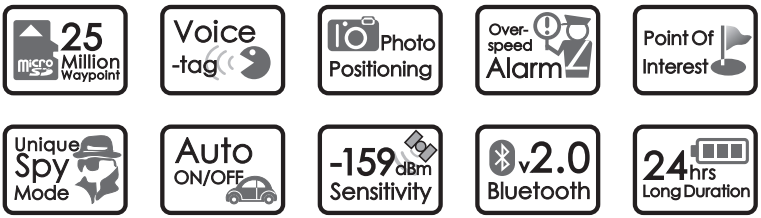
COLUMBUS™

V-900

Multifunction GPS Data Logger

User Manual

English



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Thank you for choosing our product. Before using it, make sure you have read this User's Manual and understood how to correctly use and maintain it. This will start your pleasant GPS positioning experience!

CAUTION!

This Manual is intended to guide you through the safe and correct use of the product and its accessories, avoiding improper operations that may result in injury of yourself or any other person or cause device damage.

Never manipulate the product when you are driving a car! Before manipulating it, make sure that your car has been securely parked. We cannot assume liabilities for any consequence resulting from the fact that you manipulate the product while driving.

As a precision electronics, the product contains no component that can be repaired by your own. Any attempt to disassemble the product will void the original manufacturer's warranty.

Avoid violently shaking the device or dropping it from a high place. Do not try to damage or puncture the device; otherwise, electrolyte in its built-in battery may leak or combust, causing injury or environmental pollution.

Never clean the product with solvents containing alcohol, gasoline, benzene, or thinner or any other organic solvent, which are likely to cause fires.

Notes on Data Logged on the Unit

Never remove the memory card while the unit is being used; otherwise, information stored on it may be lost.

In case that any position information (GPS log files) is not correctly or completely logged due to a failed logging memory card or system, no compensation can be made for any damaged log data or any damaged photo that contains position information.

Notes on Online Map View

Because the online map service is provided by a third party, it's subject to content change or termination without notice.

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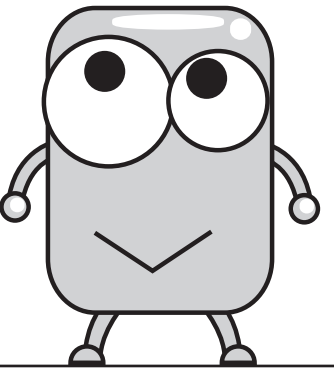
Packing List

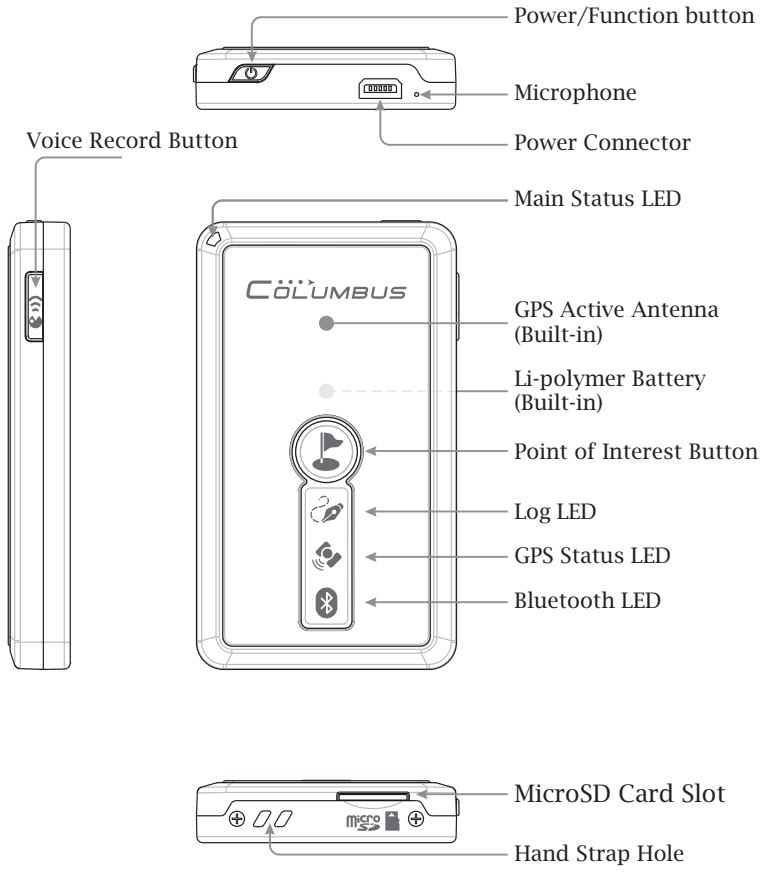
Please make sure that your package includes the following items.

1. Multifunction GPS Data Logger Main Unit
2. AC Adaptor (Input: 110-250V, optional)
3. Car Charger (Input: 12-24V)
4. Charging Cable (Support Auto ON/OFF Function 2 meters)
5. Protective Case
6. Carrying Strap
7. USB MicroSD Reader (optional)
8. User Manual
9. Software CD
10. Warranty Card



Parts Description

1 Part Names



2 Functions of Button

Power/Function Button

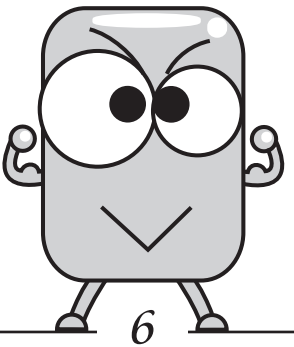
Long press the key to turn on or off the power supply. Short press it to change among the three modes: Log + Navigation, Log, and Navigation. Refer to P.17 for detailed operations.

Point of Interest Button

Short press the button to mark the current position as a POI (Point of interest). Long press the button to start a new track. Refer to P.22 for detailed operations.

Record Button

Press and hold the Record button to begin audio recording. Release the button to stop recording and mark the current position as a POI. Refer to P.21 for detailed operations.



3 LEDs and Audible Alerts

There are 3 graphic LEDs on V-900 front face. A status LED is located at the top left. A mini speaker is integrated in the unit. These provide vivid audible and visual indications.

Log LED

Log LED indicates the memory card status and whether the log function is on.

1. Log function on: Always On
2. Writing to memory card: Flashing
3. Memory card error: Continuous flashing
4. Log function off: Off

GPS LED

This LED indicates the current GPS satellites positioning status.

1. Acquiring satellites: Always on
2. GPS position is fixed: Flashing

Bluetooth LED

This LED indicates the Bluetooth connection status and whether Bluetooth function is on.

1. No Bluetooth connection: Flashing
2. Connected with terminal device: Always on
3. Bluetooth turns off: Off

Run/Power Status LED

This LED indicates the current operating status, power status, etc.

1. Power on: Green, always on
2. Low battery: Red, flashing
3. Charging: Red, always on
4. Charging completed: Green, always on
5. Spy mode: Blue, always on / flashing
6. Voice recording: Red, always on

Audible alerts of built-in mini speaker

Abundant audible alerts are available to intuitively indicate the current operating status.

1. Power on: 2x Short beep / Power off: 1x Long beep
2. Start of voice recording: 1x Short beep
   End of voice recording: 2x Short beep
3. Short press POI button (to mark a POI): 1x Short beep
4. Long press POI button (to create a new track): 2x Short beep
5. A Bluetooth device is connected / disconnected: Melody alert
6. Plug / remove the card: Melody alert
7. Memory card error: Continuous short beeps
8. Over-speed alarm: Continuous beep until the speed falls below the limit

Function Description

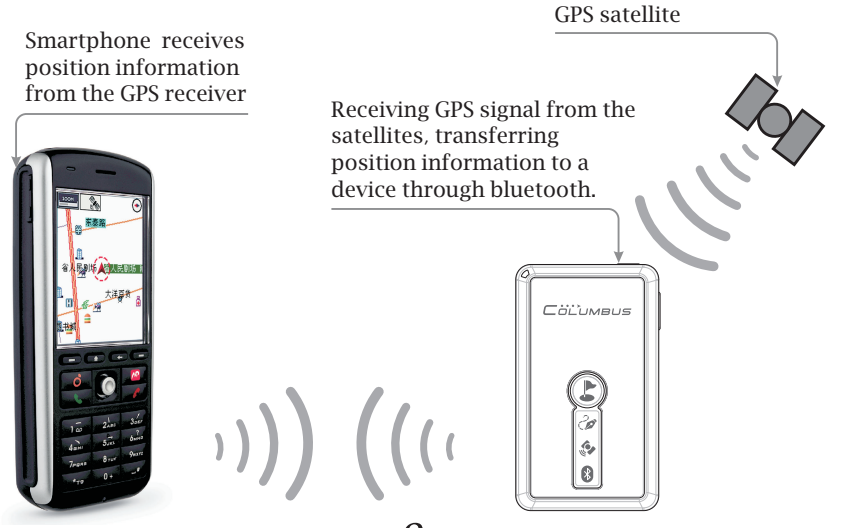
The unit is a multifunction GPS data logger used to receive and log geographical position information on an external memory card.

You can use the unit and its software for:

1 Navigation

-159 dBm Sensitivity

The unit can be used as a normal Bluetooth GPS receiver, enabling positioning and navigation through a Bluetooth connection with a terminal (smart phone, PDA, computer, etc.) on which a navigation map is installed.



2 Track Log

1. This data logger can run offline in a standalone mode, in which it is not connected to any terminal. In this mode, it can log the date, time, latitude, longitude, altitude, speed, direction, voice, positioning mode, positioning type, PDOP, HDOP, VDOP, etc.

2. You may start a new track record at any time.

3. You may use the POI button to highlight the current geographical position whenever you want.

4. You may use the supplied software to define your personalized logging parameters, such as the time and distance intervals of logging, the value of over-speed alarm, etc.

5. You may use map software to view the track information along your journey.

6. This data logger innovatively uses a MicroSD* card as the storage medium, delivering larger storage and quicker reading than logging with an internal memory.

* MicroSD cards of mainstream brands with the capacity of 64M to 2G are supported. MicroSD card is also called T-Flash card.

3 Mark a POI Along Your Journey With a Voice Label

This device innovatively enables you to mark a POI using voice. With  "Voice Record button" on the device unit, you can mark the current geographical position anywhere and anytime. Later, you can listen to and view the marked voice in Google Earth or other map software application.

4 Positioning Photos

You may use the device when you take photos using a digital camera, digital single lens reflect camera, video camera, or a camera phone (collectively referred to as the "camera" hereinafter). If the deivce operates in the positioning state, it will log the GPS records along your journey in real time. Then you may use the supplied software to match your camera photos to the GPS log file, and geotag and view the places where these photos were taken on a map.

5 Over-speed Alarm

This device allows you to set a certain speed value. When your car travels faster than this value, the unit emits sharp audible alarm until the speed falls below the value. When you drive your car at a high speed, this provides you with the convenience to control the maximum vehicle speed solely with the audible alarm of the unit without occasionally checking the speedometer reading, thereby ensuring driving safety.

6 Spy Tacking Mode

This device is specially designed with the Super-long Dormant Tracking Mode (SPY Tacking Mode). You may set the unit to enter the Dormant Tracking Mode using combination buttons. In this mode, the unit starts at a fixed time interval, acquires the position, logs the current track and other position information, and then shuts down. In dormant operation, the power consumption is extremely low. This can meet your needs of long-term track logging.

7 Vehicular Auto ON/OFF

When you use the unit on your car, the 2m-long charging (auto ON/OFF) cable enables device to follow the power status of the car cigarette lighter socket and start up and shut down automatically, that is, the unit will be turned on/off as soon as you turn on/off the ignition switch.

Accessories

AC Adapter

[Optional]

The AC adaptor is designed with a wide voltage range(100-240 V), for global versatility. The adaptor is for indoor use only. Exceeding its specified voltage range can damage the adaptor or device and result in an electric shock accident.

Disconnect the power plug immediately after the charging is completed.

Note: The device cannot power-on when it is being charged by the AC adaptor.

Car Charger

The car charger can work with the 12-24V car cigarette lighter socket. It can be only used for the device. Using it for any other purpose can damage the car charger and other devices.

The car charger can work with the charging cable to automatically start up and shut down the device and charge it.

Charging Cable

The cable can work with the car charger for auto ON/OFF and standard charging. The device turns on as soon as the vehicle is started and the power supplies to the car cigarette lighter socket, and turns off as soon as the vehicle is shut down and the power supply is disconnected. Thus, the device is automatically turned on or off together with the vehicle. The cable is not for data transmission purpose.

USB MicroSD Reader

[Optional]

The reader works with a MicroSD card carrying log data and allows you to access, delete, or copy data at a high speed or format the card through a USB port on your computer.

Carrying Strap

To use the hand strap, simply thread it through the hole at the bottom of your device. You may use the slider mechanism to adjust the tension.

Do not forcefully pull the hand strap; otherwise, it may break.

About GPS

The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilian use. GPS works in any weather conditions, anywhere in the world, 24 hours a day. There are no subscription fees or setup charges to use GPS.

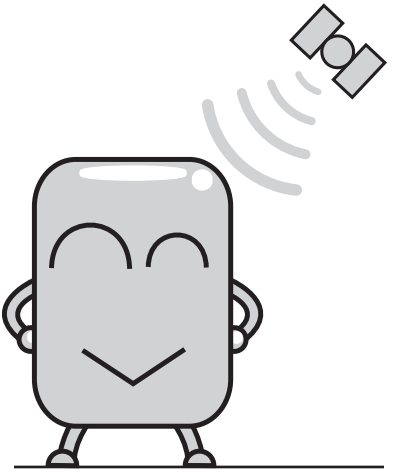
The GPS is operated by the United States government, which is solely responsible for accuracy and maintenance of the system. The accuracy of location data can be affected by adjustments to GPS satellites made by the U.S. government and are subject to change with civil GPS policy and the Federal Radio navigation Plan. Accuracy can also be affected by poor satellite geometry.

Notes:

(1) The receiver is a positioning device that receives RF signal from GPS satellites, which are 20,000km above the earth. To receive the best signals, use the receiver in open space wherever possible.

(2) The positions of GPS satellites are continuously changing. Depending on when and where the device is used, it may take long to acquire the position, or positioning may be temporarily unavailable.

(3) The device may fail to position and track when you are moving at a speed of more than 800km/h.



1 How to Charge the Battery

This device is built in with a 1000mAh Li-polymer battery, which allows for hundreds of charge-discharge cycles. Proper charging and discharging can effectively maximize the service life of the battery.

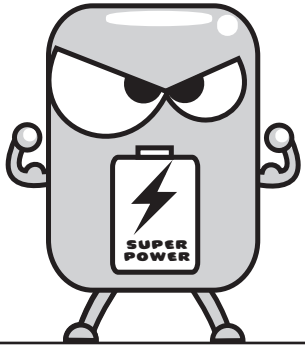
- For indoor applications, use the AC adaptor included in the accessories.
- For vehicular applications, use the car charger included in the accessories in addition to the auto ON/OFF adaptor cable.
- Normally, the charging can be finished in about 3.5 hours. When the Charge LED turns from red to green, it means that the battery has been fully charged. After charging is finished, do not leave the charger at the power-on state for a long time.
- If you will not use the device for an extended period, you should fully charge the battery before storing the device.

Notes on battery duration

The battery duration is dependent on your selected operating mode. The battery duration at different operating modes is as follows*:

- Navigation & Track log Mode: 13 - 15 hours
- Navigation Mode: 15 - 17 hours
- Track log Mode: 18 - 24 hours
- Spy Mode: Up to 30 days

* Testing data of the receiver in open spaces. Duration is subject to the environment of use, operating mode, positioning status, weather, and data format.



2 Place and Carry Your Receiver

This device is built in with a MTK 51-channels, -159dBm highly sensitive super single chipset. It can easily fix positions at most places in your car. If you bring it with you, you also can use it to fix positions in relatively unfavorable outdoor environments. For the first time, it uses the EPS* technology to improve the GPS position accuracy and, in certain degree, reduce the drifting.

*EPS stands for Enhanced Positioning System, a positioning technology we have specially developed for the device.

It is recommended to place the device:

- In the supplied protection case;
- On a shelf or anti-slip pad under the front/rear windshield in your car;
- In your backpack or in an outer pocket of your clothes.

Do not use the device at the following places:

At the following places or locations, the device can fail to fix positions or its storage and maintenance can be adversely affected. Avoid using the device at such places wherever possible.

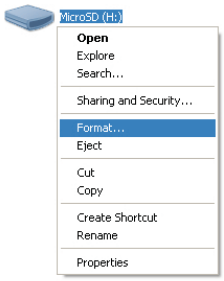
- A place at the window within a house, or in a tunnel, or in the shadow of a cluster of buildings; or under a viaduct, among tall buildings, or in a narrow street surrounded by buildings;
- An extremely cold, hot, or wet place. For example, if the device is placed in a car directly exposed to the sunshine, the high temperature may cause deformation or malfunction of the device;
- A place on a platform where the device is easy to slip or fall in your car or a place at the airbag in the car;
- A place near a strong magnetic field, such as that near high-voltage cables;
- A place near a device that generates RF signals of the same band as the device: a place near a RF device in 1.5GHz band;
- The device is a precision device. Avoid using it at sandy or dusty places. Keep sand or water out of the device; otherwise, the device may fail and sometimes may suffer unrecoverable failure.

3 Preparing for Use

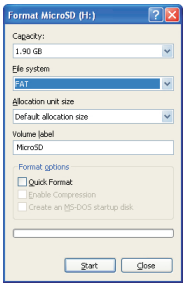
1 Memory card selection and file format

This device supports MicroSD cards of most brands. The supported storage capacity is 64M to 2G. If you need to use the audio recording function, only high-speed memory cards with the capacity of more than 512M are supported because the access speeds of small-capacity cards are limited.

You have to properly format the memory card before using it. Plug the card in the reader and insert the latter to a USB port on you computer. Then operate as follows:



Right click your mouse on the volume label where the card is located. Select "Format".

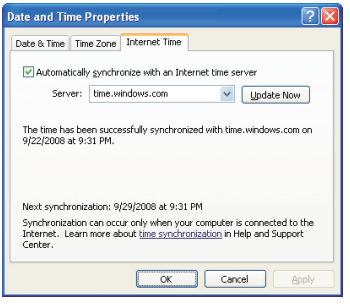


Select the "FAT" file system and click "Start". See the above figure.

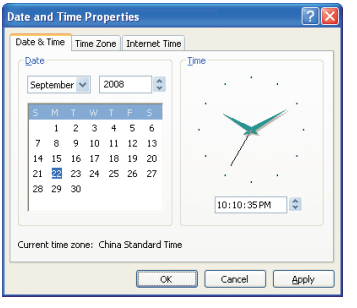
- If the card is in a non-FAT file format, the device cannot conduct normal recording. In such a case, it beeps an alarm.
- If the track logging function is enabled but no memory card is plugged or a memory card is improperly plugged, the "Log LED" flashes, alerting you that GPS track logging cannot be started.
- When you are using the device, do not remove or plug the memory card if the power is on; otherwise, the device can be damaged and data can be lost. Always remove or plug the card after the device shuts down.
- Memory cards of certain models do not support more than 512 files under a single directory. Data storage will be no longer available if the files are more than this limit. Please backup excessive records to your computer whenever necessary.

2 Setting camera date and time

If the internal clock of your digital camera is incorrectly set, there can be error between the captured photos and track positions. Please adjust the camera time by following the correct procedure below.



● Click the "Time and Date" property at the lower right corner. Open the "Internet Time" tab. Click "Update Now". Make sure the time is successfully synchronized with the Internet time.



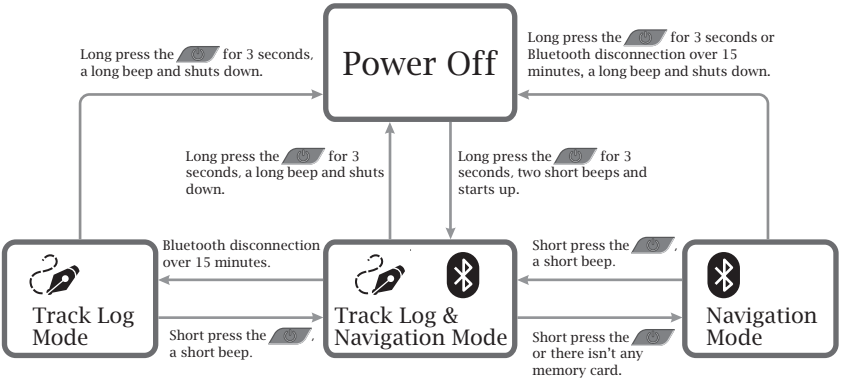
● Return to the "Time and Date" tab. Now the time is the correct. It should be the reference when you adjust the internal clock of your digital camera.

- Open the "Time setting" menu of the digital camera. Usually you can find the menu in system setup of the camera.
- Set the correct time on your camera according to the time and date of your computer. If possible, the synchronized time should be accurate to "second".
- "Second" is unlikely to appear in the time of a digital camera. Let us illustrate with the time to the left. You may set the time to 20:08 at first and then press the "OK" button as soon as the reference time changes from 20:07:59 to 20:08:08.
- In view of the error in the internal clock of your camera, it is recommended to adjust the clock at least once per month.

4 Start to Use

1 Introduction and changeover of operating modes

V-900 has three normal operating modes. You may switch between these modes using the Power/Function button as follows:



Track Log Mode

- In this mode, this device turns off its Bluetooth function and only logs the track, thereby saving additional power.
- In this mode, you may short press the Power/Function button to awake the Bluetooth function.

Track Log & Navigation Mode

- After the device starts up, it first enters the Track log & Navigation Mode.
- In this mode, both the Bluetooth and Track Logging functions of the device are turned on. While functioning as a navigator, the device also logs the track information of your journey in real time.
- If the Bluetooth connection between the terminal and the device has been disconnected for more than 15 minutes, or the device fails to establish a Bluetooth connection in 15 minutes, the device automatically turns off its Bluetooth function and enters the Log Mode.
- If there isn't any memory card in the device, the Log LED fast flashes for 8 seconds and then the logging function is automatically turned off. The device enters the Navigation Mode.

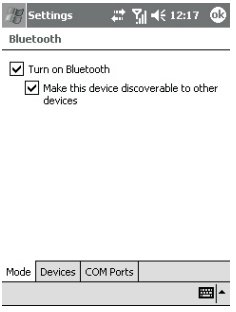
Navigation Mode

- In this mode, this device turns off its logging function and only works for navigation, thereby saving the power.
- In this mode, you may short press the Power/Function button to turn on the logging function once again.
- If the Bluetooth connection between the terminal and the device has been terminated for more than 15 minutes, the device automatically shuts down.

2 Establishing Bluetooth connection with a terminal

(illustrated with the Windows Mobile®6.0 system)

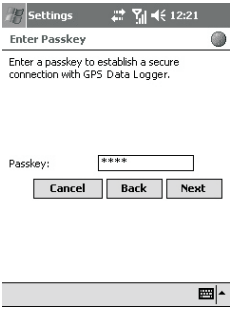
First of all, long press the  power button to turn on the device.



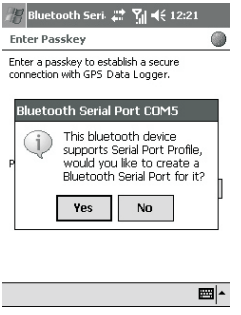
(1) Open "Setting Bluetooth" on smart phone, select "Turn on Bluetooth" and "make this device discoverable to other devices".

(2) Click "New...", then search Bluetooth device.

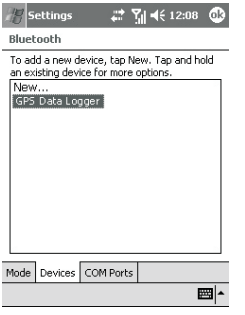
(3) Find the Bluetooth device.



(4) Enter the Passkey "0000", click "Next".



(5) Click "Yes" to create a Bluetooth Serial Port.



(6) Finish Bluetooth Connecting.

- After the above configuration, you may launch the navigation software to establish the connection.
- After the connection is established, the  "Bluetooth LED" will be always on. The device emits audible alert when the Bluetooth connection is established or cancelled.
- The COM port No. may vary depending on the model. All you have to do is to configure the same port No. in the navigation software. The baud rate of the port should be "38,400bps".

3 Acquiring position and navigating

(1) Long press the “power button” for 3s to turn on the device.

(2) In a relatively open outdoor environment, point the device reception antenna to the sky. Wait for several minutes until the position is fixed. (The “GPS LED” flashes after the position is fixed)

(3) Pair and establish connection with the terminal as instructed in previous pages.

(4) Launch the navigation software. Configure the COM port and set the baud rate to 38,400. When the “Bluetooth LED” becomes always on, the connection is established and navigation begins.

4 Notes on acquisition time of the device*

There are three kinds of GPS acquisition at startup: cold start, warm start, and hot start.

(1) Cold start: 35s

A cold start is the startup in any of the following situations: the device is used for the first time; ephemeris is lost due to low battery level; or the device has been moved for more than 1,000km when it is turned off.

(2) Warm start: 32s

A warm start is the startup in two or more hours after the last positioning.

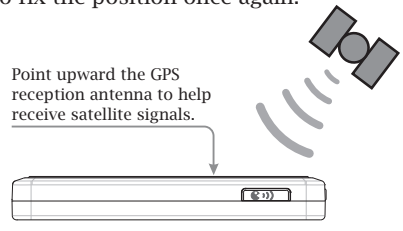
(3) Hot start: 1s

A hot start is the startup within two hours after the last positioning.

*The test environment is a place with relatively open view to the sky.

If it is difficult for the device to fix the position and the GPS LED is always on, you should point upward the antenna part of the device and wait for a while. If the position still cannot be fixed after 5 minutes, perhaps you are situated at a place where GPS signals cannot reach. In such a case, move to a place as open as possible and try to fix the position once again.

It is not recommended for the receiver to fix the position for the first time at an indoor window or any other relatively enclosed environment.



Logging Your Journey

1 Logging a Track

Before running the track logging, you should correctly format your memory card. Refer to P.15 for the operation.

After the device is turned on and already in the positioning state, it automatically logs the current track point once per second. A single track may be unlimited in length. "Log LED" flashes when the device is writing data to the memory card.

Every time you turn on the device, a new track file is automatically created.

A track record may be in the standard mode or the expert mode. You may define the mode. Refer to P.29 for the operation.

The contents of a standard mode (default) record include:

Date, time, latitude, longitude, altitude, speed, heading, and voice

The contents of an professional mode record include:

Date, time, latitude, longitude, altitude, speed, heading, voice, positioning mode, positioning type, PDOP, HDOP, and VDOP

A MicroSD card with the capacity of 2G may stores about 25 million records.

Note: Never remove the memory card unless the device shuts down; otherwise, the logged track may be lost!

A track is logged on the memory card as a file. You may manipulate and manage the file from your computer. A track is conventionally named as follows:

Example: 09041100.CSV

It means that the track begins on April 11, 2009. The last two digits "00" represent that the track is the first one of the day, and so on. The range of these two digits is from "00" to "99". There may be up to 100 tracks in a single day.

2 Adding a Point of Interset

Voice -tag

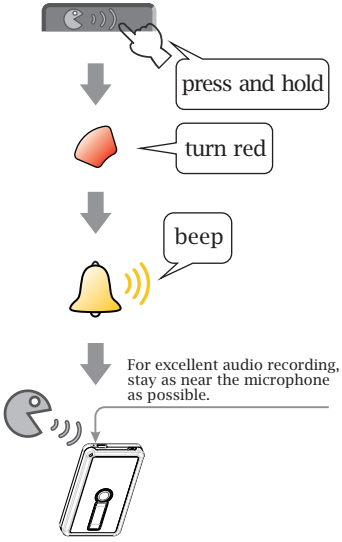
1 Adding a voice mark point

You can add a voice mark to your traveling track at any time*. This is the simplest and most interesting way to take notes along your journey. After that a symbol can be generated on the map to facilitate your recollection in the future.

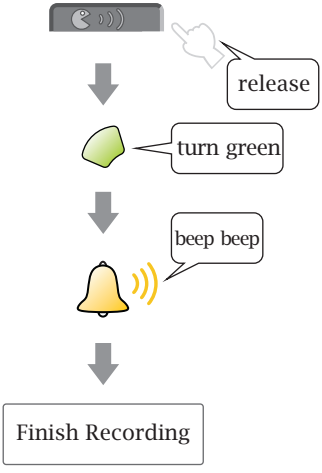
To view a voice label on a map, refer to P.31.

* Audio recording is only supported on a high-speed memory card with the capacity of more than 512M. There's no length limit of a voice mark. The only limit is the card capacity.

(1) Begin audio recording. Press and hold the Audio REC button. Begin recording after the Run/Power Status LED turns to red and you hear a "beep" sound.



(2) Finish recording. Release the Audio REC button. When you hear two "beep" sounds and the Run/Power Status LED turns to green, the recording is finished.

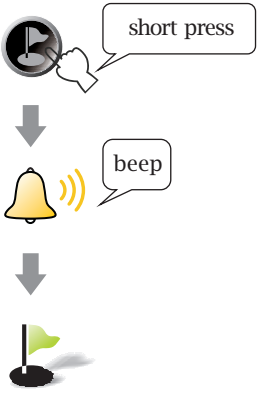


2 Adding a POI manually

You can highlight the current place of interest anytime and anywhere. After that a symbol is generated on the map to facilitate your recollection in the future.

To view a voice label on a map, refer to P.31.

(1) Short press the POI button. After you hear a "beep", the current position is marked as a POI.

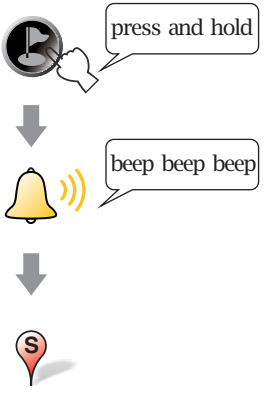


A POI added in the map

3 Starting a new track

You can terminate the track you are logging and start a new track on your memory card.

(2) Long press the POI button until you hear three "beep" sounds. A new track is started.



A new track log created

3 Integrating Photos with a Map

Before using this function, always adjust the camera clock to the synchronized GPS time. Refer to P.16 for the detailed operation.

After the time is accurately adjusted, you can bring the device together with the camera and take photos.

Refer to P.31 on how to view photos on a map. The symbol of a photo point is " " in the map software.

4 Over-speed Alarm

If the speed of the car you are driving exceeds the predefined value of the device, the speaker continuously emits sharp audible alarms until the traveling speed falls below the value.

You may manually cancel the alarm. All you have to do is to short press the POI button, thereby temporarily turning off the over-speed alarm function.

When you drive your car at a high speed, this provides you with the convenience to control the maximum vehicle speed solely with the audible alarm of the device without occasionally checking the speedometer reading, thereby ensuring driving safety.

Note: Over-speed alarm is only available when the track log function is turned on. Refer to P.29 on how to set the predefined speed value.

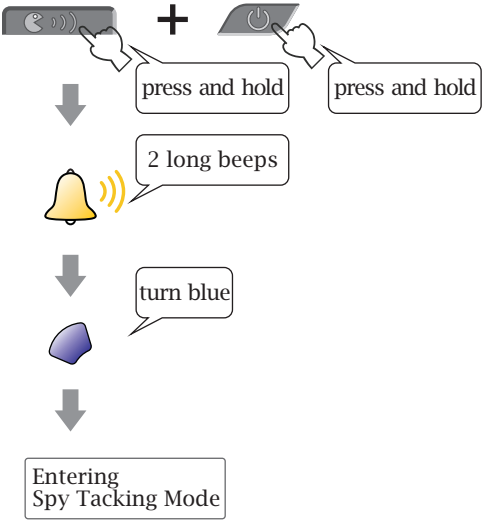
5 Spy Tacking Mode

The device is uniquely designed with the Super-long Dormant Tracking Mode (Sky Tracking Mode). In this mode, the device intermittently runs, realizing super long battery duration of up to 30 days.

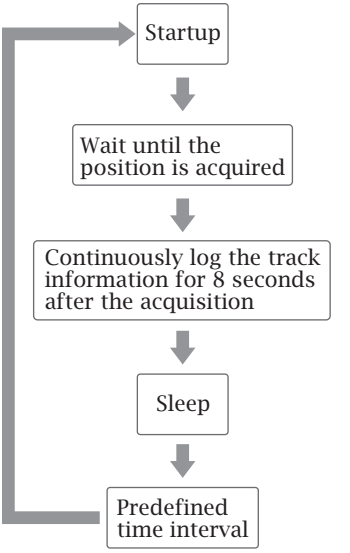
In this operating mode, the device is waked up, started, fixes the position, and logs the track information at a certain time interval*. The Bluetooth function is turned off. When the device is standby, the main status LED intermittently flashes in blue. All other LEDs on the device are off and the speaker is mute. This mode is suitable for tracking your car for an extended period, or for places where charging is unavailable, e.g. in a long hiking.

* The value of the interval can be set in software, refer to P.29.

(1) How to enter the Spy Tracking Mode:



(2) Flow of the Spy Tracking Mode:



6 Vehicular Auto ON/OFF

When you use the device in your car, please charge it using the car changer and the charging cable.

Auto ON/OFF and standard charging can be realized, that is, the device is turned on as soon as the vehicle is started and the power supply to the car cigarette lighter socket is connected, and turned off as soon as the vehicle is shut down and the power supply is disconnected. Thus, the device is automatically powered on or off together with the vehicle. You may fix the device on your car. In addition to the navigator on the car, the device also functions as a “black box” that records the traveling track of the car.

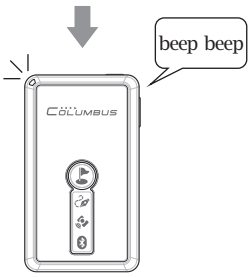
In the Auto ON/OFF mode, the device will not automatically sleep even after the device fails to establish a Bluetooth connection in 15 minutes. This facilitates its connection with a terminal whenever possible.

If the device is already turned on, using the charging cable will not automatically turn on or off the device.

If you only want to charge the receiver, turn it off manually.

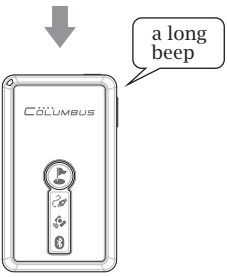
For details on the adaptor and charging cable, refer to P.11.

Engine On



Auto ON

Engine OFF



Auto OFF

Relevant Software

1 Time Album

1 How to install

The device comes with a CD-ROM that presents the "TIME ALBUM" software. The software is specially designed for the device. You may use it to add photos, voice, and other information to a track, which can be viewed and played back on map software. You may also use “TIME ALBUM” to configure detailed settings of the device.

"TIME ALBUM" is designed with extensive compatibility. It is compatible with the following operating systems:

Windows® 2000 / Windows® XP / Windows® Vista / Linux

Mac® OS 9.1 / 9.2 / Mac OS X (v10.1 / v10.2 / v10.3 / v10.4 / v10.5)

Before installing the software, select the correct version applicable to the operating system you are using.

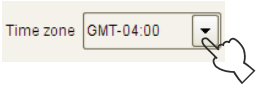
(1) First you should install the JAVA virtual machine (JVM). Check your OS platform. There are different JVM versions for Windows/Mac OS/Linux. Double click the icon and continue with the default installation options.

(2) After the installation is completed, click the "TIME ALBUM" icon to launch the software.

2 Configuring settings

Always configure the following settings when you launch and use “TIME ALBUM” for the first time.

(1) You need to correct the GPS time, which is the GMT time. Click and choose "Time Zone Setup" and set the time zone of your location. For example, New York is located in the West-4 Time Zone (GMT -4.00).



(2) Set the vehicle you will take: Car Mode or Fly Mode. If you will travel on walk or by car, please choose the "Car Mode".


Car Mode


Fly Mode

3 Managing tracks

(1) Importing a track

Click the "Add a track" icon. Select the track you want to add. Click and choose the track name. A preview of the track is shown in the left window pane and details of the track appear in the bottom pane.

Name: 08101000.CSV
Qty of track point: 12500
Qty of check point: 23
Qty of voice point: 12
Qty of photo point: 35
Star: 2008-10-10 2:00:00
End: 2008-10-10 22:02:00
Distance: 34.56km
Average speed: 3.5km/h
Max speed: 89km/h
Max altitude: 230m
Time zone: GMT -4.00
Type: Normal track

(2) Linking tracks

Select multiple tracks using the Ctrl button. Click and choose the "Link" button. These tracks are linked together and a complete track is generated. This function is used to merge multiple tracks generated in a travel.

A new files created

4 Adding voice and photos

(1) Copy tracks, audio records, photos, and other files from your memory card to the hard disk.

(2) Click the "Add photos and voice" button. Select the location of the audio records and photos. The software automatically looks for and matches the audio records and photos applicable to the current track and adds them to the track. After the records and photos are added, the quantity of the added files is displayed.

(3) Notes on the supported file format for addition: The added digital photos have to be JPG files that support the EXIF protocol, which is supported by photos captured on most digital cameras. Before taking digital photos, adjust the internal time of your digital camera. Refer to P.16 for detailed operation.

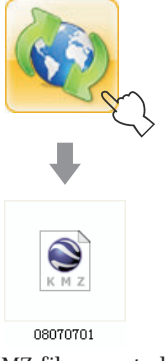
5 Setting track points

The software can be set to generate the track point icons in Google Earth. You may enable or disable the track point option as needed.

- Start point: The place where the track starts
- End point: The place where the track ends
- Voice label point: A place where there is a voice record
- Point of interest: A place where you pressed the POI button
- Photo point: A place where a digital photo was taken
- Over-speed point: A place where you exceeded the predefined speed
- Parking point: A place where you stayed
- Way point: A normal data point of track

6 Exporting a track

Select a track in the left window pane. Click "Export" button. A track file in the KMZ format is generated. You can click the file and conveniently view it in Google Earth® / Google Maps®. You can choose other type of files, which are suitable for other softwares.



A KMZ files created

7 Configuring the device

(1) Click the "Device Setting" button. An interface is launched. Click "Generate" to generate a Config.TXT file. With the help of the USB reader, copy the file to the root directory of your memory card.

(2) The "Device Setting" interface offers the following options:

Data storage mode:

You may set data storage mode to "Standard Mode" or "Professional Mode". If you are using a memory card with a low capacity, you may choose "Normal Mode" to use less space.

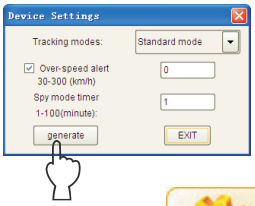
Over-speed alert:

You may set the speed (in km/h) of over-speed alert. The device emits an alert when the traveling speed of your car exceeds the value. Range of settings: 30km/h at minimum and 300km/h at maximum.

Time interval of Spy Tracking Mode:

You may set the time interval to turn on the device in the " Spy Tracking Mode ". A longer interval will result in a longer total standby duration. Range of settings: 1min – 100 min.

Note: If the receiver does not find configure files, it runs in the standard mode by default: Data storage mode: "Standard Mode", Over-speed alert: "OFF", Time interval of Spy Tracking Mode: 15min.



8 Track conversion options

Click "Options" button. The detailed options are launched:

(1) Export every meter: The track is outputted at a certain distance interval.

(2) Export every second: The track is outputted at a certain time interval.

(3) Over-speed tag: The point where the traveling speed of your car exceeds the predefined value is marked with an "over-speed icon" on the track.

(4) Route width: This is used to set the thickness and color of the lines connecting the track points between one another.

For more detailed operations, refer to the help of the software.

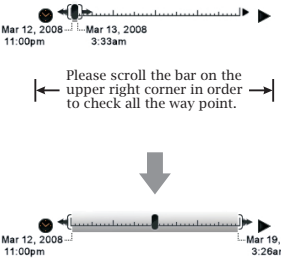
2 Google Earth

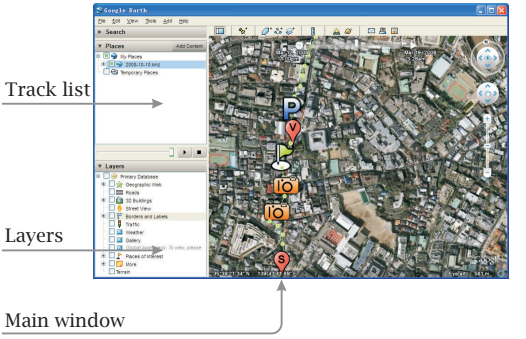
1 How to install

Click the Google Earth® icon and complete the installation.

2 Playing back a track

Double click the track file (with an extension of KMZ) generated by "TIME ALBUM" to play back the track of your journey in Google Earth®. Click an icon, such as a "Photo point" or a "Voice label point", on the track to view track point details. There are also some other functions available. For example, you may play back the track by time. Refer to the software instructions for detailed operation.





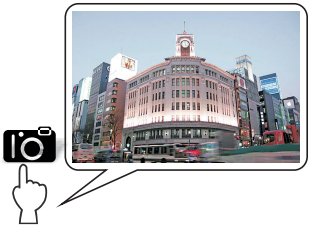
3 Details on track points

This device can record the following types of track point in Google Earth®:

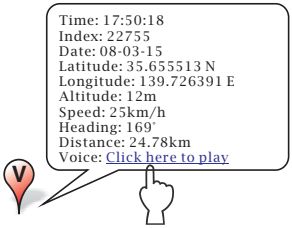
(1) Start point. The data point of the first second on each track.

(2) End point. The data point of the last second on each track.

(3) Way point. It is the most common type of route point on a track. It generally appears once per second.



(4) Photo point. It is a place where a digital photo was taken on the track. You may click the icon to view details on the photo and the geographical information of that place.



(5) Voice label point. It is a place where there is an audio record on the track. You may click the icon to play the audio recorded at that time using a media player.

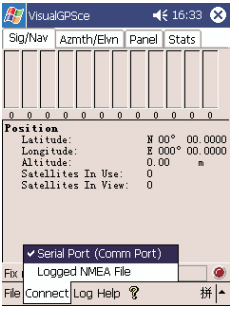
(6) Point of interest. It is a place where you short pressed the POI button. You may play back a POI

(7) Over-speed point. When the speed exceeds the predefined value, the track point is highlighted with a plane icon. Refer to P.29 for over-speed setting.

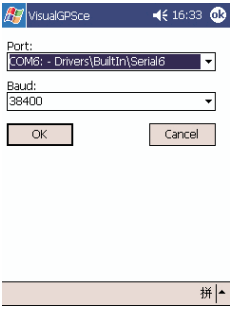
(8) Parking point. The system automatically uses this icon to indicate a sightseeing place where you stay.

3 Visual GPS

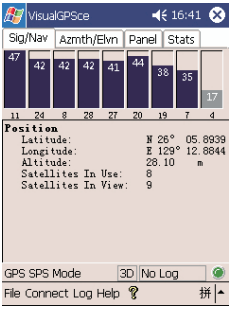
First, copy "VisualGPSce" from your computer to your PDA/smart phone (Pocket PC OS). Before running the software, establish a Bluetooth connection between the device and the terminal. Refer to P.18 for the operation.



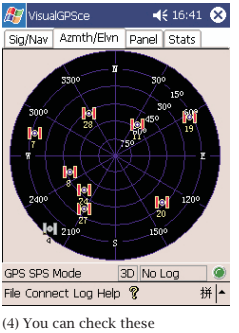
(1) Click "VisualGPS", choose "Connect" - "Serial Port".



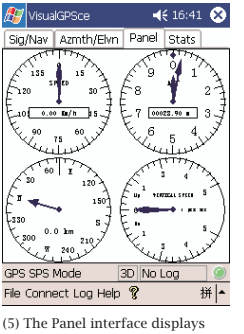
(2) Setup com port: baud rate: 38,400bps, COM port(COM1~COM10*), the click "OK" to confirm.



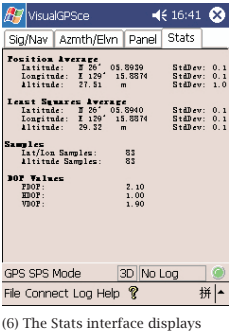
(3) You can check these information in the "Sig/Nav": Satellites in view, Signal intensity*2, latitude, longitude, altitude, positioning mode*3, etc.



(4) You can check these information in the "Azmth/Elvn": satellites No. direction, elevation, and motion trace of each satellite in use.



(5) The Panel interface displays information about the speed, altitude, direction, vertical speed, etc.



(6) The Stats interface displays information about the average latitude/longitude, the last latitude/longitude, quantity of samples, DOP (Dilution of Precision) values, etc.

*1 The Bluetooth port No. may vary depending on the PDA model.

*2 The signal intensity is dependent on the climate, day or night, weather, environment of placement, etc.

*3 Accurate plane positioning information is offered in the 2D mode, accurate 3D latitude information is offered in the 3D mode.

Troubleshooting

1 Signal reception

Symptoms	Causes and Remedy	Page
No satellite signal received Intermittent positioning Inaccurate positioning Serious position drifting	● Battery level is low. Charge the receiver.	13
	● Avoid using the receiver under an automobile windshield that contains metallic wires or has been coated with a film, or in a house, tunnel, or underground parking lot, or on a patio-like land, or near high-voltage cables, or in any other environment where strong shield or interference presents. If you are using the receiver in any of above environments, move it to a place with an open view to the sky.	19
	● If you will bring the receiver with you and use it, you should place it at an open space and wait until it acquires the position and receives all ephemeris. This can improve its performance.	14
	● For positioning purpose, place the receiver at an open space wherever possible. The symptom can be improved if ideal satellite signals are received. A small drift (an error within 8m) will not affect the position match between the photo and the GPS coordinates.	19

2 Bluetooth Connection

Symptoms	Causes and Remedy	Page
Failure to establish a Bluetooth connection with the terminal	● Make sure that the receiver-terminal distance is within the effective range. ● The receiver or terminal has been connected with another Bluetooth device. ● If the device fails to establish a Bluetooth connection in 15 minutes, the Bluetooth function is automatically turned off. Short press the Power/Function button to turn on the function once again.	17
Bluetooth connection is disconnected	● Correctly set the baud rate and device type in "GPS setup" on the navigation software ● The distance between the device and its connected terminal exceeds the effective distance of connection. Make sure that both devices are apart from each other within the effective range.	18

3 Track Logging

Symptoms	Causes and Remedy	Page
Track logging cannot be initiated	● The device has not acquired the position yet. Its logging function cannot be normal until the position is acquired.	19
	● The logging function has been disabled. Short press the Power/Function button to activate the logging function.	17
	● The memory card space is full, or there are more than 512 files under the root directory. Back up and remove files from the card whenever necessary.	15

Troubleshooting

Symptoms	Causes and Remedy	Page
Log LED continuously flashes and the device emits audible alarms	● Make sure that you have correctly plugged the memory card. ● Make sure that the memory card has been formatted to FAT/FAT16. ● The device supports Micro SD/T-Flash memory cards with a capacity of 64M - 2G. Make sure that the capacity of your current memory card falls within this range.	16

4 Photos and audio records

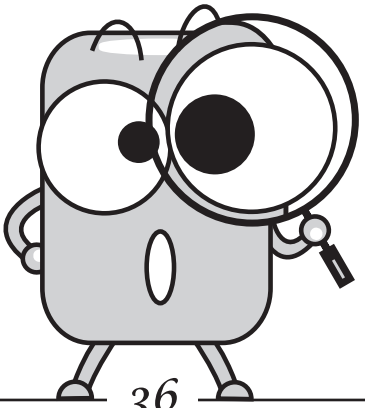
Symptoms	Causes and Remedy	Page
There is no photo point on the track	● Make sure that you have activated the photo point output function in "TIME ALBUM". The digital photos you added do not support the EXIF protocol.	28
There's no photo in the photo point	● Make sure that the added photos have not been deleted or moved.	
Photos do not correctly match their track points	● Make sure that you have correctly set the camera time as well as the time zone in "TIME ALBUM".	27
There is no voice point on the track	● Make sure that you have activated the voice point output function in "TIME ALBUM".	28
I hear no voice	● Make sure that a media player is correctly installed on your computer.	
The voice content is too noisy or cannot be heard	● The voice content cannot be heard clearly in noisy outdoor environments. When you record the audio, stay as near the microphone as possible.	21
The voice content is intermittent	● If you use a low-speed memory card with the capacity of less than 512M, the recorded voice will be intermittent. Use a high-speed card if you want to access the audio recording function.	15

5 Power

Symptoms	Causes and Remedy	Page
The device does not respond when I press the Power button to turn it on	● Battery level is low. Charge the device.	13
	● You cannot turn it on when charging with the AC adaptor.	11
The Run Status LED does not light in red	● Check that the AC Adaptor or the Car Charger is correctly connected.	
The receiver body feels slightly warm	● It's normal that the receiver feels slightly warm when it's operating or being charged.	

Notes:

If you encounter any trouble that cannot be removed by your own, consult your local dealer or call the after service telephone number listed on the Warranty Card.



Memo

Specification

■ Product Specification:

Dimension: 43(L)x74(W)x9.9(H)mm

Weight: 55g

Volume: 32cc

Chipset: MTK ARM Super single chip

Channels: 51-channel all-in-view tracking

Frequency: 1575.42Mhz(L1, C/A code), built-in WAAS / EGNOS / MSAS Demodulator

Sensitivity: better than -159dBm

Fix Capability: 2D fix of 3 satellites, 3D of 4 satellites

Antenna Type: Built-in active antenna

■ Time to First Fix:

Averaged*[1]:

Reacquisition: <1 second

Hot Start: 1 second

Warm Start: 38 seconds

Cold Start: 42 seconds

■ Accuracy:

Non DGPS(Differential GPS):

3.0m/CEP(50%) 5.0m/CEP(95%)

With DGPS corrected(EGNOS / WAAS):

1.5m/CEP(30-50%) 2.5m/CEP(95%)

(with EPS technology)

■ Dynamic Condition:

Altitude Limit: 18,000 meters (60,000 feet) max

Velocity Limit: 515 meters/sec (1,000 knots) max

Acceleration Limit: 4G max

Jerk Limit: 20 m/sec

Minimal Data Resolution: 1/10000 minute (Latitude, Longitude); 0.1km/h (Velocity); 0.1 Degree (Direction); 0.1m (Altitude)

■ Protocol:

NMEA Protocol Output: Ver 3.01

Baud Rate: 38,400 bps

Datum: WGS84

Update Frequency: 1 Hz (Default)

Data Bit: 8 Parity: N Stop bit: 1

Output Format: $GGA, $GSA, $RMC, $GSV

■ Bluetooth:

Compatible Bluetooth Device with Serial Port Profile (SPP)

Bluetooth™ Version 1.1/1.2/2.0 Compliant

Bluetooth™ Class 2 operation (about 10 meters range)

Frequency: 2.400 to 2.480 GHz

Modulation: FHSS / GFSK

RF Channels: 79

Input Sensitivity: -80dBm

Output level: 4dBm

■ Logging Spec:

Format: CSV file

Standard Mode: Date, time, Latitude, Longitude, Altitude, Speed, Heading, and Voice.

Professional Mode: Date, Time, Latitude, Longitude, Altitude, Speed, Heading, Fix Mode, PDOP, HDOP, VDOP and Voice.

■ Voice Record Spec:

Format: WAV

Rate: 48 kbps

Length Limit: no limited

■ Storage Card:

Type: MicroSD / T-Flash

Capacity: 64M, 128M, 256M, 512M, 1G, 2G

(Voice recording requires capacity above 512M)

Format: FAT (FAT16) files system

■ USB MicroSD Reader (optional):

Type: MicroSD / T-Flash, support SDHC

USB Type: USB 2.0

Specification

■ Power Supplies:

Main Unit: Built-in rechargeable Lithium polymer battery with capacity (1000mAh)

The duration of V-900's built-in battery is dependent on your selected operating mode. The battery duration at different operating modes is as follows*2:

Navigation & Track Log Mode: 13-15 hours

Navigation Mode: 15-17 hours

Track log Mode: 18-24 hours

Spy Mode: 15- 30 days

■ AC Adapter (optional):

Model: V-30AC

Input: AC100-240V, 50-60HZ, 11VA

Output: DC 5.0V, 600mA

■ Car Charger:

Model: V-10DC

Input: DC 12-24C

Output: DC 5.0V, 1000mA

■ Operation:

Operation Temperature: -10ºC to + 50ºC

Store Temperature: -20ºC to + 60ºC

Operation Humidity: 5% to 95% No condensing

*1 The test environment shall be a place in open sky.

*2 Duration time is subject to the environment of use, operating mode, positioning status, and data format.

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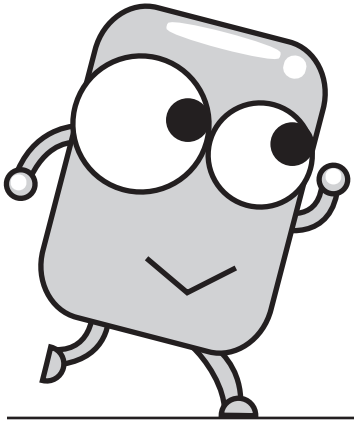

COLUMBUS

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