

GPS Unit Fact Sheet

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Global Positioning System (GPS) units are available for a wide variety of prices. The information presented in this document focuses on several of the least expensive models from several suppliers. The types of units discussed in this document are hand-held, flash-card, Bluetooth and secure digital units. The units are compared for several operational features. The following paragraphs describe the comparative features included in the tables throughout the publication.

the acres of areas outlined with the GPS unit. Area calculation function is not included with the flash-card, Bluetooth or secure digital units because they operate in conjunction with a Geographic Information System (GIS) software program on the host computer, which normally has the capacity to calculate area.

The differential correction signal used in hand-held GPS units is the Wide Area Augmentation System (WAAS) differential correction system the U.S. Federal Aviation Administration makes available throughout the United States without cost to the user. The WAAS differential correction signal provides GPS accuracy to less than 3 meters in hand-held units. WAAS is listed with XTrac capability for the flash-card, Bluetooth or secure digital units because they use either of the two features but not both simultaneously.

The suggested retail prices are based on averages found on various Web pages on the Internet. Price will vary by location and time.

The number of channels a GPS unit receives indicates the number of GPS satellites that can be used simultaneously to calculate position. Most units use four satellites to locate positions and then add additional satellites as the units receive more signals. Generally, receiving signals from more satellites will increase the position accuracy.

Battery life is listed for the hand-held and Bluetooth units. Bluetooth GPS units usually are shipped from the factory with rechargeable batteries. The compact flash and secure digital units use power from the attached computers, so they are listed with power usage in volts. The battery life for regular GPS units is listed in hours and refers to continuous use.

Area calculation indicates whether the unit has the capability to calculate

XTrac is a software program built into some GPS units that increases its sensitivity to GPS signals. The program does so by acquiring signals from GPS satellites with weaker signals, as well as the stronger satellite signals, before it calculates its position. For example, a normal GPS receiver will acquire signals from four satellites with the strongest signals to calculate its position. GPS units with XTrac also will acquire signals from two or more weaker satellites before outputting a position. The satellites with weaker signals usually are lower on the horizon, where the Earth's ionosphere and other objects that clutter the horizon, such as trees and buildings, may deteriorate the radio signals. Including the weaker signals increases the GPS unit's ability to

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Section 1 – Hand-held GPS Units

maintain a position fix in locations where signals are difficult to receive even though the accuracy likely will be diminished. XTrac extends the use of GPS units to areas where signals are difficult to receive, such as under tree canopies or near tall buildings.

The next feature included in tables in this publication is the ability to transfer GPS data from hand-held units to computers. Transferring data facilitates using the GPS data in GIS computer programs. Again, this feature is relevant only in hand-held units.

Some hand-held GPS units also are able to store background maps in built-in memory storage. The maps are proprietary and are available either online or on a CD or DVD. Available maps include roads, rivers, towns, elevation and background maps.

The display size is listed for hand-held units. Larger display sizes make seeing information on the screen easier, but normally increase the size of the unit. Hand-held GPS receivers allow users to zoom in to view areas in greater detail.

Two-way communication is an option only in hand-held GPS units. Two-way communication allows users to pass GPS locations back and forth between units. These units also function as two-way radios for voice communications between users. By using the two-way feature of these units, the geographic position of the companion unit is displayed on the first unit.

The compatible unit feature is included for the flash-card, Bluetooth or secure digital units because the compatible unit must operate in conjunction with a computer. Some units require specific computer operating systems.

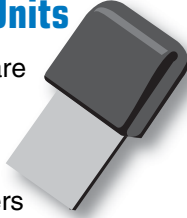
Hand-held GPS units are portable devices that can be used in a variety of settings. Hand-held units are marketed primarily for use in outdoor recreational activities; however, they are used in many other applications, too, such as measuring areas and marking points. The main advantages of hand-held GPS units are their lightweight and compact size.

Garmin					
Model	Rino 110	eTrex	eTrex Vista	Geko Vista	GPS Map 60
Suggested Retail Price	\$194.27	\$106.24	\$214.27	\$149.99	\$249.99
Receiver	12 channel	12 channel	12 channel	12 channel	12 channel
Built In Memory	1 MB	N/A	24 MB	N/A	1 MB
Battery Life	15 Hrs	22 Hrs	22 Hrs	12 Hrs	28 Hrs
Area Calculation	Yes	No	Yes	No	Yes
WAAS Capability	No	Yes	Yes	Yes	Yes
Ability to Transfer Waypoints to PC	Yes - Serial	Yes - Serial	Yes - Serial	Yes - Serial	Yes - Serial & USB
Map Options	No	No	Yes	No	MapSource
Display Size	1.4" x 1.4"	1.1" x 2.1"	1.1" x 2.1"	.92" x 1.44"	1.5" x 2.2"
Two-way Communication	Yes	No	No	No	No

Magellan			
Model	eXplorist 100	eXplorist 400	eXplorist 600
Suggested Retail Price	\$109.99	\$199.99	\$349.99
Receiver	14 Channels	14 Channels	14 Channels
Built In Memory	4 MB	16 MB	16 MB
Battery Life	18 Hrs	17 Hrs	17 Hrs
Area Calculation	No	Yes	Yes
WAAS Capability	Yes	Yes	Yes
Ability to Transfer Waypoints to PC	No	Yes - USB	Yes - USB
Map Options	No	MapSend	MapSend
Display Size	2.25" Diagonal	2.25" Diagonal	2.25" Diagonal
Two-way Communications	No	No	No

Lowrance			
Model	iFINDER GO	iFINDER EXPLORER	iFINDER EXPEDITION C
Suggested Retail Price	\$79.99	\$199.99	\$299.9
Receiver	16 Channels	16 Channels	16 Channels
Built In Memory	32 MB	N/A	SD Card
Battery Life	50 Hrs	22 Hrs	14 Hrs
Area Calculation	No	No	No
WAAS Capability	No	Yes	Yes
Ability to Transfer Waypoints to PC	No	Yes - Serial	Yes - Serial
Map Options	Built In	Yes	Yes
Display Size	2" Diagonal	3" Diagonal	2.83" Diagonal
Two-way Communications	No	No	No

Section 2 – Flash-card GPS Units



Flash-card GPS units are used with devices such as personal digital assistants (PDAs), laptops, tablet computers and Smartphones. The main advantage of a flash-card GPS unit is that it plugs directly into other devices and uses power from those devices. All the flash-card units are available with the following operating systems: Pocket PC 2000/2002, Windows Mobile 2003, WinCE, Net.

Flash Cards

Brand	Haicom	Holux	GlobalSat	TeleType	SysOn
Model	HI-303III	GM-270	BC-307	CF GPS Receiver V3.0	CF Plus II GPS
Suggested Retail Price	\$149.99	\$139.99	\$159.99	\$249.00	\$169.99
WAAS/eXtrac Capability	WAAS	WAAS	WAAS	WAAS	XTrac
Receiver	20 Channels	12 Channels	12 Channels	12 Channels	12 Channels
Power Voltage	3.3 Volts	3.3 Volts	3.3 Volts	3.3 Volts	3.3 Volts
Dimensions	120x48x21mm	91x50x20mm	95x47x17mm	3.3x1.63x1.5"	3.9 x1.85 x0.6"

Section 3 – Bluetooth GPS Units



Bluetooth GPS is a wireless radio technology that allows the GPS to receive position location data without a wire or cable connection. Bluetooth GPS units connect to laptops, tablet computers and PDAs wirelessly. The computer must be Bluetooth-enabled. The fact that Bluetooth GPS units can connect to PDAs without a cord makes them suitable for in-vehicle navigation. Bluetooth GPS units have internal batteries that normally are rechargeable.

Bluetooth GPS Units

Brand	i. Trek	Holux	GlobalSat	RoyalTek	SysOn
Model	M6	M-100	BT-359	RBT-2110	Bluetooth GPS Receiver Plus
Suggested Retail Price	\$129.99	\$79.99	\$159.99	\$169.99	\$189.99
WAAS/eXtrac Capability	WAAS	WAAS	WAAS	WAAS	XTrac
Receiver	20 Channels	32 Channels	20 Channels	20 Channels	12 Channels
Battery Life	10 Hrs	23 Hrs	11 Hrs	18 Hrs	9 Hrs
Dimensions	75x45x20mm	65x43x17.6mm	82x41x13mm	72x41x31.2mm	3.6 x2.2 x0.9"

Section 4 – Secure Digital GPS Units



Secure digital GPS units are much like flash-card units except they plug into the secure digital slot of a PDA, laptop or tablet computer. The choice to use a secure digital or compact flash-card GPS depends on the type and availability of expansion slots on the computers that will be used with the GPS unit.

Secure Digital (SD) GPS Units

Brand	SpecTec	Pharos	I. Trek	Pretec
Model	SDG-810 2-in-1 SDIO	M-100	SDIO GPS	SD GPS Receiver
Suggested Retail Price	\$89.99	\$229.99	\$179.99	\$139.99
WAAS/eXtrac Capability	WAAS	WAAS	N/A	XTrac
Receiver	20 Channels	12 Channels	12 Channels	12 Channels
Power Voltage	3.3 Volts	3.3 Volts	3.3 Volts	3.3 Volts
Dimensions	62x24x2.1mm	1.2x1.3x.55"	1.5x0.5x0.5"	3.1x1.2x0.7"

**Additional information is available from the suppliers
at the following Internet Web sites:**

Garmin: www.garmin.com

Magellan: www.magellangps.com

Haicom: www.haicom.com.tw/

SySon: www.sysonchip.co.kr/eng/index.html

RoyalTek: www.royaltek.com

GlobalSat: www.globalsat.com.tw/index.htm

Lowrance: www.lowrance.com

Holux: www.holux.com.tw/

I. Trek: www.semsons.com

TeleType: www.teletype.com

Pretec: www.pretec.com

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