HOLUX
長天科技股份有限公司

Tracker-007

GPS Tracking System

User's Manual

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Revision History

Revision	Date	Author	Description
0.01	2008/12/01	Robert Lee	Draft
0.02	2009/10/23	Jeffrey Huang	Update info
0.03	2010/6/22	Felix Lien	Update info

Acronym

EPO	Extended Prediction Orbit, predicted ephemeris data specific for MTK chip solution.
MDS	Main Data Server, device will send position information to server through HTTP message
MTK	Mediatek Inc.
SMS	Short Message Service
TTFF	Time to First Fix

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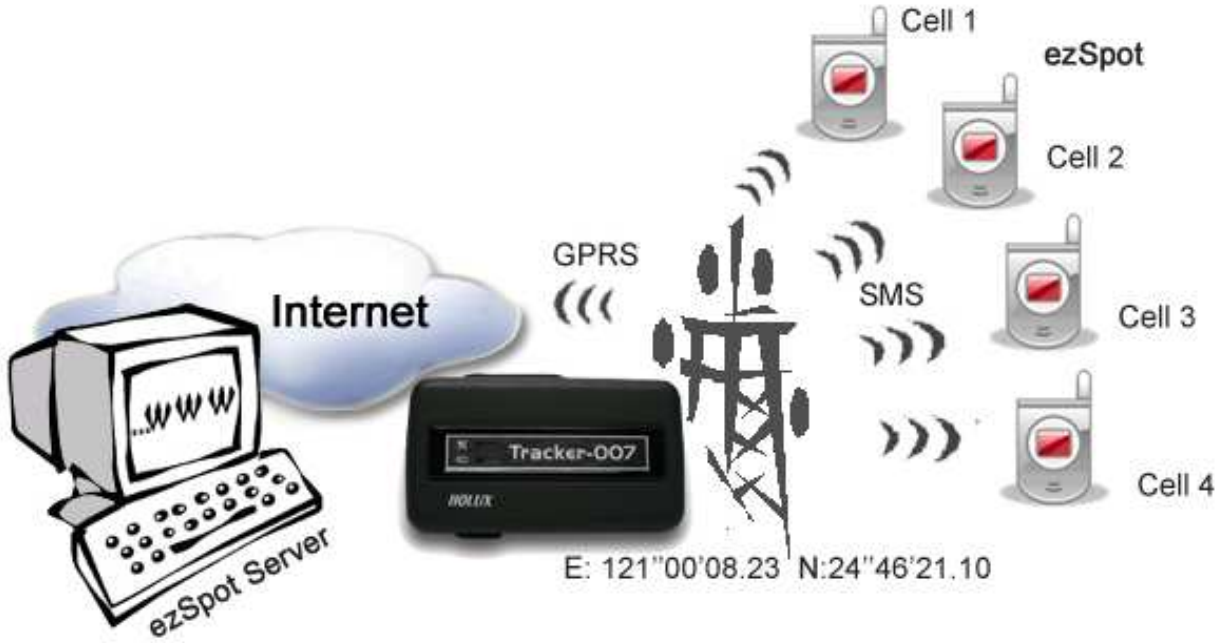
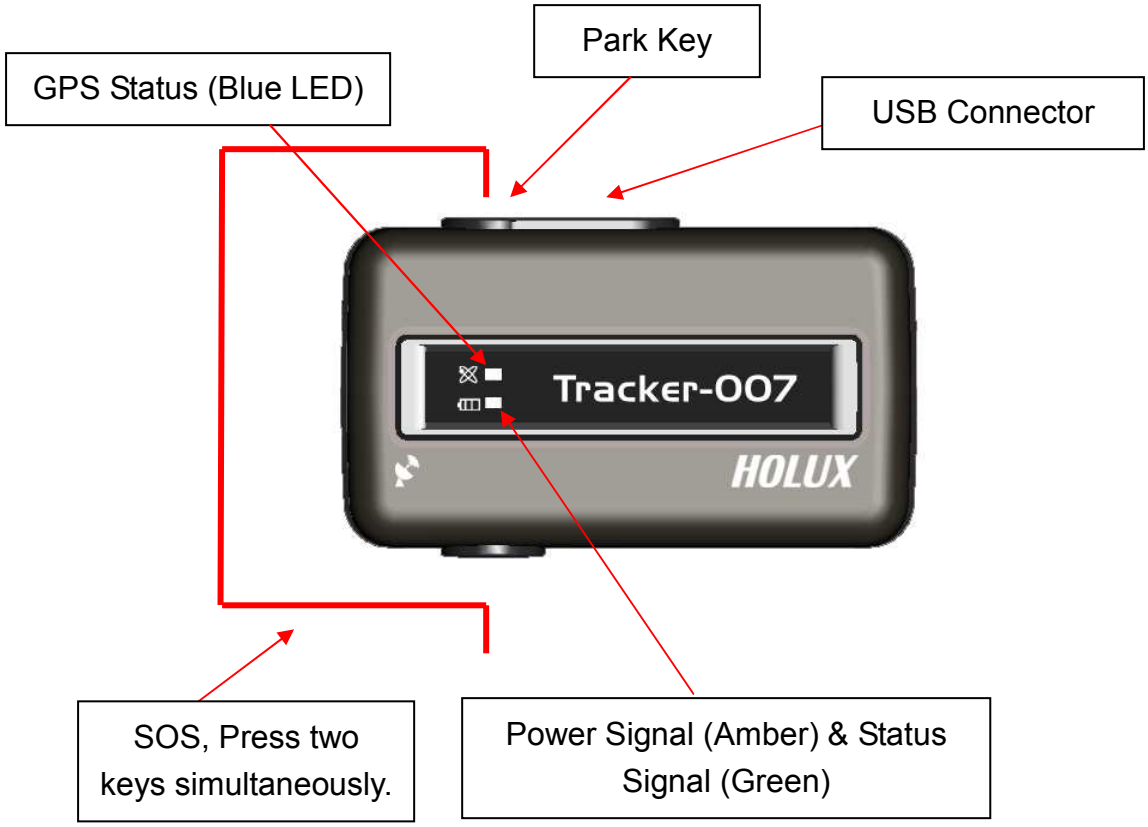
1. INTRODUCTION

Tracker-007 is a multi-functional tracker. Combining with GPRS and high performance GPS, the device can be used to track and report device's position and status to mobile phone through SMS or Main Data Server (MDS) through HTTP. The operation modes include continuous tracking and position lock (park). SOS buttons can be used to send emergency call. All configurations can be set through SMS or USB interface. The wireless communication includes UDP, TCP/IP, HTTP and SMS. With MTK EPO, it can get shorter TTFF at distressed environment.



1.1 Parts names and Functions



2. BEFORE YOU GETTING STARTED

2.1 Possible Additional Fee

- Position request and position response sent by SMS will be charged.
- Each zoom operation will be charged according to data quantity transferred.

2.2 About GPS

- GPS signals are incapable of penetrating solid objects that are non-transparent. The signals will be also affected by surface cover such as tall buildings, tunnels, elevated expressways, forests etc., or weather conditions such as overcast and rain. If the vehicle is poorly insulated against heat and contains metal parts, GPS signals will not be able to penetrate.
- All wireless communication devices such as cell phones, or traffic police speed detectors can interfere with the reception of GPS signals and results in unstable signals.
- To get position fix successfully, please hold the Holux logo up for better signal orientation.
- There is no guaranty that SOS message will be successfully sent at distressed environment where GPS or GSM signals are weak.

2.3 About Power

- Though this device is USB compliant and can be bus powered, it is NOT recommended to charge the device though your computer via USB connection. The manufacturer disclaims any liabilities for damage to the handset or personal PC caused by any improper use.
- It takes 5 ~ 120 seconds for the device to be completely powered off. If the device is in the process of acquiring position fix or position report, the power-offing will not be performed until the previous process is complete.
- Tracker-007 cannot be powered on if battery voltage is below 3.5 volts.

2.4 About SIM PIN Code & GPRS

Notice: SIM PIN should be unlocked before being inserted into the device. SIM PIN can be disabled through ordinary mobile phone.

- SIM card GPRS function enabled is required for normal operation.
- The default PIN code in device is 0000. If SIM lock is enabled and password is incorrect, power on/off device three times will make the SIM card locked permanently. Only PUK code can unlock the SIM in such case. If SIM PIN is enabled, make sure the PIN code is set to device by TrackerConfig. The PIN code

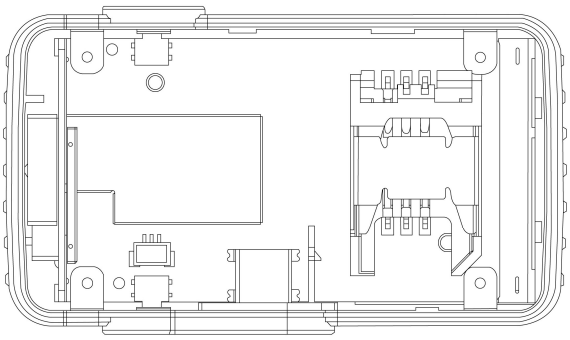
set will be saved in non-volatile memory.

- If the SIM card is not inserted or SIM card is invalid, position fix function will be disabled.
- Google map installed in your cell phone will be downloaded by GPRS automatically when ezSpot is well installed.

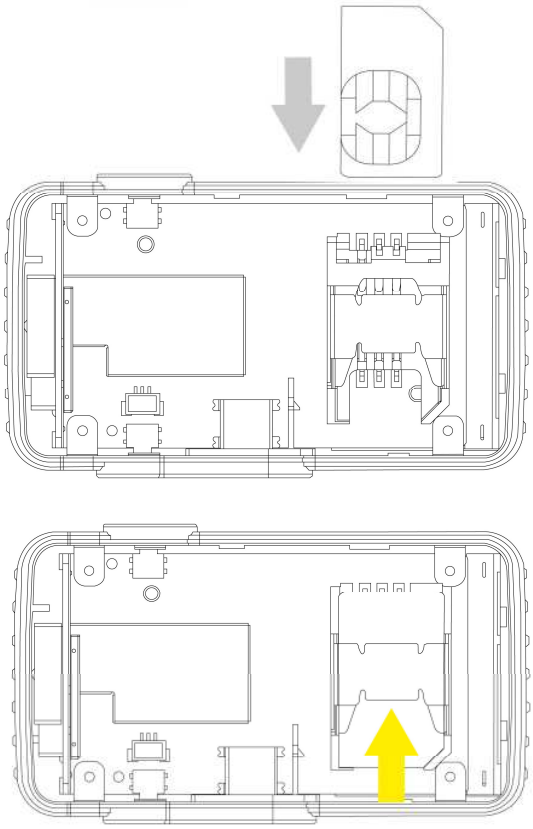
2.5 Download Documents, Driver and Utility

All related documents, driver and utility programs can be downloaded from the ezSpot server at http://ezspot.holux.com/Holux.

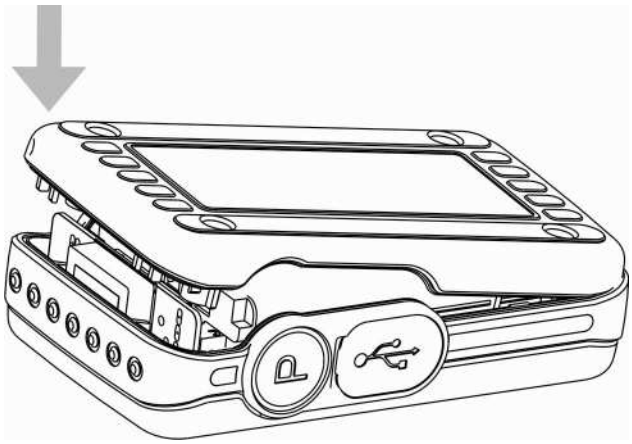
3. Installing SIM Card



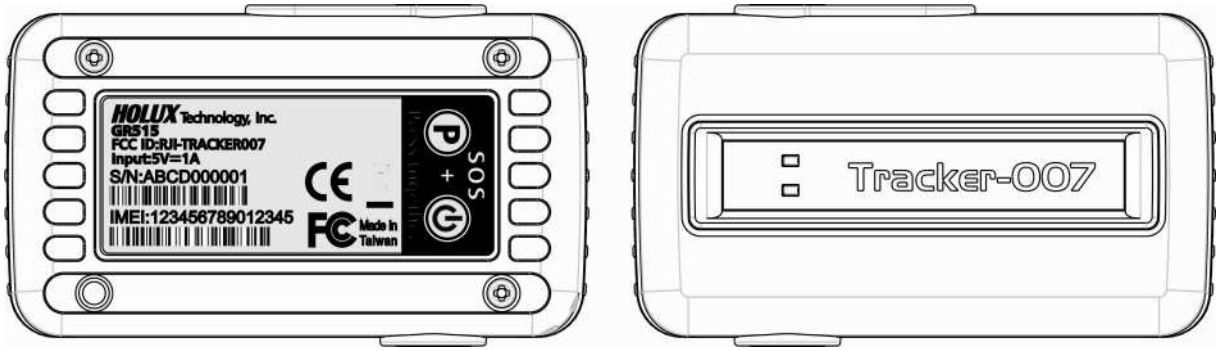
- Slide the SIM card into SIM socket and lock the SIM socket.



- Restore the bottom cover.



- The final assembly of **Tracker-007**. Secure the case by fastening the screws and inserting cap for water proof.



- Make sure that battery is fully charged before using this device.

3. CONFIGURING HOLUX TRACKER

Holux provides a way (TrackerUser.exe) for end users to configure their tracker. Users can easily modify some of the simple settings for their devices, however if users want to modify some settings which are provided by this utility, please contact you distributor for help.

The TrackerUser.exe is the user utility which enables users to fast configure Holux trackers. In this chapter, you will be guided through the process to set the phone numbers to receive tracking report, tracking interval, reporting interval, and editing messages. Periodical tracking mode can be enabled to make device getting position fix and report to server at preset interval.

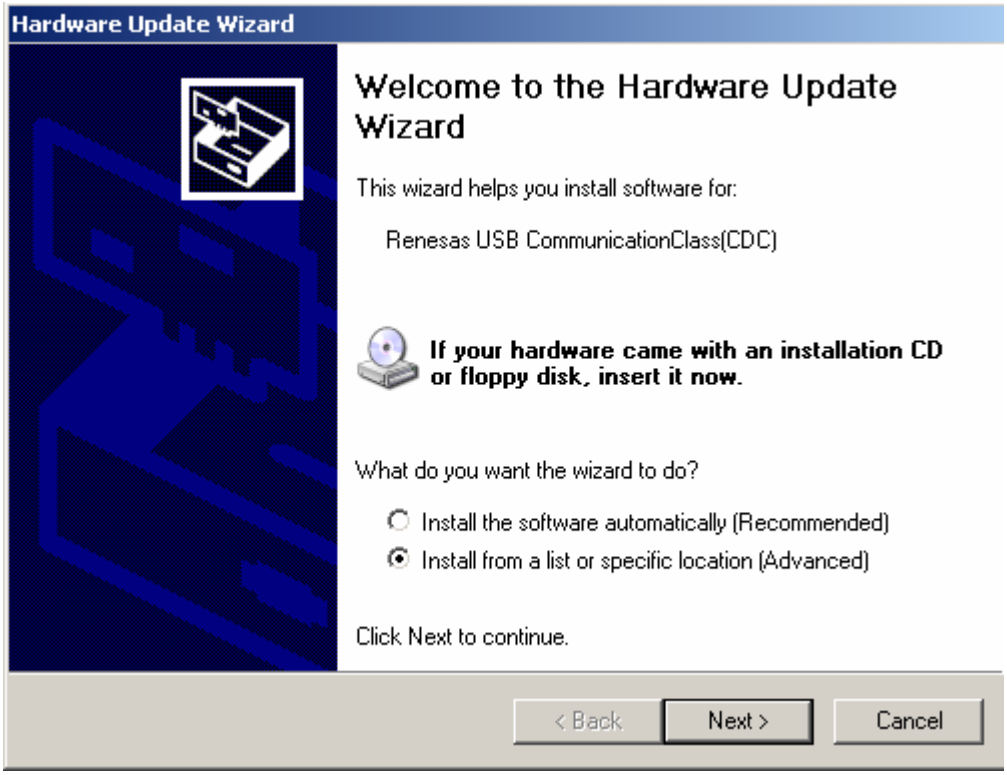
Tracker007 allows users receive location data by mobile phone, which means users must get a set of Google key to setup the tracker. Please refer to Chapter 3.5 for the steps.

Please note this utility supports only Windows OS. Linux or Mac OS are not supported at this point.

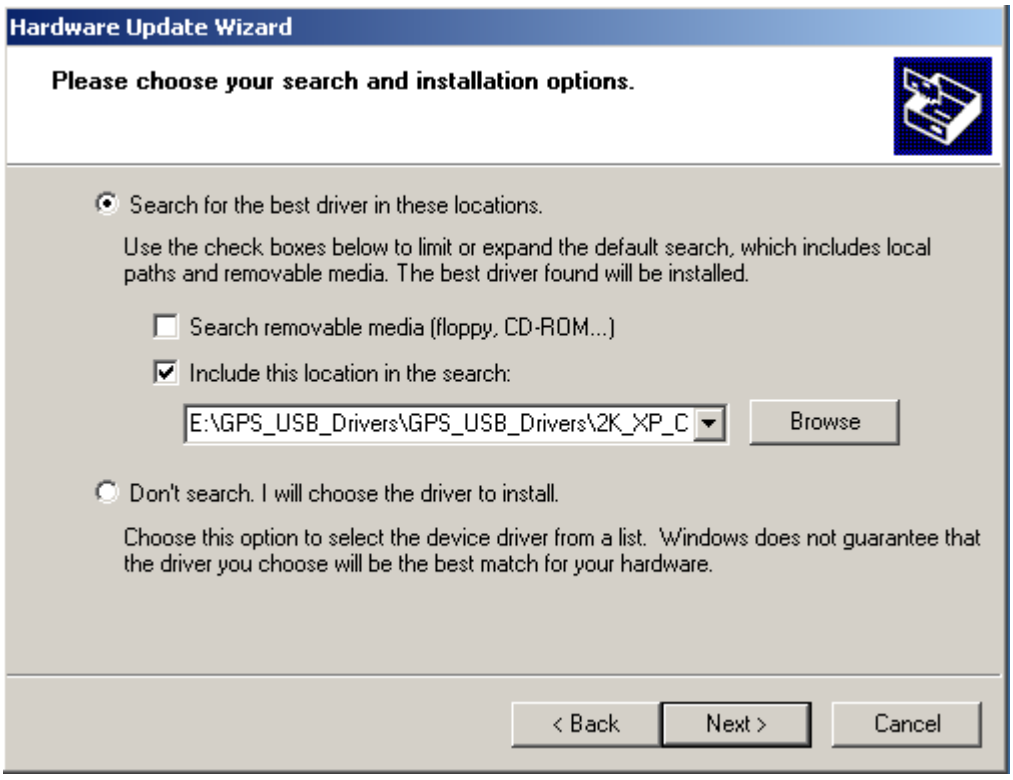
Note: Make sure the tracker is powered on prior to it is plugged into your computer for configuration. Then use the included USB cable to connect the tracker with your computer to configure the tracker.

3.1 Installing Device Driver for Virtual Comm Port

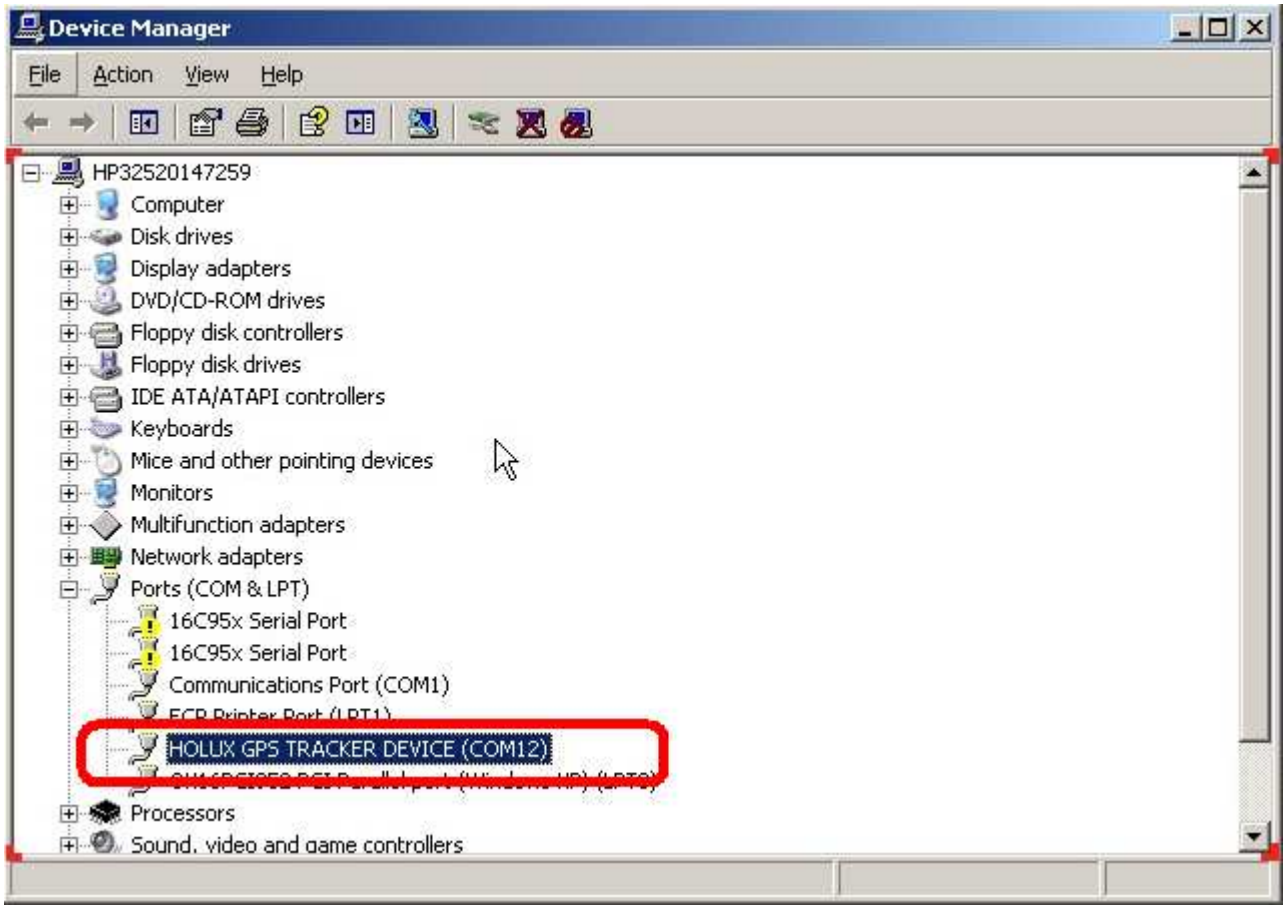
Plug in 5-pin mini-USB cable. When connecting the device first time, OS will request to install the virtual COMM port driver.



Please choose Win2XMcom.inf for Windows XP and Win2XMcom.inf for Windows Vista.

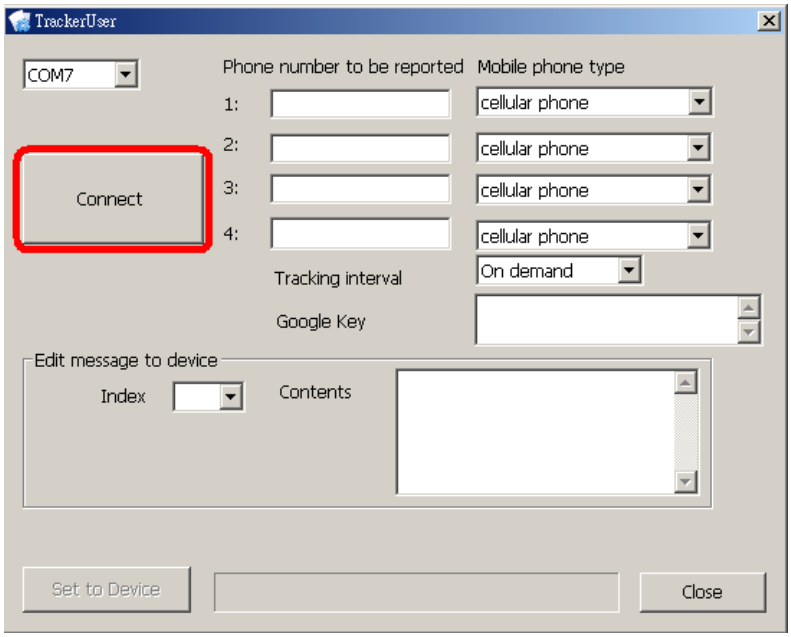


A new MODEM device in device manager will appear after installation. Check Comm port number from Modem page.


Device Manager
File
Action
View
Help
HP32520147259
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Multifunction adapters
Network adapters
Ports (COM & LPT)
16C95x Serial Port
16C95x Serial Port
Communications Port (COM1)
HOLUX GPS TRACKER DEVICE (COM12)
Processors
Sound, video and game controllers

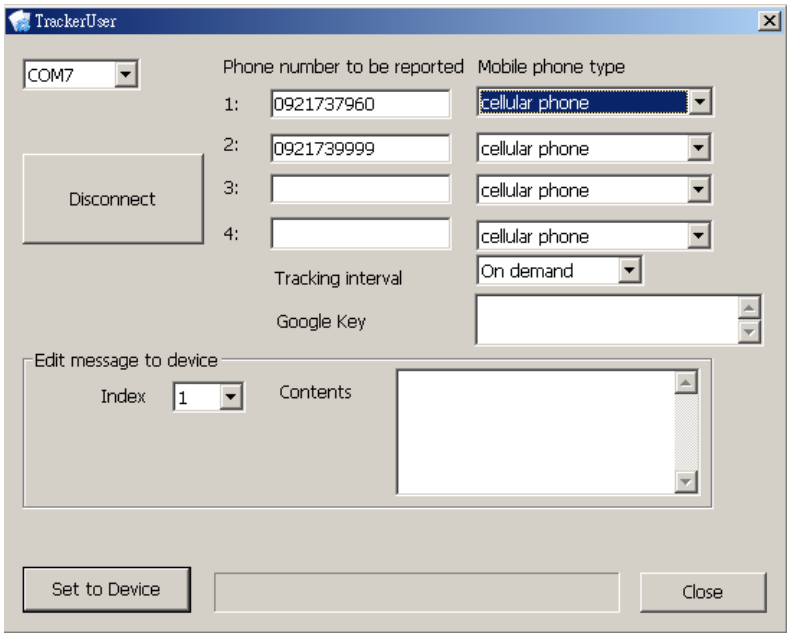
3.2 Starting Configuration

1. Open the tool CD and run *TrackerUser.exe*
2. The following screen appears.
3. Select “**Connect**”.



3.3 Setting Mobile Phone Numbers

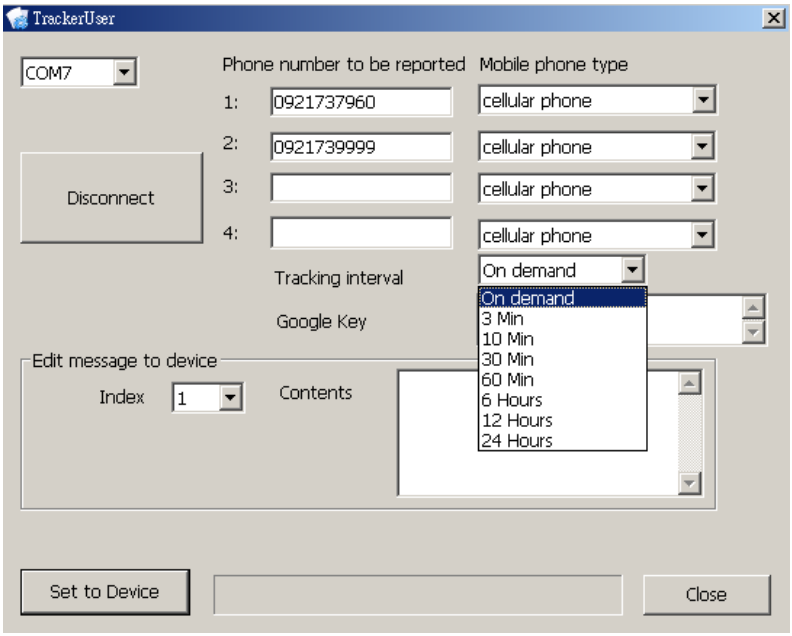
- Enter the mobile phone numbers for the tracker to report its position to via short messages. Users can configure four sets (number 1 to 4) of caller mobile phone numbers. Only do the numbers set in the list receive returning message. If the phone number is left blank, the tracker will not return any message to any caller.
- Users need to specify the phone type in terms of OS for the mobile phone. Click the down arrow ▼ in the setting to select. “Windows Mobile” means Windows-like phone (i.e. PDA); “Cellular Phone” means non-Windows GSM/GPRS phone.



Once the configuration is completed, you can click “**Set to Device**” to save the configuration to your tracker or you can proceed to next section to set the tracking/reporting interval and edit messages.

3.4 Setting Tracking Intervals

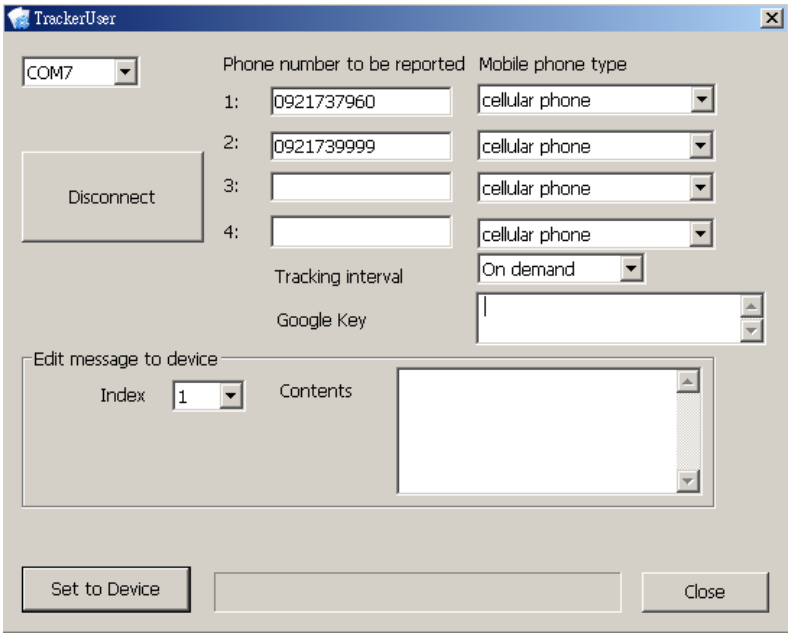
- User can set the tracking interval to determine the time interval for the tracker to receive GPS signal. The default tracking interval is “on demand”, which means the tracker will refresh its position only when users turn on GPS to request positioning.
- There are 3min、10min、30min、1 hour、6 hour、12 hour and 24 hour for selection to set the tracking interval.



3.5 Setting Google key

User must set Google key to device for granting map from Google map service. This key may not be free according to Google's rule. Holux does not guarantee the users can use this tool without valid Google key and Holux does not intend to provide such key.

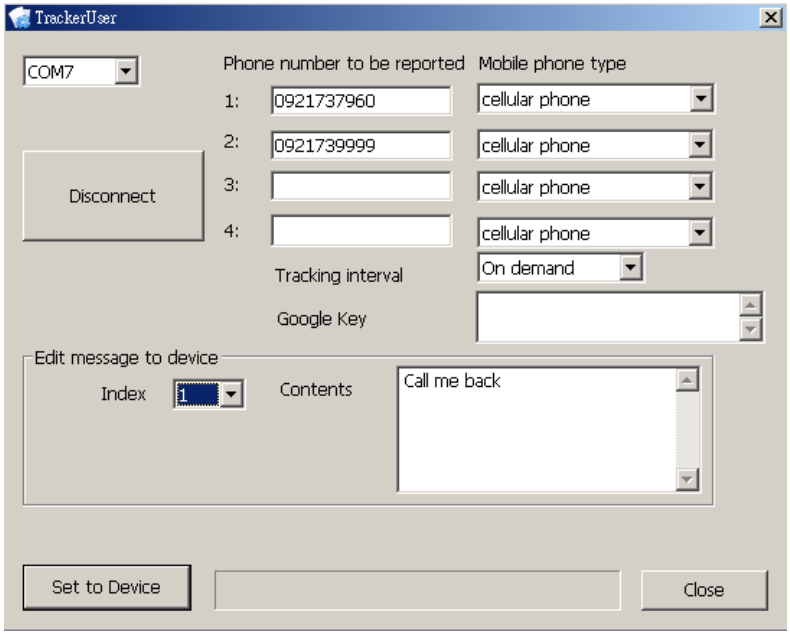
- First you must have an URL; you can use your blog URL or others URL.
- You must have Google account, if you do not have any account, you can go to https://www.google.com/accounts/.
- Go to http://code.google.com/apis/maps/ and click "Google Maps API Sign Up". Then key in your URL and click "Generate API Key" to get key.
- Copy the key and paste to TrackerUser.



Once the configuration is completed, you can click "**Set to Device**" to save the configuration to your tracker. Or you can proceed to next section to edit messages.

3.6 Editing Messages

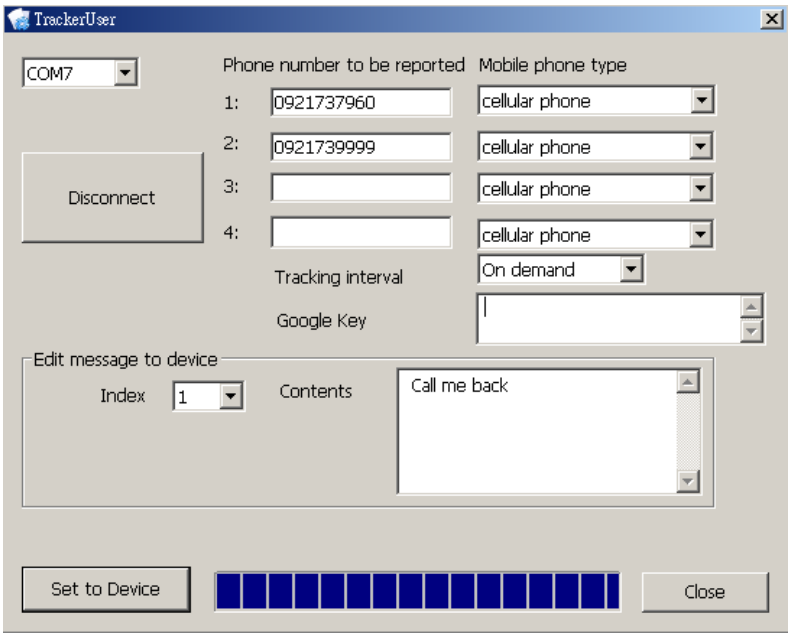
Users can edit 10 outgoing messages and save them in the tracker. Outgoing messages can be sent to the mobile phone preset in the tracker. Outgoing messages will be listed according to their corresponding index numbers at left column.



3.7 Save and Exit

Once the configuration is completed, click “**Set to Device**” to save the configuration to your tracker.

Click “**Close**” to exit this dialogue.



4. BASIC OPERATION

4.1 Turn on Tracker

Press the power key for more than 2 seconds to turn on the device. Green LED will flash every 4 seconds during the process. The device will try to attach during power on stage. It will take about 60 seconds to complete.

4.2 Turn off Tracker

Press the power key for 2 seconds to turn off the device.

4.3 Position Lock (Park)

- Pressing park key for more than 2 seconds will activate the park mode. Green LED will blink every 2 seconds in park mode.
- Blue LED blinks every 2 seconds when device is getting a position fix.
- G-sensor is activated in 3 minutes after pressing park key.
- Tracker will wakeup to get a GPS fixed and send alarm when detect G-force.
- Tracker will use the first successful position fix as park center.
- Pressing park key again will release the park mode and Tracker will be back to the previous operation mode.
- Pressing two keys simultaneously in park mode will change device into SOS mode. Park mode will be stopped.

4.4 Emergency Report (SOS)

- Pressing two keys simultaneously for more than 2 seconds will activate SOS mode. Device will try to get a fix immediately and send SOS signal through SMS or HTTP.
- Red LED will flash six times within 3 seconds. Then all LED's will be OFF.
- Pressing two keys simultaneously again, device will send SOS event again. (Repeat step 1~2)
- If position fix fails, device will send the latest valid position.
- Device will send SOS SMS three times per 5 minutes then SOS mode will be unlocked.
- Power off function is non-functional during SOS mode. SOS function can be disabled by server unlock command or by pressing park key 3 times in 5 seconds. Device will be back to the previous operation mode after SOS mode being unlocked.
- SOS mode has the highest priority comparing with other functions (Periodic Tracking and Park Mode).

4.5 LED Indication

Item	LED	LED icon /color	Status	Indication
1	Power	Amber	Blinks every 4 seconds	Battery is low
2	Power	Amber	Glows steadily	Battery is recharging
3	Power	Green	Glows steadily	Battery is full
4	Power	Green	Blinks every 4 seconds	Device is functioning normally
5	Power	Green	Blink every 0.5 second	Device is powering off when battery is normal
6	Power	Amber	Blink every 0.5 second	Device is powering off when battery is low
7	GPRS	Green	Blink 2 times rapidly every 2 seconds	GSM function fails or SIM card is invalid when power is normal.
8	GPRS	Amber	Blink 2 times rapidly every 2 seconds	GSM function fails or SIM card is invalid when power is low.
9	GPS	Blue	Blinks every 2 seconds	Acquisition in process
10	GPS	Blue	Blinks every 4 seconds	Acquisition fails in the last try
11	GPS	Blue	Turns off	Acquisition succeed and position is fixed in the last try
12	Status	Amber	Blinks 6 times in 3 seconds. All LED turn off.	SOS mode is activated
13	Status	Green	Blinks every 2 seconds	Park mode is activated
14	Status	Amber	Blinks every 2 seconds	Park mode and battery is low

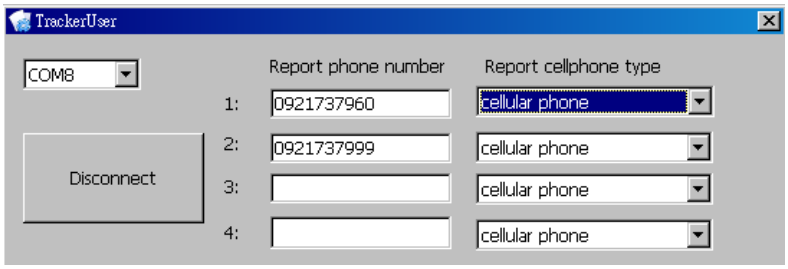
4.6 How to Track

The Holux tracker can send its position (latitude and longitude data) to the mobile phones preset in the tracker via SMS (Short Message Service). Mobile phones requesting position get messages and read them to know the position of the device.

4.6.1 Requirements

Before you start tracking, make sure:

1. Mobile phone numbers to receive tracking report have been ***pre-set*** into the tracker through the user utility TrackerUser. Please refer to the previous section titled "Configuring Holux Tracker" for details;



2. the mobile phone numbers to receive tracking report is ***internet connected***; you will not be able to download Google map for tracking if your mobile phone has no internet connection;

4.6.2 Viewing Map on Mobile Phone

The position sent by SMS format to mobile phones preset for tracking the device can be read either in text or map format. The mobile phones requesting position of the tracker will automatically download Google map if it is internet connected. Users can view Google map to know the tracker's position directly.

If users choose to use the internet connection to view the tracker's position, they simply open the tracker's message and connect the web link within. Google map will be downloaded automatically.

Those mobile phone numbers preset in the tracker to request the tracker's position can either acquire position on a regular time interval or by on-demand requests.

Tracking by On-Demand Requests

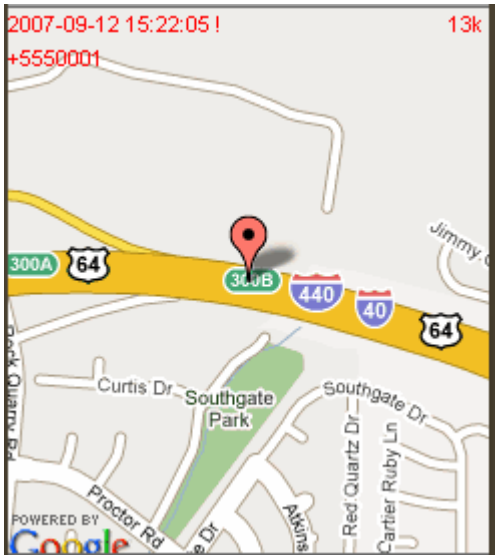
If the tracking interval is set to "**On demand**", it means the tracker's position can be acquired by active request from the pre-set mobile phones. The link with the position will be reported. If you do not have any Google Map Key, please contact your dealer.

Tracking at Regular Time Interval

If the tracking interval was set to acquire the tracker's position on a regular time interval in advanced, it means the tracker's position will be automatically and periodically sent to those pre-set mobile phones in SMS way. The mobile phones requesting position need to open the messages received from the tracker to know the tracker's position. Google map will automatically open and the tracker's position will be displayed if the Internet connection is good.

4.7 Start Tracking – Request Position

1. Tracker will start position fix if calling phone number has been pre-set in the configuration.
2. Tracker will report the current position if position fix succeeds.
3. Tracker will report the latest position if position fix fails.



Appendix A. Specifications

Physical Characteristics

5-pin Mini-USB connector with USB virtual COM port
Dimensions: 76 x 42.5 x 20 mm
Weight: 69 g
Keys: power and park key
Operation temperature: -10 °C ~ 55 °C
Storage temperature: -20 °C ~ 70 °C
Operatiing humidity 5 ~ 90 %
Waterproof: IPX6

System

Renesas 32-bit RISC CPU
Memory: 8 Mbytes NOR and 4 Mbytes SRAM
Location log: 24,000 records.
Build in G-sensor

GPRS Protocol

GPRS multi-slot class 8 (optional)
GPRS multi-slot class 10 (default)
GPRS mobile station class B

GSM Antenna

Dual band antenna: 900MHz & 1800MHz or 850MHz & 1900MHz

Certification

FCC
CE
NCC

GSM module

SIMCOM SIM340DZ GSM module
SIM socket: 1.8, 3.0 V

GPS

Chipset: MTK MT3329
15 x 15 x 4 mm patch antenna

Power Consumption

Battery: Li-Ion Battery, 800 mAh
Standby time 110 hours.
Park mode with position fix at 5 minutes interval: 50 hours; Periodic tracking with position fix at 15 minutes interval: 70 hours.

FCC Regulations

- 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.

- This device 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 radiated 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.

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

- This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation. This device is a multi-functional tracker by putting on the moving object. For RF exposure safety, the user is not allowed to put this device in the pocket.

CE

Declaration of Conformity

The following products is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to R&TTE Directive (1999/5/EC) that include the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC). The listed standard as below were applied:

The following Equipment:

Product	:	Tracker007
Trade name	:	***HOLUX***
Model Number	:	GR515

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to R&TTE Directive (1999/5/EC) that include the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC), the following standards were applied:

1999/5/EC:

ETSI EN301511 V9.0.2 :
ETSI EN300440-2 V1.1.2
ETSI EN301489-1 V1.6.1 /-7 V1.3.1 /-24 V1.3.1 :
ETSI EN60950-1 (2001) :

:

The following importer/manufacturer is responsible for this declaration:

Company Name : **HOLUX Technology, Inc**

Company Address : **No,1-1,Innovation Road I, Science-Based Industrial Park, Hsinchu 300, Taiwan, R.O.C**

Telephone : 886-3-6687000 Facsimile : 886-3-6687111

Person is responsible for marking this declaration:

Philip Yu	Vice President
Name (Full Name)	Position/ Title
September-04-2008	
Date	Legal Signature