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Since its incorporation in 1976, DeLorme has developed an unprecedented reputation as a leader in the mapping industry. From early beginnings as a paper atlas publisher, the company quickly emerged as a pioneering technological innovator. DeLorme not only embraced new technologies, it developed them.

In the mid-1990s, before GPS usage was widespread, DeLorme was pioneering laptop GPS solutions that today include the popular Earthmate GPS LT-20. Subsequent development led to industry-first GPS solutions for Pocket PC and Palm OS devices and more recently for Bluetooth GPS solutions.

For more information, visit www.delorme.com.

DeLORME

Earthmate® GPS PN-20

An All-in-One Handheld GPS Solution from DeLorme, the Leading Digital Mapping and GPS Company

User Manual

Earthmate® GPS PN-20 Accessories

We offer a variety of products designed to help you get the most out of your Earthmate GPS PN-20. For more information, be sure to visit www.delorme.com/pn20.

And, remember to use your Topo USA® software's NetLink tab to access your Aerial Data Packet downloads and other value-added content from DeLorme.

Also Available from DeLorme

DeLorme is a leading provider of mapping software for both consumer and professional markets. Our Street Atlas USA® software titles deliver intelligent mapping, routing, and GPS navigation solutions for laptop PCs and PDAs. XMap® is a three-tiered GIS software suite that integrates advanced geospatial data management into DeLorme's core GPS mapping framework.

We also publish the Atlas & Gazetteer™ series of topographic map books for individual states.

For more information, visit www.delorme.com.

Table of Contents

Getting Started

Thank you for purchasing the DeLorme Earthmate GPS PN-20. This versatile and compact GPS receiver lets you create tracks of your travels, create routes so you never get lost, find points of interest, and more!

This manual provides instructions for using all of the functionality available on the Earthmate GPS PN-20. Most of the chapters are based on "Pages" which are the main screens on the device. Each chapter describes the features of that particular Page as well as the Menu options which are available from that Page. In addition, this manual also discusses basic functions (such as map panning, battery information, map data information, and more) as well as frequently asked questions, warranty information, etc.

Step 1 — Installing the Batteries

The Earthmate GPS PN-20 is a battery-powered device. It can be powered by one rechargeable Lithium-ion battery or two AA batteries (NiCd, NiMH, alkaline, or lithium).

To install the batteries, unscrew the D-Rings on the back of the Earthmate GPS PN-20 until the battery cover is able to be removed. Then, insert the batteries according to the polarity symbols found inside of the battery compartment. When finished, position the battery cover back on the Earthmate GPS PN-20 and re-screw the D-Rings into the Earthmate GPS PN-20.

Step 2 — Turning On the Earthmate GPS PN-20

The Power button is located at the bottom-right corner of the button area. To turn on the Earthmate GPS PN-20, press and hold the Power button for 1.5 seconds. The first Page that displays on the screen when you turn on the Earthmate GPS PN-20 is the Satellites Page. Your GPS status displays in the upper-left corner of the Satellites Page. If you press the PAGE button, the Map Page will display on the screen. The map will not center on your current location until you have achieved a 2-D or 3-D fix. The default view when a GPS fix cannot be obtained is your last GPS position.

If it is taking a long time for the device to obtain a 2-D or 3-D fix, verify it has a clear view of the sky. Be sure that trees, buildings, and other obstacles are not blocking the Earthmate GPS PN-20. If the device still cannot obtain a 2-D or 3-D fix, press the QUIT button to return to the Satellites Page, press the MENU button, highlight the **Set Current Location** option, and then press ENTER. The Map Page displays automatically. Pan the map to your current location and press ENTER.

To turn off the Earthmate GPS PN-20, press the Power button and then press the ENTER button to confirm you want to turn the Earthmate GPS PN-20 off.

Step 3 — Using the Buttons on the Earthmate GPS PN-20

The buttons on the Earthmate GPS PN-20 provide you with access to all of the functionality on the device. Each button has a unique purpose:

In/Out

The IN and OUT button lets you zoom in or zoom out on the map.

- Press the IN (left) side of the button once to zoom the map in one level (showing more detail).
- Press and hold the IN side of the button to zoom the map in to its maximum level.
- Press the OUT (right) side of the button once to zoom the map out one level (showing less detail).
- Press and hold the OUT side of the button to zoom the map out to its maximum level.

Page

The PAGE button lets you scroll through all of the enabled "Pages" on the Earthmate GPS PN-20. The default Page button sequence is:

- Satellites
- Map
- Compass
- Trip Info
- Route Directions (available when navigating)

Tip: You can add, remove, or reorder the Pages that display when the Page button is pressed using the Device Setup/Page Order settings. For more information, see the **To Modify the Page Order Settings** section on page 61.

For an overview of what you can view and do on each Page as well as each Page's Menu functions, see *Appendix A* on page 65.

Menu

The MENU button provides access to a multitude of functionality. The Menu is divided into top and bottom sections which are separated by a line. The items in the top section are specific to the Page that is currently active. The items in the bottom section are standard menu options which are available from any Page.

Find

The Find button is labeled with a magnifying glass and it lets you search for a point of interest, way-point, address, coordinate, and more. You can search for a location based on its name or its proximity to the current map center.

Mark Waypoint

The Mark button is labeled with a push pin and can be used to mark a waypoint at your current GPS location or the cursor location (if panning). Once a location has been marked, you can edit the way-point name, coordinates, elevation, and provide comments about the waypoint; view the waypoint on the map; navigate to the waypoint; average the waypoint for greater accuracy; save the waypoint; or delete the waypoint.

Arrow Keypad

You can use the arrow keypad to:

- Move the map cursor left, right, up, or down.
- Pan the map by moving the cursor on the edge of the map.
- Highlight options in menus or lists. Press down to move to the next entry or press up from the first entry to go to the last entry (or down from the last entry to go to the first entry). Press and hold to scroll through a menu or list quickly.
- Highlight characters in the keyboard screen.

Enter

You can use the ENTER button to:

- Select a menu entry or on-screen button/field.
- Get information about a point on the map (hover your cursor over the map location and press the ENTER button to view detailed information, if available).

Quit

The function of the QUIT button varies depending on the current status of the Earthmate GPS PN-20. You can use the QUIT button to cancel actions (such as panning, keyboard entry, to delete individual points when measuring distance, etc.). If you are performing an action, pressing the QUIT button will move you backward through the Page sequence.

Power

Use the Power button to turn the Earthmate GPS PN-20 on and off, to change the backlight settings, or to reset the Earthmate GPS PN-20:

- To turn the Earthmate GPS PN-20 on, press and hold the Power button for 1.5 seconds.
- To turn the Earthmate GPS PN-20 off, press the Power button. When asked, "Press ENTER to power down", press the ENTER button to confirm that you want to turn the Earthmate GPS PN-20 off. If you do not wish to turn the Earthmate GPS PN-20 off, wait five seconds or press the QUIT button.
- To change the backlight intensity percentage, press and hold the Power button (for approximately two seconds while the device is powered on) until you see the backlight screen display. Press the arrow keypad to the left to move the slider and decrease the backlight intensity. Press the arrow keypad to the right to move the slider and increase the backlight intensity. Each level of intensity represents a 10% interval (100% is the maximum backlight intensity, 10% is the minimum backlight intensity).
- To turn the backlight off, press and hold the Power button for three seconds (while the device is powered on) until the backlight shuts off.

  Note: Any button press on the Earthmate GPS PN-20 will turn the backlight on unless it has been specifically turned off in the Device Setup menu. For more information, see the *To Modify the Display Settings* section on page 59.

- To reset the Earthmate GPS PN-20 (while the device is powered on), press and hold the Power button for seven seconds.

Step 4 — Transferring Map Data to the Earthmate GPS PN-20

The Earthmate GPS PN-20 comes equipped with an overview-level base map showing world and U.S. coverage. While this provides a great view of a large area, chances are that you will want a detailed view of a smaller area for hiking, geocaching, and other outdoor activities. More detailed maps can be transferred to the Earthmate GPS PN-20 using:

- Compatible DeLorme Mapping Software—Instructions for sending maps to your Earthmate GPS PN-20 will vary by application. For more information, see the mapping application's Help system for instructions on sending maps to your Earthmate GPS PN-20.
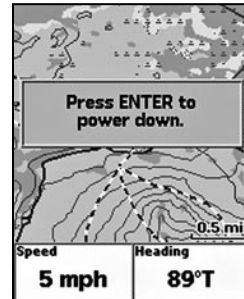
Press ENTER to confirm that you want to turn the device off

Tip: Decreasing the Backlight Timer will help to conserve battery life.

Note: Large maps may take longer to transfer to the device.

Tip: While it is faster to access maps that have been saved to internal memory, the quickest way to transfer maps to your device is to copy the map files to an SD card with an SD card reader.

- Online Map Cutter for Earthmate GPS PN-20—Visit http://data.delorme.com. You must have an Internet connection to use this Web site. For instructions on sending maps to your Earthmate GPS PN-20 with this online application, see the Online Map Cutter for Earthmate GPS PN-20 Help system.

You can transfer many types of data such as satellite imagery, aerial imagery, USGS Topo Quad maps, and more. Maps can be saved in internal memory or on a removable memory (SD) card (in the Maps directory).

Step 5 — Use the Pages to Track, View Your Position While You Travel, and More

This manual describes all of the functionality found in each Page on the Earthmate GPS PN-20. See the Table of Contents to find the headings that are most important to you.

About GPS

What is GPS?

The Global Positioning System (GPS) applies modern technology to the ancient art of navigation. The U.S. Department of Defense has developed and launched a series of positioning satellites in an orbiting "constellation." These satellites are used as reference points much the same way stars have been used in conventional navigation.

Using these satellites, a GPS receiver can determine your position anywhere on the globe. GPS provides accurate information about coordinate position, elevation, speed, and direction of travel. Many people have discovered the benefits of GPS for recording tracks and much more.

How Does GPS Work?

The GPS "constellation" consists of at least 24 satellites, each carrying several atomic clocks to ensure the most accurate time possible. The satellites broadcast low-power radio waves containing the satellite's identity code and the exact time (to the nanosecond) that the message was sent.

When a GPS receiver picks up a satellite signal, it identifies the satellite and compares the signal time with its own clock. The time difference represents the time it has taken for that radio wave to travel from the satellite to the receiver. Since radio waves travel at the speed of light, the time difference can be used to calculate the distance from the satellite to the GPS receiver.

Note: If you replace the SD card while the device is being powered through the USB cable, you will need to power the device off and then on again to view any data on the SD card.

The satellite's identity code provides the location of the satellite, and the distance to the receiver creates a sphere of possible locations for the GPS receiver. Without more information, the receiver only knows that it is located somewhere on that sphere.

Two additional satellites are necessary to narrow down the receiver's position. Each of these satellites sends a similar radio message containing time and identity information. The GPS receiver checks the orbital location of each satellite and uses the elapsed time to create two additional spheres of possible locations. These three spheres intersect at two points; however, one of these points is eliminated because it is far away from the earth's surface. Therefore, the second point is assumed to be correct. The data from these three satellites provides the receiver with a two-dimensional location.

Data acquired from a fourth satellite pinpoints the receiver's exact location. This additional positioning information allows the GPS receiver to calculate its elevation, which is particularly important for GPS users in mountainous locations.

GPS Position Accuracy

Any buildings, natural structures, or heavy foliage that obstruct the GPS antenna's view of the sky prevent satellite signals from reaching the receiver and therefore decreases the accuracy of your position.

Frequently Asked Questions

Can I install non-DeLorme maps on the Earthmate GPS PN-20?

No, only DeLorme maps can be installed on the Earthmate GPS PN-20.

How can I improve the life of my batteries?

When the backlight is on, it consumes a large part of the battery. Changing the backlight timer to turn off after 15 seconds could double the life of your batteries. For information on changing the backlight timer, see *To Modify the Display Settings* on page 59.

Other ways to increase the life of the batteries include:

- Removing your batteries for long-term storage
- Setting the GPS Settings to Power Saving mode
- Disabling GPS while indoors
- Using batteries with higher milliamp ratings (such as Duracell Ultras, Energizer E2s, etc.)

Note: Placing the Earthmate GPS PN-20 in a backpack pocket or jacket should not result in problems with GPS position accuracy.

Why are the new batteries that I put in the device the last time I used it (a month ago) dead already?

Because the Earthmate GPS PN-20 has a real-time clock which requires power even when the device is powered off, your batteries are constantly in use. If you use your Earthmate GPS PN-20 sporadically (more than a month between uses), it is suggested that you remove the batteries for long-term storage and then reinsert them when you want to use the device.

Why does it take so long to find satellites?

Acquiring satellite data takes longer if the batteries are low or if the Earthmate GPS PN-20 does not have a clear view of the sky. Be sure that trees, buildings, and other obstacles are not blocking the Earthmate GPS PN-20 when you begin tracking.

Other factors, such as if a long time has elapsed since you last used the device or if the device has been moved a great distance from its last location, can effect the amount of time it takes to find satellites.

How do I reset the Earthmate GPS PN-20 when it will not turn off?

You can reset the Earthmate GPS PN-20 by holding the Power button for seven seconds. If that does not work, remove and replace the batteries to reset the Earthmate GPS PN-20.

Why won't my Lithium-ion battery hold a charge?

The Li-ion battery is designed to last for 300-500 uses (depending on environmental conditions). Visit www.delorme.com to purchase a replacement.

Note: The charging circuit in the Earthmate GPS PN-20 was designed for optimum operation with the RCR-V3 Li-Ion battery sold through DeLorme. Other RCR-V3 Li-Ion batteries may work and charge in the device, but DeLorme does not guarantee compatible operation.

Basic Functions

This chapter provides descriptions for some of the basic functions of the Earthmate GPS PN-20.

Panning the Map

There are two ways to pan the map:

- You can pan the map manually by placing the cursor along the map edge and holding the arrow keypad in the direction that you want to move the map.
- You can pan the map automatically when GPS tracking/navigating. The map will automatically pan in the direction of travel when the GPS cursor travels outside of the map area.

Getting Information About a Map Object

You can position your cursor over a map object to learn more about it.

1. Press the arrow keypad to position your cursor over the map object you want to learn more about. The status bar at the bottom of the Map Page provides name information for the object.

2. Press ENTER. The Info Page displays.

   Note: If multiple objects are found at the cursor location, the Multiple Objects screen will display each of the available objects at that location. Use the arrow keypad to select the desired object and then press ENTER to view the Info Page for that object.

3. Optional: To save the map object as a waypoint, highlight and select **Mark**.

Navigating vs. Tracking

There are several instances in this manual where we discuss navigating with the Earthmate GPS PN-20 or tracking with the Earthmate GPS PN-20. You may ask, "what's the difference?"

- You are *navigating* with the Earthmate GPS PN-20 when you use it to follow a route.
- You are *tracking* with the Earthmate GPS PN-20 when the GPS is on, but a route is not being followed.

Using the Keyboard

The keyboard is accessible when text entry is necessary (for example, when editing a waypoint label).

Once the keyboard displays, use the arrow keypad to highlight the letter (A-Z), number (0-9), symbol

Move your cursor to the edge of the screen to pan the map in that direction

Note: Manually panning the map will change the focus of the map from your GPS location to the manually panned location.

*Note: Once you have marked a map object as a waypoint, you can edit the waypoint details (by highlighting the waypoint information, pressing ENTER, and then modifying the information), view it by highlighting **View** and pressing ENTER, or create a route by highlighting **Route** and pressing ENTER.*

(+, -, /, &), or punctuation (period, comma, apostrophe, exclamation point) you want to use. In addition, the following special functions are provided:

◀ Moves the cursor one space to the left without deleting characters.

▶ Moves the cursor one space to the right without deleting characters.

⬆ Changes the letters from lowercase to uppercase letters (the active case is shown in the keyboard). This function toggles to all caps mode by pressing ENTER.

⬆ Changes the letters to all capital letters.

← Moves the cursor one space to the left, deleting the character that was there. Also changes the letters to lowercase when the current mode is uppercase.

Clr Clears the content of the text field being edited.

OK Accepts the changes made to the text field and closes the keyboard screen.

Spc Moves the cursor one space to the right, leaving a blank space.

↵ Moves the cursor to the next line. This option can be used to type more than one line in a Comment field.

Charging the Earthmate GPS PN-20

If you are using a DeLorme-supplied RCR-V3 Li-Ion battery, you can charge the Earthmate GPS PN-20 by connecting the USB end of the cable to your computer and the other end of the cable to the Earthmate GPS PN-20. In order to charge the device via the USB cable, the device must be powered on while connected. If you want to use the Earthmate GPS PN-20 while it is charging, it must be partially charged (the unit cannot be powered on when its only power is through the USB cable).

Note: Rechargeable AA batteries cannot be charged while in the Earthmate GPS PN-20.

Storing Data on the Earthmate GPS PN-20

The Earthmate GPS PN-20 stores tracks, routes, waypoints, and the base map data in its internal memory. Maps that are transferred to the Earthmate GPS PN-20 can be saved in internal memory or on a removable memory (SD) card (2 GB or less) located under the battery compartment.

Tip: Use multiple SD cards to create a map library for long trips or to have the entire state in your pocket.

Keyboard screen

Scenarios

Earthmate GPS PN-20 can be used for a variety of functions, including:

- Geocaching
- Bird watching
- Biking
- And much more!

Below are some scenarios for using the Earthmate GPS PN-20 in these situations.

Seeking a Geocache

Geocaching is a popular hide-and-seek sport for GPS users where hiders place a cache (prize(s) and/or log book) at an approved location and seekers use the hider's clues (coordinate information and clues that are shared via the Internet-for some geocache locations, visit www.geocaching.com) to find the cache. The cache usually contains a variety of prizes for the successful seeker (seekers are encouraged to observe the "take one, leave one" policy on prizes in the cache).

Mike and his family are looking for a fun weekend activity that will help them enjoy the great outdoors. A coworker tells Mike about geocaching and they decide to try the activity with their new Earthmate GPS PN-20.

Before they leave for their adventure, they visit www.geocaching.com to find a cache in their area. Once they find a cache, they use Topo USA to see the geocache on the map and then download a map package of the area.

1. Visit www.geocaching.com and select the geocache you want to try to find.
2. Save the geocache's .loc file to your computer.
3. Open Topo USA and click the **Draw** tab.
4. Click **File** to open the draw file editing area.
5. Click **Import**. The Import Draw File dialog box displays.
6. From the Files of type drop-down list, select LOC file (*.loc).
7. Browse to the location where you saved the .loc file in step 2, select the file, and then click **Open**. The draw objects in the imported file display. A new draw file is automatically created

for the imported file.

8. Click **Done** to return to the Draw dialog area.

9. Click the **Handheld Export** tab.

10. With the map centered on the geocache area, click the **Edit** tool and then click the rectangles on the map that cover the map area you want to export to the Earthmate GPS PN-20.

11. Name and save your map package.

12. Click the Exchange button in the Topo USA toolbar.

13. Send the geocache waypoint layer and map package to the device and then click **Done**.

Once the map and waypoint are loaded on the Earthmate GPS PN-20, they use the Waypoints Page to locate the coordinate that was provided in the cache's clue. Once the waypoint is found, they create a route from their current position (home) to the waypoint location.

14. Press MENU and then select **Waypoints**.

15. Highlight the geocache waypoint from the list and then press ENTER.

16. Highlight the default symbol and press ENTER. Scroll to the geocache symbol and then press ENTER.

17. Use the arrow keypad to highlight the **Route** button and then press ENTER.

18. Use the arrow keypad to highlight the **Navigate** button and then press ENTER.

19. Press PAGE until the Compass Page displays.

20. Use the Compass Page to find the necessary direction of travel. The bearing arrow (large green arrow) points in the direction of the next stop in the route. Use the bearing arrow to determine the correct direction of travel towards the waypoint.

Navigate to the geocache

Once they arrive at the cache, they take a trinket from the cache and leave a pencil they bought while on a recent trip to Niagara Falls and then update the waypoint symbol on the Earthmate GPS PN-20 to the geocache found symbol. When they return from their adventure, they visit the cache's page on www.geocaching.com and enter a log about their experience.

Hiding a Geocache

Mike and his family had so much fun on their first geocache outing, that they decide to create a geocache of their own! After much consideration, they decide to hide the geocache close to their home.

The family decides to hide the cache along a public trail approximately 10 miles from their home. Before they can add the cache to geocaching.com, they must be sure to get a very accurate coordinate for the location where they're hiding the cache. To do so, they must mark a waypoint at the geocache location and then use the Averaging function on the Earthmate GPS PN-20. When a waypoint is averaged, a series of GPS readings are recorded for the waypoint's location and are then averaged to increase the positional accuracy of the waypoint.

1. Ensure you have a 3-D signal at the location of the geocache.

2. Press the Mark button. A waypoint is placed at the current GPS location.

3. Highlight the default waypoint symbol and then press ENTER. Then, use the arrow keypad to select the geocache symbol and press ENTER.

4. Highlight the default label and press ENTER. Then, enter the new label ("Our First Geocache") using the keyboard, highlight **OK**, and then press ENTER.

5. Highlight the Comment field and then press ENTER. Then, enter the comment information ("Hid cache under pile of sticks") using the keyboard, highlight **OK**, and then press ENTER.

6. Highlight the **Avg** button and then press ENTER. The GPS status, coordinates, elevation, number of readings at the location, and estimated accuracy display. The more readings that are recorded increase the positional accuracy of the waypoint. A small estimated accuracy number indicates that the waypoint is very close to its actual coordinates.

7. Highlight the **OK** button and then press ENTER.

8. Use the arrow keypad to highlight the **Save** button and then press ENTER.

Once the geocache location point has been averaged, they visit www.geocaching.com and create a new geocache with the averaged coordinate.

Bird Watching

Earthmate GPS PN-20 is a perfect companion while bird watching. With PN-20 Aerial Data Packet (ADP) data, bird watchers can see clearings, tree cover, geological features, and more. In addition, they can use the waypoint functionality to mark waypoints on the map when they see particular types of birds. They can also use the track functionality to create a breadcrumb trail while they're traveling to their bird watching spot and then follow that track back to their vehicle so they do not get lost.
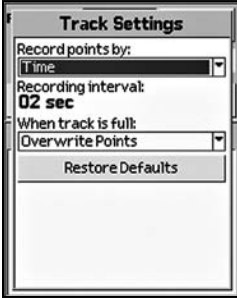

Marking the "Our First Geocache" waypoint

Editing the track settings

In the scenario below, a bird watcher (Tom) uses the Earthmate GPS PN-20, ADP data, and the Earthmate GPS PN-20 Online Map Center to prepare for his expedition:

Before Tom leaves for his trip, he uses the Earthmate GPS PN-20 Online Map Center to download an ADP so he can get satellite and aerial views of the area where he'll be. This is helpful to Tom because he has heard that the bird population is greater near the swamp land. With the aerial and satellite data provided in the ADP, Tom can see all of the geological formations in his bird watching area before he leaves, giving him a greater idea of where he should spend his day.

1. Visit http://data.delorme.com to download the area where you will be bird watching.

Once the map of the location is saved on the GPS device, he leaves for his bird watching trip. When he arrives at the location he parks his truck, turns on the Earthmate GPS PN-20, waits until he gets a 2-D or 3-D fix, places a waypoint to represent the parking lot, modifies his tracking settings, and then turns on Track recording.

2. Press and hold the **Power** button to turn the Earthmate GPS PN-20 on.
3. Press the Mark button on the device to place a waypoint at the parking lot location.
4. Press MENU, highlight the **Tracks** option, and then press ENTER.
5. Press MENU, highlight the **Edit Track Settings** option, and press ENTER.
6. Highlight the **Record Points By** drop-down list and press ENTER.
7. Highlight the **Time** option and press ENTER.
8. Highlight the **Recording Interval** text field and press ENTER.
9. Use the arrow keypad to increase/decrease each digit. Press ENTER after each digit is changed.
10. If the On button is not activated, highlight the button and then press ENTER to activate it.
    OR
    If the On button is already activated, proceed to step 11.

Tom proceeds on his journey to his bird watching spot. While he's walking, he notices an eagle in a tree and wants to use his Earthmate GPS PN-20 to mark a waypoint at the bird location.

11. While at the spot of the tree, press the Mark button.
12. Scroll to the top of the Waypoint screen to highlight the waypoint symbol and press ENTER. Use the arrow keypad to find and highlight the bird icon and then press ENTER.

13. Scroll to the label text field (to the right of the bird icon) and press ENTER. Use the arrow keypad to highlight the letter **E** and press ENTER. Repeat this step for each letter in the words "Eagle." When you're finished, highlight **OK** and press ENTER.
14. Scroll to highlight the **Save** button and press ENTER.

Once he arrives at the desired bird watching spot, he saves his track log, turns off the GPS device, and spends the day bird watching.

15. Press MENU, select **Tracks**, and then press ENTER.
16. Scroll to highlight the **Save** button and press ENTER.
17. Press the **Power** button to turn the Earthmate GPS PN-20 off. Press ENTER when prompted.

Once he's finished for the day, he turns the GPS device back on, waits until he gets a 2-D or 3-D fix, and then follows his track to where he started-ensuring that he won't get lost. The process of following his initial track creates a new route that can be used again in the future.

18. Press and hold the **Power** button to turn the Earthmate GPS PN-20 on.
19. Press MENU, select **Tracks**, and then press ENTER.
20. Select the track that was saved earlier that day and press ENTER.
21. Scroll to highlight the **Follow** button and press ENTER.

Tom reaches his start location without getting lost.

Mountain Biking

Earthmate GPS PN-20 is also a perfect companion while mountain biking.

Carla and Jordan are preparing for a ride at Slickrock Bike Trail. Before they go, they download data of the Moab, Utah region with Topo USA. They then create a route that starts and finishes at the trailhead, but includes three stops: Shrimp Rock, Upper Shrimp Rock, and Mt. View Cave. They then export the data of the region as well as the route they created to their Earthmate GPS PN-20. Once they arrive at the trail, they mount their GPS devices onto their bikes, power them on, and select the route they plan to use for navigation.

1. Press MENU, highlight the **Routes** option, and then press ENTER.
2. Highlight the desired route and press ENTER.
3. Highlight the **Navigate** button and press ENTER.
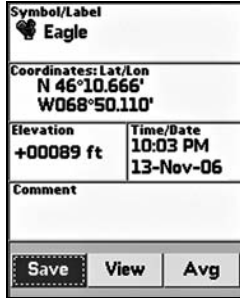
Marking the "Eagle" waypoint

Navigating a route

4. Press MENU, highlight the **Tracks** option, and then press ENTER.

5. Ensure the **On** button is activated. If it is not, highlight the **On** button and press ENTER to activate it.

6. Press PAGE until the Map Page displays to view the location in real time.

The GPS device not only tells them where they are in real-time, but also keeps a record (track) of everywhere they've been. Once they've finished the trail, they elect to save the track so that they can see where they've ridden.

7. Press MENU, highlight the **Tracks** option, and then press ENTER.

8. Highlight the **Save** button and press ENTER.

Since they might want to visit this track again later, they decide to name the track with the trail name and assign it the same color that they assign all of the trails they've ridden. They also use the comments feature in the Tracks screen to note if they thought the trail was easy, moderate, or difficult.

9. Highlight the **Track** text field and press ENTER to name the track "GW Forest" using the keyboard. Then, highlight **OK** and press ENTER.

10. Highlight the **Color** block and press ENTER. Use the arrow keypad to highlight the color blue and then press ENTER.

11. Highlight the **Comment** text field and press ENTER and assign a difficulty comment using the keyboard. Then, highlight **OK** and press ENTER.

12. Highlight the **View** button and press ENTER to see a snapshot of where you went on the trail.

They can also choose to follow the track if they ever decide to ride the trail again. When a track is followed, a route is automatically created that they can use again the future.

13. Press MENU, highlight the **Tracks** option, and then press ENTER.

14. Highlight **GW Forest** in the Tracks list and press ENTER.

15. Highlight **Follow** and press ENTER.

When they arrive home, they download the track and waypoint information into Topo USA so they can see a larger view of where they were. They finish by saving the track information in their mountain biking library project.

Editing track details

The Satellites Page

Viewing the Satellites Page

Once you turn the Earthmate GPS PN-20 on, the Satellites Page displays. The Satellites Page informs you of your current GPS status, the number of satellites the Earthmate GPS PN-20 is acquiring data from, the signal strength, and the GPS accuracy (only available when a 2-D or 3-D fix is obtained).

GPS and WAAS Status

GPS status displays in the upper-left corner of the Page and will display the following, depending on your satellite acquisition status:

- **GPS Off—**The GPS has been disabled.
- **No Fix—**The GPS cannot find sufficient satellite data to determine your current GPS position.
- **2-D—**The GPS connection is successful, but the connection quality is not quite as sufficient as a 3-D fix. This usually indicates insufficient data for an accurate location due to 1) only three satellites being used or 2) poor signals from the satellites. Move your receiver to another location until you get better reception.
- **3-D—**The GPS receiver is receiving sufficient satellite data to determine your location.

If "WAAS" displays in the upper-right corner of the Page, the Earthmate GPS PN-20 has obtained a WAAS connection. WAAS provides up to five times greater position accuracy than a regular 2-D or 3-D connection. WAAS is only available in North America.

Satellite Constellation and Signal Graph

Both the satellite constellation and the satellite signal graph display visible satellites and their number (assigned by the Department of Defense).

In the satellite constellation, satellite-shaped icons display each satellite's position in the sky (relative to the device's current position).

In the satellite signal graph, each satellite is represented as a bar which is sized according to signal strength (longer bars have greater strength, shorter bars have less strength).
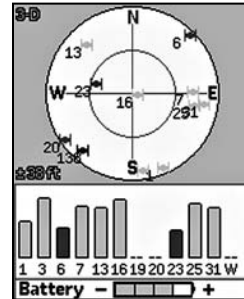
Satellites Page

Note: WAAS was developed by the Federal Aviation Administration to enhance the accuracy of GPS receivers, usually to within three meters of actual position, by providing a modified GPS signal. After calculating the error factor at ground control stations throughout the U.S., the corrected signal is transmitted to two geostationary satellites that in turn transmit the GPS signal back to earth.

The icons in the satellite constellation and the lines in the signal graph are color coded based on the quality of the data they are transmitting:

- **Red—**Indicates your GPS receiver is tracking the satellite, but it is not receiving data from it.
- **Green—**Indicates your GPS receiver is tracking the satellite, ephemeris data is available, and the satellite is being used for navigation.
- **Blue—**Indicates your receiver is tracking the satellite, ephemeris data is available, the satellite is being used for navigation, and the satellite has WAAS corrections available.

GPS Accuracy

The GPS accuracy will display, in the lower-left corner of the screen in feet or meters, depending on the measurement preferences you have assigned in the Device Setup Page (see *To Modify the Units Settings* on page 63 for more information). GPS accuracy is represented on the map by a circle with a radius equal to the GPS accuracy, allowing the user to see a representation of their accuracy in relation to their map scale. The accuracy of the Earthmate GPS PN-20 is +/- 10 meters.

Battery Indicator

The battery indicator is a graphic representation of the current available battery power. It displays differently based on the current available power:

- **Four green bars—**Indicates a full charge.
- **Three green bars—**One quarter of the battery power has been used.
- **Two yellow bars—**One half of the battery power has been used.
- **One red bar—**Three quarters of the battery power has been used. Once the battery has reached 5% of its total battery power, a low battery warning will display.

While the Li-Ion battery is charging, the battery indicator graphic will be animated and the word "Battery" will be replaced with "Charging". Once the battery is fully charged, the battery indicator graphic will display four static green bars and the word "Charging" will be replaced with "External" until the charging cable is removed.

Note: The battery indicator graphic may not provide exact results due to variations in battery chemistry from various manufacturers.
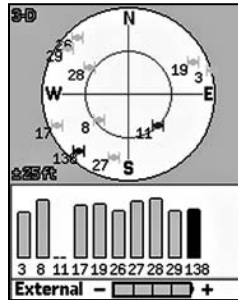
Battery indicator label changes to "external" when charging

Note: *If you do not choose the correct battery type in the Device Setup Page, the battery indicator may not provide accurate information. See **To Modify the System Settings** on page 59 for more information.*

To Disable GPS

There are many features on the Earthmate GPS PN-20 that do not require a GPS fix. You can turn the GPS connection off using the Disable GPS option in the Satellites menu.

1. Ensure the Satellites Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Disable GPS**.
4. Press ENTER. "GPS OFF" displays in the upper-left corner of the screen and all satellites are removed from the constellation display.

Notes:
- *You can also disable the GPS using the Device Setup/System menu option. Select **Disable GPS** from the GPS Settings drop-down list.*
- *After GPS has been disabled, you can enable it by pressing MENU and then selecting **Enable GPS**.*
- *GPS is temporarily disabled when in simulate mode (during track playback, navigation simulation, etc.).*
- *If the Earthmate GPS PN-20 is unable to acquire a fix after approximately ten minutes, you will receive the following message, "Would you like to disable the GPS or continue searching for satellites?" Select **Disable** to disable GPS or **Continue** to allow the Earthmate GPS PN-20 to keep searching for satellites.*

The Map Page

Viewing the Map Page

If a 2-D or 3-D fix is obtained, the Map Page displays the map data that is available for your current GPS location. If a GPS fix cannot be obtained, the location of your last GPS fix displays on the map. The color of the GPS arrow will depend on your GPS signal.

- A flashing red arrow indicates that the Earthmate GPS PN-20 cannot obtain a GPS signal.
- A blue arrow indicates that the device is in Track Playback mode or Simulate Navigation mode.
- A yellow arrow indicates a 2-D fix.
- A green arrow indicates a 3-D fix.

Below the map are information fields. The information that displays in these fields will vary based on the selections you choose (for more information, see *To Change the Information Fields* on page 21). The scale bar can be found above the information fields. A north arrow is also available in the upper-right corner of the screen (only available when Heading Up is selected (or Course Up is selected when navigating) as the map orientation). **Note:** Raster maps rotate in 90° headings.

Map Page

To View Map Data

Earthmate GPS PN-20 comes standard with a base map showing high-level world and U.S. coverage. The base map cannot be removed from memory.

There are several data types that are compatible with the Earthmate GPS PN-20:

- Aerial Data Packet (ADP) data
  - DOQQ
  - 3DTQ
  - Sat 10 data
- Topo USA data
- Street Atlas USA data
- World base data

The list above shows the default priority of the data types (from top to bottom). To change the data type priority, see *Prioritizing Your Data* on page 27.
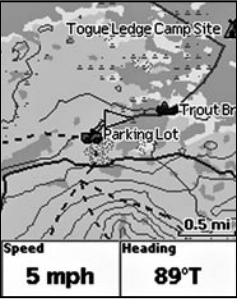
To Show/Hide the Information Fields

The information fields can be hidden to enlarge the map area.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Hide Info Fields**.

   Note: If Show Info Fields displays in the list, the information fields are already hidden. Choose **Show Info Fields** to display the information fields.

4. Press ENTER. The information fields are now hidden (or shown if you selected to Show Info Fields) from the Map Page.

To Arrange the Information Fields

You can change the information fields to display as one wide field, one wide field and two narrow fields, four narrow fields, two wide fields, or two narrow fields.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Arrange Info Fields**.

   Note: If Arrange Info Fields does not display in the list, the information fields are hidden. Choose Show Info Fields to display the information fields and then repeat steps 2 and 3.

4. Press ENTER.
5. Use the arrow keypad to select the information field style you would like to view.
6. Press ENTER.

Arrange Info Fields menu option

To Change the Information Fields

The information fields can be customized to display the information that is most important to you. You may want to change the information that displays based on what type of activity you will be engaging in. **Note:** The information fields will change when navigating.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Change Info Fields**.

Change Info Fields menu option

Note: If Change Info Fields does not display in the list, the information fields are hidden. Choose Show Info Fields to display the information fields and then repeat steps 2 and 3.

4. Press ENTER.
5. Use the arrow keypad to highlight the information field you would like to change.
6. Press ENTER. All of the available information field options display.
7. Use the arrow keypad to select the information field you want to select.
8. Press ENTER.
9. Press QUIT to exit out of Change Info mode.

The available information fields include:

Notes:
- *The information fields that are selected to be displayed may be abbreviated on the screen. For example, Velocity Made Good displays as VMG.*
- *When information is not available (for example, the Distance to Finish information field is only pertinent when navigating), dashes (--) will display in the applicable field.*

Note: *The primary coordinates are what are shown whenever coordinates are displayed (for example, when panning).*

Information Field Option	Description
Back on Course	Displays the direction of travel needed to return to the course (expressed in degrees).
Battery Life	Displays the percentage of battery power that is left on the Earthmate GPS PN-20.
Bearing	Displays the direction of travel from the current location to the destination or next waypoint (expressed in degrees).
Coordinates: Primary	The current GPS location, cursor position, or map center in the coordinate format you've selected to be the primary format (lat/lon, UTM/UPS, or USNG/MGRS).
Coordinates: Secondary	The current GPS location, cursor position, or map center in the coordinate format you've selected to be the secondary format (lat/lon, UTM/UPS, or USNG/MGRS).
Course	The direction of travel from the starting location to the destination (expressed in degrees).
Distance to Finish	The distance from the current location to the route finish.
Distance to Next Stop	The distance from the current location to the next stop in the route.

Information Field Option	Description
Distance to Next Turn	The distance from the current location to the next turn in the route.
Elevation	The distance (height) above or below sea level.
Elevation: Maximum	The maximum elevation achieved (expressed in distance). This field is subject to being reset when Trip Info is cleared.
Elevation: Minimum	The minimum elevation achieved (expressed in distance). This field is subject to reset when Trip Info is cleared.
ETA at Finish	The Estimated Time of Arrival at the route finish (expressed as hours:minutes AM/PM). ETA is based on the current device time, not on the local time at the destination.
ETA at Next Turn	The Estimated Time of Arrival at the next turn in the route (expressed as hours:minutes AM/PM). ETA is based on the current device time, not on the local time at the turn.
ETA at Next Stop	The Estimated Time of Arrival at the next stop in the route (expressed as hours:minutes AM/PM). ETA is based on the current device time, not on the local time at the next stop.
Finish	The label of the Finish, as it appears in the route directions.
GPS Accuracy	The calculated accuracy of the GPS (expressed in distance).
GPS Status	The current status of your GPS device (No Fix, 2-D, 3-D, etc.).
Heading	The current direction of travel (expressed in degrees).
Moonrise/Moonset	The time of day at which the moon will rise and set (expressed as hours:minutes AM/PM). This information is calculated for the specific geographic area in which the GPS has acquired a 3-D fix.
Next Stop	The label of the next stop, as it appears in the route directions.

Information Field Option	Description
Next Turn	The label of the next turn, as it appears in the route directions. A symbol displays the direction of the turn/route direction information.
Next Turn Arrow	The symbol representing the next turn, as it appears in the route directions.
Odometer	The total distance traveled in all trips.
Off Course	The perpendicular distance between the current location and the course.
Speed	The current rate of travel for the device (expressed in distance per unit of time).
Speed: Average	The average speed of the device including stop time (expressed in distance per unit of time). This field is subject to being reset when Trip Info is cleared.
Speed: Maximum	The maximum speed achieved (expressed in distance per unit of time). This field is subject to being reset when Trip Info is cleared.
Speed: Moving Average	The average speed of the device excluding stop time (expressed in distance per unit of time). This field is subject to being reset when Trip Info is cleared.
Sunrise/Sunset	The time of day at which the sun will rise and set. This information is calculated for the specific geographic area in which the GPS has acquired a 3-D fix (expressed as hours: minutes AM/PM).
Time/Date	The time of day and date based on the current GPS location; accounts for daylight savings and time zone adjustments (time is expressed as hours:minutes AM/PM and date is expressed as day-month-year (for example, 01-JAN-07)).

Information Field Option	Description
Time to Finish	The calculated time to the route finish based on road classifications and default speed settings.
Time to Moonrise/set	The time remaining until the moon rises and sets. This information is calculated for the specific geographic area in which the GPS has acquired a 3-D fix.
Time to Next Stop	The calculated time to the next stop in the route based on road classifications and default speed settings.
Time to Next Turn	The calculated time to the next turn in the route based on road classifications and default speed settings.
Time to Sunrise/set	The time remaining until the sun rises and sets. This information is calculated for the specific geographic area in which the GPS has acquired a 3-D fix.
Trip: Odometer	The total distance the GPS device has been moving. This information is subject to being reset when Trip Info is cleared.
Trip: Time Moving	The total time the GPS device has been moving. This information is subject to being reset when Trip Info is cleared.
Trip: Time Stopped	The total time the GPS has been tracking, but not moving. This information is subject to being reset when Trip Info is cleared.
Trip: Time Total	The total time the GPS has been tracking, both moving and stopped. This information is subject to being reset when Trip Info is cleared.
Velocity Made Good	The component of the current speed that is in the direction of the destination (expressed in distance per unit of time).
Vertical Speed	The current rate of vertical travel for the device (expressed in distance per unit of time).

To Reset the Information Fields

The Map menu offers a Restore Info Defaults option which allows you to change the custom settings you made to the Show Info Fields, Arrange Info Fields, and Change Info Fields drop-down lists back to their default settings. The default settings are as follows:

Option	Default Setting
Show Info Fields	Selected
Arrange Info Fields	2 narrow fields (when tracking)
	4 narrow fields (when navigating)
Change Info Fields	Speed, Heading (when tracking)
	Next Turn, Dist to Finish, Time to Turn, Dist to Turn (when navigating)

Use the steps below to reset the information fields to their default settings.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Restore Info Defaults**.
4. Press ENTER. The information fields return to their default settings.

To Measure Distance and Area

Earthmate GPS PN-20 has a measurement tool that allows you to measure the distance of a line or perimeter of a polygon.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Measure Distance** and press ENTER.
4. Use the arrow keypad to move the cursor to the area on the map where you want to place the first point of the line/polygon.
5. Press ENTER to place the first point of the line/polygon on the map.
6. Repeat steps 4 and 5 for each point in the line/polygon you are trying to measure. The Pan

Measuring distance on the map

Location Information that displays in the upper-right corner of the screen changes to display the heading from the last measurement node to your current GPS location, the leg distance, as well as the total distance from the last measurement node to the first measurement node.

Note: Lines must contain at least two points. To make a polygon, you must close the shape by placing the last point on top of the first point.

To Set Up the Map

The Map Setup option allows you to customize the map by defining data type prioritization, showing/hiding map packages, and choosing map orientation, POI detail, and the ability to change how waypoints display on the map.

Prioritizing Your Data

Since many different data types can be used on the Earthmate GPS PN-20, you can prioritize the data layers that you want to display on the map using the Data Layering menu option. Data layers with a high priority always display, when available. For example, if you have Topo USA and DOQQ coverage for the same area, whichever data type has the highest priority will display on the map. The default prioritization is as follows:

1. DOQQ
2. 3DTQ
3. Sat 10
4. Topo USA
5. Street Atlas USA

You can modify the default prioritization using the Data Layering option in the Map Setup screen.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Map Setup**.
4. Press ENTER. The Map Setup screen displays.
5. Use the arrow keypad to highlight the **Data Layering** button.

Tip: Press QUIT to delete the last measurement point. To delete the entire measurement object, press QUIT until all measurement points are deleted from the map.
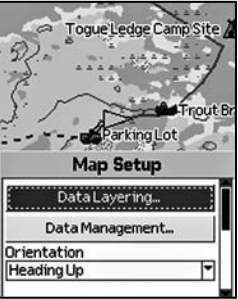
Map Setup menu options

Data Layering menu options

6. Press ENTER. The Data Layering screen displays a list of all of the data types that are currently loaded on the Earthmate GPS PN-20. The data type at the top of the list has the highest priority. The data type at the bottom of the list has the lowest priority.

7. Use the arrow keypad to highlight the data type that you want to move up or down in the list.

8. Once the data type you want to move is highlighted, press the arrow keypad and highlight the up or down arrow key to the right of the data types (depending on where you want to reposition the data type).

9. Press ENTER to move the data type. If you want to move the data type more than one level away from its current state, press ENTER as many times as it takes to move the data type to the desired order.

10. Press the arrow keypad to the left to return to the layering list.

11. Repeat steps 7-10 for each data type you want to reorder in the list.

Showing/Hiding Maps That Were Exported From a Compatible DeLorme Mapping Program

Once you have imported a map from a compatible DeLorme mapping program, you can view (or hide) it on the Earthmate GPS PN-20 using the Data Management option. You may want to hide a map to see what is underneath it (for example, raster maps are displayed above vector maps). To change the priority of how maps are displayed, see *Prioritizing Your Data* on page 27.

1. Ensure the Map Page is displaying.

2. Press MENU.

3. Use the arrow keypad to highlight **Map Setup** and then press ENTER.

4. Highlight **Data Management** and then press ENTER. The Data Management screen displays all of the maps that have been uploaded to the Earthmate GPS PN-20. Maps that are selected to be shown on the map display with a selected check box. Cleared check boxes indicate the map is currently being hidden.

5. Use the arrow keypad to highlight the map you want to hide/show. Information about the map (including the data type(s)) displays in the bottom section of the screen. If you want to view more information about the map, press MENU, use the arrow keypad to highlight **Data Detail**, and then press ENTER. The name, zoom level, scale information, save date, data type(s), and

Data Management menu options

version information will display. Press QUIT to return to the Data Management screen.

6. If the check box next to the map is selected and you want to hide the map from view, press ENTER to clear the check box and hide the map from the screen.

OR

If the check box next to the map is cleared and you want to show the map on the screen, press ENTER to show the map on the screen.

7. Optional: To view the map's center on the screen, press MENU, use the arrow keypad to highlight **View Map**, and then press ENTER.

Changing the Map Orientation

The map orientation can be changed based on your preference (although raster maps rotate in 90° headings). You can choose to make the map display:

- **North Up—**North will always be represented at the top of the map screen.
- **Heading Up—**The direction you are traveling will always be represented at the top of the map screen. Displays the North Arrow in the upper-right corner of the map screen.
- **Course Up—**The direction of the finish of your route will always be represented at the top of the map screen. Displays the North Arrow in the upper-right corner of the map screen when navigating.

You can modify the map orientation using the Orientation drop-down list in the Map Setup screen.

1. Ensure the Map Page is displaying.

2. Press MENU.

3. Use the arrow keypad to highlight **Map Setup**.

4. Press ENTER. The Map Setup screen displays.

5. Use the arrow keypad to highlight the **Orientation** option.

6. Press ENTER. The map orientation options display (North Up, Heading Up, Course Up).

7. Use the arrow keypad to highlight the desired orientation option.

8. Press ENTER. The map orientation is changed to the option you selected in step 7.

*Note: If you want to permanently remove the map from the Earthmate GPS PN-20, Press MENU, use the arrow keypad to highlight **Data Detail**, press ENTER, and then use the arrow keypad to highlight the **Delete** button, and then press ENTER.*

Note: Hidden maps cannot be searched with the Find Page.

Orientation menu option

Changing the Level of POI Detail

Several compatible data types contain points of interest (such as trails, mountains, accommodations, restaurants, etc.) that display as symbols on the map. With the POI Detail option in the Map Setup screen, you can choose to hide all of the POIs, only show major POIs, or show all POIs. Changing this level of map detail can be helpful when there are multiple point of interest symbols cluttering the map.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Map Setup**.
4. Press ENTER. The Map Setup screen displays.
5. Use the arrow keypad to highlight the **POI Detail** option.
6. Press ENTER. The POI Detail options display.
7. Use the arrow keypad to highlight the desired POI detail option.
8. Press ENTER. The level of POI detail is changed to the option you selected in step 7.

POI Detail menu option

Using Small Waypoint Symbols

When the map is zoomed in past a scale of 250 feet, user-created waypoint symbols can clutter the map. The Small Waypoint Symbols option lets you reduce the waypoint symbol size above a specific scale.

1. Ensure the Map Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Map Setup**.
4. Press ENTER. The Map Setup screen displays.
5. Use the arrow keypad to highlight the **Small Waypoint Symbols** option.
6. Press ENTER.
7. Use the arrow keypad to highlight a scale option or Never (to never use small waypoint symbols).
8. Press ENTER.

Small Waypoint Symbols menu option

Restoring the Default Settings in the Map Setup Screen

The Map Setup screen also offers a Restore Defaults option which allows you to change any of the custom settings you have made in the screen (regarding data prioritization, map orientation, POI detail, and waypoint symbol size) back to the default settings. The default settings are as follows:

Option	Default Setting
Data Layering	DOQQ
	3DTQ
	Sat 10
	Topo USA
	Street Atlas USA
Orientation	Heading Up
POI Detail	Show Major POIs
Small Waypoint Symbols	Never

The Compass Page

Viewing the Compass Page

The Compass Page provides a graphic representation of a traditional floating needle compass. It displays differently depending on if you are navigating (following a route) or tracking.

The compass rotates so that the heading is always up. If you are navigating, the compass displays a bearing arrow which points in the direction of the next stop in the route.

To Arrange/Change/Reset the Information Fields

- For information on arranging information fields, see steps 2-6 in the *To Arrange the Information Fields* section on page 21.
- For information on changing information fields, see steps 2-8 in the *To Change the Information Fields* section on page 21.
- For information on resetting the information fields, see steps 2-4 in the *To Reset the Information Fields* section on page 26.
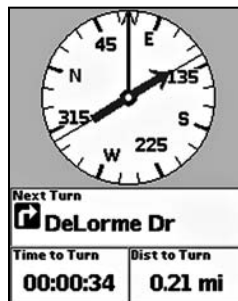
Compass Page

Note: The Earthmate GPS PN-20 does not have a magnetic compass and therefore can only determine heading while moving.

The Trip Info Page

Viewing the Trip Info Page

The Trip Info Page contains eight information fields that occupy the entire screen (three information fields display if the Earthmate GPS PN-20 is in large text mode). Each field is customizable with one of the many available information field options (see pages 22-25 for a table that contains all of the information field options).

To Change the Information Fields

For information on changing information fields, see steps 2-8 in the *To Change the Information Fields* section on page 21.

To Show Large Text

If you would like to view large information fields use the Show Large Text option. The information fields vary depending on if you are tracking or navigating.

1. Ensure the Trip Info Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Show Large Text**.

    Note: The Show Large Text option is a toggle option that changes to **Show Small Text** when the large text option is activated.
4. Press ENTER.
5. If you want to change which information fields display in large text:
    a) Press MENU, highlight the **Change Info Fields** option, and press ENTER.
    b) Use the arrow keypad to highlight the information field you would like to change.
    c) Press ENTER. All of the available information fields display.
    d) Use the arrow keypad to select the information field you want to add.
    e) Press ENTER.
    f) Repeat steps b-e for each information field you want to change.

Trip Info Page
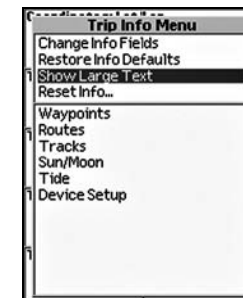
Show Large Text menu option

To Reset the Trip Information

Use the Reset Info option in the Trip Info menu if you want to start a new trip and reset the odometer, speed information, and/or elevation information.

1. Ensure the Trip Info Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Reset Info...**.
4. Press ENTER.
5. If you want to reset the device odometer, time moving, time stopped, and time total, use the arrow keypad to highlight **Reset Trip Values**.

   OR

   If you want to only reset the device odometer, use the arrow keypad to highlight **Reset Odometer**.

   OR

   If you want to reset the average speed, maximum speed, and moving average values, use the arrow keypad to highlight **Reset Speeds**.

   OR

   If you want to reset the minimum and maximum elevation information, use the arrow keypad to highlight **Reset Elevations**.

   OR

   If you want to reset the odometer, time moving, time stopped, time total, all elevation, and all speeds, use the arrow keypad to highlight **Reset All**.

6. Press ENTER.

To Restore the Information Fields to their Default Settings

Use the steps below to reset the information fields to their default settings.

1. Ensure the Trip Info Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight **Restore Info Defaults**.
4. Press ENTER.

Reset Trip Values menu option

The Find Page

Using the Find Page

You can use the Find button (the button that displays with a magnifying glass) to search for addresses, roads, cities, points of interest, waypoints, coordinates, and more. There are two Find search options: **Find Near Map Center** or **Find By Name**.

Use the Find Near Map Center search option to search for categories of information (such as geographic features, waypoints, points of interest, etc.) near your current map center. The number of search results returned is based on the amount of search results that are available (not on distance). Find Near Map Center searches stop after 200 search results are found.

Use the Find By Name search option to search for a specific location, such as a specific address, point of interest, etc. To narrow your search results, you can choose either the Contains or Begins With option to search for results that contain or begin with certain character(s).

To Find a Waypoint

1. Press the Find button.
2. Press MENU. The Find menu displays.
3. If your current Find setting is Find Near Map Center and you want to search for waypoints by name, use the arrow keypad to select the **Find By Name** option.

   OR

   If your current Find setting is Find By Name and you want to search for waypoints that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.
4. Press ENTER.
5. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Waypoints**.
6. Press ENTER.
7. Use the arrow keypad to highlight the Symbol field and then press ENTER.
8. Use the arrow keypad to highlight the symbol you want to search for and then press ENTER. For a complete list of all of the symbol types, see *Appendix C* on page 74.
9. If performing a Find By Name search: Use the arrow keypad to highlight the Name field

Notes:
Pressing a button during a search will halt the search process. Select Continue Search to resume the search process.

*• You can narrow your search results by finding items that begin with or contain certain letters. To do so, press MENU, highlight the **Begins With** or **Contains** option (only one of the options will display at a time; the option that isn't displaying is the current mode), and press ENTER.*

• To refine a Find By Name search, enter as much search criteria as possible. Leave the Name field blank to find all results for the search category in a specified area.

• Find search results will vary based on the map data type you are searching within. For example, Topo USA data does not include travel points of interest and Street Atlas USA data does not include geographic features.

• To view the 10 most recent Find search results, select History from the Show drop-down list in the Find Page.

and then press ENTER. Then, enter the Waypoint name by highlighting each letter of the Waypoints's name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

10. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.

11. To delete the waypoint, use the arrow keypad to highlight the **Delete** button and then press ENTER. A confirmation message displays. Use the arrow keypad to highlight the **OK** button and then press ENTER to delete the waypoint from the Earthmate GPS PN-20.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find a Point of Interest

1. Press the Find button.

2. Press MENU. The Find menu displays.

3. If your current Find setting is Find Near Map Center and you want to search for POIs by name, use the arrow keypad to select the **Find By Name** option.

OR

If your current Find setting is Find By Name and you want to search for POIs that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.

4. Press ENTER.

5. Use the arrow keypad to highlight the Show field, press ENTER, then select **Points of Interest**.

6. Press ENTER.

Waypoint search results

7. To narrow your search further, use the arrow keypad to highlight the **Category** field and then press ENTER. A list of point of interest categories display (All Categories, Accommodations, Amusements/Recreation, Camping/RV Park, Emergency Services, Exits and Rest Areas, Fast Food/Snacks, Gas Stations, Major Shopping, Restaurants, and more). To select a category, use the arrow keypad to highlight the desired category and then press ENTER.

8. Optional: Use the arrow keypad to highlight the **City** field and then press ENTER to use the keypad to enter the name of the city you want to search. The city name will auto-fill based on the letters you enter with the keyboard. Then, highlight **OK** and then press ENTER.

Note: If you want to search for all cities within a state, leave the City field blank.

9. Optional: Use the arrow keypad to highlight the **State** field and then press ENTER. Enter the state abbreviation by highlighting each letter of the state abbreviation and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

10. Optional: To search within a country other than the U.S., use the arrow keypad to highlight the **Country** field and then press ENTER. Enter the country name by highlighting each letter of the country's name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

11. If performing a Find By Name search: Use the arrow keypad to highlight the Name field and then press ENTER. Enter the POI name by highlighting each letter of the POI name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

12. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.

13. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER once you've edited each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.

OR

Note: The search results available are based on the data type you are using (for example, Street Atlas USA data will provide more travel POI results and Topo USA data will provide more geographic feature results).

Searching for points of interest with the Find Page

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find Natural Features

1. Press the Find button.
2. Press MENU. The Find menu displays.
3. If your current Find setting is Find Near Map Center and you want to search for geographic features by name, use the arrow keypad to select the **Find By Name** option.

   OR

   If your current Find setting is Find By Name and you want to search for geographic features that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.
4. Press ENTER.
5. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Natural Features**.
6. Press ENTER.
7. To narrow your search further, use the arrow keypad to highlight the Category field and then press ENTER. A list of geographic feature categories display (All Categories, Body of Water (Lake/Pond, River/Stream, Ocean, Bay, Wetlands), Islands, Land Feature (Beach, Canyon, Geologic Formation, Glacier, Pass, Valley), Mountain or Hill, Water Feature (Canal, Channel, Rapids, Spring, Waterfall)). To select a category, use the arrow keypad to highlight the desired category and then press ENTER.
8. If performing a Find By Name search: Use the arrow keypad to highlight the Name field and then press ENTER. Enter the feature name by highlighting each letter of the name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.
9. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.
10. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and com-

ments. Press ENTER once you've edited each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find an Address

1. Press the Find button.
2. Press MENU. The Find menu displays.
3. If your current Find setting is Find Near Map Center and you want to search for addresses by name, use the arrow keypad to select the **Find By Name** option.

   OR

   If your current Find setting is Find By Name and you want to search for addresses that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.
4. Press ENTER.
5. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Addresses**.
6. Press ENTER.
7. Use the arrow keypad to highlight the **City** field and then press ENTER to use the keypad to enter the name of the city you want to search. The city name will auto-fill based on the letters you enter with the keyboard. Then, highlight **OK** and then press ENTER.

   Note: If you want to search for all cities within a state, leave the City field blank.
8. Use the arrow keypad to highlight the **State** field and then press ENTER. Enter the state abbreviation by highlighting each letter of the state abbreviation and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

Searching for natural resources with the Find Page

Selecting a natural resource category
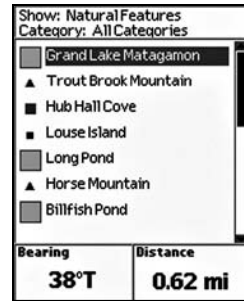
Natural resource search results
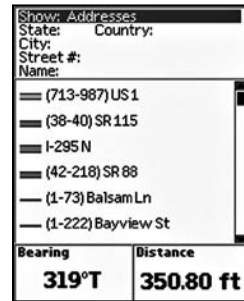
Searching for an address with the Find Page

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9. To search within a country other than the U.S., use the arrow keypad to highlight the **Country** field and then press ENTER. Enter the country name by highlighting each letter of the country's name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

10. <u>If performing a Find By Name search</u>: Use the arrow keypad to highlight the Street # field and then press ENTER. Enter the street number by highlighting each number of the street address and pressing ENTER after each consecutive number. Then, highlight **OK** and then press ENTER.

11. <u>If performing a Find By Name search</u>: Use the arrow keypad to highlight the Name field and then press ENTER. Enter the feature name by highlighting each letter of the name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

12. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.

13. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER once you've edited each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find a Coordinate

1. Press the Find button.
2. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Coordinates**.
3. Press ENTER.
4. To find latitude and longitude values, use the arrow keypad to highlight the Lat/Lon field and then press ENTER. Then use the arrow keypad to highlight the coordinate letters/numbers you

want to change and use the keypad again to move the letter/number up or down.

5. Press ENTER.
6. Use the arrow keypad to highlight the search result and then press ENTER.
7. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER once you've edited each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find a Street/Trail

1. Press the Find button.
2. Press MENU. The Find menu displays.
3. If your current Find setting is Find Near Map Center and you want to search for streets/trails by name, use the arrow keypad to select the **Find By Name** option.

OR

If your current Find setting is Find By Name and you want to search for streets/trails that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.

4. Press ENTER.
5. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Streets/Trails**.
6. Press ENTER.
7. Use the arrow keypad to highlight the **City** field and then press ENTER to use the keypad to enter the name of the city you want to search. The city name will auto-fill based on the letters

you enter with the keyboard. Then, highlight **OK** and then press ENTER.

Note: If you want to search for all cities within a state, leave the City field blank.

8. Use the arrow keypad to highlight the **State** field and then press ENTER. Enter the state abbreviation by highlighting each letter of the state abbreviation and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

9. To search within a country other than the U.S., use the arrow keypad to highlight the **Country** field and then press ENTER. Enter the country name by highlighting each letter of the country's name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

10. If performing a Find By Name search: Use the arrow keypad to highlight the Name field and then press ENTER. Enter the street name by highlighting each letter of the name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

11. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.

12. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER once you've edited each group of information.
OR
To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.
OR
To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

To Find a City

1. Press the Find button.

2. Press MENU. The Find menu displays.

3. If your current Find setting is Find Near Map Center and you want to search for cities by name, use the arrow keypad to select the **Find By Name** option.

OR
If your current Find setting is Find By Name and you want to search for cities that are near the map center, use the arrow keypad to select the **Find Near Map Center** option.

4. Press ENTER.

5. Use the arrow keypad to highlight the Show field, press ENTER, and then select **Cities**.

6. Press ENTER.

7. Use the arrow keypad to highlight the **State** field and then press ENTER. Enter the state abbreviation by highlighting each letter of the state abbreviation and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

8. To search within a country other than the U.S., use the arrow keypad to highlight the **Country** field and then press ENTER. Enter the country name by highlighting each letter of the country's name and pressing ENTER after each consecutive letter. Then, highlight **OK** and then press ENTER.

9. If performing a Find By Name search: Use the arrow keypad to highlight the Name field and then press ENTER to use the keypad to enter the name of the city you want to search. The city name will auto-fill based on the letters you enter with the keyboard. Then, highlight **OK** and then press ENTER.

Note: If you want to search for all cities within a state, leave the City field blank.

10. Use the arrow keypad to highlight the search result that you want to select and then press ENTER.

11. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and then press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER once you've edited each group of information.
OR
To center the map on the location, use the arrow keypad to highlight the **View** button and then press ENTER.
OR
To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and then press ENTER. Use the arrow keypad to update the route name, add another point to the route, and to select a calculation method. Highlight **Navigate** and then press ENTER once you've edited each group of information.

The Waypoints Page

Using the Mark Button

You can use the Mark button (the button that displays as a push pin) on Earthmate GPS PN-20 to mark a waypoint at your current GPS location (or at the current map center/cursor position if panning). Once a waypoint has been added, you can customize the waypoint name, coordinates, and comments. The device will store up to 1000 waypoints in internal memory.

To Mark a Waypoint

1. Press the Mark button to place a waypoint at the current GPS location (or at the current map center/cursor position if not tracking with GPS). The Waypoint Details Page displays.

2. If you want the waypoint to be symbolized with something other than the default red pin, use the arrow keypad to highlight the default waypoint symbol and then press ENTER. Then, use the arrow keypad to browse to the desired symbol and press ENTER.

3. If you want to change the waypoint label to something other than the default name, use the arrow keypad to highlight the default label and press ENTER. Then, enter the new label using the keyboard.

4. If you want to change the coordinate location of the waypoint, use the arrow keypad to highlight the **Coordinates** field and then press ENTER. Then, use the arrow keypad to highlight the number in the coordinate information that you would like to change. Use the arrow keypad to increase/decrease the number. Press ENTER when finished.

5. If you want to change the elevation of the waypoint, use the arrow keypad to highlight the **Elevation** field and then press ENTER. Then, use the arrow keypad to highlight the number in the elevation value that you would like to change. Use the arrow keypad to increase/decrease the number. Press ENTER when finished.

6. If you want to change the date and time the waypoint was added, use the arrow keypad to highlight the **Time/Date** field and then press ENTER. Then, use the arrow keypad to highlight the number in the time/date information that you would like to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

Use the Waypoint Details Page to customize the waypoint label, symbol, comments, coordinates, and more

Note: *If you panned to the location where you marked the waypoint, elevation information will not be available.*

7. If you would like to add comments relating to the waypoint, use the arrow keypad to highlight the **Comments** field and then press ENTER. Then, enter the comment information using the keyboard.

8. To save the waypoint to the Earthmate GPS PN-20, use the arrow keypad to highlight the **Save** button and then press ENTER.

    Note: Once a waypoint is saved, you can use the Waypoint Details Page to delete the waypoint, center the map on the waypoint, or create a route to the waypoint.

To Average a Waypoint

When a waypoint is averaged, a series of GPS readings are recorded for the waypoint's location and are then averaged to increase the positional accuracy of the waypoint.

Note: You can only average a waypoint at your current GPS location.

1. Mark a waypoint at your current GPS location, but do not save.

2. Use the arrow keypad to highlight the **Avg** button and then press ENTER. The GPS status, coordinates, elevation, number of readings at the location, and estimated accuracy display. The more readings that are recorded increase the positional accuracy of the waypoint. A small estimated accuracy number indicates that the waypoint is very close to its actual coordinates.

3. Highlight the **OK** button and then press ENTER.

4. Highlight the **Save** button and then press ENTER.

To View a List of Waypoints

1. Ensure the Waypoint Page is displaying.

2. Use the arrow keypad to highlight the waypoint that you want to view on the map. The Bearing information field displays the bearing from your current GPS location (or cursor position, if panning) to the selected waypoint. The Distance information field displays the distance from your current location to the selected waypoint.

3. Press ENTER to view the waypoint details.

4. Highlight the **View** button and then press ENTER.

Tip: *Select* ⏎ *to enter more than one line of text in a comment.*

Averaging a waypoint

Waypoints list

To Edit a Waypoint

1. Find the waypoint you want to edit using the Waypoint Page, Find search functionality, or by selecting a waypoint on the map.
2. Use the arrow keypad to highlight the waypoint that you want to edit and then press ENTER.
3. To change the symbol of the waypoint, use the arrow keypad to highlight the waypoint symbol and then press ENTER. Then, use the arrow keypad to browse to the desired symbol and press ENTER.

   AND/OR

   To change the waypoint label, use the arrow keypad to highlight the default label and press ENTER. Then, enter the new label using the keyboard.

   AND/OR

   To change the coordinate location of the waypoint, use the arrow keypad to highlight the **Co-ordinates** field and then press ENTER. Then, use the arrow keypad to highlight the number in the coordinate information that you would like to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

   AND/OR

   To change the elevation of the waypoint, use the arrow keypad to highlight the **Elevation** field and then press ENTER. Then, use the arrow keypad to highlight the number in the elevation value that you would like to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

   AND/OR

   To change the date and time the waypoint was added, use the arrow keypad to highlight the **Time/Date** field and then press ENTER. Then, use the arrow keypad to highlight the number in the time/date information that you would like to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

   AND/OR

   To add or change comments relating to the waypoint, use the arrow keypad to highlight the **Comments** field and then press ENTER. Then, enter the comment information using the keyboard.
4. Your edits are saved automatically. Press QUIT to return to the Waypoints Page.

To Create a Route to a Waypoint

1. Find the waypoint you want to navigate to using the Waypoint Page, Find search functionality, or by selecting a waypoint on the map.
2. Use the arrow keypad to highlight the waypoint that you want to navigate to and then press ENTER.
3. To create a route to the waypoint from your current GPS location, use the arrow keypad to highlight the **Route** button and then press ENTER. Then, in the Route screen, highlight the **Navigate** button and press ENTER to calculate the route.

To Center a Waypoint on the Map

1. Find the waypoint you want to center the map on using the Waypoint Page or Find search functionality.
2. Use the arrow keypad to highlight the waypoint that you want to view and then press ENTER.
3. Use the arrow keypad to highlight the **View** button and then press ENTER.

To Delete a Waypoint

1. Ensure the Waypoint Page is displaying.
2. Use the arrow keypad to highlight the waypoint that you want to delete and then press ENTER.
3. Use the arrow keypad to highlight the **Delete** button and then press ENTER. A confirmation message displays. Use the arrow keypad to highlight the **Yes** button and then press ENTER to delete the waypoint from the Earthmate GPS PN-20.

The Routes Page

Using the Route Page

There are many ways to create routes on the Earthmate GPS PN-20. You can create a route:

- From your current GPS location to a waypoint.
- From your current GPS location to a Find search result.
- Between two waypoints.
- Between two Find search results.
- Between a waypoint and a Find search result.

Once you have created a route, you can view its directions, edit the route, delete the route, and more. The device will store up to 50 routes in internal memory.

To Create a Route

1. Ensure the Routes Page is displaying.
2. Use the arrow keypad to highlight the **New** button and then press ENTER.
3. To name the route (the default name is "New Route"; once a point is added, the default name will change to "To <destination>"), use the arrow keypad to highlight the Route Name field and then press ENTER. Then, use the keyboard to assign the desired route name.
4. To add a route point, use the arrow keypad to highlight **Add Point** and then press ENTER. Use the Find functions to search for the waypoint, POI, geographic feature, address, coordinate, street, or city you want to include in your route (for more information, see *The Find Page* section which starts on page 35). Once the intended destination is found, highlight the result, press ENTER, and then highlight **Add** and press ENTER to add the search result as a point in the route.
   Note: To select a route point that is on the map, highlight the **Use Map** button and press ENTER to pan to the location on the map that you want to use as a route point. Once you move the cursor to the desired location, press ENTER.
5. Repeat step 4 for each point you want to include in your route.
6. Optional: If you do not want to include your current GPS position as a route point, use the

Route Page

Note: *Active routes display in the Routes Page with red text.*

Creating a new route

arrow keypad to highlight **Current Position** and then press ENTER. Use the arrow keypad to highlight **Remove** and then press ENTER.

7. Use the arrow keypad to highlight the **Calculation Method** drop-down list and press ENTER. Then, highlight the desired calculation method (Road or Direct) and press ENTER again.
8. Highlight the **Navigate** button and press ENTER to calculate the route. If the calculation is successful, the route will be highlighted on the Map Page but will center on the current GPS location.

To Simulate a Route

You can preview a route on the map using the Simulate Navigation feature. The route will be highlighted on the map and will beep at each applicable turn.

1. Ensure the Routes Page is displaying.
2. Use the arrow keypad to highlight the route that you want to simulate and then press ENTER.
3. Press MENU, highlight the **Simulate Navigation** option, and then press ENTER. The cursor goes into simulate mode and plays the route on the map.
4. To end simulation, press MENU, highlight the **Stop Simulation** option, and then press ENTER.

To Get Back on Track When Off Course

1. Ensure you are navigating against a route.
2. Press MENU, highlight the **Back on Track** option, and then press ENTER. The route recalculates based on your current position.

To Edit a Route

1. Ensure the Routes Page is displaying.
2. Use the arrow keypad to highlight the route that you want to edit and then press ENTER.
3. To rename the route, use the arrow keypad to highlight the Route Name field and then press ENTER. Then, enter the name using the keyboard.
4. To add a point, use the arrow keypad to highlight **Add Point** and then press ENTER. Use the Find functions to search for the waypoint, POI, geographic feature, address, coordinate, street, or city you want to include in your route (for more information, see *The Find Page* section which starts on page 35). Once it's found, highlight the result, press ENTER, and then highlight **Add** and press ENTER to add the search result as a point in the route.

Tip: *To exit Navigation Mode, press MENU, use the arrow keypad to highlight **Stop Navigating**, and then press ENTER.*
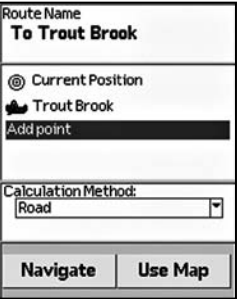
Road route with two points

Note: To select a route point that is on the map, highlight the **Use Map** button and press ENTER to pan to the location on the map that you want to use as a route point. Once you move the cursor to the desired location, press ENTER.

5. To change the calculation method, use the arrow keypad to highlight the Calculation Method drop-down list and press ENTER. Then, highlight the desired calculation method (Road or Direct) and press ENTER again.

6. If you want to start navigating against the edited route immediately, highlight the **Navigate** button and press ENTER.

   OR

   If you do not want to navigate against the edited route, press QUIT.

To View Route Directions

Route directions are only available when navigating against a route.

1. Ensure the Routes Page is displaying.
2. Highlight a route that you want to navigate and then press ENTER.
3. Highlight the **Navigate** button and press ENTER.
4. Press PAGE until the Route directions information displays.

To Reverse a Route

1. Ensure the Routes Page is displaying.
2. Use the arrow keypad to highlight the route that you want to reverse.
3. Press ENTER.
4. Press MENU.
5. Use the arrow keypad to highlight **Reverse Route** and then press ENTER. A new route is created from the Finish to the Start.

To Delete a Route

1. Ensure the Routes Page is displaying.
2. Use the arrow keypad to highlight the route that you want to delete.
3. Press ENTER.

Route Directions (only available when navigating)

4. Press MENU.
5. Use the arrow keypad to highlight **Delete Route** and then press ENTER. The route is deleted.

To Delete All Routes

1. Ensure the Routes Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight the **Delete All Routes** option and then press ENTER.

To Edit the Route Settings

1. Ensure the Routes Page is displaying.
2. Press MENU.
3. Use the arrow keypad to highlight the **Edit Route Settings** option and then press ENTER.
4. To change the calculation method, use the arrow keypad to highlight the **Calculation Method** drop-down list and then press ENTER. Then, use the arrow keypad to select the desired calculation method and press ENTER.
5. To change your back-on-track status, use the arrow keypad to highlight the **Back on Track** drop-down list and then press ENTER. Then, use the arrow keypad to select whether you want Back on Track on or off and press ENTER.

   Note: The back-on-track threshold function will prompt you to recalculate your route when you stray off course beyond the threshold distance specified (see step 6).

6. To change your back-on-track threshold, use the arrow keypad to highlight the **Back on Track Threshold** drop-down list and then press ENTER. Then, use the arrow keypad to select the desired distance and press ENTER.
7. To restore the route edit settings to their factory-set defaults, use the arrow keypad to highlight the **Restore Defaults** button and then press ENTER.

Route menu

Tip: Setting the back-on-track threshold to a large value will prevent excessive prompts. Setting the back-on-track threshold to a small value will provide a quicker notification when you are off course.

The Tracks Page

Using the Tracks Page
Earthmate GPS PN-20 is set to record GPS tracks by default. That means that the device will create a track ("breadcrumb trail") of your travels until you turn recording off. The breadcrumb trail will display differently based on your GPS status:

- While you have a 3-D fix, your track will display as a green line.
- While you have a 2-D fix, your track will display as a yellow line.
- While the GPS cannot acquire a fix, no points will be placed on the map. Points will be placed again once a 2-D or 3-D fix is established. If a GPS connection was established and lost, a red line indicates the last GPS location.

The Tracks Page lets you save, clear, or follow the current track, or view/follow an existing track. The device will store up to 10 track logs (with a 10,000 point limit each) in internal memory.

To Turn GPS Track Recording On/Off
1. Ensure the Tracks Page is displaying.
2. To turn GPS track recording on, highlight the **On** button and press ENTER. The button will appear indented.

   OR

   To turn GPS track recording off, highlight the **Off** button and press ENTER.

To Save the Active Track
Once you save the active track, a new active track will be created.

1. Ensure the Tracks Page is displaying.
2. Use the arrow keypad to highlight the **Save** button and then press ENTER. The Track Details Page displays.
3. To rename the track (the default name is in the date/time format: DD-MON-YY, HHMMSS and ends with "A" for AM or "P" for PM), highlight the Track field and press ENTER. Then, enter the track name using the keyboard.
4. To change the track display color, highlight the Color field and press ENTER. Select a color with the arrow keypad and then press ENTER.

Tracks Page

5. To add a comment to your track, highlight the Comments field and then press ENTER. Then, enter the comment information using the keyboard.
6. To view the track, highlight the **View** button and then press ENTER. **Note:** The View button toggles with the Hide button.

   OR

   To follow and create a direct route along the track, highlight the **Follow** button and then press ENTER.

   OR

   To delete the track, highlight the **Delete** button and then press ENTER.

To Follow a Track Back to Where It Started
1. Ensure the Tracks Page is displaying.
2. Use the arrow keypad to highlight the track you want to create a route from and then press ENTER.
3. Use the arrow keypad to highlight the **Follow** button and then press ENTER. The track is reversed and a route is created so you can follow your footsteps and return to where you started the track.

To Clear the Active Track
1. Ensure the Tracks Page is displaying.
2. Use the arrow keypad to highlight the **Clear** button and then press ENTER. The active track is cleared from the Earthmate GPS PN-20.
3. Press QUIT to return to the previous Page.

To Delete a Saved Track
1. Ensure the Tracks Page is displaying.
2. Use the arrow keypad to highlight the track you want to delete and then press ENTER.
3. Highlight the **Delete** button and then press ENTER. The track is deleted from the Earthmate GPS PN-20.

Track Details

To View a Saved Track

1. Ensure the Tracks Page is displaying.
2. Use the arrow keypad to highlight the track you want to view and then press ENTER. The Track Details Page displays. Track logs that displays with red text are visible on the map.
3. Highlight the **View** button and then press ENTER. The entire track displays on the map.
4. To stop viewing the track, highlight the **Hide** button and then press ENTER.

To Customize the Logging Preferences

Use the following steps to designate if you want the device to log GPS points based on time or distance intervals. Logging based on a short time interval will provide the most detailed results (but will also incur many points quickly). Logging based on distance will take much longer to fill the track, allowing a great distance to be recorded (as 10 feet is the shortest distance interval available).

1. Ensure the Tracks Page is displaying.
2. Press MENU.
3. Highlight **Edit Track Settings** and press ENTER.
4. Highlight the **Record Points By** drop-down list and press ENTER.
5. Highlight Time or Distance.
6. Press ENTER.
7. Highlight the **Recording Interval** field and press ENTER.
8. Use the arrow keypad to increase/decrease the recording interval value. If you selected Time in step 5, the recording interval is expressed in seconds. If you selected Distance in step 5, the recording interval is expressed in feet.
9. Highlight the When Track is Full drop-down list and then highlight **Overwrite Points** or **Stop Recording**. This option will determine how the device will react when the track reaches its maximum number of points. If you select the Overwrite Points option, the oldest points in the track will be replaced with new points. If you select Stop Recording, the device will stop recording points once it is full.
10. Press QUIT to return to the Tracks Page.

To Delete All Saved Track Logs

You can use the Track menu to delete all of the track logs you have saved on your device.

1. Ensure the Tracks Page is displaying.
2. Press MENU.
3. Highlight **Delete All Tracks** and press ENTER. A confirmation message displays.
4. Highlight **Yes** to delete all of the tracks and press ENTER.
5. Press QUIT.

Tracks menu

The Sun/Moon Page

Using the Sun/Moon Page

Use the Sun/Moon Page to view the sunrise/sunset and moonrise/moonset information as well as the moon phase information for your current GPS location. The current date and time also display at the top of the screen.

To Set the Time

Note: Setting the time in the Sun/Moon Page only affects the Sun/Moon values, not the device's time information.

1. Ensure the Sun/Moon Page is displaying.
2. Use the arrow keypad to highlight the **Time** field and press ENTER.
3. Use the arrow keypad to highlight the selected time field that you want to change. Once the number you want to change is selected, press the arrow keypad up to move the number up (or down for the reverse).
4. Press ENTER.

To Set the Date

Note: Setting the date in the Sun/Moon Page only affects the Sun/Moon values, not the device's date information.

1. Ensure the Sun/Moon Page is displaying.
2. Use the arrow keypad to highlight the **Date** field and press ENTER.
3. Use the arrow keypad to highlight the selected date field that you want to change. Once the number you want to change is selected, press the arrow keypad up to move the number up (or down for the reverse).
4. Press ENTER.

To View the Sun/Moon Graphics

The Sun/Moon graphics that display in the center of the Sun/Moon Page reflect the current sun/moon conditions (based on the time and date settings).

Sun/Moon Page

The graphic on the left shows the current position of the sun/moon (in relation to a compass). The gray bar represents the sun's shadow. The graphic on the right shows where the sun/moon currently is as it moves from east to west.

To View the Sun and Moon Rise/Set Information

The Sun/Moon rise and set information is found underneath the Sun/Moon graphics. The information displays the time that the sun and moon will both rise and set based on the current time and date settings. The Sun information is on the left and the moon information is on the right. The rise information displays on the top and the set information displays on the bottom. If the sun/moon does not rise/set on a specific date, dashes (- -) display in the applicable information fields.

To View the Moon Phase Information

The moon phase information displays based on the current time and date settings. It displays the name of the current moon phase as well as a graphic representation of it.

To Reset the Sun/Moon Page's Time/Date

If you have modified the time and/or date in the Sun/Moon Page, you can reset it to the device's time/date information using the steps below.

1. Ensure the Sun/Moon Page is displaying.
2. Press MENU.
3. Highlight **Reset Time and Date** and then press ENTER. The Time and/or Date fields update to the device time/date.

The Tide Page

Tide Page

Using the Tide Page

Use the Tide Page to view high and low tide information based on a specific time, date, and tide station.

To Get Tide Information for a Particular Time and/or Date

Note: Setting the time/date in the Tide Page only affects the Tide Page's values, not the device's time/date information.

1. Ensure the Tide Page is displaying.
2. To get tide information for a particular time, use the arrow keypad to highlight the **Time** field and press ENTER. Use the arrow keypad to highlight the selected time field that you want to change. Once the number you want to change is selected, press the arrow keypad up to move the number up (or down for the reverse). When finished, press ENTER.
3. To get tide information for a particular date, use the arrow keypad to highlight the **Date** field and press ENTER. Use the arrow keypad to highlight the selected date field that you want to change. Once the number you want to change is selected, press the arrow keypad up to move the number up (or down for the reverse). When finished, press ENTER.
4. Highlight the **Tide Station** drop-down list and press ENTER. The list of available tide stations displays. Highlight the desired station and then press ENTER.

   Once a tide station is selected, the High Tide and Low Tide fields display the tide information for the selected date/time. The graph at the bottom of the screen shows the high and low tide information for the entire day (midnight to midnight). The red dot in the tide graph indicates the time as selected in the Tide Page.

To Reset the Tide Page's Time and Date

If you have modified the time and/or date in the Tide Page, you can reset it to the device's time/date information using the steps below.

1. Ensure the Tide Page is displaying.
2. Press MENU.
3. Highlight **Reset Time and Date** and then press ENTER. The Time and/or Date fields update to the device time/date.

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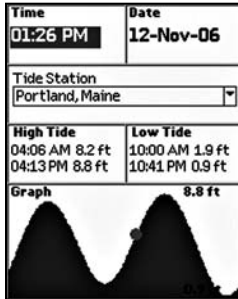
The Device Setup Page

The Device Setup Page options let you modify the default settings on the Earthmate GPS PN-20 such as the battery type, backlight settings, and more.

Modifying the Device Preferences

To Modify the System Settings

Use the following instructions to update GPS settings, WAAS status, battery type, and/or USB power setting.

1. Ensure the Device Setup Page is displaying.
2. Highlight the **System** option and press ENTER.
3. To update the GPS Settings, highlight the **GPS Setting** drop-down list and press ENTER. Select the desired GPS Setting and then press ENTER.
4. To update the WAAS Status, highlight the **WAAS** drop-down list and press ENTER. Select the **Enabled** option to enable WAAS use or select the **Disabled** option to disable WAAS use. Then, press ENTER.

   Note: In most cases, a WAAS signal provides greater accuracy than a non-WAAS signal.
5. To update the battery type, highlight the Battery Type drop-down list and press ENTER. Select the battery type you are using and then press ENTER.
6. To update the USB power setting, highlight the USB Power drop-down list and press ENTER. Select the **Enabled** option to enable USB power or select the **Disabled** option to disable USB power.
7. Press QUIT to return to the Device Setup Page.

To Modify the Display Settings

Use the following instructions to update the device's color scheme, backlight intensity, and/or backlight timer.

1. Ensure the Device Setup Page is displaying.
2. Highlight the **Display** option and press ENTER.
3. To modify the color scheme, highlight the **Color Scheme** drop-down list and press ENTER.

*Tip: When viewing the Device Setup preferences, you can highlight the **Restore Factory Defaults** option and then press ENTER to return all of the Earthmate GPS PN-20 settings to their "out-of-the-box" status.*

GPS Setting Options:

Normal: GPS acquires satellites and updates map once per second.

Power Saving: Reduces the backlight to 10% intensity and changes the backlight timer to 15 seconds.

Disable GPS: GPS is inactive while all other functions are available, appropriate for indoor use prior to departure.

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Display menu options

Interface menu options

Highlight the desired color scheme and press ENTER.

- Spring (green)
- Summer (yellow)
- Autumn (orange)
- Winter (blue)
- Midnight (high contrast-black/gray/dark blue; helpful for nighttime use)

4. To modify the backlight intensity, highlight the Backlight Intensity slider and press the arrow keypad to the right to increase the intensity level (or to the left to decrease the intensity).

5. To modify the backlight timer, highlight the **Backlight Timer** drop-down list and press ENTER. Highlight the desired time interval and press ENTER.

   Note: Decreasing the Backlight Timer will help to conserve battery life.

6. Press QUIT to return to the Device Setup Page.

To Modify the Interface Settings

Use the following steps to change the serial port and USB settings on the device. The setting you choose will be based on the type of cable you are using to connect the device to your computer, your computer's operating system, and if you are trying to access information on the removable media (SD) card.

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Interface** option and press ENTER.

3. If you are connecting the device to your computer via a serial cable, highlight **Enable Serial Port** and then press ENTER. A check mark in the Enable Serial Port check box indicates that the serial port connection has been activated.

   OR

   If you are connecting the device to your computer via a USB cable, highlight the **USB Setting** drop-down list and press ENTER. Then, highlight DeLorme or Mass Storage and press ENTER.

Notes:
- Mac and Linux users should always select one of the Mass Storage options as their USB setting (depending on if they are saving data on internal or removable memory).
- If you want to access the files on your SD card and you do not have an SD card reader, you will need to select **Mass Storage: SD/MMC Card** as the USB setting.
- Select DeLorme if you are using the device with compatible DeLorme mapping software.

4. Press QUIT to return to the Device Setup Page.

To Modify the Sound Settings

Use the following instructions to modify the device's button press sound, message sound, power sound, turn alert sound, and/or volume of all sounds.

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Sound** option and press ENTER.

3. To modify the button press sound, highlight the **Button Press** drop-down list and press ENTER. Highlight the desired sound type and press ENTER.

4. To modify the message sound, highlight the **Message** drop-down list and press ENTER. Then, highlight the desired sound type and press ENTER.

5. To modify the Power sound, highlight the **Power** drop-down list and press ENTER. Then, highlight the desired sound type and press ENTER.

6. To modify the turn alert sound, highlight the **Turn Alert** drop-down list and press ENTER. Then, highlight the desired sound type and press ENTER.

7. To modify the volume of all sounds, highlight the Volume slider control and press the arrow keypad to the right to increase the volume (or to the left to decrease the volume).

8. Press QUIT to return to the Device Setup Page.

Sound menu options

To Modify the Page Order Settings

Use the following steps to change the Page order, add a Page to the Page button sequence, and/or hide a Page.

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Page Order** option and press ENTER.

Page Order menu options

Time menu options

3. To change the Page order, highlight the Page you want to move up or down in the list. If you want to move the highlighted Page up in the list, use the arrow keypad to highlight the up button. If you want to move the highlighted Page down in the list, use the arrow keypad to highlight the down button. Then, press ENTER. Repeat this step for each Page you want to reorder.

4. To add a Page to the Page button sequence, highlight the Menu Option that you want to add as a Page. Then, press ENTER to select the check box next to the menu option. A selected check box indicates the option will display as a Page. Repeat this step for each standard menu option that you want to add as a Page.

5. To hide a Page, highlight the Page you do not want to view with the Page button (currently active Pages have a selected check box) and then press ENTER to clear the check box. Repeat this step for each Page you want to hide.

   Note: The Map Page cannot be hidden from the Page button sequence.

6. Press QUIT to return to the Device Setup Page.

To Modify the Time Settings

Use the following instructions to modify the device's time format, time zone, and/or Daylight Saving Time preferences.

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Time** option and press ENTER.

3. To modify the time format, highlight the **Time Format** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

4. To modify the time zone, highlight the **Zone** drop-down list and press ENTER. Then, highlight the desired time zone and press ENTER.

   Note: Selecting the Automatic option allows the device to update the time zone based on your current GPS location.

5. To select Daylight Saving Time, highlight the **Daylight Saving** field. Press ENTER to select or clear the Daylight Saving check box. When the check box is selected, the Earthmate GPS PN-20 will use Daylight Saving Time.

6 Press QUIT to return to the Device Setup Page.

To Modify the Units Settings

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Units** option and press ENTER.

3. To modify the primary coordinates, highlight the **Location: Primary** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

4. To modify the secondary coordinates, highlight the **Location: Secondary** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

5. To modify the datum, highlight the **Datum** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

6. To modify the measures, highlight the **Measures** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

7. To modify the bearing, highlight the **Bearing** drop-down list and press ENTER. Then, highlight the desired format and press ENTER.

8. Press QUIT to return to the Device Setup Page.
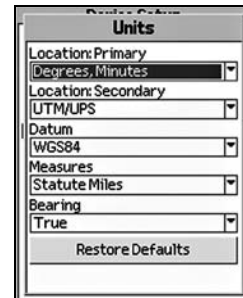
Units menu options

About this Device

The About This Device screen displays the serial, build, and version numbers for your Earthmate GPS PN-20. This screen contains the serial number you will need when downloading maps for the device.

1. Ensure the Device Setup Page is displaying.

2. Highlight the **About This Device** option and press ENTER.

3. Press QUIT to return to the Device Setup Page.

Restore Setup Defaults

If you want to restore all of the Device Setup preferences without going through each Device Setup option and selecting the Restore Setup Defaults option, use the steps below.

To Restore the Device Setup Defaults

1. Ensure the Device Setup Page is displaying.

2. Highlight the **Restore Setup Defaults** option and press ENTER.

3. Press QUIT to return to the Device Setup Page.

Restore Factory Defaults

The Restore Factory Defaults option in the Device Setup screen restores all of the settings on the Earthmate GPS PN-20 to their "out-of-the-box" status and also deletes all tracks, routes, waypoints, etc.

Appendix A

Below is a table which provides an overview of what you can view/do on each Page as well as each Page's Menu functions:

With this Page...	You Can...	And Use the Page's MENU to...
Satellite	View the: • GPS status • WAAS status • GPS accuracy • Satellite constellation • Satellite signal graph • Battery indicator	• Disable/Enable GPS • Set the current location
Map	View: • Various types of map data • The scale bar for the current map • The North arrow (only available when Course Up is selected as the map orientation and the map is not North Up) • Your current GPS status • Your direction of travel	• Show/hide/arrange/change/restore information fields • Measure the distance/area of a user-drawn line/polygon • Show/hide map packages • Prioritize map data • Change the map orientation • Change the level of POI detail • Use small POI symbols on the map • Stop navigation (if in Navigation mode)
Compass	View heading/bearing information	• Hide/arrange/change information fields • Stop navigation (if in Navigation mode)

With this Page...	You Can...	And Use the Page's MENU to...
Trip Info	View user-selected information	• Change/reset information fields • Show large text in the information fields (which displays three large fields) • Reset trip values • Modify how the Trip Info Page is displayed • Stop navigation (if in Navigation mode)
Find	• Find a waypoint • Find a POI • Find natural feature • Find an address • Find a coordinate • Find a street/trail • Find a city • View the search history	• Set your search options to "Find By Name" or "Find Near Map Center" • If "Find By Name" is the chosen method, can choose to narrow the search with "Contains" or "Begins With" parameters
Waypoints	• Mark a waypoint on the map • View a list of waypoints • Edit a waypoint • Navigate to a waypoint • Center a waypoint on the map • Delete a waypoint • Average a waypoint	• Delete waypoints on the device

With this Page...	You Can...	And Use the Page's MENU to...
Routing	• Create a route • Rename a route • Edit a route • View route directions	• Reverse a route • Delete a route • Delete all routes on the device • Edit the route settings • Simulate a route • Stop navigation (if in Navigation mode)
Tracks	• Turn tracking on/off • Save a track • Return to the track start • Clear the current track • Delete an existing track • View an existing track • Navigate to a track start	• Customize logging preferences • Delete all tracks • Start/stop track playback
Sun/Moon	• See the device time • See the device date • View sun/moon rise/set information • View moon phase information	• Reset the Sun/Moon time/date
Tides	View tide information based on a particular time/date for a particular tide station	• Reset the Tides time/date

With this Page...	You Can...	And Use the Page's MENU to...

Device Setup	You must use the MENU functions to modify the device settings	• Turn the GPS on/off
		• Turn WAAS status on/off
		• Select a battery type
		• Select a color scheme
		• Select the backlight intensity
		• Select the backlight timer
		• Change the serial port status
		• Change USB settings
		• Selecting sounds
		    ○ Button press
		    ○ Message
		    ○ Power
		    ○ Turn alert
		    ○ All sounds
		• Modify Page Order
		    ○ Change
		    ○ Add a Page
		    ○ Hide a Page
		• Modify Time
		    ○ Time format
		    ○ Time Zone
		    ○ Daylight Saving Time
		• Modify Units
		    ○ Primary coordinates
		    ○ Secondary coordinates
		    ○ Datum
		    ○ Measures
		    ○ Bearing

Appendix B

Physical Specifications

Case: IPX-7 waterproof, impact resistant

Size: 5.25" x 2.43" x 1.5"

Weight: 0.33 lbs (0.44 lbs with 2, AA batteries) or 5.28 ounces (7.04 ounces with 2, AA batteries)

Display: 176 x 220 daylight-readable TFT

Technical Specifications

General

Receiver: WAAS-enabled (SBAS) NMEA-compliant 12-channel receiver

Warm start: < 38 seconds

Hot start: < 3 seconds

Power Consumption: 550mW with no backlight, 825mW with full backlight; Li-Ion battery charging 1400mW

Update Rate: 1/second continuous

Interfaces: USB DeLorme Binary, USB Mass Storage, RS232 w/NMEA 0183

Maximum Velocity: 1000 knots

Operating temperature range -20 °C to +70 °C

Storage temperature range -40 °C to +85 °C

Low-power baseband and RF chip set (RF chip based on the ultra-low-power silicon-germanium BiCMOS process)

Advanced high-sensitivity algorithms for superior tracking in urban environments

Proprietary Kalman filter for enhanced position accuracy

Superior noise rejection for high EMI environments

Built-in antenna

FCC Certification

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Dispose of used batteries according to the manufacturer's instructions.

Warning

Do not damage the rechargeable lithium-ion battery. A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage, and so on.

Limited Warranty

DeLorme warrants that your *Earthmate GPS PN-20* will be free from defects in materials and workmanship for 1 year from the date of purchase. If your *Earthmate GPS PN-20* fails in normal use, DeLorme will, at its sole option, either repair or replace the unit. DeLorme reserves the right to either repair or replace the unit with a new or refurbished unit at its sole discretion.

Such repairs or replacements will be made at no charge for labor or materials; however, the customer will be responsible for any shipping charges incurred to send the device to DeLorme. The repaired or replaced product will be warranted for 90 days from the date of return shipment, or for the balance of the original warranty, whichever is longer. This warranty does not cover failures due to abuse, misuse, accidents, or unauthorized disassembly or modification. Any repairs not performed by DeLorme will void this warranty.

DELORME DISCLAIMS ANY LIABILITY FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF REVENUES OR PROFITS, EVEN IF DELORME HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THIS LIMITED WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY AND ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, SHALL LAST FOR 1 YEAR.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of relief such as incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This warranty applies to the original purchaser of the product ONLY.

REMINDER: Be sure to retain the sales receipt proving the date of your original purchase. This will be needed if warranty service is ever required. DeLorme reserves the right to refuse warranty if a receipt is not provided or if the receipt is incomplete/illegible.

Service Plan

Before a product can be returned, you must contact DeLorme Support at 207-846-8900 to determine if a return is necessary and request a Return Material Authorization (RMA) tracking number.

The following information must be provided to obtain warranty service:

- A copy of the sales receipt from the original retailer
- The serial number of the Earthmate GPS PN-20
- The Return Material Authorization (RMA) tracking number that you received when you called DeLorme Support
- Your return shipping address
- Your daytime telephone number

If you have contacted DeLorme Support and have been instructed to send the device in for warranty service, send the unit to:

DeLorme Earthmate GPS PN-20
Service Department
2 DeLorme Drive
Yarmouth, ME 04096 USA

For the latest warranty and repair information, visit www.delorme.com/gpsrepair.

Copyright Information

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DeLorme Contact Information

Technical Support

Visit www.delorme.com/support to access the DeLorme Technical Support Knowledge Base, get answers to frequently asked questions, or for additional support information. If you cannot find an answer to your problem on the site, please call 207-846-8900 to speak to a Technical Support representative. Note: DeLorme Technical Support does not provide product training.

Customer Service

For general questions about returns, order status, or problems with shipments, phone 800-511-2459 (Monday thru Friday) or e-mail us at sales@delorme.com.

Direct Sales

To place additional orders, phone 800-561-5105.

Appendix C

Waypoint Symbols

American Flag	Birch Tree	Danger
Anchor	Bird Tracks	Deciduous Tree
Animal Tracks	Bird	Deer Tracks
Arrow, Down-left	Boat Launch	Deer
Arrow, Down-right	Bridge	Dining
Arrow, Down	Building	Diver Down
Arrow, Left	Buoy	Dog Sledding
Arrow, Right	Camera	Downhill Skiing
Arrow, Up-left	Camper	Drinking Water
Arrow, Up-right	Canoeing	Duck
Arrow, Up	Car	Evergreen Tree
Ballpark	Cave	Exclamation
Beach	Cemetery	Exit
Bear	Church	Fire Hydrant
Bicycling	Cross-country Skiing	Fire
Binoculars	Dam	First Aid

Waypoint Symbols

Fish	Jeep	Public Airport
Fishing Pole	Kayaking	Radio Tower
Flower Garden	Lighthouse	Railroad Crossing
Four-wheel ATV	Lodging	Restroom
Gas Station	Military Airport	Sailboat
Geocache Found	Military Base	School Bus
Geocache	Mining	School
Glider Area	Money	Shelter
Golf Course	Moose	Shipwreck
Health Facility	Motor Home	Shooting
Heliport	Mountain	Shower
Hiking	Parking	Snowmobile
House	Picnic Table	Stop
Ice Fishing Trap Set	Police	Swimming
Ice Fishing Trap Up	Post Office	Telephone
Ice Skating	Powerboat	Tent
Information	Private Airport	Toll Booth

Waypoint Symbols

- Tow Truck
- Traffic Light
- Truck
- Tunnel
- Waterskiing
- Flag (available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

- Push Pin (available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

- Dot (available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, gray, and dark gray)

- Small Dot (available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, gray, and dark gray)

- Green Star
- Red X
- Turquoise Circle
- Yellow Square

Glossary

Back on Course—The direction of travel needed to return to the course.

Base Map—A low-detail map which comes pre-loaded on the Earthmate GPS PN-20.

Battery Life—The percentage of battery life that is left on the device.

Bearing—The direction of travel from the current location to the destination.

Coordinates—The current GPS location, cursor position, or map center.

Course—The direction of travel from the starting location to the destination.

Differential GPS (DGPS)—A technique to improve GPS accuracy that uses pseudo-range errors recorded at a known location to improve the measurements made by other GPS receivers within the same general geographic area. For more information, see *WAAS*.

Distance to Finish—The distance from the current location to the route finish.

Distance to Next Stop—The distance from the current location to the next stop in the route.

Distance to Next Turn—The distance from the current location to the next turn in the route.

Elevation—The height above or below sea level.

Elevation (Maximum)—The maximum elevation achieved.

Elevation (Minimum)—The minimum elevation achieved.

ETA at Finish—The estimated time of arrival at the route finish.

ETA at Next Turn—The estimated time of arrival at the next turn.

ETA at Next Stop—The estimated time of arrival at the next stop.

GPS—See *What is GPS* on page 6.

GPS Accuracy—The calculated accuracy of the GPS.

GPS Status—The current status of your GPS device (No Fix, 2-D, 3-D, etc.).

Heading—The current direction of travel.

Latitude—Position north or south of the equator in degrees; degrees, minutes; or degrees, minutes, seconds.

Longitude—Position east or west of the prime meridian in degrees; degrees, minutes; or degrees, minutes, seconds.

Mark—The action of placing a waypoint on the map.

Odometer—The total distance traveled in all trips.

Orientation—The alignment of a map relative to the points of the compass.

Scale—The relationship between the extent of features in the real world and the size at which they are portrayed on the map. The scale on the Earthmate GPS PN-20 is a linear graph/bar that is divided into units of actual distance on the portion of the earth represented by the map.

Speed—The current rate of travel for the device.

Speed (Average)—The average speed of the device including stop time.

Speed (Maximum)—The maximum speed achieved.

Speed (Moving Average)—The average speed of the device excluding stop time.

Time to Finish—The calculated time to the route finish based on the road classifications and default speed settings.

Time to Moonrise/set—The time remaining until the moon rises and sets.

Time to Next Stop—The estimated time to the next stop in the route based on the road classifications and speed settings.

Time to Next Turn—The estimated time to the next turn in the route based on road classifications and speed settings.

Time to Sunrise/set—The time remaining until the sun rises and sets.

Trip Odometer—The total distance the GPS device has been moving.

Trip Time Moving—The total time the GPS device has been moving.

Trip Time Stopped—The total time the GPS device has been tracking, but not moving.

Trip Time Total—The total time the GPS device has been tracking, both moving and stopped.

Velocity Made Good—The component of the current velocity (speed) that is in the direction of the destination.

Vertical Speed—The current rate of vertical travel for the device.

Waypoints—Marked positions with specific coordinates.

Wide Area Augmentation System (WAAS)—A program developed by the Federal Aviation Administration to enhance the accuracy of GPS receivers, usually to within three meters of actual position, by providing a modified GPS signal. After calculating the error factor at ground control stations through the U.S., the corrected signal is transmitted to two geostationary satellites that in turn transmit the GPS signal back to earth. For more information, see *Differential GPS (DGPS)*.

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