MEITRACK MT90L User Guide

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2 Product Introduction

The MT90L is a 3G/4G personal tracker and specially designed for the elderly, children, pets, and lone workers. It has the following functions:

- Two-way calling
- Press the SOS button to call the designated contact in case of emergency.
- Low power consumption and long standby time
- Polygonal geo-fence alert
- Man down alert

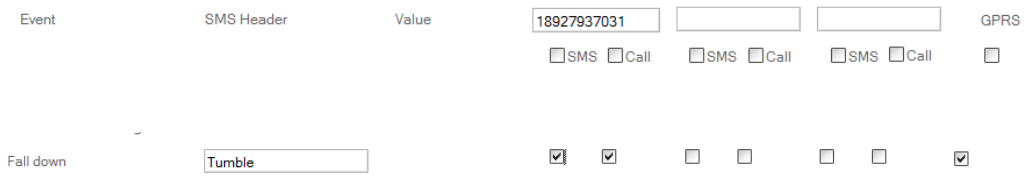
2.1 Product Features

2.1.1 Man Down Alert

This function is applicable for the elderly and children. When one falls down, the tracker will send a man down alert and the situation will be notified to the designated contact.

You can use any of the following ways to enable the function:

1. Send the command **0000,A29,1,10,1** to the tracker by SMS.
2. On the Meitrack Manager interface, click the **Authorize** tab page, select **Fall down**, and set a contact's phone number.



Note:

1. To avoid misinformation, the tracker will detect the effectiveness of man down alerts. After the device falls to the ground, if it detects any angle changes and no movement for more than 3 seconds, it will vibrate and make sounds (for 10 seconds by default). In this way, you can press any button of the device to clear the man down alert as required. If no button is pressed after the vibration and sounds stop, a man down alert will be

generated.

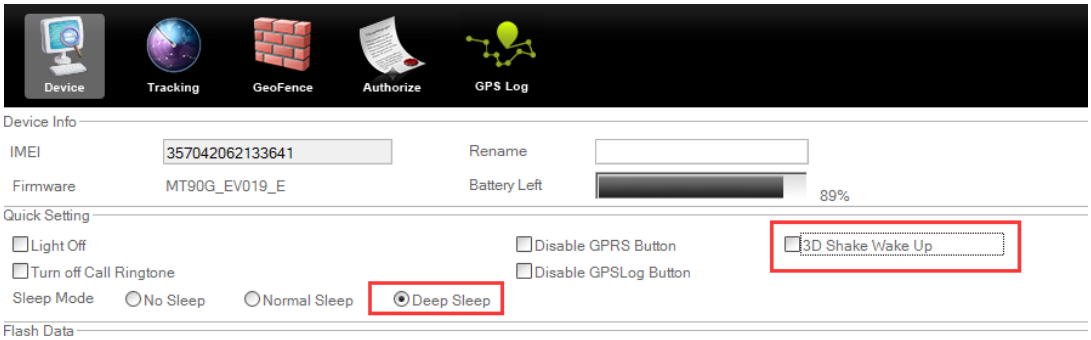
2. For details about the man down alert, see section 7.2 "Setting the Man Down Alert – A29."

2.1.2 Power-Saving Mode

This function is applicable for outdoor workers who need positioning at specific places instead of frequent positioning and require long battery life.

Set the following items to enable the power-saving mode.

1. Enable the deep sleep mode.
2. Disable the 3D Shake Wake Up function.
3. Set the heartbeat packet reporting interval.



Note:

1. The heartbeat positioning mode will be enabled after you enable the deep sleep mode and disable the 3D Shake Wake Up function. The minimum heartbeat packet reporting interval is 10 minutes.
2. In this mode, heartbeat packets may be delayed. After the device is woken up, you need to enable the GPS module first and then a heartbeat packet can be sent. If the GPS is invalid for more than five minutes, an invalid heartbeat packet will be sent. If the GPS is valid, a valid heartbeat packet will be sent. Therefore, the heartbeat packet reporting interval will be affected by GPS positioning time.

3 Product Functions and Specifications

3.1 Product Functions

3.1.1 Position Tracking

- GPS + WCDMA/LBS positioning
- Real-time location query
- Track by time interval
- Track by distance
- Track by mobile phone
- Speeding alert
- Cornering report

3.1.2 Emergency Alert

SOS alert

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3.1.3 Other Functions

- SMS/GPRS/UMTS (TCP/UDP) communication (Meitrack protocol)
- GPS blind spot alert
- Over-the-Air (OTA) update
- Low power alert for internal battery
- 3D shake wakeup
- Listen-in/Two-way calling
- Polygonal geo-fence
- Stop Moving and Start Moving alerts
- Online Parameter Editor
- Super long battery life
- OTA update
- Alarm clock
- Step counting

3.2 Specifications

Item	Specifications
Dimension	77 mm x 47 mm x 20 mm
Weight	76g
Charging voltage	Micro USB charging port: DC 4.5–5.5 V/400 mA
Backup battery	Removable 1100 mAh/3.7 V lithium-ion battery (compatible with Nokia BL-5C battery)
Power consumption	Current in standby mode: 60 mA Current in deep sleep mode: 5 mA
Operating temperature	-20°C to 55°C
Operating humidity	5%–95%
Working hour	180 hours in power-saving mode
LED indicator	3 indicators showing power, GSM, and GPS status
Button/Switch	5 buttons/switches
Microphone/Speaker	Internal microphone and speaker
Memory	8 MB buffer
Sensor	3-axis accelerometer
Frequency band	**MT90L:** **MT90L_E:** GSM: B2/B3/B5/B8 WCDMA: B1/B8 4G LTE-FDD: B1/B3/B5/B7/B8/B20/B28 **MT90L_A:** WCDMA: B2/B4/B5 LTE-FDD: B2/B4/B5/B12/B13/B25/B26
Positioning accuracy	2.5m

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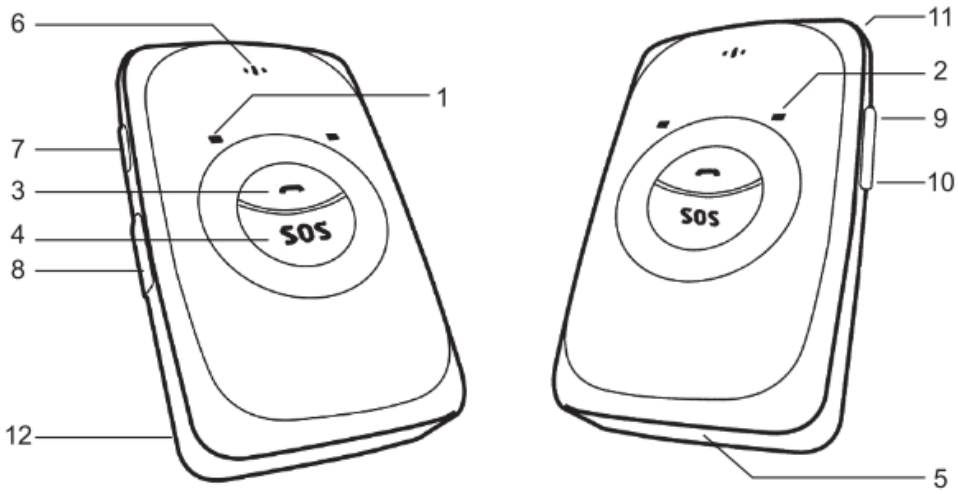
4 MT90L and Accessories

- MT90L tracker
- A battery
- USB cable
- Travel adapter (charger)
- Screwdriver
- CD download card
- Lanyard

5 About the MT90L

5.1 Appearance



No.	Item	Description
1	GPS indicator (blue)	Indicates GPS and battery status. For details, see the section 5.2 "LED Indicator."
2	WCDMA/GSM indicator (green)	Indicates WCDMA/GSM status. For details, see the section 5.2 "LED Indicator."
3	Answer/Hang-up button	● When a call is coming in, press the button to answer the telephone. ● When one is calling, press the button to end the telephone conversation. ● When there is no incoming call or telephone conversation and the GPRS/UMTS function is enabled, press and hold down the button for 2 seconds. The device will beep once and vibrate, and a GPRS/UMTS message will be sent to the server.
4	SOS button	● Press and hold down the button for 2 seconds in the case of

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		emergency. The device will beep once and vibrate. The device will also dial three authorized phone numbers in sequence. It will stop dialing when one phone number answers. Meanwhile, the device will send an SMS with positioning information to authorized phone numbers. If the GPRS/UMTS function is enabled, the device will send a GPRS/UMTS message to the server. ● In the sleep mode, press the button to wake the device up.
5	Microphone	It will operate automatically when the listen-in and call functions are used.
6	Speaker	It will operate automatically when the call function is used.
7	Power button	● When the device is turned off, press and hold down the button for 2 seconds. The device will make a sound and vibrate, indicating that it will be turned on. ● When the device is turned on, press and hold down the button for 2 seconds. The device will make a sound, indicating that it will be turned off. ● In the sleep mode, press the button to wake the device up. Then the power indicator will blink for 10 seconds.
8	Micro USB port	Used for charging the device, configuring parameters, and upgrading software. If the device is charged by optional magnetic charging connector, you need to remove the USB rubber cover and then plug the magnetic charging connector into the USB port.
9	Volume up	● During the telephone conversation, press the button to turn up the device; press and hold down the button for 2 seconds to start the hands-free conversation.
10	Volume down	● During the telephone conversation, press the button to turn down the device.
11	Lanyard hole	Place the lanyard through the hole.
12	Battery cover	After removing the battery cover, install the battery and SIM card.

5.2 LED Indicator

To start the MT90L, press and hold down the power button for 3–5 seconds. Then the blue and green indicators will blink on for 1 second and blink off for 1 second simultaneously.

GPS Indicator (Blue)	
Indicator Status	**Description**
Steady on	The device is charging.
Blink (1 second on and 1 second off)	The GPS is invalid or the device is initializing.
Off	The GPS is valid.
Blink (0.3 seconds on and 0.3 seconds off)	The battery power is low.
WCDMA/GSM Indicator (Green)	
Indicator Status	**Description**
Steady on	A call is coming in or a call is being made.

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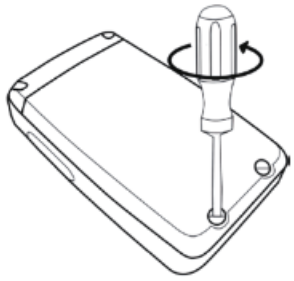
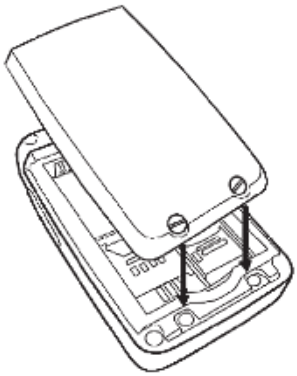
Blink (every 5 seconds)	The device is in sleep mode.
Blink (1 second on and 1 second off)	No signal is received, or the device is initializing.
Off	The device is connected to the WCDMA/GSM network.

6 First Use

	1. Remove the battery cover. Turn off the device. With the back panel facing you, use the mini screwdriver to remove the two screws to release the back cover. Then lift up the back cover from the notch at the bottom of the device.
	2. Insert the SIM card. Gently push the SIM card into the card slot until you hear a click with the gold-plated contacts facing down. Note: Ensure that the SIM PIN lock is closed properly, and the SIM card has sufficient balance and has subscribed the call ID service. If you want to use the GPRS/UMTS function, learn about the SIM card GPRS/UMTS charging first.
	3. Install the battery. Insert the contacts side of the battery first and then gently push the battery cover downward until it locks into place. Then fasten the two screws on the back cover.
	4. Charge the battery by USB cable. To charge the battery, connect the device to the wall charger or a computer through the USB cable. When you use the device for the first time, you are advised to turn off the device and then charge the battery for 8 hours. Note: Do not remove the battery unless necessary during charging. While charging, the device may heat up. This is normal and does not affect your device's

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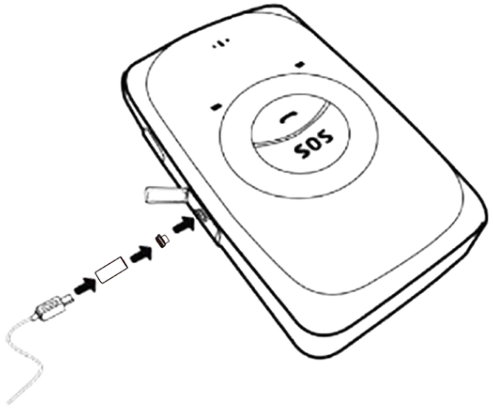
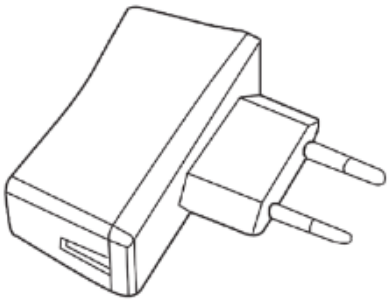
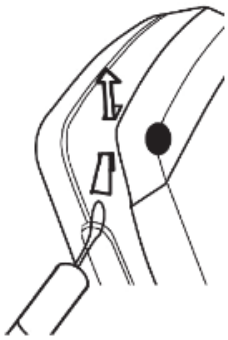
	lifespan or performance. If the battery is low, it may affect positioning and data transmission. So you need to charge the battery before using.
	5. Charge the battery by magnetic charging connector. Remove the USB rubber cover, plug the magnetic charging connector into the USB port, connect one side of USB cable to the magnetic conversion connector, and then attach the conversion connector to the magnetic charging connector. When the device is charging, the blue LED indicator for the conversion connector will steady on. Note: When the device is charged fully, please do not parallel pull the conversion connector out. (Magnetic charging connector may be pulled out from the USB port.) You need to rotate an angle of 90 degrees and then pull the conversion connector out.
	Charge with the travel adapter: Open the cover of the multifunctional jack of the device. Plug the small end of the adapter into the multifunctional jack. Then plug the larger end of the travel adapter into a power outlet. Note: Incorrect connection may cause serious damages to the device. Any damage caused by misuse is not covered in the warranty.
	Attach a lanyard: Slide the lanyard through the slot and hook it over the small projection.

Once you have installed the battery and SIM card, you can turn on your device and start using it.

Please read the following instructions to know more about its functions.

7 Quick Operation Command

Before use, common parameters must be set by SMS command or Meitrack Manager

7.1 Tracking by Mobile Phone

This section describes how to query device's current location, ensuring that the GPS is working normally.

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Call the device's SIM card number, and hang up after the dial tone rings 2–3 times. The device will reply to an SMS with a map link.

Click the SMS link. The device's location will be displayed on Google Maps on your mobile phone.

Note: If an authorized phone number was set by SMS command A71, only this phone number can receive SMS reports.

SMS example:

Now,110727 02:48,V,16,23Km/h,61%,http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329

The following table describes the SMS format:

Parameter	Description	Remarks
Now	Indicates the current location.	SMS header: indicates the current location or the alert type. For details about the SMS header, see the *MEITRACK SMS Protocol* and *MEITRACK GPRS/UMTS Protocol*.
110727 02:48	Indicates the date and time in **YYMMDD hh:mm** format.	None
V	The GPS is invalid.	A = Valid V = Invalid
16	Indicates the WCDMA/GSM signal strength.	Value: 1–32 The larger the value is, the stronger the signal is. If the value is greater than 12, GPRS/UMTS reaches the normal level.
23Km/h	Indicates the speed.	Unit: km/h
61%	Indicates the remaining battery power.	None
http://maps.google.com/maps?f=q&hl=en&q=22.540103,114.082329	Indicates the map link. Latitude: 22.540103 Longitude: 114.082329	None

If there is no valid GPS available, the tracker will reply to the most recent valid position, along with WCDMA/GSM LBS information by AGPS.

If your mobile phone does not support HTTP, enter the latitude and longitude on Google Maps to query a location.

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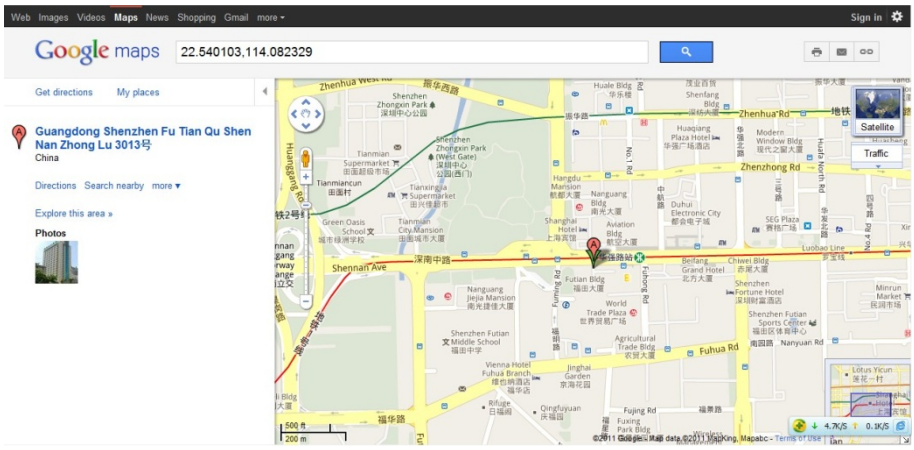

Note: The default tracker password is **0000**, which can be changed by using Meitrack Manager or SMS command. After the password is changed successfully by using an SMS command, only the authorized phone number can receive SMS reports. The common format of an SMS command is: *Password*,*Command*,*Parameter*.

7.2 Setting the Man Down Alert – A29

This command is used to enable or disable the man down alert.

1. Send the following SMS text to the embedded SIM card phone number: 0000,A29,*Switch*,*Time*,*Grade*.

   Tip: "," should be an English comma and no space exists before and after the comma.

   Switch: Whether to enable the man down alert detection function. The value is **0** or **1**. When the parameter value is **1**, the man down alert is enabled. When the parameter value is **0**, the man down alarm is disabled. The default value is **0**.

   Time: indicates the buzzing and vibration time after the device falls to the ground. During this period, you can press any button of the device to clear the alert, so as to avoid misinformation. If no button is pressed during this period, a man down alert will be generated or the tracker will call the designated contact. Unit: second; value range: 0–255; default value: 10.

   Grade: indicates the man down alert level. Value range: 0–3; default value: 1. The bigger the value is, the higher the alert probability is.
2. The device will automatically reply to the following SMS: IMEI,A29,OK.

Example:

Sending: 0000,A29,1,10,1

Reply: 0123456678901,A29,OK

7.3 Setting SOS Phone Numbers – A71

This command is used to set SOS phone numbers. When you dial a phone number, an SMS report about the location will be received.

- SMS text:

  0000,A71,*Phone number 1*,*Phone number 2*,*Phone number 3*

  Send the text to the embedded SIM card phone number.

  Tip: "," should be an English comma and no space exists before and after the comma.
- The MT90L will automatically reply to the SMS: IMEI,A71,OK. It indiates that the SOS phone number is set successfully.

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Note:

Phone number: Contains a maximum of 16 bytes. If no phone numbers are set, leave them blank. Phone numbers are empty by default.

Phone number 1/2/3: SOS phone numbers. When you call the tracker by using these phone numbers, you will receive SMS notification about the location, geo-fence alert and low power alert.

- When you press the SOS button, the MT90L will dial three authorized phone numbers in sequence. It will stop dialing when one phone number answers, and then will send alert information to the phone numbers.

  Note: The phone numbers are blank by default. The phone numbers that are set must be separated by comma (“,”) to avoid setting failures. No comma is required next to the last phone number. For example:

  0000,A71,13500000000,,

  0000,A71,13500000000,13600000000,

  0000,A71,13500000000,13600000000,13700000000

  Reply: 353358017784062,A71,OK

  To clear all phone numbers, send 0000,A71.

If this function is unavailable, please add your Country and Area Code before your phone number when you set the preset phone numbers, or consult your local mobile operator.

7.4 Setting Listen-in Phone Numbers – A72

The command is used to listen in to the surrounding environment. After the setting, the device is allowed to confidentially and automatically answer a phone and enters listen-in state for one-way communication.

Note: If **Auto Answer Incoming Call** and **Listen-in** are set for a same phone number, only **Auto Answer Incoming Call** takes effect.

To implement the listen-in function, do not set **Auto Answer Incoming Call** for the phone number, or clear all phone numbers by sending **0000,A71**.

- SMS text:

  0000,A72,*Listen-in phone number 1*,*Listen-in phone number 2*

  Send the text to the embedded SIM card phone number.
- The MT90L automatically replies to the SMS: IMEI,A72,OK. It indiates that the listen-in number is set successfully.
- When you call the tracker by using the preset listen-in phone number, the tracker will answer the call automatically and enter the listen-in state. Meanwhile, the device will not make any noise.

Note:

Phone number: A maximum of two listen-in phone numbers can be set. Each phone number contains at most 16 digits. If only one monitor number is set, the number must be separated by a comma (“,”) to avoid setting failures. If no phone numbers are set and commas are remained, phone numbers set before will be deleted. The phone numbers are blank by default.

Example:

Sending: 0000,A72,13844444444,13855555555

Reply: 353358017784062,A72,OK

To clear all monitor numbers, send **0000,A72**.

7.5 Setting the Smart Sleep Mode – A73

This command is used to enable the smart sleep mode, prolonging standby time to 160 hours.

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- SMS text:

  0000,A73,*Sleep level*

  Send the text to the embedded SIM card phone number.

  The MT90L automatically replies to the SMS: IMEI,A73,OK. It indicates that the sleep mode is set successfully.

Set the auto smart sleep mode when the device is idle.

Sleep level = 0: function disabled (default).

Sleep level = 2: deep sleep. If no event is triggered after five minutes, the GPS module will stop working and the GSM module will enter the sleep mode. Once an event is triggered, the GPS and GSM modules will be woken up. The above actions will be cycled.

Sleep level = 3: super deep sleep. If no event is triggered after five minutes, the GPS and GSM module will stop working. Once an event is triggered, the GPS and GSM modules will be woken up. The above actions will be cycled.

Note:

Triggering events include the SOS alert, auxiliary button pressed, vibration, towing alert, USB plug/unplug, charging, alarm clock, reset step event, calling/incoming call (deep sleep mode), SMS receiving (deep sleep mode).

The difference between the Super Deep Sleep mode and the Deep Sleep mode is that the GSM module of the former will stop working, and the device cannot be woken up by call and SMS.

The heartbeat event is triggered in the Deep Sleep mode and Supper Deep Sleep mode, which is uploaded every one hour by default.

Example:

Sending: 0000,A73,2

Reply: 353358017784062,A73,OK

7.6 Setting the SMS Time Zone – B35

This command is used to set the time zone of an SMS report. The default time zone of the tracker is GMT 0.

To change the time zone, follow the following instructions:

- SMS text:

  0000,B35,*SMS minute*

  Send the text to the embedded SIM card phone number.

- The MT90L automatically replies to the SMS: IMEI,B35,OK. It indicates that the time zone is set successfully.

Note: The time zone is in unit of minutes. The default time zone of the tracker is GMT 0, and the time zone of SMS reports is different from that of GPRS/UMTS data packets. The GPS Log time zone is GMT 0.

When **SMS minute** is **0**, the time zone is **GMT 0** (default time zone).

When **SMS minute** is a value ranging from -32768 to 32767, set time zones. Set the China time zone value to **480**.

Example:

Sending: 0000,B35,480

Reply: 353358017784062,B35,OK (The time zone is set to Beijing time successfully.)

The digit is your MT90L 's IMEI number.

8 Configuring Device Parameters by Meitrack Manager

This section describes how to use Meitrack Manager to configure the MT90L on a computer.

Procedure:

1. Install the USB driver and Meitrack Manager.
2. Connect the MT90L to a computer with the USB cable.

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3. Run Meitrack Manager, then the following dialog box will appear.

4. Turn on the device, then Meitrack Manager will detect the device model automatically and the parameter page will appear accordingly.

For details about Meitrack Manager, see the *MEITRACK Manager User Guide*.

Note: The CD delivered with the tracker contains Meitrack Manager. The software language will be automatically switched according to the operating system language. Press **Ctrl + L** to manually switch the language.

9 Logging In to MS03 Tracking System

Visit http://ms03.trackingmate.com, enter the user name and password, and log in to the MS03. (Purchase the login account from your provider.)

For more information about how to add a tracker, see the *MEITRACK GPS Tracking System MS03 User Guide* (chapter 4 "Getting Started").

The MS03 supports the following functions:

- Track by time interval or distance.
- Query historical trips.
- Set polygonal geo-fences.
- Bind driver and vehicle information.
- View various reports.
- Send commands in batches.
- Support OTA updates.

For details, see the *MEITRACK GPS Tracking System MS03 User Guide*.

10 Safety and Usage Instructions

Use only Meitrack-approved accessories.

Incompatible accessories may cause serious injuries or damages to your device.

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Handle the battery and charger carefully.

- Use batteries specified by Meitrack and chargers exclusively designed for your device. Incompatible batteries and chargers may cause serious injuries or damages to your device.
- Do NOT place batteries or devices on fire or in heating devices, such as microwave ovens, ovens, or radiators. Batteries may explode when overheated.

11 Battery Disposal

(Waste Electrical and Electronic Equipment Directive – Applicable in European Union and other European countries with separate battery return system.)

This symbol in the manual indicates that this product and its accessories (such as chargers, batteries and the USB cable) cannot be disposed of with other household wastes when they reach the end of their life. If batteries are not properly disposed of, these wastes may cause harm to human health and the environment. To prevent the harm, please dispose of or recycle them separately from other waste so as to boost resource recycling and reuse.

If you have any questions, do not hesitate to email us at info@meitrack.com.

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