

MT500 3G GPS Tracker

User Manual V3.0



Preface

Congratulations on choosing the Mictrack MT500 3G Vehicle GPS tracker. This manual shows how to easily program and setup the tracker for best results. Make sure to read this manual carefully before using this product, so as to avoid delays or confusion with it's operation. Please note that specifications and instructions are subject to change without notice to facilitate product improvement. Updates and changes will be integrated into the latest release. The manufacturer assumes no responsibility for any errors or omissions in outdated documents.

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1. Overview

The MT500 is the latest technology 3G GPS tracker, fully supporting WCDMA/UMTS mobile networks. This device can be used locate, track and monitor any remote target via SMS, PC Computer or Mobile APP. It is commonly used to track and locate individual vehicles, motorbikes or boats, and is a valuable tool for enhanced fleet management. The user also can remotely cut off Fuel / Ignition and check the historical route travelled and other vehicle data.

The MT500 has an excellent track record for stable performance and possesses a wide variety of features.

2. Application

- **3G WCDMA/UMTS network support**
- Real-time position acquiring
- 2 way voice communication (optional for Model “E” only)
- Voice / Audio monitoring (optional for Model “E” only)
- Vehicle trip history and mileage data on web tracking platform
- SOS alarm button and real time reporting
- ACC switch status alarm
- Geo-Fence alarm and reporting
- External power cut off alarm
- Remote cut off fuel / ignition (optional)
- Vehicle towing / Movement alarm
- Over-Speed alarm and reporting
- Backup battery low power alarm
- Car battery low power alarm
- High temperature alarm
- Power saving / sleep mode
- Door status sensor (optional)
- Fuel level sensor (optional)
- Siren(optional)

3. Specifications

Item	Specifications
Dimension	90(L)*70(W)*24(H)mm
Weight	138g
Input Voltage	12V-36V
Backup battery	700mAh/3.7v

Item	Specifications
3G Frequency bands	MT500-E 900/2100MHz@UMTS 900/1800MHz@GSM MT500-G 800/850/900/1900/2100MHz@UMTS 850/900/1800/1900MHz@GSM
Power consumption	60mA standby current
GPS Chip	U-BLOX7
GPS Sensitivity	-162dBm
Channel	56 Channel
Positioning Accuracy	10m
Hot start	1s on average
Warm start	15s on average
Cold start	30s on average
Working temperature	-20°C to 70°C
Humidity	5%~95% non-concretion
Antennas	External 3G & GPS antennas
Sensor	3D acceleration/movement sensor/ temperature sensor
LED	CHG/SYS/GPS
SIM Card interface	Standard Size SIM

4. MT500 and Accessories

Standard accessories:



Optional accessories

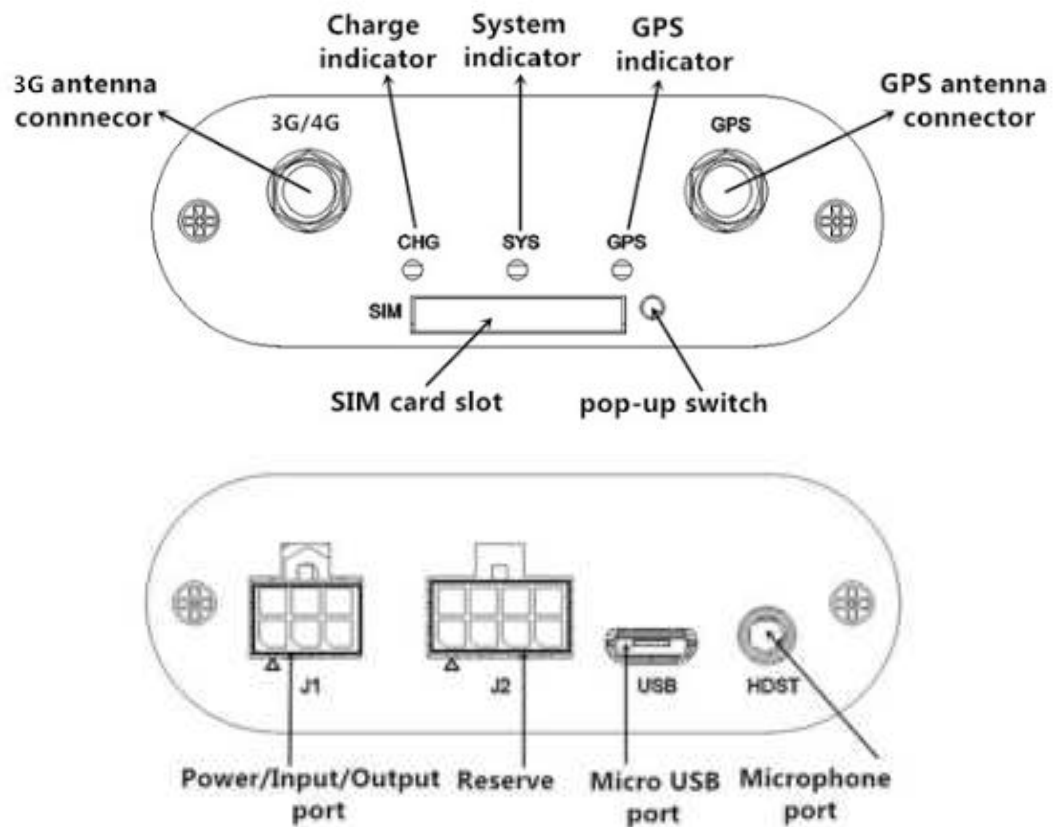


Earphone



Relay

5. Unit Diagram



6. Installation

6.1 SIM Card installation

Please read the following before installing the SIM card:

- Ensure the SIM card has minimum balance
- Ensure the SIM card has caller ID and HSPA functions enabled
- Ensure the SIM card PIN is disabled, and call forwarding not active

- Send a test SMS to and from the SIM card using a mobile phone
- Power off the device before installing the SIM card

To install the SIM card, perform the following operations:

1. Insert the SIM card into the SIM card plastic tray.
2. Ensure the SIM card has metal contacts facing up (Diagram #1).
3. Gently slide the SIM Tray into the SIM Slot (Diagram #2).

Note:

- The device only supports **Standard Size SIM card**;
- To remove SIM card, use paperclip to press the SIM card pop-out button to eject the SIM card tray.

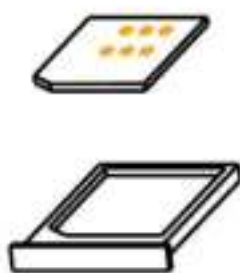


Diagram #1

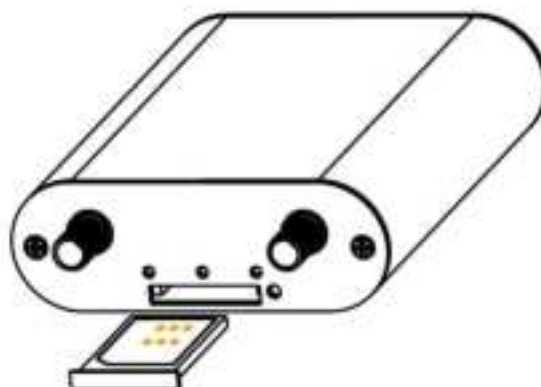


Diagram #2

6.2 LED Indications

6.2.1 CHG-Charge indicator (RED)

Status	Description
Constant ON	Currently Charging
OFF	Charging Complete (Note: it will auto-charging when backup battery voltage is low and LED light, or LED no light.)

6.2.2 SYS-System indicator (BLUE)

Status	Description
Constant ON	No SIM Card (or) No Network Reception
OFF	Vehicle Parked – ACC Power OFF
Quick flash	Normal Working Mode

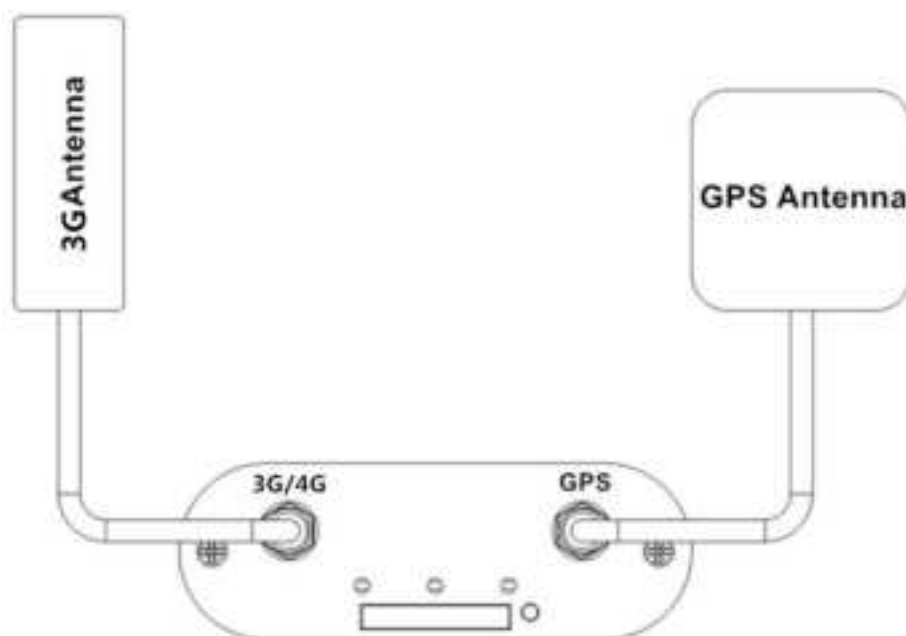
6.2.3 GPS-GPS indicator (GREEN)

Status	Description
OFF	GPS / Satellites Unavailable – Out of Range
Quick flash	GPS/Satellite Locked – Normal Mode

6.3 Device Button Instruction

Button	Description
Power ON/OFF	- Insert the SIM tray to POWER ON the unit; Take out SIM tray to POWER OFF the unit - Connect the external power to POWER ON; Disconnect the power to POWER OFF
SOS Button	Press and hold the button for 3x seconds, the unit will call the authorized phone numbers in sequence, then send position data to authorized phone numbers and Web Tracking Platform.

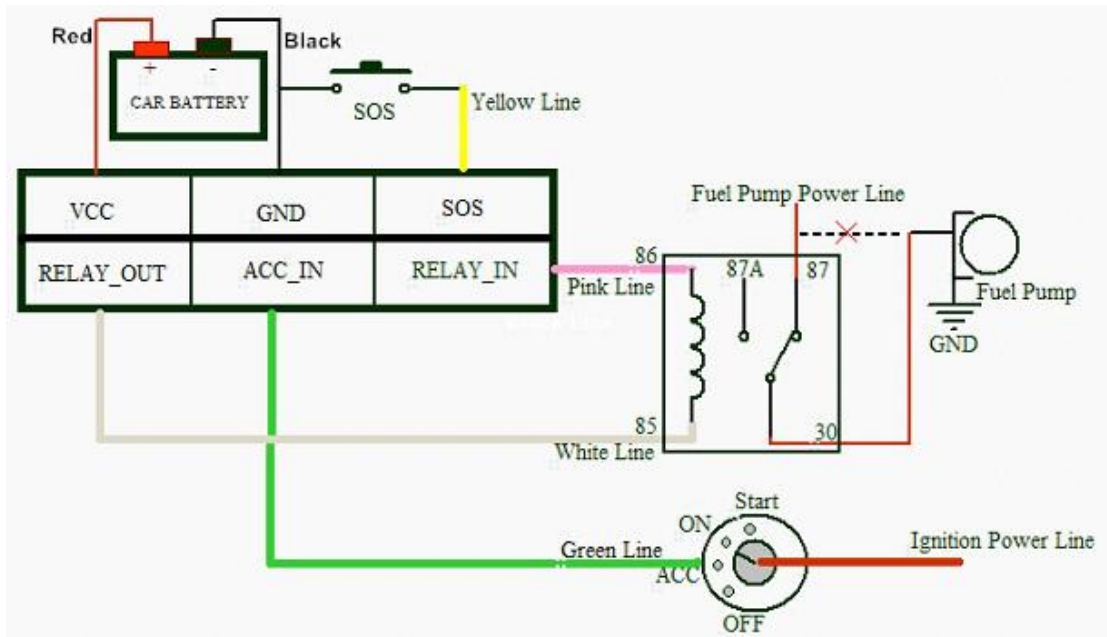
6.4 Install 3G & GPS Antenna



- Connect the 3G Antenna firmly to "3G/4G" Socket (Note: the 3G antenna is non-directional and can be hidden anywhere inside the vehicle)
- Connect the GPS Antenna firmly to "GPS" socket (Note: it is recommended that the antenna is facing up to the sky, so that the side with printed text is facing outwards / upwards) preferably **NOT** under or behind metal. Secure the antenna

using the double sided tape provided

6.5 Connection of supplied wiring loom



When installing the device, please connect supplied wiring loom as follows: (or contact our sales team for help)

- **Red**: Connect to Car battery(+)
- **Red**: Connect to constant 12V Car Battery(+)
- **Black**: Connect to Earth (Chassis) Car battery(-)
- **Green**: Connect to ACC switched 12V Power
- **Yellow**: Connect to **red** wire of supplied SOS switch
- **White**: Connect to Relay terminal (85)
- **Pink**: Connect to Relay terminal (86)

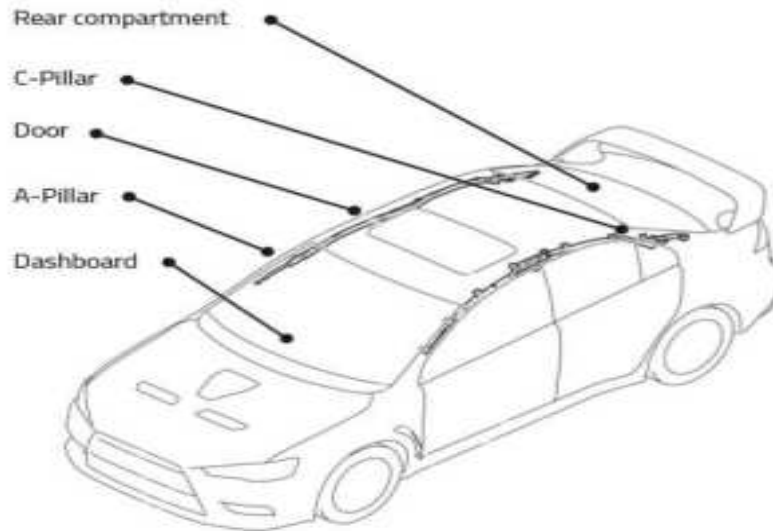
Note: Relay is optional for remote fuel / ignition shut-off.

6.6 Install the SOS switch

- **Red**: connect to **Yellow** wire from supplied wiring loom
- **Black**: connect to Earth (Chassis) Car battery(-)

6.7 Optimum locations for unit Installation

Below are the recommended areas available within a vehicle for unit installation. These are suggestions only, as depending on the vehicle type, there may be many possible locations to hide/install the unit.



6.7.1 Caution

- Avoid placing GPS Antenna (or units with internal GPS antenna) under any metal surfaces, as this may affect satellite lock and functionality.
- Do not install unit right next to stereo, CB radio, heater, speakers or alarm systems.
- Unit must be firmly mounted or cable tied to a surface, not hanging by wiring loom etc.
- Do not place the unit next to steering column or any moving parts.
- It is recommended to place the GPS Antenna (or units with internal GPS antenna) in locations that are exposed to the sky (i.e. under plastic dashboard, under rear parcel shelf, at base of rear windscreen, inside C-Pillar areas or doors, etc)
- Device can be placed in other areas or storage compartments of the vehicle (internally or externally) depending on the vehicle, truck, boat or motorcycle, as long as there is access to power and a clear signal from satellites.

7. Setup and Configuration

Note: When sending SMS command to the unit, do NOT use spaces or symbols not listed below. [brackets and + are for instructional use only] * and # are valid command parameters.

Following a successful command, you should always receive a reply SMS from the unit. Be patient, as this may take some time depending if the unit is required to reboot to process the command. Failure to reply will indicate either an incorrect SMS Command, or the unit has powered off, lost GSM Mobile signal or run out of SIM Card credit.

7.1 Setting Authorized Mobile Phone Numbers

SMS Command format: mobile number+password+[command parameter]

Note: Command Parameter here is the sequence of the mobile number

i.e. [1=Admin] or [2=SOS call number]

For example: *13424392330*0000*1**

Unit Reply: SET USER NUMBER 1 OK.

Note:

- The defaulted password is 0000.
- It can authorize up to 3 phone numbers.

7.2 Deleting authorized number

SMS Command format: password+number+[command parameter]

Note: Command Parameter here is the sequence of the mobile number

i.e. [1=Admin] or [2=SOS call number]

For example: **0000*1**

Unit Reply: DELETE USER NUMBER 1 OK.

7.3 Changing the Admin password

SMS Command format: 777+new password+old password

For example: 77712340000

Unit Reply: SET USER PASSWORD OK.

7.4 Instant Location Request (used to receive unit location via SMS)

SMS Command format: 666+password

For example: 6660000

When sent, this command will result in a Unit Reply SMS as follows:

ID:865662000409210 [Units IMEI #]

Date:05:36:59 11/11/2016

Fix:A State:SMS

<http://maps.google.com/maps?q=+22.63146%2c1+114.03701>

Note: This link can to be opened on any Smart Phone to reveal the Google Maps Location of the unit at the time of request.

7.5 Instant Location Request (Phone Call Activated)

If the unit receives an incoming call from one of it's 3x authorized numbers, and the call is hung up after ringing only 2-5 times, the device will send an SMS containing it's location to it's authorized phone number, and then upload it's location data to the Web Tracking Platform server along with the status description "**CALL**"

7.6 SOS Alarm

When the SOS / Duress switch is pressed for 3 seconds, the unit will automatically call the authorized phone numbers, and then send it's location to authorized phone number via SMS, and also upload location data to the Web Tracking Platform server along with the status description "**SOS**"

7.7 Voice / Audio Monitoring (only for model E)

To disable the voice/audio monitoring

SMS Command format: 000+password

For example: 0000000

Unit Reply: SET VOICE MONITOR:OFF.

To enable the voice/audio monitoring monitor

SMS Command format: 001+password

For example: 0010000

Unit Reply: SET VOICE MONITOR:ON.

Note: Default setting is MONITOR OFF

7.8 Round Geo-fence (Setting of size and shape of Geo-Fence)

SMS Command format: 005+password+R+[Command Parameter]

Note: Command Parameter here is fence diameter in KM [0.1~999.9]

For example: 0050000R1.0

Unit Reply: SET ROUND GEO-FENCE:ON

7.8.1 Enable the Round Geo-fence

SMS Command format: 211+password

For example: 2110000

Unit Reply: SET ROUND GEO-FENCE: ON.

7.8.2 Disable the Round Geo-fence

SMS Command format: 210+password

For example: 2100000

Unit Reply: SET ROUND GEO-FENCE: OFF.

7.9 Square Geo-fence (Setting of dimensions and shape of Geo-Fence)

SMS Command format: 006+password+G1,IO/I/O,E/W longitude upper limit+N/S latitude upper limit,E/W longitude lower limit+N/S latitude lower limit.

For example: 0060000G1,IO,E114.04540N22.59034,E114.05978N22.59797

Unit Reply: SET SQUARE GEO-FENCE1(IO)OK.

7.9.1 Enable the Square Geo-fence

SMS Command format: 311+password

For example: 3110000

Unit Reply: SET SQUARE GEO-FENCE: ON.

7.9.2 Disable the Square Geo-fence

SMS Command format: 310+password

For example: 3100000

Unit Reply: SET SQUARE GEO-FENCE: OFF.

7.10 Remote cut off fuel and ignition

To remotely Cut-Off fuel or power

SMS Command format: 940+password

For example: 9400000

Unit Reply: SET OILWAY DISCONNECT.

To remotely Resume fuel or power

SMS Command format: 941+password

For example: 9410000

Unit Reply: SET OILWAY RECOVERY CONNECT.

Note: The default setting for the Cut-Off feature is OFF

7.11 External power cut off alarm

If the external power to the unit is disconnected, [i.e. unit tampering or vehicle battery removal] the unit will call the authorized phone numbers, and then send location data to the authorized phone number and upload location data to the Web Tracking Platform server along with the status description **"DEF"**

7.12 Towing alarm

If the vehicle was be moved or towed when ACC is turned OFF, it will SMS location data to the authorized phone number, and upload location data to the Web Tracking Platform server along with the status description **"TOWED"**

7.13 Low battery Alarm (internal backup battery)

When the unit's internal backup battery is low, it will SMS the authorized phone number, and upload location data to the Web Tracking Platform server along with the status description **"BLP"**

7.14 Low battery Alarm (Vehicle Battery)

When the vehicle battery is low, it will SMS the authorized phone number, and upload location data to the Web Tracking Platform server along with the status description **"CLP"**

7.15 High Temperature Alarm

When the devices internal temperature is high [preset value] it will SMS the authorized phone number, and upload location data to the Web Tracking Platform server along with the status description **"HT"**

7.16 Over-Speed alarm (Alerts that the unit is exceeding a preset speed)

SMS Command format: #122#user password#[Command Parameter]##

Note: Command Parameter here is [Km/Hour]

Example: #122#0000#100##

Unit Reply: SET SPEED LIMIT:ON

To disable the Over-Speed Alarm

SMS Command format: #122#0000#0##

Note: Command Parameter here is [0=OFF]

Unit Reply: SET SPEED LIMIT:OFF.

Note: Speed is in KM/H, Maximum setting = [999].

7.17 Set time zone

SMS Command format: 896+password+ [+/-]HH:MM

Note: Command Parameter here is [Plus or Minus GMT]&[Hours/Minutes]

For example: 8960000+10:00

Reply: SET TIME ZONE:+08:00

Note: The default is Greenwich Time (UTC). [i.e. Melbourne Australia = +10:00]

7.18 Set GPRS device name

SMS Command format: #801#password#device name##

For example: #801#0000#MT500##

Unit Reply: SET SERVER USER NAME OK.

Note: Maximum 10 Characters

7.19 Set APN (Access Point Name)

SMS Command format 1: #803# password#APN##

For example : #803#0000#telstra.internet##

SMS Command format 2: #803#password#APN#APN user name# APN password##

For example: #803#0000#CMNET#INTERNET#INTERNET##

Reply: SET GPRS APN OK.

Note: please contact your SIM Card provider to get the correct APN details

(Most SIM Card GSM providers do not use passwords or usernames for access
– it is already encoded into the SIM Card)

7.20 Set Tracking Server IP and PORT

SMS Command format: #804#password#IP address(or domain) #port##

Example:#804#0000#112.95.164.248#7780##(or) #804#0000#e.trackits.com#7700##

Reply: SET SERVER IP AND PORT OK.

7.21 Set GPRS Upload Interval Time

This sets how often [in seconds] the unit sends location data back to the Tracking Platform whilst the ACC is switched on. This will affect accuracy and data usage.

7.21.1 ACC ON (Upload default status is AUTO)

SMS Command format: #805#password#interval time#[command parameter]##

Note: Command Parameter here [1=ON] & [0=OFF]

For example:#805#0000#10#1##

Unit Reply: SET GPS PERIODIC UPLOAD ON.

Note: interval time maximum [10,65535]seconds

Unit Reply: SET GPS PERIODIC UPLOAD OFF.

7.21.2 Vehicle Towed Alarm (vehicle moves whilst ACC is turned OFF)

SMS Command format: #809#password#interval time#[command parameter]##

Note: Command Parameter here [1=ON] & [0=OFF]

For example:#809#0000#10#1##

Unit Reply: SET GPS TOWED UPLOAD ON.

Note: interval time maximum [10,65535]seconds

Unit Reply: SET GPS TOWED UPLOAD OFF.

7.21.3 ACC OFF & Vehicle Stationary (Upload status is AUTOLOW)

[Periodic upload of vehicle status to the Web Tracking Platform server whilst ACC off – variable to save SIM data costs when parked for long periods and Power Saving]

SMS Command format: #807#password#interval time##

For example: #807#0000#2##

Unit Reply: SET GPS POWER SAVING UPLOAD ON.

Note: interval time maximum [2,1440] minutes [If interval time = 0, it will stop upload]

Unit Reply: SET GPS POWER SAVING UPLOAD OFF.

7.22 Invalid GPS Data Upload

To turn Invalid data upload ON

SMS Command format: 081+ password

For example: 0810000

Unit Reply: INVALID DATA UPLOAD:ON

To turn Invalid data upload OFF

SMS Command format: 080+ password

For example: 0800000

Unit Reply: INVALID DATA UPLOAD:OFF

7.23 SMS Response ON/OFF

To turn SMS messages OFF

SMS Command format: 160+password

For example: 1600000

Unit Reply: SET SEND SMS:OFF.

To turn SMS messages back ON

SMS Command format: 161+password

For example: 1610000

Unit Reply: SET SEND SMS:ON.

Note: if you want to disable the SMS alerts, send **1600000**

7.24 Unit Phone Calling Control (useful for SIM Card data cost saving)

To turn OFF unit Calling Alerts

(i.e. to save SIM data costs)

SMS Command format: 150+password

For example: 1500000

Unit Reply: SET VOICE CALL:OFF

To turn ON unit Calling Alerts

SMS Command format: 151+password

For example: 1510000

Unit Reply: SET VOICE CALL: ON

7.25 Set GPRS mileage and trip distance reporting

This sets how often [in kilometres] the unit uploads data of “trip distance travelled” back to the Tracking Platform whilst the ACC is switched on. This will affect accuracy

and data usage. This setting is often used for International Shipping clients and Trucking Fleets to save data on long journeys.

7.25.1 Set upload interval distance

SMS Command format: #141#password#[command parameter]##

Note: Command Parameter here is [0=OFF] & [1000=1000 Kms]

Unit Reply: SET GPS MILEAGE STATISTICS:ON/OFF

7.25.2 Clear the distance data

SMS Command format: #142#password#[command parameter]##

Note: Command Parameter here is [0=clear current trip distance]

& [1=clear total distance travelled]

Unit Reply: SET GPS MILEAGE STATISTICS:CLEAR CURRENT/ALL

7.25.3 Check the current trip distance travelled

SMS Command format: #143#password##

For example: #143#0000##

Unit Reply: TOTAL GPS MILEAGE:X.X Km

CURRENT GPS MILEAGE:X.X Km

Tips:

- How to setup APN: <https://www.mictrack.com/apn-settings-for-mictrack-gps-trackers>
- How to use Mictrack Server: <https://www.mictrack.com/how-to-use-mictrack-server>
- Global Frequency bands check: <https://www.mictrack.com/4g-lte-frequency-bands-list>

Note: Please remember to monitor the credit balance of your SIM card, to avoid confusion or delays in setting up your new unit. This can be a common issue, especially when initially setting up a new unit, and the unit fails to reply to a correct SMS command sequence.

If you have any questions please do not hesitate to contact us info@mictrack.com.