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## Teach Me the Basics About...GPS Receivers

Purchasing a Global Positioning System, or GPS receiver, can be a difficult task. Depending on where you plan to use your receiver, you should carefully examine what functions that are available to you so that you can find the GPS receiver that best fits your needs. Whether you are boating, fishing, hiking, or flying, you should always have the security of knowing where you are and where you should be going.

Listed below are all the basic and added features you can learn about so you can know that you are buying the right GPS receiver.

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### GENERAL INFO:

#### Price

Average street price for a GPS receiver is approximately \$643.50. Most GPS receivers cost between \$115 and \$2,795.

#### Trends in Technology

##### *Increasing Portability*

GPS receivers are becoming smaller and lighter so that you don't have to worry about carrying excess weight or using too much space when

you travel. The lighter GPS receivers weigh about half a pound or less and are only a few inches tall and wide.

### *Better Accuracy*

GPS receivers are integrating new technology that will enable them to pinpoint locations more accurately and precisely. One such improvement is [Differential GPS](#), or DGPS.

### *More Software and Applications*

GPS receivers are being built with more specialized functions so that you can find and update information directly from your GPS receiver. GPS receivers are also integrating more functions normally found on cellular phones and PDA's so that you can make calls, find a location, and even check your e-mail with your GPS receiver.

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## **BASIC FEATURES:**

### **Channels**

GPS receivers have 2 types of channel receivers, multiplexing and parallel. Parallel receivers have either 8 channels or 12 channels.

#### *Multiplexing Channels*

Multiplexing channel receivers are the cheapest GPS receivers. GPS receivers with multiplexing channels average information taken from several satellites in sequential order. Because the data is averaged, the calculation process takes longer and the results are not as accurate as receivers with parallel channels.

Multiplexing receivers are best for areas that are clear of trees and flat.

#### *8 Parallel Channels*

8 parallel channels are more accurate than multiplexing channels. Parallel channel receivers receive information from 1 satellite per channel and are better than multiplexing receivers for woody and mountainous areas. 8

parallel channel receivers are more expensive than multiplexing receivers but less expensive than 12 parallel channels.

### *12 Parallel Channels*

12 parallel channels are slightly more accurate than 8 parallel channels. GPS receivers with 12 parallel channels are the most expensive receivers, but are the best receivers for traveling in mountainous and woody areas. Parallel channels receive information from 1 satellite per channel.

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### **Dimensions**

GPS receivers can be as small as 1 1/5 inches wide by 4 2/5 inches tall to as large as 12 1/2 inches wide by 7 1/2 inches tall. Portable receivers are smaller than mounted receivers.

### **LCD Screen**

The LCD screen is the screen on the GPS receiver that shows you the data that the GPS receiver has acquired. Portable receivers tend to have a screen at ranges from 1 square inch to about 4 square inches (2 inches by 2 inches). Mounted GPS receivers tend to have a LCD screen that is 4 diagonal inches to as large as 7 diagonal inches. (Diagonal inches is the length from top left corner to the lower right corner.)

### **Weight**

The average weight for a GPS receiver is a pound, or 16 ounces. Portable GPS receivers can be as light as 4 ounces, or a quarter pound, and mounted receivers can be as heavy as 2 pounds.

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### **ADDED FEATURES:**

#### **Alarms**

Marine Mounted GPS receivers can have several alarms including: anchor, arrival, cross-track, off-course, proximity.

##### *Anchor alarm*

Anchor alarms sound when you travel a certain distance away from a landmark that you have preset into the receiver.

### *Arrival alarm*

Arrival alarms alert you when you are approaching a preset destination point that you programmed into your GPS receiver.

### *Cross-track Error alarm*

Cross Track alarm notifies you when when you are deviate from the most direct course between A and B and lets you know how far off of the course you are.

### *Off-course alarm*

Off-course alarms alert you when you are deviate from your planned route by more than a preset distance.

### *Proximity alarm*

Proximity alarms alert you when you are within a certain preset distance from several fixed locations. These fixed locations may or may not be preset.

### *Other alarms*

There are other alarms that will also notify you when you are approaching shallow water or deep water, how far your missed your target location by, etc.

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## **Backlit Display**

GPS receivers with a backlit display allow you to see the GPS screen under various lighting conditions. This is a good feature to have if you plan on using your GPS receiver during the night or in dark areas.

## **Built-in Database**

Auto mounted GPS receivers can have built-in databases where maps and routes are stored.

## **Color Screens**

Some GPS receivers have color screens, enabling you to see landmarks easier and faster. Color screens are convenient for traveling over land or flying.

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## **DGPS**

DGPS, or differential GPS, increases the accuracy of GPS receivers by estimating the error factor of GPS signals and using the error factor to recalculate GPS data. DGPS receivers can either be built-in or ready.

### *DGPS Built-in*

GPS receivers can come with a DGPS receiver built into it. GPS receivers with a built-in DGPS receiver are more expensive than ones without DGPS.

### *DGPS Ready*

If you are not sure if you need a DGPS receiver, you can save money by purchasing a GPS receiver that is DGPS ready. DGPS ready receivers are GPS receivers that are compatible with DGPS so you can attach one later when you decide you do need it.

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## **Dual Sonar**

The dual sonar feature allows you to see both the GPS and sonar data on a split screen.

## **Fish Finder**

GPS receivers with a fish finder function will show you popular fishing locations in the area where you are located. This is a great function to have if you are an avid fisherman/woman.

## **Low Battery Indicator**

Low batter indicator is a feature that will show you when the battery is running low. This is a great feature to have if you plan on using your GPS receiver for long periods of time.

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## **Man-Over-Board**

Man-Over-Board function, or MOB, lets you measure the distance between an object or person in the water and your boat. This a great feature to have if you plan on being in crowded waters or if someone plans on swimming while the boat is on the water.

## Map Upload

Some Auto Mounted GPS receivers have a map upload function where you can upload maps from your PC, or computer, onto your GPS receiver. This is a great feature to have if you drive long distances and need maps to be updated or changed frequently.

## NMEA Data Output

NMEA (National Marine Electronics Association) data output allows you to communicate with other navigation computers, receivers, and radar with standardized, coded sentences. These sentences consist of symbols and codes that represent the following information:

- Latitude (your distance from the equator)
- Longitude (your distance from the Prime Meridian (perpendicular to the equator))
- Course Over Ground (where you are traveling and direction you are heading)
- Speed Over Ground (how fast you are traveling)
- Date
- Time

This feature allows you to let others know where you are located and lets you receive the same data from other people.

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## Odometer

An odometer allows you to see how far you have traveled. If you travel long distances or tend to lose your sense of direction easily, this would be a good feature to have.

## Position Coordinates

GPS receivers can also show the coordinates, longitude and latitude, of your location.

## Reverse Routes

This feature shows you how to take the exact reverse of a route you have already taken.

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## Routes

This feature allows you to plan and follow an exact route between two or more points.

### **Waterproof**

A good feature to have if you plan on using your GPS receiver near water.

### **Waypoint Icons**

Allows you to designate certain points along your route with an icon.

### **Zoom**

Allows you to see the map you are using at a higher magnification.

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