MEITRACK MT90 User Guide

Change History

File Name	MEITRACK MT90 User Guide	Created By	Kyle Lv
Project	MT90	Creation Date	2011-05-16
		Update Date	2018-01-03
Subproject	User Guide	Total Pages	16
Version	V2.4	Confidential	External Documentation

Contents

1 Copyright and Disclaimer

Copyright © 2018 MEITRACK. All rights reserved.

and are trademarks that belong to Meitrack Group.

The user manual may be changed without notice.

Without prior written consent of Meitrack Group, this user manual, or any part thereof, may not be reproduced for any purpose whatsoever, or transmitted in any form, either electronically or mechanically, including photocopying and recording.

Meitrack Group shall not be liable for direct, indirect, special, incidental, or consequential damages (including but not limited to economic losses, personal injuries, and loss of assets and property) caused by the use, inability, or illegality to use the product or documentation.

2 Product Introduction

The MT90 is a 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

3 Product Functions and Specifications

3.1 Product Functions

3.1.1 Position Tracking

- GPS + 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

3.1.3 Other Functions

- SMS/GPRS (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
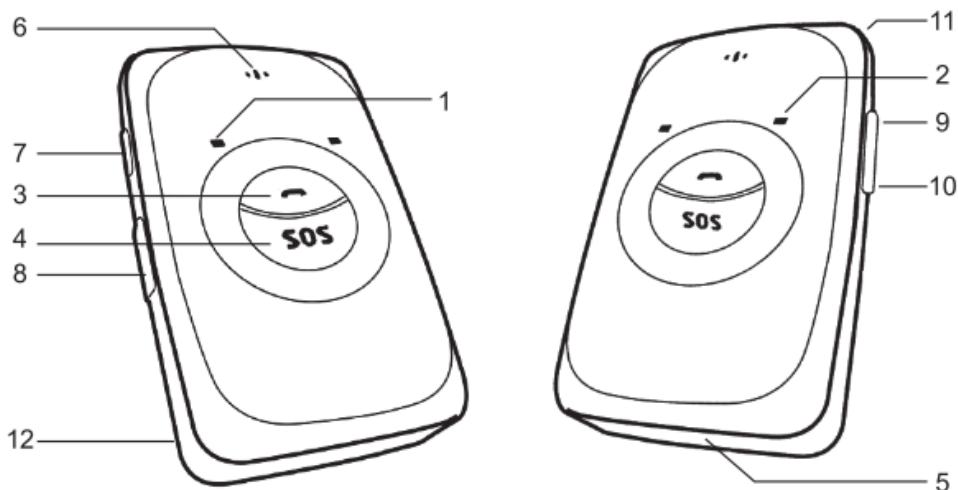- Super long battery life

3.2 Specifications

Item	Specifications	Remarks
Dimension	77 mm x 47 mm x 20 mm	
Weight	70g	
Charging voltage	Micro USB charging port: DC 4.2–5.5 V/400 mA Magnetic charging connector: DC 4.2–5.5 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	For details about the sleep function, see section 7.4 "Setting the Smart Sleep Mode – A73."
Operating temperature	-20°C to 55°C	Ensure that the device can work properly in this environment.
Operating humidity	5%–95%	Ensure that the device can work properly in this environment.
Working hour	160 hours in power-saving mode 14 hours in normal mode	
LED indicator	2 indicators showing power, GSM, and GPS status	For details, see section 5.2 "LED Indicator."
Button/Switch	5 buttons/switches	For details, see section 5.1 "Appearance."
Microphone/Speaker	Internal microphone and speaker	Used for two-way calling and listen-in.
Memory	8 MB buffer (Store 130,000 GPS Logs, 8,000 GPRS cache records, and 256 SMS cache records)	GPS log: Read via a PC only GPRS and SMS: Data will be uploaded automatically after the signal recovers.
Sensor	3-axis accelerometer	Determine movement, stillness, and vibration.
GSM frequency band	GSM 850/900/1800/1900 MHz	
Positioning accuracy	10m	

4 MT90 and Accessories

- MT90 tracker
- A battery
- USB cable
- Travel adapter (charger)
- Screwdriver
- CD and MEITRACK MT90 Quick Start Guide
- Lanyard
- Magnetic charging connector (optional)

5 About the MT90

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	GSM indicator (green)	Indicates 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 function is enabled, press and hold down the button for 2 seconds. The device will beep once and vibrate, and a GPRS message will be sent to the server.
4	SOS button	• Press and hold down the button for 2 seconds in the case of 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 function is enabled, the device will send a GPRS 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/GPS Log button	● 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. ● In the standby mode, press and hold down the button for 2 seconds. The device will beep once and the GPS log function will be automatically enabled. (The device will record routes every 30 seconds when the GPS is valid and the records can be exported by computer.) ● In this standby mode, press and hold down the button for 2 seconds again. The device will beep twice and the GPS log function will be disabled automatically. Note: To avoid misoperations, you can disable the GPS Log button by using Meitrack Manager (default: enable).
10	Volume down/GPRS button	● During the telephone conversation, press the button to turn down the device. ● In the standby mode, press and hold down the button for 2 seconds. The device will beep once and the GPRS function will be enabled automatically. (Please ensure that GPRS parameters have been set. The default GPRS message interval is 10 minutes.) ● In this standby mode, press and hold down the button for 2 seconds again. The device will beep twice and the GPRS function will be disabled automatically. Note: To avoid misoperations, you can disable the GPRS button by using Meitrack Manager (default: disable).

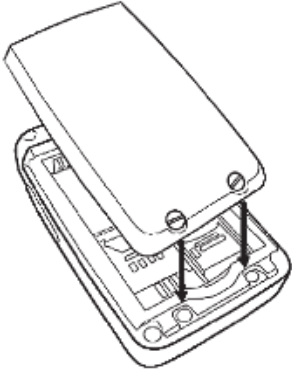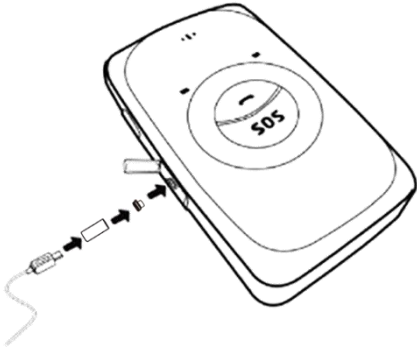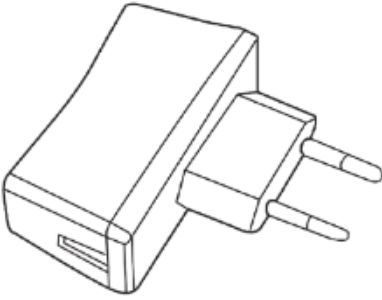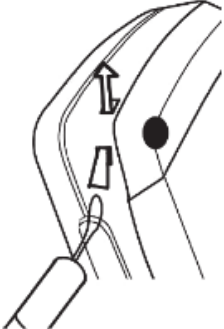| 11 | Lanyard hole | Place the lanyard through the hole. |
| 12 | Battery cover | After removing the battery cover, install the battery and SIM card. |

5.2 LED Indicator

To start the MT90, 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 (every 5 seconds)	The device is in sleep mode.
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.
GSM Indicator (Green)	
Indicator Status	**Description**
Steady on	A call is coming in or a call is being made.
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 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 function, learn about the SIM card GPRS charging first.

	3.　This operation is only for customers in China.
	4.　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.
	5.　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 lifespan or performance. If the battery is low, it may affect positioning and data transmission. So you need to charge the battery before using.
	6.　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.

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.
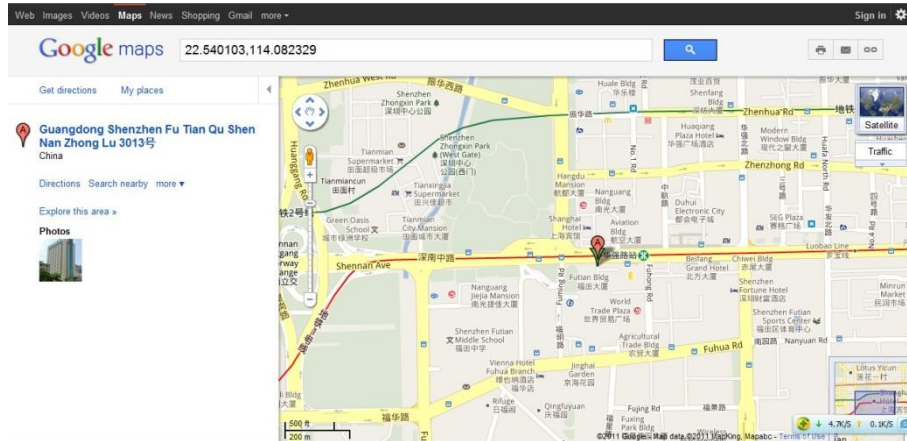
SMS example:

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 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 GSM signal strength.	Value: 1–32 The larger the value is, the stronger the signal is. If the value is greater than 12, GPRS 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=22.5 40103,114.082329	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 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.

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 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 MT90 will automatically reply to the SMS: IMEI,A71,OK. It indiates that the SOS phone number is set successfully.

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 MT90 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.

7.3 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 MT90 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**.

7.4 Setting the Smart Sleep Mode – A73

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

- SMS text:

0000,A73,*Sleep level*

Send the text to the embedded SIM card phone number.

The MT90 automatically replies to the SMS: IMEI,A73,OK. It indicates that the sleep mode is set successfully.

- To enable the GPS Log or scheduled tracking function, disable the sleep mode.

Description:

When the sleep level is **0**, the sleep mode is disabled (default).

When the sleep level is **1**, the tracker enters the normal sleep mode. The GSM module always works, and the GPS module occasionally enters the sleep mode. The tracker works 25% longer in the normal sleep mode than that in the normal working mode. This mode is not recommended for short interval tracking; this will affect the route precision.

When the sleep level is **2**, the tracker enters deep sleep mode. If no event (SOS, button triggered, incoming calls, or SMSs) is triggered after five minutes, the GPS module will stop and the GSM and MCU modules will enter sleep mode. Once an event is triggered, the GPS, GSM, and MCU modules will be woken up.

Note:

1. The tracker can enter normal sleep mode under vibration, while 3D shake cannot wake the tracker up from normal sleep mode.

2. In deep sleep mode, you can enable or disable the 3D shake wakeup function by Meitrack Manager.

In any condition, you can use an SMS or a GPRS command to disable the sleep mode, and then the tracker exits the sleep mode and switches back to the normal working mode.

In deep sleep mode, if you want to obtain the location by SMS/call and the GPS is invalid within five minutes, the device will reply to an SMS with a map link instead of location information.

After the device enters deep sleep mode, functions of Track By Time Interval, Track By Distance, and GPSLog are not available until you manually disable the sleep mode.

The device can be woken up from the sleep mode by pressing a key, call, or SMS. After an event is handled, the device will enter sleep mode again.

Example:

Sending: 0000,A73,2

Reply: 353358017784062,A73,OK

7.5 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 MT90 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 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 MT90's IMEI number.

8 Configuring Device Parameters by Meitrack Manager

This section describes how to use Meitrack Manager to configure the MT90 on a computer.

Procedure:

1. Install the USB driver and Meitrack Manager.

2. Connect the MT90 to a computer with the USB cable.

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.

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.