747ProS GPS Trip Recorder

User's Manual

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Table of Contents

Chapter 1 Before you begin

1.1 Note and Warning

- 747ProS uses + Lithium-Ion battery. If 747ProS is used in temperature lower than -10 C° or higher than 60C°, its battery charging capability will decrease. Please leave the 747ProS far from heat or high temperature environment. In addition, do not expose your 747ProS in temperature higher than 140 F°/60C°. If you do not follow these rules, the battery inside 747ProS may overheat, explode or burn itself, and this will lead to very serious damage. The + Lithium-Ion battery inside the 747ProS should be recycled.
- For a long period not using 747ProS, take out the battery and store it in dry/cool places.
- For safety, keep the 747ProS and all accessories out of children's reach.
- The manufacturer assumes no responsibility for any damages and loss resulting from the use of this manual, or from deletion of data as a result of malfunction, dead battery, or from misuse of the product in any way.
- Use only the supplied and approved accessories. Unauthorized accessories, modifications or attachments could damage the 747ProS, and may violate regulations governing radio devices.
- Use a dry, clean soft cloth to clean the unit. Do not use harsh cleaning solvents, chemicals, or strong detergents.
- Do not attempt to open the 747ProS yourself. Unauthorized hacking may damage the unit, and void your warranty.

1.2 Introduction

747ProS is a powerful GPS Datalogger comes with the latest MTK chipset to work under most of circumstance. 747ProS allows you to log your route by setting the interval of time/ distance/ speed and intelligent auto gear function and motion sensor for smart logging(smart mode) to save memory and power.747ProS also implement with special power circuit design to start logging when car start and protect the electric serge from car power (Car mode). Easy to use and through user friendly utility, it can display the tracks on Google Earth/Map.

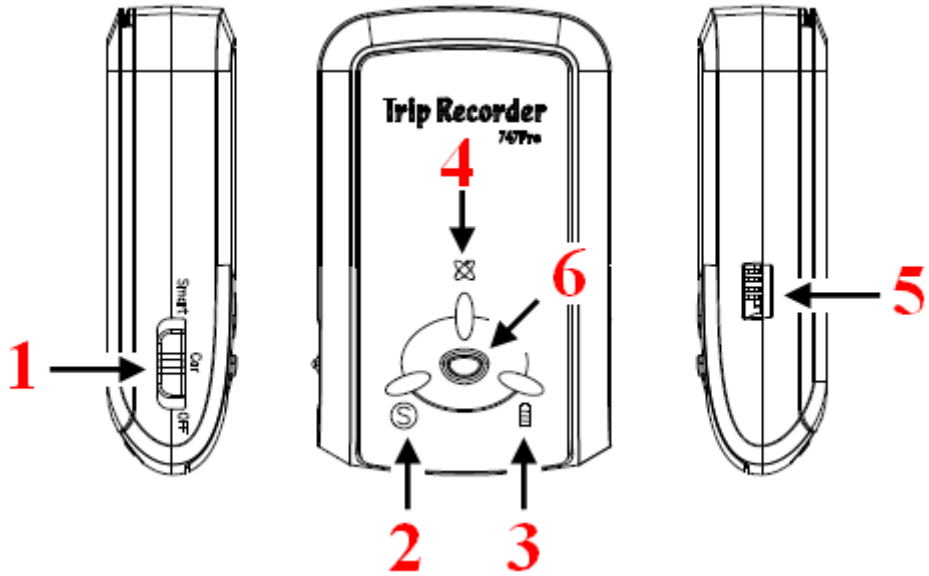
1.3 Features

1. Built-in MTK II GPS
2. Push button for POI recording
3. Log up to 250,000 waypoints
4. High receiving sensitivity
5. AGPS available
6. Embedded sensor for smart operation
7. Audio alarm
8. Rechargeable battery
9. Photo Tagger software

1.4 Applications

- Record your travels
- Manage trip expense
- Represent one's driving behavior
- Geo-photo support

1.5 Appearance



1. Slide switch (Power off/ Car mode/ Smart Log mode)
2. Smart Log LED
3. Battery status LED (red/green)
4. GPS LED (red/green)
5. DC jack (mini USB type)
6. POI button

1.6 Power Switch and Push Button

Power Switch	
Right (Off)	Power off
Middle (Car mode)	When the external power source was connected to 747ProS, it will be wake up and start logging. In contrast, if 747ProS no any external power supply, it will forever go into power saving mode.
Left (Smart LOG)	Log time interval will be changed according to the speed detected by the Device. Speed for each time interval can be programmed by the provided software.
Push button	
Push	Push button to record POI (Points of Interest), LED will blink 3 times which means the POI is recorded.

1.7 Appearance & LED indication

The 747ProS GPS Trip Recorder has three LED lights, one is Smart Log LED, the 2nd one is Battery Status LED, the 3rd one is GPS Status LED/ Push to log LED. The status table of LED shows as follows:

1. Motion sensor LED		Blue - Always OFF = Motion sensor OFF
		Blue - Blink every 2 seconds = logging, Motion sensor ON
		Blue - Blink every 5 seconds = power saving mode
2. Battery status LED		Green - always ON = Charging
		Green - OFF = Fully charged
		Red - always ON = Low battery
3. GPS & Memory status LED		Orange - always ON = Not Fix and searching for satellite
		Orange - Blink every 2 seconds=GPS fix and logging (smart mode)
		Orange - Blink every 1 second=GPS fix and logging (car mode)
		Orange - OFF = Power saving mode or power off
		Red - always ON = memory full
		Red - Blink every 2 seconds= 80% memory occupied
		Red - Quick blink 3 times = POI recorded

1.8 Buzzer Alarm

747ProS is equipped with a buzzer and it supports the alarm by sound. 747ProS will beep as an alarm to let you know when the GPS position is fixed, or when you push the POI button or switch to change to car / smart log mode.

<table>
<tr><td rowspan="6">Built-in buzzer</td><td colspan="2">Default is “ON” for both smart mode and car mode.</td></tr>
<tr><td>Mode change</td><td>Quick beep 1 time (can nit be turned off)</td></tr>
<tr><td>POI recorded</td><td>Quick beep 3 times</td></tr>
<tr><td>GPS Fix</td><td>Quick beep 2 times.</td></tr>
<tr><td colspan="2">Buzzer function for POI record and GPS fix can be turned on/off by pressing the POI button for 4 seconds or provided software.</td></tr>
<tr><td>Turn on/off buzzer</td><td>long beep 2 times</td></tr>
</table>

1.9 Motion sensor for Smart Log

For automatically start/stop logging and smart power management and waypoint saving. 747ProS will enter power saving mode when it is static for 2 minutes and recover when motion is detected. (This function is turned on as default at smart mode and turned off as default at car mode and can be turned off/on by pressing the POI button for 8 seconds or provided software)

Chapter 2 Getting Started

2.1 Checking the package content

Congratulations on your purchase of the 747ProS with + Lithium-Ion chargeable battery. Before you start using 747ProS, please make sure if your package includes the following items. If any item is damaged or missing, please contact your dealer at once.

- 747ProS GPS Trip Recorder x 1
- USB to mini-USB cable x 1
- DC cigarette lighter adapter x 1
- + Lithium-Ion chargeable battery x 1
- CD Tool x 1 (user manual, software utility, driver)
- Quick start guide x 1

*. Unit package contents may vary depending on countries without prior notice.

*. NOTE: The Cigarette Adapter can only be used to charge 747ProS. Please don't make use of it with devices other than 747ProS.

2.2 Getting Started

Please follow the procedure step by step.

Charging Your Battery

To charge your 747ProS, you have to plug your USB cable into the power source. Charging time is about 3~4 hours and you can charge from PC/ Notebook's USB HOST or from cigarette-lighter in car.

For the 1st time you use the 747ProS, please charge battery until it is full. The LED that represents the battery is the right-most battery icon.

- If the LED is red, that means battery power is critically low. Charge immediately.
- If the LED is green, that means battery is charging now.
- If no LED light display that means battery is fully charged.

2.3 Helpful Tips

- It’s better to turn off the 747ProS when you don’t use it, or the serial Flash's life can’t last long.
- Some vehicles having heavy metallic sun protecting coating on windshields may affect GPS signal receptions
- Driving in and around high buildings may affect GPS signal receptions.
- Driving in tunnels or indoor park may affect signal receptions.
- In general, any GPS receiver performs best in open space where it can see clean sky. Also weather will affect GPS reception – rain & snow contribute to worse sensitivity.
- 747ProS output data updates every second, therefore the actual position and the position shown in your map may have slight time delay. This may happen when you drive at higher speed or make a turn around a corner.
- Note that 747ProS may not work indoors where it can not see the sky.
- For the 1st time you use the 747ProS, it will take 1 to 3 minutes to obtain the satellite constellation information and fix your position, this is called “Cold Start”. If you replace the battery, 747ProS will do Cold Start again.
- If your 747ProS can’t fix your position for more than 20 minutes, we suggest you change to another spot with open space and then try again.

Chapter 3 How to configure your GPS Record?

The GpsView program only supports the Microsoft Windows based platform.

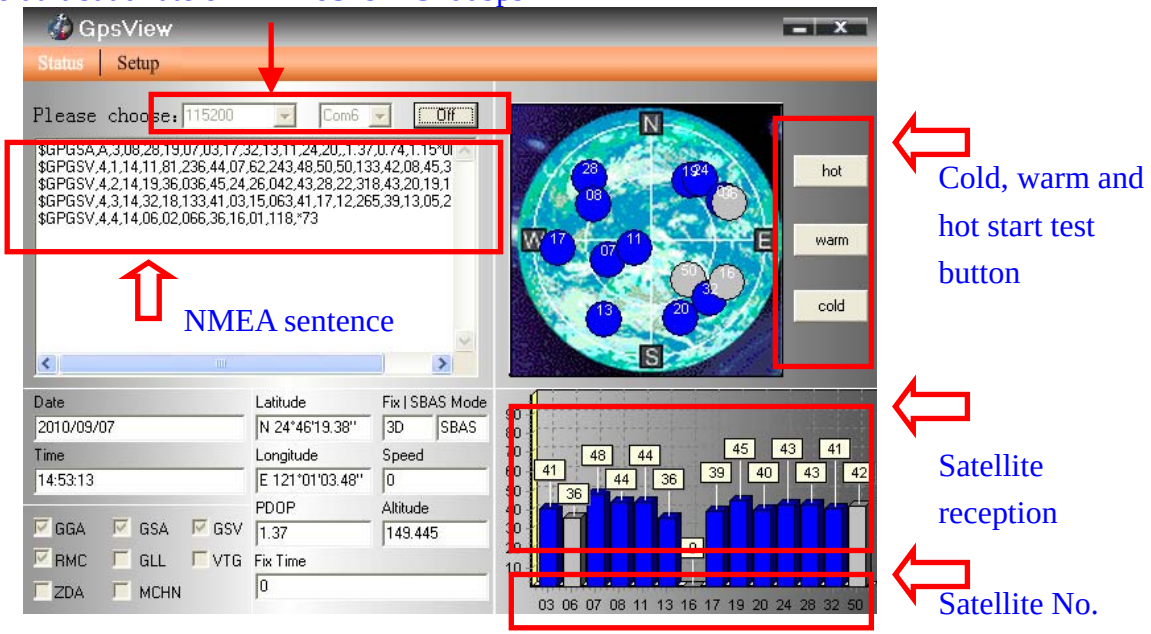
3.1 Driver Installation

Before the USB connector plugs in your PC/ Laptop, please have your USB Driver Installation ready. (Install InstallDriver.exe driver for USB port from CD-ROM.)

3.2 GpsView software

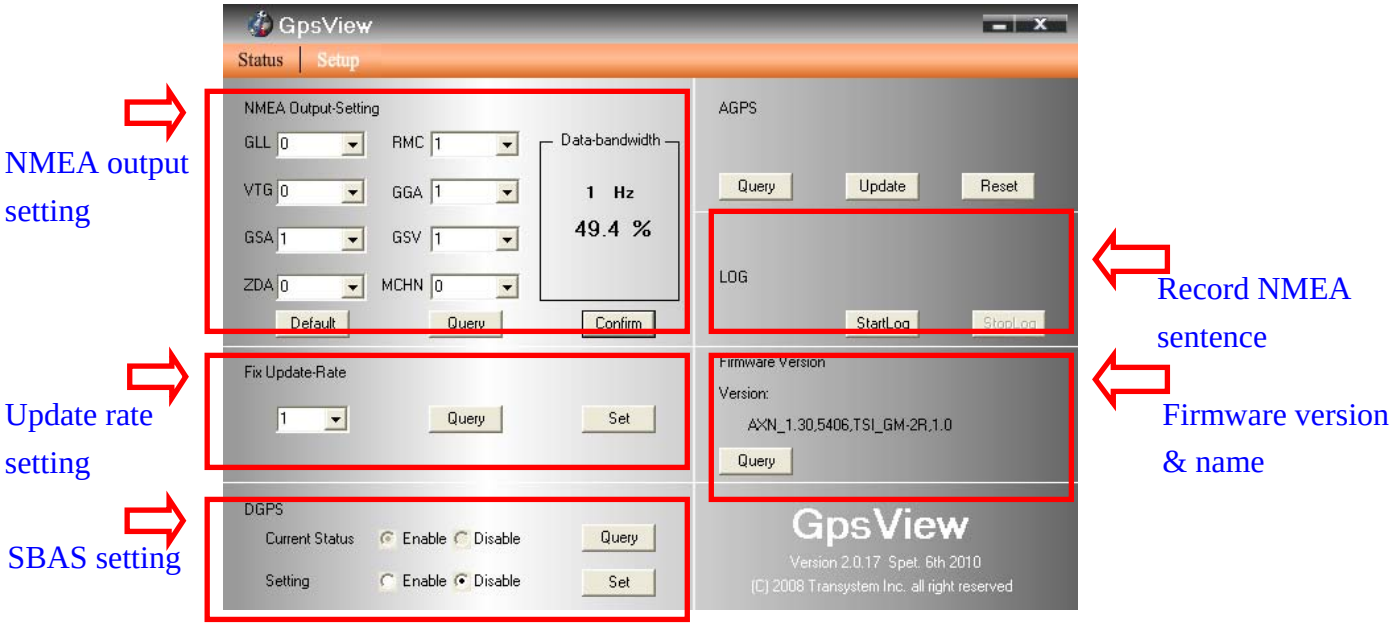
Open GpsView software and select correct COM port and Baud Rate and then click “On” button to establish the communication between 747ProS and PC. If the connection is successful, the NMEA stream will keep showing.

Default baud rate of 747ProS is 115200bps



3.2.1 Configuration

In Setup Page, Output frequency of each NMEA can be changed from 1second to 5 seconds and Fix update–Rate can be changed from 1 time to 5 times per second. DGPS like WAAS, EGNOS, MSAS can be enable or disable. Here also allow users to update the AGPS and record the NMEA sentence.



For example:

NMEA output setting	+	Fix update-rate	=	Real NMEA output
GGA(1), GSA(1), GSV(1), RMC(1)	+	1	=	GGA(1), GSA(1), GSV(1), RMC(1)
GGA(1), GSA(1), GSV(1), RMC(1)	+	2	=	GGA(1/2), GSA(1/2), GSV(1/2), RMC(1/2)
GGA(1), GSA(1), GSV(1), RMC(1)	+	3	=	GGA(1/3), GSA(1/3), GSV(1/3), RMC(1/3)
GGA(1), GSA(1), GSV(1), RMC(1)	+	4	=	GGA(1/3), GSA(1/3), GSV(1/3), RMC(1/3)
GGA(1), GSA(1), GSV(1), RMC(1)	+	5	=	GGA(1/5), GSA(1/5), GSV(1/5), RMC(1/5)
Note:	1. GGA(1) means GGA sentence output every 1 second, GGA(2) output every 2 seconds. 2. GGA(1/2) means GGA sentence output 2 times per second, (1/5) output 5 times per second.			

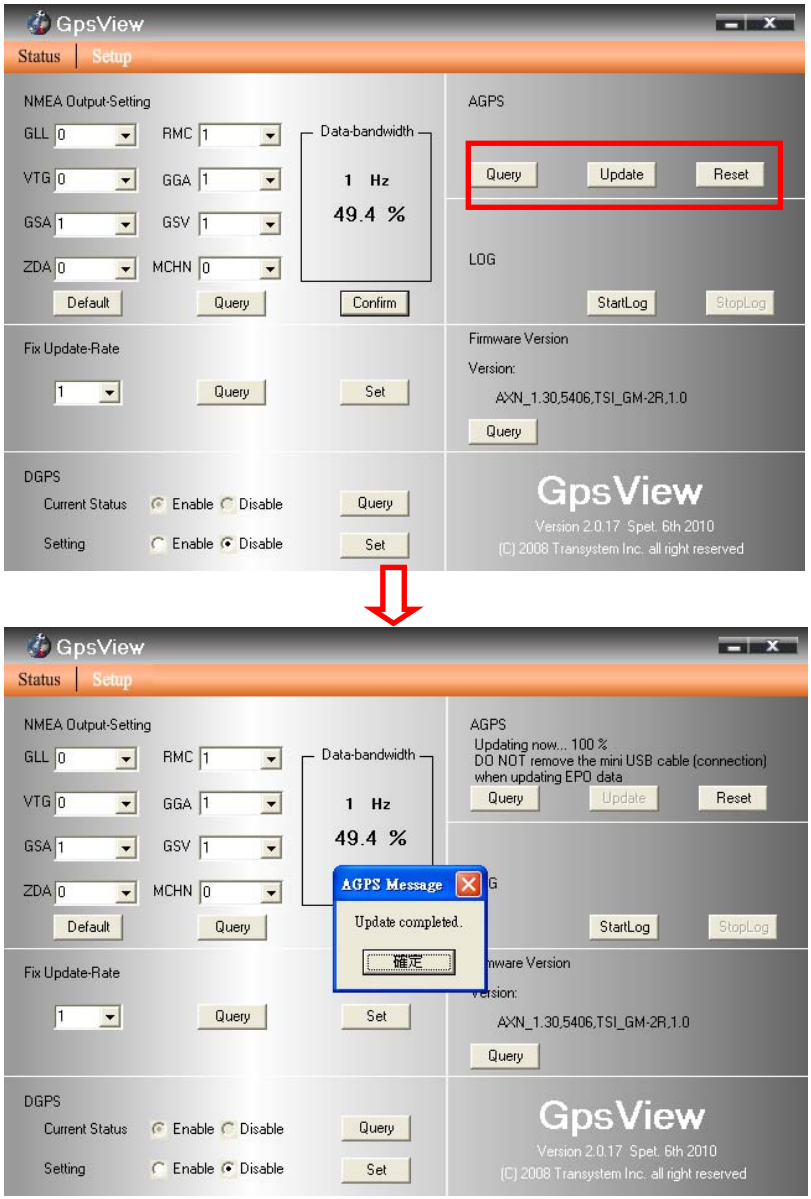
3.2.2 Update AGPS

Step1. Make sure you have network available for accessing the internet.

Step2. Connect 747ProS to PC and then open GpsView to establish the communication.

Step3. Go to "**Setup**" page

Step4. Click "**Update**" button under AGPS to update the AGPS data. The program will connect to the AGPS server and download the data automatically. You can also check the valid time of AGPS by clicking **Query**. Clear AGPS data by clicking **Reset**.



Note: AGPS has 6 day time limited.

Chapter 4 Using Photo Tagger software

4.1 Execute and install software utility Photo Tagger

Complete GPS Photo Tagger and USB driver installation (Refer to CD)

4.2 Google Earth

If you computer is not yet installed with Google Earth. Google Earth has free download version, go download it in the internet first. For more information, please visit http://www.google.com/earth/index.html

4.3 Software Utility --- GPS Photo Tagger

For further function to use the Photo Tagger software in detail, please refer to Photo Tagger user manual:

Photo Tagger software > Help > User Manual

To use a mini-USB cable to connect the 747ProS to your PC, you have to power on the 747ProS unit.

Appendix

Appendix A. Specifications

General	
Frequency	L1,1575.42MHZ
C/A Code	1.023MHZ
Datum	WGS84
Performance Characteristics	
Position Accuracy*	Without aid: 3.0m 2D-RMS
	<3m CEP(50%) without SA(horizontal)
	DGPS (WAAS,EGNOS,MSAS):2.5m
Velocity Accuracy*	Without aid: 0.1m/s, DGPS (WAAS,EGNOS,MSAS):0.05m/s
Acceleration*	Without aid:<4g, DGPS (WAAS,EGNOS,MSAS):<4g
Timing Accuracy*	50 ns RMS
Reacquisition Time*	<1s
Hot start*	1.5s
Warm start*	34s
Cold start*	35s
AGPS*	<15s
Sensitivity*	Acquisition:-148dBm Max., Tracking:-165dBm Max.
Update*	1Hz
Dynamic	
Altitude	Maximum 18,000m
Velocity	Maximum 515m/s

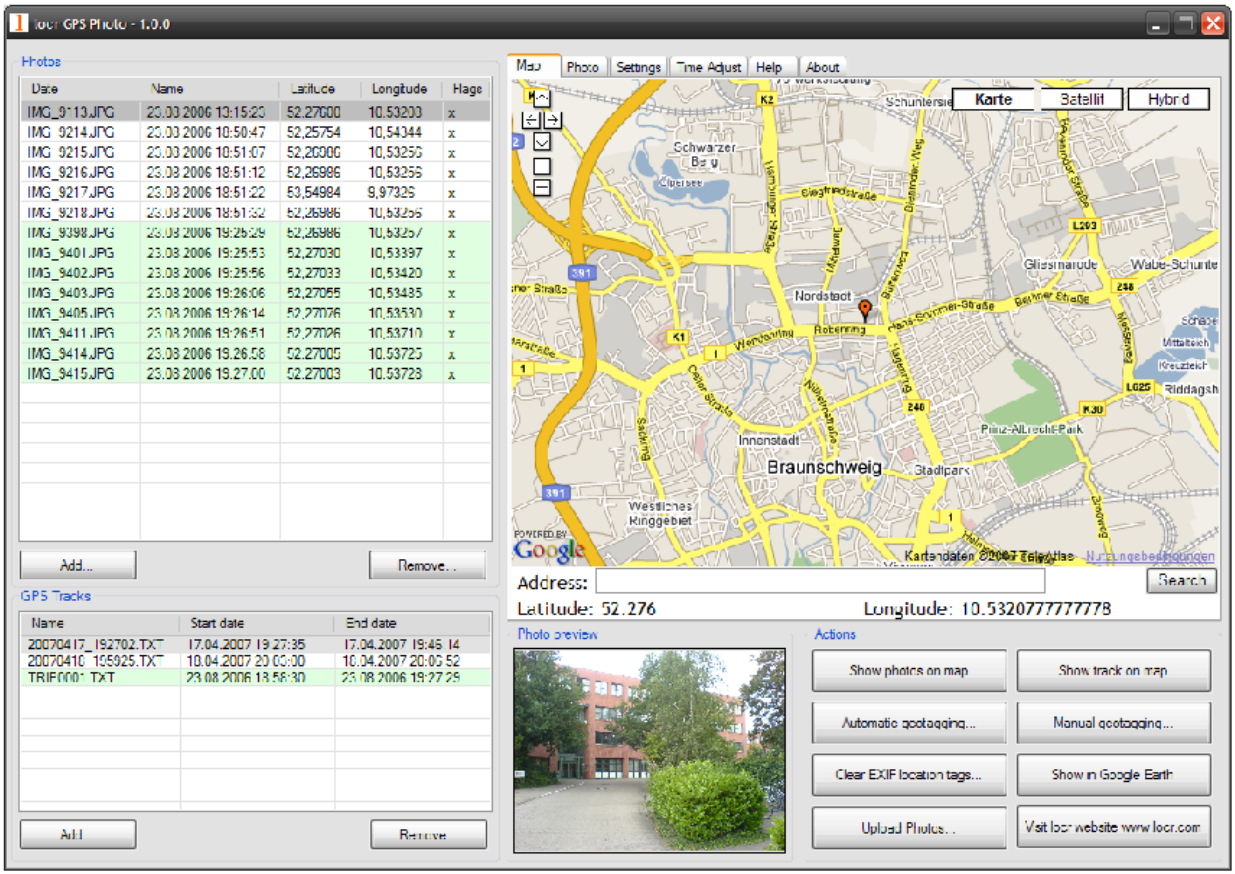
Acceleration	Maximum 4g
Power	
Input Voltage	Vin : 5.0V±5%
Battery	Chargeable + Lithium-Ion battery
Operation time	30 hours
Standby time	300 hours
I/O	
Available Baud Rates	115200 bps
Protocols	NMEA 0183 v3.01
Record data (default)	RCR/ Date/ Time/ GPS valid/ Latitude/ Longitude/ Altitude/ Speed、Heading
Environment	
Operating Temperature	-10°C ~ +60°C
Storage Temperature	-20°C ~ +60°C
Charging	0°C ~ +45°C
USB Bridge	
Standard	Fully compliant with USB2.0
Full – speed	12Mbps
Dimension	72 x 47 x 20 mm
Data Log	
250,000 way points or more	
Log GPS data by time interval/ distance/ speed limit.	
Log GPS data by button push.	
User can configure settings by using utility.	

*** Citation MTK original chipset spec.**

Appendix B. Free software from partners

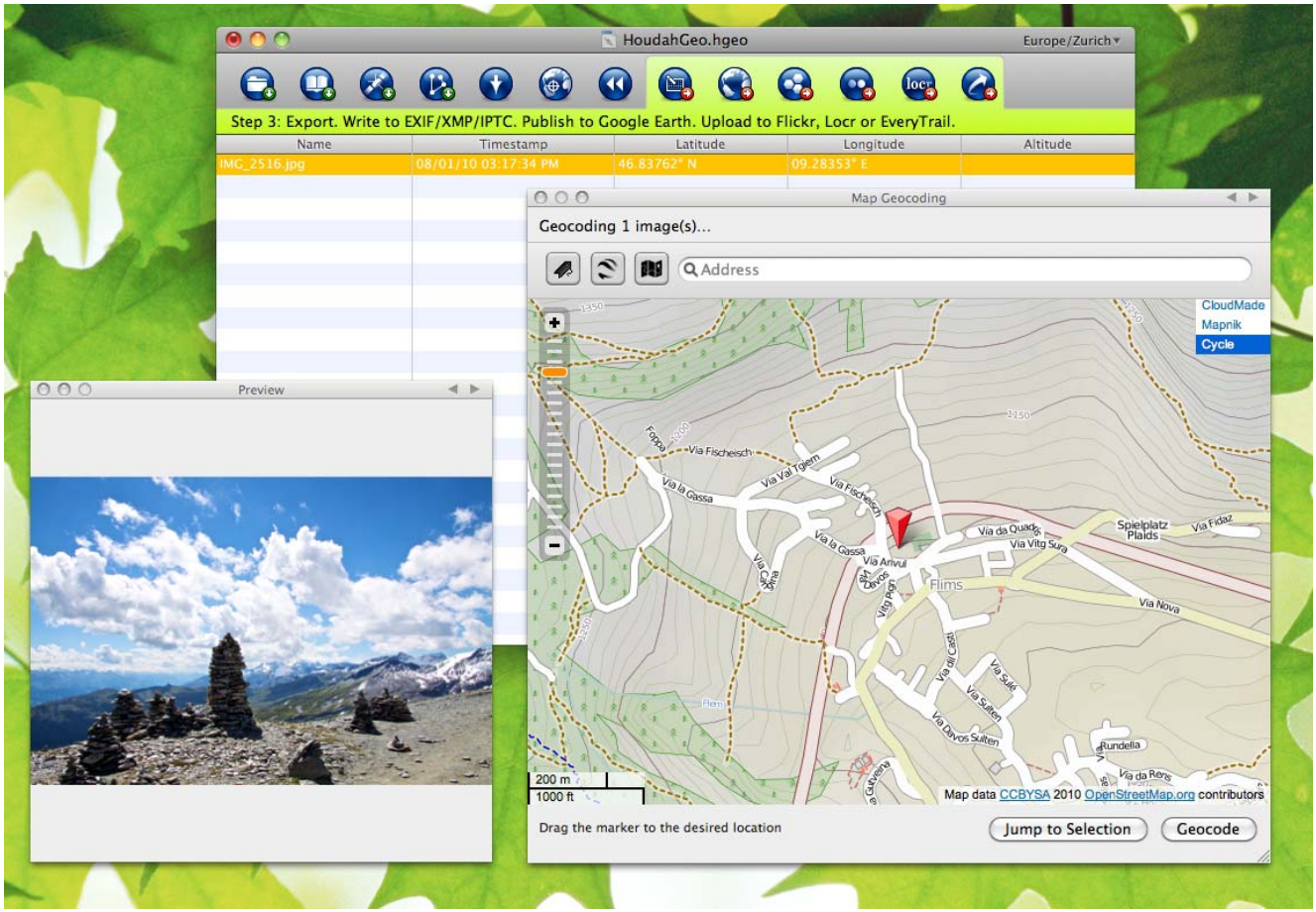
- locr GPS Photo software.

Please find the installation file for Windows in CD tool, or go to http://www.locr.com for further information.



- HoudahGeo

Please find the installation file for Mac in CD tool, or go to http://www.houdah.com for further information.


HoudahGeo.hgeo
Europe/Zurich
Step 3: Export. Write to EXIF/XMP/IPTC. Publish to Google Earth. Upload to Flickr, Locr or EveryTrail.
Name
Timestamp
Latitude
Longitude
Altitude
IMG_2516.jpg
08/01/10 03:17:34 PM
46.83762° N
09.28353° E
Preview
Map Geocoding
Geocoding 1 image(s)...
Address
CloudMade
Mapnik
Cycle
Via Fischeisch
Via Val Tgiern
Via la Gassa
Via Anivul
Via da Quadra
Via Vitg Sura
Spielplatz Plaids
Via Fidaz
Flims
Via Nova
Via Sulèr
Via Sulten
Via Davos Sulten
Rundella
Via da Rens
200 m
1000 ft
Map data CCBYSA 2010 OpenStreetMap.org contributors
Drag the marker to the desired location
Jump to Selection
Geocode

Appendix C. Certification

FCC Notices

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 interface, and
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC RF Exposure requirements:

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHOURIZED MODIFICATION TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT

CE Notices

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 Electromagnetic Compatibility (89/336/EEC), Low-voltage Directive (73/23/EEC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/3360EEC.

The equipment was passed. The test was performed according to the following European standards:

- EN300440 EN 300 440-2 V1.3.1 (2009-03)
- EN301489-1 EN 301 489-1 V1.8.1: 2008-04
- EN301489-3 EN 301 489-3 V1.4.1: 2002-08

  EN55022 EN 55022 2006+A1 2007

  EN55024 EN 55024 1998+A1 2001 + A 2003

  EN60950-1 EN60950-1 /A11:2009

Appendix D. Warranty Information

Thank you for your purchase of GPS product from the company.

The company warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. The warranty for accessories is six months. The stamp of distributor or a copy of the original sales receipt is required as the proof of purchase for warranty repairs. The company will, as its sole option, repair or replace any components, which fail in normal use. Such repair or replacement will be made at no charge to the customer for parts or labor. The customer is, however, responsible for any transportation costs.

This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration of repairs. The company assumes no responsibility about products which have been improperly used, abused, damaged due to accident or natural disaster, or damaged due to unauthorized uninstallation, repair or modification.