

GARMIN[®]

nüvi[®] 715 series

owner's manual



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Introduction

Manual Conventions

When you are instructed to “touch” something, use your finger to touch an item on the screen.

The small arrows (>) used in the text indicate that you should touch a series of items. For example, if you see “touch **Where To?** > **Favourites**” you should touch **Where To?**, and then touch **Favourites**.

nüvi Tips and Shortcuts

- To quickly return to the Menu page, touch and hold **Back**.
- Touch  and  to see more choices. Touch and hold to scroll faster.

Contact Garmin

Contact Garmin if you have any questions while using your nüvi. Go to www.garmin.co.in and click Contact Support for regional support information.

You may also contact Garmin local dealer for product support.

myGarmin™

Go to <http://my.garmin.com> to access the latest services for your Garmin products:

- Register your Garmin unit.
- Unlock optional maps.

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Getting Started

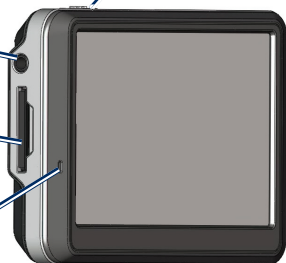


*Power key:
slide to the left to turn on/off the unit;
slide to the right to lock the screen*

*Headphone/
audio out jack*

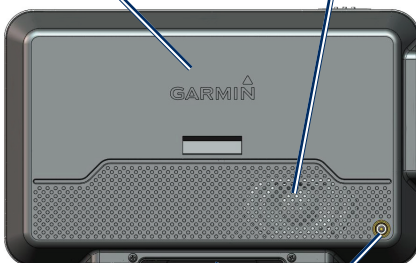
*SD™ card
slot*

Microphone



GPS antenna

Speaker



*Mini-USB
connector*

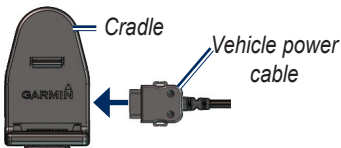
*Serial number (remove
cradle to view serial number)*

*External antenna
connector*

WARNING: This product contains a lithium-ion battery. To prevent damage, remove the unit from the vehicle when exiting or store it out of direct sunlight.

Step 1: Mount the nüvi

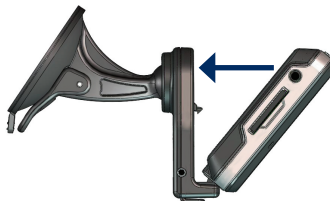
1. Plug the vehicle power cable into the power connector on the right side of the cradle.



2. Remove the clear plastic from the suction cup. Clean and dry your windshield and the suction cup with a lint-free cloth.
3. Place the suction cup on the windshield.
4. Flip the lever back, toward the windshield.




5. Snap the cradle onto the suction cup arm.
6. Fit the bottom of your nüvi into the cradle.
7. Tilt the nüvi back until it snaps into place.




8. Plug the other end of the vehicle power cable into a power outlet in your vehicle.

Step 2: Configure the nüvi

Your unit should turn on automatically if it is plugged in and your vehicle is running. To manually turn on your nüvi, slide the  **Power** key to the left. Follow the on-screen instructions.

Step 3: Acquire Satellites

1. Go outdoors to an open area, out of garages, and away from tall buildings.
2. Stop your vehicle, and turn on the nüvi.

Acquiring satellite signals may take a few minutes. The  bars indicate GPS satellite strength. When one bar is green, the nüvi has acquired satellite signals. Now you can select a destination and navigate to it.

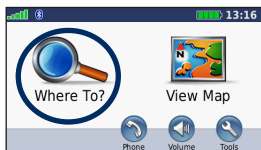
Step 4: Use the nüvi



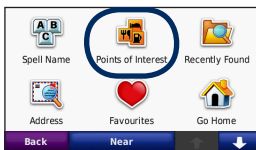
- 1 GPS satellite strength.
- 2 Bluetooth® technology status.
- 3 Battery status.
- 4 Current time.
- 5 Touch to find a destination.
- 6 Touch to view the map.
- 7 Touch to make a call when connected to a compatible mobile phone.
- 8 Touch to adjust the volume.
- 9 Touch to use the tools such as media players, settings, and Help.

Finding Your Destination

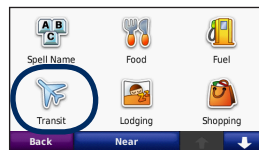
The Where To? menu provides several different categories for you to use when searching for addresses, cities, and other locations. The detailed map loaded in your nūvi contains millions of points of interest, such as restaurants, hotels, and auto services.



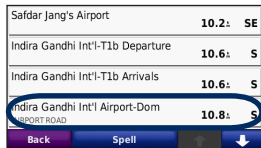
1 Touch **Where To?**.



2 Select a category.



3 Select a subcategory.



4 Select a destination.



5 Touch **Go!**.



6 Enjoy the route!

Following Your Route

Your route is marked with a magenta line. As you travel, your nūvi guides you to your destination with voice prompts, arrows on the map, and directions at the top of the map. The upper-left corner indicates the distance to your next maneuver and the lane you should be in for the maneuver.

If you depart from the original route, your nūvi recalculates the route and provides new directions.



Adding a Via Point

You can add a stop (Via Point) to your route. The nūvi gives you directions to the stop and then to your final destination.

1. With a route active, touch **Menu** > **Where To?**.
2. Search for the extra stop.
3. Touch **Go!**.
4. Touch **Add As a Via Point** to add this stop before your destination.

If you want to add more than one stop to the route, edit the current route. See page 12.

Taking a Detour

If a road on your route is closed, you can take a detour.

1. With a route active, touch **Menu**.
2. Touch **Detour**.

The nüvi attempts to get you back on your original route as quickly as possible. If the route you are currently taking is the only reasonable option, the nüvi might not calculate a detour.

Stopping the Route

1. With a route active, touch **Menu**.
2. Touch **Stop**.

Adjusting the Volume


From the Menu page, touch **Volume**.

Touch  and  to adjust the master volume. Touch **Mute** to mute all audio.

To adjust the volume levels for the voice prompts, the media player, and the phone, touch **Mixer**. Adjust the levels as needed. Touch **Restore** to return the volume settings to the original levels.

Touch **Audio Output** to set up the FM transmitter. See pages 31.

Where To?

The  Where To? menu provides several different categories you can use to search for locations. To learn how to perform a standard search, see page 4.

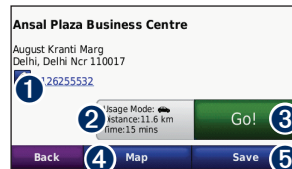
Searching Near Another Location

Your nüvi automatically searches for places near your current location.

1. Touch **Where To? > Near**.
2. Select an option:
 - **Where I Am Now**—search near your current location.
 - **A Different City**—search near the city you enter.
 - **My Current Route**—search along your route.
 - **My Destination**—search near your current destination.
3. Touch **OK**.

Go! Page Options

Touch an item in the search results list to view the Go! page.



- 1 Touch to call this location, if a mobile phone with Bluetooth wireless technology is connected
- 2 Touch to view the route on a map.
- 3 Touch to create a turn-by-turn route to this location.
- 4 Touch to view this location on the map.
- 5 Touch to save this location to your Favourites. See page 10.

Finding an Address

The steps to find an address can vary depending on the maps that are loaded on your nüvi.

1. Touch **Where To? > Address**.
2. Touch **Change State or Province**, if necessary.
3. Touch **Search All**.
OR
Touch **Spell City**, enter the city, and touch **Done**. Select the correct city in the list.
4. Enter the street name, and touch **Done**.
5. Select the correct street in the list, if necessary.
6. Touch the address, if necessary.



NOTE: The map preloaded does not support house number search.

Finding a Place by Spelling the Name







If you know the name of the location you are looking for, you can spell it using the on-screen keyboard. You can also enter letters contained in the name to narrow the search.

1. Touch **Where To? > Points of Interest > Spell Name**.
2. Using the on-screen keyboard, enter letters in the name.
3. Touch **Done**.

Using the On-Screen Keyboard

When an on-screen keyboard appears, touch a letter or number to enter it.



- Touch  to add a space.
- Touch  and  to move the cursor.
- Touch  to delete the character.
- Touch  to select words you have recently typed and selected.
- Touch **Mode** to change the keyboard language mode.
- Touch  to enter special characters.

Setting a Home Location

You can set a Home location for the place you return to most often.

1. Touch **Where To?** > **Go Home**.
2. Select an option:
 - Enter your address.
 - Use your current location.
 - Choose from a list of recently found locations.

Going Home

After you set your Home location, you can route to it at any time by touching **Where To?** > **Go Home**.

Changing Your Home Location

To set a new location as your Home location, use the Tools menu.

1. Touch **Tools** > **My Data** > **Set Home Location**.
2. Select an option:
 - Enter your address.
 - Use your current location.
 - Choose from a list of recently found locations.

Finding Recently Found Places

Your nüvi stores the last 50 of your recent finds in the Recently Found list. The most-recently viewed places appear at the top of the list. Touch **Where To?** > **Recently Found** to view your recently found items.


Clearing Recently Found Places

To remove all places from the Recently Found list, touch **Clear** > **Yes**. All items from the list are removed, but this does not delete the actual place from your nüvi.

Favourites

You can save places in your Favourites, so you can quickly find them and create routes to them. Your Home location is also stored in Favourites.

Saving Your Current Location

From the Map page, touch . Touch **Save Location** to save your current location.

Saving Places You Find

1. After you have found a place you want to save, touch **Save** on the Go! page.
2. Touch **OK**. The place is saved in **Favourites**.

Finding Saved Places

1. Touch **Where To?**.
2. Touch **Favourites**.
3. Touch a category. Your saved locations are listed.

Finding Your Last Position

Your Last Position is automatically saved each time you remove the nüvi from the cradle when the cradle is receiving power. Use this feature to find your car in a parking lot.

1. Touch **Where To?**.
2. Touch **Favourites > All Favourites > Last Position**.

Your Last Position is overwritten each time you remove the nüvi from the cradle when the cradle is receiving power.

Editing Saved Places

1. Touch **Where To? > Favourites**.
2. Touch the location you want to edit.
3. Touch **Edit**.
4. Touch an option to edit the location:
 - **Change Name**—enter a new name, and touch **Done**.
 - **Attach/Change Photo**—select a picture to assign to the location. To load pictures on your nüvi or SD card, see pages 25–26.

- **Change Map Symbol**—touch a new symbol.
- **Change Phone Number**—enter a phone number, and touch **Done**.
- **Change Categories**—create and change the category in which this location is saved.
- **Delete**—touch **Yes** to remove this item from the Favourites list.

Using Photo Navigation

You can load pictures that include location information on your nüvi or on an SD card, and then create routes to them.

1. Go to <http://connect.garmin.com/photos> to download pictures with location information.
2. Follow the instructions on the Web site to select and load pictures.
3. Touch **Where To? > Favourites > Panoramio™ Photos**. Pictures with location information are listed.
4. Touch a picture.

Using Custom Routes

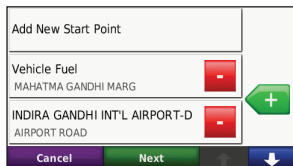
Touch **Where To?** > **Custom Routes**.



Select the route you want to take, and touch **Go!**.

Creating a Custom Route

Use your nüvi to create and save routes before your next trip. You can save up to 10 routes.

1. Touch **Where To?** (or **Tools**) > **Custom Routes** > **New**.
2. Touch **Add New Start Point**.
3. Find a location for your starting point, and touch **Select**.
4. Touch **Add New End Point**.
5. Find a location for your ending point, and touch **Select**.



6. Touch  to add another location to your route. Touch  to remove a location.

7. Touch **Next** to calculate your route and view it on the map.
8. Touch **Save** to save the route and exit.

Editing Custom Routes



1. Touch **Where To?** (or **Tools**) > **Custom Routes**.
2. Select the route you want to edit.
3. Touch **Edit**.
4. Touch an option to edit the route:
 - **Change Name**—enter a new name, and touch **Done**.
 - **Add or Remove Points**—add or remove points from the route.
 - **Manually Reorder Points**—change the order of points along your route.
 - **Optimally Reorder Points**—automatically order the points.
 - **Recalculate**—change the route preference to calculate by faster time, shorter distance, or off road.
 - **Delete**—remove this route.

Your changes are automatically saved when you exit any of the route edit pages.

Finding a Place Using the Map

To find a location on the map, touch **Where To? > Browse Map** or touch anywhere on the map.



- Touch and drag to view different parts of the map.
 - Touch **+** and **-** to zoom in and out.
 - Touch anywhere on the map. An arrow points to the location.
 - Touch **Save** to save this location.
 - Touch **Go!** to navigate to the location.
 - If the nüvi is in simulator mode, touch **Set Loc.** to set your location to the selected location. (See page 33.)
- Touch  to switch between a 3D (three-dimensional) map and a 2D (two-dimensional) map.
 - Touch  to rotate the viewing angle in 3D view.
 - As you zoom out, the map changes to a digital elevation map showing the contours of the area.
 - Zoom far out to view a globe. Touch and spin the globe to quickly find different areas of the world.



NOTE: You can only see detailed map information for areas that you have maps loaded on your nüvi.

Entering Coordinates


If you know the geographic coordinates of your destination, you can use your nüvi to navigate to your destination using the latitude and longitude coordinates (or other coordinate formats). This can be especially helpful when geocaching.

1. Touch **Where To? > Coordinates**.
2. Touch **Format** to select the correct coordinate format for the type of map you are using.
3. Touch a direction field to select a new direction.
4. Touch a numeric field to enter the coordinates, and touch **Done**.
5. After you have entered the proper coordinates, touch **Next**.

Using the Main Pages

Map Page

Touch  **View Map** to view the Map page.

- The  vehicle icon shows your current location.
- Touch and drag the map to view a different area of the map (see page 13).



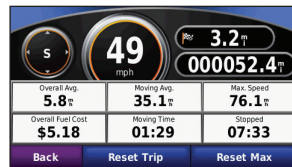
- 1 Touch to view the Next Turn page.
- 2 Touch to view the Turn List page.
- 3 Touch to zoom in and out.
- 4 Touch to view the Where Am I? page.
- 5 Touch to view the Trip Computer.
- 6 Touch to return to the Menu page.
- 7 Touch to customize this data field.

Changing the Data Field

You can display different information when you are driving and routing.

1. While navigating a route, touch the data field in the lower right corner of the Map page.
2. Select the data you want to appear.
3. Repeat steps 1 and 2 while not navigating a route.

Trip Computer



The Trip Computer displays your current speed and provides helpful statistics about your trip. To view the Trip Computer, touch the Speed field on the Map page.

If you make frequent stops, leave the nÜvi turned on so it can accurately measure elapsed time during the trip.

Resetting Trip Information

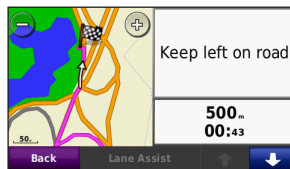
If you want accurate trip information, reset the trip information before beginning a trip. Touch **Reset Trip** to reset the information on the Trip Computer page. Touch **Reset Max** to reset the maximum speed.

Turn List Page



When you are navigating a route, the Turn List page displays turn-by-turn instructions for your entire route and the distance between turns. Touch the text bar on the top of the Map page to view the Turn List page. Touch a turn on the list to view the Next Turn page for that turn. Touch **Show Map** to view the entire route on the map.

Next Turn Page



When you are navigating a route, the Next Turn page shows the turn on the map and the distance and time left before you reach the turn.

To view an upcoming turn on the map, touch the upper-left corner of the Map page, or touch any turn on the Turn List page.

Using Hands-free Calling

Using Bluetooth technology, your nüvi can connect to your mobile phone to become a hands-free device.

To see if your device with Bluetooth technology is compatible with the nüvi, go to www.garmin.com/bluetooth.

Pairing Your Devices

Bluetooth wireless technology establishes a wireless link between devices, such as a mobile phone and the nüvi. The first time you use two devices together you must “pair” them by establishing a relationship using a PIN/passkey. After the initial pairing, the two devices can connect automatically each time you turn them on.

To pair and connect, your device and the nüvi must be turned on and be within 10 metres of each other. The nüvi can be connected to a phone and a headset at the same time.

Initiate pairing from your nüvi or from your device. Refer to the instructions for your devices.

When you turn on the nüvi, it tries to connect to the last device to which it was connected. You might have to set your device to connect to the nüvi automatically when it is turned on.

When your phone is connected to your nüvi, you are ready to make phone calls. From the Menu page, touch **Phone** to access the Phone menu.

Pairing Your Phone Using the Phone

1. Enable the Bluetooth component on your phone. This might be in a menu called Settings, Bluetooth, Connections, or Hands-free.
2. Initiate a search for Bluetooth devices.
3. Select the nüvi from the list of devices.
4. Enter **1234** into your phone.

Pairing Your Phone Using the nüvi

1. From the Menu page, touch **Tools** > **Settings** > **Bluetooth**.
2. Under Phone, touch **Add** (or **Change**).
3. Enable the Bluetooth component on your phone. Enable Find Me/ Discoverable/Visible mode. These settings might be in a Bluetooth, Connections, or Hands-free menu.
4. Touch **OK** on the nüvi.
5. Select your phone, and touch **OK**.
6. Enter **1234** into your phone.

Receiving a Call

When you receive a call, the Incoming Call window appears. Touch **Answer** to answer the call. Touch **Ignore** to ignore the call and silence the ring.

The internal microphone is in the front of the nüvi.

In a Call

To end a call, touch  > **End Call**. Touch  > **Call Options** for the following options:

- **Touch Tones**—displays a keypad page so you can use automated systems, such as voice mail.
- **Transfer Audio To Phone**—this is helpful if you want to turn off the nüvi but stay on the call, or if you need privacy. To switch back, touch **Transfer Audio To Device**.
- **Mute Microphone**.

Phone Menu

From the Menu page, touch **Phone** to view the Phone menu. Touch **Status** to view the signal strength, the battery level, and the name of the connected phone.




NOTE: Not all phones support all features of the nüvi Phone menu.

Using Your Phone Book

Each time your mobile phone connects with the nüvi, the phone book is automatically loaded into the nüvi. It may take a few minutes for the phone book to be available.

1. Touch **Phone > Phone Book**.
2. Touch the phone book entry (contact you want to call).
3. Touch **Dial** to call the contact.

Dialing a Point of Interest

1. Touch **Phone > Points of Interest**.
2. Search for the point of interest you want to call.
3. Touch **Dial** or .

Dialing a Number

1. Touch **Phone > Dial**.
2. Enter the number, and touch **Dial**.

Viewing Your Call History

Each time your phone connects to the nüvi, your call history is automatically transferred to the nüvi. It may take a few minutes to transfer this data to the nüvi.

1. Touch **Phone > Call History**.
2. Touch a category to view those calls. The calls are listed in chronological order, with the most recent calls at the top of the list.
3. Touch an entry, and touch **Dial**.

Calling Home

Enter a phone number for your Home location, so you can quickly call home.

To enter your phone number:

1. Touch **Phone** > **Call Home**.
2. Touch **Enter Phone Number** to use the keypad page, or touch **Select From Phonebook** (only available if your phone supports phone book transfer).
3. Touch **Done** > **Yes**. The nüvi dials your home phone number.

To call home:

1. Touch **Phone** > **Call Home**.
2. The nüvi dials your home phone number.

Placing Calls Using Voice Dial

You can place calls by speaking the contact name.

1. Touch **Phone** > **Voice Dial**.
2. Speak the contact name.



NOTE: You may need to “train” your mobile phone to recognize your voice dial commands. Refer to the instructions for your phone.

Using the Media Players

Using a Wireless Headset

To listen to high-quality audio, you can connect an Advanced Audio Distribution Profile (A2DP) Bluetooth headset.

For more information about Bluetooth technology, see page 17.

To pair and connect, your device and the nüvi must be turned on and be within 10 metres of each other.

Pairing Your Headset

1. From the Menu page, touch **Tools** > **Settings** > **Bluetooth**.
2. Under Audio, touch **Add** (or **Change**).
3. Turn on your headset, and enable Find Me/Discoverable/Visible mode, if necessary.
4. Touch **OK** on the nüvi.
5. Select your headset, and touch **OK**.






6. Enter the Bluetooth PIN/passkey for your headset, if necessary, and touch **Done**.
7. Touch **OK**.


Playing Music

Load music files to the internal memory or SD card. See pages 25–26.

1. Touch **Tools** > **Media Player**.
2. Touch **Source** to view the MP3 player.
3. Touch **Browse**.
4. Touch a category and a subcategory, if necessary.
5. To play the entire category from the beginning of the list, touch **Play All**. To play a specific song, touch the title.



- Touch the playlist to add songs, remove songs, and skip to another song in the playlist.
- Touch  to adjust the volume.
- Touch  to play the current song from the beginning; touch again to play the previous song on the playlist. Touch and hold to rewind through the current song.
- Touch  to skip to the next song. Touch and hold to fast-forward through the current song.
- Touch  to pause the song.
- Touch  to repeat the current playlist.

- Touch  to shuffle the playlist.
- Touch the album art to view details about the song or to remove this song from the playlist.

Supported File Types

The nüvi supports MP3 music files, and M3U and M3U8 playlist files.

Creating and Listening to Playlists

Using your nüvi, you can listen to playlists created on your computer. You can also save playlists using your nüvi.

To save your current playlist:

1. While listening to music, in the music player, touch **Browse > Playlist > Save Current Playlist**.
2. Enter a name, and touch **Done**.

To create a new playlist:

1. In the music player, touch **Browse > Playlist > Create New Playlist**.
2. Select songs.
3. Touch **Back** when you have finished adding songs to your playlist.

To create a playlist on a computer:

1. Using your computer and an audio program, create a playlist of music files. Save the playlist as an M3U or M3U8 file.
2. If necessary, use a text editor application to remove the path to the file names in the M3U file. The M3U file should only list the music file names. Refer to the audio program Help file.
3. Transfer the playlist and the music files to the nüvi (see pages 25–26). The M3U file must be in the same location as the music files.

To play a playlist:

1. In the music player, touch **Browse > Playlist > Open Saved Playlist**. All available playlists appear.
2. Touch a playlist to start playing the music files.

To edit the current playlist:

1. While listening to music, in the music player, touch the playlist.
2. Edit the playlist:
 - Touch **Add** to add a song to the end of the playlist.
 - Touch a song, and then touch **Remove** to remove it from the playlist.





Listening to Audible Books

To purchase books from Audible.com®, go to <http://garmin.audible.com>.



Listening to a Book

1. Touch **Tools** > **Media Player**.
2. Touch **Source** to view the audible book player.
3. Touch **Browse**.
4. Touch a category, and then touch a book title.



- Touch  to adjust the volume.
- Touch  to skip a section and  to jump back. Touch and hold to move forward or backward.
- Touch  to pause the book.
- Touch the book cover art to view more detailed information.

Using Bookmarks

To create a bookmark, touch  and **Bookmark**. To view your bookmarks, touch , and then touch a bookmark. Touch **Play** to listen to the book from the bookmark.

Managing Files

You can store files, such as MP3s and JPEG image files, in the nüvi internal memory or on an optional SD card.



NOTE: The nüvi is not compatible with Windows® 95, 98, Me, or NT. It is also not compatible with Mac® OS 10.3 and earlier. This is a common limitation of most USB mass storage devices.

Supported File Types

- MP3 music files
- M3U and M3U8 music playlist files
- AA audio book files
- JPEG and JPG image file
- GPI custom POI files from the POI Loader application
- Maps, routes, and waypoints from MapSource®

Loading Files

Step 1: Insert an SD Card (Optional)

To insert or remove the card, press it in until it clicks.

Step 2: Connect the USB Cable

Connect the mini-USB connector to the connector on the bottom of the nüvi. Connect the larger end of the cable to an available USB port on your computer.

Your nüvi and SD card appear as removable drives in My Computer on Windows computers and as mounted volumes on Mac computers.





NOTE: On some operating systems or computers with multiple network drives, the nüvi drives may not appear. See the operating system Help file to learn how to map the drives.

Step 3: Transfer Files to Your nüvi

Copy and paste files from your computer into the nüvi drives/volumes.

1. Browse your computer for the file you want to copy.
2. Highlight the file, and select **Edit > Copy**.
3. Open the “Garmin” or SD card drive/volume.
4. Select **Edit > Paste**. The file appears in the list of files on the nüvi memory or SD card.

Step 4: Eject and Unplug the USB Cable

When you are finished transferring files, click the  eject icon in your system tray, or drag the volume icon to the  trash can on Mac computers. Unplug your nüvi from your computer.

Deleting Files

With the nüvi connected to your computer, open the nüvi or SD card drive/volume. Highlight the file that you want to delete, and press the **Delete** key on your computer keyboard.



CAUTION: If you are not sure about the purpose of a file, do **NOT** delete the file. Your nüvi memory contains important system files that should **NOT** be deleted. Be especially cautious of files located in folders entitled “Garmin.”

Using the Tools

The Tools menu provides many features that are helpful when you are traveling across town or across the globe.

Settings

For information about the settings, see pages 33–37.

Where Am I?

Touch **Tools** > **Where Am I?** to view information about your current location. This is a helpful feature if you need to tell emergency personnel your location. Touch a button on the right to view the nearest locations in that category. Touch **Save Location** to save your current location.



Help

Touch **Tools** > **Help** to get information about using your nüvi. Touch a category to view information about a topic. To search the topics for a keyword, touch **Search**.

Media Player

For information about the media player see pages 21–24.

Picture Viewer

View pictures that you have stored in your nüvi.

1. Touch **Tools > Picture Viewer**.
2. Touch a picture to view a larger image of it. Touch **Info** to view file information and view this photo when you turn on the nüvi. Touch **Back**.
3. Touch the arrows to view all the images.

Viewing a Slide Show

1. Touch **Tools > Picture Viewer > Slide Show** to start a slide show.
2. Touch anywhere on the screen to stop the slide show.

Custom Routes

For information about routes, see page 12.

My Data

Touch **Tools > My Data** to manage and delete your saved data, such as your Favourites.

If you have transferred a route from MapSource, touch **Import Route from File** to use the route in your nüvi.

World Clock

Touch **Tools > World Clock** to view the current time for different cities around the world. Touch **World Map** to view a map.


To change a city:

1. Touch **Tools > World Clock**.
2. Touch the city you want to change.
3. Enter the new city and touch **Done**.
4. Touch the new city in the list, and touch **Save**.

Language Guide

The Garmin Language Guide puts data from Oxford's multilingual resources and five bilingual dictionaries in the palm of your hand.

Words and Phrases


1. Touch **Tools > Language Guide > Words and Phrases**.
2. Touch **Language**, select the **From** and **To** languages, and touch **Back**.
3. Select a category, and search for a phrase.
4. Touch **Search** to spell the word or phrase, if necessary. Touch a phrase to view the translation.
5. Touch  to hear the translation.

Words and Phrases Tips

- Use **Search for Keyword in Phrases** to find all of the phrases that contain a specific word.
- Touch an underlined word to use a different word.
- Touch **More Variations** to change words in the phrase or get a different translation.

Bilingual Dictionaries

The Garmin Language Guide provides five bilingual dictionaries.

1. Touch **Tools > Language Guide**.
2. Touch **Bilingual Dictionaries**.
3. Touch a translation option. If necessary, touch **To English**.
4. Search for the word, and touch it.
5. Touch  to hear the translation.

Bilingual Tips

- Touch **Search** to spell the word or the beginning of the word.
- Touch **Legend** to view information on abbreviations, labels, and pronunciation symbols for the selected language.

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Oxford University Press and Bibliographisches
Institut & F.A. Brockhaus 2003.

Calculator

1. Touch **Tools** > **Calculator**.
2. Enter the first number of your calculation.
3. Touch an operator (**÷**, **x**, **-**, or **+**).
4. Enter the second number of your calculation.
5. Touch **=**.
6. Touch **C** to perform a new calculation.


Unit Converter

1. Touch **Tools** > **Unit Converter**.
2. Touch **Converters**, select a unit to convert, and touch **OK**.
3. Touch a unit of measure that you want to change.

4. Select a unit of measure, and touch **OK**. Repeat if necessary.
5. Touch a blank rectangle.
6. Enter a value, and touch **Done**. The unit is converted.
7. Touch **Clear** to enter another value.

Updating Conversion Rates

The nüvi allows you to update the currency conversion rates manually so that you are always using the most current rates.

1. Touch **Tools** > **Unit Converter** > **Conversion** > **Currency** > **OK** > **Update**.
2. Touch the rate you want to update.
3. Touch  to erase the current rate. Enter a new rate, and touch **Done**.
4. Touch **Save** to finish.
Touch **Restore** to use the original rate.

Playing Audio Through Your Vehicle Speakers

Check local laws before using the FM transmitter in your area.

If an FM transmitter is available on your nüvi, you can listen to the nüvi audio on an FM stereo.



NOTE: When using the FM transmitter function on the nüvi, hands-free phone calls through the nüvi might be overheard by adjacent vehicles through the FM stereo.

1. From the Menu page, touch **Volume > Audio Output > FM Transmitter > OK**.
2. Tune your stereo to an FM channel that has a lot of static and has a low FM frequency number.
3. Touch the **Current FM Frequency** button.
4. Touch **-** and **+** to select the same frequency to which your stereo is tuned.

Frequency Selection Tips

For best results, select a frequency below 90.1 FM.

When searching for an appropriate FM frequency on your FM stereo, look for an unused frequency that has steady, consistent static. If you hear slight noises and sounds in the background of the static, select a different frequency.

As you travel, you might need to change the frequency for the FM transmitter. A frequency not used by a radio station in your area might be used by a station elsewhere.

FM Transmitter Information

The FM transmitter is intended to transmit the audio from the nüvi to your FM stereo.

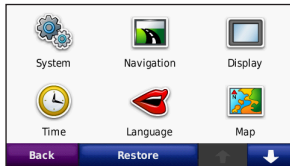
Do not adjust your FM settings while you are driving your vehicle.

The distance between the vehicle power cable, the nüvi, and the FM stereo antenna may also affect the noise level. Vehicles with antennas located far away, such as a rear-mounted antenna, may experience more interference from outside noise sources than vehicles with front-mounted antennas.

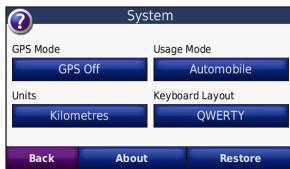
As you drive, you may notice changes in the background static even though there is no FM station using that channel. You may notice this as you drive through intersections where certain kinds of traffic lights or other municipal electronic systems are operating. You might also notice this effect when the terrain changes, allowing distant stations to be received by your car stereo that were not received when you made your initial frequency selection. These and other sources of electrical interference may make it necessary to look for another frequency.

Customising the nüvi

1. Touch **Tools > Settings**.



2. Touch the setting you want to change.



3. Touch the button below the setting name to change it.

Changing the System Settings

Touch **Tools > Settings > System**.

GPS Mode—enable the simulator to turn off the GPS mode and simulate navigation. This also saves battery power.

Usage Mode—specify how you will be navigating to optimize routes: **Truck**, **Automobile**, **Bicycle**, or **Pedestrian**.

Units—change units of measure to **Kilometres** or **Miles**.

Keyboard Layout—select **QWERTY** for a layout similar to a typewriter, or select **ABCDE** for an alphabetical layout.

About—display the software version number, unit ID number, and audio version number for your nüvi. You need this information when you update the system software or purchase additional maps.

Restore—restore the original system settings.

Changing the Navigation Settings

Touch **Tools** > **Settings** > **Navigation**.

Route Preference—select a preference for calculating your route:

- **Faster Time**—to calculate routes that are faster to drive but can be longer in distance.
- **Shorter Distance**—to calculate routes that are shorter in distance but can take more time to drive.
- **Off Road**—to calculate point-to-point routes (without roads).


Avoidances—select the road types you want to avoid or you would prefer to take on your routes.

Restore—restore the original navigation settings.

Adjusting the Display Settings

Touch **Tools** > **Settings** > **Display**.

Colour Mode—select **Daytime** for a light background, **Night-time** for a dark background, or **Auto** to automatically switch between the two.

Screen Shot—enable screen shot mode. Touch  to take a screen shot. The picture bitmap file is saved in the **Garmin/Screenshot** folder on the nüvi drive.

Brightness—adjust the backlight brightness level. Reducing the backlight brightness increases your battery life.

Touch Screen - select **Recalibrate** to adjust the sensitivity of the touch screen.

Restore—restore the original display settings.

Updating the Time Settings

Touch **Tools** > **Settings** > **Time**.

Time Format—select a 12-hour, 24-hour, or UTC time format.

Current Time—select **Automatic** to update the time automatically. When **Automatic** is not selected, you can adjust the time in 15-minute increments.

Restore—restore the original time settings.

Setting the Languages

Touch **Tools** > **Settings** > **Language**.

Voice—change the language for voice prompts.

Text Language—change all on-screen text to the selected language. Changing the text language does not change the language of user-entered data or map data, such as street names.

Keyboard—select the keyboard for your language. You can also change the keyboard language mode from any keyboard by touching the **Mode** button.

Restore—restore the original languages.

Changing the Map Settings

Touch **Tools** > **Settings** > **Map**.

Map Detail—adjust the amount of detail shown on the map. Showing more detail may cause the map to redraw slower.

Map View—select a map perspective.

- **Track Up**—display the map in two dimensions (2D) with your direction of travel at the top.
- **North Up**—display the map in 2D with North at the top.
- **3D**—display the map in three dimensions (3D) in Track Up.

Vehicle—touch **Change** to change the icon used to display your position on

the map. Touch the icon you want to use, and then touch **OK**. Download additional vehicle icons at www.garmin.com.

Trip Log—show or hide the log of your travels. To clear your trip log, touch **Tools > My Data > Clear Trip Log**.

Map Info—view the maps loaded on your nüvi and their version. Touch a map to enable (check mark) or disable (no check mark) that map.

Restore—restore the original map settings.

Adding Security

Touch **Tools > Settings > Security**.

Garmin Lock—turn on Garmin Lock™ to lock your nüvi. Enter a 4-digit PIN, and set a security location. For more information, see page 38.

Safe Mode—turn on or off safe mode. When your vehicle is moving, safe

mode disables all functions that require significant operator attention and could become a distraction while driving.

Restore—restore the original security settings. Restoring the security settings will not clear your Garmin Lock PIN or security location.

Bluetooth Technology Settings


Touch **Tools > Settings > Bluetooth**.

Phone or **Audio**—select **Add > OK** to pair with a device that has Bluetooth wireless technology. To listen to high-quality audio wirelessly, connect to an A2DP Bluetooth headset. See pages 17–20. Select **Change** to pair and connect with a different device. The nüvi PIN code (or passkey) is **1234**.

Drop—select the device you want to disconnect, and touch **Yes**.

Remove—select the device you want

to delete from the nüvi memory, and touch **Yes**.

Bluetooth—enable and disable the Bluetooth component. The  **Bluetooth** icon appears on the Menu page if the Bluetooth component is enabled. To prevent a device from automatically connecting, select **Disabled**.

Friendly Name—enter a friendly name that identifies your nüvi on devices with Bluetooth technology. Touch **Done**.

Restore—restore the original Bluetooth settings. This does not clear the pairing information.

Changing the Proximity Points Settings

You must have proximity points (such as custom POIs, a safety camera database, or a TourGuide® file) loaded to adjust the proximity point settings. See pages 39–40. Touch **Tools > Settings >**

Proximity Points.

Proximity Alerts—touch **Change** to turn on or off the alerts when you approach custom POIs or safety cameras.

Restore—restore the original proximity points settings.

Restoring All Settings

1. Touch **Tools > Settings**.
2. Touch **Restore**.
3. Touch **Yes**.

Clearing User Data



CAUTION: This deletes all user-entered information.

1. Hold your finger on the lower-right corner of the nüvi screen while turning on the nüvi.
2. Keep your finger pressed until the message appears.
3. Touch **Yes** to clear all user data.

All original settings are restored. Any items that you have saved are erased.

Appendix

Ways to Charge Your nüvi

- Use the vehicle power cable.
- Use the USB cable.
- Use an optional AC adapter cable.

Calibrating the Screen

If the touchscreen is not responding properly, calibrate the touchscreen.

1. Turn off the nüvi.
2. Hold your finger on the middle of the screen.
3. Turn on the nüvi, and immediately slide the power button to the right (lock).
4. Continue to hold your finger on the screen for about one minute until the calibration screen appears.
5. Follow the on-screen instructions.

6. Slide the power button to the middle to unlock the screen.

Or you can touch

Tools>Settings>Display>Touch Screen, and select **Recalibrate** to adjust the sensitivity of the screen.

Locking Your nüvi

Garmin Lock is a theft-deterrent system that locks your nüvi. Each time you turn on the nüvi, enter the PIN or drive to the security location.

1. Touch **Tools > Settings > Security**.
2. Touch the button below **Garmin Lock**.
3. Enter a 4-digit PIN, and drive to a security location.

What is a Security Location?

Select a location you return to often, such as your home, for your security location. If the nüvi has satellite signals and you are at the security location, you

do not need to enter the PIN.



NOTE: If you forget your PIN and your security location, you must send your nüvi to Garmin to get it unlocked. You must also send a valid product registration or proof of purchase.

Additional Maps

You can purchase additional maps for your nüvi. To see a list of maps that are compatible with your nüvi, go to your nüvi product page on the Garmin International Web site (www.garmin.com), and click the **Maps** tab.

Updating the Software

1. Go to www.garmin.co.in and click **Software Update**.
2. Follow the instructions to download and install the latest software.

You may also contact Garmin authorised dealer for software update.

Extras and Optional Accessories

For more information about optional accessories, go to <http://buy.garmin.com>, www.garmin.com/extras, or contact your Garmin dealer.

Custom Points of Interest

Use the POI Loader to load custom points of interest (POIs) onto your nüvi. POI databases are available from various companies on the Internet. Some custom databases contain alert information for points, such as safety cameras and school zones.

Go to www.garmin.com/extras, and click **POI Loader** to install the POI Loader onto your computer. For more information, refer to the POI Loader Help file. Press **F1** to view the Help file.

To view your Custom POIs, touch **Where To? > Extras > Custom POIs**. To change the proximity alert settings, touch **Tools > Settings > Proximity Points > Proximity Alerts**.


To delete the Custom POIs from

your nüvi, connect your nüvi to your computer. Open the **Garmin\poi** folder in the nüvi drive or the SD card drive.

Delete the file entitled **poi.gpi**.

Battery Information

Your nüvi contains an internal, non-replaceable, lithium-ion battery. Do not remove or attempt to remove the battery. Doing so could result in risk of battery fire or damage and injury.

The  battery icon in the corner of the Menu page indicates the status of the internal battery. To increase the accuracy of the battery gauge, fully discharge the battery and then fully charge it; do not unplug the nüvi until it is totally charged.

Contact your local waste disposal department for information on properly disposing of the unit.

Maximizing the Battery Life

- Turn down the backlight (**Tools > Settings > Display > Brightness**).

- Do not leave your nüvi in direct sunlight. Avoid prolonged exposure to excessive heat.

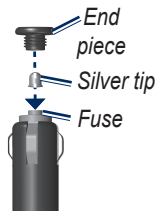
Changing the Fuse



CAUTION: When replacing the fuse, do not lose any of the small pieces and make sure they are put back in the proper place.



If your unit will not charge in your vehicle, you may need to replace the fuse located at the tip of the vehicle adapter.

1. Unscrew the black, round end piece, and remove it.
2. Remove the fuse (glass and silver cylinder), and replace with a 3A fast blow fuse.
3. Ensure that the silver tip is placed in the black end piece. Screw on the black end piece.



About GPS Satellite Signals

Your nüvi must acquire GPS (Global Positioning System) satellite signals to navigate. If you are indoors, near tall buildings or trees, or in a parking garage, your nüvi cannot acquire satellites. Go outside to an area free from tall obstructions to use your nüvi.

When your nüvi has acquired satellite signals, the signal strength bars on the Menu page are green . When it loses satellite signals, the bars turn red or clear .

For more information about GPS, refer to the GPS Guide. (See page 49)

Mounting on Your Dashboard

Use the enclosed mounting disk to mount your unit to the dashboard.



CAUTION: The **permanent** mounting adhesive is extremely difficult to remove after it is installed.

1. Clean and dry the dashboard where you are placing the disk.
2. Remove the backing from the adhesive on the bottom of the disk.
3. Place the disk on the dashboard.
4. Remove the clear plastic cover from the top of the disk.
5. Place the suction cup mount on top of the disk. Flip the lever down (toward the disk).

Removing the nüvi and Mount

To remove the nüvi from the cradle, press the button on the bottom of the cradle up, and tilt the nüvi forward.

To remove the cradle from the mount, turn the cradle to the right or left. Apply pressure until the socket on the cradle releases the ball on the mount.

To remove the suction cup mount from the windshield, flip the lever toward you. Pull the tab on the suction cup toward you.

Caring for Your nüvi

Your nüvi contains sensitive electronic components that can be permanently damaged if exposed to excessive shock or vibration. To minimize the risk of damage to your nüvi, avoid dropping your unit and operating it in high-shock and high-vibration environments.

Cleaning the Casing

The nüvi is constructed of high-quality materials and does not require user maintenance other than cleaning. Clean the outer casing (not the touchscreen) using a cloth dampened with a mild detergent solution, and then wipe dry. Avoid chemical cleaners and solvents that can damage plastic components.

Cleaning the Touchscreen

Clean the touchscreen with a soft, clean, lint-free cloth. Use water, isopropyl alcohol, or eyeglass cleaner, if needed. Apply the liquid to the cloth, and then gently wipe the touchscreen.

Protecting Your nüvi

- Do not store the nüvi where prolonged exposure to extreme temperatures can occur, because it can cause permanent damage. Do not expose the nüvi to water. Contact with water can cause this unit to malfunction.
- Though a PDA stylus can be used to operate the touchscreen, never attempt this while operating a vehicle. Never use a hard or sharp object to operate the touchscreen, or damage may result.

Avoiding Theft

- To help avoid theft, remove the unit and mount from sight when not in use. Remove the residue on the windshield left by the suction cup.
- Do not keep your unit in the glove compartment.
- Register your product at <http://my.garmin.com>.
- Use the Garmin Lock feature. See page 38.

Declaration of Conformity

Hereby, Garmin declares that this nüvi product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. To view the full Declaration of Conformity, see the Garmin Web site for your Garmin product: www.garmin.com.

Software License Agreement

BY USING THE nüvi, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

Garmin grants you a limited license to use the software embedded in this device (the “Software”) in binary executable form in the normal operation of the product. Title, ownership rights, and intellectual property rights in and to the Software remain in Garmin.

You acknowledge that the Software is the property of Garmin and is protected under the United States of America copyright laws and international copyright treaties. You further acknowledge that the structure, organization, and code of the Software are valuable trade secrets of Garmin

and that the Software in source code form remains a valuable trade secret of Garmin. You agree not to decompile, disassemble, modify, reverse assemble, reverse engineer, or reduce to human readable form the Software or any part thereof or create any derivative works based on the Software. You agree not to export or re-export the Software to any country in violation of the export control laws of the United States of America.

Specifications

Physical size (W × H × D): 121.7 × 75.2 × 19.5 mm (4.79 × 2.96 × 0.77 in.)

Weight: 175 g (6.17 oz.)

Display: (W x H) 4.7 x 5.7 cm , 10.9 cm (4.3”) diagonal, 480 × 272 pixels; WQVGA TFT landscape display with white backlight and touchscreen

Case: Not waterproof (IPX0)

Operating Temperature range: from 32°F to 140°F (from 0°C to 60°C)

Charging Temperature range: from 32°F to 113°F (from 0°C to 45°C)

Data storage: Internal memory and optional removable SD card. Data stored indefinitely.

Computer interface: USB mass storage, plug-and-play

Headphone jack: Standard 3.5 mm

Charge time: Approximately 4 hours

Power input: DC vehicle power using included vehicle power cable or AC power using an optional accessory

Usage: 10 W max.

Battery life: Up to 3 hours depending on usage and settings

Battery type: Non-replaceable lithium-ion battery

GPS receiver: High-sensitivity

Acquisition times*:

Warm: <1 sec.

Cold: <38 sec.

Factory Reset: <45 sec.

*Average acquisition times for a stationary receiver with a clear view of the sky.

Troubleshooting

Problem/Question	Solution/Answer
My nüvi never gets satellite signals.	Take your nüvi out of parking garages and away from tall buildings and trees. Remain stationary for several minutes.
The suction cup will not stay on my windshield.	Clean the suction cup and windshield with rubbing alcohol. Dry with a clean, dry cloth. Mount the suction cup as described on page 2.
My nüvi does not charge in my vehicle.	<p>Check the fuse in the vehicle power cable.</p> <p>Ensure the vehicle is turned on and is supplying power to the power outlet.</p> <p>Your nüvi can only charge between 32°F and 113°F (0°C and 45°C). If the nüvi is placed in direct sunlight or in a hot environment, it cannot charge.</p>
How do I clear all my user data?	Hold your finger on the lower-right corner of the nüvi screen while it is turning on. Keep your finger pressed until the message appears. Touch Yes to clear all user data.
The nüvi is locked up/frozen.	If the nüvi screen stops functioning, turn off the nüvi, and then turn on the nüvi. If this does not help, slide the Power key to the left and hold it for 8 seconds. Turn on the nüvi again. The nüvi should operate normally.
The touchscreen is not responding to my touches properly.	<ol style="list-style-type: none"> 1. Turn off the nüvi. 2. Hold your finger in the middle of the screen. 3. Slide the power button to the left then immediately to the right (lock). Continue to hold your finger on the screen for about one minute until the calibration screen appears. 4. Follow the on-screen instructions. 5. Slide the power button to the middle to unlock the screen.

Problem/Question	Solution/Answer
My battery gauge does not seem accurate.	Allow the unit to fully discharge, and then fully charge it (without interrupting the charge cycle).
My phone will not connect to the nüvi.	Touch Tools > Settings > Bluetooth . Verify that the Bluetooth field is set to Enabled . Make sure your phone is turned on and is less than 10 metres (about 33 feet) away from your nüvi. Go to www.garmin.com/bluetooth for more help.
How do I know my nüvi is in USB mass storage mode?	When your nüvi is in USB mass storage mode, a picture of a nüvi connected to a computer is shown. Also, you should see two new removable disk drives listed in My Computer .
My computer never senses that the nüvi is connected.	<ol style="list-style-type: none"> 1. Unplug the USB cable from your computer. 2. Turn the nüvi off. 3. Plug the USB cable into your computer and your nüvi. The nüvi automatically turns on and goes into USB mass storage mode.
I cannot see any new removable drives in my list of drives.	If you have several network drives mapped on your computer, Windows may have trouble assigning drive letters to your nüvi drives. See the operating system Help file to learn how to map/assign drive letters.
How can I find restaurants near the hotel I will be staying at in the future?	<ol style="list-style-type: none"> 1. Touch Where To? > Near > Different City (and enter your vacation destination). 2. Find the hotel and touch Go! 3. Touch Menu > Where To? > Near > My Destination. 4. Search for a restaurant. Restaurants nearest your to hotel are listed first. <p>You can also use the GPS Simulator (Tools > Settings > System).</p>

Problem/Question	Solution/Answer
How can I find my car in a parking lot?	Touch Tools > Settings > Navigation > Route Preference > Off Road > OK to put the nüvi in Off Road mode. Touch Where To? > Favourites > Last Position > Go! . Navigate to your car!
How can I change the navigation mode to ride my bicycle?	Use Bicycle mode to optimize your route for biking. Touch Tools > Settings > System > Usage Mode > Bicycle > OK .
How can I walk to my destination not following roads?	Use Off Road mode. Touch Tools > Settings > Navigation > Route Preference > Off Road > OK . Select a destination and touch Go! to navigate off road to the destination.

GPS Beginner's Guide

Introduction

Global Positioning System (GPS) technology is changing the way we work and play.

You can use GPS technology when you are driving, flying, fishing, sailing, hiking, running, biking, working, or exploring. With a GPS receiver, you have an amazing amount of information at your fingertips. Here are just a few examples of how you can use GPS technology.

- Know precisely how far you have run and at what pace while tracking your path so you can find your way home
- Pinpoint the perfect fishing spot on the water and easily relocate it
- Get the closest location of your favourite restaurant when you are out-of-town
- Find the nearest airport or identify the type of airspace in which you are flying

What is GPS?

The Global Positioning System (GPS) is a satellite-based navigation system that sends and receives radio signals. A GPS receiver acquires these signals and provides you with information. Using GPS technology, you can determine location, velocity, and time, 24 hours a day, in any weather conditions anywhere in the world—for free.

GPS, formally known as the NAVSTAR (Navigation Satellite Timing and Ranging) Global Positioning System, originally was developed for the military. Because of its popular navigation capabilities and because you can access GPS technology using small, inexpensive equipment, the government made the system available for civilian use. The USA owns GPS technology and the Department of Defense maintains it.



GPS technology requires the following three segments:

- Space segment (50)
- Control segment (50)
- User segment (51)

Space Segment

At least 24 GPS satellites orbit the earth twice a day in a specific pattern. They travel at approximately 7,000 miles per hour about 12,000 miles above the earth's surface. These satellites are spaced so that a GPS receiver anywhere in the world can receive signals from at least four of them.

Each GPS satellite constantly sends coded radio signals (known as *pseudorandom code*) to the earth. These GPS satellite signals contain the following information:

- The particular satellite that is sending the information
- Where that satellite should be at any given time (the precise location of the satellite is called ephemeris data)
- Whether or not the satellite is working properly
- The date and time that the satellite sent the signal

The signals can pass through clouds, glass, and plastic. Most solid objects such as buildings attenuate (decrease the power of) the signals. The signals cannot pass through objects that contain a lot of metal or objects that contain water (such as underwater locations).

The GPS satellites are powered by solar energy. If solar energy is unavailable, for example, when the satellite is in the earth's shadow, the satellites use backup batteries to continue running. Each GPS satellite is built to last about 10 years. The Department of Defense monitors and replaces the satellites to ensure that GPS technology continues to run smoothly for years to come.

Control Segment

The control segment is responsible for constantly monitoring satellite health, signal integrity, and orbital configuration from the ground. The control segment includes the following sections:

- Master control station
- Monitor stations
- Ground antennas

Monitor Stations

At least six unmanned monitor stations are located around the world. Each station constantly monitors and receives information from the GPS satellites and then sends the orbital and clock information to the master control station (MCS).

Master Control Station (MCS)

The MCS is located near Colorado Springs in Colorado. The MCS constantly receives GPS satellite orbital and clock information from the monitor stations. The controllers in the MCS make precise corrections to the data as necessary, and send the information (known as ephemeris data) to the GPS satellites using the ground antennas.

Ground Antennas

Ground antennas receive the corrected orbital and clock information from the MCS, and then send the corrected information to the appropriate satellites.

User Segment

The GPS user segment consists of your GPS receiver. Your receiver collects and processes signals from the GPS satellites that are in view and then uses that information to determine and display your location, speed, time, and so forth. Your GPS receiver does not transmit any information back to the satellites.

How Does GPS Technology Work?

The following points provide a summary of the technology at work:

- The control segment constantly monitors the GPS constellation and uploads information to satellites to provide maximum user accuracy.
- Your GPS receiver collects information from the GPS satellites that are in view.
- Your GPS receiver accounts for errors. For more information, refer to the Sources of Errors (Page 55) section.
- Your GPS receiver determines your current location, velocity, and time.
- Your GPS receiver can calculate other information, such as bearing, track, trip distance, distance to destination, sunrise and sunset time, and so forth.
- Your GPS receiver displays the applicable information on the screen.

Who Uses GPS?

GPS technology has many amazing applications on land, at sea, and in the air. You might be surprised to learn about the following examples of how people or professions are already using GPS technology:

Agriculture

In precision farming, GPS technology helps monitor the application of fertilizer and pesticides. GPS technology also provides location information that helps farmers plow, harvest, map fields, and mark areas of disease or weed infestation.

Aviation

Aircraft pilots use GPS technology for en route navigation and airport approaches. Satellite navigation provides accurate aircraft location anywhere on or near the earth.

Environment

GPS technology helps survey disaster areas and map the movement of environmental phenomena (such as forest fires, oil spills, or hurricanes). It is even possible to find locations that have been submerged or altered by natural disasters.

Ground Transportation

GPS technology helps with automatic vehicle location and in-vehicle navigation systems. Many navigation systems show the vehicle's location on an electronic street map, allowing drivers to keep track of where they are and to look up other destinations. Some systems automatically create a route and give turn-by-turn directions. GPS technology also helps monitor and plan routes for delivery vans and emergency vehicles.

Marine

GPS technology helps with marine navigation, traffic routing, underwater surveying, navigational hazard location, and mapping. Commercial fishing fleets use it to navigate to optimum fishing locations and to track fish migrations.

Military

Military aircraft, ships, submarines, tanks, jeeps, and equipment use GPS technology for many purposes including basic navigation, target designation, close air support, weapon technology, and rendezvous.

Public Safety

Emergency and other specialty fleets use satellite navigation for location and status information.

Rail

Precise knowledge of train location is essential to prevent collisions, maintain smooth traffic flow, and minimize costly delays. Digital maps and onboard inertial units allow fully-automated train control.

Recreation

Outdoor and exercise enthusiasts use GPS technology to stay apprised of location, heading, bearing, speed, distance, and time. In addition, they can accurately mark and record any location and return to that precise spot.

GPS Beginner's Guide

Space

GPS technology helps track and control satellites in orbit. Future booster rockets and reusable launch vehicles will launch, orbit the earth, return, and land, all under automatic control. Space shuttles also use GPS navigation.

Surveying

Surveyors use GPS technology for simple tasks (such as defining property lines) or for complex tasks (such as building infrastructures in urban centers). Locating a precise point of reference used to be very time consuming. With GPS technology, two people can survey dozens of control points in an hour. Surveying and mapping roads and rail systems can also be accomplished from mobile platforms to save time and money.

Timing

Delivering precise time to any user is one of the most important functions of GPS technology. This technology helps synchronize clocks and events around the world. Pager companies depend on GPS satellites to synchronize the transmission of

information throughout their systems. Investment banking firms rely on this service every day to record international transactions simultaneously.



How Accurate Is GPS?

GPS technology depends on the accuracy of signals that travel from GPS satellites to a GPS receiver. You can increase accuracy by ensuring that when you use (or at least when you turn on) your GPS receiver, you are in an area with few or no obstacles between you and the wide open sky. When you first turn on your GPS receiver, stand in an open area for a few moments to allow the unit to get a good fix on the satellites (especially if you are heading into an obstructed area). This gives you better accuracy for a longer period of time (about 4-6 hours). It takes between 65 and 85 milliseconds for a signal to travel from a GPS satellite to a

receiver on the surface of the earth. The signals are so accurate that time can be figured to much less than a millionth of a second, velocity can be figured to within a fraction of a mile per hour, and location can be figured to within a few metres.

WAAS/EGNOS

The Wide Area Augmentation System (WAAS) is a system of satellites and ground stations that provides even better position accuracy than the already highly accurate GPS. Europe's version of this system is the European Geostationary Navigation Overlay Service (EGNOS).

The Federal Aviation Administration (FAA) developed the WAAS program. It makes more airspace usable to pilots, provides more direct en route paths, and provides new precision approach services to runways, resulting in safety and capacity improvements in all weather conditions at all locations throughout the U.S. National Airspace System (NAS). Although it was designed for aviation users, WAAS supports a wide variety of other uses, for example, more precise marine navigation. To take advantage of WAAS technology, you must have a WAAS-capable GPS receiver in an area where WAAS satellite coverage

is available such as North America. No additional equipment or fees are required to take advantage of WAAS.

Sources of Errors

Errors can affect the accuracy of the GPS signal. Take your GPS receiver to an area with a wide and unobstructed view of the sky to reduce the possibility and impact of some errors. Here are some of the most common GPS errors.

- **Ionosphere and Troposphere Delays**—the satellite signal slows down as it passes through the atmosphere. The system uses a built-in model that calculates an average delay to partially correct this type of error.
- **Orbital Errors**—this terminology refers to inaccuracies of the satellite’s reported location.
- **Receiver Clock Errors**—the GPS receiver has a built-in clock that can have small timing errors.
- **Number of Satellites Visible**—obstructions can block signal reception, causing position errors or no position reading. The more satellites that your GPS receiver can view, the better the fix is.

- **Satellite Geometry/Shading**—refers to the relative position of the satellites at any given time. Ideal satellite geometry exists when the satellites are located at wide angles relative to each other. Poor geometry results when the satellites are located in a line or in a tight grouping.
- **Signal Multipath**—the GPS signal bounces off of objects, such as tall buildings or large rock surfaces, before it reaches the GPS receiver. This increases the travel time of the signal and, therefore, causes errors.

Buying a GPS Receiver

Deciding which GPS receiver to buy can be overwhelming. Think about how you want to use the unit, for example, traveling or running. Keep the following considerations in mind:

- **Product Level**—do you want the basics, or do you want all of the bells and whistles? You can find a unit that fits your needs and budget.
- **Power Source**—will you be using the unit away from an auxiliary power source? You might need to carry extra batteries. With some units, you can use a vehicle adapter or AC power source.

- **Portability**—do you have a preference between a portable or a built-in unit? Some units mount directly in the dashboard of your boat, car, or aircraft.
- **Mapping Capability**—do you want to know the general direction or street-level details of your chosen path? Map data can include streets, restaurants, tourist attractions, marine data, topography, and so forth.
- **Mounts**—a mount for your GPS can be useful to keep your hands free while navigating your bike, boat, car, or airplane. Many units come with a mount, and several additional mounts are available.
- **Ease of Use**—some receivers provide a tutorial or an easy-to-use touchscreen interface. Some even have turn-by-turn voice instructions as you are navigating your route.
- **Antenna Configuration**—where are you going to use the unit? With some units, you use only the built-in antenna. With other units, you can attach an external antenna to give you better reception.
- **Price**—which units fit your price range? An inexpensive entry-level unit can be a great way to enter the GPS world.
- **Software**—whether you want to save

your favourite locations or plan a trip, map software can help. You can use your PC or go directly to

- your GPS receiver. Your preference for map detail and your specific activities determine which software is right for you.

Complementary Navigation Aids

Remember, a GPS receiver is a complement to navigation and should not be the only navigational tool that you use. Using a paper map, a simple compass, and having knowledge of manual navigation is a good, safe practice.

For more detailed information on GPS technology, refer to the following Web sites:

- For more information about GPS technology, visit <http://gps.faa.gov>.
- For more information about the current status of the GPS satellites, visit <http://tycho.usno.navy.mil/gpscurr.html>.



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