Kingwo

NT07E

USER MANUAL

Asset GPS Tracker

Declaration

The contents of this manual might be updated from time to time without prior notice; the updated

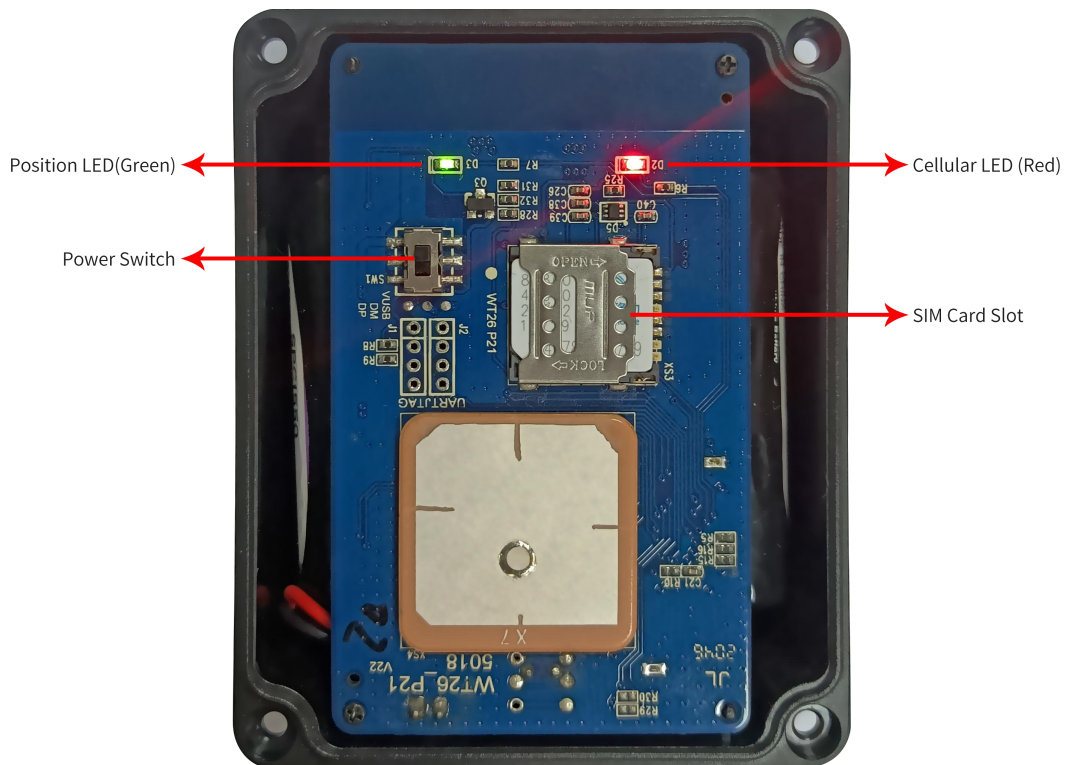content will be added to the new version of this manual. Kingwo reserve the rights to update the

products or procedures described in the manual at any time. If there is a description of the product

in the manual that does not match the actual product, the actual product shall prevail. Kingwo owns

the final interpretation rights of this manual.

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PART 01 Product Overview

1.1 Appearance

Position LED(Green)

Cellular LED (Red)

Power Switch

SIM Card Slot

Enclosure	IP67 waterproof
Magnets	To stick the device to metal surface
Power button	Inside the enclosure for hidden installation purpose, to turn on or turn off device
Light sensor	To detect removal alarm ,remove the sticker on the light sensor, when the device expose to light, it will trigger a removal alarm

1.2 LED status

	Event	Status
Cellular LED (Red)	Network connecting	Fast flash
	Network connected	Slow flash
	Module error	Solid on
Position LED(Green)	GPS position	Solid on
	LBS position	0.5 seconds on, 0.5 seconds off
	Wifi Position	2 seconds on, 2 seconds off
	No position	Off

1.3 Product features summary

◆ Built in 8100mah batteries, it can last 5 years if upload data once a day

◆ Track: To check the assets location once a day or several times a day, interval is configurable

◆ Alarms: Motion alarm, removal alarm

◆ Multiple position modes: GPS, WIFI, LBS, AGPS

◆ Temperature monitor

◆ Battery level upload

◆ Weatherproof for outdoors assets monitor

◆ No wires and magnets for easy installation

◆ Jamming detection

1.4 Hardware parameters

Physical	Dimension	81mm*66mm*33mm（L*W*H）
	Weight	193±5g
Cellular	Communication module	Quectel BG95

	Frequency	Working frequency:
		Cat M1: LTE-FDD B2/B3/B4/B8/B12/B13/B20
		
		protocol: Embedded TCP/IP stack
		Sensitivity: -107dBm@850/900MHz
		               -106dBm@1800/1900MHz
		Output power: Class 4 (2W)@850/900MHz
		             Class 1 (1W)@1800/1900MHz
		GPRS data: GPRS Class 10, Mobile Station Class B

GPS		Channels: 50 Sensitivity: -147dBm Position accuracy:5-10m Accuracy: 5m CEP Cold start: <27s Hot start: <1s
Processor		STM32G070CB
Motion sensor		DA260
Wifi position		Wifi 4.0
Power	Battery	Disposable Lithium-ion battery and （3.6V，8100mAh） and ultra-low discharge rate：less than 1%, store one year below 25℃
	Power consumption	Average working current <100mA; Power save current <15uA;
	GSM antenna	Internal High Gain
	GPS antenna	Internal High Gain
	SIM	Microsim
	Indicator	2 status LEDs, Green: GPS, Red: EMTC
Environmental Parameter	Working Temperature	-20℃ ~ +70℃
	Humidity	5% ~ 95% (no fog)
	Ingress Protection Rating	IP67

PART 02　Product Functions

2.1 Work modes

The default upload interval is one-day one ping, the data packets information includes GPS status, longitude and latitude, cellular signal Strength, satellite numbers, battery level etc, there are multiple track modes available from the device, below is the explanation for work mode priorities:

◆ Track mode>Warehouse >Timely upload=Clock mode=Week mode= Motion and static mode；

◆ The work mode which is equal can be replaced by each other, as the last configuration will prevail

2.1.1 Track mode

Mode	SMS Command	
Set Track mode	ZZ,A,T1,T2# or MODE,1,T1,T2#； For example: ZZ,300,60# (MODE,300,60#) indicates enter into track mode, upload data each 300 seconds, track duration time is 60 mins ZZ,0# or MODE,0# indicates exit track mode	A：1- Enter in track mode，0- Exit track mode； 　　T1：upload interval ，unit ：seconds ；value range 30-300 seconds； 　　T2： Track duration time ，Unit：minutes， value range 5-57600 minutes ；
Exit track mode	ZZ,0# or MODE,0#	
Note: Under track mode, GPS position is on priority, and acquire LBS and WIFI data each 30 seconds Device enters into power save mode if the device is in static status in 5 minutes, GPS is switched off, but it will keep communication with backend and upload data according to the preconfigured intervals Under track mode, if the SIM card is loosen, or network register failure or server failure, device will switch off communication and position 30 minutes , however if the removal alarm triggered, it will resume to normal mode GPS will wake up if vibration happens		

2.1.2 Warehouse mode

Configuration	SMS Command	
Set storage mode	STORAGE,T# For example: STORAGE,2880# indicates enter into storage mode, upload data each 2880 minutes	T：Upload interval Unit: Minutes Value range: 2880-43200minutes（2-30 days）
Exit storage mode	STORAGE,0#	
Note: Under warehouse mode, if light sensor triggered, device will exit warehouse mode Under warehouse mode, if other work mode has been set, device will exit warehouse mode Under warehouse mode, device can't be wake up by vibration		

2.1.3 Fixed upload mode (Recommended)

Configuration	SMS Command	
Set fixed upload mode	HX,T#或 MODE,0,T# For example HX,1440# or MODE,0,1440# indicates upload each 1400 minutes (24 hours)	T：Upload interval Unit: Minutes Value range: 5-43200minutes（2-30 days）
Exit storage mode	STORAGE,0#	
Note: Default setting is wake up each 1440 minutes Fixed upload mode can't be wake up by vibration		

2.1.4 Clock mode

Configuration	SMS Command	
Set clock mode	MODE, 4, N, T1, T2..TN# For example MODE,4,3,0800,1400,2100##	T1-TN is time point, format is HHMM, for example 0800 indicates 08:00
Delete clock mode and return to fix upload	WAKEUP,#	
Note: Time interval between each two clocks should be no less than 5 minutes Clock mode can't be wake up by vibration		

2.1.5 Week mode

Configuration	SMS Command	
Set week mode	MODE,3,T1,T2# For example MODE,3,246,09:00# indicates wake up at 9:00am at Tuesday, Thursday and Saturday	T1=1:Monday, T1=137 indicates Monday, Wednesday and Sunday T2 indicates wake up point , format is HH:MM
Note: Clock mode can't be wake up by vibration		

2.1.6 Motion and static mode

Configuration	SMS Command	
Set motion and static mode	MODE,6,T1,T2,A# or MS, T1,T2[,A]# For example: MODE,6,60,300,1# Indicates upload interval in motion status is 60 minutes, upload interval in static status is 300 minutes, motion alarm on	T1:Upload interval in motion status , value 5-43200 minutes T2: Upload interval in static status, value 5-43200 minutes or set clock mode, format (HH:MM) A:Motion Alarm on, 0:Motion Alarm off
Note: Device can't be wake up by vibration while in motion mode Device can be wake up by vibration while in static mode After wake up, there should be 3 seconds vibration in 6 seconds, device will turn on cellular module and upload position data, otherwise it would enter into sleep mode again and maintain the previous configuration parameters		

2.2 AGPS

When the device successfully registers on network, AGPS is available to speed up the position speed and improve the position accuracy

2.3 LBS

If device enters into the blind zone and GPS cannot be fixed, the device will switch to LBS position, LBS provides the reference location which might not be accurate

2.4 Wi-Fi

The device has built in Wi-Fi Chip, it automatically connects to the WIFI hotspot nearby and filter the hotspot info then select the WIFI hotspots with strongest signal, the device will pack those hotspots info and saved into the packet that will be uploaded, after the backend receives Wi-Fi information, it will interpret the WIFI info and acquire the current location from the Wi-Fi database, The default setting is WIFI priority, once it detects WIFI Hotspot, it will upload WIFI info only , and do not use GPS, if WIFI is not detected, it will use GPS to position.

Kindly reminder: To use Wi-Fi feature, please make sure your software supports Wi-Fi database

2.5 Blind data storage

When the device enter into blind zone when in sleep mode, it will store the trace data according to the preconfigured time interval and it will upload the data in the blind zone to the backend when the cellular network recovers

2.6 Temperature detection

The device built-in temperature sensor, it detects the temperature once the device is turned on, then will read it every 16 seconds. The temperature accuracy 95%.

2.7 OTA commands from backend

Since the wake up of the device is normally short before enter into sleep mode, it is hardly to receive SMS , to ensure the command sending efficiently, we suggest an OTA commands to be sent from the platform, when the device is online, the backend will automatic send this command, to make sure the commands is properly received.

2.8 Strong Magnetic and waterproof function

NT06EC is with built-in with super strong magnet that can firmly stick the device to the metal surface, it is easy to install and conceal, and the device is with waterproof function, which can be installed on any assets that are outdoors

2.9 Tamper alarm

There is a high sensitive light sensor at the bottom, if the device is tampered, either the device is working or in sleep mode, it will be activated and enter into anti-removal status and switch on anti-removal alarm, and report the alarm info to the backend or preset phone number.

PART 03   NT06E Setup

3.1【Setup and debugging 】

3.1.1 SIM card installation

Unscrew the top cover of the device, insert the prepared SIM card into the SIM card holder, and then confirm that the SIM card button is well placed . Please make sure that the SIM card has data service available in advance and write down the SIM card number.

3.1.2 Main unit power on

After installing the SIM card, turn the battery switch to the ON position. When the red light starts to blink, indicating that the device is powered on.

3.1.3 Major parameter setting by SMS or SSCOM tool

SMS list:

APN,apn,user,pwd#	Set APN, User name and password For example: APN,CMNET,internet,internet# APN:CMNET Username: internet Password: internet APN,CMNET# APN:CMNET User name: Null Password:Null
IP and port	Set IP, port and communication type of primary server , For example: IP,119.23.233.52,6000,1# Set the primary server IP:119.23.233.52，port 6000，communication type:TCP IP,www.365qczx.com,6000,0# Set the primary server domain:www.365qczx.com， Port 6000，communication type UDP
HX,<T>#	Sleep mode return interval, default 1440 minutes, that is, 24 hours t: wake-up time, unit: minutes range: 5-43 200 minutes for example: hx,120#
ZZ,A,[,T1,T2]#	Track mode A: A=1,Enter track mode A=0 Exit track mode T1: upload interval in track mode，unit：seconds Range：5-300 seconds T2:The continue track time in track mode，Unit： Minutes Range ：5-57600 minutes
WAKEUP,T1[,T2[,T3[,T4]]]#	Latency mode sets a multipoint return parameter, up to four points in time T1…T4: A point in time, such as 0830 for 08:30 in the morning
FALL,A#	A=3 Switch on removal alarm, do not track, defalut value A=2 Switch on removal alarm, track 15 mins, 300 seconds once A=1 Switch off removal alarm A=0 Swtich on removal alarm, track 60 minutes, 60 seconds once
UTC,TTTT#	Set time zone, unit minute ,default UTC+8:00
STORAGE,T#	Storage mode return interval, default is 0, that is, turn off t: wake-up time, unit: minute value range: 2880-43200 minutes for example: storage,10080
MS,m,s#	Motion static detection mode, m: return interval during motion, default 60 minutes, value range 5-43 200 minutes s: static return interval, default 720 minutes, value range 5 43 200 minutes For example: ms,120,1440—return interval during motion is 120 minutes and static return interval is minutes.
*11*4#	Query communication status of the device
*22*1#	Device resume to factory setting
*22*4#	Restart the device
*77*0 number#	Set center number 1
*77*2 number#	2 Set number 2

SSCOM configuration:

Please contact Kingwo team for configuration tools and documents.

Mounting recommendations

It is better to put this side up not down when install the device

◆ The bottom of the tracker is fitted with a powerful magnet, you can put the tracker directly on a magnetic surface.

◆ Please do not put tracker in the metal environment which will affect the GPS signal.

Safety Information

◆ Don't dissemble the device by yourself

◆ Avoid strong humidity, direct sunlight, and high temperature

◆ Don't use on airplane

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FCC Caution：

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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.
-To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.