

CAT-200X Ankle Tracker Tracking Device

**USER MANUAL** 





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# 0. Revision History

Revision	Date	Author	Description of Change
1.0	2016-06-15	Amy	Update
1.1	2017-03-14	Amy	Added pictures showing how to switch on device
2.0	2017-09-16	Amy	Update for new version of device, instruction,

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# 1. Waterproof Notices and Disclaimers

Do not let the tracker stay in the water too long, take out the tracker immediately if it falls into the water, and then siphoning off the water with a towel or paper towel.







Cannot be flooded

The structural design of our products fully complies with the requirements of waterproof IP67 rating, in no event shall our company be liable for direct, indirect, special, incidental, or consequential damages (including but not limited to economic loss, personal injury, and loss of asset and property) arising out of use or inability or illegality to use the product or documentation.

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## 2. Product Overview

Thank you for purchasing our product!

It is an industry waterproof IP67, small, and light tracker. It is easy to take and specially designed for parolee, field staff/lone-worker, security guard, elderly, Alzheimer patient, and animal/pet.

Build in U-blox GPS module, GPRS module and low power ARM processor.

Through GPS (Global Positioning System), tracker can get its position and send the position data to your smart phone via map (Google Earth or Google Map). At the same time, it will send the position data to the internet server by GPRS, so you can track the tracker's position.

Tracker has the following features and functions:

- Waterproof (waterproofing grade: IP67)
- AGPS position assisted
- Two-way communication
- Monitoring mode
- Pet mode
- Long standby time mode
- SMS and GPRS (TCP/UDP) communication
- Support up to 5 authorized cell phone numbers
- Real time tracking
- SOS emergency calling
- Geo-fence alarm
- Over speed alarm
- Low battery alarm
- Vibration alarm
- Data Logger in no GSM signal area using Micro SD card (Max: 2GB)
- Belt-off alarm

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# 3. Specifications

Items	Specification	
Charging Voltage	DC 4.8V - 5.5V / 500mA	
Battery	Rechargeable, lithium-polymer battery 1800mAh, 3.7V	
Dimension	70mm x 64mm x 20mm	
Weight	173.0g	
Operating Temperature	-25°C to 60°C	
GSM Module	SIM5320	
GPS Chipset	Ublox-7Q	
Memory	Micro SD card (Max: 2GB)	

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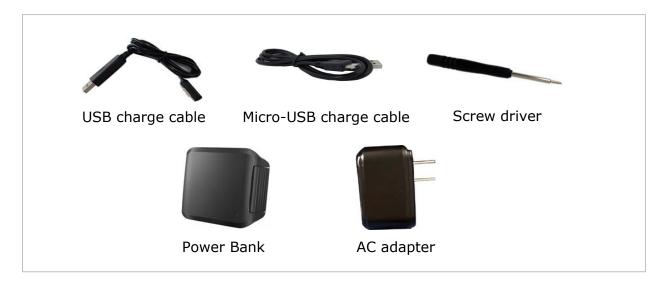
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# 4. Overview

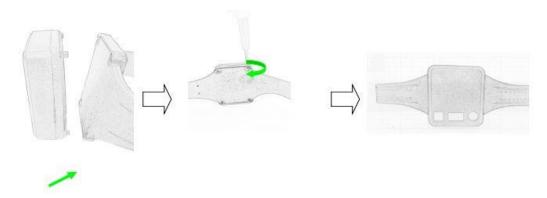
This section will describe how to use the tracker.

### 4.1. Accessories



## 4.2. How to Use the Belt

-- fix device on the belt with screws



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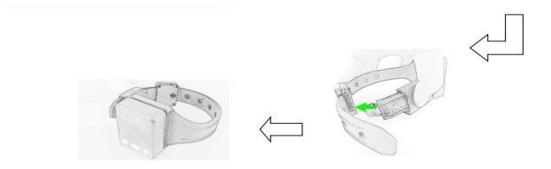
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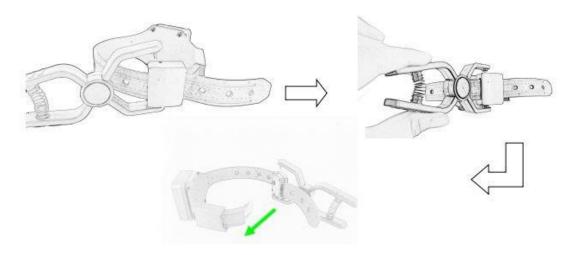
## —— adjust to suitable size and buckle the belt



Note: The lock head must be aligned with the size point/hole so that the screw can make contact with the metal inside the strap



### —— unlock the belt

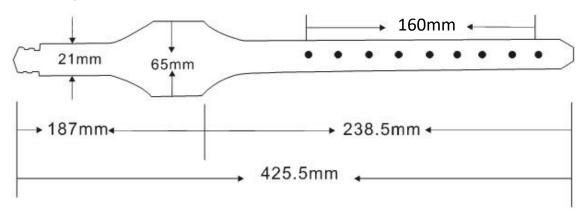


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## — belt specifications



# **Warranty Statement of Device Belt**

Under normal usage, the warranty time is 6 months from the date of purchase.

Please note the device belt belongs to consumable item category. Any extreme usage, externality damage and other causes may result in material aging and cracking, thereby decreases working lifetime. In view of this, the warranty does not cover the following:

- 1) Any damages by externality.
- 2) Any breakdown by extreme usage.
- 3) Any breakage by inappropriate physical environment.

## 4.3. Tracker Views

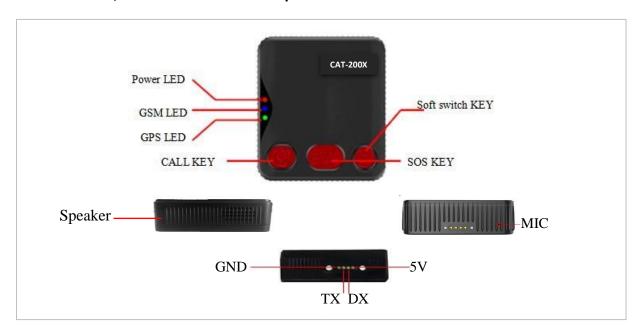


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# 4.4. LED Status, Ports and Buttons Description



Button	
Soft switch key	<ol> <li>Press for 1s to determine the low power, When the green light, the battery power is less than 15%;</li> <li>When the short press blue light and green light at the same time, when the battery power at 15% - 100%.</li> <li>Press for 5s, vibration, turn on.</li> </ol>
CALL key	Press for 1s to pick up a call, press for 3s to call to an authorized number (vibration touch for calling)
SOS key	Press it for 3s to send an alarm SMS with coordinates

Red /Yellow LED — Power indicator	
The red LED is always on	Charging
The red LED turn Green	Fully charged, power charging is finished

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Blue LED — GSM indicator	
0.3s on and 0.3s off	GSM module is initializing or calling in
Always on	GSM network is not registered
1s on and 3s off	GSM network is registered
0.1s on and 3s off	GSM network is registered and connected to the server by GPRS
Always off	GSM in power save mode
Green LED — GPS indicator	
0.3s on and 0.3s off	GPS module is initializing or waiting for the SOS button press to
Always on	Button being pressed
1s on and 3s off	GPS module is working normally but hasn't fixed position
0.1s on and 3s off	GPS module is working normally and has fixed position
Always off	GPS module stops working

## 4.5. Getting Started

Please read this manual before using tracker and check if all parts are in the box.

# 4.5.1. Ensure that your tracker has a working SIM card

- Please make sure SIM card has enough credit.
- Please make sure that the SIM is not locked and do not require a password to operate.
- Please make sure the SIM card is supporting caller ID display.

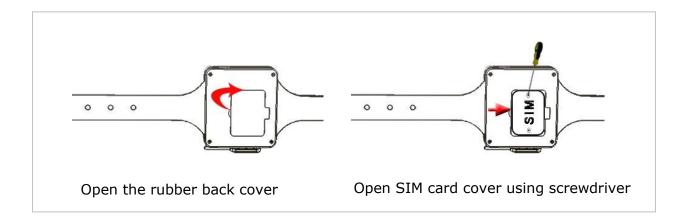
## 4.5.2. Insert SIM card and switch on the main power switch

-- Opening SIM card cover

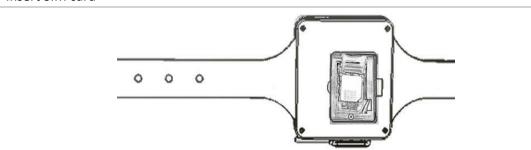
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#### - Insert SIM card



Open the card slot metal cover, insert SIM card (and optional SD card), and slide the metal cover to lock.

Switch On the main power switch below the SIM metal cover.

Install the SIM card cover using the 4 screws and close the rubber back cover.

## 4.5.3. Charging the Tracker

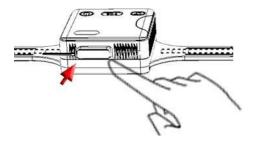
When using tracker for the first time please charge the battery for at least 3 hours with the main power switched off. There are two ways to charge: using supplied AC adapter and using power bank.

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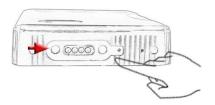
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1. Dedicated charging cable connection. The device is fully charged after 2.5 – 3 hours



Dedicated charging cable connection

2. Power bank charging



1. Tracking charging interface



2. Rechargeable contacts are connected to tracker charging interface and the power bank is mounted on the tracker

Make sure that the tracker front side is up to the open sky when the main power is switched on

If the tracker operates normally and positioning successfully, the blue LED flashes 1s on & 3s off; the green LED flashes 1s on & 3s off.

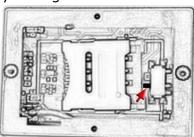
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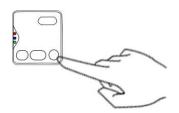
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## 4.5.4. Turning the Tracker on/off

Power on from main switch Power on the tracker by sliding the switch next to the SIM metal cover to ON



3. Power on from soft switch button





2. Press soft key for 3 seconds

2. Tracker turns on or off after

Note: The tracker can be turned off when the strap is disconnected

# 5. Instruction and Function Applications

There are three ways to set up the tracker: SMS command, GPRS command and setup by computer. After turning on the tracker please place the tracker in an open environment to help establish GPS and cellular connections.

#### Note:

- 1. All changes to setup require a password. Make sure that you are using correct password otherwise, changes will be rejected.
- 2. All commands are not case sensitive.

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## 5.1. Change Password

Description: change user's password

SMS Command: \$SMS, \*\*\*\*\*; W001, ######;!

SMS Command explain: \$SMS, default password; W001, new password:!

Where:

\*\*\*\*\*\*: user password, the range of 6 digits, default password is 000000

#####: new password, the range of 6 digits.

**Note:** please switch to the English input method when you input a command by smart phone; tracker will only accept commands from a user with the correct password. Command will be ignored if with wrong password.

Example:

\$SMS, 000000; W001, 123456;!

Read password: \$SMS, 000000; R001;!

Clear password: \$SMS, 000000; C001; !

Password must by six digits!

#### 5.2. Authorized number

Tracker supports up to 5 authorized telephone numbers, which you can set at your choice. To receive alarms and calls from tracker you must set at least one authorized telephone number. If there are no authorized number has been set the tracker cannot send out any alarm SMS (but you still can receive alarms through GPRS, if set) and cannot call out.

Advice: set the authorized number first when you first use!

Set the authorized number by SMS

Description: Set authorized phone number and its related functions

SMS Command: \$SMS, 000000; W010, NO., Phone Number, ABC;!

Where:

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NO.: authorized number's serial number range of: 1~3

Phone Number: authorized number range of: 0~19 characters

A: when the parameter 'A' is 0, it means disable Geo-fence alarm

otherwise, it means enable Geo-fence alarm. Default is 0, range of: 0~1

B: when the parameter 'B' is 0, it means disable monitoring function

otherwise, it means enable monitoring function. Default is 0, range of: 0~1

C: when the parameter 'C' is 0, it means disable SOS emergency calling function

Otherwise, it means enable SOS emergency calling function. Default is 0, range of: 0~1

For example: Set the 1st authorized number is 1380000000 and enable monitoring function.

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

Read authorized No.1 and its related authority: \$SMS,000000;R010,1;!

Clear authorized No.1 and its related authority: \$SMS,000000;C010,1;!

Read all authorized number: \$SMS,000000;R010;!

Clear all authorized number: \$SMS,000000;C010:!

#### Easy authorized phone no. setup by calling

Tracker only supports three authorized numbers; we can set the authorized number by phone call if there are not set authorized number fully (this function only supports to set the authorized number, not included its related functions).

## Set as follows:

- 1. Any non-authorized number calls to the tracker over than 10 seconds, the tracker will hang up the line automatically and the yellow light will blink for 30 seconds.
- 2. During these 30 seconds, press SOS button less than 3 seconds, and then successfully set this call-in number as a new authorized number and send an SMS to this number to inform the setting is OK.

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## 5.3. Monitoring Function

If monitoring function is enabled, when the authorized number calls to the tracker, it will answer the call automatically and shut down the speaker and the background voice of the tracker will be listened.

Note: Please make sure the SIM card installed supports displaying caller ID when you want to enable this function.

#### 5.4. Two-way Communication

#### First Method:

If you turn the monitoring function off when set authorized number, use this authorized number call to tracker, bell will ring, at this time, press the CALL button (less than 3s) to answer the phone call, so you can speak to each other.

#### **Second Method:**

If the authorization number was set with the CALL function, Press SOS button for 3 seconds or longer, the device will make a call to authorized numbers one by one and it will stop making the call if call is answered.

## 5.5. SOS Emergency Calling

Press SOS button for 3 seconds or longer, tracker will send SOS alarm SMS to all authorized numbers.

### 5.6. Real-time Tracking

The tracker will reply a location SMS if there is any authorized number makes a phone call to it.

#### 5.7. Tracking Regularly by GPRS

Description: Enable this function

SMS Command:

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

Where:

APN: Access point name network range of: 0~29 characters

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Username:	accesses port' user name	range of: 0~29 characters
Password:	Accesses port's password	range of: 0~29 characters
IP:	server' IP address	range of: 0~29 characters
Port:	server's port	range of: 0~65535
Х:	GPRS upload interval	range of: 0~65535, default is 0, unit is 30 seconds  Example: if X is 2, and 2*30s=60s, so it means the GPRS upload interval is 60 seconds.
Y:	GPRS upload mode	range of: 0~2  0: means disable GPRS function,  1: means upload by TCP,  2: means upload by UDP  default is 0

Example: \$SMS, 000000; W002, cmnet, ; W003, 192. 168. 1. 1, 8088; W005, 1; W009, 1;!

Read tracking regularly by GPRS:

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

Clear tracking regularly by GPRS:

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

### 5.8. GPRS Data Logger

Tracker has built-in 8M bytes memory for GPRS data save.

- 1. When GPRS interval tracking can not upload to server, data will be automatically stored in the memory
- 2. After that, once the GPRS reconnected, tracker will send the data to server again.

Note: real time data will be sent first, the priority of the stored data is low.

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#### 5.9. Geo-fence

Description: Two ways to set the Geo-fence:

- 1. When you know the exact latitude and longitude, the longitude and latitude can be filled in command directly.
- 2. Tracker will get the newest position automatically to be fence center if there is no available GPS position.

After set the Geo-fence:

when the tracker moves in/out the preset geo-fence, it will send a SMS alarm to the authorized phone number (enable the Geo-fence function when you set the authorized number), and if GPRS is connected, tracker will send this alarm data to server via GPRS.

SMS Command: SMS, 000000; W018, NO., name, lat, lng, radius; Where:

NO.	serial number of geo-fence, range of: 1 to 5
name	name of geo-fence, range of: 0-9 characters
lat	center's latitude, range of: -90.00000000~90.00000000, unit: degrees
lng	center's longitude, range of:-180.00000000~180.00000000, unit: degrees
radius	geo-fence's radius, range of: 0.0~1.79E+308, unit: meters

Note: The geo-fence is a perfect circle based on the preset radius and center.

#### Example:

```
$SMS, 000000; W018, 1, school, 22. 12345, 114. 12345, 10. 50;! $SMS, 000000; W018, 1, home, , , 10. 50;!
```

Read Geo-fence: \$SMS,000000;R018,1;!
 Clear Geo-fence: \$SMS,000000;C018,1;!
 Clear all Geo-fence: \$SMS,000000;C018;!

#### 5.10. Time Zone Setting

SMS Command: \$SMS, 000000; W020, X;!

Description: Set the SMS time zone

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Where:

X: time zone's value, range of: -720~780, default: 0, unit: minutes

For example:

\$SMS, 000000; W020, 480;!

1 hour is equal to 60 minutes, and Beijing is GMT+8, 60\*8=480 (parameter), so this command means

480 is the time zone in Beijing.

Read time zone: \$SMS,000000;R020;!

Clear time zone: \$SMS,000000;C020;!

## 5.11. Low Battery Alarm and Power On/Off Automatically

- 1. When the battery level is lower than 15%, it will send SMS to all authorized numbers or send alarm data to server.
- 2. Tracker will be off automatically if the battery level is 0%.
- 3. During charging, tracker will automatically switch on when battery level is higher than 15%, and send a warning SMS to all authorized number.

# 5.12. Timing Turn On/Off Tracker

Description: set the time of turn on/off

SMS Command: \$SMS, 000000; W038, on time, off time;!

#### Where:

name description		explain		
on time	Turn on time	Range of: 00:00~23:59, default: 00:00.		
off time	Turn off time	Range of: 00:00~23:59, default: 00:00.		

Example: \$SMS, 000000; W038, 08:00, 20:00;! Turn on time: 08:00, turn off time: 20:00

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## 5.13. Belt On/Off Alarm

- After connected with the belt, tracker will send warning to all of the authorized phone numbers and send alarm data to service;
- After unconnected with the belt or belt has been cut, tracker will send warning to all of the authorized phone numbers and send alarm data to service.

Note: after connected with the belt, tracker can only be turned on and cannot be turned off

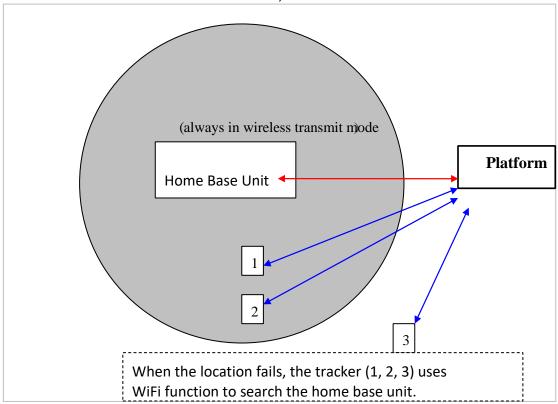
#### 5.14. Leave Home Alarm

The Home Base unit is in a wireless transmission mode.

When the location fails, the tracker uses the WiFi function to search the home base unit.

If the home base unit has been searched, the tracker send " A list of the names of the home base unit " to the platform .

When the home base unit have been detected, the tracker GPRS is turned off



Description: 1,2,3 represents three different trackers. The gray area is a wireless transmission range of the Home Base unit.

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# 6. Problem and Solutions

Not enough SIM balance

Low battery

Cannot switch on		
Possibility		Solution
Power switch operation's probl	em	Make sure press the power switch for 5 seconds or longer
Low battery		Charging for 2.5 – 3 hours
Not reply SMS		
Possibility	Solution	
Blue light is always on	Make sure tracker can receive the strong GSM signal	
	Check SIM card installation, insert again if necessary	
	Replace a new SIM if necessary	
GSM network is busy	Wait for SMS. Sometimes GSM networks are slow during peak time or when they have equipment problems.	
Password or SMS format is wrong	Double check password or SMS format, password and format must be right	

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Replace SIM card or check balance value

Please do charging

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green light is 1s on and 1s off			
Possibility		Solution	
The tracker has already blocked the GPS signal		Move the tracker to open area w/o any tall building, tree and heavy raining. Those can shield GPS signal	
GPS signal is weak		Place the GPS internal antenna face to the sky	
Low battery		Please do charging	
No GPRS connection			
Possibility	So	lution	
SIM card cannot support GPRS function	Ena	Enable SIM's GPRS function	
GPRS function is disabled	Ena	Enable the GPRS function	
Incorrect IP or Port	Doi	Double check IP and Port and make sure they are correct,	
GSM signal is weak	Мо	ve the tracker to a place with strong GSM signal	

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