.</i>
AT+EGVERT=1,60,15,15,1	OK <i>Note: Enabled, 60 degrees, 15 seconds T1, 15 seconds pre-alarm T2 and use default vertical reference position.</i>

### 7.16.3 Defined values

**<mode>**

- 0: Disabled (default).
- 1: Enabled.

**<angle>**

Activation angle: 30, 40 or 60 degrees, (default = 60 degrees).

**<Time1>**

Time to wait for a valid loss of verticality before waking up the main CPU. (1 to 300 seconds, default = 20 seconds).

**<Time2>**

Pre-alarm: time to wait once the main CPU is running before sending an alert. (1 to 300 seconds, default = 30 seconds).

**<defpos>**

- 0: Use current position for the vertical reference position
- 1: Use default position for the vertical reference position (default). This is when the Balise is vertically upright.

**<function>**

- 2: Display or modify the automatic re-activation of the Balise.
  - =2** - Display current setting.
  - =2,0** - The Balise must manually reactivated by simultaneously pressing both the ON/OFF and TEL buttons after the Balise has returned to its upright position during the pre-alarm Time2, (default).
  - =2,1** - Balise is automatically re-activated and turned off when it returns to its upright position during the pre-alarm Time2.

**Notes:**

The reference angle is reinitialised when activating the unit by simultaneously pressing both the ON/OFF and TEL buttons.

Either the shock detection OR the movement detection OR the loss of verticality detection may be enabled at any one time. For example, enabling the movement detection will automatically disable the shock detection and loss of verticality detection.

## 7.17 AT+EGBUZ – Buzzer

### 7.17.1 Description

This command will configure the operating mode of the buzzer. When activated, the buzzer will indicate the activation/deactivation of the unit, acquisition of a good GPS position, loss of verticality, transmission of an SMS.

### 7.17.2 Syntax

Command syntax : AT+EGBUZ=<mode>

Command	Possible Responses
AT+EGBUZ=?	+EGBUZ : ( 0-2 )  OK <i>Note: Display syntax.</i>
AT+EGBUZ?	+EGBUZ : 1  OK <i>Note: Display current value.</i>
AT+EGBUZ=2	OK <i>Note: Set mode 2.</i>

### 7.17.3 Defined values

**<mode>**

- 0: Disabled.
- 1: Enabled (default) – Activation/deactivation and loss of verticality pre-alarm.
- 2: Enabled - mode 1 and acquisition position GPS and successful transmission of SMS.

**Notes:**

Mode 1 is used to provide a “silent” operating mode.

## 7.18 AT+EGBUT – Buttons

### 7.18.1 Description

This command will configure the operating mode of the ON/OFF, PHONE and BUTTON 3 buttons.

### 7.18.2 Syntax

Command syntax : AT+EGBUT=<button>,<mode>

Command	Possible Responses
AT+EGBUT=?	+EGBUT: ( 0-2 ) , ( 0-1 )  OK <i>Note: Display syntax.</i>
AT+EGBUT=0	+EGBUT: 0 , 0  OK <i>Note: Display current value.</i>
AT+EGBUT=0,1	OK <i>Note: Enable ON/OFF button.</i>
AT+EGBUT=1,1	OK <i>Note: Enable PHONE button.</i>
AT+EGBUT=2,1	OK <i>Note: Enable BUTTON 3 button.</i>

### 7.18.3 Defined values

**<button>**

- 0: ON/OFF button.
- 1: PHONE button.
- 2: BUTTON 3.

**<mode>**

- 0: Disabled (default).
- 1: Enabled.
- 2: For the ON/OFF button only – allows the Balise to be activated by the ON/OFF button but inhibits its deactivation by the ON/OFF button. The Balise must be placed on the base-charger to allow deactivation.

**Notes:**

If BUTTON 3 is enabled, it will only be activated for wake-up in the DATI mode. It has the same functionalities as the PHONE button but may not be used with the ON/OFF button to turn the Balise off.

## 7.19 AT+EGGPS – GPS configuration

### 7.19.1 Description

This command will configure the GPS position acquisition timeout, display stored GPS position and configure the geo-fencing parameters.

### 7.19.2 Syntax

Command syntax : AT+EGGPS=<function>[,<timeout>]  
 AT+EGGPS=<function>[,<operation>]

Command	Possible Responses
AT+EGGPS=?	+EGGPS:0-7, ("DUMP" - "CLEAR" )  OK <i>Note: Display syntax.</i>
AT+EGGPS=0	+EGGPS:0,60  OK <i>Note: Display current timeout value.</i>
AT+EGGPS=1	+EGGPS:1,7,7  OK <i>Note: Display number of stored and unsent GPS positions.</i>
AT+EGGPS=1,"CLEAR"	Are you sure Y/N ? Y  OK <i>Note: Clear stored GPS positions from memory.</i>

### 7.19.3 Defined values

**<function>**

- 0: Set timeout for the acquisition of a good GPS position, 60 to 600 seconds, (default = 180 seconds). If no valid A-GPS file has been found or the A-GPS function is disabled the timeout is a minimum of 300 seconds. Note that an out-of-date valid file will result in the programmed timeout being used.
- 1: Display, dump or erase the GPS positions in the non-volatile memory.
  - =1** - display the number of stored and unsent GPS positions in the memory.
  - =1, "DUMP"** - dump all GPS positions to the serial link.
  - =1, "CLEAR"** - clear all GPS positions from the memory. The wait for confirmation will timeout after 10 seconds.
- 2: Reserved for future use.
- 3: Reserved for future use.
- 4: Display or modify the operating mode of the GPS module.
  - =4** - Display current setting.
  - =4,0** - GPS is turned off after obtaining a GPS position (default).
  - =4,1** - GPS remains on after obtaining a GPS position.
- 5: Display or modify the action if no valid GPS position is found.
  - =5** - Display current setting.
  - =5,0** - Only save the NO\_GPS result once each time no valid GPS position has been obtained in order to reduce flash memory use (default).
  - =5,1** - Save all GPS results even if no valid GPS position has been obtained.
- 6: Display or modify the GPS trace memory level.
  - =6** - Display current setting.
  - =6,0** - Only GPS positions are stored in the GPS trace memory (default).

=6,1 - All extra events are included in the GPS trace memory. Extra events include balise activation, off/on base, SMS sent or error, GSM and TCP errors, additional movement/shock detection.

7: Display or modify the action the when activating the Balise.

=7 - Display current setting.

=7,0 - Balise turns off immediately after having been activated.

=7,1 - Balise obtains a GPS position after having been activated (default).

**Notes:**

If AT+EGGPS=5,0 is selected (save the NO\_GPS result once) then if a NO\_GPS result is obtained this will override the AT+EGGPS=6,0 and AT+EGGEOF=0,3 settings and a NO\_GPS event will be saved in the GPS trace memory.

## 7.20 AT+EGGEOF –Geo-fencing configuration

### 7.20.1 Description

This command will allow the geo-fencing operating mode and zones to be configured. The coordinates of each zone may be entered in either “NMEA” format or in “DMS” format (Degrees Minutes Seconds).

### 7.20.2 Syntax

Command syntax : AT+EGGEOF=<function>[,<operation>]

Command	Possible Responses
AT+EGGEOF=?	+EGGEOF(0-6),(0-30,NMEA-DMS),(ref)  OK <i>Note: Display syntax.</i>
AT+EGGEOF=0,4	OK <i>Note: Set operating mode to log all positions.</i>
AT+EGGEOF=0	+EGGEOF:0,4  OK <i>Note: Display current value.</i>
AT+EGGEOF=2,0,"DMS",47,16,50,2,"N",0,3,30,56,"W",500,"m"	OK <i>Note: Set zone 0 reference position in DMS format 500 meter radius.</i>
AT+EGGEOF=1,0	+EGGEOF:1,0,"4716.83367","N","00003.50933","W",500,"M"  OK <i>Note: Display parameters for zone 0 (always in NMEA format).</i>
AT+EGGEOF=6,0,"My zone 0"	OK <i>Note: Set text description for zone 0.</i>
AT+EGGEOF=1,0	+EGGEOF:1,0,"4716.83367","N","00003.50933","W",500,"M", ,"My zone 0"  OK <i>Note: Display parameters for zone 0 (always in NMEA format).</i>

### 7.20.3 Defined values

#### <function>

- 0: Display or modify geo-fencing operation.
  - =0** - Display current operating mode.
  - =0,0** - Geo-fencing disabled (default).
  - =0,1** - Log zone exits only.
  - =0,2** - Log zone entries only.
  - =0,3** - Log zone exits and entries only.
  - =0,4** - Log all positions after first exit zone.
  - =0,5** - Log all positions.
- 1: Display geo-fencing zones.
  - =1,max** - Display all zones (max = maximum number of zones).
  - =1,n** - Display zone n only (0 ≤ n < maximum number of zones).
  - =1** - Display all used zones only.
- 2: Set geo-fencing position coordinates for zone n.
  - =2,n,format,position,distance,"units"** - set the geo-fencing parameters :

#### <format>

- Reference position coordinates format.
- “NMEA”: Specify NMEA format.
- “DMS”: Specify DMS format.

**<position>**

Geo-fencing zone position coordinates.

**NMEA format** : "DDMM.mmmmm", "N/S", "DDDMM.mmmmm", "E/W"

**DMS format** : DD,MM,SS,ss, "N/S", DDD,MM,S,ss, "E/W"

Where:

DD or DDD = degrees,

MM = Minutes,

mmmmm = decimal minutes

SS = seconds,

ss = decimal seconds.

**<distance>**

Geo-fencing zone radius (1 to 10000), default = 100.

**<units>**

Geo-fencing zone radius units.

"M" = metres

"K" = kilometres

"S" = miles

"N" = nautical miles.

- 3: Clear one or all geo-fencing zones.
  - =3, n, "CLEAR"** - clear geo-fencing zone n. The wait for confirmation will timeout after 10 seconds.
  - =3, "CLEAR"** - clear all geo-fencing zones. The wait for confirmation will timeout after 10 seconds.
  
- 4: Display or modify hysteresis for all geo-fencing zones.
  - =4** - Display current hysteresis value.
  - =4,n** - Set hysteresis value (5 - 1000), default = 20.
  
- 5: Display or modify SMS operation.
  - =5** - Display current operating mode.
  - =5,0** - Send SMS disabled (default).
  - =5,1** - Send SMS on zone exit only.
  - =5,2** - Send SMS on zone entry only.
  - =5,3** - Send SMS on zone exit or entry.
  
- 6: Display or modify geo-fencing zone description.
  - =6,n** - Display description for zone n ( $0 \leq n < \text{maximum number of zones}$ ).
  - =6,n,"text"** - Enter short text description for zone n (20 characters maximum).

**Notes:**

Displayed geo-fencing zone positions will be in NMEA format.

A zone is "used" when its position and distance information has been configured.

Hysteresis checking will use the same units as specified for the zone currently being checked.

The SMSs will be sent in the format specified by the command AT+EGSMSF.

Clearing or entering a new reference position will reset the internal geo-fencing status.

If entering multiple zones, they need not be grouped from 0 to n. For example, setting zones 0, 3, 9, 10, 21 is allowed as only valid zones are checked.

The logging parameter AT+EGGEOF=0,n takes priority over the AT+EGGPS=5,n and the AT+EGGPS=6,0 parameters.

## 7.21 AT+EGAGPS – Assisted GPS configuration

### 7.21.1 Description

This command will configure the length of validity of the A-GPS (Assisted GPS) differential almanac correction data file to be used.

Access to an assistance server will provide the GPS receiver with differential almanac correction data file that is valid for up to 14 days. The data file is updated via a simple Internet download either manually if on the base-charger or automatically if required. This enables the receiver to benefit from fast TTFF (Time To First Fix).

A formatted A-GPS file may also be transferred via the V24 serial link (see description below).

### 7.21.2 Syntax

Command syntax : AT+EGAGPS=<function>[,<duration>]  
 AT+EGAGPS=<function>[,<operation>]

Command	Possible Responses
AT+EGAGPS=?	+EGAGPS: (0-2), (0-1-2-3-5-7-10-14) ("STARTTCP") ("STARTV24") ("CLEAR")  OK <i>Note: Display syntax.</i>
AT+EGAGPS=0	+EGAGPS: 0,14,1,94488,"Tue, 05 May 2009 12:40:30 GMT"  OK <i>Note: Display current value – valid 14 days file, length and date.</i>
AT+EGAGPS=1,"CLEAR"	Are you sure Y/N ? Y  OK <i>Note: Clear current file from memory.</i>
AT+EGAGPS=0	+EGAGPS: 0,14,0,0,""  OK <i>Note: Display current value – 14 days file requested, not yet in the memory.</i>

### 7.21.3 Defined values

#### <function>

0: Set duration of the differential almanac correction data file to be obtained from the server.  
 0 : disabled, or 1, 2, 3, 5, 7, 10, 14 days.

**=0** - display the status of the current file (if any). The status of valid file is displayed:

**=0,duration,valid,length,"date"**

**duration (number of days of validity of file)**

**valid = 0 (invalid file) or 1 ( valid file)**

**length (length of file in bytes)**

**"date" (file date as provided by server)**

**=0,0** - disabled, no automatic update nor access to any current file by the GPS module (default).

**=0,duration** - set duration of requested file (1, 2, 3, 5, 7, 10, 14 days).

1: Start reception of file or clear current file from memory.

**=1, "STARTTCP"** - if on the base then this will start the reception of the file via GPRS TCP.

**=1, "STARTV24"** - if on the base then this will start the reception of the file via the V24 serial link. The wait for a file will timeout after 40 seconds.

**=1, "CLEAR"** - clear file from memory. The duration parameter is preserved. The wait for confirmation will timeout after 10 seconds.

- 2: Allow automatic file update via TCP/IP.
- =2,0 - Disable automatic file update via TCP/IP. Must be done manually via the V24 serial link.
  - =2,1 - Enable automatic file update via TCP/IP (default).

**Notes:**

Requesting A-GPS file via GPRS TCP: a new file will only be retrieved from the server if a valid duration has been set and the current file is out of date. Clearing any current file will allow an update to take place. Automatic file update must be enabled.

Requesting A-GPS file via V24: this will allow a formatted binary A-GPS file to be downloaded via the V24 serial link to the Balise. This method is faster and much more convenient than via GPRS TCP.

The formatted A-GPS file can be obtained via the Windows tool AGPS\_getFiles.exe (developed by ERCO & GENER). This will obtain all the current A-GPS files and save them on the PC. The command option "**STARTV24**" will then wait for an A-GPS file to be selected and transferred. The command will abort if no file is selected or if the character 'Q' is send during the wait period, or if an incorrect file header has been detected during file transfer. Once the file has been transferred the file date information and the duration parameter will be automatically updated.

This option will always update the A-GPS file. The current file need not be erased nor the duration parameter be configured.

**IMPORTANT: the file contains binary data and must be transferred via a terminal capable of sending binary data without a protocol.**

## 7.22 AT+EGLED – LED indicators

### 7.22.1 Description

This command will configure the operating mode of the LED indicators. When enabled, the LED indicators will show the functioning of the ARM CPU, GSM and GPS modules. If this indication is not required then they may be disabled thus saving battery energy.

### 7.22.2 Syntax

Command syntax : AT+EGLED=<mode>

Command	Possible Responses
AT+EGLED=?	+EGLED: ( 0-1 )  OK <i>Note: Display syntax.</i>
AT+EGLED?	+EGLED: 1  OK <i>Note: Display current value.</i>
AT+EGLED=0	OK <i>Note: Disable LED indicators.</i>

### 7.22.3 Defined values

**<mode>**

- 0: Disabled.
- 1: Enabled (default).

**Notes:**

**ARM LED**

When the unit is on, the ARM LED will flash at a rate of 100ms/1s. When the unit is activated and off, the ARM LED will flash at a rate of 100ms/10s to indicate that the Balise has been activated and is ready.

**GSM LED**

The GSM LED indicates the operation of the GSM module and the state of the connection to the network.

When the GSM module is off, the LED is off.

When the GSM module is on but not connected to the network, the LED is on fixed.

When the GSM module is on and connected to the network, the LED will flash at a rate of 200ms/2.2s.

When the GSM module is on and communicating, the LED will flash at a rate of 200ms/800ms.

**GPS LED**

The GPS LED indicates the operation of the GPS module and the state of the detection of the GPS information.

When the GPS module is off, the LED is off.

When the GPS module is on and attempting to obtain the first fix, the LED will flash at a rate of 100ms/1s. When the second fix has been obtained, the LED will flash at a rate of 100ms/500ms indicating that the final GPS position has been obtained.

## 7.23 AT+EGSMSF – SMS alarm format

### 7.23.1 Description

This command will configure the format of the SMS message that will be sent (see chapter 6.3 for details of each format).

### 7.23.2 Syntax

Command syntax : AT+EGSMSF=<format>  
 AT+EGSMSF=<format>[,<timestamp>][,<text>]

Command	Possible Responses
AT+EGSMSF=?	+EGSMSF=(0-2),(0-1),("text")  OK <i>Note: Display syntax.</i>
AT+EGSMSF?	+EGSMSF:0  OK <i>Note: Display current value.</i>
AT+EGSMSF=1	OK <i>Note: Set WGS 84 format.</i>
AT+EGSMSF=1,1	OK <i>Note: Set WGS 84 format with timestamp information.</i>
AT+EGSMSF=1,1,"Help please"	OK <i>Note: Set WGS 84 format with timestamp information and text message.</i>
AT+EGSMSF=2,0,"Help please"	OK <i>Note: Set RT 90 2,5 gon West format and text message.</i>

### 7.23.3 Defined values

**<format>**

0: NMEA format (default).

1: OVLS WGS 84 format.

- =1** - OVLS WGS 84 format only, no timestamp or text message.
- =1,0** - OVLS WGS 84 format only, no timestamp or text message.
- =1,1** - OVLS WGS 84 format with timestamp, no text message.
- =1,0,"text"** - OVLS WGS 84 format, no timestamp, with text message.
- =1,1,"text"** - OVLS WGS 84 format with timestamp and text message.

2: OVLS RT 90 2.5 gon v (West) format.

- =2** - OVLS RT 90 format only, no timestamp or text message.
- =2,0** - OVLS RT 90 format only, no timestamp or text message.
- =2,1** - OVLS RT 90 format with timestamp, no text message.
- =2,0,"text"** - OVLS RT 90 format, no timestamp, with text message.
- =2,1,"text"** - OVLS RT 90 format with timestamp and text message.

## 7.24 AT+EGMOVE – Movement detection

### 7.24.1 Description

This command will configure the movement detection parameters.

### 7.24.2 Syntax

Command syntax : AT+EGMOVE=<mode>[,<ctrMode>,<threshold>,<integTime>,<timeMove>,<timeStop>]

Command	Possible Responses
AT+EGMOVE=?	+EGMOVE:(0-1),(0-1),(0-127),(0-255),(1-4095),(1-4095) OK <i>Note: Display syntax.</i>
AT+EGMOVE?	+EGMOVE:0,1,3,100,2,180 OK <i>Note: Display current value.</i>
AT+EGMOVE=1	OK <i>Note: Enabled with current parameters.</i>
AT+EGMOVE=1,1,3,100,5,120	OK <i>Note: Enable movement detection with new parameters.</i>
AT+EGMOVE?	+EGMOVE:1,1,3,100,5,120 OK <i>Note: Display current value.</i>

### 7.24.3 Defined values

**<mode>**

- 0: Disabled (default).
- 1: Enabled.

**<ctrMode>**

- 0: Reset counter if movement stops.
- 1: Decrement counter if movement stops (default). This is recommended for movement detection.

**<threshold>**

Free-fall / wake-up Threshold (0 to 127, default = 3). Each step = 18 mg.

**<integTime>**

Integration time (0 to 255, default = 100). Each step = 10 ms.

**<timeMove>**

Time for valid movement start detection (1 to 4095 seconds, default = 2 seconds).

**<timeStop>**

Time for valid movement stop detection (1 to 4095 seconds, default = 180 seconds).

**Notes:**

Either the shock detection OR the movement detection OR the loss of verticality detection may be enabled at any one time. For example, enabling the movement detection will automatically disable the shock detection and loss of verticality detection. Accelerometer is guaranteed up to a maximum of 2000mg (threshold = 111).

**Example:**

The following parameters are suitable for detection of vehicle movement:  
AT+EGMOVE=1,1,3,100,2,180

```

mode      = 1,   ( enabled )
ctrMode   = 1,   ( decrement counter when movement stops )
threshold = 3,   ( 56mg )
integTime = 100, ( 1second )
timeMove  = 2,   ( 2 seconds )
timeMove  = 180, ( 180 seconds )
    
```

## 7.25 AT+EGSHOCK – Shock detection

### 7.25.1 Description

This command will configure the shock detection parameters.

### 7.25.2 Syntax

Command syntax : AT+EGSHOCK=<mode>[,<ctrMode>,<threshold>,<integTime>]

Command	Possible Responses
AT+EGSHOCK=?	+EGSHOCK: (0-1), (0-1), (0-127), (0-255)  OK <i>Note: Display syntax.</i>
AT+ EGSHOCK?	+EGSHOCK: 0, 0, 56, 1  OK <i>Note: Display current value.</i>
AT+ EGSHOCK=1	OK <i>Note: Enabled with current parameters.</i>
AT+ EGSHOCK=1,0,100,1	OK <i>Note: Enable shock detection with new parameters.</i>
AT+ EGSHOCK?	+EGSHOCK: 1, 0, 100, 1  OK <i>Note: Display current value.</i>

### 7.25.3 Defined values

**<mode>**

- 0: Disabled (default).
- 1: Enabled.

**<ctrMode>**

- 0: Reset counter if movement stops (default). This is recommended for shock detection.
- 1: Decrement counter if movement stops.

**<threshold>**

Free-fall / wake-up Threshold (0 to 127, default = 56). Each step = 72 mg.

**<integTime>**

Integration time (0 to 255, default = 1). Each step = 10 ms.

**Notes:**

Either the shock detection OR the movement detection OR the loss of verticality detection may be enabled at any one time. For example, enabling the movement detection will automatically disable the shock detection and loss of verticality detection. Accelerometer is guaranteed up to a maximum of 8000mg (threshold = 111).

## 8 Dialling services

### 8.1 Parameters definition

#### 8.1.1 AT#APNPW

- **Definition**

Access Point Name password parameter coming with the APNUN from the GSM operator for providing GPRS access.

- **Setting / getting**

Set value : AT#APNPW=<Value>

Get value : AT#APNPW? or AT#VGPRS, AT#VALL

- **Legal values**

Alphanumeric ASCII text string up to 64 characters.

- **Default value**

There is no default value for this parameter.

#### 8.1.2 AT#APNSERV

- **Definition**

Access Point Name parameter coming with the APNUN from the GSM operator for providing GPRS access.

- **Setting / getting**

Set value : AT#APNSERV=<Value>

Get value : AT#APNSERV? or AT#VGPRS, AT#VALL

- **Legal values**

Alphanumeric ASCII text string up to 96 characters.

- **Default value**

There is no default value for this parameter.

### 8.1.3 AT#APNUN

- **Definition**

Access Point Name Username parameter coming with the APNUN from the GSM operator for providing GPRS access.

- **Setting / getting**

Set value : AT#APNUN=<Value>

Get value : AT#APNUN? or AT#VGPRS, AT#VALL

- **Legal values**

Alphanumeric ASCII text string up to 64 characters.

- **Default value**

There is no default value for this parameter.

### 8.1.4 AT#GPRSCID

- **Definition**

PDP context identifier which specifies a particular PDP context definition. This parameter is local and may be used in other PDP context-related commands.

- **Setting / getting**

Set value : AT#GPRSCID=<Value>

Get value : AT# GPRSCID? or AT#VGPRS, AT#VALL

- **Legal values**

Numeric between 1 and 4 inclusive.

- **Default value**

1

## 8.2 AT#VGPRS – Display GPRS parameters

### 8.2.1 Description

This command directs the TCP/IP stack to display all the parameters related to the GPRS configuration.

### 8.2.2 Syntax

Command syntax : AT#VGPRS

Command	Possible Responses	Notes
AT#VGPRS	#APNPW: "aces" #APNSERV: "a2myoperator.com" #APNUN: "a2b" #GPRSMODE: 1 #GPRSCID: 1 OK	<i>Display current parameters</i>

### 8.2.3 Parameter list

- Read parameters

APNPW  
APNSERV  
APNUN  
GPRSMODE  
GPRSCID

## 9 TCP socket services

The socket number 1 is user modifiable to specify the remote TCP/IP server. This socket will be used when sending GPS positions to the server.

The socket number 4 is reserved by the application to allow access to an A-GPS server in order to obtain an up-to-date A-GPS file.

**To avoid erratic behaviour of the unit it is advised not to change the socket DLEMODE default values or the default server settings for socket 4.**

Sockets 2 and 3 are not used.

### 9.1 Parameters definition

#### 9.1.1 AT#DLEMODE

- **Definition**

When performing a socket TCP, the attached host has the choice to code or not the ETX character.

- **Setting / getting**

Set value : AT#DLEMODE= id,<Value>

Get value : AT#DLEMODE=id or AT#VTCP=id, AT#VALL

- **Legal id**

{1-4}

- **Legal values**

0 : When DLEMODE is set to 0, no specific process is needed on [ETX] characters. It means that it is not possible for a host to request a end of connection or to receive a clear indication of end of connection from the TCP/IP stack.

1 : When DLEMODE is set to 1, the [ETX] character means a request or an indication of end of connection. As a consequence, [ETX] characters that are part of the payload data must be sent by the host on the serial port preceded by a DLE character. Similarly ETX characters received by the TCP/IP stack from the Internet are sent to the host through the serial port preceded by a DLE character.

- **Default value**

1

#### 9.1.2 AT#TCPPOINT

- **Definition**

To exchange data over TCP, the TCP/IP stack software must know the port of the remote peer used for the TCP session.

- **Setting / getting**

Set value : AT#TCPPORT= id,<Value>

Get value : AT#TCPPORT=id or AT#VTCP=id, AT#VALL

- **Legal id**

{1-4}

- **Legal values**

From 1 to 5 digits (each digit between 0 and 9 inclusive).

Note that numbers above 65,535 are illegal as the port identification fields are 16 bits long in the TCP header.

- **Default value**

0

### 9.1.3 AT#TCPSERV

- **Definition**

To exchange data over TCP, the TCP/IP stack software must know the address of the remote TCP server (or host) that is to be used.

- **Setting / getting**

Set value : AT#TCPSERV=id,<Value>

Get value : AT#TCPSERV=id or AT#VTCP=id, AT#VALL

- **Legal id**

{1-4}

- **Legal values**

32-bit number in dotted-decimal notation (i.e. xxx.xxx.xxx.xxx) or

alphanumeric ASCII text string up to 64 characters if DNS is integrated.

- **Default value**

0

### 9.1.4 AT#TCPTXDELAY

- **Definition**

This parameter determines the time delay introduced before sending a TCP frame that has not been entirely filled with user data. The time is entered in milliseconds. A value of '0' initiates the sending of a TCP frame as soon as possible after the reception of a single character value from the host.

- **Setting / getting**

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Set value : AT#TCPTXDELAY=id,<Value>

Get value : AT#TCPTXDELAY=id or AT#VTCP=id, AT#VALL

- **Legal id**

{1-4}

- **Legal values**

Integer multiple of 20 and between 0 and 32760 inclusive.

- **Default value**

100

## 9.2 AT#VTCP – Display TCP parameters

### 9.2.1 Description

This command directs the TCP/IP stack to display all the AT# parameters related to the TCP socket configuration.

### 9.2.2 Syntax

Command syntax : AT#VTCP=id, with id one of {1,2,3,4}

Command	Possible Responses
AT#VTCP=1  <i>Note : View TCP parameters of the TCP socket 1</i>	#DLEMODE:1,1 #TCPSERV:1,"" #TCPPORT: 1,0 #TCPTXDELAY:1,100 OK

### 9.2.3 Parameter list

- Read parameters

DLEMODE  
TCPPORT  
TCPSERV  
TCPTXDELAY

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