



# MiniTrack AT Command Specification

Prepared by	Approved by	Signature	Revision	Date
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## Revision History

Revision	Date	Description
1.0	8/5/2019	First version
1.1	29/5/2019	Aligned with the up-to-date docs
1.2	28/7/2019	Added commands: XPWMFC,XCCW Updated description of commands: XALM, XDIDC
1.3	18/11/2019	Removed unused or hardcoded commands from the events list
2.0	26/3/2020	Added new commands as for 45b: XDNSP, XGPP, XTAD, XACEN, XIOINVO, XCELLIDEN, XCOLE, XDIDE, XBTSC. Removed XDID command. Added Event: TOWED Alert.



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## Scope

This document is the MiniTrack ATC document. It describes the AT command extensions specific to the MiniTrack product and its relation to the Cellocator™ Protocol.

The first part of the document discusses the general capabilities and features of the MiniTrack device and its relation to the Cellocator™ protocol. The second part of this document lists the AT commands that are currently used by the MiniTrack device.

## Contact Information

For technical support or to report document errors, contact: [support@pointer.com](mailto:support@pointer.com).

## MiniTrack Device Overview

The MiniTrack is a (GSM) cellular based GPS tracking device.

The MiniTrack device features a number of peripherals including an accelerometer, status LEDs, provisioning connectors, timers, GPIO's for external sensors, etc. As a vehicle powered device, it includes a pigtail supporting signals for general purpose input/output, ignition sensing, a UART for expansion accessories, such as an OBD reader, as well as an optional back-up battery.

MiniTrack device is primarily a location reporting device. It can be queried, updated and configured using any of the following methods:

- Serial connection (UART), using the AT commands in this document.
- Over the air IP connection using IP (TCP/UDP) or SMS over cellular network, using the AT commands in this document and wrapping them with “Cellocator wireless protocol” command detailed in a separate wireless protocol doc.
- SMS messaging

Access to device functionality is done via the extended AT command set as specified in this document. The device configuration parameters are stored to flash memory and are automatically used on the device's next power up.

The MiniTrack devices capture data and form reports with the data. A report is a single record that typically contains location, sensors and system status data. Reports are triggered by specified events, such as periodic timeout, exceeding speed threshold, geo-fence crossing, etc.

MiniTrack devices support “Over the Air” (OTA) updates of its software application using “Cellocator wireless protocol” commands detailed in a separate wireless protocol doc. This capability requires an IP network connection to be active.

The MiniTrack device is identified by a “hardware ID” which is stored on the device. The hardware ID identifies the exact capabilities of the device and any device specific behavior.

## I/O's

Additionally to power, ground and UART, the MiniTrack connector exposes 3 inputs and 2 outputs. The details of these IO's and their location on the connector is listed in Table 1 - MiniTrack I/O's.





<b>GPIO</b>	<b>Function</b>	<b>Pointer Function</b>	<b>Wire Color</b>	<b>Pin#</b>	<b>MCU Port</b>	<b>GPIO Type</b>
A	Ignition	Ignition	White	5	PA1	12V Input
B	Input 1	Panic Button	Green	7	PC3	Discrete Only Dry Contact
C	Input 2	Door	Yellow	8	PC4	Discrete Only Dry Contact
E	Relay 2	Relay 2	Violet	9	PC5	Open Drain Relay Output
D	Relay 1	Immobilizer	Green/Black	10	PC7	Open Drain Relay Output

*Table 1 - MiniTrack I/O's*

IO's with dedicated functions, such as Ignition, Panic Button, Immobilizer should be handled through their respective AT commands. Only in case the respective IO is re-purposed for different functionality or for Door and Relay 2, which the generic IO commands should be used. Using both dedicated commands, such as XIGN and general XIOx command pertaining to the same pin simultaneously may yield undesired results.



## Events

Events identify the triggers that cause the device to send reports.

Table 2 lists the events (“transmission reasons”) specified by the Cellocator™ Protocol and their equivalents in the MiniTrack implementation and the respective commands that enable them.

Value	Transmission Reason Description	Corresponding AT Command
11	Communication idle	Every 1 hour
25	Speed detected during ignition off (Towing)	AT+XTA
31	Reply to command	AT+XRN
32	IP changed/connection up	
33	GPS navigation start	AT+XGPL
34	Over speed start	AT+XSPD
35	Idle speed start	AT+XIA
36	Distance event	AT+XDDI
37	Accelerometer movement detection start	AT+XGMTE
41	GPS navigation end	AT+XGPL
42	Over speed end	AT+XSPD
43	Idle speed end	AT+XIA
44	Timed event	Normally event every 1 minute. If power is not supplied, every 10 minutes
45	Accelerometer movement detection stop	AT+XGMTE
48	Door (Input 1) inactive	AT+XIOE=B,X,X
49	Shock (Input 2) inactive	AT+XIOE=C,X,X
53	Driving (logical) stop	AT+XDTS
63	Ignition input – inactive	Triggered if Low ↔ High AT+XIGM
64	Door (Input 1) active	AT+XIOE=B,X,X
65	Shock (Input 2) active	AT+XIOE=C,X,X
69	Driving (logical) start	AT+XDTS
79	Ignition input active	Triggered if Low ↔ High AT+XIGM



80	Main power disconnected	AT+XBUBE
81	Main power low level	AT+XPWE AT+XPWST
83	Backup battery low level	AT+XPWE AT+XPWST
87	Main power connected	AT+XBUBE
88	Main power high level	AT+XPWE AT+XPWST
90	Backup battery high level	AT+XPWE AT+XPWST
149	Towed Alert	AT+XTAD
158	Tamper (tilt)	AT+XTLTC
166	Rollover	AT+RLOC
191	Geo Fence: hotspot violation	AT+XGF AT+XGFE
202	Wake Up event (for auto-assignment SIM number to Unit ID)	AT+XPUP
203	Pre-hibernation event	AT+XSLPE
206	Jamming detection	Currently not supported
207	Radio off (due to Battery low)	Currently not supported
208	Header error (self re-flash process error update)	Sent after FOTA
247	Finish mode (self re-flash process update)	Sent after FOTA

*Table 2 – Transmission Reason Mapped to AT Commands*



## MiniTrack Commands

The following AT commands are specific to the MiniTrack:

- |                 |  |
|-----------------|--|
| 1. AT+XAFD      | Anti-Flooding Delay                    |
| 2. AT+XALM      | Alert Messages                         |
| 3. AT+XBTEN     | Bluetooth Enable                       |
| 4. AT+ XBTPEN   | Bluetooth PIN Enable                   |
| 5. AT+XCPKP     | Cellular Peeking Period                |
| 6. AT+XDBG      | Debug printout enabled                 |
| 7. AT+XDCID     | Driver Company ID                      |
| 8. AT+XDIDC     | Driver ID Configure                    |
| 9. AT+ XDIDSL   | Driver ID Set                          |
| 10. AT+ XDIDVL  | Driver ID View List                    |
| 11. AT+XDMPACC  | Dump Accelerometer data to serial port |
| 12. AT+XDMPNMEA | Dump GPS NMEA data to serial port      |
| 13. AT+XDVID    | Driver Vehicle ID                      |
| 14. AT+XIMEIEN  | IMEI Enable                            |
| 15. AT+XINPROD  | Info - Product                         |
| 16. AT+XPBE     | Panic Button Enable                    |
| 17. AT+XRLOC    | Roll-Over Configuration                |
| 18. AT+XRMLC    | Roaming List - Configuration           |
| 19. AT+XRMLF    | Roaming List - Forbidden               |
| 20. AT+XRMLP    | Roaming List - Preferred               |
| 21. AT+XRSTGPS  | Reset GPS                              |
| 22. AT+XSIMA    | SIM Authenticate                       |
| 23. AT+XTLTC    | Tilt Configuration                     |

Additionally all commands that set server sockets (+XIP, +XMIP, +XUIP) extend the protocol support to include TLS 1.2. This is done by setting the third parameter to 2.



## MiniTrack Commands – Detailed Description

### AT+XAFD

Anti-Flooding Delay

Command	Parameters	Description
<b>AT+XAFD=D,Rt</b>  <i>Configuration: Protocol</i>	D – Delay: 1-255 [min]  T – Randomization time: 1-127 [30 sec]  <b>Defaults:</b> 10,4 (10min, 2min)	Set the retry delay for reports to be sent when server is temporarily unavailable (i.e. data connection is available, but no ACKs are received). D specifies the delay between consecutive sessions that the device will try to re-send reports. To smooth the load and to avoid flooding the server (i.e. for all devices following the same delay schedule), the device sends the report within a random time period close to D. Rt specifies a time range for this random range. Therefore, the actual delay between reports sent is randomized within the range of D +/- Rt.  Example: AT+XAFD=10,4  Means that sending report session is retried every 8-12 minutes. Note that each session follows the normal ACK policy.
<b>AT+ XAFD?</b>	D,Rt	

### AT+XALM

Alert Messages

Command	Parameters	Description
<b>AT+XALM=N,T</b>  <i>Configuration: Protocol</i>	N – Number: 1-255 T – Time: 1-720 [sec]  <b>Defaults:</b> 1,10	Set the number of times, N, that alert message is sent in case of failure to receive acknowledge, and the time interval, T, between consecutive attempts to send it. Note that if alert messages are sent over SMS, due to unavailability of cellular network, the minimum time between SMS messages is 6 sec, if T≤6 (the interval goes back to T once cellular connection is available).
<b>AT+XALM?</b>	N,T	

### AT+XAPN

APN (Only applicable to GSM and LTE devices)

Command	Parameters	Description
<b>AT+XAPN=Id,Apn,Usr,Pw</b>	Id – ID number: 1	Set the APN address and optionally the



<i>Configuration: Communication</i>	Apn – APN: string Usr – User Name: string Pw – Password: string  <b>Defaults:</b> 1, "", "", ""	authentication. Authentication parameters are often omitted.  Example: AT+XAPN=1, "telargo.t-mobile.com"
<b>AT+XAPN?</b>	1: Apn,Usr,Pw	

## AT+XBTEN

Bluetooth Enable

Command	Parameters	Description
<b>AT+XBTEN=B</b>  <i>Configuration: Peripheral</i>	B – Bluetooth: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 1	Enable/disable Bluetooth.
<b>AT+XBTEN?</b>	B	

## AT+XBTPEN

Bluetooth PIN Enable

Command	Parameters	Description
<b>AT+XBTPEN=Bp,P</b>  <i>Configuration: Peripheral</i>	Bp – Bluetooth PIN: 0-1 0 – disable 1 – enable P – Pin: String[4-16]  <b>Defaults:</b> 1,"0000"	Enable/disable the usage of PIN for the Bluetooth link. When pin is enabled (Bp=1), the parameter pin specifies the pin. P is a string of 4 to 16 digits. If pin is disabled (Bp=0), the P parameter is ignored.  Example: AT+XBTPEN=1,"12345"
<b>AT+ XBTPEN?</b>	Bp,P	

## AT+XBUBE

Back-Up Battery Events *(Only applicable to devices with battery)*

Command	Parameters	Description
<b>AT+XBUBE=Tg,D</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – main power → BuB 2 – main power ← BuB 3 – main power ↔ BuB  D – Debounce: 0-255 [sec]  <b>Defaults:</b> 0,30	Send event report whenever the device switches from main power to BuB (BuB On) and/or vice versa (BuB Off) for at least D consecutive seconds.



<b>AT+XBUBE?</b>	Tg,D	
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### AT+XCCL

Cellular Connection Loss/Lock Events

Command	Parameters	Description
<b>AT+XCCL=Tg</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – unlocked → locked 2 – unlocked ← locked 3 – unlocked ↔ locked  <b>Defaults:</b> 0	Send event report whenever cellular connection is lost and/or established.
<b>AT+XCCL?</b>	Tg	

### AT+XCPKP

Cellular Peeking Period

Command	Parameters	Description
<b>AT+XCPKP=T</b>  <i>Configuration: Communication</i>	T – Time: 0,10-86,400 [sec]  <b>Defaults:</b> 0	Set how often the device will connect to the cellular network to check for pending messages when device hibernates. When T=0, peeking is disabled.
<b>AT+XCPKP?</b>	T	

### AT+XDCID

Driver Company ID

Command	Parameters	Description
<b>AT+XDCID=Cid</b>  <i>Action</i>	Cid – ID: 0-999999  <b>Defaults:</b> 0	Set Company ID of the device as Cid.
<b>AT+XDCID?</b>	Cid	Displays the currently set Driver Company ID

### AT+XDDI

Drive Distance Interval

Command	Parameters	Description
<b>AT+XDDI= Di</b>  <i>Report Event Driving</i>	Di – Distance: 0-60,000 [m]  <b>Defaults:</b> 0	Send event report every Di meters when in Drive Trip state. The distance measurement starts from the beginning of each trip. Refer to <b>Error! Reference source not found.</b> section for explanation regarding “driving trip” start and stop. If Di=0 no reports are sent. Drive Distance (event 27)



<b>AT+XDDI?</b>	Di	
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### AT+XDIDC

#### Driver ID Configure

Command	Parameters	Description
<b>AT+XDIDC=T</b>  <i>Configuration: Misc.</i>	T – Time: 10-3600 [sec]  <b>Defaults:</b> 60	Set the time duration of Driver ID being active before ignition must be turned on, either immediately after entering Driver ID or after turning ignition off. In other words, once entering Driver ID, it is valid for up to T seconds, during the ignition being on and for additional T seconds after turning the ignition off (during which it can be turned on again without re-entering the Driver ID).
<b>AT+ XDIDC?</b>	T	

### AT+XDIDSL

#### Driver ID Set List

Command	Parameters	Description
<b>AT+XDIDSL=N,Did</b>  <i>Action</i>	N – #: 0-19 Did – ID: "0123456789ABCDEF" (string of hex)	Store Driver ID Did in entry number N in the list of the allowed Driver ID's. If Did=0, the respective entry is deleted. Did is Driver ID represented as a string of up to 16 hexadecimal digits. Note that if non-hexadecimal characters presented in the string, the Did is parsed only till the first such character.

### AT+XDIDVL

#### Driver ID View List

Command	Parameters	Description
<b>AT+XDIDVL</b>  <i>Info</i>		Displays the entire Driver ID list as well as Company ID (CI) and Vehicle ID (VI).  Example: AT+XDCID=12345 AT+XDVID="87-654-32" AT+XDIDSL=0,"1234567" AT+XDIDVL 0: 0000000001234567 1: 0000000000000000 2: 0000000000000000 3: 0000000000000000 4: 0000000000000000 5: 0000000000000000





		6: 0000000000000000 7: 0000000000000000 8: 0000000000000000 9: 0000000000000000 10: 0000000000000000 11: 0000000000000000 12: 0000000000000000 13: 0000000000000000 14: 0000000000000000 15: 0000000000000000 16: 0000000000000000 17: 0000000000000000 18: 0000000000000000 19: 0000000000000000 CI: 12345 VI: "87-654-32"
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### AT+XDMEA

#### Drive Motion End Acceleration

Command	Parameters	Description
<b>AT+XDMEA=D</b>  <i>Configuration Driving</i>	Th – Threshold: 160-20000 [mm/s <sup>2</sup> ]  D – Debounce: 0-600 [sec]  <b>Defaults:</b> 700,10	Recognize “motion stop” when G-Motion detected by accelerometer is below threshold Th for at least D consecutive seconds.
<b>AT+XDMEA?</b>	Th,D	

### AT+XDMED

#### Drive Motion End Distance

Command	Parameters	Description
<b>AT+XDMED=Di</b>  <i>Configuration Driving</i>	Di – Distance: 100-5000 [m]  T – Time: 10-3600 [sec]  <b>Defaults:</b> 100,300	Recognize “motion stop” when device moved by no more than Di meters in the last T seconds. Note that if GPS is unavailable for portion of T seconds, “motion stop” might be recognized erroneously.
<b>AT+XDMED?</b>	Di,T	

### AT+XDMES

#### Drive Motion End Speed

Command	Parameters	Description
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<b>AT+XDMES=Sp,D</b>  <i>Configuration Driving</i>	Sp – Speed: 0-255 [km/h]  D – Debounce: 0-600 [sec]  <b>Defaults:</b> 7,90	Recognize “motion stop” when device speed falls below Sp for at least D consecutive seconds.
<b>AT+XDMES?</b>	Sp,D	

### AT+XDMET

#### Drive Motion End Trigger

Command	Parameters	Description
<b>AT+XDMET=Tg</b>  <i>Configuration Driving</i>	Tg – Trigger: 0-2 0 – no speed 1 – no distance 2 – no speed + no distance  <b>Defaults:</b> 0	Tg specifies the trigger(s) that would indicate “motion end” based on GPS for the purpose of Drive Trip.  See AT+XDMES, AT+XDMED for Drive Motion Distance and Speed settings respectively.
<b>AT+XDMET?</b>	Tg	

### AT+XDMSA

#### Drive Motion Start Acceleration

Command	Parameters	Description
<b>AT+XDMSA=Th,D</b>  <i>Configuration Driving</i>	Th – Threshold: 160-20000 [mm/s <sup>2</sup> ]  D – Debounce: 0-255 [sec]  <b>Defaults:</b> 700,10	Recognize “motion start” when G-motion detected by accelerometer is above threshold Th for at least D consecutive seconds. Refer also to Drive Motion Start Trigger (+XDMST) command.
<b>AT+XDMSA?</b>	Th,D	

### AT+XDMSD

#### Drive Motion Start Distance

Command	Parameters	Description
<b>AT+XDMSD=Di,T</b>  <i>Configuration Driving</i>	Di – Distance: 0-5000 [m]  T – Time: 0-3600 [sec]  <b>Defaults:</b> 50,0	Recognize “motion start” only when device moved by at least Di meters. The distance is measured relatively to the last “stop” location. This allows more accurate determination of “motion”. Refer also to Drive Motion Start Trigger (+XDMST) command. Parameter T is only applicable when



		running from internal battery. It indicates the number of seconds the device would keep the GPS active to measure Di. After T seconds the device goes back to sleep, if no “motion start” was detected. When running from external power, T is ignored.
<b>AT+XDMSD?</b>	Di,T	

### AT+XDMSS

#### Drive Motion Start Speed

Command	Parameters	Description
<b>AT+XDMSS=Sp,D</b>  <i>Configuration Driving</i>	Sp – Speed: 0-255 [kmh]  D – Debounce: 0-255 [sec]  <b>Defaults:</b> 7,10	Recognize “motion start” when device speed is at least Sp for at least D consecutive seconds. Refer also to Drive Motion Start Trigger (+XDMST) command.
<b>AT+XDMSS?</b>	Sp,D	

### AT+XDMST

#### Drive Motion Start Trigger

Command	Parameters	Description
<b>AT+XDMST=Tg</b>  <i>Configuration Driving</i>	Tg – Trigger: 0-2 0 – speed 1 – distance 2 – speed or distance  <b>Defaults:</b> 0	Tg specifies the trigger(s) that would indicate “motion start” using GPS for the purpose of Drive Trip.  See AT+XDMSD, AT+XDMSS, for Drive Motion Acceleration, Distance and Speed settings, respectively.
<b>AT+XDMST?</b>	Tg	

### AT+XUMSD

#### Unauthorized Motion Start Distance

Command	Parameters	Description
<b>AT+XUMSD=Di,T</b>  <i>Configuration Driving</i>	Di – Distance: 0-5000 [m]  T – Time: 0-3600 [sec]  <b>Defaults:</b> 50,0	Recognize “unauthorized motion start” when device moved by at least Di meters. The distance is measured relatively to the last “stop” location. This allows more accurate determination of “unauthorized motion”.  Note that unauthorized motion is used only for alerts and not for Drive Trip. Refer also to Unauthorized Motion Start Trigger (AT+XUMST) command.



		Parameter T is only applicable when running from internal battery. It indicates the number of seconds the device would keep the GPS active to measure Di. When running from external power, T is ignored.
<b>AT+XUMSD?</b>	Di,T	

### AT+XUMSS

#### Unauthorized Motion Start Speed

Command	Parameters	Description
<b>AT+XUMSS=Sp,D</b>  <i>Configuration Driving</i>	Sp – Speed: 0-255 [kmh]  D – Debounce: 0-255 [sec]  <b>Defaults:</b> 7,10	Recognize “unauthorized motion start” when device speed is at least Sp for at least D consecutive seconds. Refer also to Unauthorized Motion Start Trigger (AT+UMST) command.
<b>AT+XUMSS?</b>	Sp,D	

### AT+XUMST

#### Unauthorized Motion Start Trigger

Command	Parameters	Description
<b>AT+XUMST=Tg</b>  <i>Configuration Driving</i>	Tg – Trigger: 0-2 0 – speed 1 – distance 2 – speed or distance  <b>Defaults:</b> 0	Tg specifies the trigger(s) that would indicate “motion start” for the purpose of Unauthorized Trip Event (AT+XUTE).  See AT+XUMSS and AT+XUMSD for unauthorized motion speed and distance threshold settings, respectively.  Note that while, this trigger might be different from the general “motion start” used to indicate Drive Trip, which is specified via Drive Motion Start Trigger (AT+XDMST) command, unauthorized motion start is only qualified once general motion was detected. In other words, the device has to be considered “moving” before it is determined whether its motion is unauthorized.
<b>AT+XUMST?</b>	Tg	

### AT+XDTS

#### Drive Trip Start/Stop

Command	Parameters	Description
<b>AT+XDTS=Tg</b>	Tg – Trigger: 0-3	Send event report whenever trip starts



<i>Report Event Driving</i>	0 – disable 1 – trip start 2 – trip stop 3 – trip start and stop  <b>Defaults:</b> 0	and/or stops. Refer to <b>Error! Reference source not found.</b> section for explanation regarding “trip start”, “trip stop” and other “driving trip” related parameters. Also see Drive Trip Trigger (+XDTT) command.
<b>AT+XDTS?</b>	Tg	

## AT+XDTT

### Drive Trip Trigger

Command	Parameters	Description
<b>AT+XDTT=Tg</b>	Tg – Trigger: 0-3	Specify which trigger(s) identify “driving trip start/stop”. Refer to Drive Motion Start Trigger (AT+XDMST) and Ignition Mode (
<i>Configuration Driving</i>	0 – none	<a href="#">AT+XIA</a>
	1 – ignition only	Idle Alert
	2 – motion only	
	3 – ignition and motion simultaneous	
	<b>Defaults:</b> 2	
<b>AT+XDTT?</b>	Tg	

  

Command	Parameters	Description
<b>AT+XIA=Tg,D,T</b>	Tg – Trigger: 0-1 0 – disable 1 – enable	Send event re idling for at le If T>0, contin periodically e vehicle contin as No Motion definition of M Motion End T command. Fo to Ignition Mo Idle Alert (eve
<i>Report Event</i>	D – Time: 0-3600 [sec] T – Time: 0-14400 [sec] <b>Defaults:</b> 0,0,0	
<b>AT+XIA?</b>	Tg,D,T	

AT+XIGM) commands for definition of motion and ignition respectively.

Note that for self-powered devices only Tg=0 or Tg=2 should be used.

## AT+XDVID

### Driver Vehicle ID

Command	Parameters	Description
<b>AT+XDVID=Vid</b>	Vid – ID: “str[10]”	Set Vehicle ID of the device as Vid. Vid is Vehicle ID represented as a string of up to 10 characters.
<i>Action</i>	<b>Defaults:</b> ”	
<b>AT+XDVID?</b>	Vid	Displays the currently set Driver Vehicle ID



## AT+XGF

### Geo-Fence

Command	Parameters	Description
<b>AT+XGF=Gf, [Rd,][lat<sub>1</sub>,lon<sub>1</sub>,] [lat<sub>2</sub>,lon<sub>2</sub>, lat<sub>3</sub>,lon<sub>3</sub>, lat<sub>4</sub>,lon<sub>4</sub>, lat<sub>5</sub>,lon<sub>5</sub>, lat<sub>6</sub>,lon<sub>6</sub>, lat<sub>7</sub>,lon<sub>7</sub>, lat<sub>8</sub>,lon<sub>8</sub>, lat<sub>9</sub>,lon<sub>9</sub>, lat<sub>10</sub>,lon<sub>10</sub>, lat<sub>11</sub>,lon<sub>11</sub>, lat<sub>12</sub>,lon<sub>12</sub>, lat<sub>13</sub>,lon<sub>13</sub>, lat<sub>14</sub>,lon<sub>14</sub>, lat<sub>15</sub>,lon<sub>15</sub>]</b>  <i>Configuration: Misc.</i>	R – Radius: 10-150,000 [m]  Gf – Geofence: 0-15  Lat <sub>i</sub> – Latitude: -90.00000-90.00000 [°]  Lon <sub>i</sub> – Longitude: -180.00000-180.00000 [°]  <b>Defaults:</b> N/A	Set geo-fence Gf. The geo-fence can be specified in one of four ways that represent three types of geo-fences: C – Circular R – Rectangular P – Polygonal  Respective pairs of latitude-longitude (lat <sub>i</sub> ,lon <sub>i</sub> ) represent geo-points (coordinates). Each coordinate is represented as a latitude-longitude pair Lat <sub>i</sub> , Lon <sub>i</sub> , expressed in degrees and fraction of degrees with 5-digit precision (see example below).  The type of the geo-fence specified is determined by the number of its parameters (following Gf).  If there is one parameter (AT+GF=Gf,Rd) it specifies a Circular geo-fence with radius Rd meters centered in the current location. If no current location available (i.e. no GPS lock), the latest known location is used.  If there are three parameters (Gf,Rd,lat <sub>1</sub> ,lon <sub>1</sub> ) it specifies a Circular geo-fence with radius Rd meters centered in the geo-point defined by lat <sub>1</sub> ,lon <sub>1</sub> .  If there are four parameters (Gf,lat <sub>1</sub> ,lon <sub>1</sub> ,lat <sub>2</sub> ,lon <sub>2</sub> ) it specifies a Rectangular geo-fence using its diagonal where lat <sub>1</sub> ,lon <sub>1</sub> is the bottom left most geo-point and lat <sub>2</sub> ,lon <sub>2</sub> is the top most right geo-point.  If there are six parameters or more (Gf,lat <sub>1</sub> ,lon <sub>1</sub> ,lat <sub>2</sub> ,lon <sub>2</sub> ,lat <sub>3</sub> ,lon <sub>3</sub> ...) it specifies a Polygonal geo-fence. Polygonal geo-fence is represented by a



		<p>list of between 3 and 15 coordinates. The coordinates must be arranged in an order so they form a polygon with no line crossing. The first coordinate is always assumed also to be the last to have a closed shape.</p> <p>Note: This command only defines the geo-fences. Refer to Geo-Fence Enable (+XGFE) command regarding generating events based of crossing the geo-fence lines.</p> <p>Examples: Set Circular geo-fence 1000m in radius AT+XGF=0,1000,32.71845,-114.71950</p> <p>Set Circular geo-fence 1000m in radius around current location AT+XGF=1,1000</p> <p>Set Rectangular geo-fence AT+XGF=2,32.71845,-114.71950,32.72785,-114.61375</p> <p>Set Polygonal geo-fence AT+XGF=3,32.71845,-114.71950,32.72785,-114.61375,33.60490,-114.52720,34.28540,-114.13065,35.01775,-114.64285,39.00035,-120.00000,41.99500,-120.00000,41.99500,-124.87000,40.40000,-124.46540,34.44250,-120.46260,33.73790,-118.40760,32.53500,-117.14820,32.71845,-114.71950</p>
<p><b>AT+XGF?</b></p>	<p>01: lat<sub>1</sub>,lon<sub>1</sub> [+n] 02: lat<sub>1</sub>,lon<sub>1</sub> [+n] ... 15: lat<sub>1</sub>,lon<sub>1</sub> [+n]</p>	<p>For each set geo-fence returns the first point followed by the number of additional points in "[+n]" format (n is the number of not displayed points) for all polynomial geo-fences. This notation is used in order to limit the output size to fit in an SMS message. The complete geo-fence settings can be obtained using the Geo-Fence Read (AT+XGFR) command.</p>



		<p>Example:</p> <p>AT+XGF=5,12,13,14,15,16,17</p> <p>AT+XGF?</p> <p>01: -</p> <p>02: -</p> <p>03: -</p> <p>04: -</p> <p>05: 12.00000,13.00000 [+2]</p> <p>06: -</p> <p>07: -</p> <p>08: -</p> <p>09: -</p> <p>10: -</p> <p>11: -</p> <p>12: -</p> <p>13: -</p> <p>14: -</p> <p>15: -</p>
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## AT+XGFE

### Geo-Fence Event

Command	Parameters	Description
<p><b>AT+XGFE=Gf,Tg,D</b></p> <p><i>Report Event</i></p>	<p>Gf – Geofence: 0-15</p> <p>Tg – Trigger: 0-3</p> <p>0 – disable</p> <p>1 – in → out</p> <p>2 – in ← out</p> <p>3 – in ↔ out</p> <p>D – Debounce: 0-255 [sec]</p> <p><b>Defaults:</b></p> <p>0,0,0</p> <p>1,0,0</p> <p>...</p> <p>15,0,0</p>	<p>Send event report whenever geo-fence number Gf is crossed into and/or out of (according to specified by Tg) the fenced zone for at least D consecutive seconds. Note that not all geo-fences are checked all the time. The frequency depends on the number of geo-fences set, on their types and on the specific device. It can take up to 15 seconds before any given geo-fence is checked. Hence, there might be up to 15 seconds latency between crossing a geo-fence and the corresponding report. To minimize the latency, it is recommended to use Circular and Rectangular (rather than Polygonal) geo-fences, whenever possible. See Geo-Fence (+XGF) command for specification of the geo-fences.</p>
<b>AT+XGFE?</b>	<p>00: Tg,D</p> <p>01: Tg,D</p> <p>...</p> <p>15: Tg,D</p>	<p>Outputs the event settings of all 16 geo-fences.</p> <p><b>To be removed:</b></p> <p>The first parameter indicates they type of</p>





		<p>the geo-fence as follows:</p> <ul style="list-style-type: none"> <li>- – None (no geo-fence specified)</li> <li>C – Circular</li> <li>R – Rectangular</li> <li>P – Polygonal</li> </ul> <p>Also for each specified geo-fence, the command indicates whether the device is IN or OUT of that geo-fence at the time of issuing the command.</p> <p>Example:</p> <pre>AT+XGFE? GF00: C,0,0 (OUT) GF01: C,0,0 (OUT) GF02: R,0,0 (OUT) GF03: P,0,0 (OUT) GF04: -,0,0 GF05: -,0,0 GF06: -,0,0 GF07: C,0,0 (OUT) GF08: -,0,0 GF09: -,0,0 GF10: -,0,0 GF11: P,0,0 (OUT) GF12: -,0,0 GF13: -,0,0 GF14: -,0,0 GF15: -,0,0</pre>
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## AT+XGFR

### Geo-Fence Read

Command	Parameters	Description
<b>AT+XGFR=Gf</b>  <i>Information</i>	Gf – Geofence: 0-15  <b>Defaults:</b> N/A  <b>Return:</b> If Gf is of Type=C: Gf: Type,Tg,D (IN/OUT) 01: lat <sub>1</sub> ,lon <sub>1</sub> ,Radius  If Gf is of Type=R: Gf: Type,Tg,D (IN/OUT) 01: lat <sub>1</sub> ,lon <sub>1</sub> ,	Outputs all the settings pertaining to geo-fence Gf. The return string is formatted in multiple lines and depends on the type of the geo-fence. The first line outputs the index of the geo-fence (Gf) Trigger (Tg), the Debounce (D). It also outputs whether the current location of the device is In/Out of the geo-fence Gf.  In case of Circular geo-fence (Type=C), the second line displays the center geo-point (lat, lon) and the radius of the geo-fence in meters.



	<p>02: lat<sub>2</sub>,lon<sub>2</sub></p> <p>If Gf is of Type=P: Gf: Type,Tg,D (IN/OUT)</p> <p>01: lat<sub>1</sub>,lon<sub>1</sub>, 02: lat<sub>2</sub>,lon<sub>2</sub>, 03: lat<sub>3</sub>,lon<sub>3</sub>, [04: lat<sub>4</sub>,lon<sub>4</sub>, 05: lat<sub>5</sub>,lon<sub>5</sub>, 06: lat<sub>6</sub>,lon<sub>6</sub>, 07: lat<sub>7</sub>,lon<sub>7</sub>, 08: lat<sub>8</sub>,lon<sub>8</sub>, 09: lat<sub>9</sub>,lon<sub>9</sub>, 10: lat<sub>10</sub>,lon<sub>10</sub>, 11: lat<sub>11</sub>,lon<sub>11</sub>, 12: lat<sub>12</sub>,lon<sub>12</sub>, 13: lat<sub>13</sub>,lon<sub>13</sub>, 14: lat<sub>14</sub>,lon<sub>14</sub>, 15: lat<sub>15</sub>,lon<sub>15</sub>]</p> <p>If Gf was never specified: Gf: -,0,0</p>	<p>In case of Rectangular geo-fence (Type=R), the following two lines display the bottom left and the top right geo-points of the geo-fence.</p> <p>In case of Polygonal geo-fence (Type=R), the following lines display the geo-points defining the geo-fence. There can be 3-15 geo-points</p> <p>If the requested geo-fence was never specified (Type=-), no additional lines are displayed.</p> <p>Refer to Geo-Fence command (+XGF) for further description and setting of geo-fences.</p> <p>Examples: Geo-fence 7 is Circular: AT+GFR=7 GF07: C,0,0 (OUT) 01: 33.66813,-117.85890,78</p> <p>Geo-fence 2 is Rectangular: AT+GFR=2 GF02: R,0,0 (OUT) 01: 33.66636,-117.85740 02: 33.66694,-117.85654</p> <p>Geo-fence 11 is Polygonal: AT+GFR=7 GF11: P,0,0 (OUT) 01: 33.76898,-117.92046 02: 33.72216,-117.41921 03: 33.40748,-117.42745 04: 33.35687,-117.75327 05: 33.60886,-118.03754 06: 33.28458,-118.46876 07: 33.94104,-118.25864</p> <p>Geo-fence 12 is not set: AT+GFR=12 GF12: -,0,0</p>
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AT+XGME  
G-Motion Event



Command	Parameters	Description
<b>AT+XGME=Tg</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – G-motion start 2 – G-motion stop 3 – G-motion start and stop  <b>Defaults:</b> 0	Send event report whenever G-sensor detects motion according to the setting of G-Motion Threshold (+XGMTH) command. G-motion start can be used as a “wake-up” event when device is asleep or in hibernation mode.
<b>AT+XGME?</b>	Tg	

### AT+XGMTH

#### G-Motion Threshold

Command	Parameters	Description
<b>AT+XGMTH=Th,D</b>  <i>Configuration Peripheral</i>	Th – Threshold: 160-20000 [mm/s <sup>2</sup> ]  D – Debounce: 0-255 [s]  <b>Defaults:</b> 700,1	Specifies the G-motion threshold, which is the amount of motion needed to wake-up the device, if it is dormant and to generate a G-Motion event (the higher the value, the stronger the shake needed to wake-up the device). To trigger the event, the threshold must be exceeded for D seconds. If D=0, the G-sensor motion detection is disabled. <b>NOTE: the Debounce is not Relevant for Lioness-SA and debounce parameter is ignored.</b>
<b>AT+XGMTH?</b>	Th,D	

### AT+XGMTHC

#### G-Motion Threshold - Collision

Command	Parameters	Description
<b>AT+XGMTHC=Th1,Th2</b>  <i>Configuration Peripheral</i>	Th1,Th2 – Threshold: 2000-9200 [mm/s <sup>2</sup> ]  <b>Defaults:</b> 3000,5000	Specifies the G-sensor threshold to indicate collision. Two levels of collisions can be specified with Th1 and Th2 to trigger Collision Low and Collision High events respectively. When collision happens, only the higher between the two thresholds exceeded is reported. If upon reporting the event, the condition still persists (i.e. the threshold continues to exceed), the event is reported again. This is not a likely real-life scenario. Threshold that is configured to 0 is ignored.
<b>AT+XGMTHC?</b>	Th1,Th2	



## AT+XGPL

### GPS Loss/Lock

Command	Parameters	Description
<b>AT+XGPL=Tg,D</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – unlocked → locked 2 – unlocked ← locked 3 – unlocked ↔ locked  D – Debounce: 0-3600 [sec]  <b>Defaults:</b> 0,0	Send event report whenever GPS locking changes from unlocked to locked and/or vice versa for at least D consecutive seconds.
<b>AT+XGPL?</b>	Tg,D	

## AT+XGPLP

### GPS Lock Parameters

Command	Parameters	Description
<b>AT+XGPLP=S,D1,H,D2</b>  <i>Configuration: Peripheral-GPS</i>	S – Satellites: 3-10  D1 – Debounce: 0-60 [sec]  H – HDOP: 0.0-20.0  D2 – Debounce: 0-60 [sec]  <b>Defaults:</b> 4,2,3,0,2	Set GPS parameters for reliable lock. S indicates the minimum number of satellites seen; H indicates the maximum HDOP acceptable; D1 indicates the minimum length of time for these conditions to be present in order for GPS to be considered “locked”; D2 is optional and is used instead of D1 when GPS gets turned on (after reset/sleep/power-up) to potentially allow for a longer GPS convergence time in case of a cold start.
<b>AT+XGPLP?</b>	S,D1,H,D2	

## AT+XIMEIEN

### IMEI Enable

Command	Parameters	Description
<b>AT+XIMEIEN=I</b>  <i>Configuration: Protocol</i>	I – IMEI: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 0	Enable/disable IMEI in the status message. When disabled IMEI is never populated in Type 0 message and the field is set to 0. When enabled IMEI is populated if neither IMSI or DID need to be sent.
<b>AT+XIMEIEN?</b>	I	

## AT+XINPROD

### Info - Product

Command	Parameters	Description
<b>AT+ XINPROD</b>		Displays product specific information.



<i>Info</i>		<p>Example (Panther):  AT+XINPROD  HWVER: 48  FWVER: 45a  FWID: F001  UNIT: 567891011  OK</p>
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## AT+XIA

### Idle Alert

Command	Parameters	Description
<b>AT+XIA=Tg,D,T</b>  <i>Report Event</i>	Tg – Trigger: 0-1 0 – disable 1 – enable  D – Time: 0-3600 [sec]  T – Time: 0-14400 [sec]  <b>Defaults:</b> 0,0,0	Send event report whenever vehicle is idling for at least D consecutive seconds. If T>0, continue sending event report periodically every T seconds, while the vehicle continue to idle. Idling is defined as No Motion with Ignition-On. For definition of No Motion refer to Drive Motion End Trigger (AT+XDMET) command. For definition of Ignition, refer to Ignition Mode (AT+XIGM) command. Idle Alert (event 30)
<b>AT+XIA?</b>	Tg,D,T	

## AT+XIGM

### Ignition Mode

Command	Parameters	Description
<b>AT+XIGM=M,D,Cr</b>  <i>Configuration: Peripheral-Ignition</i>	Mode – Mode: 0-1 0 – None 1 – Voltage 2 – IGN Input 3 – CAN-bus (reserved) 4 – G-Sensor  D – Time: 0-255 [sec]  Cr – Connection reset: 0-3 0 – no reset 1 – off → on 2 – off ← on 3 – off ↔ on  <b>Defaults:</b> 2,5,0 (IGN)	Set ignition On/Off detection method. Cr is a flag indicating whether to perform cellular connection reset upon ignition state change. This allows to improve chances of connectivity when car starts and/or stops.  If M=0, no ignition detection is performed and no ignition events will be reported. If M=1, external voltage is used as the means to identify ignition “virtually”. The voltage threshold is set by the Ignition Voltage (+XIGV) command. If M=2, IGN pin should be connected to the actual ignition to function properly. When IGN=1 for at least D seconds, Ignition is On. In all other mode the IGN pin can be used as a general input pin. If M=3, Ignition is decided by reading an



		<p>indicator from the vehicle CAN (or similar) bus. This mode is <b>not implemented</b>. If M=4, Ignition is decided by accelerometer detecting motion.</p> <p>If Cr=0, no reset is performed. If Nr&gt;0, the device performs a cellular connection reset when the ignition switches from off to on and/or vice versa according to the Cr setting.</p>
<b>AT+XIGM?</b>	M,D,Cr	

### AT+XIGV

#### Ignition Voltage

Command	Parameters	Description
<b>AT+XIGV=V</b>	V – Voltage: 0.00-28.00 [Volt]	Set voltage threshold V (in 0.01V resolution). When the external power is above V the ignition is assumed to “On”, otherwise it is considered to be “Off”. This setting has effect only when Ignition Mode is set to Virtual – see Ignition Mode (+XIGM) command.
<i>Configuration: Peripheral-Ignition</i>	<b>Defaults:</b> 13.00	
<b>AT+XIGV?</b>	V	

### AT+XIOE

#### I/O Event

Command	Parameters	Description
<b>AT+XIOE=Io,Tg,D,PI,Ph</b>	Io – GPIO #: A-D (or A-H)	Send event report whenever a status of the specified GPIO changes from 0 to 1 and/or from 1 to 0 for more than T of seconds. For proper operation the respective GPIO should be configured as Input. Refer to Table 2 – for the list of event numbers. The number of GPIO’s may vary in different products. Refer to <b>Error! Reference source not found.</b> to determine the number of GPIO’s specific to different products and their respective mapping.  If PI or Ph are non-zero, send report every PI or Ph seconds when the specified GPIO is in the low or high state respectively.
<i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – 0 → 1 2 – 0 ← 1 3 – 0 ↔ 1	
	D – Debounce: 0-25 [sec]	
	PI – Periodic Low: 0-86,400 [sec]	
	Ph – Periodic High: 0-86,400 [sec]	
	<b>Defaults:</b> 0,1,0,0	



		Each IO generates its own Periodic event respectively (0x80 – 0x 87 respectively).
<b>AT+XIOE?</b>	A: Tg <sub>1</sub> ,D <sub>1</sub> B: Tg <sub>2</sub> ,D <sub>2</sub> C: Tg <sub>3</sub> ,D <sub>3</sub> D: Tg <sub>4</sub> ,D <sub>4</sub> ...	

## AT+XIP

Set IP

Command	Parameters	Description
<b>AT+XIP=Ip,P,Pr</b>  <i>Configuration: Comms.</i>	Ip – IP Address: string  P – Port: 0-65535  Pr – Protocol: 0-2 0 – TCP 1 – UDP 2 – TLS 1.2  <b>Defaults:</b> "98.189.204.2",15008,1	Set the IP address and port of the server, where all event reports are sent. If the Ip string is not an IP address, it is considered to be a domain name and will be resolved accordingly.  Pr is an optional parameter indicating the protocol to be used (default is UDP).  Examples: AT+XIP="211.161.197.163",7006 AT+XIP="22.58.7.163",10022,2 AT+XIP="www.my_example.com",1234
<b>AT+XIP?</b>	Ip,P	

## AT+XLEDO

LED's Off

Command	Parameters	Description
<b>AT+XLEDO=T1,T2</b>  <i>Configuration: Peripheral</i>	T1 – Time: 0-2678400 [sec]  T2 – Time: 0-3600 [sec]  <b>Defaults:</b> 0,60	Set the policy of turning the LED's off for power saving or concealment. T1 specifies the total time (up to 31 days) after power-up, where the LED's remain active (i.e. operating according to the specified in Section LED's). During this activity period T2 specifies for how long the LED's are on when the device is running on battery. This allows convenient testing of battery powered devices without imposing on the battery. If T1=0, the LED's remain active all the time. If T2=0, the LED's are on all the time when running from battery (and not sleeping). Once the LED's deactivate (i.e. T1 expires), they can be turned back on



		either by power cycling the device or re-issuing AT+XLEDO command. Example: AT+XLEDO=86400,180 For the first 24 hours after power-up, the LED's will be on when running from external power and will turn on for 3min every time the device wakes up on battery. After 24 hours, the LED's will be completely off.
<b>AT+XLEDO?</b>	T1,T2	

### AT+XMHB

#### Maintenance Heart Beat

Command	Parameters	Description
<b>AT+XMHB=St,T</b>  <i>Report Event Maintenance</i>	St – State: 0-7 0 – external-high 1 – external-normal 2 – external-low 3 – external-critical 4 – internal-high 5 – internal-normal 6 – internal-low  T – Time: 0-2,678,400 [sec]  <b>Defaults:</b> *,0,0	Send maintenance report every T seconds based on the power state. The dependency on power state allows to reduce the frequency of the reports when the power is low to preserve power. Note that the timing of the maintenance reports is absolute, meaning that T is measured from the previous MHB report sent.  Maintenance reports are sent to the IP address set by the Maintenance IP (+XMIP) command.
<b>AT+XMHB?</b>	0: T <sub>0</sub> 1: T <sub>1</sub> 2: T <sub>3</sub> 3: T <sub>3</sub> 4: T <sub>4</sub> 5: T <sub>5</sub> 6: T <sub>6</sub>	

### AT+XPBE

#### Panic Button Event

Command	Parameters	Description
<b>AT+XPBE=Pb</b>  <i>Configuration: Peripheral</i>	Pb – Panic button: 0-3 0 – disable messages 1 – send messages when button is pushed 2 – send messages when button is released 3 – send messages when button is either pushed or	Enable/disable sending alert messages triggered by a panic button. Panic button is considered pressed when GPIO-A is grounded. The number of alert messages sent and the time interval between them is specified via the AT+XALM command.





	released	
	<b>Defaults:</b> 0	
<b>AT+XPBE?</b>	Pb	

## AT+XPUP

### Power Up

Command	Parameters	Description
<b>AT+XPUP=Tg</b>  <i>Report Event</i>	Tg – Trigger: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 1	When enabled (Tg=1,) send event report after the device powers up. Note that before sending report, the device will wait for GPS to lock for a period of time specified by the GPS Lock Time (+XGPLT) command. If GPS is not locked, the last known location is reported, or 0's if no prior location. Power Up (event 1)
<b>AT+XPUP?</b>	Tg	

## AT+XPWSMM

### Power State-Mode Mobile

Command	Parameters	Description																									
<b>AT+XPWSMM=St,M</b>  <i>Configuration: Power</i>	St – State: 0-6 0 – external-high 1 – external-normal 2 – external-low 3 – external-critical 4 – internal-high 5 – internal-normal 6 – internal-low  Mode: 0-2 0 – Track 1 – Listen 2 – Sleep 3 – Hibernate  <b>Defaults:</b> 0,0 1,0 2,0 3,3 4,1 5,1 6,1	Set the power modes for the various power states when mobile. The following functions are enabled in different modes: <table border="1" data-bbox="893 1192 1404 1423"> <thead> <tr> <th></th> <th>GPS</th> <th>Cell</th> <th>Acc</th> <th>LED</th> </tr> </thead> <tbody> <tr> <td><b>Track</b></td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td><b>Listen</b></td> <td>X</td> <td>Yes</td> <td>Yes</td> <td>X</td> </tr> <tr> <td><b>Sleep</b></td> <td>X</td> <td>X</td> <td>Depends on HW</td> <td>X</td> </tr> <tr> <td><b>Hibernate</b></td> <td>X</td> <td>X</td> <td>Yes</td> <td>X</td> </tr> </tbody> </table> By default all states are configured to Track mode.  Note that the Hibernate mode is not supported on all devices. While it is the lowest power state, there might be up to a minute delay in exiting this mode to turn the rest of the system on.		GPS	Cell	Acc	LED	<b>Track</b>	Yes	Yes	Yes	Yes	<b>Listen</b>	X	Yes	Yes	X	<b>Sleep</b>	X	X	Depends on HW	X	<b>Hibernate</b>	X	X	Yes	X
	GPS	Cell	Acc	LED																							
<b>Track</b>	Yes	Yes	Yes	Yes																							
<b>Listen</b>	X	Yes	Yes	X																							
<b>Sleep</b>	X	X	Depends on HW	X																							
<b>Hibernate</b>	X	X	Yes	X																							



<b>AT+XPWSMM?</b>	0: M <sub>0</sub> 1: M <sub>1</sub> 2: M <sub>2</sub> 3: M <sub>3</sub> 4: M <sub>4</sub> 5: M <sub>5</sub> 6: M <sub>6</sub>	Example: 0:0 1:0 2:0 3:3 4:1 5:1 6:1
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## AT+XPWSMS

### Power State-Mode Stationary

Command	Parameters	Description																									
<b>AT+XPWSMS=St,M</b>  <i>Configuration:</i>  <i>Power</i>	St – State: 0-6 0 – external-high 1 – external-normal 2 – external-low 3 – external-critical 4 – internal-high 5 – internal-normal 6 – internal-low  Mode: 0-3 0 – Track 1 – Listen 2 – Sleep 3 – Hibernate  <b>Defaults:</b> 0,0 1,0 2,1 3,3 4,1 5,1 6,1	Set the power modes for the various power states when stationary. The following functions are enabled in different modes: <table border="1" style="margin: 10px auto;"> <thead> <tr> <th></th> <th>GPS</th> <th>Cell</th> <th>Acc</th> <th>LED</th> </tr> </thead> <tbody> <tr> <td><b>Track</b></td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td><b>Listen</b></td> <td>X</td> <td>Yes</td> <td>Yes</td> <td>X</td> </tr> <tr> <td><b>Sleep</b></td> <td>X</td> <td>X</td> <td>Depends on HW</td> <td>X</td> </tr> <tr> <td><b>Hibernate</b></td> <td>X</td> <td>X</td> <td>Yes</td> <td>X</td> </tr> </tbody> </table> <p>By default all states are configured to Track mode.</p> <p>Note that the Hibernate mode is not supported on all devices. While it is the lowest power state, there might be up to a minute delay in exiting this mode to turn the rest of the system on.</p>		GPS	Cell	Acc	LED	<b>Track</b>	Yes	Yes	Yes	Yes	<b>Listen</b>	X	Yes	Yes	X	<b>Sleep</b>	X	X	Depends on HW	X	<b>Hibernate</b>	X	X	Yes	X
	GPS	Cell	Acc	LED																							
<b>Track</b>	Yes	Yes	Yes	Yes																							
<b>Listen</b>	X	Yes	Yes	X																							
<b>Sleep</b>	X	X	Depends on HW	X																							
<b>Hibernate</b>	X	X	Yes	X																							
<b>AT+XPWSMM?</b>	0: M <sub>0</sub> 1: M <sub>1</sub> 2: M <sub>2</sub> 3: M <sub>3</sub> 4: M <sub>4</sub> 5: M <sub>5</sub> 6: M <sub>6</sub>	Example: 0:0 1:0 2:0 3:3 4:1 5:1 6:1																									

## AT+XRLOC

### Roll-Over Configuration

Command	Parameters	Description
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<b>AT+XRLOC=Th,D</b>  <i>Configuration Peripheral</i>	Th – Threshold: 0-150 [degree]  D – Duration: 1-15[sec]  <b>Defaults:</b> 75,0	Specifies the G-sensor threshold necessary to generate a Roll-Over event. D indicates the max duration over which the change of angle Th needs to take place to be considered a roll-over. If D=0, the event is disabled.
<b>AT+ XRLOC?</b>	Th,D	

## AT+XRMLC

### Roaming List Configuration

Command	Parameters	Description
<b>AT+XRMLC=T,Fr</b>  <i>Configuration Comms.</i>	T – Time: 0-1440 [minute]  Fr – Free Roam: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 10,0	Configure preferred roaming related parameters. T specifies when roaming how frequently the list of available carriers is checked and compared against the Preferred Roaming list to connect to a preferred carrier. If T=0, the device will never initiate connection to a different carrier based on preference until the existing connection is lost. Fr specifies whether the device is allowed to connect to carriers that are not on the Preferred Roaming list provided that they are not on the Forbidden Roaming list. See Roaming List Preferred (AT+XRMLP) and Roaming List Forbidden (AT+XRMLF) commands for setting the Roaming lists respectively.
<b>AT+ XRMLC?</b>	T,Fr	

## AT+XRMLF

### Roaming List Forbidden

Command	Parameters	Description
<b>AT+XRMLF =P1,...,P15</b>  <i>Configuration Comms.</i>	Pi – PLMN: 0-999999  <b>Defaults:</b> 0	Specifies the list of forbidden roaming carriers. The device will never connect to the carriers on this list. Each carrier is identified by its PLMN. The list can be up to 15 members long. If the first parameter is set to 0, the rest of the parameters are ignored and if prior list exists, it is cleared.
<b>AT+XRMLF?</b>	P1,...,P15	

## AT+XRMLP

### Roaming List Preferred



Command	Parameters	Description
<b>AT+XRMLP=P1,...,P15</b>  <i>Configuration Comms.</i>	Pi – PLMN: 0-999999  <b>Defaults:</b> 0	Specifies the list of preferred roaming carriers in preference order. When roaming, the device will try to connect to a preferred carrier according to this list. Each carrier is identified by its PLMN. The list can be up to 15 members long. If the first parameter is set to 0, the rest of the parameters are ignored and if prior list exists, it is cleared.
<b>AT+XRMLP?</b>	P1,...,P15	

## AT+XSIMA

### SIM Authenticate

Command	Parameters	Description
<b>AT+XSIMA=Pn1,Pn2,Ef</b>  <i>Configuration: Periperal</i>	Pn1 – Pin: string  Pn2 – Pin: string  Ef – Enable Flag: 0-1 0 – disable 1 – enable  <b>Defaults:</b> N/A (depends on SIM)	<i>This command is relevant only when locked SIM is being used.</i>  This command is used to change the pin of the SIM (typically the default is “1234”) and/or enable/disable pin locking of the SIM.  In order to work with locked SIM, the device must have Pn1 specified in the config. file. It must match the pin programmed on the SIM for the device to get network access. The device is authenticated after every reset/power-up. Pn1 must always match the pin programmed on the SIM and is used for authentication. Pn2 is a new pin, which, if specified, is programmed to the SIM to be used in future authentications and is also updated in the config. file as the new pin of the device. If Pn2=”, the existing pin is unchanged. Ef specifies whether to lock or unlock the SIM. Once unlocked, no authentication is performed until the SIM is locked again. To lock the SIM, the device is authenticated first.
<b>AT+XSIMA?</b>	0 – SIM unlocked 1 – SIM locked and was verified 2 – SIM locked (not verified)	Returns the locking state.



3 – SIM not detected

### AT+XSLPE

Sleep Events (Battery powered devices only: Puma, Jaguar)

Command	Parameters	Description
<b>AT+XSLPE=Tg</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – active → sleep 2 – active ← sleep 3 – active ↔ sleep  <b>Defaults:</b> 0	Send event report before device goes to sleep and/or once it wakes up. This command is mostly useful in battery powered devices that shut the radio off to save power. The Sleep event report is the only report that has no “Listen Window” as the device is going to sleep after sending it.  Note that in most cases when the device wakes up, it is because of some event (e.g. Heartbeat), which already generates a report. Thus, in most cases Tg should be configured to 0 or 1.
<b>AT+ XSLPE?</b>	Tg	

### AT+XSMSD

SMS Destination

Command	Parameters	Description
<b>AT+XSMSD=Phn</b>  <i>Configuration: Comms.</i>	Phn – Phone Number: string  <b>Defaults:</b> ""	Set the phone number to which SMS responses are sent. If Phn="", SMS response is always sent to the same number the command was received from (as determined by the Caller ID).  Phn must be a string of up to 14 digits representing a valid phone number (including country code and area code, if necessary). E.164 standard short codes are supported as destinations  Examples: AT+XSMSD="0116143215678" AT+XSMSD="12345"
<b>AT+XSMSD?</b>	Phn	

### AT+XSMSS

SMS Source

Command	Parameters	Description
<b>AT+XSMSS=Phn</b>  <i>Configuration:</i>	Phn – Phone Number: string  <b>Defaults:</b>	Set the phone number from which commands are accepted via SMS (as determined by the Caller ID). Commands



<i>Comms.</i>	""	from any other number are ignored. If Phn="", commands from any phone number are accepted. Phn must be a string of up to 14 digits representing a valid phone number (including country code and area code, if necessary).  Examples: AT+XSMSS="0116143215678" AT+XSMSS="12345"
<b>AT+XSMSS?</b>	Phn	

### AT+XSPD

#### Speeding

Command	Parameters	Description
<b>AT+XSPD=Tg,Th,D</b>  <i>Report Event</i>	Tg – Trigger: 0-3 0 – disable 1 – low → high 2 – low ← high 3 – low ↔ high  Th – Threshold: 0-255 [km/h]  D – Debounce: 0-255 [sec]  <b>Defaults:</b> 0,0,0	Send event report whenever speed threshold Th is crossed for at least D consecutive seconds. Speeding Start (event 19) is reported when speed exceeds Th Speeding Stop (event 20) is reported when speed falls below Th
<b>AT+XSPD?</b>	Tg,Th,D	

### AT+XTLTC

#### Tilt Configuration

Command	Parameters	Description
<b>AT+XTLTC=Th,D</b>  <i>Configuration Peripheral</i>	Th – Threshold: 0-60 [degree]  D – Duration: 1-15[sec]  <b>Defaults:</b> 45,0	Specifies the G-sensor threshold necessary to generate a Tilt event. D indicates the max duration over which the change of angle Th needs to take place to be considered a tilt. If D=0, the event is disabled.
<b>AT+XTLTC?</b>	Th,D	

### AT+XTMPRE

#### Tamper Event *(Applicable to: Puma, Jaguar)*

Command	Parameters	Description
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<b>AT+XTMPRE=Tg</b>  <i>Report Event</i>	Tg – Trigger: 0-1 0 – Disable 1 – Tamper detected 2 – Tamper stopped (pin only) 3 – Tamper detected and tamper stopped (pin only)  <b>Defaults:</b> 0	Send event report if tamper was detected. The detection mechanism is specified via the Tamper Mode (+XTMPRM) command.  Note: Modes 2 and 3 are only relevant when physical tamper pin is used.
<b>AT+XTMPRE?</b>	Tg	

### AT+XVEGH

Virtual Engine Hours

Command	Parameters	Description
<b>AT+XVEGH=T</b>  <i>Action</i>	T – Time: 0-1,000,000 [hrs]  <b>Defaults:</b> N/A	Set the “virtual Engine Hours” to value T. This allows to start counting from value different than 0. The “virtual engine-hours” will continuously increment for every hour that Ignition is On.
<b>AT+XVEGH?</b>	T	T is the current (not the initial) virtual engine-hours value.

### AT+XVO

Virtual Odometer

Command	Parameters	Description
<b>AT+XVO=Di</b>  <i>Action</i>	Di – Distance: 0-1,000,000 [km]  <b>Defaults:</b> N/A	Set the “virtual odometer” to value Di. This allows to start counting from value different than 0. The “odometer” purpose is to keep the approximate total distance driven. It is updated every 5 km when in Drive Trip state based on the distance driven according to the GPS and never resets (unless re-initialized).
<b>AT+XVO?</b>	Di	Di is the current (not the initial) odometer value.
<b>AT+XVO?</b>	Di	Di is the current (not the initial) odometer value.

### AT+XVTOE

Virtual Trip Odometer Event

Command	Parameters	Description
<b>AT+XVTOE=Di</b>  <i>Report Event</i>	Di – Distance: 0-100,000 [km]  <b>Defaults:</b>	Send event report every Di km traveled. If Di=0, the “trip odometer” is disabled. Distance is updated only when in Drive



	0	Trip state. Odometer (event 33)
<b>AT+XVTOE?</b>	Di	

### AT+XUTE

Unpowered Trip Event

Command	Parameters	Description
<b>AT+XUTE=Tg</b>  <i>Report Event Driving</i>	Tg – Trigger: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 0	Send event report when the device is moving while powered from battery. The event is qualified according to setting of the Unauthorized Motion Start Trigger (AT+XUMST) command.
<b>AT+XUTE?</b>	Tg	

### AT+XCCW

Cellular Connect Window

Command	Parameters	Description
<b>AT+XCCW=T</b>  <i>Configuration Misc.</i>	T – Time: 0,10-3600 [sec]  <b>Defaults:</b> 120	Set the minimum time, T, that the device would try to connect to the cellular network when waking up from sleep/hibernate before going back to sleep/hibernate. If T=0, the device will continue trying to connect until successful.
<b>AT+XCCW?</b>	T	

### AT+XCPKP

Cellular Peeking Period

Command	Parameters	Description
<b>AT+XCPKP=T</b>  <i>Configuration: Communication</i>	T – Time: 0,10-86,400 [sec]  <b>Defaults:</b> 0	Set how often the device will connect to the cellular network to check for pending messages when cellular connection is turned off by default (e.g. in sleep or hibernation modes). When T=0, peeking is disabled.
<b>AT+XCPKP?</b>	T	

### AT+XDNSP

DNS-renew Periodically

Command	Parameters	Description
<b>AT+XDNSP=T</b>  <i>Periodic Action</i>	T – Time: 0-250 [hr]  <b>Defaults:</b> 0 (network TTL)	Renew DNS tables every T hours. If T=0, TTL returned by the network is used. Note that DNS renewal uses KBytes of data, so it should not be performed too





		often.
<b>AT+XDNSP?</b>	T	

### AT+XGPP

GPS Peeking Period

Command	Parameters	Description
<b>AT+XGPP=T</b>  <i>Configuration: Misc.</i>	T – Time: 0,60-86,400 [sec]  <b>Defaults:</b> 0	Set how often the device will activate GPS to check for towing when GPS is turned off by default (e.g. in sleep or hibernation modes). When T=0, peeking is disabled.
<b>AT+XGPP?</b>	T	

### AT+XTAD

Towed Alert Distance

Command	Parameters	Description
<b>AT+XTAD=Tg,D</b>  <i>Report Event</i>	Tg – Trigger: 0-1 0 – disable 1 – enable  D – Distance: 0-500000 [m]  <b>Defaults:</b> 0,1000	Send event report whenever vehicle (or asset) was displaced by at least D meters while ignition is off.  Note that unlike Tow Alert, which requires GPS to be active when the towing occurs to detect motion. Towed Alert can trigger after the fact, if the device was in hibernation.
<b>AT+XTAD?</b>	Tg,D	

### AT+XACEN

Authorization Code Enable

Command	Parameters	Description
<b>AT+XACEN=F</b>  <i>Configuration: Protocol</i>	F – Flag: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 0	Enable/disable authorization code. When authorization code is enabled, the device checks the code in all messages received from the server against the code generated using the authorization table according the Minitrack specification. Any incoming data (command or response) without matching code is ignored.  When authorization code is disabled, the respective field in the message is ignored. Note that the Authentication Code should be disabled for Authentication Table to be updated over OTA.
<b>AT+XACEN?</b>	F	

### AT+XIOINVO

I/O Invert Output



Command	Parameters	Description
<b>AT+XIOINVO=Io,I</b>  <i>Configuration:</i> <i>Peripheral</i>	Io – GPIO #: A-D (or A-H)  I – Invert: 0-1 0 – Normal 1 – Invert  <b>Defaults:</b> *,0	This command controls the inversion status of all outputs and is for backwards compatibility. If I=1, invert the output value of the respective GPIO relatively to what it is configured to (i.e. writing 1 to inverted output, results in output 0 and vice versa). If I=0, GPIO output is unchanged.
<b>AT+XIOINVO?</b>	A: Dir <sub>1</sub> , Io <sub>1</sub> B: Dir <sub>2</sub> , Io <sub>2</sub> C: Dir <sub>3</sub> , Io <sub>3</sub> D: Dir <sub>4</sub> , Io <sub>4</sub> E: Dir <sub>5</sub> , Io <sub>5</sub>	For each GPIO return I and the GPIO current value (after inversion, if applicable). When issuing AT+XIOR command, the inverted values are shown in their logical state, i.e. as they were written prior to any inversion, but the value is marked with '\`' to indicate that the actual physical value is inverted. Example: at+xioinvo?  A: 1,0 B: 1,0 C: 1,0 D: 0,1 E: 0,0  at+xior?  A: 1,0 B: 1,1 C: 1,1 D: 0,1\ E: 0,0

### AT+XCELLIDEN

Cell ID Enable

Command	Parameters	Description
<b>AT+CELLIDEN=E</b>  <i>Configuration:</i> <i>Misc.</i>	E – Enable: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 1	Enable/disable sending accompanying Cell ID message whenever GPS is unavailable. Default is 1 (enabled) for backward compatibility.
<b>AT+XCELLIDEN?</b>	E	

### AT+XCOLE

Collision Event type



Command	Parameters	Description
<b>AT+COLE=T</b>  <i>Configuration: Misc.</i>	T – Type: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 0	Set the type of event report generated for collision: T-0 – immediate alert/distress report T-1 – normal (logged) report
<b>AT+XCOLE?</b>	T	

### AT+XDIDE

#### Driver ID Events

Command	Parameters	Description
<b>AT+XDIDE=E</b>  <i>Configuration: Misc.</i>	E – Enable: 0-1 0 – disable 1 – enable  <b>Defaults:</b> 0	Enable/disable reporting of Driver ID changes. Events: <i>DID_AUTHENTICATED = 0x1A00</i> <i>DID_DEAUTHENTICATED = 0x1A01</i> <i>UNAUTHENTICATED_DRIVE = 0x1A02</i>
<b>AT+XDIDE?</b>	E	

### AT+XBTSC

#### Bluetooth Scan Config

Command	Parameters	Description
<b>AT+XBTSC=Ton,Toff,F</b>  <i>Configuration: Communication</i>	On – Time on: 3-50 [ms]  Off – Time off: 0-10000 [ms]  F – Filter: 0-3 0 – none 1 – MSD 2 – UUID 3 – MSD and UUID  <b>Defaults:</b> 50,265,1	Set the duty cycle of BT scanning when BT is enabled. Ton indicates the time that the scanning is active and Toff the time it is inactive during each cycle (both are in milliseconds). The objective is to reduce power consumption by limiting the constant scanning. Note that the matching client must assure that its advertisement is frequent enough to “overlap” with the scanning time in order to assure pairing. The filter parameter, F, specifies which scanned messages will be filtered out during scanning, so the respective devices are not even seen by the device. The options are that only messages that include Manufacturer Specific Data (MSD) and/or UUID that match the ones of the device will pass the filter. Refer to iDrive document for specification of UUID and MSD.
<b>AT+XBTSC?</b>	Ton,Toff,F	



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