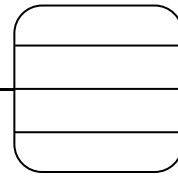


MT200X-4G-GPS Location tracker

User manual



contents

1.	product description	1
2.	Specifications	1
3.	packing list.....	1
4.	Wristband unlock method.....	2
4.1.	Warranty statement for the device wristband	2
5.	Product Features Overview	3
5.1.	Product interface view	3
5.2.	LED status, port and button description	3
5.3.	Change password	4
5.4.	Authorization number.....	4
5.4.1.	Set authorized number via SMS	4
5.4.2.	Phone set authorization number	5
5.5.	Call mode	6
5.6.	WIFI positioning	6
5.7.	Monitoring mode	6
5.8.	SOS emergency call	7
5.9.	Real-time tracking	7
5.10.	Management platform timing tracking	7
5.11.	Data reissue.....	8
5.12.	Electronic fence	8
5.13.	Time zone setting.....	9
5.14.	Low battery alarm and automatic switch.....	9
5.15.	Wristband alarm.....	10
5.16.	On/off alarm bell	10
5.17.	Leave home alarm	10
5.18.	Three tracking modes.....	11
6.	Problems and solutions.....	12
7.	Specifications	12
8.	Waterproof statement and disclaimer	13

1. product description

Thank you for purchasing our products !

This locator has a waterproof rating of IP68, low power consumption, long standby time, simple and easy to use, and is suitable for special groups of people. Built-in 4G network module, U-blox GPS module, GPRS module and low-power ARM processor.

Via GPS (Global Positioning System), the tracker can obtain its location and send the location data to your smartphone via a map (Google Earth or Google Map). At the same time, it will send the location data to the Internet server via GPRS, so you can check the location of the tracker at any time.

The function introduction of the tracker:

◆ Waterproof (waterproof grade: IP68)	◆ long standby mode
◆ AGPS position assistance	◆ SMS and GPRS (TCP / UDP) communication
◆ WIFI positioning	◆ Support up to 3 authorized mobile phone numbers
◆ SOS alarm (LBS position assistance)	◆ Real-time tracking
◆ Two-way conversation	◆ SOS emergency call
◆ Monitoring model	◆ Geofence alarm
◆ Low battery alarm	◆ Vibration alarm
◆ Wristband alar	◆ Three tracking modes
◆ Equipment soaking warning	

2. Specifications

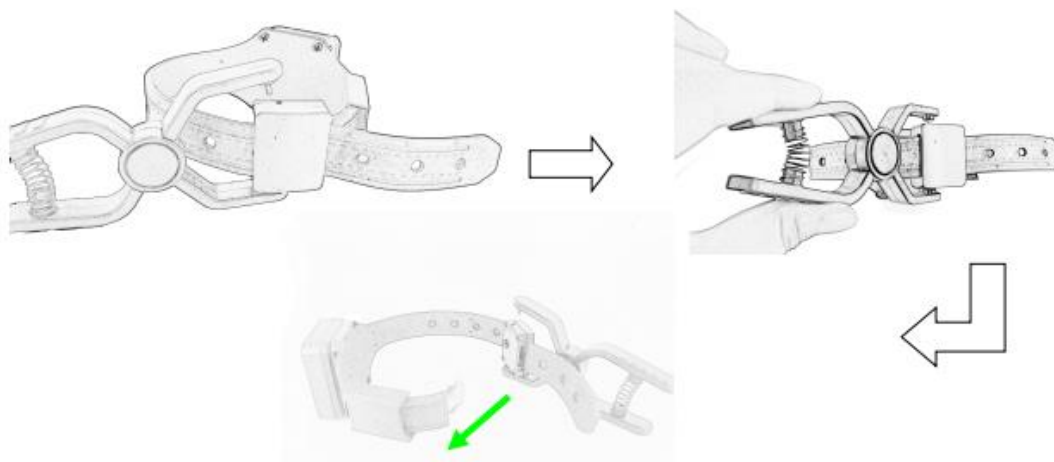
project	specification
Charging voltage	DC 4.8-5.5V/2000mA
battery	Rechargeable lithium polymer battery cell 3.7V 1900mAh
size	70mmx64mmx20mm
weight	240g
Operating temperature	-25°C to 60°C
GSM module	SIM7600
GPS chipset	Ublox-8Q

3. Packing list



4. Wristband unlock method

——Unlock the wristband.



4.1. Warranty statement for the device wristband

Under normal use, the warranty period is six months from the date of purchase.

Please note that the device wristband is a consumable item. Any extreme use, external damage and other reasons may cause material aging and cracking, thereby shortening the service life. In view of this, the warranty does not include the following:

- 1) Any damage caused by externalities.
- 2) Any failure caused by extreme use.
- 3) Any damage caused by improper physical environment.

5. Product Features Overview

5.1. Product interface view



5.2. LED status, port and button description

Blue LED — mobile phone network LED	
Blue LED flashes for 0.5s on & 0.5s off	Initializing
Blue LED flashes 1s on & 3s off	Register to the GSM network
Red/Green LED — Power indicator LED	
The red LED stays on.	charging
The green LED stays on	finished charging
Yellow LED — GPS LED	
Yellow LED flashes 1s on & 3s off	Successful positioning
Yellow LED flashes 1s on & 1s off	Search for satellite signals
Button	
On/off button	1、 Short press for 1s to judge whether the battery is low. When it is pressed, the green light is on to indicate that the battery is less than 15%; the green and blue lights are on at the same time, which indicates that the battery is above 15% (refer to the platform for details) 2、 Long press for 5s to vibrate, turn on/off

Call button	Press for 1 second to answer the call, press for 3 seconds to dial the authorized number (the button generates vibration)
SOS button	Press and hold for 3 seconds to send an alarm message with location
other	
Main power switch	Slide the switch to the ON position to power on the tracker
SIM card slot	Insert the SIM card
Micro USB port	Used for parameter setting and firmware upgrade

5.3. Change password

Example:

SMS command: `$SMS,*****;W001,#####;!`

Command description: `$SMS, default password; W001, new password;!`

Description:

*****: User password, range: 6 characters, default: 000000

#####: New password, range: 6 characters

note:

Please switch to the English input method when inputting commands on your mobile phone; the device only accepts SMS commands with the correct password, and commands with an incorrect password will be ignored.

Example: `$SMS,000000;W001,123456;!`

Example of reading password:

`$SMS,000000;R001;!`

Example of clearing password:

`$SMS,000000;C001;!`

5.4. Authorization number

5.4.1. Set authorized number via SMS

Description: Set the authorized number and the function corresponding to the number

SMS command: `$SMS,000000;W010,NO.,Phone Number,ABC;!`

Parameter Description:

NO.	Authorization number serial number	Range: 1~3
-----	------------------------------------	------------

Phone Number	Authorization number	Range: 0~19 characters
A	Electronic fence function switch	Range: 0 or 1 (0 means off, 1 means on), default: 0
B	Monitor function switch	0 or 1 (0 means off, 1 means on), default: 0 <i>Note: After the monitor call function is turned on, the two-way call function cannot be used. You need to turn off the monitor function to use the two-way call, automatic answering, and manual answering functions.</i>
C	SOS call function switch	Range : 0,1,2 Default: 0 Function Description: 0: Automatically answer the call, two-way talk, outgoing call function 1: Manually answer the call, two-way talk, outgoing call function 2: Manually answer calls, disable outgoing calls

Example: Set the first authorized number to 13800000000 and enable monitoring.

```
$SMS,000000;W010,1,13800000000,010;!
```

Read the first example of setting authorization number:

```
$SMS,000000;R010,1;!
```

Example of clearing the first authorized number:

```
$SMS,000000;C010,1;!
```

Example of reading all authorized numbers:

```
$SMS,000000;R010;!
```

Example of clearing all authorized numbers:

```
$SMS,000000;C010;!
```

5.4.2. Phone set authorization number

The device can set up to three authorized numbers. If the three authorized numbers are not used up, you can quickly set the authorized number by dialing the phone (without opening the corresponding function).

Call to set authorized number method:

- 1、 After an unauthorized number makes a call to the device for more than 10 seconds, the device will automatically hang up and the yellow light will flash for 30 seconds.

- 2、 Within these 30 seconds, short press the SOS (less than 3 seconds) button to set the unauthorized number as an authorized number.
- 3、 After the setting is completed, the device will reply to the number that the setting is successful.

5.5. Call mode

The first method: Turn off the monitoring function when setting the authorized number. When the authorized number calls the device, the device will ring. At this time, the user can short press the CALL (less than 3 seconds) button to connect to the phone, thus realizing the two-way conversation function .

The second way: the user can also make a call by long pressing the CALL button on the device to realize the two-way conversation function;

If the device is set with an authorized number and the CALL dialing function is turned on, press and hold the CALL button (3 seconds), and the device will dial the authorized numbers that set the function one by one. During this process, as long as there is an authorized number to connect the call, the device will Stop dialing authorized numbers.

5.6. WIFI positioning

By default, the device will automatically start WIFI positioning when it is turned on, and automatically search for nearby WIFI signals every 5 minutes, select the 10 strongest WIFI signals, and upload the positioning information to the platform.

5.7. Monitoring mode

When setting the authorized number, turn on the corresponding monitoring function. When the authorized number makes a call to the device, the device will automatically answer the call, thus realizing the monitoring function.

Note: To use this function, please make sure that the SIM card has enabled caller ID.

5.8. SOS emergency call

Long press the SOS button for three seconds or more, the device will send an alarm message to all authorized numbers.

5.9. Real-time tracking

After any authorized number makes a call to the device, the device will send location information to the authorized number.

5.10. Management platform timing tracking

Description: Set up the network function

SMS command: `$SMS,000000;W002,APN,Username,Password;W003,IP,Port;W005,X;W009,Y;!`

Command explanation: `$SMS,000000;W002, APN parameters, username, password;W003, IP address, Server port;W005,`

Upload time interval; W009, data upload mode; !

Parameter Description:

APN	Service network access point name	range	0~29 characters (local operator's APN)
Username:	Username	range	0~29 characters;
Password:	Password	range	0~29 characters;
IP:	Server IP or domain name	range	0~29 characters;
Port:	Server port,	range	0~65535
X:	Timed upload interval	range	0~65535, default: 0, unit: 30 seconds, for example: set to 2, that is, the scheduled upload time interval is 60 seconds
Y:	GPS data upload mode	range	0~65535, default: 0, unit: 30 seconds, for example: set to 2, that is, the scheduled upload time interval is 60 seconds

example: `$SMS,000000;W002, cmnet,,;W003,192.168.1.1,8088;W005,1;W009,1;!`

Read timing tracking example:

`$SMS,000000;R002;R003;R005;R009;!`

Clear timing tracking example:

```
$SMS,000000;C002;C003;C005;C009;!
```

5.11.Data reissue

Built-in 8MB memory for data.

- 1、 When the GSM timing upload of data fails, the device will automatically store the data in the built-in memory.
- 2、 When the GSMconnection is successful, the device will re-send the data to the server.

Note: The device will send real-time data first, and the priority of storing data is lower.

5.12.Electronic fence

Description: Set the electronic fence, two settings:

- 1、 If you know the exact center point, latitude and longitude, you can directly fill it in the content of the command message.
- 2、 When the latitude and longitude displayed in the command position is empty, the device will automatically obtain the latitude and longitude of the last positioning as the center point.

After the electronic fence is set up:

When the locator enters or leaves the preset range, the locator will send an alarm message to the authorized number (the electronic fence function must be turned on when setting the authorized number). If GPRS is connected, the tracker will also send alarm data to the server via GPRS.

SMS command: \$SMS,000000;W018,NO.,name,lat,lng,radius;!

Description:

NO.	Electronic fence number	range	1~5
name	Electronic fence Name	range	0~9 characters
lat	Latitude of the center point of the electronic fence	range	-90.00000000~90.00000000, Unit: Degree
lng	Longitude of the center point of the electronic fence	range	-180.00000000~180.00000000, Unit: Degree
radius	Electronic fence half-warp	range	0.0~1.79E+308, Unit: m

!!! Note: The electronic fence takes the preset center point as the center of the circle and is a perfect circular area formed by the preset radius.

For example:

```
$SMS,000000;W018,1,school,22.12345,114.12345,10.50;!
```

```
$SMS,000000;W018,1,home,,,10.50;!
```

- 1、 Read the first electronic fence SMS command example:

```
$SMS,000000;R018,1;!
```

- 2、 Delete the first electronic fence SMS command example:

```
$SMS,000000;C018,1;!
```

- 3、 Delete all electronic fence SMS command example:

```
$SMS,000000;C018;!
```

5.13.Time zone setting

SMS command:

```
$SMS,000000;W020,X;!
```

describe: Setting SMS time zone

Explanation:

X: Time zone value, range: -720~780, default: 0, unit: minute

Example:

```
$SMS,000000;W020,480;!
```

1 hour is equal to 60 minutes, GMT+8 is the Beijing time zone, $60 \times 8 = 480$ (parameter), so the instruction indicates Beijing time.

Read time zone setting example:

```
$SMS,000000;R020;!
```

Clear time zone setting example:

```
$SMS,000000;C020;!
```

5.14.Low battery alarm and automatic switch

- 1、 When the battery power is less than 15%, the device will send an alarm message to all authorized numbers or send alarm data to the server.

- 2、 When the battery power is too low, the device will automatically shut down.

- 3、 When charging a low-power shutdown device, when the battery power is greater than 15%, the device will automatically turn on and send a startup alarm message to all authorized numbers and send alarm data to the

server via GPRS.

5.15.Wristband alarm

- 1、 When the wristband is connected, the device will send belt on (wristband connection) alarm messages to all authorized numbers and send alarm data to the server via GPRS.
- 2、 When the wristband is opened or cut, the device will send a Wristband off alarm message to all authorized numbers and send alarm data to the server through the 4G network.

5.16.On/off alarm bell

If you need to turn off the wristband disconnection alarm, you need to send a command to the device;

Example: `$SMS,000000;W043,A,B,C;!`

To turn on the wristband disconnection alarm, you need to send a command to the device.

Example: `$SMS,000000;W043,1,0,0;!ss`

Example:

A	Other alarm sound switches	Enable/disable other sounds except wristband warning, the default is 1 (1=open alarm sound, 0=disable other sounds except wristband alarm)
B	wristband alarm switch	Enable/disable wristband warning, default is 1 (0=off, 1=on)
C	Start alarm now	1 is to turn on the alarm immediately, 0 is to turn off immediately, the default is 0

5.17.Leave home alarm

- 1、 Turn on the home mode of the MT200X device and send the command: `$SMS,000000;W040,1;!`
- 2、 Turn on the wifi base station and insert a sim card that can communicate into the base station to ensure that the base station can send and receive text messages
- 3、 Read wifi name (16-bit int): send SMS to S921 base station to query wifi name, command `$SMS,000000;R045;!` (The received SMS will contain a wifi name information (16-bit int), 1032112345177465)
- 4、 Connect to base station wifi: send command: `$SMS,000000;W042,1032112345177465,,;!` (*command parsing {SMS: SMS, 000000: default password, W042: instruction, 1032112345177465: wifi name}*)
- 5、 If connected to wifi, MT200X sends a piece of data: `0099"imei":"860719020193193","time":"2021-09-28 08:45:39","imei":"10000000010009","signal":"80"`
Can't connect to wifi, MT200X sends a piece of data: `"imei":"100000000010007","time":"2021-09-28 08:45:39","imei":"","signal":""`
- 6、 If the connection cannot be made, please confirm whether the name of the wifi is entered correctly and whether the device is within the coverage of the wifi signal.

Note: The second and third items are for operating the S921 base station, please do not operate the MT200X

5.18. Three tracking modes

SMS command: `$SMS,000000;W016,X;!`

Description: The tracking mode is divided into three types: personal mode, smart mode, and car mode

Description:

X: device mode

Range:

0~2 (0 means personal mode, 1 means smart mode, 2 means car mode) Default: 1

Personal mode:

When there is a data update or an alarm is generated, the GPS will automatically turn on the positioning, and the GPS will be turned off if the positioning is successful or the positioning timeout, and then the machine uploads the updated data or sends an alarm message

Smart mode:

The GPS is always working when the device is in motion. When the device is stationary, the GPS will automatically enter the sleep state. When there is new data or an alarm is generated, the GPS will automatically turn on the positioning, and the positioning will be turned off when the positioning is successful or the positioning timeout, and then the device uploads updated data Or send an alarm SMS.

Car mode:

No matter whether the device is in motion or not, the GPS will not turn off

For example:

Example of setting device mode:

`$SMS,000000;W016,1;!` (Enable smart mode)

Example of reading device mode:

`$SMS,000000;R016;!`

Example of clear device mode

`$SMS,000000;C016;!`

5.19. Device Soak Warning

When the device is immersed in water, it will start to detect. If it is picked up immediately, it will not alarm. If it is not picked up within the set detection time, an alarm will be triggered, and the computer monitoring platform and app monitoring platform will indicate that the device has been soaked. Please check now to avoid accidents.

Recommended default value (default detection time: 20 minutes, unit 100ms, range 1000-65535)

Example:

Set the water immersion alarm detection function on (0=off/1=on) and detection time (20 minutes)

`$SMS,000000;W044,1,12000;!`

Read the water immersion detection time

`$SMS,000000;R044;!`

Clear the detection time of the soaking water alarm

`$SMS,000000;C044;!`

6. Problems and solutions

Malfunction: The locator cannot be turned on	
Possible Causes	Solution
Power switch operation problem	Make sure to press the power button for more than 5s
The battery needs to be charged	Charge the locator for 1.5-2 hours
Problem: Locator does not respond to a message	
Possible Causes	Solution
Blue light is always on	Ensure that the position of the locator has a good GPRS signal Check the installation of the SIM card, and reinsert the SIM card if necessary Replace the SIM card if necessary
The network is busy	Waiting for the SMS, the network may respond slowly during busy hours or when the device fails
Wrong password or wrong command	Use the correct password and SMS format
Insufficient SIM card balance	Replace or recharge the SIM card
Low battery	Locator charging
Trouble: The green light is on for 1 second and off for 1 second	
Possible Causes	Solution
The position signal of the locator is blocked	Move the positioner to an open area. High-rise buildings, big trees, and heavy rain can cause poor GPS signals
GPS signal is weak	GPS antenna front towards sky
Low battery	Charge the locator
Trouble: Cannot connect to the server via GPRS	
Possible Causes	Solution
SIM card does not support 4G function	Activate the 4G function of the SIM card
4G function is turned off	Turn on 4G function
Incorrect IP address or port number	Set the correct IP address and port number, and then restart
4G weak signal	Move the locator to a place with good 4G signal reception
APN parameter error	Reconfirm the parameters

7. Specifications

Device terminal parameters:

project	specification
size	70*64*22mm3

weight	240g
Operating temperature	-20 ~ +55 °C
4G module	SIM7600E/SIM7600A/SIM7600SA
Cellular network	GSM / GPRS/ UMTS quad-band 850/900/1800 /1900Mhz
GPS chip	Ublox 8Q chip
Position accuracy	<15 M, 2D RMS>
Speed accuracy	0.1 M/S
Update time	0.1 second on average
Hot Start	1 second on average
Warm start	3 seconds on average
Cold start	37 seconds on average
maximum height	18,000 meters (maximum 60,000 feet)
Maximum speed	500 m/s (maximum 1000 knots)
Maximum acceleration	Less than 4g
Charging voltage	DC5V
recharging current	MAX2000mA
Internal battery	4.2V,1900mAH
Device charging time	1.5-2hour

Power bank parameters:

project	specification
size	9*6*3 mm3
weight	100g
The charging time of the power bank to the device	1.5-2 hours
Charging time for power bank	2-3 hours
Power bank capacity	4.2V, 2600mAH
Charging voltage of power bank	5VDC
Power bank charging current	MAX 2000mA
Built-in battery	Lithium polymer battery

8. Waterproof statement and disclaimer

If the tracker falls into the water, it does not matter, because our product is waterproof to IP68 level, but do not soak or use it in water for a long time (not 100% waterproof).

The structural design of our products fully meets the requirements of the waterproof level. Under no circumstances will our company be liable for direct, indirect, special, incidental or consequential damages (including but not limited to economic losses, personal injuries and losses); due to use Or property and

property damage caused by the inability to use or illegal use of the product or document.