MEITRACK MT90 User Guide

GPS Tracker

Change History

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Contents

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2 Product Overview

The MT90, a personal tracking device, is designed for the elderly, children, pets, and lone workers. It has the following functions:

- Two-way calling
- SOS alarm
- Low power consumption and long standby time
- Polygon geo-fence alarm
- Man down alarm

3 Product Function and Specifications

3.1 Product Function

3.1.1 Location Tracking

- GPS + GSM dual-module tracking
- Real-time location query
- Track by time interval
- Track by distance
- Track on a mobile phone
- Speeding alarm
- Direction change report

3.1.2 Emergency Alarm

SOS alarm

3.1.3 Other Functions

- SMS/GPRS (TCP/UDP) communication (Meitrack protocol)
- GPS blind spot alarm
- Support for Over-the-Air (OTA)
- Low battery alarm

- 3D wakeup
- Listen-in/Two-way calling
- MT90(V4)/MT90_S: polygon geo-fence
- MT90(V4)/MT90_S: stillness/movement alarm
- MT90(V4)/MT90_S: online Parameter Editor
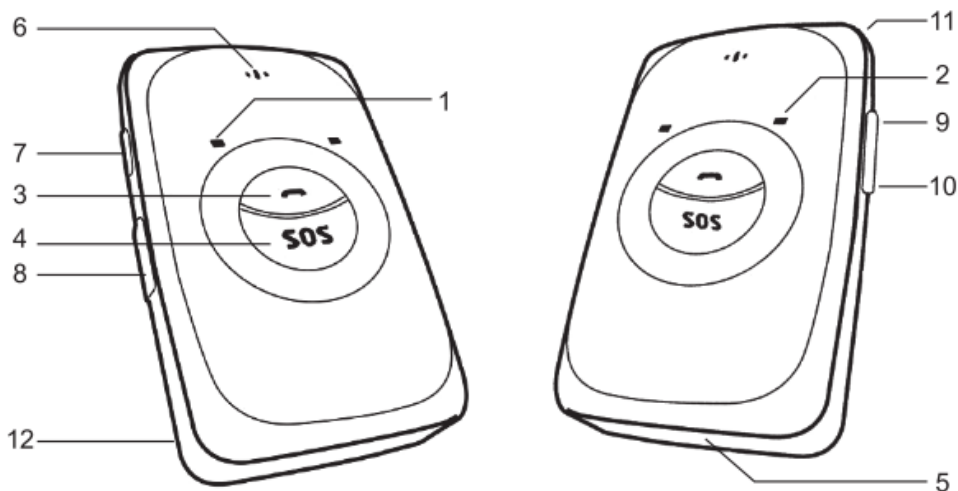- MT90(V4)/MT90_S: super long battery life

3.2 Specifications

Item	Specifications	Remarks
Dimension	77 mm x 47 mm x 20 mm	
Weight	70g	
Charging voltage	MT90(V4)/MT90_S: Micro USB charging port, DC 4.2 V–5.5 V/400 mA	
	MT90: Mini USB charging port, DC 4.2 V–5.5 V/400 mA	
Standby battery	1100 mAh/3.7 V rechargeable and replaceable lithium-ion battery (Nokia BL-5C compatible)	
Power consumption	MT90(V4)/MT90_S: 60 mA standby current and 5 mA deep sleep	For details about the sleep function, see section 7.4 "Smart Sleep – A73."
	MT90: 65 mA standby current and 15 mA deep sleep	For details about the sleep function, see section 7.4 "Smart Sleep – A73."
Operating temperature	-20°C to 55°C	Ensure that the device can work properly in this environment.
Humidity	5%–95%	Ensure that the device can work properly in this environment.
Working hour	MT90(V4)/MT90_S: 160 hours in power-saving mode and 14 hours in normal mode	
	MT90: 45 hours in power-saving mode and 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/Loudspeaker	Internal microphone and loudspeaker	Used for two-way calling and listen-in.
Memory	8 MB byte (130,000 GPS Logs, 8,000 GPRS caches, and 256 SMS caches)	GPS log: Read via a PC only GPRS and SMS: Data will be uploaded automatically after the signal recovers.
Sensor	3D acceleration sensor	Determine movement, stillness, and vibration.
GSM frequency band	GSM 850/900/1800/1900MHz	
Positioning accuracy	10m	

4 MT90 and Accessories

- MT90 tracker
- A battery
- USB cable
- Travel adapter (charger)
- Screwdriver
- CD and Printed MEITRACK MT90 User Guide
- Lanyard

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	- Press the button to receive an incoming call. - Press the button to terminate the call. - Press and hold down the button for 2s to send a GPRS message to the server when no incoming call or conversation is received. In this way, the device will sound "BI" once and vibrate.
4	SOS button	- Press and hold down the button for 2s in the case of emergency. The device will sound "BI" 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 the authorized phone number. If the GPRS function is enabled, the device will send a GPRS message to the server. - Shortly press the button to wake the device up if the device is in sleep mode.

5	Microphone	It will run automatically when the listen-in and call functions are used.
6	Loudspeaker	It will run automatically when the call function is used.
7	Power on/off button	● Press and hold down the button for 2s to turn on the MT90. It will make a sound and vibrates. ● Press and hold down the button for 2s to turn off the MT90. It will make a sound. ● Press the button to wake the MT90 up from sleep mode. The power indicator will blink for 10s.
8	Micro USB port/Mini USB port	Used for charging, connecting a computer for parameter settings, and upgrading software.
9	Volume+/GPS Log button	● Press the button to turn up the volume. ● Press and hold down the button for 2s to start hands-free conversation. ● In standby mode, press and hold down the button for 2s, when the buzzer sounds "BI" once, the recorder will run automatically. (The MT90 will record the route every 30s automatically when a GPS signal can be received. Route records can be exported by using a computer. ● Press and hold down the button for 2s again, when the buzzer sounds "BI" twice, and the recorder will stop automatically. *Note: To avoid misoperations, you can disable the GPS Log button by using* Meitrack Manager (default: valid).
10	Volume-/GPRS button	● Press the button to turn down the volume. ● In standby mode, press and hold down the button for 2s, when the buzzer sounds "BI" once, the GPRS function will be enabled automatically. (Precondition: GPRS parameters are set, and the default GPRS message interval is 10 minutes.) ● Press and hold down the button for 2s again, when the buzzer sounds "BI" twice, the GPRS function will be disabled automatically. *Note: To avoid misoperations, you can disable the* GPRS button *by using* Meitrack Manager (default: invalid).
11	Lanyard hole	Place the lanyard through the hole.
12	Battery cover	After removing the battery cover, install the battery and SIM card.
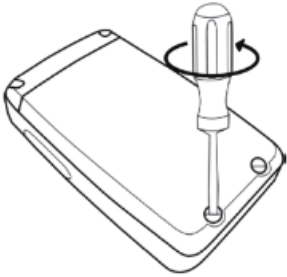
5.2 LED Indicator

To start the MT90, press and hold down the power button for 3 to 5 seconds. The blue and green indicators blink on for 1s and blink off for 1s simultaneously.
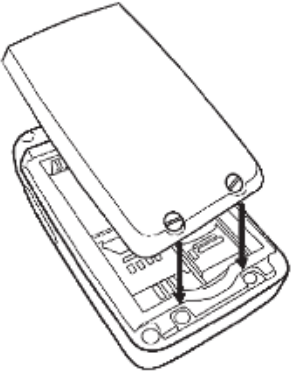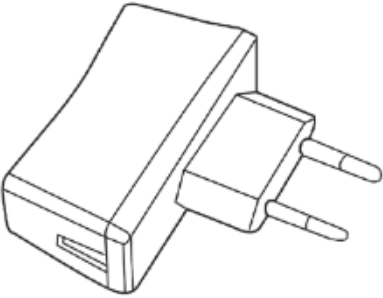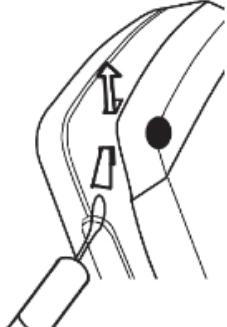
GPS Indicator (Blue)	
Status	**Description**
Steady on	The MT90 is charging.
Blink every 5s	The MT90 is in sleep mode.
1s on and 1s off	The GPS is invalid or the MT90 is initializing.
Off	The GPS is valid.
GSM Indicator (Green)	

Status	Description
Steady on	A call is coming in or busy.
Blink every 5s	The MT90 is in sleep mode.
1s on and 1s off	No signal is received, or the MT90 is initializing.
Off	The MT90 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 slot until you hear a click with the gold-colored side facing down. Note: Ensure that the SIM PIN lock is closed, 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. Note: Battery performance depends on many factors, including signal strength, the temperature of the environment in which you operate your phone, the features and/or other program usage patterns.
	5. Charge the battery. The battery is partially charged before shipped. Before using the device for the first time, you are advised to turn off the device and then charge the battery for 8 hours. To charge the battery, you can connect the device to the charger or a computer through the USB cable. 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. In this way, charge the battery before using.
	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.

When you turn on the device for the first time, you will be prompted to set your device. For more information about your device, please read the following instructions.

7 Quick Operation Command

Before normal usage, common parameters must be set either by SMS command or by software.

7.1 Real-time Location Tracking

This section describes how to query the current location of the portable MT90, ensuring that the GPS is working normally.

Call the SIM card phone number that is used in the MT90, and hang up after the dial tone rings 2-3 times.

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

An SMS with a map link is received. Click the link to query the location.

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 alarm 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=22.540103,114.082329	This is a map link. Latitude: 22.540103 Longitude: 114.082329	None

If there is no valid GPS available, the tracker will reply 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.
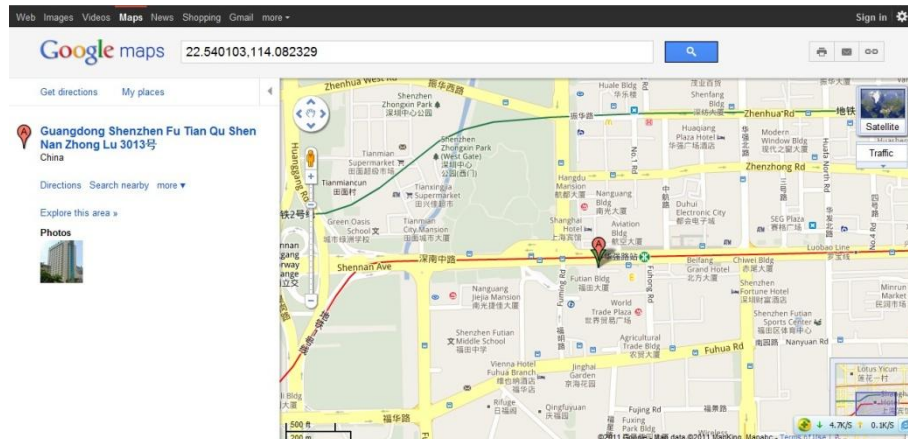
Note: The default password of the tracker is 0000. The password can be changed by using Meitrack Manager or SMS commands. After the password is changed successfully by using an SMS command, only the authorized phone number can receive SMS reports. The common format of an SMS command is: *Password,Command,Parameter*.

7.2 SOS – A71

This command is used to set SOS phone numbers. When you dial a phone number, an SMS report about the location and other funcitons 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 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: Set the phone number to the SOS phone number. When you call the tracker by using the phone number, the tracker will reply an SMS with the location and send geo-fence alarms and low power alarms.

Phone number 2/3: When you call the tracker, the tracker replies an SMS with location information.

● 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 send alarm information to 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 Listen-in — 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 **Monitor** 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,*Monitor number 1,Monitor 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 the preset monitor number calls the MT90, the MT90 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 monitor 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: 0000,A72,13844444444,13855555555

Reply: 353358017784062,A72,OK

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

7.4 Smart Sleep – A73

This command is used to enable the sleep mode function, prolonging device standby time. The standby time of the MT90(V4)/MT90_S can be prolonged to 240 hours, while the standby time of the MT90 can be prolonged to 45 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.

Note:

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

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. The mode is not recommended for users who set the scheduled tracking at a short interval. In this way, the mode will affect trace integrity.

When the sleep level is **2**, the tracker enters the deep sleep mode. If the tracker is inactive (no SOS/any triggering by a button/incoming call/message) for 5 minutes, the GPS module stops working and the GSM and MCU modules enter the sleep mode. The GPS/GSM/MCU module will be woken up if the tracker is activated (by SOS/any triggering by a button/incoming call/message). After that, it will repeat above processes.

The MT90 can enter sleep mode under vibration, and vibration cannot wake the MT90 up from sleep mode.

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 cannot be positioned within 5 minutes, the device will reply a link with the GPS map instead of location information.

After the device enters the 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 the sleep mode again.

Example: 0000,A73,2

Reply: 353358017784062,A73,OK

7.5 SMS Time Zone － B35

This command is used to change the SMS report time zone. 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: 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 Configured on a Computer

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 PC with a USB cable.

3. Run Meitrack Manager, and start the MT90. Meitrack Manager will automatically detect the tracker model.

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 the GPS Platform

Visit http://www.trackingmate.com/, and register an account or use the following account to log in to the free GPS platform:

User name: IMEI number

Password: 0000 (default)

You can perform the following operations on the GPS platform:

- Query a location at a certain time point.
- Query the trace.
- Add favorites.
- View various reports.

For more information about the GPS platform, see the *MEITRACK Family GPS Tracking System Free Edition 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.

FCC Warning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Specific Absorption Rate (SAR) information:

This GPS Tracker meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

FCC RF Exposure Information and Statement The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: GPS Tracker (FCC ID: 2AFO2MT90) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use at the **ear is 0.741W/kg** and when properly worn on the **body is 0.745W/kg**. This device was tested for typical body-worn operations with the back of the handset kept **00cm** from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a **00cm** separation distance between the user's body and the back of the handset. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

Body-worn Operation
This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of **0.0 cm** must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

Note: The EUT have a speaker and in normal use when the end user make a call they will not
 get it close to ear and only in front of face.