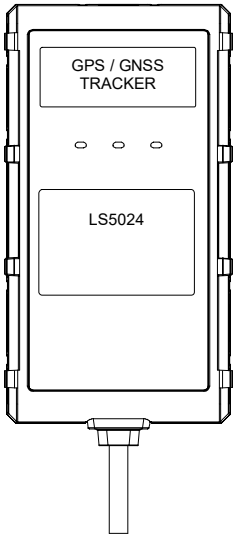
GPS/GNSS 4G LTE Tracker

LS5024



User guide

INTRODUCTION

Thank you for purchasing this modern and technologically advanced satellite tracker with 4G connectivity, which will guarantee safety and security for your vehicle whatever it may be.

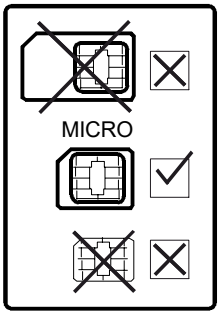
In addition to real-time monitoring of the movements of your vehicle or fleet of vehicles, in the event of theft you will be alerted by SMS, app notification and voice call.

By downloading the free LS5024 APP available on the iOS and Android stores, or by connecting to the WEB portal https://gps.laserline.it/, you can start tracking the movements of your vehicle(s) in real time and be alerted in the event of imprudent use of the vehicle.

Android

iOS

LS5024 requires a SIM card (not supplied) in micro format and without pin code.
The SIM card of the chosen 4G mobile operator must be capable of making calls, sending SMS and surfing the Internet (estimated data volume per month < 50 mB).



The SIM must be placed inside the device, so will then have its own phone number.
We recommend SIM cards from the main telephone operators for more complete territorial coverage and to activate the roaming service in case of use abroad.

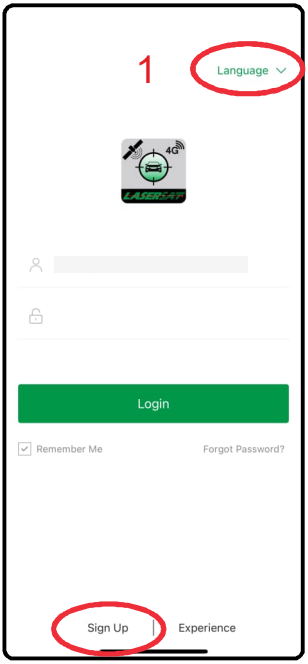
Configuration of the LS5024 is done directly from the App or by sending SMS from your mobile phone to the locator's phone number.

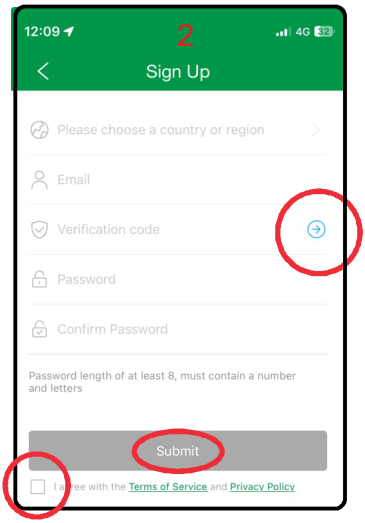
ACCOUNT CREATION PROCEDURE

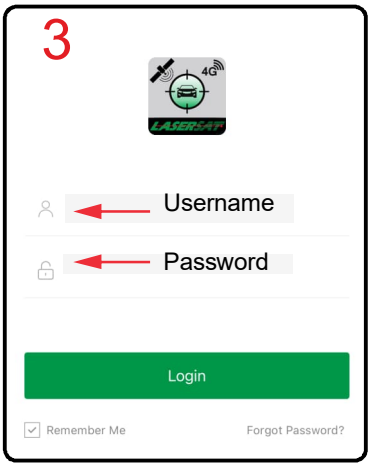
1 - Launch the APP → select the language → click «Sign Up».

2 - Fill in the email field → click on the blue arrow to receive the «verification code». On receipt of the verification code, fill in all the fields with the required data, click on «accept» → tick the privacy box

3 - Then log in to the account with the Usename (e-mail) and password you have just created.







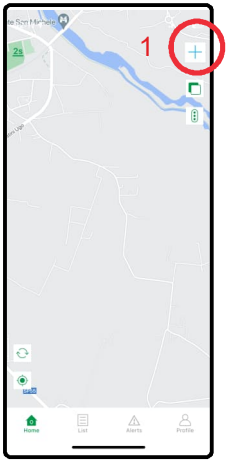
PROCEDURE FOR ADDING UNITS

1 - Launch the APP → from the «Home» screen click on the «+» in the top right-hand corner

2 - Enter the IMEI code of the device → press «add device».
NOTE: the IMEI code can be found both on the sales package and on the locator

3 - Fill in the vehicle master data → click on «save».

4- The vehicle appears on the map.



IMEI code

ATTENTION:

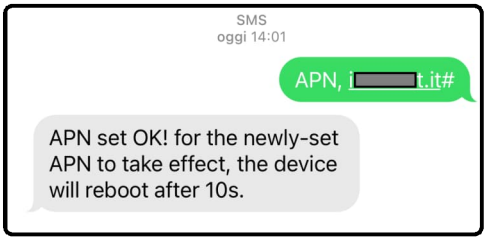
In most cases the LS5024 recognises the SIM provider and automatically acquires the network connection parameters.
If this is not the case and the vehicle is not correctly located on the map, the APN must be set by sending an SMS to the tracker SIM with the following command:

APN,*apnname***#**

replace «apnname» with the parameter indicated by the SIM provider.

To confirm the setting, the system responds with an SMS as shown in the image opposite.

At this point the device resets and within a few minutes the vehicle will be correctly displayed on the map



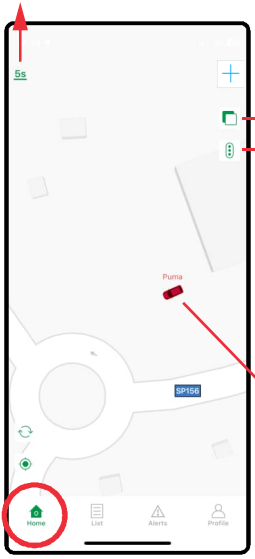
ATTENTION: *To define the mobile phone numbers on which to receive SMS alarms, see SOS Alarm menu page 15*

To activate receipt of notifications in APP, access the Profile menu --> setting alerts (page 12)

HOME MENU

The HOME screen is the first screen that appears when opening the APP and shows the real-time location of all vehicles.

Page refresh
Every 10 seconds the position of the vehicles is updated on the map.



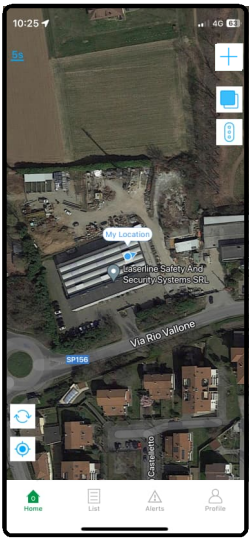
Map selector
Allows you to change the map type from standard to satellite and vice versa.

Traffic display
Allows the traffic display to be shown or hidden.

Vehicle control panel
Clicking on a vehicle takes you to the «control panel» where speed, ignition status (ON /OFF) and satellites detected are displayed.

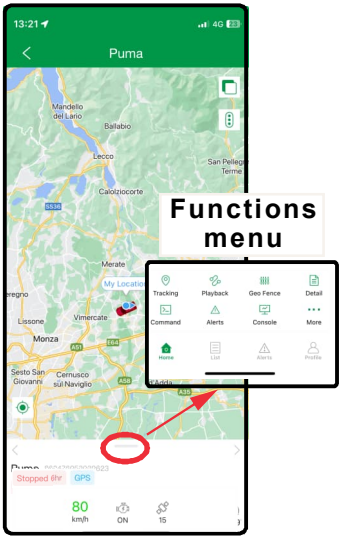
By expanding the control panel, the «functions menu» can be displayed. (page 13)

Map Change



Traffic

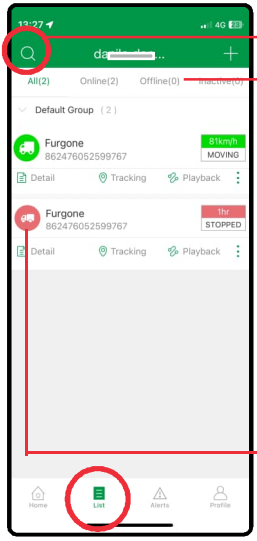
Control panel



LIST MENU

This menu shown all vehicles and vehicles groups.

In addition to the vehicle name and IMEI of the device, a small box on the right shows the latest status of the vehicle:
- Speed or stopped time.
- Vehicle status: moving or stopped .



Search: allows you to search for a vehicle by name or IMEI.

Vehicle status filter select vehicles to be displayed
All - OnLine - OffLine - Inactive.

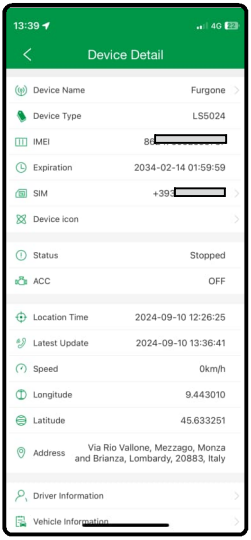
Playback: view and reproduce trip history.(see page 8)

Tracking: from this menu it is possible to follow the vehicle's movements in real time.

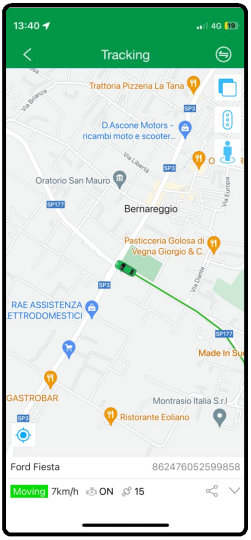
Detail: displays vehicle information: location, SIM number, key status (ACC), etc...

Click on the vehicle name to access the **vehicle control panel**.

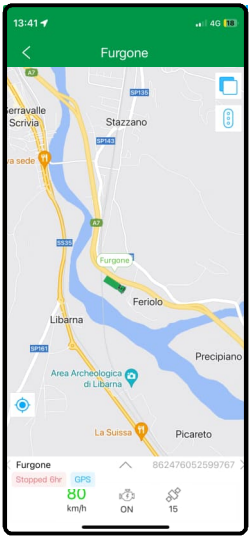
Detail menu



Tracking menu

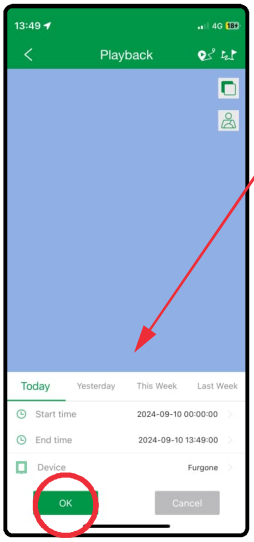


Vehicle control panel menu



PLAYBACK MENU (historical trips)

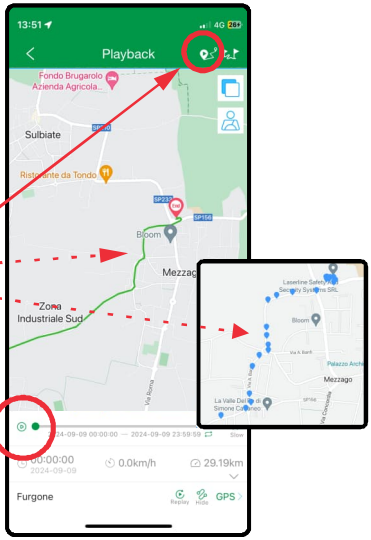
This menu allows to consult and reproduce the trips made by the vehicle. The system stores the history up to 6 months.



Select the historical period of interest and press OK.

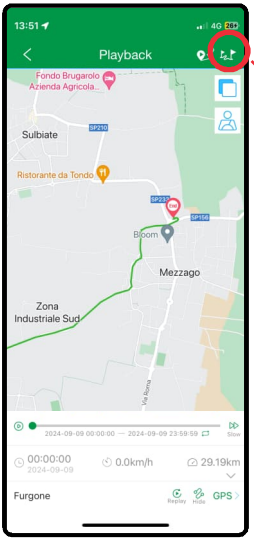
View on map the trip as a continuous line (green) or individual points (blue).

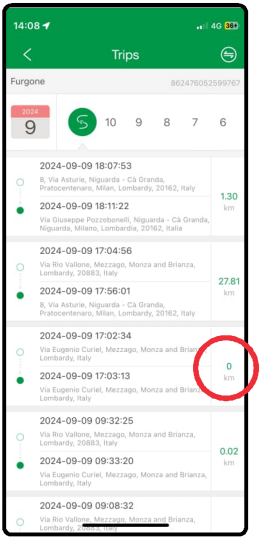
By clicking **«Play»**, the trip can be played back on the map.

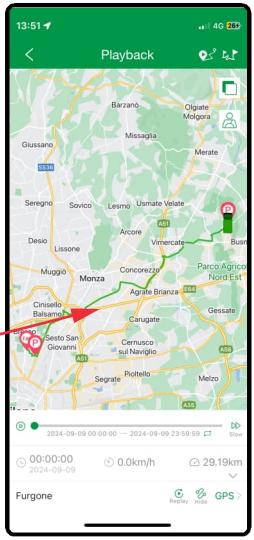


By clicking on the icon you can access the list of trips made.
The start and end of the trip are indicated by the status of the key (inserted/removed).
With the key on, the vehicle position is updated every 10 seconds, but it is possible modify the update frequency (see page 22 **TIMER** command)

By clicking on the individual trip, it can be displayed on the map.







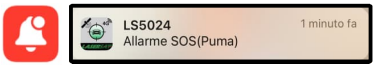
ALARMS MENU

This menu allows to view received alarms (only «in APP» notifications, no SMS). The factory-fitted LS5024 sends «in APP» and SMS notifications in the following situations:

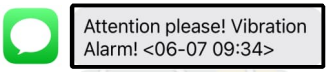
- Burglar alarm (from an external alarm).
- Vibration alarm (movement)
- Power disconnection alarm.
- Low supply voltage alarm.

ATTENTION: *To activate reception of notifications «in APP» and define the mobile phone numbers on which to receive alarms, please refer to pages 12 and 15.*

Example «in app» notification



SMS notification example



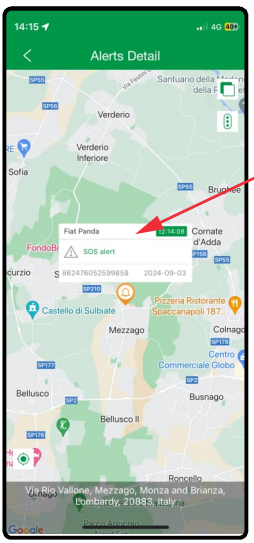
SMS notifications are available in the message menu of the phone

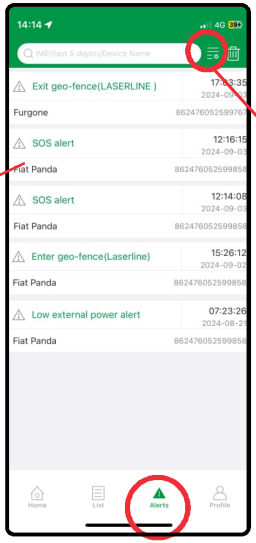
Using the «filter» function, it is possible to select the notifications to be displayed, for example:
- SOS alarm (external burglar alarm).
- Vibration alarm (movement)
- Power supply disconnected / Low voltage alarm.
- Alarm Geo-fence input/output.
- Overspeed alarm.

After selecting them, click OK.

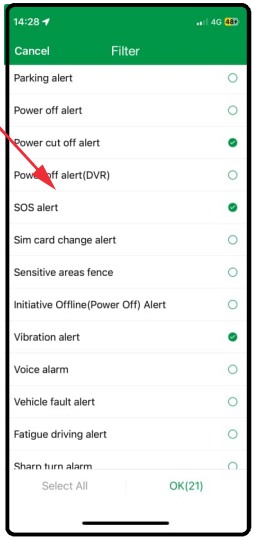
Clicking on the alarm, is shows the place where it occurred on the map

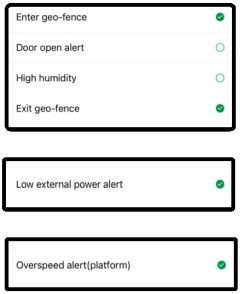
Alarm localisation





Displaying received alarms



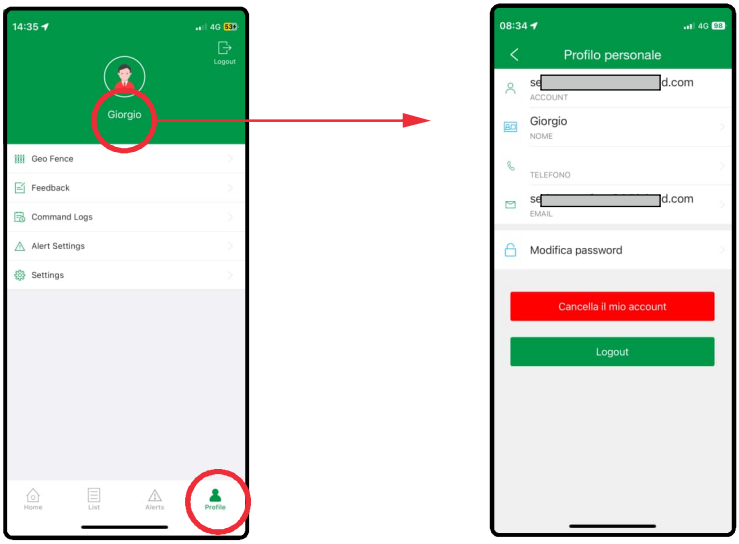


PROFILE MENU

The following functions are available in this menu:

- **Geo-fence:** see page 11.
- **Feedback**: fault report form.
- **Command Logs:** list of all commands sent to the device (not via SMS)
- **Alert settings**: see page12.
- **Settings**: allows language and unit selection.

Clicking on the account name will take you to the account management options.

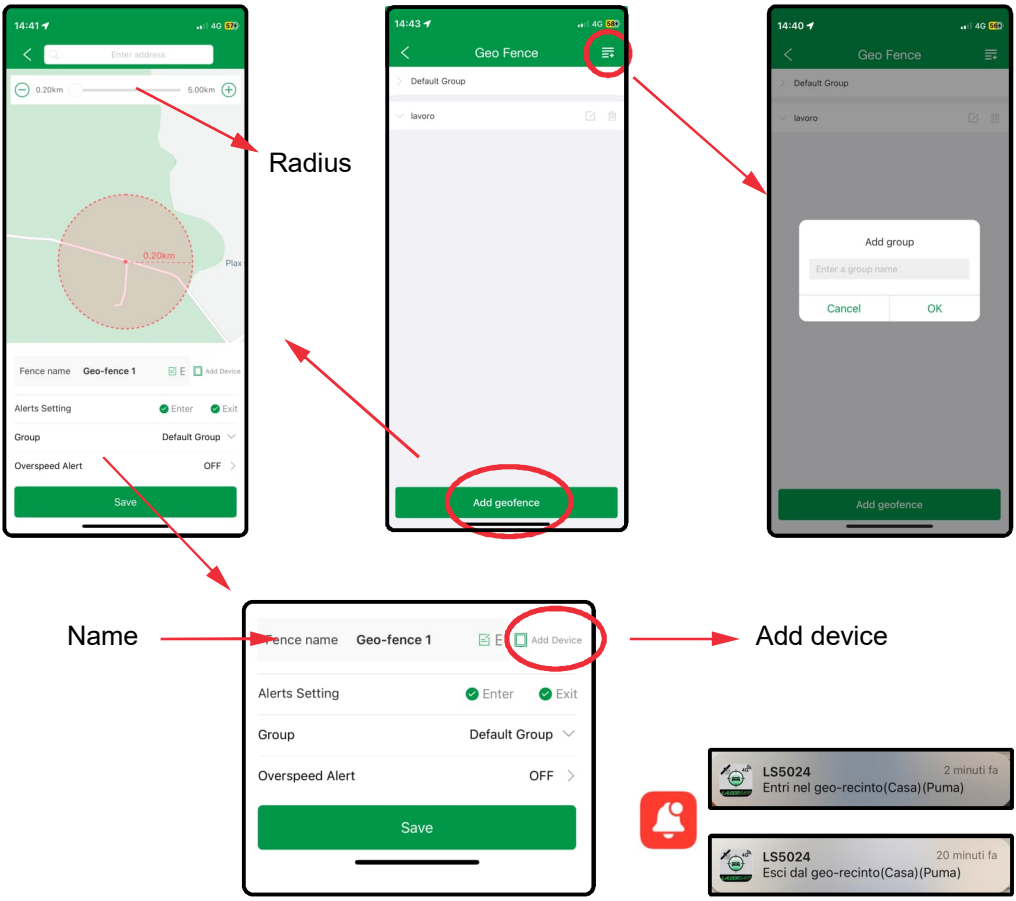


GEO-FENCE MANAGEMENT

This menu allows you to create a geo-fence or groups of geo-fences and receive notifications when entering or leaving the defined area (geo-fence).

Click on add geo-fence and:

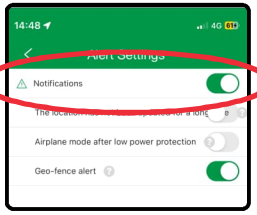
- Move the map to locate the area
- Define the radius of the area (minimum 200 metres).
- Naming the area.
- Add device: select one or more vehicles for which you wish to receive notifications of entry and exit from the geo-fence.
- Alert setting: choose which notification to receive: entry and/or exit from target
- Group: indicate in which group to place the target (optional).
- Over speed alert: allows an alarm to be set in the event of passing through the target at a speed above the defined threshold.

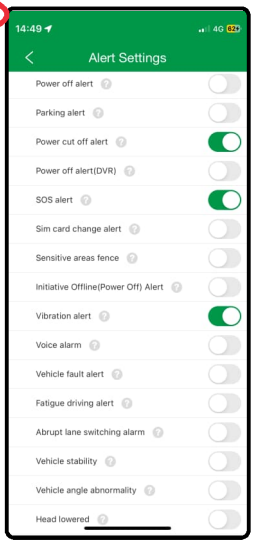


ALERT SETTINGS

From this menù, you can select the alarms for which you wish to receive «in app» notification

***ATTENTION**: The «notifications» option activates and deactivates all notifications. Selecting each individual option will activate a specific alarm notification.*





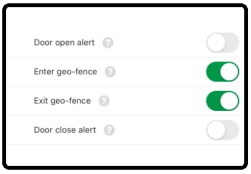
SOS alert: activates «in APP» notification following a burglary (see page 15).

Vibration alert: activates «in APP» notification for movement/vibration alarm (page 17).

Power cut-off : activates «in APP» notification following power disconnection alarm. (page 16).

Low external power alert: activates the «in APP» notification following a low supply voltage alarm. (page 16).

Geo-fence alert + enter geo-fence + exit geo-fence: receiving notifications for entering/exiting an area (page 11).



over speed alert (terminal) :
Receive notification when exceeding set speed (page 18)

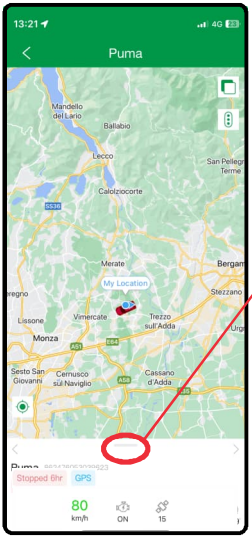
Alarms that are not enabled are silenced, but can still be viewed in the «alarm» menu (page 9).

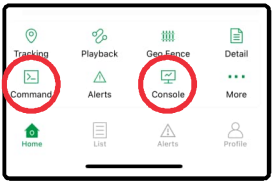
ATTENTION: Even if «in APP'»notifications are deactivated, alarms will continue to be notified by SMS.

To completely deactivate the reception of alarms (in APP + SMS), action must be taken from the specific menu for each alarm. (page 15 and following).

CONTROL PANEL

Selecting a vehicle from the map, or from the list menu, takes you to the control panel. Expanding the control panel allows access, in addition to the menus mentioned so far, to the following functions: **Commands, Console, and more**

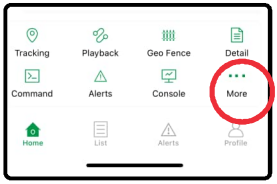


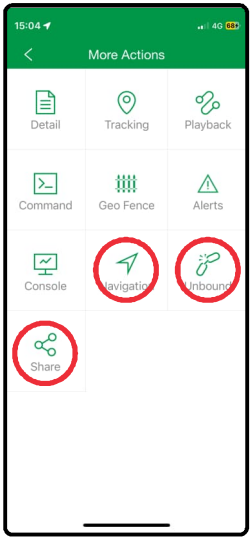


Command: alarm configuration menu (page 15 and following.).

Console: simplified management panel (page 20).

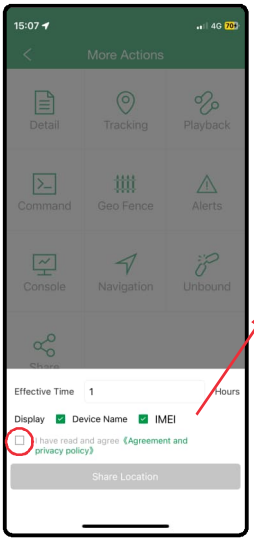
More: to access further functions (page 14)
- Navigation
- Share
- Unbound





CONTROL PANEL

Share : generates a time link to share the location of the vehicle with other people.



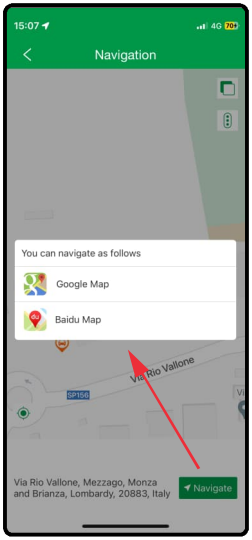
Define:
- Duration of the link in hours.
- Whether to share the vehicle name/IMEI

Accept the conditions and click «share location».

Select how to share the link: e-mail, SMS, whatsapp, etc...

The link allows the recipient to view the real-time position of the vehicle until the link expires.

Navigation: start navigation with Google maps to reach the vehicle.



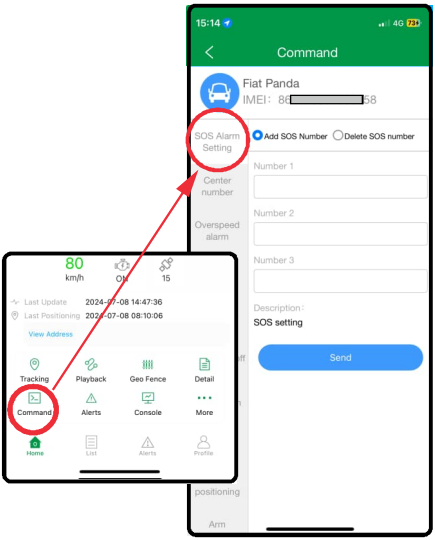
Unbound: disconnect the locator from the account.

ATTENTION: *Once disconnected, it will no longer be possible to control the locator.*

To manage it again, follow the «adding unit» procedure (page 5)

SOS ALARM / BURGLARY ALARM FROM EXTERNAL DEVICE

The LS5024 allows the burglar alarm (from connected antitheft) to be sent via SMS to up to 3 set mobile phone numbers.
From the control panel, click on COMMANDS and access the «**SOS alarm settings**» menu



Insert in the fields number 1 / 2 / 3 the mobile phone numbers (without international prefix) to which you wish to send the alarm SMS.

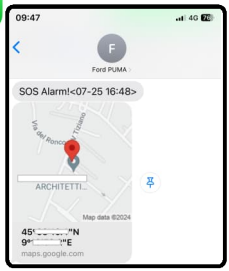
NOTE: By NOT filling in the 3 fields, the alarm will only be signalled with an «in APP» notification (see page 12).

Press «send», after a few moments a notification of successful programming will appear.

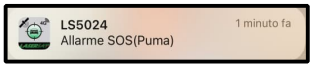
From now, every time the burglar alarm of the connected burglar alarm is triggered, you will receive notification in APP and/or SMS and/or CALL that you must answer and hang up

NOTE: *The call is ONLY available if the SIM card is enabled for VOICE traffic*.

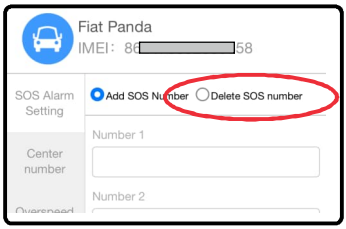
SMS



in APP notification



ATTENTION:
The SOS alarm is triggered ONLY IF the burglary condition persists for at least 4 seconds.
To change this timing see page 22 SOSALM command.

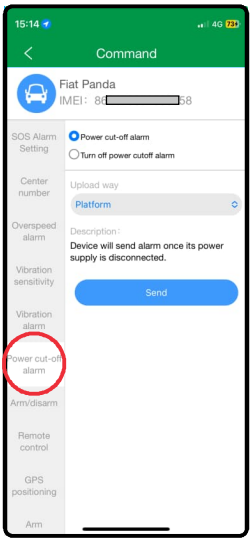


SOS ALARM DEACTIVATION

To **deactivate** the alarm: select «Delete SOS numbers» option and deactivate the «SOS alarm» option from the «setting alerts in APP» menu (page 12).

POWER CUT-OFF ALARM

From the control panel, click on COMMANDS and access the menu:
«Power cut-off alarm»



Define alarm sending mode:

- Platform: ..... notification in APP
- Platform+SMS: ..... notification in APP + SMS (**by default**)
- Platform+Call: ..... notification in APP + Call
- Platform+SMS+Call: ... notification in APP + SMS + Call

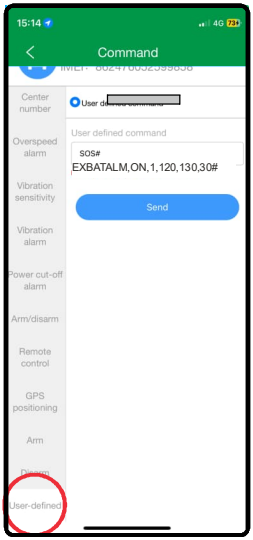
NOTE: *SMS are sent to the same numbers defined for SOS*

Press «send», after a few moments a notification of successful programming will appear.

From now on, whenever the power supply is disconnected for at least 10 seconds, you will receive notification in APP and/or SMS and/or CALL that you must answer and hang up
NOTE: *The call is ONLY available if the SIM card is enabled for VOICE traffic.*

To **DEACTIVATE** the alarm, select the «**turn off power Cut-off alarm**» option and press send: a confirmation notification will appear after a few moments.

LOW POWER SUPPLY ALARM



By default, the system provides an alarm if the vehicle battery drops below 12 volts.
To customise the alarm threshold, access the **«user-defined»** menu and issue the following command:

EXBATALM,ON,1,**nnn**,**yyy**,30#

Replace nnn with the threshold below which you wish to receive the alarm
Replace yyy with the alarm «reset» value.

By default: **EXBATALM,ON,1,120,130,30#**

The low power supply alarm is triggered if the supply voltage drops below 12 volts (120). To avoid continuous signalling due to voltage fluctuations, a further alarm is only generated if the voltage first exceeds 13 volts (130) and then falls below 12 again.

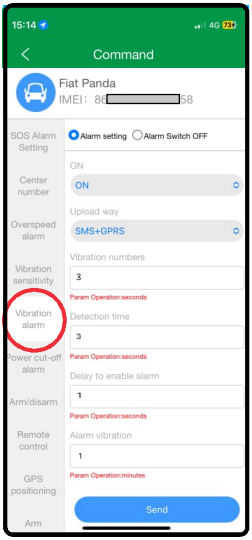
A voltage above 13 volts indicates that the vehicle is running.

To **DEACTIVATE** the alarm send the command **EXBATALM,OFF,1,120,130,30#**

VIBRATION ALARM

By default, the motion alarm is only triggered if the vehicle moves with the ignition off.
The control is automatically activated 60 sec after the ignition is switched off.

From the control panel, click on COMMANDS and access the menu:
«Vibration alarm»



Define alarm sending mode:

- GPRS: ..... notification in APP
- GPRS +SMS: ..... notification in APP + SMS (**by default**)
- SMS+GPRS+Call: ..... SMS + notification in APP + Call
- GPRS+Call: ..... notification in APP + Call

NOTE: *SMS are sent to the same numbers defined for SOS*

By default, the parameters are defined as shown in the figure opposite. (3 - 3 - 1 - 1)

To ensure proper functioning of the device, do not change these values.

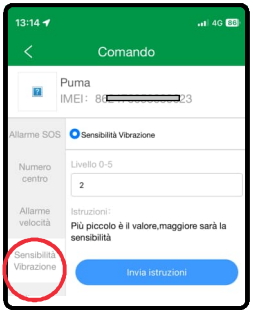
If necessary, **ONLY change the vibration detection sensitivity** as described in the following section.

Press «send», after a few moments a notification of successful programming will appear.

To **DEACTIVATE** the alarm select the "**alarm switch off**" option and press send, after a few moments a confirmation notification will appear

In the case of transporting the car by ship or tow truck, disable the motion alarm to avoid false alarms due to the continuous oscillations.

VIBRATION SENSITIVITY



In order to better adapt to the characteristics of different vehicles, the sensitivity of the motion sensor can be defined.

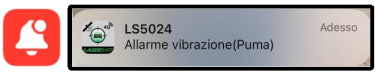
From the control panel, click on COMMANDS and access the menu: **«Vibration Sensitivity»**.

Five levels of motion sensitivity are available:

Level 1 : very sensitive
Level 5 : not very sensitive

NOTE: *By default, sensitivity is set to Level 2*

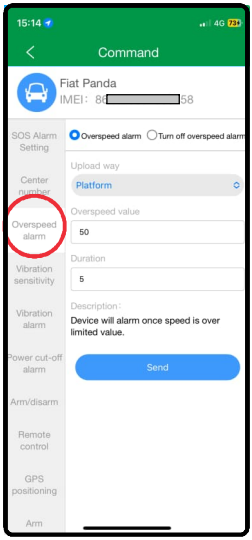
Press «send», after a few moments a notification of successful programming will appear.
From now on, whenever the vehicle is moved with the ignition off, you will receive notification in APP and/or SMS and/or CALL that you must answer and hang up



OVER SPEED ALARM

Allows an alarm to be set when a certain speed threshold is exceeded.

From the control panel, click on COMMANDS and access the menu: **«Over speed Alarm»**



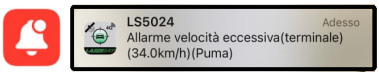
Define alarm sending mode:
- Platform: ..... notification in APP
- Platform+SMS: ... notification in APP + SMS

NOTE: *SMS are sent to the same numbers defined for SOS*

Define:
- the speed threshold above which to receive notification e.g.: 50 Km/h.
- threshold exceeded duration (in seconds): time of speed over the threshold before sending the alarm, e.g. 5sec.

Press «send», after a few moments a notification of successful programming will appear.

From now on, whenever you exceed the set speed for at least 5sec. (e.g. 50km/h) you will receive notifications in APP and/or SMS.



To **DEACTIVATE** the alarm, select the «t**urn off over speed alarm**» option and press send, a confirmation notification will appear after a few moments.

STARTER LOCK RELAY ACTIVATION - (ANTI CAR JACKING)

Upon installation of a relay, it is possible to inhibit vehicle starting.
Contact the workshop that installed the tracker for more details.

RELAY ACTIVATION VIA APP

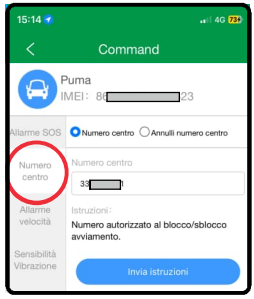
From the control panel, click on COMMANDS and access the menu: «**Remote control**» AND select:

«**cut-off fuel**» to activate the relay
«**restore fuel**» to deactivate the relay.

Press «send», after a few moments a notification of successful programming will appear.

***NOTE**: For security reasons, the APP access password is required to activate and deactivate the relay.*

At least 60 seconds must elapse between the activation and deactivation request.



RELAY ACTIVATION VIA SMS

For security reasons, to activate and deactivate the relay via SMS, it is necessary to define the authorised mobile phone number for the command.

From the control panel, click on COMMANDS and access the menu: «**centre number**» and enter the mobile phone number authorised to activate the relay.

Press «send», after a few moments a notification of successful programming will appear.

Then, from your authorised mobile phone, send the following SMS (in capital letters and without spaces)

- **RELAY,1#** : to activate the relay
- **RELAY,0#** : to deactivate the relay

Upon confirmation of the relay's activation/deactivation, the system responds with an SMS.

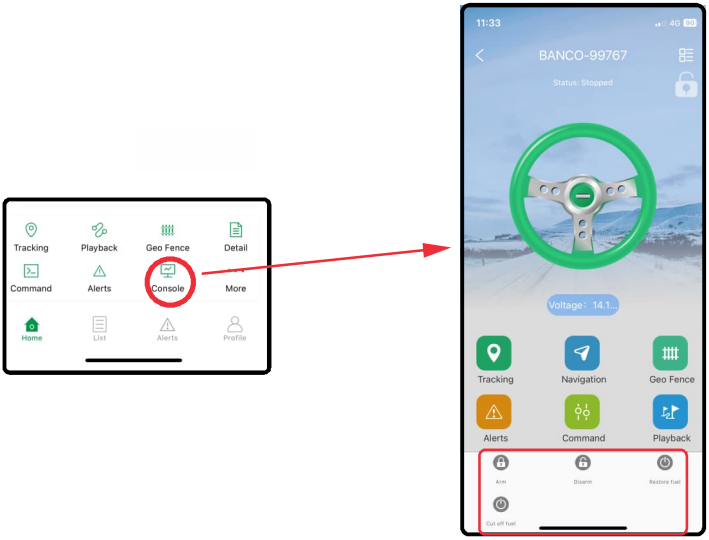
Once the command is sent, (via APP or SMS) the relay will be activated only if the speed is less than 20 km/h preventing the vehicle from starting.

If the vehicle is already switched on, the next start attempt will be prevented.

CONSOLE MENU

The console menu offers simplified graphics for vehicle management and gathers all the functions mentioned so far in one screen.

From the control panel, click on COMMANDS and access the menu: «**Console**».

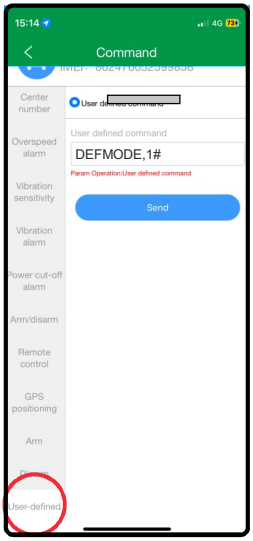


Note the quick commands for activating and deactivating the external relay and for manually activating and deactivating the motion alarm(page 21).

VIBRATION ALARM (manual mode)

The vibration alarm is only triggered if the vehicle moves with the ignition off.
By default is automatically activated 60 sec after the ignition is switched off.
If necessary, the motion alarm can be switched on and off manually and we can decide to receive movement notifications only at our discretion.

NOTE: *In manual mode, the motion alarm is triggered whether the ignition is on or off.*



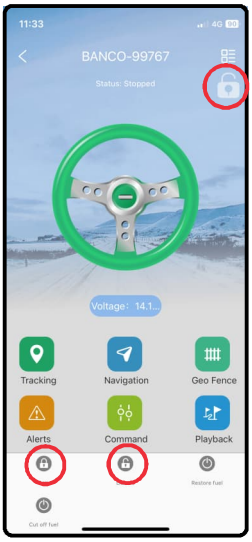
From the control panel, click on COMMANDS and go to the «**user-defined**» menu:

DEFMODE,1#

Press «send», after a few moments a notification of successful programming will appear.

To activate the motion alarm, go to the «**Console**» screen and click on the ARM and DISARM commands.

After a few moments, a notification of successful programming will appear and the padlock in the top right-hand corner will change state: closed = alarm active / open = alarm inactive.



Vibration alarm reset in automatic mode

To reset automatic motion alarm control, from the control panel click on COMMANDS, go to the «**user-defined**» menu and write the following message:

DEFMODE,0#

Press «send», after a few moments a notification of successful programming will appear.

LIST OF AVAILABLE COMMANDS AND DIAGNOSTICS

Commands must be typed in capital letters and without spaces and can be via SMS from a mobile phone or from the APP via the «Commands» menu --> «user-defined».

APN# Diagnosis command to which the LS5024 answers the configured APN

APN,apnname# or **APN,apnname,user,pwd#**
APN programming command. Replace «apnname» or «apnname,user,pwd» with the parameters provided by the SIM provider.

TIMER,nn,0# Update position time programming command.
Replace «nn» with the time in seconds. eg for 60sec. TIMER,60,0#

STATUS# Diagnosis command, the system responds with the internal battery voltage level, network connection status, LTE and GPS signal quality, number of satellites detected and key status.

Battery:3.84V,NORMAL;
GPRS:Link Up;
LTE Signal Level:Strong;
GPS:Successful positioning;
SVS Used in fix:18(20);
GPS Signal Level:11,35,35,26,25,30,35,28,29,27,30,29,33,40,33,30,29,26;
ACC:ON;
Defense:OFF;

URL# Position request command, the system responds with the google maps link showing the last detected position of the vehicle.

SOS# Diagnosis command, the system responds with mobile phone numbers enabled to receive SMS alarms.

SOS,A,number,number,number# Programming command to add up to 3 mobile phone numbers enabled to receive SMS alarms. Replace «number» with the desired mobile phone number

SOS,D,number# Programming command to delete a mobile phone number on which you no longer wish to send SMS alarms. Replace «number» with the mobile phone number to be deleted.

SOSALM,ON,2,nnnn# SOS alarm waiting time programming command.
Replace «nnnn» with the time after which the system sends the alarm:
permitted values: 1000 = 1sec / 2000 = 2 sec / 3000 = 1sec / 4000 = 4 sec
e.g. for 2 seconds: SOSALM,ON,2,2000#

DEFMODE,1# Command to activate «Manual Motion Alarm» mode
DEFMODE,0# Command to activate «automatic motion alarm» mode

After activating the 'Manual vibration alarm' mode:
000# Command to activate motion alarm
111# Command to deactivate the motion alarm

Commands can ONLY be sent from an authorised mobile phone (page 19)
RELAY,1# : to activate the external relay
RELAY,0# : to deactivate the external relay

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE (RAEE)

ONLY CONTAINERS APPROPRIATE

In the European Union, this label indicates that the product must not be disposed of together with household waste, but must be deposited in a facility capable of carrying out recovery, disposal and recycling operations (regulations 2002/95 / EC, 2002/96 / EC and 2003/108 / EC). For information on recycling procedures in your country, visit www.eur-lex.europea.eu

NOTE

The manufacturer declines all responsibility for breakdowns or malfunctions of the alarm due to bad installation or to exceeding the indicated characteristics. The alarm has only a dissuasive function towards possible thefts.
THE MANUFACTURING COMPANY RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME THAT IS NECESSARY WITHOUT THE OBLIGATION TO COMMUNICATE.

SPECIFICATION

Power supply ..... 9 - 90 Vdc
Network ..... 4G LTE / 2G
TTFF cold start (open sky) ..... < 32sec
TTFF hot start (open sky) ..... < 1sec
Consumo in stand-by ..... < 10mA
Operating temperature ..... -20°C / +70 °C
Internal battery .....60mAh 3.7V LiPolymer
Dimension 94mm*50mm*15mm
Protection level IP65

Laserline Safety and Security Systems srl
Via Rio Vallone, 5 20883 Mezzago (MB)
tel. +39039682561
fax. +3903968256248
e-mail info@laserline.it
web: www.laserline.it

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